Myographia nova; or, a graphical description of all the muscles in [the] humane body as they arise in dissection. Distributed into six lectures ... Together with an accurate and concise discourse of the heart and its use; as also of the circulation of the blood, and the parts of which the sanguinary mass is made and framed / Written by ... Dr. Lower.

Contributors

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MYOGR-

APHIA

NOVA


R. White fecit.
Joannes Browne
Regius Chirurgus Ordinarius.
Ætatis suæ 54. Ano. Dom. 1696.

Myographia Nova:

OR, A

Graphical Deſcription

Of All The

MUSCLES

IN

HUMANE BODY,

As they ariſe in Diſſection:

Diſtributed into Six Lectures;

At the Entrance into every of which,

Are demonſtrated the *Muſcles* properly belonging to each *Lecture* now in General Uſe at the *Theatre* in *Chyrurgeons-Hall, London*; And Illuſtrated with One and Forty Copper Plates, Accurately Engraved after the Life, with their Names on the *Muſcles*, as much as can be expreſſed by *Figures*: As alſo, with their Originations, Inſertions, Uſes, and divers New Obſervations of the Authors, and other Modern Anatomiſts.

TOGETHER,

With an Accurate and Conciſe DISCOURSE of the HEART, and its Uſe; As alſo of the CIRCULATION of the BLOOD, and the Parts of which the Sanguinary Maſs is Made and Framed. Written by the late Learned Dr. *Lower*.

Digeſted into this New METHOD,

By the Care and Study of *JOHN BROWNE*, Sworn Chyrurgeon in Ordinary to the KING's Moſt Excellent Majeſty, and Late *Senior* Chyrurgeon of His Majeſty's Hoſpital of St. *Thomas, Southwark*.

——— *Si quid noviſti, rectiùs iſtis*
Candidus Imperti; ſi non, His utere Mecum.

LONDON,
Printed by *Tho. Milbourn*, for the AUTHOR, 1697.

TO THE

King's Most Excellent Majesty,

William III.

By the Grace of God, of

England, *Scotland*, *France* and *Ireland*,

KING,

Defender of the Faith, *&c.*

DREAD SIR,

AS there is no Study which affords that Variety of Discoveries towards the Publick Good and Preservation of Mankind, as doth this of *Anatomical Disquisitions*, so neither is there any Subject which seems to receive a readier Warmth in the Sacred Bosome of Princes, than that which presents to them the Divine Wisdom, and admirable Contrivance of the Supreme Architect in thus framing Man, and the well disposing of all his Parts into that excellent Order, Symmetry and Figure, we see they obtain; the true understanding whereof, being not only of great Advantage towards our knowing this Our Divine Benefactor, but of our selves also, who are the *Wonderful Works of His Hands*.

This *Treatise* of mine, (GREAT SIR,) which humbly presents its self to Your Sacred Hand, is but a Part of this Great Study, or rather a bare Representative of all the *Muscles* in Humane Body, Engraved

graved and Deſcribed in Minuiture, with their faint Lines and thin Shadows, ſcarce able to bear their own Names and Inſcriptions, whilſt in Your *Sacred Majeſty* are illuſtrated their Divine Movings, and Glorious Actings, not only in the Nobleſt Sphere, but in their Trueſt Life, and Higheſt Perfection.

And ſince from Your Immenſe Goodneſs and Royal Favour, We Your Subjects, at this day derive both Our Peace, and Our Safety, whilſt Our *Neighbouring Nations* are made ſufficiently ſenſible of the direful Effects of a Bloody War abroad, How ought We dayly to implore the Great Monarch of Heaven's Benediction for Your *Sacred Majeſty*, that He would always preſerve and ſecure You under the Wing of His Protection, and that You may dayly ſee Your Enemies diſperſing themſelves like ſcattering Clouds crumbling into Atomes?

As all Your Actions, SIR, are as ſo many Lawrels encircling Your Illuſtrious Name; ſo, when Greatneſs its ſelf ſhall be ſhrivell'd into nothing but a cold Remembrance, Your Princely Valour, and Your Glorious Atchievments, muſt make future Ages for ever acknowledge You the Greateſt General that ever liv'd in this.

That Your *Sacred Majeſty* may never want a Divine Guard to defend You abroad, nor the Hearts of your Subjects to ſecure You in Safety in your Royal Throne at home, is the humble Deſire, and dayly Prayer of,

YOUR MAJESTY's
Loyal Subject, and moſt
Obedient Servant,

JOHN BROWNE.

William R.

WILLIAM *the Third, by the Grace of God,* KING *of* England, Scotland, France *and* Ireland, *Defender of the Faith,* &c. *To all Our Loving Subjects, of what Degree, Condition or Quality ſoever, within our Kingdom and Dominions, Greeting, Whereas it hath been manifeſted unto Us, that Our Truſty and Well-beloved* JOHN BROWNE, *Eſq; one of Our* Chyrurgeons *in Ordinary, hath not only with great Art, but at the Expence of much time, Delineated, Deſcribed, and Accurately Engraved in Copper Plates,* A Graphical Deſcription *of all the* MUSCLES in Humane Body; *which Performance of his, is to Our great Liking and Satisfaction: So that We may expreſs Our Approbation thereof, and give him all due and ample Encouragement for the future,* We *do hereby ſignifie Our Royal Pleaſure, Granting unto the ſaid* JOHN BROWNE, *the ſole Priviledge of Printing the aforeſaid* Treatiſe, *with its Copper Figures Accurately Engraved after the Life, with their Names on the* Muſcles, &c. *And ſtrictly Charging, and Forbidding all our Subjects, to Copy or Counterfeit any of the Sculptures or Deſcriptions, either in great or ſmall, or to import, Buy, Vend, Utter or Diſtribute any Copies, or Examplers of the ſame Reprinted beyond the Seas, within the Term of Fifteen Years enſuing the Date of this Our Licence and Prohibition, without the Conſent and Approbation of the ſaid* JOHN BROWNE, *his Heirs, Executors, or Aſſigns, as they and every of them ſo offending, will Anſwer the contrary at their utmoſt Perils: Whereof, as well the* Wardens *and* Company of Stationers *of Our City of* London, *the* Farmers, Commiſſioners *and* Officers *of Our Cuſtoms, as all other Our* Officers *and* Miniſters *whom it may concern, are to take particular Notice, That due Obedience be given to this Our Royal Command. Given at Our Court at* Kenſington *the* 25th. *Day of* October, 1696. *in the Eighth Year of Our Reign.*

By His MAJESTY's Command,
WILL. TRUMBULL.

IMprimatur hic LIBER, [cui Titulus, MYOGRAPHIA NOVA, &c.]

Thomas Millington, Præses,

Thomas Burwell,
Richard Torlesse,
William Dawes,
Thomas Gill,
} Censores.

Datur ex Ædibus Collegii 9 die *Aprilis*, 1697.
Nostri in Conciliis Censoriis.

To his GRACE,

WILLIAM

Duke of Bedford, *Marqueſs of* Taviſtock, *Earl of* Bedford, *Lord Ruſſell, Baron Ruſſell of* Thornhaugh, *Lord Lieutenant, and* Cuſtos Rotulorum *of the County of* Middleſex, *Lord Lieutenant of the Counties of* Bedford *and* Cambridge, *Knight of the moſt Noble Order of the Garter, and One of his* Majeſties *moſt Honourable Privy Council.*

May it pleaſe Your Grace,

AS in the *Macrocoſm* or greater *Orb*, The Sun doth diffuſe its Light and Warmth to all Inſects and Vegitables: And as the Ocean ſends forth it ſupplies by its ſecret Crannies and Rivulets to the leſſer ſtreams, and each of theſe are ſeen, to pay back their Fealties by their reflux; whereby the Earth is kept up, and preſerved in its due Order and Beauty: So in Man (the *Microcoſm*) is treaſured up the lively Streams of Blood and Spirits, by which the whole Theatre of the Body is preſerved and continued.

Nor are the *Arteries*, *Veins*, *Nerves*, *Muſcles*, &c. of greater Uſe and Service to the Body natural, than is your Grace in the Body Politick; ſince Princes and Noblemen have been in all Ages eſteemed as the Sacred Heads, and Illuſtrious Fountains of Learning and Wiſdom.

And hence it is, MY LORD, That Men of Our Art, as well as thoſe of other Profeſſions, do take Encouragement to lay out our ſelves for the General Improvement of Knowledge, for the Publick Good of Mankind.

It being by Your Auſpicious Generoſity, that our Care and Studies, are taught how to arrive at ſome uſeful Maturity in that ſort of Learning, in which Our Induſtry

hath been thus encouraged by Your Graces Care and Protection.

My Lord, as you are not only the Illustrious Heir of the Fortunes, and incomparable Merit of Your Ancesters, who have been ever eminent for Vertue and Prudence; so if the Actions of Noblemen may be granted the Subject of History, Your Graces Loyalty to your Prince, and Your Service to your Country, besides your endearing Civility to those who have had the Honour of knowing you, will always entitle you, Your Princes Favourite, a Support of the Government, an Example to your Equals, and the Admiration of your Inferiours.

As your Grace therefore among your other Vertues, hath always been esteemed a great Admirer of Industry, and a true Encourager of all Arts and Sciences: This *Graphical Discourse* of the *Muscles* (next to his Majesty) doth humbly present its self to your Graces impartial Censure; wherein I do not presume from your Lordship, that Favour which the best of men will not, or the greatest cannot give; that your Grace will please to protect any Errors (which may happen in my Book) against the Force of truth; but only where the Great, and the Wise do usually allow their Approbation: I may have the Honour of yours; and from thence take this publick Occasion to let the world see, how much I am obliged to your Graces Generosity, and Goodness, in thus vouchsafing me your Umbrage to the better part hereof, and your forgiveness to the rest.

I Am,

Your GRACES

Most Faithful, and

most Obedient Servant

JOHN BROWNE.

The Preface.

KIND READER,

THere *is nothing affords greater Light into the Myſterious Receſſes of the* Supreme Architect, *than the true Knowledge and Underſtanding of the Frame, and admirable Structure of the parts of Humane Body.* Man *being made as a* Stately Pile *finely built up, and curiously wrought into variety of parts, wonderfully put together, in due order, frame and ſymmetry.*

In his upper ſphere, are planted all the Faculties, viz. *his* Senſe, Will, Reaſon *and* Underſtanding, *as in their proper Repoſitories, diſplaying and diffuſing of their benign Emanations to the other parts of the Body; and theſe in reciprocal return, paying back their* Overplus *to them, as to their* Center *and* Head, *whilſt the remaining part thereof is conveyed to parts aſſigned for receiving the ſame; upon the tracing of which, we come to learn and underſtand their principal Uſes and Offices, as to their Primary Ends and Perfections.* In Man's upper Region.

Whoever therefore hath been much converſant in diſſecting of Bodies, cannot deny, but that Anatomy *is well worth his Care and his Study, it very much conducing towards the knowing of our Wiſe* CREATOR, *and of our ſelves alſo,* who are the Wonderful Works of his Hands; *by which are ſhewn his unſpeakable Wiſdom and Power, in thus forming* Man *with that Harmony of ſimilar and diſſimilar Parts.* The Benefit of Anatomy.

By this alſo are found out all the Connexions of the Bones, which are framed and compoſed as the Pillars

of the Body, *and the* Centers *of Motion; how they are formed into* Joynts, *or* Articulations, *mutually bound together by* Ligaments, *and enlarged by* Cartilages; *how they are cover'd with* Membranes, *and cloathed with* Muſcles.

There is nothing more certain, than that by careful and curious Diſſections, *great Diſcoveries have been made in the Body of* Man, *much improving the Art of* Phyſick, *but much more ours of* Chyrurgery; *by the which we come to know the various Differences of* Fibres, *their Variety of Poſitions, and Diverſity of Situations.*

It's by this Art *alone, that all the* Meanders *and ſecret Lodgments of the* Heart *have been found out, by whoſe Streams of Warmth and Life, the* Vital Blood *is diſpers'd and ſent through its* Arteries, *as through ſo many hollow* Tubes *into all the Parts of the Body, made for keeping up our gentle* Flame *of* Life, *which is more fully Treated of in the* Appendix, *at the End of this my* Muſcular Diſcourſe.

By this the Lower Belly *alſo, with all its Parts, both* Inwards *and* Outwards, *are diſcovered to us, with their Uſes and Offices.*

And becauſe our preſent Treatiſe *doth more nearly relate to the* Muſcles, *than any other Part of* Anatomy, *We ſhall firſt enquire what Parts are more properly allowed belonging to a* Muſcle, *and then declare to you their true Uſes, and for what Offices they were at firſt deſign'd by* Nature.

Whence it takes its Name.

A Muſcle *by the* Greeks *hath its Name of* Μῦς, ἀπὸ τῦ μυεῖν, *from its* Contracting Faculty, *or from the Similitude that ſome* Muſcles *do carry with an excoriated or flead* Mouſe, *both as to its Head, Venter and Tayl; tho' others as readily ſay, that it doth*

doth not much irreſemble the Muſcle-Fiſh, *as* Diemerbroeck *writes in his fourth Book, Page* 492, de Muſculis.

As every Muſcle *doth ſeem as a* diſtinct Body, *ſo hath it allowed it a* diſtinct Coat, *ſpun out of many* Nervous *and* Tendinous Fibres, *theſe carrying in them a Correſpondence with thoſe of the* Body *of the* Muſcles, *and their Terminations; ſo that any one particular* Muſcle *may not irrationally be allowed a* Syſtem *of various ſmall* Fibres *cloſely wove together, they only having a differency of Parts in their Middle, from that of their Extremities.* A Muſcle is a diſtinct body.

As to its Structure *and* Make, *it is granted by all* Anatomiſts *to be an* Organick Body, *framed out of ſolid and liquid Parts; towards the true Compoſition of which, theſe following are unanimouſly granted to be allowed it,* viz. Membranes, Arteries, Veins, Lymphaducts, Glands, Fleſhy *and* Nervous Fibres; *every* Muſcle *moreover having given it a proper* Membrane, *to keep it from adhering to its Neighbouring Parts, ſo made on purpoſe for keeping them in their proper Places, and alſo for their greater Security and Defence.* Its Structure.

That we may proceed in this our Preface *in that Method* Nature *at the firſt framed the* Parts, *we are firſt to Conſider the* Outward Parts *of the* Body, *that we may with more Eaſe make a clearer way to the* Muſcles *themſelves; and here we ſhall find, upon tracing the Parts aright, That our two firſt uſeful Coverings which* Nature *hath Cloathed the* Body *with, do firſt preſent themſelves to our view, the one commonly call'd* Membrana Adipoſa, *and the other* Membrana Carnoſa; *the firſt taking its Name from its Fatty Subſtance, which indeed is no otherwiſe*

than a Muſcular Expanſion, *covering the* Fat *lodged immediately under the* Cutis, *as with a* Garment, *which being plentifully ſtockt with* Nervous Fibres, *do beſtow upon it an exquiſite Senſe.*

The other Membrana Carnoſa *being planted between the* Adipoſa, *and the* Muſcles *of the Body, as a* Medium *between both, is allowed to cover our* Muſcles, *as our Garments do cover our* Bodies, *keeping the Skin in its proper place; And this we have from* Nature *her ſelf, who hath made this part partly of* Nervous Fibres, *ſome whereof are ſent into it with ſtraight Lines running lengthways, others with Circular Lines, marching Horizontally, and others with Bevil Lines, making their Oblique Progreſs therein, as Dr.* Collins *well obſerves. So that theſe interſecting each other, do hereby conſtitute and frame a fine* Membrane *or* Covering *for the* Muſcles; *whoſe* Fibres *being as ſo many minute and round Bodies, cannot be ſo cloſely put together, but that there muſt be ſome Interſpaces left between them, which* Nature *ſupplies, and fills up with a concrete* Animal Liquor *adhering to the ſides of the aforeſaid ſmall* Fibres, *working it into a plain, and ſo conſequently more eaſie to its Neighbouring parts, as* Borellus *worthily obſerves.*

The common Coat of the Muſcles.

The common Coat of the Muſcles, *is a* Membranous Contexture, *made and wrought up of many* Nervous Fibres, *finely ſpun, and cloſely interwoven together, framing a Smooth and Tranſparent* Membrane *immediately enwrapping the* Muſcles *of the Body. Having preſented the* Reader *with the* Membranes, *we next arrive at the* Veſſels *given to the* Muſcles. *viz.* Arteries, Veins, Nerves, Lymphaducts *and* Glands.

Each

Each Muſcle *hath given it* Arteries, *which are framed as ſo many* Tubes *or* Concave Bodies, *formed out of many* Circular Fibres, *running thro' their* Trunks, *conveying a* Vital Liquor *in them, by which the* Muſcle *is both enlivened and kept warm, and the* Blood *being preſt forwards by theſe, doth communicate of its* Salutiferous Nectar *to all the parts of the Body.* Arteries are allowed it.

Its Veins *it receives into it, are as its proper* Sanguiducts, *which do ſerve to conveigh and bring back the* Blood *from the* Circumferential Parts *to the* Center, *from the extream parts of the Body to the Heart, which firſt being received into the* Capillaries, *is afterwards let into the greater* Branches *warming the parts all along in its Paſſage.* It hath Veins

Its Nerves *it takes into it, are the Product of* Spermatick Threads, *ſpun into a very fine Contexture, in which are lodged the* Nervous Liquor *and* Animal Spirits, *they being framed as the uſeful* Conveyancers *and* Diſpencers *of the ſame* Liquors *from the* Brain *to the* Muſcles; *by whoſe* Elaſtick Spirits, *the* Muſcles *being cheriſhed and refreſhed, they become Tenſe and Plump, and their fleſhy* Fibres *hereupon are ſeen to contract; upon which Contractions alſo, the different Motions both of the* Trunk, *and the* Artus, *are exerciſed and employed, the Bodies of the* Muſcles *being herewith endewed and liquored* Its Nerves.

It takes its Lymphaducts *into it, to keep it moiſt; and theſe are as ſo many tranſparent* Contextures *formed out of the* Veſſels, *and framed out of numerous diminitive* Fibres, *cloſely ſet together, looking like parts all of a peice, uniform in Subſtance, and tranſparent to View, they hanging* Its Lymphaducts.

upon the Coats of the Veſſels, as ſo many ſmall Tubes, covered with a thin skin fill'd with Valves, which when broken, a tranſparent Liquor is ſeen to iſſue thence.

Its Glands. The Glands allowed it, are ſmall Bodies ſpun out of numerous diminitive Veſſels, cloſely intermixing themſelves with one another; and theſe are framed as ſo many Repoſitories to receive and conveigh a different Liquor, both to the Nervous Juyce and Animal Spirits, which by ſucceſſion of Matter being driven through the proper Paſſages, is firſt prepared in theſe, and afterwards ſent from them by divers ſmall Tubes, through the Carnous Fibres of all the parts of the Body, as Bolton ingeniouſly obſerves.

Fleſhy and Tendinous Fibres. The Fleſhy and Tendinous Fibres are the moſt conſiderable Parts which do eſſentially make up the Body of the Muſcle; Galen indeed ſaith, that a Tendon is a diſſimilar Body, and a Contexture made from Ligamentary and Nervous Fibres running into one Body, and the Nerve entring the Muſcle, being branched into many minute Fibres, intermixing themſelves with diverſe Ligamentary Fibres, doth both embrace and embody them; and theſe running along the Tendon even to its Termination, doth there frame a ſtrong Tendon: Which Opinion, both Bauhine, Silvius, Diemerbroeck, and ſome others, do ſeem to favour.

Nature having ſent into theſe Parts, ſome concreted Particles of Blood (commonly called Fleſh) planted in the Interſpaces of the Tendinous Fibres, do ſtuff them up, and keep them from breaking; for the ſtronger, and the more fleſhy the Muſcle is, as Diemerbroeck obſerves, the leſs ſubject it is to break, or rend, in compariſon of that which is thin and emaciated.

Now

No fleshy Fibres without Blood Vessels.

Now whereas there are no Fleshy Fibres *but what are furnished with* Blood Vessels, *and* Nervous Fibres *branching themselves through all the parts of the Flesh, (Flesh its self being nothing else than a curious Contexture formed out of the various Ends of* Vessels*) among which, neither* Arteries, Veins, *or* Lymphaducts, *can pretend to have any share of motion, they being at the first framed only as so many* Tubes *or* Trunks *to import and export the* Blood *and* Lympha; *Hence therefore the Motion of the* Muscles *must necessarily be granted to be in the* Tendinous Fibres, *and not in the* Fleshy Fibres, *which are nothing else but a soft reddish Substance, facing and interlining the Interspaces of the* Sanguiducts, *whilst the* Nervous *and* Tendinous Fibres, *which do not make that part of the Body of the* Muscle, *as do the others which are both larger and more Fibrous, ought rather to be esteemed our proper Instruments of motion.*

The fluid Parts of the Muscle.

The fluid Parts of the Muscle *are allowed* Liquors *of several Kinds and Natures, as* Blood, Nervous Juyce, *and* Lympha; *the first giving it Life, the second Sense and Motion to the solid parts; and the third allowed useful for diluting the* Chyle.

What Blood is

The Blood *being one of our Principal* Liquors, *for the refreshing and reviving the whole* Body *with Life and Warmth, carrieth in it a* Red Crassament, *(of which the more Fibrous and thicker part having once lost its due* Circulation) *doth soon coagulate; this* Liquor, *I say, being formed out of Sulphureous and Saline Particles, well digested by* Heat, *doth in process of time become tinged with a reddish Colour, and this plumping up the Body of the* Muscle, *which was first of a quite different Colour, as being whitish,*

tiſh, and produced out of ſeminal Liquor, *in proceſs of time does hereby arrive at a deep Red; which Tincture enobling the Body of the* Muſcle, *is produced by the Sweet, Oyly, and Saline* Particles *it takes from the* Vital Spirits, *much reſembling ſuch a Tincture as is uſually made from an Infuſion of red Roſes with Spirit of* Sulphur.

Involuntary Motion.

That the Spontaneous Motion of our Muſcles, *doth wholly depend on the Will, the very Name it ſelf doth declare; but then that Inſpontaneous Motion is quite different from this, is hence apparent, in that, as the* Pores *of the* Brain *are dilated according to our Inclinations or Appetites, and the* Animal Spirits *here making a quicker Flux than ordinary, filling the* Fibres *with a ſufficient quantity of ſubtile* Liquor, *which do diſtend them ſo as to make a Paſſage through them; So the* Pores, *which do lead to the* Nerves, *ſerving for Inſpontaneous* Motion, *are ſo propagated, that they convey and take into them ſuch a convenient Quantity of* Animal Spirits, *which can give them this their perpetual Motions.*

And whereas theſe Pores *are ſo propotioned, as that they want no ſhare of* Organic Motion, *which our Inſtruments of Spontaneous Motion doe require; ſo alſo, according to this their Allowance of* Animal Spirits, *they have no Occaſion of being either dilated or contracted, as the others have.*

That theſe Pores *do alſo contain in them ſuch a quantity of* Animal Spirits, *which are ſent into the* Glands, *is hence made good, in that it is apparent, that upon too great a Quantity of them being ſent in thither, the* Pulſe *doth thereupon immediately become ſtronger, and by this its* Exagitation,

tion, it grows both quicker, and more frequent, the which being any wise depreſt, the ſame Pulſe *upon this Alteration is ſeen to grow weaker and ſlower.*

And whereas a healthful Pulſe *doth very much depend on its Reception of a moderate Quantity of theſe Spirits, and that theſe do continually make their Entrance into the* Nerves, *leading into our Inſtruments of Involuntary Motion, as their quantity are ſeen to vary, ſo we eaſily perceive a greater or a ſmaller Quantity of this ſubtile* Liquor *is prepared in them for the readier Diſtention of the* Fibres *of the* Muſcles. *Now, when theſe Spirits begin to grow low and weak, and ſtript in a great meaſure from that Briskneſs they formerly enjoyed, it muſt neceſſarily follow, that a ſmaller or leſſer Quantity of them muſt enter the* Glands, *as well as we ſee upon their Exaltation the ſame is ſeen to encreaſe.*

That the Brain *(which ſerves and ſupplies the* Nerves *with* Animal Spirits *ſerving for Involuntary motion) is like a* Ciſtern *full of Spirits, where when* Vent *is once given, and the* Pores *opened according to our Appetites, the ſaid Spirits are ſent forwards in one conſtant Courſe and Running, as both* Borellus *and* Bolton *well obſerve; whereas the* Muſcles *ſerving to Involuntary Motion being in continual Action, do ſo continually drain their* Store-Houſes *and* Repoſitories, *as that they have been ſeen many times both flaccid and empty; ſo as they further conclude, ſome of theſe* Muſcles *deſigned for Involuntary Motion, may in ſome meaſure ſeem to act according to our Wills and Inclinations: So that it lies in our power either to quicken or retard them in their Contractions, tho' not wholly to obſtruct them, as the* Muſcles *ſerving to Expiration; the Reaſon of*

which as Bolton *writes, doth proceed from the* Pores *of the* Brain *leading to the* Nerves, *which transmitting of their Spirits to them as to the other* Muſcles, *ſerving for involuntary motion in a competent quantity; but theſe* Pores *being quite different from the other, do contain in them an* Organic Motion *either to contract or dilate according to our Appetite, and as they ſometimes are ſeen ſo to cloſe up in Conſtriction, as that they do deny any further Entrance of the* Animal Spirits *into them, hereby bindring any more of the Subtile* Liquor *to penetrate them, which cauſes a* Ceſſation *of any further Contraction of the* Muſcles, *ſo at other times, they are ſeen by degrees to aſſume into them ſuch a quantity thereof (as not being longer able to contain more) they by mere Force, do drive and hurry on the ſame ſo into the* Recepticles *as that they overcome this their reſtrictive Faculty, ſo as to break thro' theſe* Muſcular Glands, *as he elſewhere well obſerves in his Book.*

Falloppius *ſaith, That in* Muſcular Motion *there is a Coordination of* Fleſhy Particles, *running in* Oblique Parallel Lines, *which inwardly moving do contract the Body of the* Muſcle; *making it tenſe and rigid, whilſt its outward Coat is ſeen more looſe and ſhrivel'd; which ſaid motion (according to his Opinion) is performed by the* Fleſhy Fibres.

Galen *on the contrary, affirms the* Tendinous Fibres *to be the principal* Organs *of* Muſcular Motion, *in his* 12th. *Book* de Uſu Muſculorum, cap. 3. *theſe being the firſt* Principals, *and true* Machines *of motion, wherefore we allow the* Carnous Parts *only as its* Auxilaries, *not as the* Principals *of Motion.*

Steno

Steno *writes, That a* Tendon *is a Compoſition of* Fleſhy Fibres, *which being looſely put together do frame the* Fleſh, *but when cloſely ſet together do form the* Tendon, *as he hath it in* page 14. *of his Book.*

We on the contrary do preſume to write, that a Tendon *is no part made out of* Fleſh, *but rather framed from firm* Tendinous Fibres, *which are interwoven with numerous* Nervous Fibrillaes, *and that which may naturally confirm this our Opinion is, that the* Nervous Fibres *do very much differ from the Fleſhy Ones both in their Colour, Eſſence and Conſiſtence; in that it is plainly apparent that the* Fleſhy Fibres *are ſeen ſoft and red, whilſt the* Tendinous *and* Nervous Fibres *on the contrary appear hard and white; So that it needs no farther Explanation to make good, that* Muſcular Motion *muſt chiefly take its Dependance from theſe* Nervous *or* Tendinous Fibres, *through which the* Animal Spirits *and* Nervous Juyce *are ſent from the* Brain, *and* Spinal Marrow *to theſe* Tendinous Filaments, *they carrying in them a ſufficient Strength to bear up the Weight of the* Limbs; *which peice of Service, the Fleſhy* Fibres *of themſelves were never able to undertake, much leſs capable of performing, as* Bolton *very plainly obſerveth.*

Having preſented the Reader *with this full and plain* Account *of the* Muſcles, *as both to their* Nervous *and* Carnous Fibres, *we ſhall next take a breif and pleaſant* Survey *of their uſes throughout the ſeveral parts of the Body.*

The Face *being drawn with* Natures *fine* Pencil, *fill'd up with variety of* Muſcles *(by which it performs thoſe various Actions and Motions, we*

dayly find it concern'd with) *are all melted into each other with a delicate Softneſs, Shadineſs, and due* Proportion, *to give it a Beauty, and Complexion.*

The Globular *body of the* Eye, *the moſt admirable* Machine *of* Light, *is kept in its* Orbs, *and enlarged in its Dimenſions, by the concurrent Poſitions of its* Muſcles, *by which it is plainly ſeen to perform thoſe curious, as well as various Actions it hourly exerciſeth.*

The Ear *that receives its Sounds by the* Orbicular Motion *of the* Air, *does brace in its* Drum, *and preſerve an entire Admiſſion thereof by the Benefit of its* Muſcles.

The Lips, *though they are nothing elſe than a Compoſition of delicate ſoft fleſh, wrought into a* Muſcular Skin, *have divers* Muſcles *allowed them, to make them proper* Organs *of* Motion, *and both theſe and the* Noſtrils *are opened and ſhut by the benefit of their* Muſcles; *whilſt the* Orbicular Muſcle *allowed the* Lips, *is planted as their* Center, *being a perfect* Antagoniſt *to the reſt; by theſe we not only receive our Nouriſhment, but by them alſo we have made a way towards our Utterance, and our Speech to diſcover our Minds, and make way for our being Underſtood.*

Our Grinders, *which have always been eſteemed the uſeful Inſtruments of Maſtication, and planted in the* Mandibles *as in ſo many diſtinct* Caverns, *and artificially faſtned to one another by Ligaments to the* Gums, *are naturally ſet on Work by the Benefit of* Muſcles.

The various Motions of the lower Jaw, *is wholly performed by the different Contractions of its* Muſcles, *which joyning it to the upper, doth make a*

per-

perfect Closure of the Mouth *and* Teeth, *whilst other* Muscles *given to it, are seen to pull open the* Mouth *again, and separate the* Teeth.

The Gulet, *or* Hollow Pipe, *framed by* Nature *as a convenient Repository for taking in our* Nutriment, *and sending it to the* Stomack, *is variously managed by the help of* Muscles.

The Cheeks *are purely made out of* Muscles, *curiously shaddowed, and in some other places finely formed, to give them an acceptable Grace; these, while being brought inwards in* Mastication, *do thrust the* Aliment *towards the* Teeth, *for its better comminution.*

The Tongue, *tho' it be but little in bulk, is of very great use and service to* Mankind, *being framed as our* Instrument *of* Speech, *and our* Master *of* Tastes, *to which are given diversity of* Muscles, *by which it is turn'd into various* Postures, *and these do bring it into diversity of* Motions: *Nay, the very* Act *of* Mastication, *which helps forwards the Comminution of our Aliment, and promotes for our* Encrease *and* Growth, *is performed by a joynt Consent of* Muscles.

The Intestines, *though* Membranous, *yet the* Greater Ones *are allowed* Muscular, *and the* Rectum *ending in the* Anus, *is allowed a* Sphincter Muscle, *framed out of* Circular Fibres, *there planted for pursing up its* Perforation, *it having also other* Muscles *given it for preventing its falling down, and when once down, after its reduction to keep it up in its proper* Place.

The Breast, Back *and* Sides, *are all of them cloathed with* Muscles, *by whose Various Motions, they are seen to act and bring the Body into different* Forms *and* Shapes.

The Trunk *of the* Body, *by bringing the* Ribs *upwards and outwards, which it performs by the Benefit of its* Muſcles, *is plainly ſeen to dilate its ſelf, and by pulling them downwards, does narrow its* Cavity.

The Intercoſtal Muſcles *lodg'd between the* Ribs, *being contracted, do raiſe the* Ribs upwards *and* outwards; *and as the* outward *do dilate, ſo does the* inward *contract the* Trunk.

The Back *formed of many* Links *cloſely put together, by the Interpoſition of* Ligaments, *and firmly annext by them, are by theſe, and the Benefit of the* Muſcles, *ſecured in their Places and due Poſitions.*

The Abdomen, *or* Lower Belly, *has a peculiar Garniture, or Suit of Cloathing given it, made of a Fleſhy Armour of* Muſcles, *contrived with admirable Art, and divided into various ſhapes, curiously put together by wonderful Care, both for the better ſecuring the* Kell, *and all the other* Bowels *under its Charge, from Cold, and outward Injuries, as alſo for keeping them in their proper Stations; by the benefit whereof alſo the* Periſtaltick Motion *of the* Bowels *is promoted upon this their* Muſcular Compreſſion, *and not only ſo, but they do promote and help forwards the Excretion of the* Urine, *the Exonerating of the* Bladder, *and the diſcharge of the* Fætus.

The Bladder *of* Urine, *with its* ſecond Coat, *covereth its* inward Circumference, *being made of divers ſorts of* Fibres, *they contracting themſelves, do leſſen its* Cavity, *by which it ſqueezeth forth the* Urine, *and unloads the* Bladder; *and its* Neck *being framed of* Orbicular Fibres, *when they are contracted, theſe on the contrary do impede the* Urines *involuntary Egreſſion.*

The

The Teſticles *have allowed them a* Dartos *framed by* Nature *as the ſecond Coat, which being as a thin* Muſcular Membrane *furniſh'd with many fleſhy* Fibres, *does by their aſſiſtance contract the* Scrotum.

The Penis *is not without its* Muſcles, *ſome ſerving for depreſſing it in its Contraction, and others for dilating its Urinary Paſſage.*

Women about the Pudenda *have* Muſcles *allow'd them alſo, two of which are aſſign'd the* Clitoris, *which by compreſſing its* Thighs, *do give a Check to the Motion of the* Blood, *whence follows a diſtention of its Body; another alſo is given it, which is faſten'd between the* Labia Pudendi, *which may more properly be ſaid to contract the Entrance of the* Vagina, *than occaſion an Erection.*

The Shoulders, Arms, *and* Hands, *by the benefit of* Muſcles, *do perform thoſe various Motions and Actions we hourly ſee them engaged in, by which they make* Man *the great* Maſter *of all* Arts *and* Sciences, *whilſt the* Thighs, Legs, *and* Feet *are confirmed, our ready Managers of Progreſſive Motion. Thus have I in a great meaſure ſhewn, that without the Benefit of the* Muſcles, *we cannot well be ſaid either to live, move, or have a Being, much leſs, talk, write, work, or walk without them. Having done with my intended Deſign in the* Preface, *I muſt acquaint the* Reader, *that I am obliged to take Notice of a rude* Reflection *made on me, and my* Firſt Book *of the* Muſcles *by one Mr.* Cowper, *who has writ ſomewhat on this* Subject, *who in his* Preface *is pleas'd to ſtile it,* A moſt Erroneous Collection of other Mens Miſtakes. *I am ſure he had done much more like an Artiſt, in proving the ſame in his own* Diſcourſe, *as I have in this my* Treatiſe

ſhewn what an entire History his is like to prove to his great Merit and Satisfaction, by comparing his all along with mine throughout the whole Diſcourſe.

In this I can aſſure the Reader, I have taken all imaginable Care to imitate Nature *in my Figures, ſo far as can be expreſt by Art, and am not aſhamed to ſay, that this deſign of mine is new, and therefore no ways borrowed from any other Hand; for, tho' I do not deny, but that I have made uſe of the beſt of Authorities to grace and furniſh my Diſcourſe, who carry in them the greateſt Truths, both in their Deſcriptions, Uſes and Obſervations, to whom I have paid that Acknowledgment by prefixing their Names at the Entrance into the Book in a particular* Elenchus *for that purpoſe, yet none of them before me had ever the Names of the* Muſcles *engraved on them, which is a piece of no ſmall Service to the Reader, but a great Eaſe and Satisfaction to every Enquirer into* Anatomy; *To this alſo I have added the late Learned Dr.* Lower's *Conciſe and Accurate Diſcourſe of the* Heart *and its* Uſe, *as alſo of the* Circulation *of the* Blood, *never before this time appearing abroad in the World.*

If the Reader will pleaſe to paſs by the literal Elapſes *that have hapned by the* Preſs *in my abſence, and not turn them to my Diſadvantage, as ſome of my late* Antagoniſts *have ungenerouſly done by ſome of my former Books; He will ſhew his Candour to the Author, who have herein ſtudied how to oblige him in this my Performance.*

From my Houſe at the White Poſts at *Charing-Croſs*, near *White-hall. April* 10th. 1697.

Vale.

To

To my very much Esteem'd Friend,

Mr. John Browne,

Sworn Chyrurgion to His *MAJESTY*:

ON HIS

Myographia Nova.

Sir,

Anatomy, *wherein you have so excellently well adorned your Province, is not only of great use in* Chyrurgery *and* Medicine, *but also in some parts of* Phylosophy; *and is moreover subservient to Religion.*

Its shews its Phylosophical Usefulness, *when it demonstrates by how admirable and divine* Mechany *the* Animal Fabrick *is raised; and when it explains the* Power, *and the wise* Conduct, *by which the whole* Oeconomy *is managed: Which indeed is so wonderful, that from thence the excellent Physitian and Naturalist,* Galen, *found himself obliged to rise up into the most sublime Praises and Admiration of the* CREATOR. *Hence his Books, which were written* de Usu Partium, *are clearly a* Divine Hymn *or* Song, *by which he celebrates the immense Wisdom, Providence and Goodness of the Almighty.*

So that the Knife *and* Lectures *of a skilful* Anatomist, *cannot but preach* Religion *even to the very* Atheist, *when he sees the stupendeous Make of* Living Creatures, *when he considers the* Subtility, *the* Variety, *and wise Contrivance of* Parts *in the most minute, as well as in the largest Animals, by which all their inward and outward Actions and Motions, their Sounds, their Voices and Words were formed and exerted. All which, nothing less than an* Omnipotent Being *could effect.*

For the Prattle *of the* Roman Effigies, *called* Citeria, *the* Utterance of Words *by the* Earthen-Head *of* Albertus Magnus, *or by the* Brazen-Head *of* Roger Bacon, *were, tho' subtle Artifice, but faint Resemblances: And the* Articulate Speech, *together with the raising and resolving of proposed Questions by the* American Parrot, *was plainly Diabolical, and therefore not from Animal Sense or Energy.*

The Flying *of the* Wooden Pigeon *of* Architas, *or of the* Wooden Eagle *of* Regiomontanus, *which took Wing (if I may so say) and mounted up into the air, and shewed the Emperour, who was then going to* Norimberg, *the way thither: The* Walking *of*

the Statues *of* Dædalus, *and the* Steps *of the* Iron Image *in* Africa, (*which advanced ſeveral Paces to make its Addreſs to the King of* Morocco, *and with bended Knees preſented a Petition to him in behalf of the* Artificer) *were all* (*as moſt other* Automata *are*) *ingenious Contrivance, but yet very imperfect Imitations of* Living Nature, *accompliſhed by* Weights, *and* Screws, *and* Wheels, *or by* Quickſilver, *and the* Subtle Vapours *of* Inanimate Spirits.

But the moſt exquiſite Art *cannot frame ſuch Inſtruments, and infuſe thoſe internal Powers into them which are neceſſary for Animal Actions: Nor is* Nature (*which is only Matter and Motion*) *able, without the Influence and Direction of a living Spirit, to excite their Spontaneous Motions: Neither could ſuch a* Spirit *be originally made, but by the Hand of* God, *who in the beginning, made the* Seed *of all* Bruits *of an* Ætherial *and* Fiery Matter, *and the* Soul *of* Man *of a* Supercæleſtial Eſſence.

Now Anatomy *is able to ſhew us, that not only in the ſeeds of Vegetables, but in the ſeeds of Animals alſo, the individual Species is compendiouſly and actually couched; and by conſequence, that all Generation is ſtill the Work of the* CREATOR, *who made the firſt Seed.*

So that your Anatomical Adminiſtrations, *are more* Theological *than every one imagines, and do elegantly diſplay the* Wiſdom *and* Art *of the* Divine Potter, *who formed the beautiful* Statue *of* Man *out of Clay.*

And not only thoſe Muſcles *which enable the* Mouth *to ſpeak, and the* Hands *to write, but all of them* (*which were ſo wonderfully made by God, and are ſo neatly delineated by you*) *do empower and inſtruct us to ſpeak and ſing* Hallelujahs.

And they induce me to eſteem and praiſe this your Muſculary Tract, *wherein, by imprinting the Name upon each* Muſcle (*eſpecially when you joyn the Uſes of them to their Names*) *you will render the Study of this part of* Anatomy *ſo eaſy and delightful, that not only Students in* Medicine *and* Surgery, *but alſo ingenious Gentlemen* (*who are curious, and deſire to underſtand ſo much of themſelves*) *will be encouraged to enquire into it, and to ſtudy it. Upon which account more eſpecially 'tis heartily recommended to publick View and Uſe by me, who am a great Lover of your Ingenuity, Art and Induſtry,*

Edmund Dickinſon, *M. D.*

Lately Phyſitian to the Perſons and Families of K. *Charles* II, and K. *James* II.

To the much Valued and Worthily Esteem'd,

Mr. JOHN BROWNE,

Sworn *Chyrurgion* to His MAJESTY.

SIR,

I *Have, as my time would permit, perused your Book of* Muscles, *and observed your Method in the Description of them; which seems to agree with the best of Authors I have met with, and I do think it the most useful Book of the kinde I have seen; not only for a shorter way of informing Young Students in* Physick *and* Surgery, *but for refreshing the Memories of others, more verst in such Exercises: And as you have shewed great Labour, Ingenuity and Industry by your very Pertinent and Apposite Additions, (to what you have done before) so I hope it may prevent many injuries which might happen to Mankind: For I have observed those of your Profession, (or rather Pretenders to it) who were most deficient in* Anatomical Knowledge, *were most bold with their* Knives *and* Lancets (*which I have too often seen*).

Therefore I do not think I do ill to mention it here, because it seems to me to be absolutely necessary, that whosoever shall attempt to make use of his incision Knife *or* Lancet *upon any part of a living* (Humane) *Body, ought to know what lies under the Skin or Place within the reach of the point of either of them, or the distance he intends they shall act in; for in the common use of letting Blood, the want of knowledge in the Origination of some* Muscles, *and Insertion of others, their* Tendons *are often prickt, not only to the loss of Limbs, but Life its self: (I do not mention Wounding of* Arteries, &c. *which are equally dangerous.)*

The Consideration of which, one would think should be a sufficient Caution to all, who have Occasion for Chyrurgical Operations, *to chose such persons as experimentally and distinctly know the Nature and Difference of the parts,* &c. *and how they do lye, that they may be sure to avoid doing a Mischief to the person they intended to do good to; at least this is my Opinion, who am a Lover of* Anatomy, *and of all those that are Improvers of it, and think my self obliged to thank you, for the great pains you have taken therein: And,*

I am SIR,

Your Grateful Friend, and Affectionate Servant,

Edmund King, M. D.

Physitian in Ordinary to the Late King *CHARLES* II.
Fellow of the College of Physitians of *London*, and of the *Royal Society*.

Eximio Viro D. Johanni Browne, *de ſuâ* Myographiâ Novâ.

Quicquid agunt Homines; Linguæ, Dextræq; Labores,
Quæ Cerebrum, Vultus, quæ Brachia, Lumina præſtant,
Crura, Pedes, Digiti, Pectus, tua Pagina Stringit.
Quæ Regio in Membris veſtri *non plena Laboris?*
Tu carnis pigræ clariſſima munera pingis,
Et macerata luto meliori Fruſtula rubra
Officiis Vitæ monſtras ſublimibus apta,
Et quantum pollent humano in Corpore partes
Molliculæ, craſſique agitati mente lacerti.
Tu medias inter Fibras, inq; Artubus ægris,
Occidui Motus noſtri das viſere cauſas,
Perpetuiq; tui, ut *Phœbo* patri comes ibis
Per tractus Muſarum omnes, per diſſita Regna,
Immenſasque plagas Famæ, Venturaque ſæcla.

Nath. Vincent. S. T. P. *& Aulæ de Clare S.*

Ingenuo Viro Mro. Johanni Browne, *Regio Chyrurgio*; *de ſuâ* Myographiâ Novâ.

COndidit *Omnipotens* Hominis cum Corporis Almam,
Eximiamq; tulit cæco de pulvere Molem,
Formandi hoc finivit Opus, plaudente *Triuno*;
Quæq; ſuâ Dextrâ perfecit quinq; diebus
Contraxit ſexto Deus experientior uno.
Hic coeunt Mundi quæcunq; Elementa prioris
Conſtituere Orbem, Socioq; in fœdere jungunt,
Diverſæ diverſa tenent Moderamine Membra
Leges, Officioq; ſuo funguntur alacri;
Ut juſte Μικρὸς mereatur Nomine Κοσμος:
Admirandum Opus, & Divino Numine Dignum!
At quâ Lege vigent, quo tandem cum ordine *Membra*,
Conſiliisq; movent, *Cerebrum* quæ dictat agenda,
Quæq; movit *Pectus*, quæq; Officioſa propinant
Lumina, feſtinat quam *Pes*, peragitq; labores.
Indefeſſa *Manus*, junctis ut Viribus urgent
Grande Miniſterium Pacem Vitamq; tuendi,
Hæc tua ſola dedit, nobis *Ars* mira videndi.

E. Oliver. A. M.

Viro Amiciſſimo pariter ac Doctiſſimo Johanni Browne, *de ſuâ* Myographiâ Novâ.

M*Uſculus* humanos variè qui temperat artus,
Et movet aſſiduis *Dædala* Membra rotis;
Qui modo permittit, laxas modo curtat habenas,
Et Spatium Arbitrio conficit omne tuo;
Qui ſtandi præbet cauſas, cauſaſq; ſedendi,
Et jacet in viridi mox reſupinus humo;
Muſculus ille tua tenebris exutus ab Arte,
Debet inextinctum nunc tibi, *Browne*, diem.
Perge ut cæpiſti, docto nova munera ſæclo
Tradere & aſſiduâ ſpargere dona Manu:
Sic tibi dent dignos venientia tempora grates,
Et cingat meritas Laurea longa Comas.

J. Turner. *olim e Societate Chriſti apud* Cantabrigienſes.

To the most Industrious, and most Esteem'd,

Mr. JOHN BROWNE,

Sworn Chyrurgeon to His *Majesty*.

SIR,

THE *Charms in* Dissection, *and in the* Anatomical *Study, are so very great, that they justly command the Admiration of all sorts of Men; yet in all that Study, there's nothing so surprizing, so difficult, and, at the same time, so useful and delightful, as is the Knowledge of the* Muscles, *and their Uses. When they are understood, all other underling Difficulties soon disappear. 'Tis astonishing to see their Power and Force in* Vaulting, Lifting of Prodigious Weights, Running, Jumping, *and in other Violent Exercises; yea, to behold our Porters going every day under so great Burdens, and our* Blood *performing its stages under them: But if we go a little farther, and but consider what we see done in* Maniacal *Diseases, how handsful are overwhelm'd! strong Ropes, and sometimes Iron Fetters broke in pieces! This must surely, and really does exceed our Admiration: We have no scruples to attribute such unusual Powers to* Possession, *and to call them the Work of the* Devil. *But let us allow that the Devil is at the Helm, and that he really determines those Powers that contract our* Muscles; *yet these* Muscles *are the immediate Agents, they are employ'd in overthrowing all these Opposers, and that procure the Madman his hurtful* Liberty, *by destroying his Bonds. On the other hand, if we behold poor Man stretch'd upon his Bed, and laid fast asleep, we may easily lift up that Hand that shew'd us so much Strength and Activity but just now, and it makes no Resistance; then leave it to its self, and see if it can sustain its self after you have lifted it up, but it immediately falls; move it to and fro upon the Bed, and straight it obeys; lay it in any Posture, you have nothing that may hinder you; change it from that, and there's no Reluctance. And what I now say concerning his Hand, you know may be said of any other Part of the Body; so that the Whole* Body, *when asleep, seems to be something made of Wax, or some other soft Substance that is easily moulded into any Form. But whence comes this great and constant Variety of Motions? Is it not from these Instruments of Motion, we call the* Muscles? *But are not these very* Muscles *in the languid, weak and sleeping Man, as well as when he was awake, went to* Court, *and play'd at* Tennis? *Surely, howsoever wide the Disproportion is in both these states; and tho' these* Muscles *that make us* Harrangue, *that make us* Write, Fence, Dance, Vault, *&c. are now all asleep; yet we live, our Blood keeps its Circular Motion thro' all these Languid Parts, tho' no*

other-

otherwiſe, but that the watching Muſcles of the Heart and Thorax, that never ſleep, are ſtill at work. Yet, we ſee that this motion is continued, tho' all theſe powerful Muſcles are unemployed, and that with ſo great Force and Impetuoſity, that in every time of the Hearts Contraction, we may ſee by the help of good Microſcopes the ſame very thing we might, if we took Blood or Water and ſquirted into a Conical glaſs Tube that is almoſt full, we ſee at every ſquirt of the Syringe, every Contraction of the Heart, the Blood forced forward with ſo great Strength, that daſhing it ſelf into a thouſand Pieces upon the approached Column and the ſide of the Veſſel, it flies about like particles of an angry billow broke upon a hard Rock: But here our Admiration is raiſed again; how the Heart that has ſo few and ſo ſmall Nerves, whoſe Coronary Veins are ſo very wide in reſpect of the Arteries, ſhould thus propel this Viſcid Liquor, the Blood thorow ſo many Veſſels that could make millions of yards, if they were ſtretched out at full length, Veſſels ſo very ſmall, and thoſe clewed up and folded ſo cloſe that the great Borrellus's Hyperbolical Calculation ſeems to come very far ſhort. Yet, its Circulation thorow ſo many ſtages, and againſt ſo great Reſiſtance is our life its ſelf. But if all theſe aſtoniſhing, theſe ſurpriſing Effects are the works of theſe Muſcles; ſurely the right numbering of them, their exact Bigneſs, their proper Actions, and their Inſertions muſt be a very neceſſary piece of Knowledge for our underſtanding our own ſtrength, and for Phyſitians, to know the juſt motion of that Liquor, that gives Health and Life it ſelf to themſelves, and thoſe they are deſir'd to relieve from ſome languiſhing Diſtemper; and all that by raiſing and lowering of that Spring that determines the Bloods motion.

'Tis all this your Hiſtory of Muſcles, Worthy Sir, leads us into; beſides a thouſand Things more of uſeful enough, tho' leſſer, Conſequence; and I wiſh that your ordinary Diligence had engag'd you too, into a Relation where every Nerve, Artery and Vein was ſupply'd to each particular Muſcle: But this is no Imperfection in your Work, and as your exact Hiſtory you have already given us of the Muſcles, will bring us greater light into theſe moſt ſurpriſing Phænomena, ſo, I wiſh that Years and a firm Health may never fail you, till you have minutely deſcribed thoſe Rivers that water the Countries you have ſo faithfully ſurveyed, which is the ſincere Deſire of,

SIR,

Your Moſt Humble Servant,

William Cockburn, M. D.

One of the Colledge of Phyſitians in *London*, Phyſitian to the *Blue Squadron* of his MAJESTY's Fleet, and Fellow of the Royal Society.

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THE

This TABLE sheweth the NAMES of the *MUSCLES* as they do ariſe in Diſſection, and as they are contained in the Lectures.

Intercostales Interni
Levatores Ani
Sphincter Ani
Sphincter Vesicæ
Detrusor Urinæ
Diaphragma

Here let the Body be turned upon the Face.

Cucullaris, or *Trapezius*
Latissimus Dorsi
Rhomboides
Levator Patientiæ
Rotundus Major
Suprascapularis Superior
Suprascapularis Inferior
Nonus Humeri Placentini, or *Rotundus*
Subscapularis

If you intend to take off the whole *Arm* with the *Scapula*, the Dissection of these following *Muscles* will with more ease be performed.

Deltois
Biceps
Octavius Humeri, or *Teres Minor*
Brachiæus Internus
Gemellus Major
Gemellus Minor
Anconæus
Palmaris
Caro Musculosa Quadrata
Flexor Carpi Interior, or *Ulnaris*
Flexor Carpi Exterior, or *Radialis*
Flexor secundi Internodii, or *Perforatus*
Flexor tertii Internodii, or *Perforans*
Flexor tertii Internodii Pollicis
Pronator Radii Teres
Pronator Quadratus
Flexores primi Internodii Digitorum
Flexor primus, primi Internodii Pollicis
Flexor ejusdem secundus
Flexor secundi Internodii Pollicis
Primus
Secundus
Tertius
Quartus
Minimi Digiti Abductor
Pollicis Abductor
Pollicis Adductor
Interossei Manus
Extensor Carpi Exterior, or *Bicornis*
Extensor Carpi Interior, or *Ulnaris*
Extensor secundi & tertii Internodii Digitorum
Supinator Radii Longus
Primi Internodii Extensores
Extensor Pollicis Ossis Tertii
Abductor Indicis
Supinator Radii Brevis

Here you return to the Body its self as it lies.

Serratus Posticus Superior
Serratus Posticus Inferior
Splenius, or *Triangularis*
Trigeminus
Transversalis
Spinatus
Recti Majores
Recti Minores
Obliqui Superiores
Obliqui Inferiores
Longissimus Dorsi
Sacrolumbalis
Cervicalis Descendens
Sacer
Semispinatus
Quadratus Lumborum
Psoas Magnus
Psoas Parvus

If you please to take off the *Thigh* from the *Trunk* of the Body, by dividing the *Os Ileon* from the *Os Sacrum*, the Dissection of the subsequent *Muscles* will the better be performed.

Ilia-

The Names of the Authors

Concerned in this

TREATISE.

T. Bartholine
T. J. Bauhine
W. Briggs
R. Bolton
W. Crown
A. Columbus
B. Cabrolius
S. Collins
Isb. Diemerbroeck
G. Falloppius
Galen
R. De Graaf
Hyppocrates
J. C. Placentinus
J. Riolan
D. Sennertus
Adr. Spigelius
C. Scarborough
N. Steno
J. Valverd
A. Vesalius
J. Veslingius
Vidus Vidii
Du Verny
T. Willis

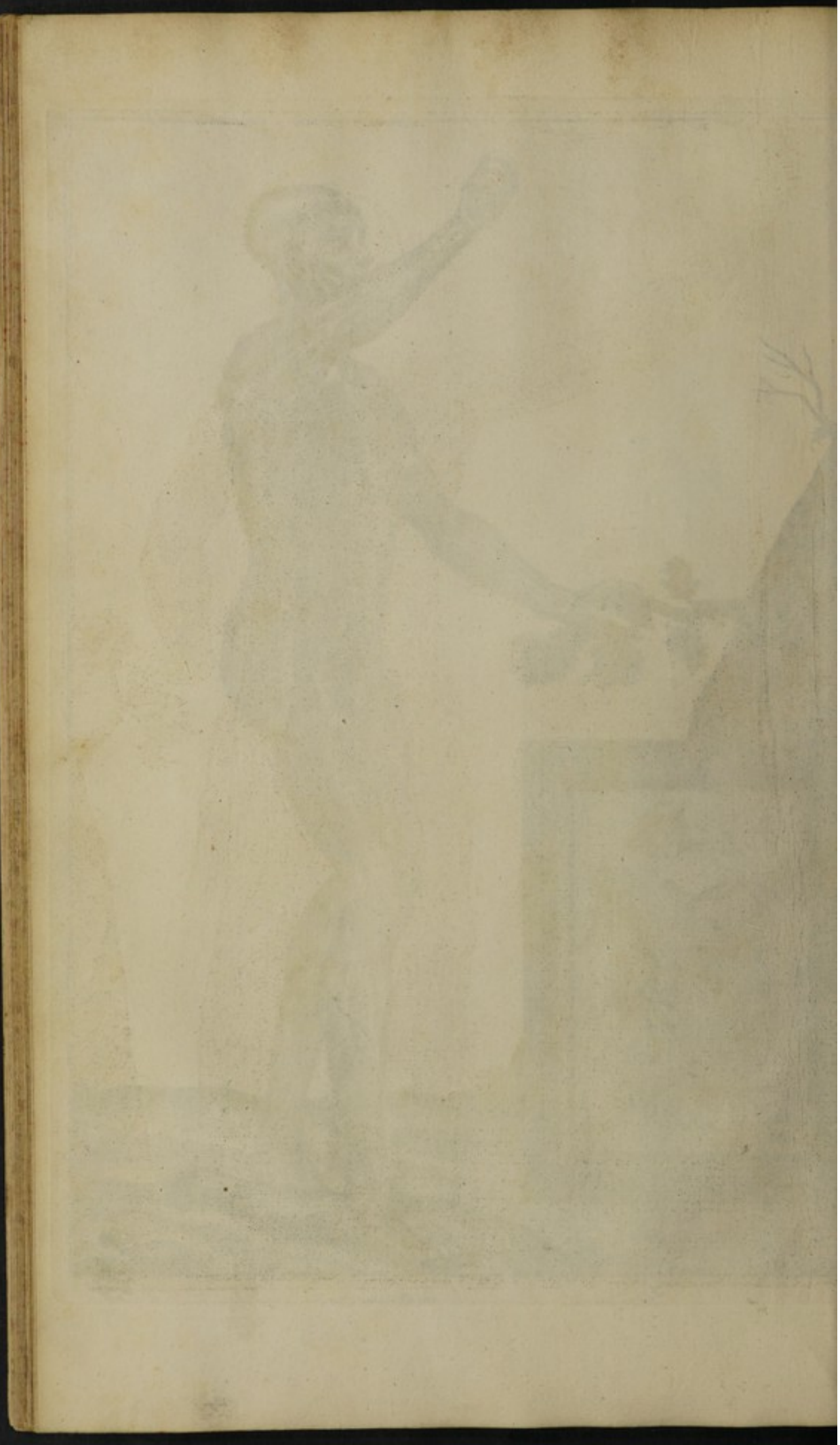
ERRATA.

READ Fol. 4. Line 21 *these*, f. 6. l. 23. r. *these*, f. 7. l. 30. r. *from*, f. 12. l. 1. r. *Elevated*, f. 15. l. 7. r. *this*, f. 16. l. 10. r. *bringing*, f. 16. l. 4. r. *Mentale*, f. 16. l. 17. r. *Tonick*, f. 16. l. 7. r. *lower Lip upwards*, f. 17. l. 2. r. *through*, f. 16. l. 29. r. *Anteriora*, f. 19. l. 17. r. *strongly*, f. 22. l. 21. r. *decussating*, f. 24. l. 16. r. *sides*, f. 26. l. 18. r. *Tip*, f. 30. l. 11. r. *Tip*, f. 31. l. 25. r. *Arytænoidal*, f. 32. l. 10. r. *Respiration*, f. 33. l. 27. r. *Constringe*, f. 34. l. 22. r. *bis*. In the Appendix f. 100. l. 6. r. *immediately*, f. 192. l. 20. r. *framed*.

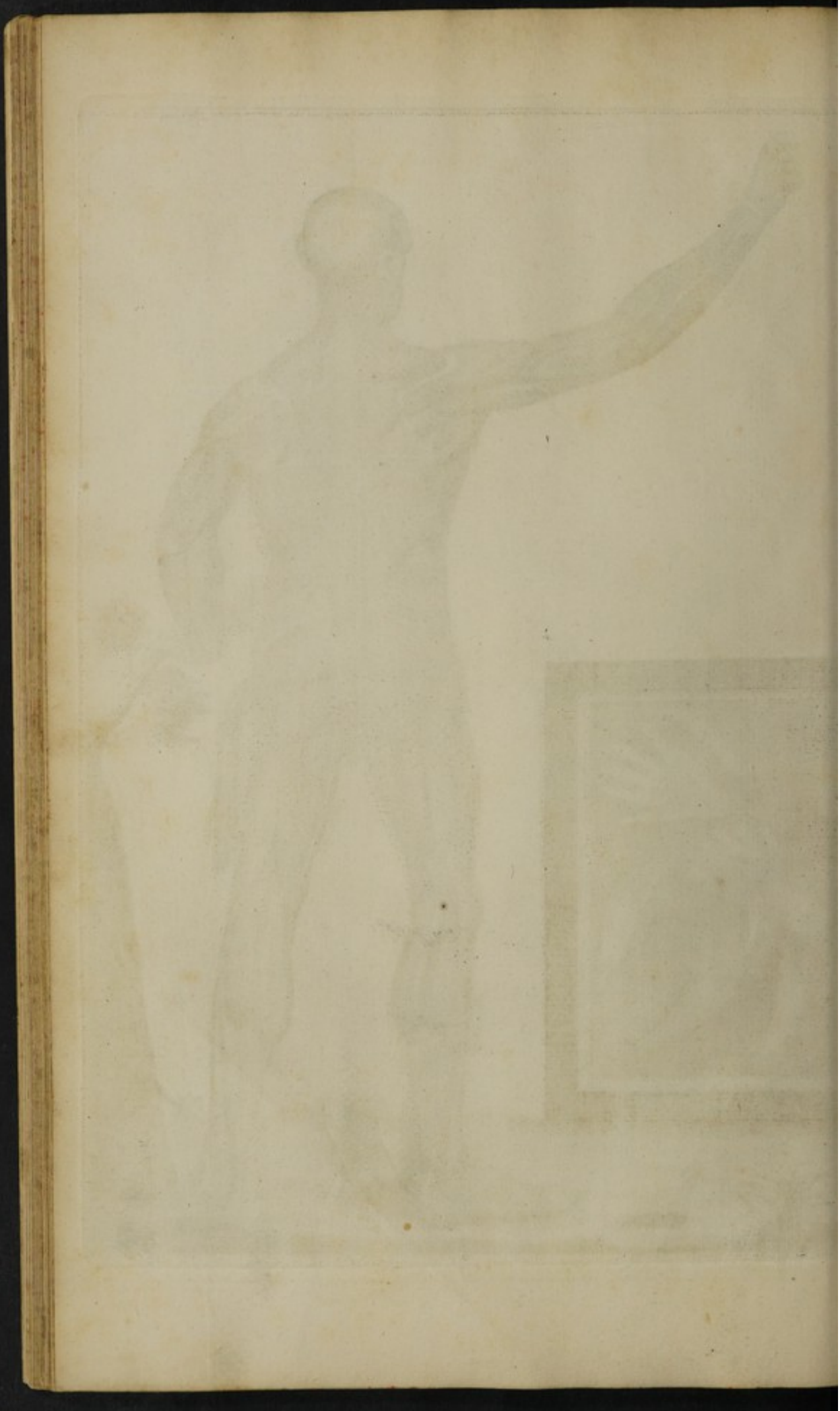
My-

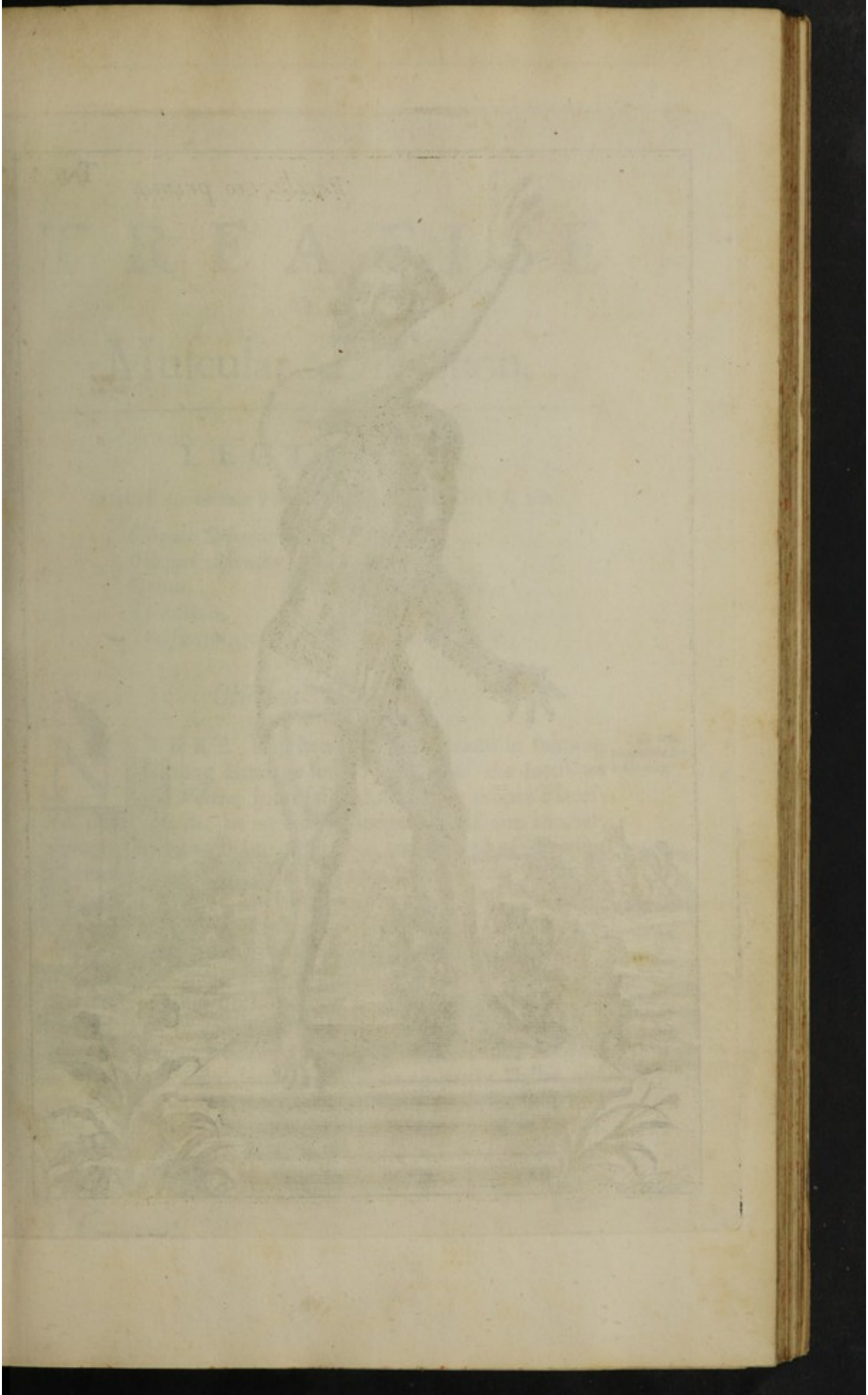

Frontalis
Deltoides
Pectoralis
Biceps
Rectus
Obliquus Descendens
Vastus Internus
Sartorius
Rectus
Vastus Internus
Vastus Externus
Rectus
Vastus Externus
Pars Membranosa


Temporalis
Biceps
Brachialis
Pectoralis
Deltoides
Rectus
Vastus externus
Vastus internus
Triceps
Gastrocnemius
Tibialis anticus
Peroneus
Soleus




Brachialis
Biceps
Cubiti Extensor
Trapezius
idem
Deltoides
Latissimus
Dorsi
Brachialis
Obliqui descendentes
Glutæus
Maximus
Gracilis
Biceps
Semimembranosus
Peroneus
Gastrocnemius
Tendo pedis
Gastrocnemius
Tendo pedis





Prælectio prima TAB. I.

A TREATISE OF Muſcular Diſſection.

LECTURE I.

In which are contain'd theſe following MUSCLES, *viz.*

Obliquus Deſcendens,	*Cremaſteres,*
Obliquus Aſcendens,	*Dartos,*
Rectus,	*Muſculi Clitoridis,*
Pyramidalis,	*Directores,*
Tranſverſus,	*Acceleratores Penis.*

Obliquus Deſcendens.

This compreſſeth the Belly laterally.

NATURE hath been very induſtrious in forming a ſtrong Bandage for keeping in of the Inteſtines and *Viſcera*, from falling from their proper Places; and theſe *Muſcles* being finely lodged under one another, wrought up into variety of Shapes, and framed of diverſity of Fibres, being thus artificially put together, do make up a Triangular Figure, as I ſhall elſewhere enlarge. We begin our Diſcourſe with the *Epigaſtrick Muſcles*, or thoſe of the *Lower Belly*, both for the prevention of offenſive Smells, as alſo for the more ready Diſpatch of the other *Muſcles*, as they ariſe in order of Diſſection: We begin with this *Muſcle* firſt, both in reſpect to its Largeneſs and its Situation, it taking its Name from its Courſe of Fibres, which are ſeen to march obliquely downwards, it being partly Fleſhy, and partly Tendinous, ariſing from the 6th, 7th, 8th, and 9th. Ribs, indented, or indenting themſelves into the Carnous Dentiform Proceſſes of *Serratus major Anticus*; and as *Diemerbroeck* writes, ſometimes from the 10th. and 11th. Ribs, as alſo

Membranous from the Tranſverſe Proceſſes of the Lumbal *Vertebres*, and paſſing to the *Linea Alba*, and *Os Pubis*, by a broad Tendon, gets into the middle of the *Abdomen*, and is not to be ſeparated from the ſubjacent Tendon of the *Obliquus Aſcendens* without difficulty. This *Muſcle* for the moſt part being Fleſhy in its Origination, and inſerted with a Membranous Expanſion into the *Linea Alba*, is perforated by the *Cremaſteres*, and in them are included the Spermatick Arteries and Veins near the *Os Pubis*.

Obſ. This Tendon being either rent, or ſtretch'd with that lodg'd under it, and the Inteſtines, or *Omentum* paſſing through them into the *Inguen*, or *Scrotum*, does either occaſion an Inteſtinal or Omental *Hernia*.

To Diſſect this *Muſcle* aright, you muſt divide the *Latiſſimus Dorſi* from him very low, that you may the better come at his Lumbal Origination; then by paſſing your Probe between the ſaid Tendons, you are to divide the upper from the lower, the whole length of the *Abdomen*.

Columbus and *Laurentius* do affirm, That the chief uſe deſigned by this *Muſcle*, was to contract the Trunk of the Body, and to promote Reſpiration; and that contrary to all other *Muſcles*, theſe Abdominal *Muſcles* appear crooked when they do not operate, and that they turn inwards when they do operate.

This is ſhewn in Tab. I. *in its Place, and in* Tab. II. *it is laid bare with its Membranous Part.*

Obliquus Aſcendens.

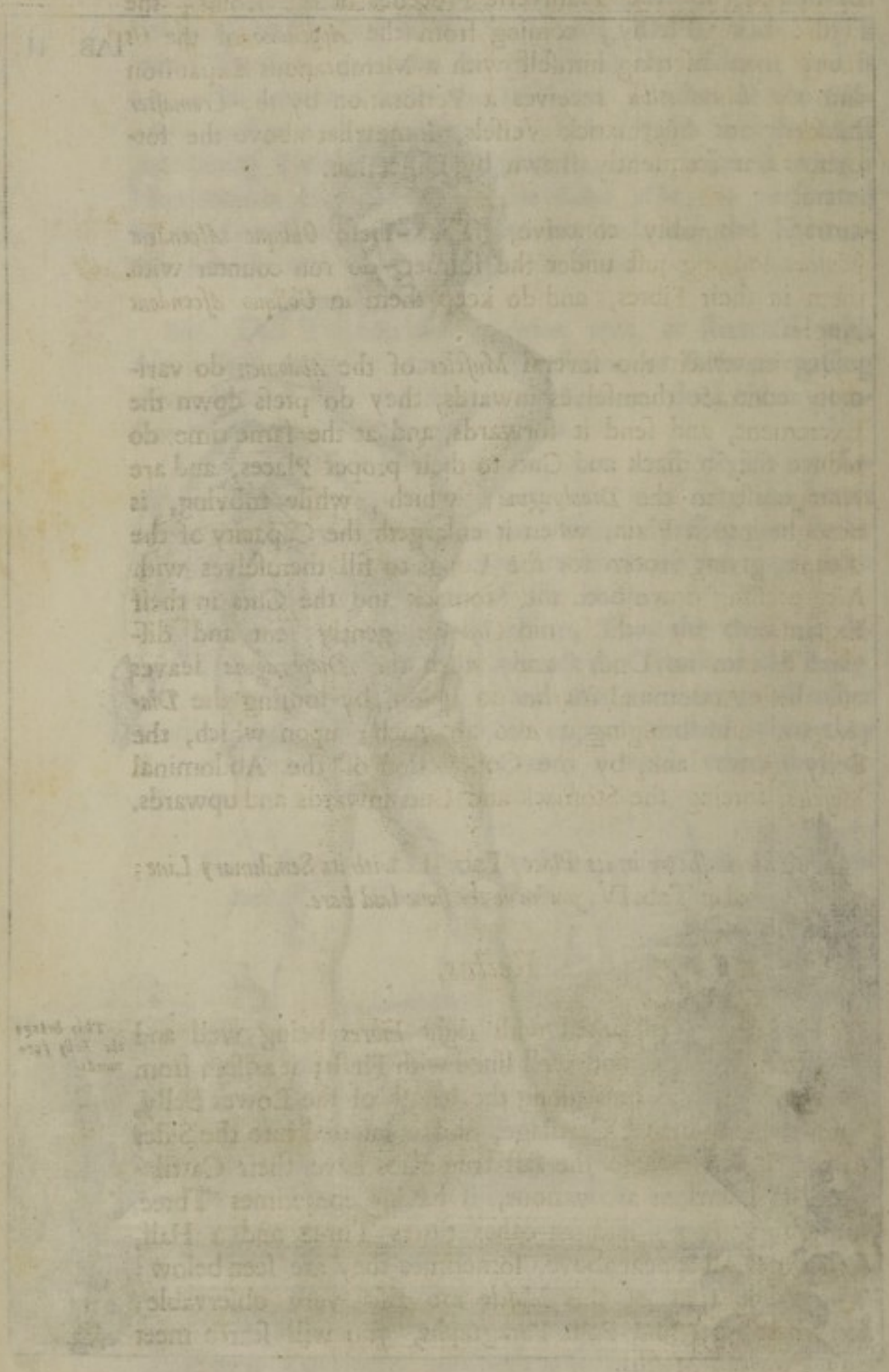
This helps the former in its Compreſſion.

THIS is implanted under the former, with Fibres obliquely aſcending from the *Appendix* of the *Os Ileon*, having a Threefold Origination: Firſt, Fleſhy under the 11th. and 12th. Rib, whoſe advantageous Situation does much conduce to the cloſing of the Trunk, by its Contraction in Expiration, whence ariſeth a Relaxation of the *Diaphragma*, it being reduced to an Arch; and the Guts and Stomack being attoll'd by the compreſſion of the Abdominal Muſcles, are reduc'd into their proper Places, as Dr. *Collins* well obſerves: Its Second Origination is Tendinous, and doth ariſe from the Spines of the

Os

TAB. II.


Obliquus Descendens et Serratus
ejus Tendo
Recti
Lineæ Albæ
Recti et Tra
Lineæ Semilunares
Obliqui
et Transversi



Os Sacrum, and the Tranſverſe Proceſſes of the Loins; the Third being Fleſhy, coming from the *Appendix* of the *Os Ileon*, then inſerting himſelf with a Membranous Expanſion into the *Linea Alba*, receives a Perforation by the *Cremaſter Muſcles*, and Spermatick Veſſels, ſomewhat above the former, as is frequently ſhewn by Diſſection.

Obſ. I humbly conceive, That theſe *Oblique Aſcendent Muſcles* lodging juſt under the former, do run counter with them in their Fibres, and do keep them in *Oblique Aſcendent* Angles.

Again, when the ſeveral *Muſcles* of the *Abdomen* do variouſly contract themſelves inwards, they do preſs down the Excrement, and ſend it forwards, and at the ſame time do reduce the Stomack and Guts to their proper Places, and are Antagoniſts to the *Diaphragma*; which, while moving, is brought into a Plain, when it enlargeth the Capacity of the Trunk, giving room for the Lungs to fill themſelves with Air, preſſing down both the Stomack and the Guts in their Expanſion, by which the *Chyle* is gently ſent and diſpatch'd into its Duct; and when the *Diaphragma* leaves off, theſe Abdominal *Muſcles* do begin, by looſing the *Diaphragma*, and bringing it into an Arch; upon which, the Belly grows lank, by the Contraction of the Abdominal *Muſcles*, forcing the Stomack and Guts inwards and upwards.

This is ſhewn in its Place, Tab. II. *with its Semilunary Line*; *and at* Tab. IV. *you have the ſame laid bare.*

Rectus.

THIS Pair is cloathed with right *Fibres* being well and ſtrongly made, and well lined with Fleſh; it ariſeth from the *Os Pubis*, and runs along the length of the Lower Belly, from the Enſiformal Cartilage, and is inſerted into the Sides of the *Sternon*, where the laſt true Ribs have their Cartilages: Its Inſertions are various, it having ſometimes Three, ſometimes Four, and at other times Three and a Half, ſometimes all appear above, ſometimes they are ſeen below: The Paragraphs of this *Muſcle* are alſo very obſervable; for where you find Four Paragraphs, you will ſcarce meet any *Pyramidal Muſcles.*

This brings the Belly forwards.

Some Authors do affirm, that these do bring the *Penis* from the Ribs, and that when we rise out of our Beds, they seem to swell and fill outwards; others do affirm that they help towards the bringing the Trunk inwards, and that by their double Contractions they do perform the Two Motions of bringing the Breast to the *Os Pubis*, and the *Os Pubis* to the Breast.

Again, as I humbly conceive, that these taking their Origination from the *Os Pubis* and the *Sternon*, and inserting themselves into the *Linea Alba*, and running all along the middle of the *Abdomen* in its length, in their Contractions do bring their Insertions inwards, and by this Motion they do help forward the Peristaltick Motion, in excluding or discharging the grosser Part of the Excrement.

Again, as another Observation hereof, these *Right Muscles* as they do march along the Belly in direct Lines, and are made of straight Fibres; so the *Oblique Descendent* in Bevil Lines, and the *Oblique Ascendent* going obliquely upwards, and the *Transverse* crossing the Belly o'rethwart; all being thus put together are thus framed, as a strong and warm covering to keep the Bowels from outward Injuries, as Cold and the like.

This you have at Tab. III. *and at* Tab. V. *you have it layd bare.*

Transversus.

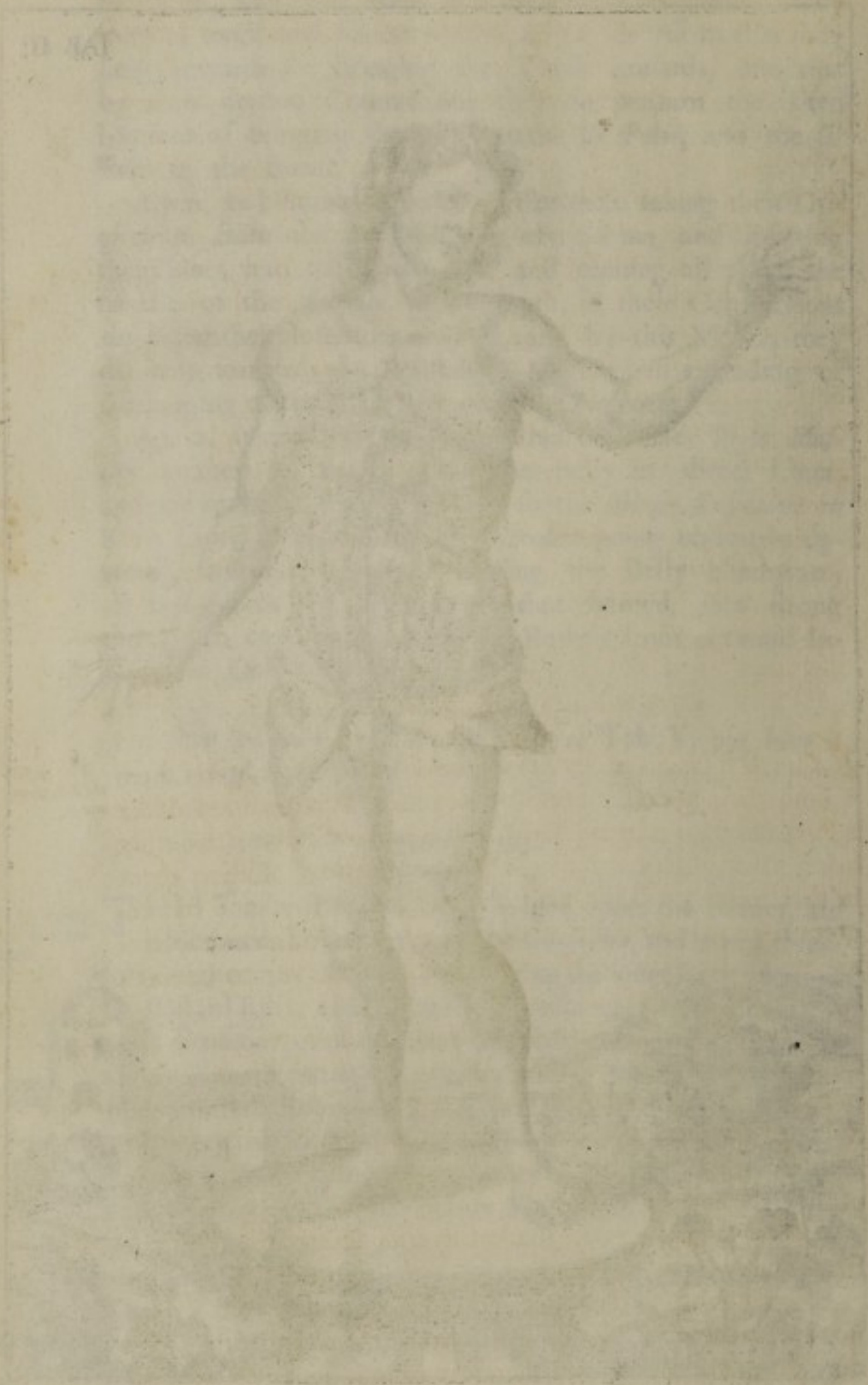
This brings the Belly downwards.

THIS *Transverse Muscles* being lodged under the former, are penetrated above them with the *Cremasters*, and have a threefold Origination: As First, Fleshy from the inner Extremities of the Bastard Ribs; and Secondly, Membranous from the Transverse Processes of the Loins; and lastly, from the Spine of the *Os Ileon*, inserting themselves with a Membranous Insertion into the *Linea Alba*, which is a Contexture made up and interwoven out of all the Tendons of the Abdominal *Muscles*, which being run together into one entire Body, do very much assist each others Motion in compressing the Belly.

Bartholine saith this was framed for compressing of the Colon; most *Anatomists* allow that this pair of *Muscles* do bring the Belly inwards, being of much use in their Contractions

TAB III


Cutis
Glandulæ
Obliqui
descendentes
Recti
Recti
Obliqui
ascendentes



tractions, and they being of a moderate Thickneſs, do help the former in keeping the Bowels warm which are lodged under them.

As I ſaid before, this *Muſcle* being obliquely perforated above the *Aſcending Muſcle*, thro' which the *Cremaſters* and *Spermatick Veſſels* do paſs, and the Perforations of the *Oblique Deſcending*, and *Oblique Aſcending Muſcles* of the *Abdomen* being thus framed one above another, not in ſtraight, but in Bevil Lines thus running and croſſing the Belly, do hinder any Prelapſion of the Inteſtines into the *Scrotum*; for by their *Fibres* thus running countre to thoſe of the right *Muſcles*, and thus croſſing each other, they are ſeen to bind the Guts long-ways downwards, as the *Fibres* of theſe Tranſverſe *Muſcles* running o'rethwart do in their right *Angles* ſecure the ſaid Guts broad-ways, upon this their thus croſſing the Belly.

This is ſhewn both in its Place, and out of its Place, with the Peritonæum, Tab. V.

Pyramidalis, or *Succenturiatus*.

FALLOPIUS, the firſt Inventor of theſe *Muſcles*, gives them both their Names; one from its make, being faſhioned like a Pyramid with a broad Baſis, and a narrow Point; the other being as an Auxiliary to the *Oblique Aſcendent*, aſſiſting them in their motion: This ariſeth broad and fleſhy, and by degrees doth narrow it ſelf till it becomes a long *Tendon* implanting it ſelf into the Navel; or ſometimes above, or beneath it, into the *Linea Alba*.

This preſſeth the Belly downwards.

Theſe are ſeen frequently wanting in thoſe who have the Origination of their *Aſcending Muſcles*, not from the *Ileon*, but from the ſtrong Ligament which inwardly paſſeth from the *Spine* of the *Os Pubis*, and hath four Paragraphs in the right *Muſcles*; its commonly obſervable, that the leſt of theſe is uſually the leaſt.

Fallopius ſays, they are made for compreſſing the Urinary Bladder, and for the ſending forth of its Urine.

Columbus writes, that they do aſſiſt in raiſing the *Penis*: But *Flud* confutes this Opinion from their Situation; for they do not reach it, and therefore cannot do any Office to

that part whereto they have no Coherence; besides, these are found in Women.

Nature has shewn her self an industrious Mistress, in thus variously planting all these *Muscles* o're the *Abdomen*, for keeping the inward parts in their Enclosures; and by these their Substantial fleshy Expansions defending them from cold and outward Injuries, arching some of them, and running others into right Lines, and some of them into *Pyramidal* Figures.

This you have at Tab. III. *and* Tab IV. *in its proper place, and the same laid bare,* Tab. V.

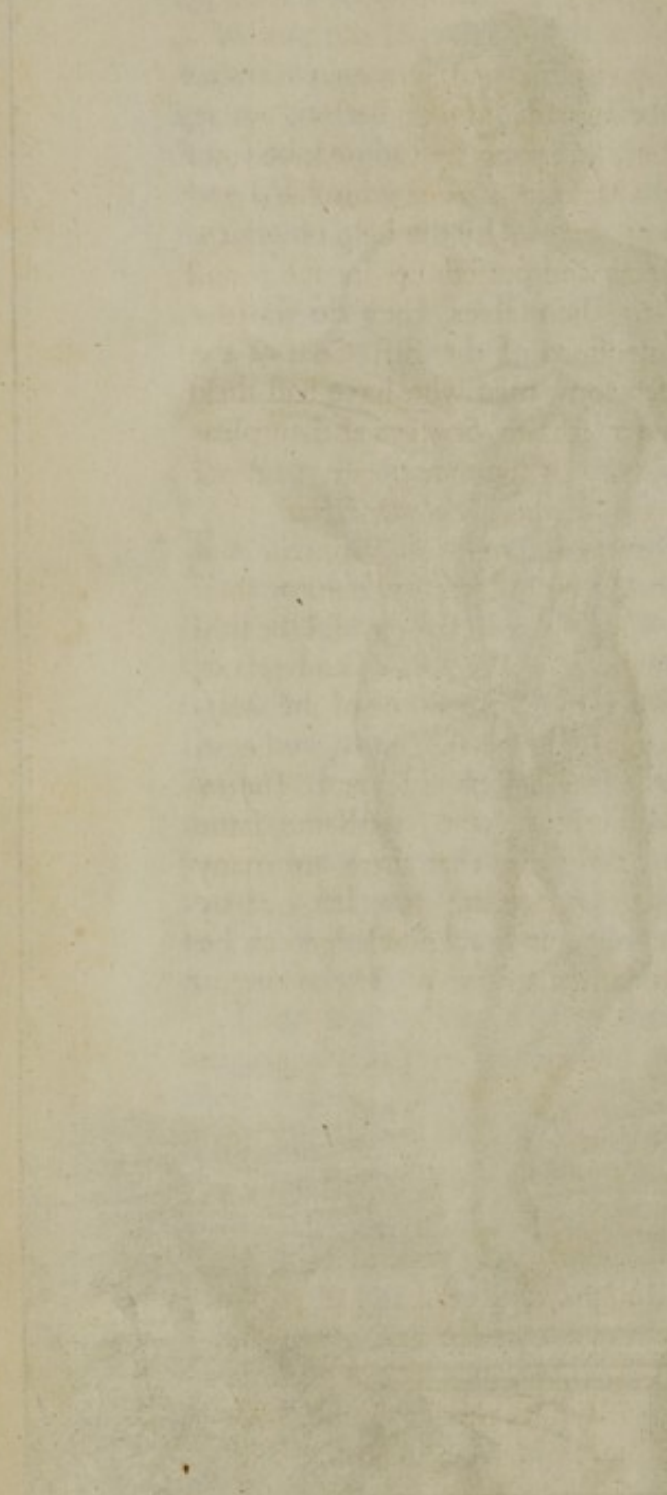
Cremasteres, or *Suspensorii.*

This keeps up the Testicles. EACH *Testicle* is furnished with a proper *Muscle*, which commonly carries the Name of *Cremaster*, as *Regnerus de Graaf* observes; this being tyed to the outward Membrane of the *Vaginal* Coat on either side, which in man hath their Origination from that Ligament which is in the *Os Pubis*: In Dogs and other Creatures, they are seen to arise from the *Tendons* of the *Transverse Muscles*, and their fleshy *Fibres*, running through the *Vaginal* Coat, but mostly in its back part: Hence is it, that the outward part of this Coat appears rough, and very fibrous, while its inward Coat is smooth, and lin'd with a wateriſh Moisture, being strongly annex'd to the lower part of the *Testicles*.

Their Names do describe their proper Uses, they both keeping the *Testicles* warm, and preventing their falling from their proper places, the raising them upwards in Coition also; nor indeed does the drawing up of the *Testicles* towards the *Abdomen* so much proceed from the Corrugation of the *Scrotum*, made by the fleshy *Fibres* of the *Dartos*, as by the Contraction of these *Cremaster Muscles*; which becoming Tense, do raise up the *Testicles* towards the Process of the *Peritonæum*.

This you have at Tab. VI. Fig. III.

TAB. IV.



Dartos.

THE *Scrotum* being nothing elſe but one Skin covered with another; the inner thereof is made up of a fleſhy *Panicle*, which is thinner than the other, it taking its Origination from the *Membrana Carnoſa*, being a *Muſcular Membrane* furniſh'd and repleniſh'd with many carnous *Fibres*; by the help of which, its neighbouring Coat contracts and purſeth up its ſelf; and by the ſame alſo, contracting themſelves, they do narrow and bring in the dilated Dimenſions of the firſt Coat of the *Scrotum*: There have been ſeen ſome men who have had theſe ſo ſtrong, that they could contract their *Scrotums* at their pleaſure; as we have ſeen many, who ,when they pleaſe, contract their Foreheads by the Strength of their *Muſcular Fibres*. *This contracts the* Scrotum.

It's alſo obſerved of theſe parts amongſt old Women, and Midwives, and the like, that ſuch Children who have their Cods much contracted or rugoſe, are ſtrong and healthful; and that thoſe Infants who have them lank and relaxt, are generally very weak and ſickly. This is one of the *Muſcles* left out by our late Animadverter Mr. *Cowper*, who in his Title Page tells us, that he has deſcribed ſeveral *Muſcles* not hitherto taken notice of by others; who, with the ſame Ingenuity, might as plainly have writ, that there are many *Muſcles* taken notice of by others, which are now left out by him; amongſt which this is one, and acknowledged to be ſo before he was born, or dreamed of for a *Muſcle-monger*.

This is not to be ſhewn by Figure.

Muſculi Clitoridis.

THE *Clitoris*, being a ſmall round Body framed of a nervous and ſpongy part ariſing out of the upper part of the *Os Iſchium*, hath many Names allowed it; as, *Amoris Dulcedo*, *Libidinis Sedes*, *Oeſtrum Veneris*, no part of the *Pudendum* being more delighted in Congreſs than this, or raiſing Women to receive their kind Embraces in Man, than the Titillation hereof. *This extends the* Clitoris

Diembroeck ſaith, that the *Clitoris* in Women doth anſwer the *Penis* in Man in Situation and Subſtance, and only dif-

fers therefrom in length; which can carry no great matter of truth in it; this not being perforated in its *Glans*, and no Way or Paſſage found in it to direct it into the *Urethra*, as the other hath into the *Penis*.

The *Muſcles* aſſigned this, do ariſe out of the Bones of the *Coxendix*, which paſſing over the *Crura* of the *Clitoris*, are inſerted into them, and do by their Contraction compreſs the thighs of the *Clitoris*; and by this their Compreſſion, do give a check to the motion of the Blood, and hereby making a Diſtention of the Body of the *Clitoris*.

Another Pair is alſo given to the *Clitoris* by *De Graaf*, ariſing between the *Labia Pudendi* within the *Clitoris*, and its *Retiform Plexure*, and is ſo faſtned to it, that it rather contracts the Entrance of the *Vagina*, than cauſeth any Erection of the *Clitoris*.

This you have at Tab. VI. Fig. IV.

Director Penis, or *Collateralis*.

This pulls the Penis downwards.

THIS hath a Nervous Origination, and they are a ſhort thick Pair of *Muſcles* ariſing from the Appendix of the *Coxendix*, below the Origine of the Nervous Bodies; into whoſe thick Membrane they do terminate, and then their fleſhy *Fibres* do diſappear.

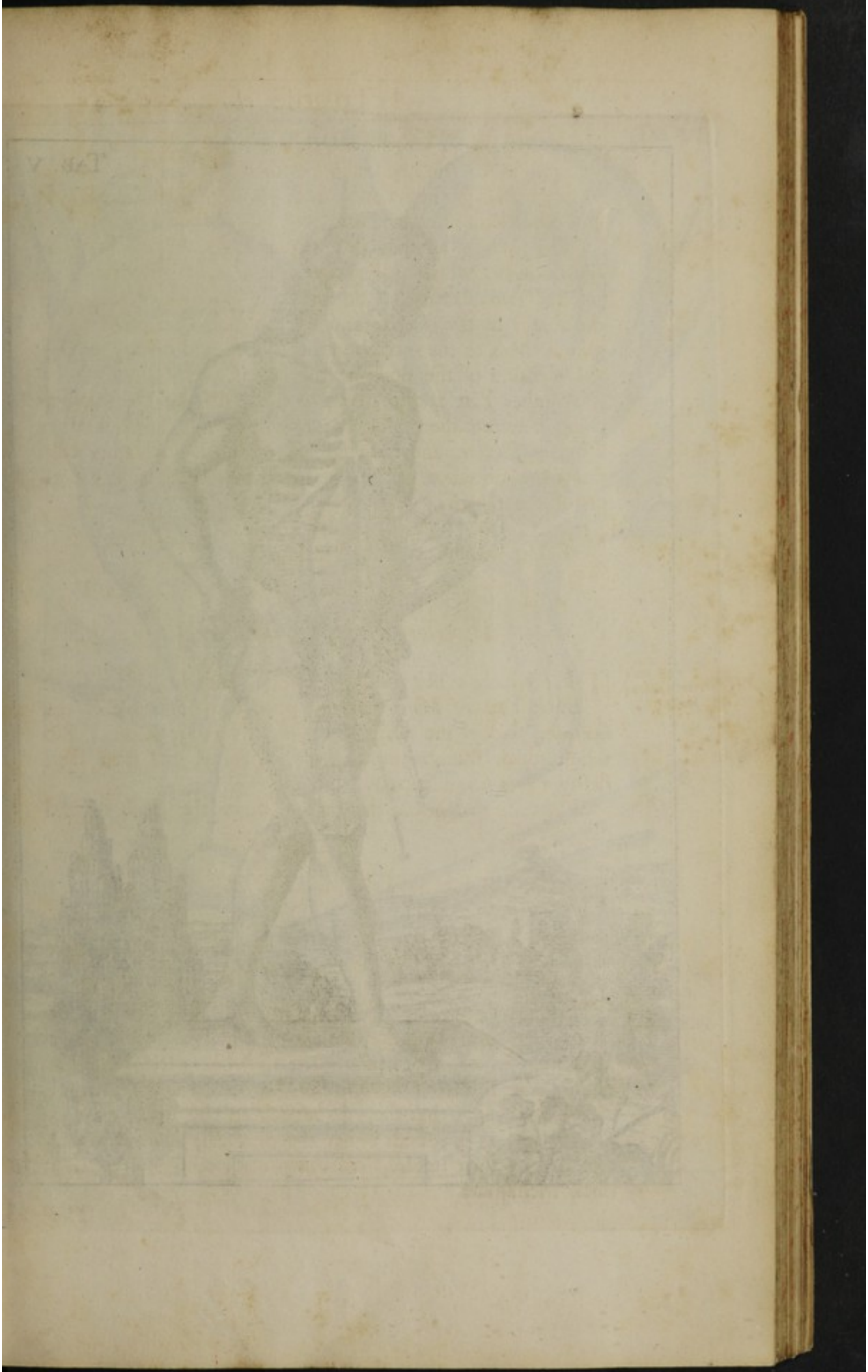
When they operate, they bring down the *Penis* toward the *Oſſa Pubis*.

This you have at Tab. VI. Fig. I, II.

Acceleratores Urinæ.

THESE do take their Names from the Uſe which is made of them in dilating the *Urethra*, and haſtning the Urine's Excretion, as alſo that of the Seed; they being long and thin *Muſcles*, do ariſe from the *Sphincter Ani*, as *De Graaf* affirms; altho' others ſay, that they do ariſe from the upper part of the *Urethra*, as it paſſeth under the *Os Pubis*, and are joyn'd together by their inſides, marching out, and ending in a thick Membrane.

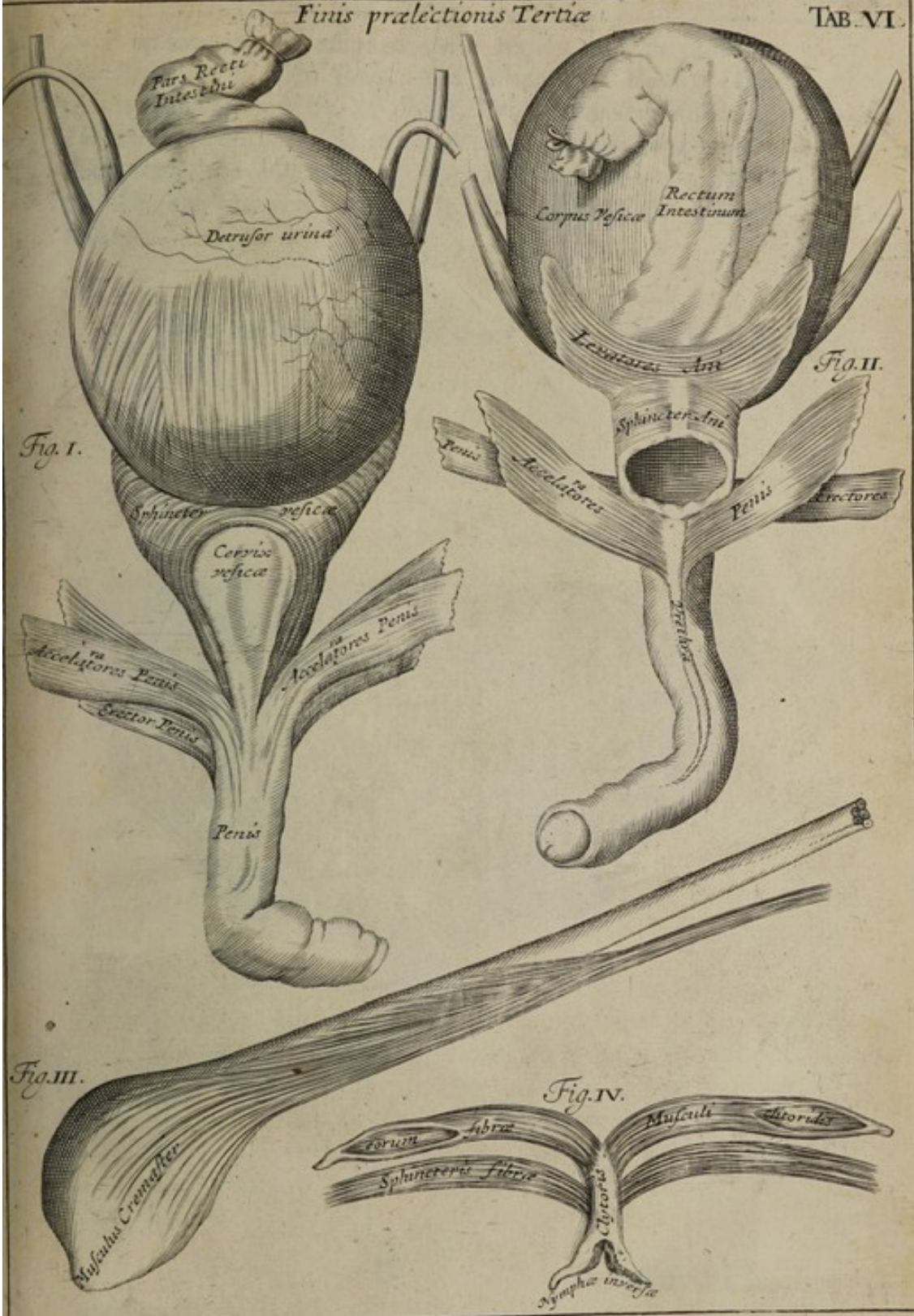
The



TAB. V

Finis prælectionis Tertiæ

TAB. VI.



The former uſe aſſigned theſe *Muſcles* was to promote an Erection in the *Penis*, and dilate the *Urethra*; but this is contradicted by *De Graaf*, who ſuppoſeth that the *Directores* or *Erectores*, do rather depreſs in their Contraction, than erect the *Muſcles*; and that the *Acceleratores* do rather perform the Duty of narrowing, than dilating the Urinary Paſſage.

This you have at Tab. VI. *and* Tab. XIV. Fig. I, II.

Lecture II.

To which theſe following *MUSCLES* do moſt properly belong, *viz.*

Frontalis,	*Abductor Auriculæ*,
Corrugator,	*Temporalis*,
Occipitalis,	*Digaſtricus*,
Orbicularis Clauſor,	*Maſſeter*,
Elevator Palpabræ,	*Pterygoideus externus*,
Elevator,	*Internus*,
Dilatator,	*Styloceratohyoideus*,
Conſtrictor Naſi alarum,	*Coracohyoideus*,
Zygomaticus,	*Mylohyoideus*,
Elevator,	*Geneihoyideus*,
Depreſſor Labii Superioris,	*Sternohoyideus*,
Elevator,	*Styloglosſus*,
Depreſſor Labii Inferioris,	*Ceratoglosſus*,
Sphincter Labiorum,	*Geneioglosſus*,
Buccinator,	*Myloglosſus*,
Quadratus,	*Hypſioglosſus*,
Elevator Depreſſor,	*Lingualis*,
Adductor,	*Maſtoideus.*

Frontalis.

This draws the Forehead upwards.

HAVING cleared the *Abdominal Muſcles*, which in neceſſity required the firſt uſe of the Knife, we next arrive at thoſe which in Dignity do deſerve our Inſpection; beginning with this, which ariſeth from the elated Part of the Front, near the *Temporal Muſcle*, thin, broad and fleſhy; as alſo where the carnous Membrane cloſely adheres to the *Cranium*; which made *Riolan* give it the Name of *Membrana Carnoſa Muſculoſa*; and in its march downwards, is inſerted into that Skin which covers the Eyes, as alſo into the Eye-brows: In raiſing of this *Muſcle* from the *Cranium*, you will meet with Nerves ſent from it.

Obſ. This being elated; it not only raiſeth the Skin of the Forehead with it, but opens the Eyes alſo; and being framed of right *Fibres*, it is a ſufficient Caution for *Young Chyrurgeons*, that they make no croſs Inciſions in this Part.

Bartholine writes, that in a *Naſute* Perſon he obſerved the Appendix hereof, extended even to the *Cartilages* of the Noſe.

This you have at Tab. VII. Fig. I.

Corrugator.

This draws the hairy Scalp backward.

THIS *Muſcle* and its Partner, as *Volcherus Coiter* writes; doth ariſe near the greater *Canthus*, or *Orbite* of the Eye, and ſeems to end about the middle of the Eye-brows; and tho' they are not plainly apparent in all men, yet in ſome they fairly repreſent themſelves; they being generally allowed to draw the Skin backwards, and at the ſame time ſmooth the Front.

This you have at Tab. VII. Fig. I.

Occipitalis.

This helps the former.

THERE are found two other *Muſcles* in the *Occiput*, but they are not commonly ſeen; they being ſhort, broad and thin, ariſing fleſhy from the Tranſverſe Line of the *Occiput*, from whence they do take their Names, and becoming afterwards tendinous do intermix themſelves with the *Pericrane*; theſe alſo ariſing with right *Fibres* marching upwards, are ſometimes ſeen to border upon the *Muſcles* of the Ears: And hence is it, that thoſe who have theſe *Muſcles* very large, can at pleaſure bring the Skin of their Heads backwards; as *Diemerbroeck* well obſerves: Theſe *Muſcles* are not to be ſhown in any of my Figures, much leſs mentioned in any of my former Books of theſe *Muſcles*: When they operate, they are allowed to pull the hairy Scalp backwards.

Orbi-

Orbicularis Clauſor.

THIS *Muſcle* being framed of *Orbicular Fibres*, doth circularly encompaſs the *Eye-lids*: *Veſalius* and *Bartholme* allow this a ſingle *Muſcle*, planted between the *Membrana Carnoſa* and the *Pericrane*, near the Roots of the Noſe, and takes its Origination from the inner *Angle*, and is carried under the lower Lid with *Orbicular Fibres* to the outward *Angle*, and afterwards enwrappeth the upper Lid, and maketh its Inſertion into the greater *Angle* where it began.

This ſhuts the Eye.

This *Muſcle* at firſt view ſeems to be an *Orbicular Muſcle*, but upon a ſtrict Enquiry, it will diſcover it ſelf to be two *Semicircular Muſcles*; of which, the upper and larger being planted in the upper Lid, taketh its Origination from the inner *Angle* of the Eye, near the Noſe; and paſſing thence the length of the upper Eye-lid, is inſerted into the outward *Angle* of the Eye; and being moved downwards, ſmootheth the upper Lid, and covers a great part of the Eye: The other ariſeth with a ſharp *Origine* from the ſide of the Noſe ſomewhat under the other, and paſſing croſs the lower Lid, is implanted with a broad Inſertion into the upper Eye-lid, to which it adjoyns the lower Lid: So that the *Muſcle* of the upper Eye-lid pulleth it down, and that of the lower Lid lifteth it up, which plainly ſhews this to be two diverſe *Muſcles* allowed either of them diſtinct Originations and Inſertions.

This you have at Tab. VII. Fig. I.

Elevator Palpebræ, or *Aperiens Palpebram Rectus.*

THIS is ſaid to ariſe ſharp and fleſhy from the upper *Orbite* of the Eye, near the *Elevator* where the *Optick Nerve* hath its Tranſmiſſion: It having a thin and fleſhy Origination, and is expanded with a broad and thin *Tendon*, into the Margin of the *Palpebræ*, and raiſing the ſame up, doth open the Eye with it.

This opens the upper Eye-lids.

This is not to be ſhewn, but with the other Muſcles *of the Eye, after it is taken out of the* Cranium.

This and the former you have well deſcribed at Tab. VII. Fig. I.

Elevator Naſi Alarum.

This dilates the Noſtrils, and doth raiſe the Alæ.

THESE *Muſcles* ariſe from the Top of the Bone of the Noſe, near the *Lachrymal Cavity*, with a ſharp and fleſhy Origination, deſcending towards its ſides, in a Triangular Form, much reſembling the Greek △, and marching downwards the length of the Bone, is inſerted broad and fleſhy into the *Naſi alas.*

This is not found in all perſons, and it is ſhewn at Tab. VII. Fig. I.

Dilatator Naſi Alarum.

This dilates the Noſtrils.

THESE *Muſcles* are very ſmall and thin, and very ſcarce diſcernable; but in *Naſute* Perſons, they appearing fleſhy at the Root of the *Alæ*, and ſo climing Tranſverſly upwards, are inſerted into the upper Parts of the *Alæ*, and by raiſing them, do at the ſame time dilate the Noſtrils, as *Veſlingius* obſerves.

Theſe Muſcles *are ſo ſmall, and planted ſo inwardly; that they are not to be ſhewn by any of my* Figures.

Conſtrictor Naſi Alarum.

This cloſeth the Nares.

THIS *Muſcle* is much like the former for bigneſs, lodging it ſelf inwards near the Membrane, which covers the Bone of the Noſe: It ariſeth fleſhy at the Root of the *Nares*, and is Tranſverſly carried, and inſerted to the Roots of the *Naſi Alæ*, and upper Parts of the upper Lip; and being very ſmall, is rarely found out, ſave only in *Naſute* Perſons, whoſe general Frame of *Fibres*, are uſually ſeen thicker, larger, and more apparent than in others.

This is alſo ſhewn at Tab. VII. Fig. I. *in its place.*

Zygo-

TAB. VII.

Præfectio Secunda.

Fig. 1.

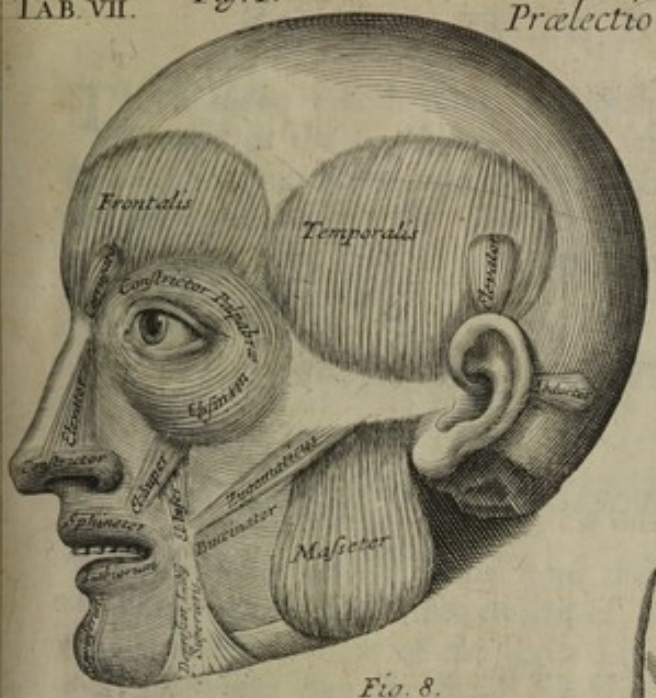


Fig. 6.

Fig. 5.

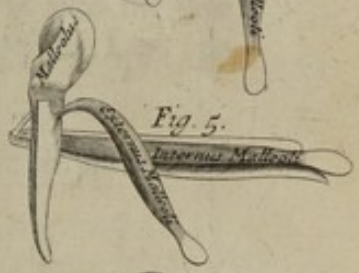


Fig. 4.

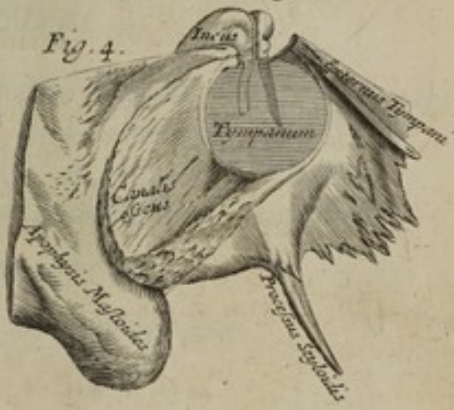
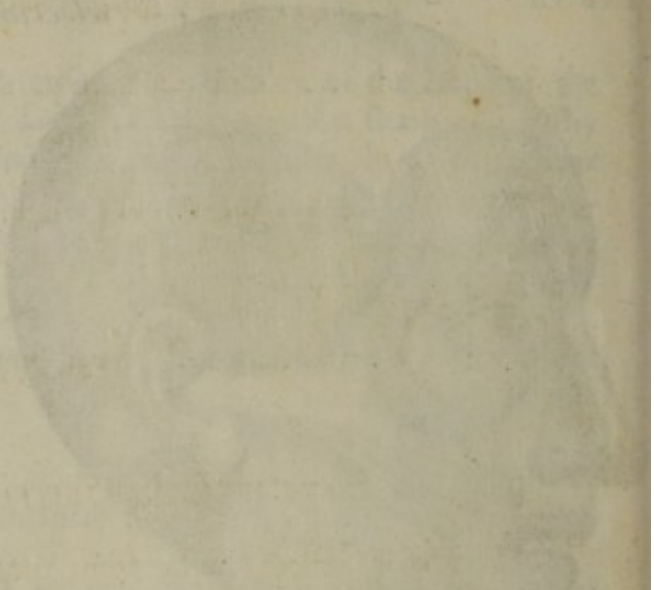


Fig. 8.

Fig. 2.

Fig. 7.

Fig. 3.



Zygomaticus, or *Oris Diſtortor.*

THIS *Muſcle* ariſeth round and fleſhy from the Jugale Proceſs, or the *Os Zygoma*; from whence, according to *Riolan*, it takes its Name, and marching obliquely downwards and forwards through the Cheeks, is inſerted into the ſide of the upper Lip, near *Primus Naſi*, bringing the Lips upwards in its Operation.

This brings the Lip upwards.

This you have at Tab. VII. *in its place.*

Elevator Labii Superioris

THE *Muſcle* ariſeth fleſhy from the *Os Zygoma*, immediately above the former treated of, and deſcending obliquely under the Skin of the upper Lip, is implanted into the Lips where they are joyned together, bring them both upward and outward.

This brings the Lip upwards and outwards.

This is ſhewn at Tab. VII. Fig. I. *in its proper place.*

Depreſſor Labii Inferioris.

THIS ariſeth fleſhy from the lowermoſt and outermoſt Part of the lower Jaw, whence marching obliquely, is broadly inſerted into the middle of the Lip, in its Operation bringing it downwards and outwards.

This brings the lower Lip outwards and downwards.

This is ſhewn at Tab. VII. Fig. I. *under the lower Lip.*

Depreſſor Labii Superioris.

THIS *Muſcle* ariſeth fleſhy from the forepart, and outermoſt part of the upper Jaw above the Gums; and in its aſcent, is inſerted into the roots of the *Naſi Alæ*, and upper parts of the upper Lip, forcing the upper Lip and *Alæ* downwards; and by bringing them cloſer together in their Operations, they do advance our ſmelling of things grate-

This brings the upper Lip downwards.

ful or ingrateful by this their contrary motion; this *Muscle* by some Anatomists, is taken for a pair of *Muscles*.

This is described at Tab. VII. Fig. I.

Elevator Labii Inferioris.

This brings the lower Lip upwards and outwards.

THIS pair of *Muscles* do lodge within the lower Lip, being by some Anatomists call'd *Par Mentalæ*; they arising fleshy from the lower part near the Gums of the lower Jaw, and falling directly down in their insertions to the lower part of the outward part of the Skin, do in their operations draw the upper Lip downwards.

This you have at Tab. VII. Fig. *in its proper place.*

Orbicularis, or *Sphincter Labiorum.*

This purseth up the Lip.

THIS *Orbicular Muscle* is planted in the middle of the five pair of proper *Muscles* belonging to the Lips; and being common to both Lips, and consisting of a soft spongy flesh, is encircled with many *Orbicular Fibres* running about it; by which it wraps in the margin of the Mouth, and closeth the Lips in form of a *Sphincter*.

This *Orbicular Muscle* is an universal Antagonist to all the rest of the *Muscles*, keeping them in right order, and allowing them an equal ballance, doth give them a Tunick motion.

This you have in its proper place at Tab. VII. Fig. I.

Buccinator, or *Constrictor.*

This brings the Cheeks and the Mouth to one side.

THIS *Muscle* from its common use made of it, is generally called the Trumpetting Muscle, it forcing the breath outwards: It is a *Muscle* assigned both to the Lips and other parts, and doth borrow its Origination from the Gums belonging to the upper Mandible, and do terminate in the lower Mandible; and being thin and membranous, as well as broad and fleshy, intermixt with a various set of *Fibres* firmly annext

to

to the inner Coat of the Mouth, they are ſcarce thence diviſeable as *Diemerbroeck* writes: Though this *Muſcle* doth paſs the *Ductus Salivalis Superior*, (which is eaſily found out in a Sheeps head) and in all our readings in our Hall, they are uſually put together by naming it *Buccinator cum ductu Salivali.*

The uſe of this *Muſcle*, is, that by its bringing the Cheeks inwards in Maſtication; it forceth the ſolid Nutriment upon the Teeth for its better Comminution; and when a Proportion of Air is encloſed in the Mouth (whereupon the Cheeks are blown up, and afterwards contracted by the ſtronger and gentler Motion of the *Muſcles*) that the confined Breath may be expelled with greater or leſs force into any kind of Inſtrument of Muſick whatſoever, as Dr. *Collins* very worthily obſerves.

This is ſhewn at Tab. VII. Fig. I.

Quadratus, or *Platyſma Muodes.*

THIS *Muſcle* lying under the Skin, is called *Quadratus* from its Figure; it fairly repreſents a Square, and *Galen* calls it *Platyſma Muodes* from its Muſcular Expanſion; and is properly termed one of the common *Muſcles*: It is a Membranous Encloſure cloſely adhering to the Skin, and ariſing from the Spines of the *Vertebres* of the *Neck*, *Scapula*, *Clavicle*, and *Sternon*, running upwards with oblique *Fibres*, is implanted at the Chin, Lips, and roots of the Noſe, which Parts it brings obliquely downwards; and being ſo cloſely joyned to the Skin, it ſeems to afford it an Aſſiſtance in opening the mouth; ſometimes this *Muſcle* hath been ſeen to reach even to the root of the Ear: In the raiſing this *Muſcle*, be careful of leaving its Elongation, that makes *Adductor Auris ad Interiora*, which you will rarely miſs: Theſe *Muſcles* are perfect Antagoniſts to the *Temporal Muſcles*, which do elevate the lower Mandible, and cloſeth the Lips: This alſo aſſiſting the *Digaſtricus*, do in joint contractions depreſs the lower Mandible, and open the Mouth, by parting the nether from the upper Lip, and the lower from the upper Mandible.

This draws the Cheeks downwards.

This you have at Tab. VIII. Fig. I. *as it is laid bare.*

Elevator Auriculæ.

This lifts up the Ear.

THIS Fine *Auricular* Structure is curiouſly carved out with diverſe Proceſſes, and inſculpt with variety of Cavities, not only made for Ornament and Security, but for other excellent ends alſo: It hath alſo allowed it Concave Flexures for the ready breaking off any violent Motions, or Ruſhings in of Air, and to form a more ready Reception of Sounds, and forming of a Diſtinctneſs of Hearing, of which they have too ſad an Experience, whoſe *Auricles* are decided or cut off by wounds, or loſt by Diſeaſes: This *Muſcle* of the Ear ſhews its uſe from its Name; it ariſing from the external Termination of the *Frontal Muſcle*, being framed of diverſe fleſhy *Fibres*, covering the *Temporal Muſcle*, and being thin and membranous is carried over it, and growing narrower, is inſerted into the upper Part of the Ear, bringing it upwards and forwards.

This is ſhewn at Tab. VII. Fig. II. *and at* Tab. XI. Fig. IV.

Detractor Auris.

This brings the Ear backwards and downwards.

THIS *Muſcle* ariſeth fleſhy, broad, and ſometimes fibrous, from the back part of the Head, near the *Mammillary* Proceſs, and growing narrower in its progreſs, is inſerted into the Cartilage which environs the Ear: Be careful of raiſing the *Cutis*, leſt you take up the *Muſcle* with it, and ſo loſe him.

This *Muſcle* by ſome is allowed a part of *Quadratus Buccas Detrahens*; and by *Du Verny*, it is called *Triceps Auris*, from its threefold Origination allowed it.

This you have at Tab. VII. Fig. III. *and at* Tab XI. Fig. IV.

Adductor Auriculæ.

This brings the Ear forwards.

THIS is a common *Muſcle*, being a part of that which *Spigelius* calls *Quadratus Buccas Detrahens*, and is alſo allowed a part of *Platyſma Myodes*, as *Galen* calls it, both which are but one and the ſame *Muſcle* from his Inſertion; you will find a fleſhy

fleshy and fibrous Elongation implanted into the Root of the Ear.

This you have at Tab. VII. Fig. I.

Abductor Auris.

THIS *Muscle* is planted at the *Occiput*, and ariseth above the *Mammillary* Processes, from a Knot of *Muscles* belonging to the *Occiput*, with a narrow Origination; and being carried Transversly downwards, is inserted with a double, and sometimes a treble Tendon into the Back part of the Ear: In Oxen, Horses, and the like four-footed Creatures, these *Muscles* are much more large than in men, and oftentimes seen more numerous, and have a more evident use made of them. Neither this nor the former is so much as mentioned in the Index by Mr. *Cowper*, the late reforming *Muscle-man*.

This brings the Ear backwards.

This you have at Tab. VII. Fig. I.

Temporalis, or *Crotaphites.*

THE strong and various Motion of the lower Jaw, is truely performed by the different Contractions of its *Muscles*, amongst which, this now discoursing of, gains the Preference from the rest, whose Course of *Fibres* being various, are as strangely put together to encrease their strength.

This brings the lower Jaw upwards.

This Pair invested with the *Pericrane*, do borrow their Originations from the bones of the *Front*, *Temples*, and *Synciput*; from whence they do arise in a thin fleshy beginning in a *Semicircular Figure*, which in their descent grows more fleshy, and afterwards thinner again, towards the *Os Jugale*, raised into a Circular Form, both to secure, and give place to the lower part of the *Temporal Muscle*, which creeping under it, inserts it self, with a short and strong Tendon, into the sharp Proces of the lower Jaw, and in its Contraction drawing it upwards, doth close the Teeth of the upper with those of the lower Jaw, which is seen sometimes acted with that Vigour and Strength, that the Mouth cannot be involuntarily opened, unless by the Interposition of some screwed, Instrument, as is usually seen in those Persons violently

troubled with the Epilepſy, where we many times are forced to uſe a *Speculum Oris* to force open the Jaws to make way for the letting in of ſome proper liquors into the Mouth.

This *Muſcle* is accounted the ſtrongeſt of all the *Muſcles* belonging to the lower Jaw, and it is very dangerous to make Tranſverſe Inciſions here, eſpecially in its lower part, by reaſon of its Variety as well as Multiplicity of *Fibres*, which being croſs-ways wounded, are frequently attended with dangerous and fatal Convulſions: *Hippocrates* alſo writing, that the luxation of the lower Mandible, is very fatal alſo, unleſs ſpeedily reduced. Which makes me much wonder, that our new *Muſcle-man* Mr. *Cowper*, ſhould ſay, That he never could obſerve theſe dreadful Symptoms ariſing in wounds of this *Muſcle*, conſidering his Education, his Age, his multiplicity of Practice, and his general Employ he has had both at the Sea, and in the Hoſpitals: All which might have given him a better Sight into theſe dangerous conſequences.

This is ſhewn at Tab. VII. Fig. I. *and at* Tab. VIII. Fig. I. *you have the ſame laid bare.*

Digaſtricus, or *Biventer*, or *Graphoides*.

This brings the Mandible *downwards & opens the Mouth.*

THIS is ſuch a *Muſcle*, that there are few ſuch to be found in humane body; it gets its name from its double-belly, it takes its origination from the fore-part of the *Maſtoideal* proceſs, near the *Mammiformis*, firſt growing fleſhy, then running into a tendinous body about its middle, and then turns into fleſh again; ſo that it appears like a double *Muſcle* put together by the mediation of a ſmall round Tendinous Subſtance, and then growing fleſhy, does inwardly terminate into the fore and middle part of the *Chin*, being Antagoniſts to the *Temporal Muſcles*, which in their contractions do cloſe the *Teeth* and *Mouth*, by bringing the lower Jaw upwards; and this on the contrary giving them a contrary motion, does open the *Mouth* and *Teeth* by pulling them downwards.

This you have at Tab. VIII. Fig. I. *and at* Tab. IX. Fig. I. *and* II.

Maſ-

Tab. VIII. Musculi Uvulæ vocati à D. D. Croune primùm in lucem erutj et publicè ostensi.

Fig: 2.

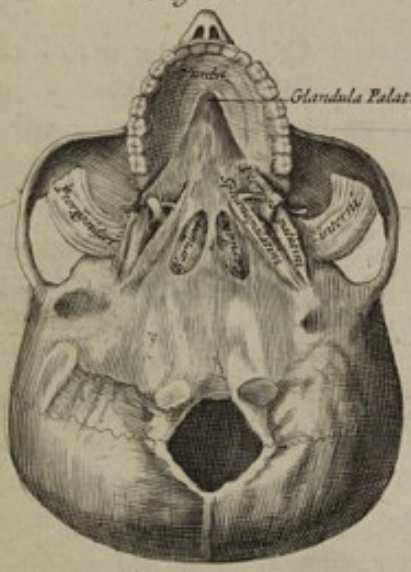


Fig: 1.

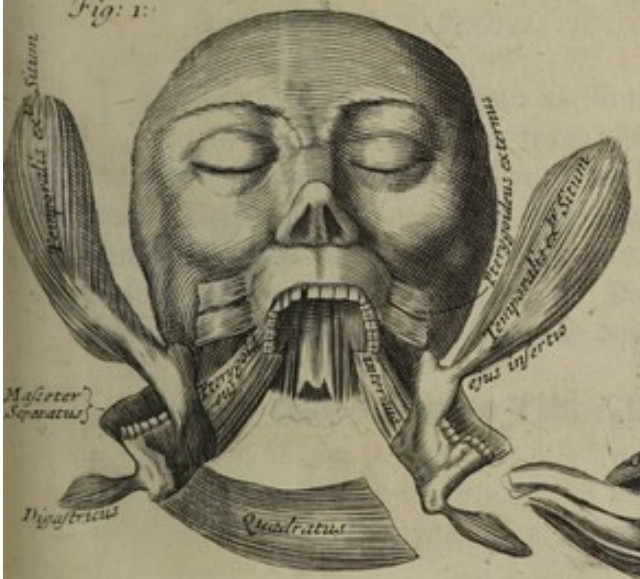
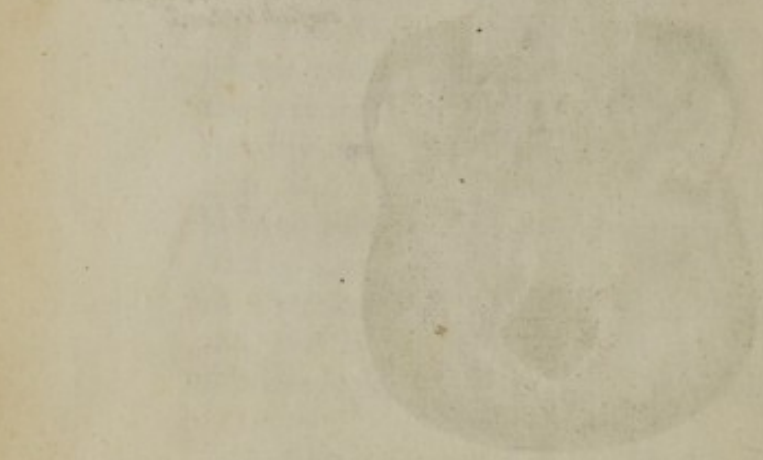


Fig: 3.



Maſſeter, or *Lateralis.*

THIS *Muſcle* ariſeth with a double Origination, ſtrong, ſhort, and thick; it being partly fleſhy, and partly nervous, being carryed from the lower and inner region of the *Os Jugale*, and from the upper Mandible, and is largely and ſtrongly tyed to the lower *Jaw*, and from its variety of *fibres* allowed it, it not only pulls it forwards, backwards, and laterally, but alſo doth work it about. *This brings the lower Jaw ſideways.*

If you throw this *Muſcle* either from its Origination or Inſertion, *Temporalis* will appear in its view.

Its proper uſe is ſhewn in *Maſtication*, it moving the lower *Jaw* either ways: It is called *Manſorius* from its uſe, and from its Situation it has the name of *Lateralis*: This aſſiſts the *Temporal Muſcle* in ſending forward the *Saliva*, which it performs by the upper *Salival Ductus* paſſing over it.

This you have at Tab. VII. Fig. I. *and* Tab. VIII. Fig. I.

Pterygoideus Externus, or *Alare Externum.*

THIS takes its name from its Situation, it ariſeth from the *Os Sphænoides*, as alſo from the outward part of the *Proceſſus Aliformis*, ſtrong nervous and fleſhy, and in its deſcent marching large, is by a ſtrong and broad Tendon inſerted into the inner part of the lower *Jaw* laterally, juſt under the Tendon of the *Temporal Muſcle*, and does bring the ſame forwards, and as it were beyond the upper. *This brings the lower Jaw forwards.*

This you have at Tab. VIII. Fig. I. *and* II.

Pterygoideus Internus.

THIS has its Name alſo from its Origination and Situation, and ariſeth thick and ſhort from the inner Cavity of the *Proceſſus Aliformis*, partly nervous, partly fleſhy; and is inſerted by a ſtrong and broad Tendon into the inſide of the lower *Jaw*, quite contrary to that of *Manſorius*, *This brings it backwards.*

and does promote the action of the *Temporal Muscle*, in bringing the lower *Jaw* inwards and backwards.

These *Muscles* do never appear well, until those of the *Tongue*, *Larynx*, and *Gula*, be compleated in Dissection.

The whole Performance of *Mastication* is managed by the joynt Concurrence of these *Muscles*, and the successive Motion of others, as Dr. *Collins* well observes: In which, as he saith, the *Masseters*, and the *Pterygoidal Muscles*, are most concerned with the *Buccinators*, and the *Tongue*: The moving of the *Digastricks* more properly relating to others, which by depressing the lower *Jaw*, do open the mouth for taking in of the Nutriment, and the *Temporal Muscles* by lifting up the nether Mandible, do close the Teeth with the Meat. The *Digastrick Muscles*, and the *Quadrati* depressing the lower *Jaw*, do open the Teeth, and the *Temporal Muscles* closing them as frequently, do by their contrary successive motion, stamp and lessen the meat while it is between the Teeth. The *Pterygoidal Muscles* and *Masseters* do break it into small pieces. The Internal *Pterygoides* drawing the lower *Jaw* outwards, and the *Externi* pulling it inwards, and the *Masseters* by reason of its *Fibres* variously discussating each others in diverse *Angles*, do assist the former in their Contractions, by which they bring the lower *Jaw* both inwards and outwards, for the better lessening of the Nutriment in *Mastication*, the *Buccinators* and the *Tongue* lending them their useful Concurrence, in keeping the meat in its due place.

This you have at Tab. VIII. Fig I, II.

Styloceratohyoideus.

This brings the Os Hyoides *upwards & backwards.*

THIS ariseth fleshy and sharp from the root of the *Processus Styloides*, being small and round, and then growing larger, is implanted into the Horn of *Os Hyoides* under the Chin, and is infallibly found near *Digastricus*, where it is divided, to make way for the Entrance of the Tendon of *Digastricus*, belonging to the lower Jaw, through which he obliquely runs; its Insertion being at the lower part of the Horn, or rather towards the *Basis* of the *Os Hyoides*, bringing the *Os Hyoides* obliquely upwards. Now, altho' this is allowed as proper a *Muscle* as any other belonging to the

Os

Os Hyoides, ſo granted by *Bartholine*, *Riolan*, *Laurentius*, *Spigelius*, *Veſalius*, *Diemerbroeck*, and I believe by his Friend *Bidlow* too, yet our correct Reformer of *Muſcles*, (I mean Mr. *Cowper*) has thought fit to make no mention thereof in his Book, on Purpoſe I ſuppoſe, to ſhew himſelf an exact Reformer of this uſeful Part of Anatomy, which I ſuppoſe we muſt not take to be any miſtake in him, becauſe he mightily pretends to rectifie other mens Deſcriptions, and ſupplies their Defects, and retrencheth their Errors.

This you have at Tab. IX. Fig. I, II. *and at* Tab. X. Fig. I.

Coracohyoideus.

THIS *Muſcle* is very thin and long, and ariſeth (as *Diemerbroeck* writes, with moſt other Anatomiſts) from the upper ſide of the *Scapula*, near the *Coracoidal Proceſs*, (tho' our new *Reformer* ſaith it hath another Origination and not that, as thoſe vulgar Anatomiſts pretend, only to let us ſee he is *nulli ſecundus*,) at the root of which, it marching obliquely under the ſeventh *Muſcle* of the Head, does there become a round and ſmall Tendon; and then appearing again fleſhy, is implanted into the Horns of the *Os Hyoides*, bringing it obliquely downwards: If you leave this *Muſcle* in its Origination at the *Levator*, you will find his beginning perfect: This *Muſcle* hath allowed it a double *Venter*, as has its former Companion, that the *Jugulars* may not be compreſt by it.

This brings the Os Hyoides *obliquely downwards.*

This you have at Tab. IX. Fig. I. *layd bare, and at* Fig. II. *you have the ſame, and at* Tab. X. Fig. I.

Mylohyoideus.

THIS *Muſcle* takes up that part which is between the lower Jaw, and the *Os Hyoides*, and ariſing laterally fleſhy from the ſaid lower Jaw under the *Dentes Molares*, marches with a double Set of fleſhy *Fibres* into the *Baſis* of the *Os Hyoides* externally. This is to be thrown upwards in Diſſection: *Riolan* gives this at the fulleſt, but is not decyphered in my Book of *Muſcles*.

This brings the Os Hyoides *directly upwards.*

Geniohyoideus.

This brings it upwards & forwards.

THIS, by some Anatomists is called *Rectus Attollens*, it being a short, thick, and fleshy *Muscle*, arising from the inner parts of the lower Jaw, or the Chin, and marching downwards, is inserted in a proper Cavity at the *Basis* of the *Os Hyoides* internally, bringing it upwards and forwards, and doth assist the *Genioglossi* in thrusting forth of the Tongue.

This you have at Tab. IX. Fig. I, II, III. *and at* Tab. X. Fig. I.

Sternohyoideus.

This brings the Os Hyoides downwards and backwards.

THIS *Muscle* ariseth broad and fleshy from the upper and inner part of the *Sternon* (as most Anatomists write) (altho' denied by Mr. *Cowper*,) under the Skin of the Neck, and running all along in the same breadth and thickness, on the *Aspera Arteria*, and the *Cartilago Thyroides* of the *Larynx*, doth insert it self into the *Basis* of the *Os Hyoides*, bringing it directy downwards, and somewhat backwards.

This you have at Tab. IX. Fig. I, II. *and at* Tab. X. Fig. I.

Styloglossus.

This brings the Tongue upwards and inwards.

THIS *Muscle* ariseth sharp, small, and fleshy, from the *Styloidal* Process, and growing broader and fleshy, is inserted into the middle of the Tongue, and does draw the Tongue upwards and inwards; it's best found by discovering the *Processus Styloides* with your Finger, and then your Eye will direct you to it at the side of the Tongue: in Man it is slender, but in Beasts it's double, fleshy and thick.

If either of them do move, they do bring the Tongue directly to the right or left side; but both moving, they bring it to the *Fauces*.

This you have at Tab. IX. Fig. II. *and at* Tab. X. Fig. II.

Cera-

Ceratogloſſus.

THIS *Muſcle* ariſeth fleſhy from the Bones of the *Os Hyoides*, and is obliquely planted at the ſides of the Tongue, near its root; if they both act, they bring the Tongue inwards and downwards; if one only works, it brings it to one of its Sides. *This brings the Tongue downwards and inwards.*

This you have at Tab. IX. Fig. II, III. *and at* Tab. X. Fig. II.

Genioglosſus.

THIS *Muſcle* ariſeth fleſhy with a narrow Origination about the middle of the lower Jaw, or Chin, and then enlarging himſelf, is inſerted into the root of the Tongue; when they both act, they pull the Tongue forwards, and at the ſame time do thruſt it out of the Mouth: *Veſlingius* takes this for one of the *Muſcles* of the *Os Hyoides*, and writes that it is fixed to its *Baſis*. *This brings the Tongue forwards.*

This you have at Tab. IX. Fig. II. *and at* Tab. X. Fig. II.

Myloſſus.

THIS *Muſcle* ariſeth with a broad Origination, from the innermoſt part of the lower Jaw under the *Molares*, and is inſerted into the Ligament of the Tongue, which ties the *Baſis* to the *Fauces*; at the Origination of *Mylohyoideus* you may clearly find it, and it is beſt ſhewn when the Mandible is divided: When one of theſe move, the Tongue is turned upwards; if both move, they lift up its Tip towards the Palate or Roof of the Mouth: This is another of the *Muſcles* not taken notice of by Mr. *Cowper*, who writes purely for doing every man juſtice, and himſelf to Boot: this is another of his retrenched Errors. *This brings the Tongue upwards.*

This you have at Tab. IX. Fig. III. Tab. X. Fig. II.

Hypsiloglossus, or *Basioglossus.*

This draws it inwards and downwards.

THIS *Muscle* ariseth fleshy from the *Basis* of the *Os Hyoides*, and does end in the middle of the Tongue, and by bringing it inwards, does at the same time draw it backwards. Mr. *Cowper* also writes Page 80. of his Book, that whether there be such a *Muscle* as this, his late Enquirers have not acquainted him: If he pleaseth to consult, *Vesslingius*, *Bartholine*, *Spigelius*, he may meet with this there; and because I will not give him the trouble of looking into my first so erronious a Collection of others mistakes, if he will but cast his Eye on *Diemerbroeck*, or his own Country-man, Dr. *Collins*, he will find them both there, as also *Mylogloſſus* another of his *Muscles* not thought worthy of being mentioned by him; and if I mistake not, his Friend *Bidlow* hath told him as much: So that he need not make himself so great a Stranger to this *Muscle*, if he be that man of Dissection he pretends to be.

This you have at Tab. IX. Fig. II. *and at* Tab X. Fig. II. *by the Name of* Basiogloſſus.

Lingualis.

This moves the Tongue in constriction and in dilatation.

THIS *Muscle* ariseth fleshy and large from the *Basis* of the *Os Hyoides*, and runneth forward to the Top of the Tongue; and at this day it is disputable whether it be a *Muscle* or not: But *Spigelius* gives it this use, that its *Transverse Muscles* do thicken it, and as it were constringe it, and that by its *Oblique Fibres* it is dilated, and that its right *Fibres* were formed for bringing it towards the Palate.

There is no Description of this Muscle *in* Figure.

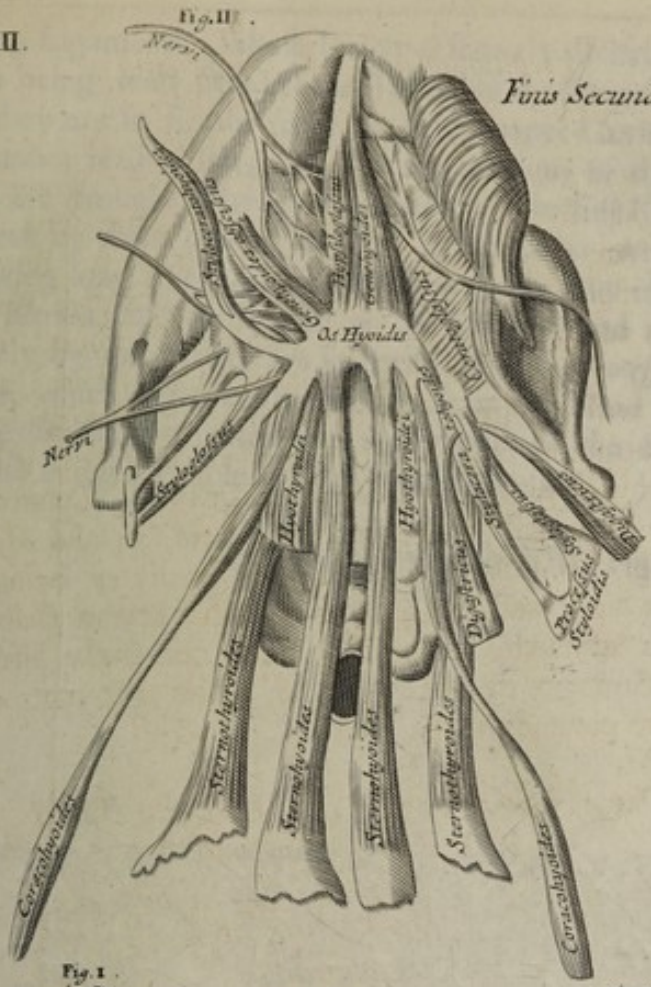
Mastoideus.

This Contracts the Neck.

THE System of *Spinal Vertebres* may properly be termed a Chain made up of two extream Parts, each part being formed of many Links put together, by the interposition of

TAB. VIII.

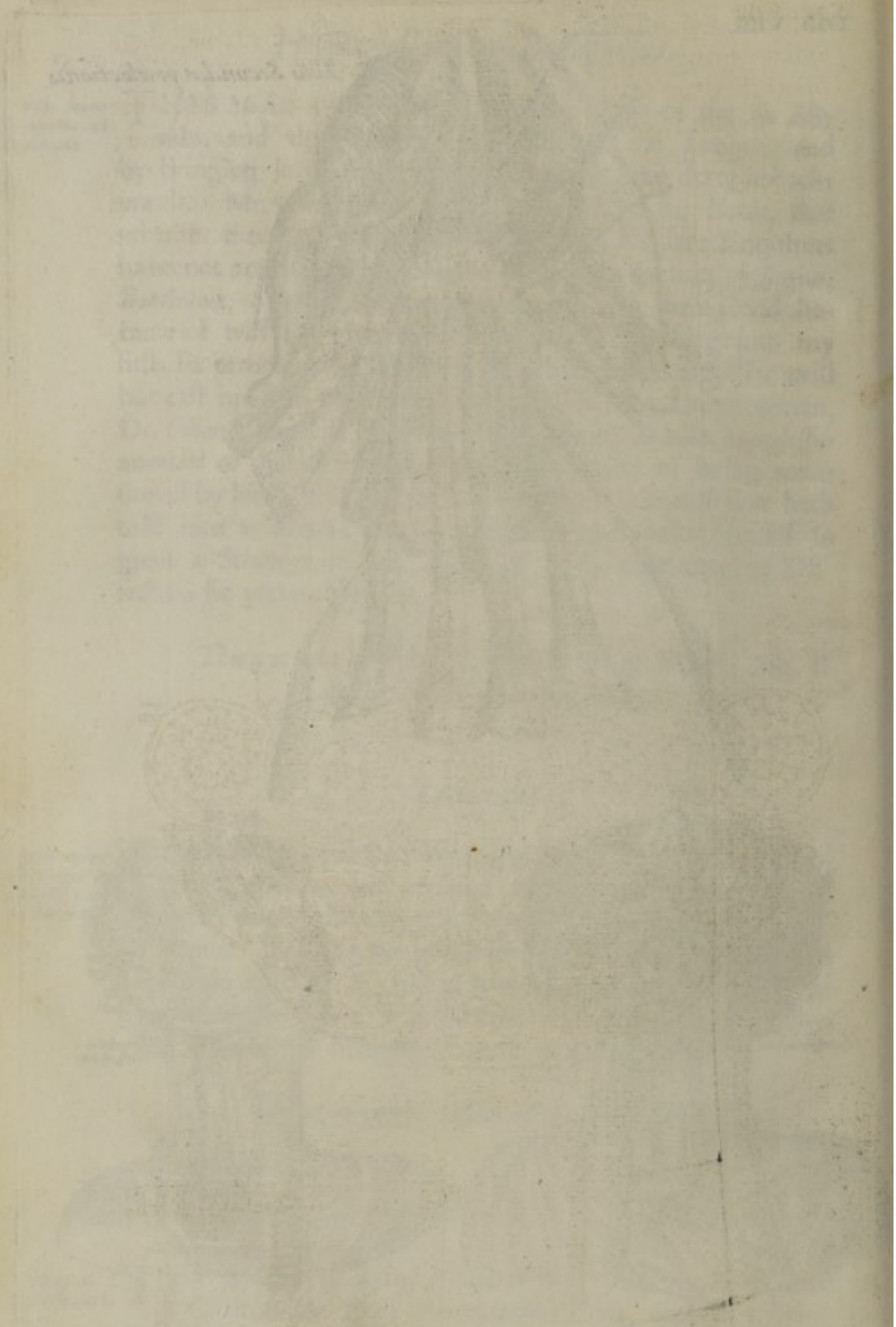
Fig. II.



Finis Secundæ prælectionis

Fig. I.

Fig. III.



of ſtrong Ligaments, whoſe Union is ſcarcely diviſable, their Sinews being well fitted to the Heads of the *Occiput*; whereupon they are ſo firmly fixed in their proper Cavities, that they cannot readily ſtart out, by the motions of the Head; which are brought forward in flexure on the firſt *Vertebre* of the Neck by theſe pair of *Muſcles*, as Dr. *Collins* writes, and they being long thick *Muſcles*, (ariſing partly out of the top of the *Sternon*, and partly out of the *Clavicle*) and aſcending obliquely by the Neck, are inſerted into the *Proceſſus Mammiformes*, which being contracted, do draw the Head forward, pulling the Chin towards the upper part of the *Sternon*.

Theſe in aged People are very conſpicuous.

This you have at Tab. VIII. Fig. III.

Lecture III.

Having these following *MUSCLES* belonging properly to it, *viz.*

Hyothyroides,
Sternothyroides,
Crycothyroides,
Crycoarytænoides Lateralis,
Thyroarytænoides,
Crycoarytænoides Posticus,
Aritænoides,
Stylopharyngæus,
Sphænopharyngæus,
Cephalopharyngæus,
Oesophagæus,
Sphænopalatinus,
Pterygopalatinus,
Obliquus major cum Trochlea,
Obliquus minor,
Elevator, *Depressor*, *Adductor*, } *Oculi*,

Abductor Oculi,
Laxator externus,
Tensor internus Tympani Auris,
Longus,
Scalenus,
Serratus Major,
Serratus minor anticus,
Subclavius,
Intercostales externi,
Interni,
Triangularis,
Diaphragma,
Musculus Cordis,
Detrusor Urinæ,
Sphincter Vesicæ,
Sphincter Ani,
Levatores Ani,

Hyothyroides.

THIS *Muscle* ariseth fleshy from the whole side of the *Os Hyoides* at its *Basis*, and running along with right *Fibres*, is inserted into the lowermost and lateral part of the *Scutiformal Cartilage*, and by attolling it, doth dilate its cleft: Upon your raising this *Muscle* clear from its Origination and Insertion, you will with ease find out all the other *Muscles* of the *Larynx*; and thence is it, that when we would form a sharp voice, we do usually raise up our *Larynx*.

This contracts the Larynx, and brings it upwards.

This *Muscle* being contracted by raising up the *Larynx*, does force the Nutriment towards the entrance of the Gullet in its order to Deglutition, which is facilitated by the *Epi-*

glot closing the head of the Wind-pipe, for hindring the falling of the Nutriment into its Cavity, in its passage over it.

This you have at Tab. IX. Fig. I, II. *and at* Tab X. Fig. III.

Sternothyroides.

This extends the Larynx *and brings it downwards.*

THIS *Muscle* ariseth fleshy and broad from the upper and inner part of the *Sternon*, and keeping his Dimensions, creeps up with straight *Fibres* along the *Aspera Arteria*, and is inserted into the lower part of the *Scutiformal Cartilage*, and having prest the *Scutiformis*, it narroweth its cleft.

It's generally allowed, that this with its Partner, working, do draw down the *Larynx*, by lengthening the Pipe between the *Rima* and Cleft of the Tongue.

This you have at Tab. IX. Fig. I, II. *and at* Tab X. Fig. III.

Cricothyroides.

This brings the Cartilage obliquely downwards.

THIS being a short and thin fleshy *Muscle*, doth take its origination from the forepart of the *Annulary Cartilage*, and ends at the Sides of the *Scutiformis*; and hence it takes the name of *Cricothyroideus Anticus*, and is supposed to bring the *Cartilage* somewhat obliquely downwards, it arising in the fore and lower parts of the *Larynx*.

When it is contracted, it extends the *Annular Cartilage*, and opens the Cleft, for making a deep and greater Vociferation.

This you have at Tab. IX. Fig. I. *and at* Tab. X. Fig. III, IV.

Crycoarytænoides Lateralis.

This extends it Obliquely lateral.

THIS *Muscle* is made short, small and fleshy, arising at the sides of the lower part of the *Annulary Cartilage*, and in its oblique Ascent is inserted into the outside of the *Arytænoides* laterally, not far off from the former, opening the *Larynx* by the Oblique Deduction of its *Cartilages*.

Obs.

TAB. X.

Prælectio Tertia.

Fig. 2.

Fig. 3.

Fig. 1.

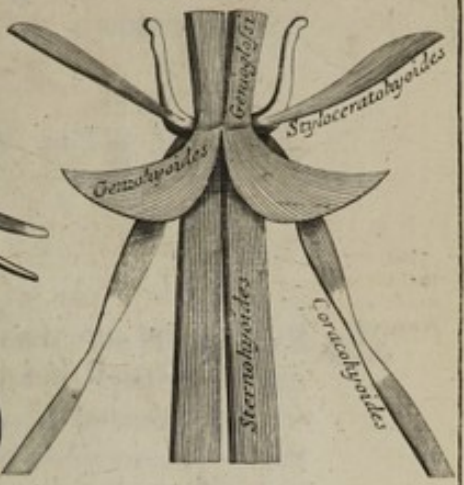


Fig. 5.

Fig. 4

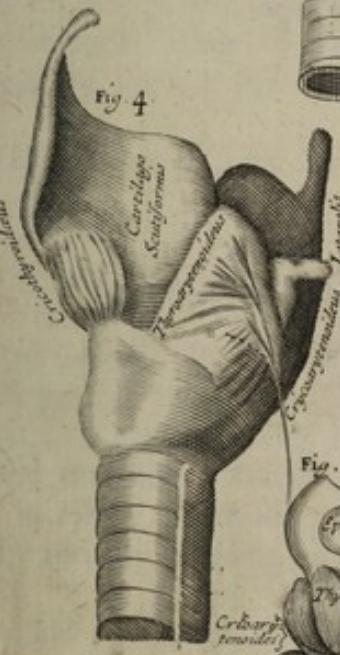


Fig. 7.

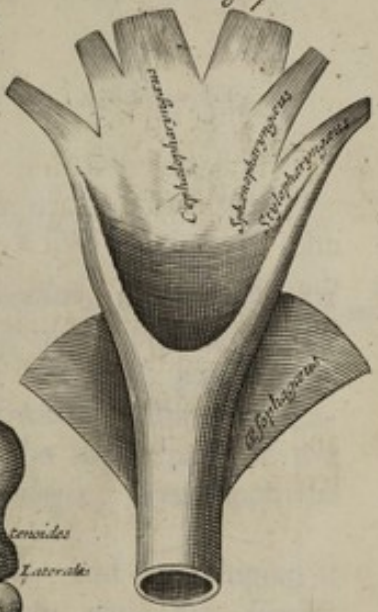
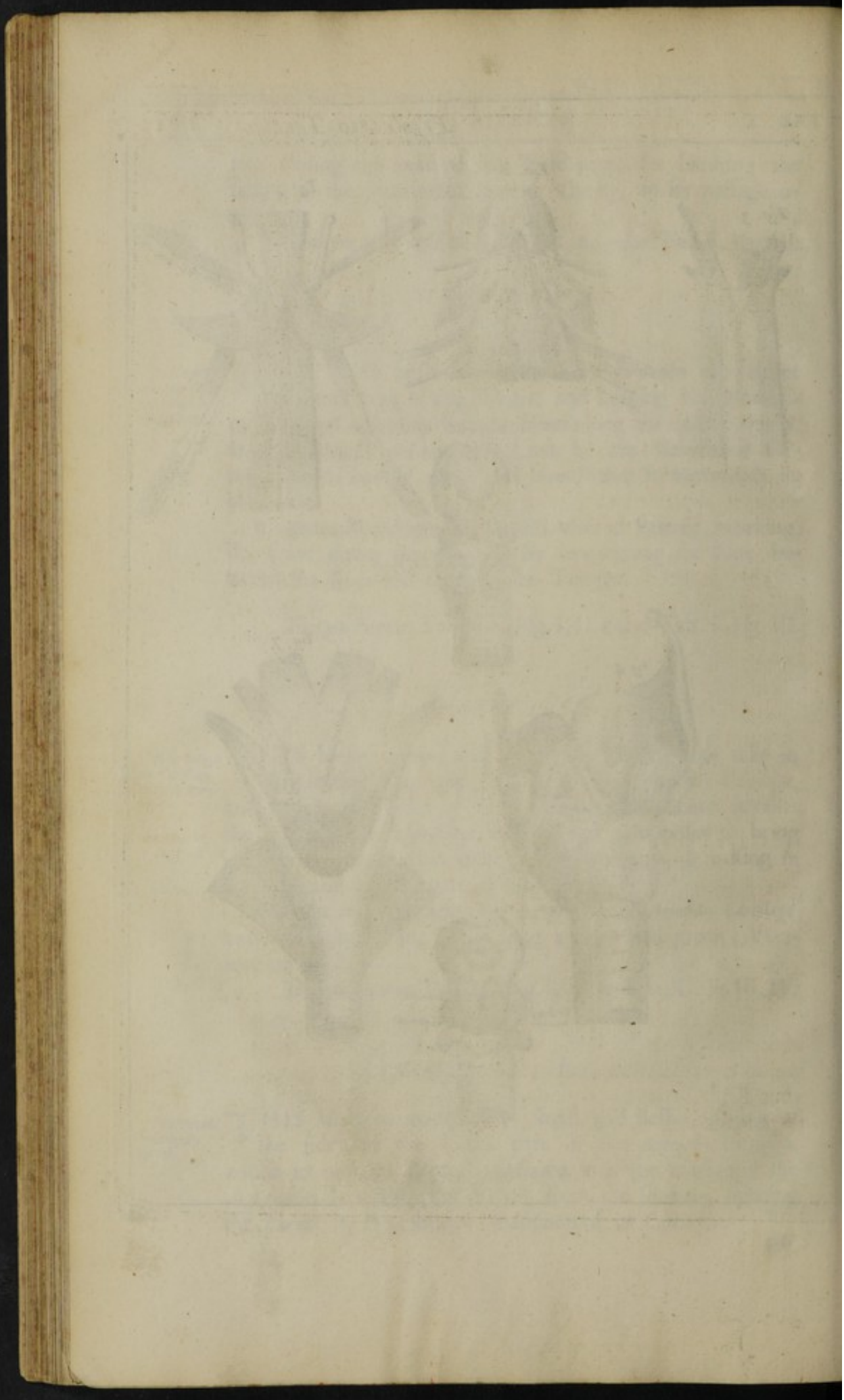


Fig. 6.



Obs. Here we may observe, that by how much the second Pair of *Contracters* do bring the *Cartilage* to a mutual closure, the other Pair of *Extenders*, do bring it outwards, and open its Cleft.

This is shewn at Tab. X. Fig. IV. *and* Fig. VI.

Thyroarytænoides.

THIS *Muscle* ariseth fleshy and broad, and is the largest of all the proper *Muscles* of the *Larynx*, and is Transversly implanted into its Cavity, and being carry'd upwards lengthways, is implanted at the fore parts of the *Arytænoides*, which makes the *Glottis*, the which constringing, it shuts the *Larynx*. *This contracts it.*

This *Muscle* is best found out, by dividing the *Cartilago Thyroides*, from the *Crycoides*, *Arytænoides*, and subjacent *Muscles*, the Coats of them being carefully preserved, after which this will plainly shew it self.

This is shewn at Tab. X. Fig. IV. *and* Fig. VI.

Crycoarytænoides Posticus.

THIS, by *Casserius*, is called *Par Cucullare*, it bordering on the back part of the *Larynx*, being much of a Quadrangular Figure; it arising fleshy from the back part of the *Cricoides*, and marching Obliquely upwards, filling its Cavity with its *Fibres*, is implanted in the lower part of the *Arytænoides*, and by dividing its *Cartilages*, does open the *Larynx*. *This extends the* Larynx.

This is said to extend the *Arytænois*, and by bringing it backwards to the outward parts, does open the *Epiglot*, which is easily shewn, upon turning the *Muscle* back with your Knife, where you will plainly see the *Arytænoida Cartilage* readily open upon it.

This you have at Tab. X. Fig. V.

Arytænoides.

This Obliquely contracts it. THIS is a very ſmall *Muſcle*, and fleſhy, and ariſing with *Oblique Fibres* from the *Arytænois*, and joyning its ſelf to the *Cricois*, is inſerted into it, ſeeming to joyn themſelves together:

This moves the *Arytænois* Obliquely, and to either ſide, and by conſtringing its *Baſis*, does ſhut the *Glottis:*

Obſ. Its action is very remarkable, *viz.* When we forceably ſtop our Breath for ſome time, we do obſtruct the motion of the *Muſcles* of the Trunk, whoſe uſe is imployed in Expiration. Here we have Mr: *Cowper* ſhewing his kind Reſpects to Dr. *Crown*, (who was ſo good a Friend to him as he himſelf elſewhere acknowledgeth) in telling us he can by no means approve of his Opinion about this *Muſcle.*

This is ſhewn at Tab. X. Fig. V:

Stylopharyngæus.

This does dilate the Gullet. THIS is allowed one of the third Pair, it ariſing with a ſharp and fleſhy beginning from the inner part of the *Styloidal* Proceſs, and Obliquely Deſcending with its thin Body, expands it ſelf at its Termination of the former. This pair acting as *Veſlingius* and others allow, doth bring the *Fauces* upwards and dilate them, and are alſo ſaid to enlarge the Cavity of the Gullet: Others ſay that this is a Conſtrictor:

This you have at Tab. X. Fig. VII:

Sphænopharyngæus.

This dilates the Fauces. THIS is one of the ſecond Pair, and this with its Partner is allowed to promote or help forward our Deglutition, and that was the reaſon they are ſo planted in this place, *viz.* at the upper part of the *Oeſophagus*, they ariſing thin and nervous, near the Appendix of the *Os Cuneiforme*, and falling down by the inner Cavity of the *Pterygoides*, is in-

inſerted by a ſmall Tendon into the skinny part of the Palate, from whence the *Gargareon* does ſeem to ariſe, and does dilate the *Fauces*.

Obſ. Neither is this or its Partner to be raiſed fair without much difficulty, and to find them, after you have raiſed the *Larynx* and the *Oeſophagus*, leave the *Fauces* entire; then devide the *Fauces* themſelves from the *Os Palati*, till you arrive at the Cavity, then carry your Kniſe cloſe inwards to the *Os Cuneiforme*; and when it is thus divided, you will meet with both their Originations, which you may diſſect with great Eaſe.

This is another *Muſcle* left out by Mr. *Cowper* in his aforeſaid Book, and yet he tells us his is an entire Hiſtory: I only mention it, to let the world ſee how careful he has been in giving us ſuch an entire Hiſtory as he Prints in his Title Page.

This you have at Tab. X. Fig. VII.

Cephalopharyngæus.

THE *Oeſophagus* or *Gullet*, being made as a Tube or hollow Trunk, to tranſmit the Aliment from the Mouth to the Stomack, is a Structure made up of *Muſcles*, *Membranes*, and the like, whoſe motions are chiefly performed by ſeven *Muſcles*; this being generally allowed one of the firſt Pair. It ariſing from the *Cranium*, and the firſt *Vertebre* of the Neck, where they are joyned, and in its Deſcent, is implanted into the ſides of the *Os Hyoides*, *Cartilago Scutiformis*, and the beginning of the *Oeſophagus*, from whom he ſeems to derive his Coat, and by attolling it, does at the ſame time conſtring the *Fauces* in Deglutition, it taking its Name chiefly from its Origination: This is another *Muſcle* left out by Mr. *Cowper* in his *Anatomia Reformata*.

This contracts the Fauces, and thereby dilavate them.

This is ſhewn at Tab. X. Fig. VII.

Oesophagæus, or *Sphincter Gulæ.*

This contracts the Fauces

THIS is allowed the seventh *Muscle*, and is both a fleshy and broad *Muscle*, encircling the *Oesophagus*, it taking its Origination from each side of the Buckler Cartilage, and gives afterwards a soft fleshy covering to the *Gullet*, and by its variety of *Fibres* which it allowed it, is said to contract the Cavity of it; by which it doth at the said time force the Aliment forwards in its passage into the Stomack.

This is shewn at Tab. X. Fig. VII.

Sphænopalatinus.

This tires the Palate, and brings it backwards.

MAN has consigned to his Ante-chamber an upper Portal finely hollowed within, for the better tuning of his voice, and assisting of his Tongue in the Articulation of Letters, as also for the better indulging our Palates in eating or drinking savoury Meats, or pleasant Drinks; and as it hath variety of parts allowed it, so it hath given it these two pair of *Muscles*, which the late worthy Dr. *Crown* has thus named, *viz. Sphænopalatinus* and *Pterygopalatinus*: This arising from the *Os Sphænoides*, and with a broad Tendon, doth insert its self into the sides of the *Glandula Palati*; where becoming a round fleshy Belly, and afterwards growing less near its Insertion, does carry the same Body in it to the back-part of the *Gargareon*.

Obs. From the Situation and Action of these *Muscles*, with the *Pterygopalatini*, may some account be given, how the *Uvala* being relaxed, is so easily reduced, by thrusting the Thumb bent towards the Palate, or these *Muscles*.

This you have at Tab. VIII. Fig. II.

Pte-

Pterygopalatinus.

THIS ariſeth from the ſame Proceſs of the *Os Sphæ-noides*, as did the former, and deſcending like him length-ways, is inſerted into the inner Cavity of the *Os Pterygoides*, where its Tendon does ſeem to terminate; it firſt running over a part of the aforementioned Bone, and then is ſeen to inſert its ſelf at the forepart of the Palate. *This brings the Uvula downwards.*

This you have at Tab. VIII. Fig. II.

Obliquus major cum Trochlea & Muſculo Trochleari.

THE *Eye*, that *Orbicular Body* planted in the Front, for ſecuring us in all our Actings and Conduct, is a Syſtem made of many parts, which have a Dependence on each other, and every of which are Subſervient to this Noble Member, for the better obtaining of our Sight: I ſhall not enlarge any farther on this part, but only treat of the *Muſcles* given to it; Beginning with this. *This brings the Eye inwards.*

Moſt Authors do aſcribe three Names to this *Muſcle*, calling it *Obliquus* from its Poſition, *Trochlearis*, from its *Cartilaginous Pulley*, through which it paſſeth, and *Longiſſimus* from its length, being conſidered with the other *Muſcles* of the *Eye*. Now this *Muſcle* being both longer, and ſeated above the other, has the ſame Origination with the third right *Muſcle*, it getting its thin Body into a *Cartilaginous Pulley*, which being made ſharp and fleſhy, does through it aſcend Obliquely to the upper part of the *Eye*, and ends near the Tendon of the *Obliquus minor*, and being aſſiſted with this Pulley, does turn the *Eye* Obliquely inwards towards its inner *Corner* or *Canthus*.

Uſe. This *Muſcle* by ſome is called *Amatorius*, or the Ogling or Rowling *Muſcle*, from the uſe Lovers do make of it with their Miſtreſſes: Several *Fibres* are allowed to paſs from the *Perioſtium* to the forementioned *Trochlea*; which according to the Opinion of ſome *Anatomiſts*, were made on purpoſe for forming of this *Trochlearis*, tho' the uſe of them does ſeem rather deſigned for a more ſteddy Fixing or Tying of the *Trochlea*, than any Muſcular Motion.

M. This may serve as an Answer to *Medicaster* as to its Description, as well as to others, and I think it is plainly evident to any man, in Tab XI. Fig. III, V. and was so in my first English Book at Page 20, altho honest *Medicaster* was pleased to say, I have neither given it its Figure or Use.

This is shewn at Tab. XI. Fig. III, *and* V.

Obliquus Minor.

This brings the Eye obliquely downwards.

AS the former shew its self the longest, so this appears as the shortest of the *Muscles* belonging to the *Eye*, it ariseth from the lowermost Margent, or from a Chink in the lower part of the *Orbite* of the *Eye*; in its Origination fleshy, small, and not altogether round; and being carried Obliquely all along upwards towards the outer *Canthus* of the *Eye-lid*, does terminate with a short, but Nervous Tendon, near the Verge of the *Iris*, or not far from the Tendon of the *Abducent Muscle*, and in its Contraction does pull the *Eye* Obliquely downwards towards the lesser *Angle*.

Use. These two *Oblique Muscles* are of great Use in enlarging the Sight of the *Eye*; for by the various Movings of these *Muscles*, as bringing it upwards or downwards, inwards or outwards, the *Eye* becomes more expanded, and the Objects are made more plain and visible to us.

This is shewn at Tab. XI. Fig. III, *and* V.

Elevator Oculi.

This lifts up the Eye.

THIS *Muscle* ariseth from the upper *Orbite* of the *Eye*, sharp and fleshy, not far from that part where the *Optick* Nerve appears; and then becoming a fleshy Belly, is inserted into that Coat of the *Eye* called *Cornea*, where it is clear, and near the *Iris*, by a thin and Membranous Tendon.

This being contracted does lift up the *Eye*.

This by some is called *Superbus* from its lofty Ascent, well representing a haughty Disposition, which is fairly expressed by turning up of the Eye.

This you have shewn at Tab. XI. Fig. III. *and* V.

De-

TAB. XI.

Fig. I.

Fig. III.

Fig. III.

Fig. V.

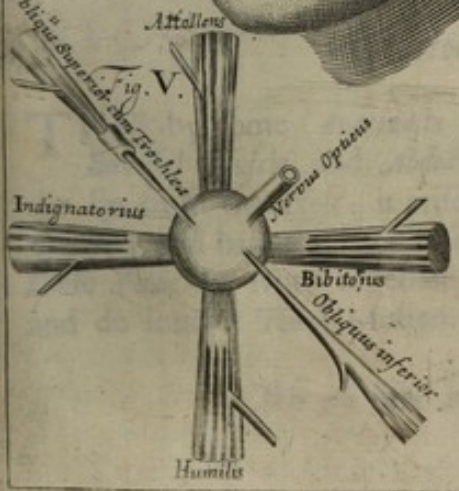
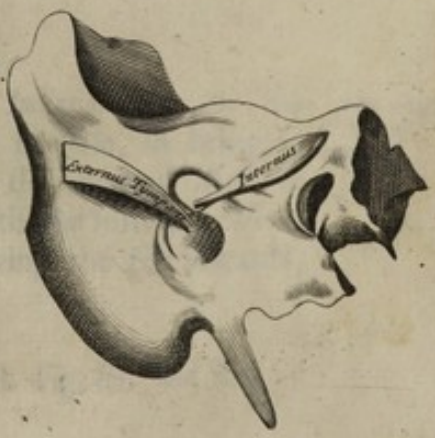
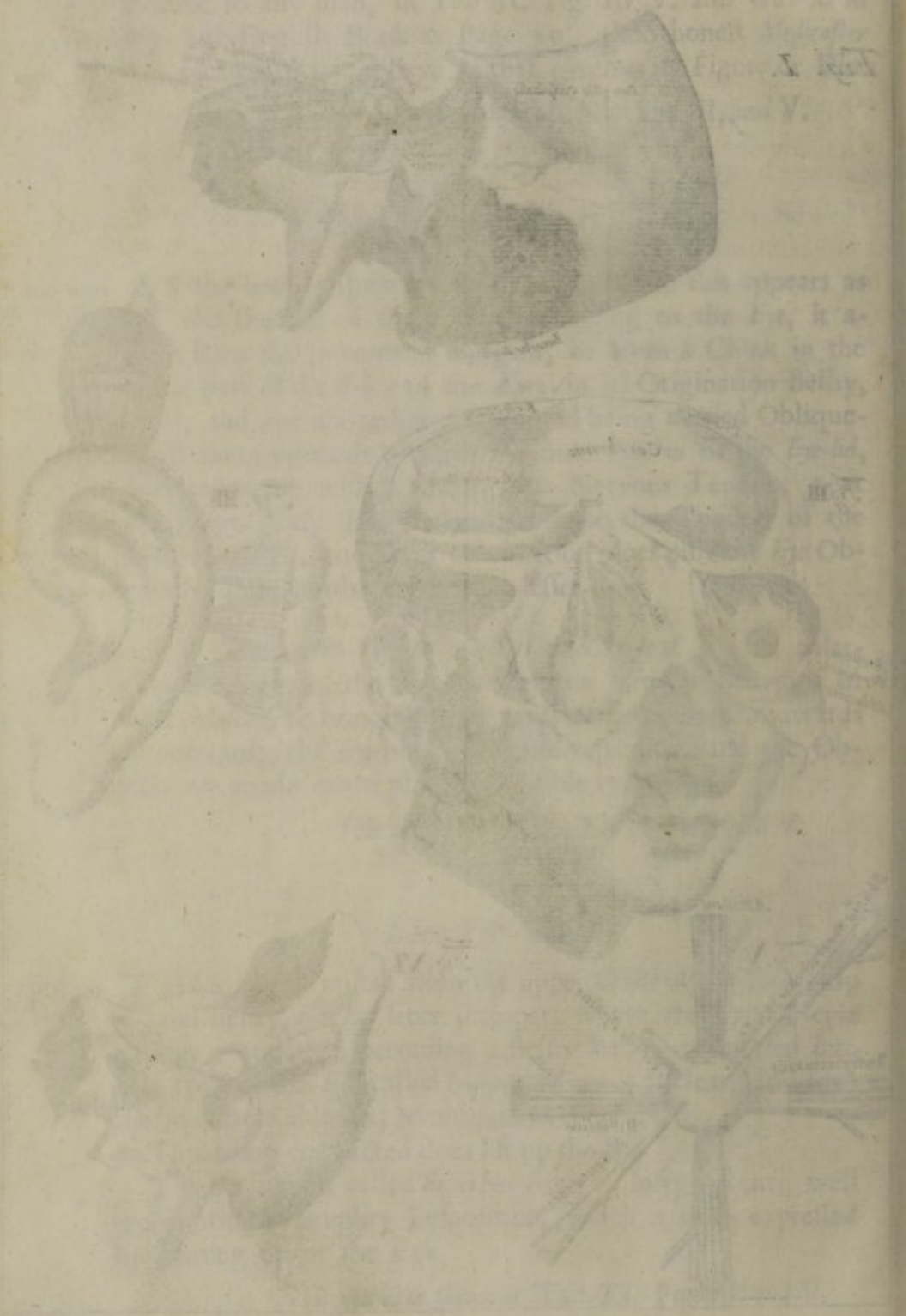


Fig. VI.





Depreſſor Oculi.

THIS being leſs than the former, hath much the ſame Origination, it ariſing from the lower part of the ſame *Orbite*, and carries in it the ſame Inſertion towards the oppoſite part of the Bulb of the *Eye*. *This brings the Eye downward.*

This is an Antagoniſt to the former, carrying no great Diſproportion of Vigour in it, there being required leſs force to depreſs, than to elevate; by ſome this is called *Humilis*, as being the Index of Humility.

This is ſhewn at Tab. XI. Fig. III. *and* V.

Adductor Oculi.

THIS hath its Name from the uſe which is made of it, it bringing the *Pupil* of the *Eye* towards the *Noſe*: It ariſeth from the *Orbite* of the *Eye*, near the beginning of the *Elevator*, drawing the *Eye* inwards towards the *Noſe*, and is inſerted to that part of the *Cornea* which is neareſt the *Noſe*. This by ſome is called *Bibitorius*, it directing the *Eye* towards the Glaſs, and bringing it towards an inward *Angle*. *This draws the Eye inwards.*

This you have at Tab. XI Fig. III. *and* V.

Abductor Oculi.

THIS by ſome *Anatomiſts* is called *Indignatorius*, or the *Scornful Muſcle*, and *Abductor* from its Uſe, in bringing the *Eye* from the *Noſe*; it ariſeth from the outward *Angle* of the *Eye*, and hath the ſame Inſertion with the former: When theſe Four do work together, they bring the *Eye* inwards, and do form a *Tonick* Motion. *This brings the Eye outwards.*

This you have at Tab. XI. Fig. III. *and* V.

Laxator Externus, or *Externus Tympani Auris.*

This brings the Tympanum *forwards.*

AS the All-wise Agent hath planted the *Eyes* as our *Watchmen* before us, to guard and secure us from Accidents; so, at the sides of them are situated the Organs of *Hearing*, for the Reception of Sounds conveighed by the Orbicular Motion of the Air, naturally tending upwards.

In the upper Sinews of the Auditory Passage, Nature hath curiously interwoven a thin *Muscle*, which is properly said to be this, and is allowed to take its Origination in a fine Expansion formed of many Nervous *Fibrillae*, which running less and less gradually, are carried to the Membrane of the *Tympanum*, with a slender Tendon to the *Malleus*; and the Membrane of the said *Tympanum* being drawn upwards and outwards, by the Contraction of these *Muscles*, is hereby in its upper Part made more Tense for the better preserving the Sound, and sending it forwards to the inward Recesses of the *Ear*.

This *Muscle*, altho' it is one of the smallest *Muscles* in the whole Body, yet it is to be shewn entire, but not without Difficulty; great Care therefore is to be used in opening of the *Os Petrosum*, about that thin part near the *Temples*, whether it be done with a small *Chissel*, or *Filing*, that so the pieces of the Bones being taking out by Degrees, this *Muscle* may not receive any Prejudice; the like Care is to be observed in shewing the following *Muscle*.

This you have at Tab. VII. Fig. IV. *and at* Tab. XI. Fig. I. VI.

Laxator Internus, or *Internus Tympani Auris.*

This brings it obliquely inwards.

THIS is planted in a Boney Channel, and takes its Origination where the *Petrose Process* joyns its self with the *Os Cuneiforme*, and branching into two small and very thin Tendons, one of which is implanted into the upper part of the *Malleus*, and the other into its Neck; where, being inserted into it, doth draw it inwards and forwards, with the Membrane of the *Drum* annexed to it: Whereupon the Membrane is stifned by the Contraction of these two *Muscles*, as by two *Antagonists*; the one drawing it upwards and

and outwards, the other drawing it inwards and forwards, which ballancing each other, do brace up the Membrane ſo, as to make it Tenſe for the apter receiving the Appulſes of Sounds.

This you have at Tab. VII. Fig. V. *and at* Tab. XI. Fig I, VI.

Longus Colli.

THE *Neck* is generally allowed to be framed as a ſecurity of the Wind-pipe, in order to Reſpiration, and this *Muſcle* belonging thereto, ariſeth with a ſharp and fleſhy beginning from the forepart of the Body, and from the fifth and ſixth upper *Vertebres* of the *Thorax*; and being enlarged in its middle, does run upwards under the *Oeſophagus*, and is joyned to all the ſides of the *Vertebres*, aſcending till he reacheth the firſt of them, meeting with *Scalenus*, and then they both inſert themſelves by a ſharp Nervous Tendon into the *Tranſverſe Proceſs* of the firſt *Vertebre* of the *Neck*: By the Benefit of this *Muſcle*, and its Partner, the *Neck* is brought directly forwards, one only working, it is brought laterally.

This contracts the Neck

This you have at Tab. VIII. Fig. III.

Scalenus, or *Triangularis.*

THIS ariſeth from the firſt and uppermoſt Rib of the *Thorax*, broad and fleſhy, and then narrowing its ſelf in its upper Courſe, he beſtows *Tranſverſe Fibres* upon all the *Tranſverſe Proceſſes* of the *Neck*, and is inſerted as the former, and doth aſſiſt it in its motions; this *Muſcle* hath a particular Cavity allowed it, through which the *Arteries* do deſcend to the Arm, and the Veins, thence aſcending, do paſs.

This contracts as the former.

This you have at Tab. VIII. Fig. III.

Serratus Major Anticus.

This brings the Scapula forwards and downwards.

THIS hath its Name from its Figure and Make, as also from its Situation; for it is planted in the side of the *Thorax*, with a Singular broad and fleshy Substance passing from the inner *Basis* of the *Scapula*, to the 6th. or 7th. Ribs, according as *Riolan* describes it, it arising from the two upper Ribs even to the *Clavicle*, and the five inequal Extremities in the five true Ribs, and is implanted into two or three of the Bastard Ribs before they become Cartilaginous.

Spigelius and *Vestingius* supposeth its Origination *è contra*, and some of its distinct *Teeth*, or saw-like Indentions being intermixt with *Obliquus Descendens* of the lower Belly, do assist the said *Muscle* in its motions.

This is generally allowed to dilate the *Thorax*, and to bring the *Scapula* forwards and downwards, when its *Muscles* are relaxed, and may also be allowed to fasten the *Scapula* to the Breast.

This you have at Tab. XI. *and at* Tab. XII. *both in and out of its place, and also at* Tab. XIII.

Serratus Minor Anticus.

This brings the Scapula upwards.

THIS *Muscle* hath the name of *Minor* given it, from its difference with the former, and is so substrated to the *Pectoral Muscle*, that without great care be taken in raising it, you will necessarily borrow from it: It ariseth fleshy from the four first upper Ribs, excepting the first of them; it arising as it were *Digitatim*, and is inserted fleshy at the *Coracoidal Process* of the *Scapula*, bringing it forwards to the *Thorax*; this and its Partner are allowed to promote the Dilatation of the Trunk in large Inspirations, when the *Scapula* is said properly to be raised by these *Muscles*, which when they are depressed, cannot perform the same without great Difficulty.

This you have at Tab. XIII. *both in and out of its place.*

Sub-

Subclavius.

IT ariſeth fleſhy from the lower part of the *Clavicle*, and *Obliquely Deſcending* between the firſt Rib of the *Thorax*, being enlarged forwards, both with *Oblique* and *Tranſverſe Fibres*, is inplanted at the upper part of the firſt Rib near the *Sternon*. *This doth depreſs the* Clavicle.

Uſe. Upon drawing or bringing of which upwards and outwards, at the ſame time it dilates the *Thorax*.

Obſ. Its Uſe, by *Spigelius*, is to depreſs the *Clavicle*; when it is moved upwards with the *Scapula*, the *Clavicles* uſually raiſing themſelves upwards upon the Elevation of the *Scapulaes*, provident Nature hath here planted this *Muſcle*, as a Stay to keep them down, and this is apparent enough, as *Spigelius* obſerves; in that, whenever the *Clavicle* is fractured near the *Sternon*, the next part is viſibly ſeen to aſcend, and the part next the *Scapula* together with the Arm apparently falls down; but if a Fracture happens near the *Scapula*, then neither parts are elevated; which happens wholly by the Interpoſition of this *Muſcle* here planted, and its Strength given it to perform the ſame.

Therefore *Medicaſter* had a ſudden Miſt o're clouded his *Opticks*, when he tells you I had no *Ichon* for this *Muſcle*, which was but as apparently deſcribed in its proper place, then, as it is now at Tab. XIII.

Intercoſtales Externi.

THESE *Intercoſtal Muſcles* with the *Ribs*, *Sternon*, and *Diaphragme*, are all engaged in diverſe Motions, all contributing towards that main Motion of the *Lungs*: Theſe *Intercoſtal Muſcles*, let in between the *Ribs* in *Oblique Poſitions*, are formed in two Ranks, outwardly and inwardly made up of numerous *Equidiſtant Fibres*, ſtrongly interſecting each other. *Theſe do dilate the* Thorax.

Theſe *Muſcles* have their Names from their Situations, and do ariſe from the tranſverſe proceſs of the *Back*, where the *Ribs* are joyned, and proceeding fleſhy, do adjoyn themſelves

from the lower Edge of the upper *Rib* externally, to the upper part of the lower *Rib*, they being both thin and fleſhy.

This double Set of *Fibres* interſecting theſe *Muſcles*, was wiſely thus framed by Nature, to aſſiſt each other now and then in a convenient Motion, by reaſon two Ranks of *Oblique Fibres* would elſe diſtort the *Ribs* in the motion of the Breaſt: Nature therefore hath prudently contrived that all the *Fibres* diſcuſſating each others, and affixt to the Margents of the *Ribs*, ſhould jointly produce the ſame Operation of moving them upwards and outwards at the ſame time, as Dr. *Collins* worthily obſerves.

This you have at Tab III. *and at* Tab. XIII.

Intercoſtales Interni.

Theſe are ſaid to conſtringe the Thorax.

THESE have their beginnings where the *Ribs* do begin to turn inwards, then running from the lower to the upper parts of the *Ribs*, not only to the *Cartilage*, but under that to the *Sternon*, they working contrary to the former; for theſe in Expiration do bring the *Thorax* inwards and downwards, by which it contracts its ſelf, making its Cavity thereby leſs.

Theſe you have ſhewn at Tab. IX. Fig. III. *as alſo at* XVIII.

Triangularis, or *Pectoralis Internus.*

This doth conſtringe the Thorax.

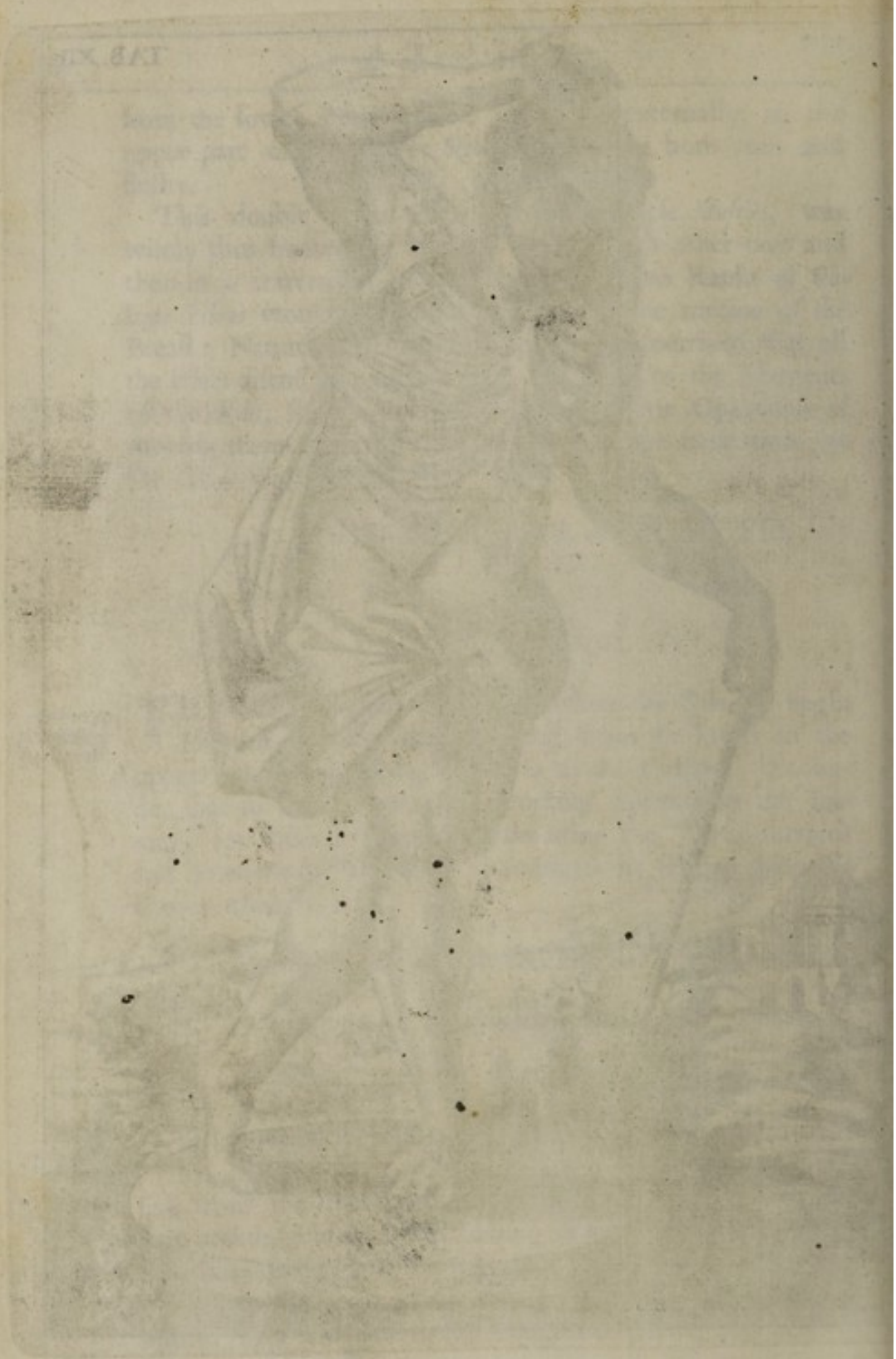
THIS *Muſcle* is improperly called *Triangularis*, becauſe it has no great part of a Triangular Figure in it: It ariſeth from the lower part of the *Sternon*, whence its upper part ariſeth, and its lower falling down to its Inſertions at the Boney Endings of the 4th, 5th, 6th, 7th, and ſometimes at the 8th *Ribs* near their *Cartilages*; by the Adduction of which, they are ſaid to conſtringe the *Thorax*, and bend it ſomewhat forward.

This is not to be ſhewn by Figure, *as I ſaid in my Firſt.*

Dia-

TAB. XII.


Serratus minor posticus exter. Sinum
Serratus major Anticus
Serratus



Diaphragma.

THIS by ſome is called *Septum Tranſverſum*, it Tranſverſly dividing the Trunk of our Body into two *Venters*, being made as Nature's Partition Wall, keeping the middle from the lower Belly; partly tendinous and partly fleſhy on the right, from two or three of the *Vertebres* of the *Loins*, and round the Termination of the *Ribs*, and *Enſiformal Cartilage*, and carrying its Tendon in its *Centre*: It was chiefly deſigned for promoting our free Breathing, it being aſſiſted with ſome others of the *Intercoſtal Muſcles*, carrying in it a Circular Figure, and perfectly different in its Sight from the reſt of the *Muſcles* in humane Body, its Capacity anſwering the Tranſverſe Bottom of the Trunk, its middle Subſtance being formed of fleſhy *Fibres* running through it, like ſo many Lines from a Circumference to the *Centre*; and when they enter the middle, they are entertained and embraced with another Set of *Tendinous Fibres* interſecting them: Its Membrane is double, the upper part whereof expands the *Pleura*, being here planted as its *Mediaſtinum*, or Partition Wall, and its lower part is carryed downwards towards the *Peritonæum*: It is drawn out into two Fleſhes about the *Lumbal Vertebres*, and is ſtrongly tied to the *Ribs* by two Tendinous parts, which fall down in their March even to the *Os Sacrum*, through which the deſcending Trunk of the great Artery, and the *Vena Azygos* doth paſs in its Aſcent; it is ſhortned about its middle towards its right ſide, and in its Tendinous part, to make a Paſſage for the *Vena Cava*; and in the left in its fleſhy part, it receives the *Oeſophagus*, and the Stomatick Nerves.

This is a partition between the middle and the lower Belly.

Uſe. In Inſpiration it turns into a plain, and from a crooked or convex Laxity, it apparently comes into a plain again; but in Expiration, it is made Tenſe, but is then ſoon relaxed.

Obſ. When this *Orbicular Muſcle* moves it ſelf, it contracts the upper and lower fibrous *Diameters* or *Semicircles*; ſo that the Cartilaginous Terminations of the Baſtard *Ribs* are drawn downwards, and its *Viſcera* forced downwards with them, at the ſame time, whereby the Breaſt is lengthened, and

its Bosom enlarged to give a Reception to the distended Lungs in Inspiration: Whereas in Expiration it hath a *Diastole*, as freed from Motion by the Relaxation of its fleshy *Fibres* (planted in its Circumferential part) performed by the *Abdominal Muscles* as Antagonists, which by pressing the forepart and sides of the *Abdomen* inwards, do at the same time force the *Viscera* of the lower *Belly* upwards towards the Trunk, whereupon the *Centre* of the *Diaphragme* looseth its plain, as Dr. *Collins* very worthily observes.

This you have at Tab. XVIII.

I Next should have here discoursed of the *Heart*, which *Hypocrates*, and almost all modern *Anatomists* do allow to be a *Muscle*, and which indeed at this day is so held to be without Contradiction, but I shall not much enlarge on it here, Dr. *Lower* having very learnedly with *Borellus* and others discoursed of it elsewhere, shewing both its Figures and Uses: And I having at the end of this my Discourse, enlarged sufficiently in a concise and accurate Discourse on this Subject, by way of an *Appendix* thereto, wherein also I have presented the Reader with a short Discourse of the *Circulation* of the *Blood*, and its *Juices*, of which this *Salutiferous Liquor* is framed, to which I recommend him.

Detrusor Urinæ.

This dischargeth the Urine.

MAN having allowed him *Kidneys* as his useful *Colatures* or *Strayners* of his Blood; so, has he given him a *Bladder* as a proper Repository to keep in his *Urine* till it be sufficiently loaded therewith, and for this Use, Nature hath placed the *Bladder* with the Bottom upwards, and with its Neck downwards, and to the *Bladder* are allowed diverse *Muscles* helping forwards its Discharge, and others as properly made for hindring its involuntary Egression.

This by most *Anatomists*, is allowed the first proper Membrane of the *Bladder*, whose fleshy *Fibres* embracing it on every side, are compresst or contracted in our making of Water; and therefore it is fabulous what some Physicians do contend for; that besides this, and the following, many other


Finis prælectionis
primæ

other *Muſcles*, are allowed to the *Bladder*, but no Authority, hath admitted any others than this and the next, this we allowing only as the middle Coat of the *Bladder*, framed of fleſhy *Fibres*, running lengthways, helping forwards the *Urin's* Excretion, contrary to the others, which are more Tranſverſe, and therefore more properly allowed to hinder the involuntary diſcharge of the ſame.

This you have at Tab. VI. Fig. I.

Sphincter Veſicæ

THE *Neck* of the *Bladder* being very fleſhy, is furniſhed with many Tranſverſe, or rather *Orbicular Fibres*, which do contract its *Neck*, whereby the involuntary Egreſſion of the *Urine* is prevented. *This cloſeth up the Urinary Bladder.*

Borichius hath made curious Obſervations on theſe *Fibres*, ſaying that they do leſſen the *Urin's* Paſſage, and this *Sphincter Muſcle* being framed of different *Fibres*, is as an *Antagoniſt* countermanding the *Tonick* Motion of the *Oblique Tranſverſe*, and right *Fibres* belonging to the Body of the *Bladder*, whereby the *Fibres* planted in the ſeveral Coats of the *Bladder*, are drawn into motion by Conſent, according to the Action of the Nervous *Fibres* of the inward Coat making their various Contraction, hereby leſsning its Cavity, and forceing the *Urine* contained in it towards the Neck, whereby the *Fibres* of this *Sphincter Muſcle* being relaxed, the Paſſage is made open and free for the *Urin's Exit*; this is allowed to be planted in the upper part of the *Neck* of the *Bladder*, not far from the *Proſtates*.

This you have at Tab. VI. Fig. I.

Sphincter Ani.

THIS from its uſe is called *Conſtrictor* or *Orbicularis*, it being annexed to the lower Margent of the *Os Sacrum*, it ariſeth thick, large and fleſhy, furniſhed with many Annular *Fibres* enwrapping the *Anus*, it being roundiſh and broad, joyning himſelf circularly to the *Rectum* near two inches in *This keeps up the Excrements.*

breadth, and is ſo cloſely annext to the *Cutis*, that it is ſcarce ſeparable from it: And hence, therefore by ſome *Anatomiſts*, this is called *Cuticuloſus*, or *Cutaneus*: This being contracted, does purſe up the Perforation of the *Anus*, whereby it gives a Stop to the involuntary Excluſion of the Excrements; for which piece of Service, Nature hath planted this *Conſtrictor*, as a proper Officer to perform this piece of Service.

This you have at Tab. XVI. Fig. II. *and at* Tab. XVII.

Elevatores Ani.

This draws the Anus upwards.

THESE are allowed to ariſe from the Ligament of the *Os Sacrum*, as alſo from part of the *Coxendix*, from which places they do take their Dimenſions, and then deſcending down to the *Sphincter* and lower part of the *Rectum*, are inſerted at its lower end into each ſide of the *Anus*.

Theſe are beſt ſhewn before you remove the *Rectum*, *Veſica*, and adjacent parts; their cheif uſe is ordained by Nature, to keep the right *Gut* in its due place, and to reduce it, when it is forced down by any violent Expulſion of hard or groſs Excrements.

This you have at Tab. VI. Fig. II. *with the* Rectum *and* Corpus Veſicæ.

Lecture IV.

In which are contained theſe following *MUSCLES, viz.*

Trapezius,	*Obliqui Superiores,*
Levator Patientiæ,	*Obliqui Inferiores,*
Rhomboides,	*Tranſverſalis Colli,*
Latiſſimus Dorſi,	*Spinalis Colli,*
Serratus Poſticus Superior,	*Sacrolumbalis,*
Serratus Poſticus Inferior,	*Sacer,*
Splenius,	*Semiſpinatus,*
Complexus,	*Longiſſimus Dorſi,*
Recti Majores,	*Quadratus Lumborum.*
Recti Minores,	

Trapezius, or *Cucullaris.*

This variouſly moves the Scapula.

THE *Scapula* being framed as Natures Buckler, formed in a Triangular Figure, inwardly Exculpt with a Concave Surface, and with one Convex outwards, was properly deſigned for the Inarticulation of the *Shoulder*, to which are allowed variety of *Muſcles*, faſtning the *Scapula* to the *Ribs*, and *Occiput* to which it is annexed, as alſo to ſome *Spines* of the *Vertebres* of the *Neck*: This with its Partner covering the *Back*, does very well repreſent to us the Figure of a *Monks-hood*, it ariſing fleſhy from the lower part of the *Os Occipitis*, and Tendinous from the Apex of the *Spine* of the laſt *Vertebre* of the *Neck*, and from the 8th. or 9th. upper *Spines* of the *Thorax*: And then narrowing its ſelf, is inſerted into the whole *Spine*, and broader part of the *Clavitle*; and according to its various Originations, and diverſity of *Fibres* allowed it, it brings the *Scapula* obliquely upwards or downwards, or directly backwards, according to its variety of *Fibres* contracting themſelves.

Divide this *Muſcle* from its Partner, at their Originations

from the *Spines* of the *Vertebres*, and traceing it clear from the *Os Occipitis*, the *Muſcles* underneath them will with great eaſe ſhew themſelves.

This you have at Tab. XIV. *both in and out of its place.*

Levator Patientiæ.

This brings it upwards.

THIS immediately lying under the former, as *Diemerbroeck* obſerves, doth ariſe from the ſecond, third, and fourth, and ſomtimes under the 5th. *Tranſverſe Proceſſes* of of the *Vertebres* of the *Neck*, which joyning in one large fleſhy *Body*, fixeth it ſelf with a broad and fleſhy Tendon into the upper and elated part of the *Scapula*, bringing it upwards and forwards, as alſo the *Arm* with it.

This you have at Tab. XIV. *and at* Tab. XIX. *it is laid bare.*

Rhomboides.

This brings it backwards.

THIS hath its name from its Figure, and affixeth the *Scapula* to the *Neck*, and the Backparts of the *Trunk*, it ariſing thin, broad, and *Quadrangular*, and fleſhy, from the *Spines* of the three lower *Vertebres* of the *Neck*, and the upper of the *Thorax*; whence Obliquely Deſcending, becomes thick and fleſhy, being inſerted into the outward *Baſis* of the *Scapula*, which it draws ſomewhat upwards and backwards.

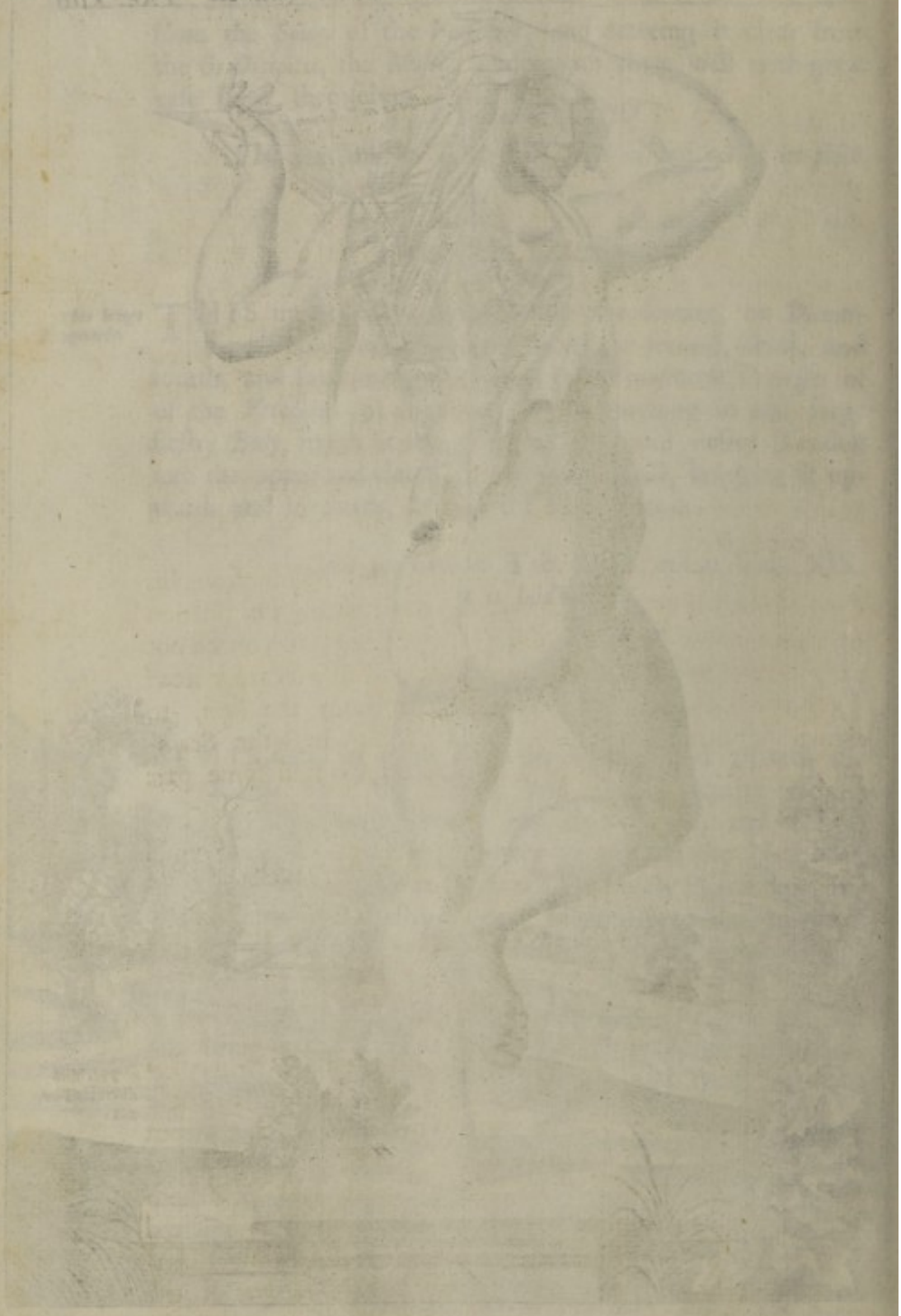
In raiſing this *Muſcle*, you muſt take care that you do not bring up the Tendon of *Serratus poſticus Superior* with him, it joyning its ſelf very cloſely to it, and lying juſt under it.

This is commonly allowed to bind the *Scapula* to the Back; and hence is it, that in Old People, and Conſumptive Perſons, their *Scapulaes* are ſeen ſo prominent, which cheifly happens from either the Weakneſs or Witheredneſs of this *Muſcle*.

This you have at Tab. XIV. *and at* Tab XIX. *the ſame is laid bare.*

La-


Cucullaris ecti Situm
Rhomboides
Latissimus Dorsi



Latiſſimus Dorſi, or *Aniſcalptor.*

THIS hath its firſt Name from its Largeneſs, and the other from its Uſe; it ariſeth with a broad, thin and Membranous Beginning, from the *Apices* of the lower *Spines* of the *Vertebres* between the *Os Sacrum*, and the ſixth *Vertebre* of the *Thorax*, and ſometimes is ſeen to take its Origination from the upper part of the ſaid *Os Sacrum*, and growing fleſhy, is implanted into the *Baſis* of the *Scapula*, from whence by ſome *Anatomiſts* its thought to receive its chiefeſt part of its *Fibres*, and by a ſhort and ſtrong, but broad Tendon, is implanted beneath the upper Head of the *Os Humeri*, between the *Pectoralis*, and *Rotundus*, it bringing the *Arm* down backwards, and ſometimes ſomewhat upwards, or downwards, as its variety of *Fibres* are employed and contracted.

This brings the Arm *down backwards.*

Great Care muſt be had in raiſing this *Muſcle* from his Origination, leaſt with it, you do alſo raiſe the Origination of its ſubjacent *Muſcle Serratus Major Poſticus*, if you be not very careful in your Diſſection; you will alſo borrow from *Quadratus Lumborum*, as you raiſe him from the *Ileon*, to which it firmly affixeth its ſelf, as alſo near the *Scapula*; if Care be not uſed, you will certainly find ſome part of him come up with him.

This you have at Tab. XIV. *and* Tab. XIX. *it is laid bare, as alſo at* Tab. I.

Serratus Poſticus Superior.

THIS hath the Name of *Serratus* from its Saw-like Indentions, and *Poſticus*, it being as an *Antagoniſt* to thoſe planted in the foreparts, as alſo *Superior* or *Inferior*, from their Situations; this is a ſmall *Muſcle*, and immediately lodgeth under the *Rhomboides*, as I have already ſaid: It ariſeth with a thin Tendon between each *Scapula*, and is inſerted over the firſt pair of the *Muſcles* of the Head, ariſing Membranous from the *Spines* of the three lower *Vertebres* of the *Neck*, and the firſt of the *Thorax*, and marching under the *Scapula*, is inſerted in the Interſpaces of three or four of

This doth dilate the Thorax.

the upper *Ribs*, by the Elevation of which, it dilates the *Thorax*.

This you have at Tab. XVI. *both in and out of its place.*

Serratus Posticus Inferior.

This dilates the lower part of the Trunk.

THIS *Muscle* is broad, thin, and Membranous, planted almost in the middle of the *Back*, under the *Latissimus Dorsi*, it arising from the *Spine* of the lower *Vertebres* of the *Back*, and the first of the *Loins*, and marching Transversely, becomes fleshy, and is inserted into three or four of the Bastard Ribs, by so many distinct Terminations; and by drawing them outwards, do at the same time dilate the lower part of the Trunk.

This you have at Tab. XVI. *both in and out of its place.*

Splenius, or *Triangularis.*

This brings the Head *backwards.*

IT takes its Name partly from the Figure it hath with a *Spleen*, it arising partly Nervous and partly fleshy from the *Spines* of the fifth, fourth, third, second, and first *Vertebres* of the *Thorax*, then from the *Spines* of the lower *Vertebres* of the *Neck*, and then running broad and long about the 3d. *Vertebre* of the *Neck*, both its Originations do there unite, and with its *Oblique Fibres*, both of them do insert themselves into the middle of the *Occiput*; you must take it off from its Originations, and preserve as many of its *Ansulæ* as you can between the *Spines*, by running between them, and recovering its Tendon.

If both move, they do bring the *Head* directly backwards; if one only move, it turns the *Head* sideways.

This you have at Tab. XV. Fig. I. *and at* Tab. XVI, XVII.

Complexus, or *Trigeminus.*

This extends the Neck.

THIS *Muscle* hath a threefold Origination; First, from the fourth and fifth Processes of the *Vertebres* of the *Thorax*, then becoming fleshy, doth ascend over the rest of these *Vertebres*, until he

TAB XV.


Serratus Superior ext^r Situm
Cucullaris pars Superior
Rhomboides ext^r Situm
Serratus posticus inferior
Idem ext^r Situm
Sacro-lumbus ext^r Situm

he reacheth the lower part of the Neck, where it becomes a round Tendon; not far from thence again, it appears fleshy, and doth insert its self into the upper part of the *Occiput* laterally. Its second Origination is with a short Tendon from the same Process of the last *Vertebre* of the *Neck*, then becoming fleshy, is joyned to the other before its Insertion. Its third Origine is partly fleshy, and partly Nervous, from the *Transverse Processes* of the first and second *Vertebres* of the *Thorax*, and running Obliquely outwards, after having united with the former, is inserted into the Root of the *Mammillary Process*, bestowing an *Ansula* on every Process.

To find this fairly, divide the Sides of *Spinatus*, and *Longissimus Dorsi*, and his Origination will plainly appear.

Riolan observes, that the *Fibres* both of this *Muscle* and *Splenius*, being variously interwoven, to decussate each other in acute *Angles*, which adds Strength to them in their Contractions.

This you have at Tab. XV. *in its place, and laid bare, as also at* Tab. XVI. *and* Tab. XVII. *you have the same likewise.*

Recti Majores.

THESE being small, thin, fleshy, and short, do arise out of the *Spine* of the second *Vertebre*, and growing broader and more fleshy in their Ascent, are so inserted into the middle and back part of the *Occiput*, helping forwards the Motion of the third pair. *These bring the* Head *back.*

This you have at Tab. XVI. Fig. I, II.

Recti Minores.

THESE pair lying under the former, are likewise two small *Muscles*, being much of the same Substance and Shape, accompanied with the like *Ductus*, they arising fleshy from a small protuberance of the first *Vertebres* of the *Neck*, and ascending, are implanted like the former, just underneath them, assisting them in their Motions. *These do assist the former.*

If they both Act, they bring the *Head* directly backwards; if only one Act, it brings it laterally.

This you have at Tab. XVI. Fig. I, II.

Obliqui Superiores.

Theſe do turn the Head *backwards.*

THE firſt uſe of the *Dentiform Proceſs*, is to be a *Centre* of Motion, on which the firſt *Vertebre*, being pliant freely playeth backward and forward, as Dr. *Collins* writes, whence he propoſeth, that the firſt may be called *Epiſtrophis*, tho' diverſe *Anatomiſts* have aſſigned this to the ſecond *Vertebre*, which may rather be termed an *Axis*, in reference to its Proceſs; about which, it being immoveable, the firſt *Vertebre* doth variouſly ſport its ſelf in Oblique Motions, performed by theſe and the other lower *Oblique Muſcles*: Theſe are planted under the *Recti*, anſwering both their Form, Shape and Subſtance; being ſmall, ariſing fleſhy from the hinder part of the *Tranſverſe Proceſs* of the upper *Vertebre* of the *Neck*, and being carried along in an Oblique Courſe, are inſerted into the ſides of the *Occiput*, near the outſide of the *Recti*: *Bauhine* will have them to ariſe in the *Occiput*, and that they do end in the *Apices* of the lateral Proceſſes of the firſt *Vertebres* of the *Neck*; and the Heads of theſe *Muſcles* being fixed to the ſecond *Vertebre*, as being immoveable: The *Right Oblique Superiour* and *Inferiour Muſcles* being planted in an Oblique Situation, and ending in the right ſide of the *Occiput*, when contracted, muſt neceſſarily bring the *Face* towards the right Shoulder, and in a contrary Manner, the left being planted as their *Antagoniſts*, ending in the ſame Manner in that ſide, muſt alſo bring it to the left Shoulder.

Theſe you have at Tab. XVI. Fig. I, II.

Obliqui Inferiores.

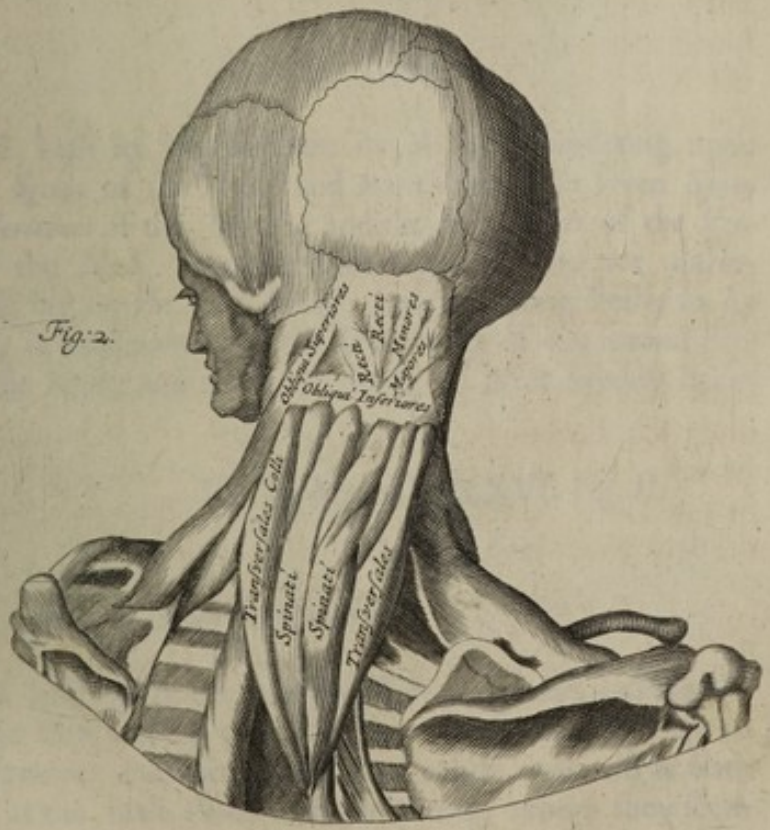
Theſe do aſſiſt the former.

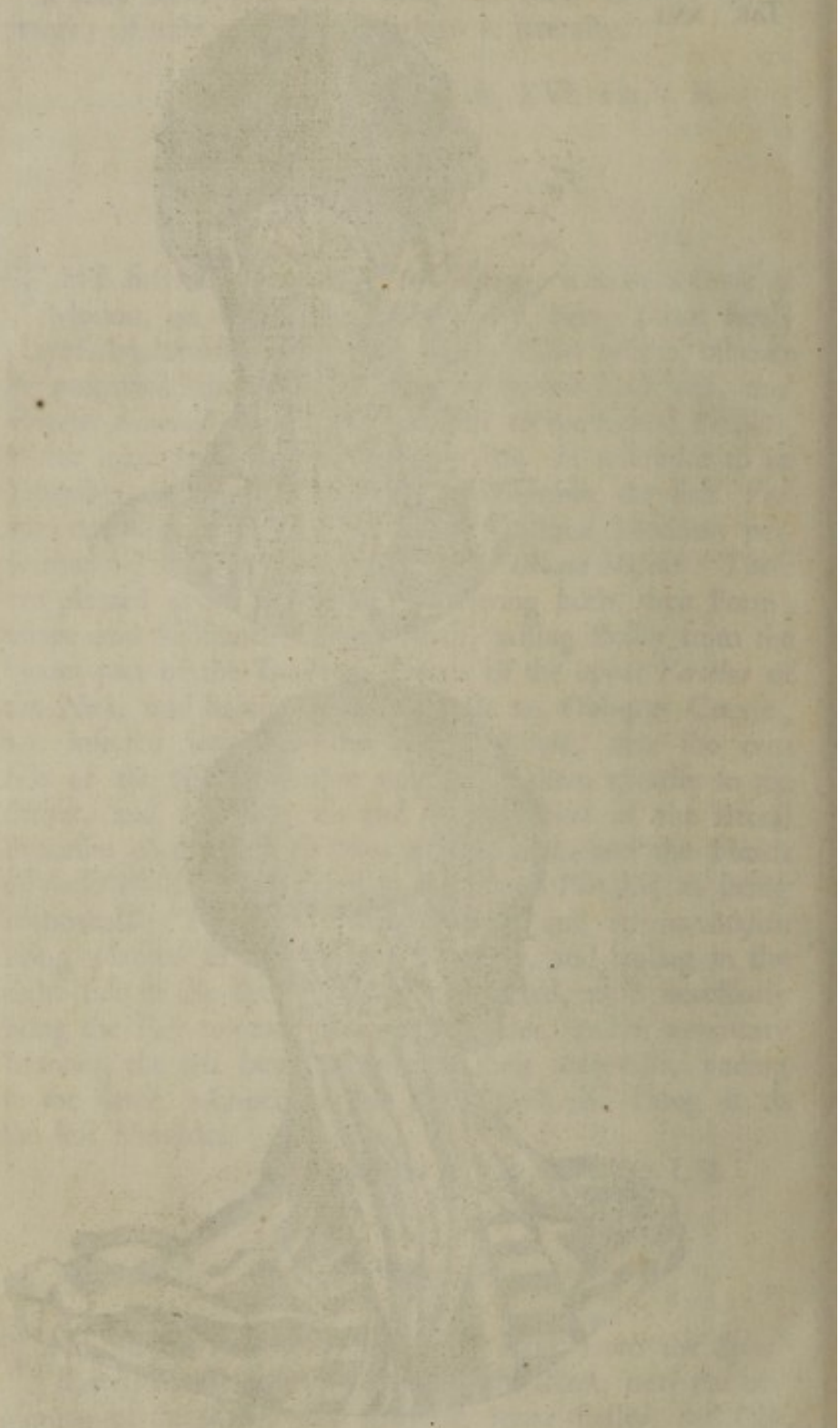
THESE do ariſe fleſhy, thin and long, from the *Spinal Proceſs* of the ſecond *Vertebre* of the *Neck*, near the beginning of the *Recti*, and growing more fleſhy, and Obliquely Aſcending, are inſerted with the *Obliqui Superiores*, into

TAB. XVI.

Fig. 1.

Fig. 2.





into the *Transverse Process* of the first *Vertebre* of the *Neck* where the former *Muscles* had their Originations.

This is shewn at Tab. XVI. Fig. I, II.

Transversalis Colli.

THIS ariseth fleshy from all the Roots of all the *Transverse Processes* of the upper *Vertebres* of the *Neck*, and growing more fleshy, are thereto annexed at their outside, it takes its Name from its Transverse Origination, and is allowed to bring the *Neck* Obliquely backwards, one only acting; between these are carried the *Nerves* of the *Spinal Marrow*, which do arise out of the *Vertebres* of the *Neck*. *This extends the* Neck.

This you have at Tab. XVI. Fig. II.

Spinalis Colli.

THIS hath its Name from its place, it bordering upon the *Spines* of the *Neck*, and ariseth from the seven *Spines* of the *Vertebres* of the *Thorax*; and the five *Spines* of the *Vertebres* of the *Neck*, bringing them together, and not distinquishable but by the said *Spines*; and becoming fleshy in its Descent, is implanted into the lower part of the second *Vertebre* of the *Neck*, and is said to bring the *Neck* directly backwards. *This extends as the former*

This you have at Tab. XVI. Fig. II.

Sacrolumbalis.

THIS lodging under *Serratus Posticus Inferior*, having the same Origination with *Latissimus Dorsi*, and joyning to him sidewayes outwardly all its Length even till it hath Arrived at the 12th. *Vertebre* of the *Thorax*, where they seem to be two, altho' scarce divisible by the Knife, and then growing thinner doth insert it Self by two small Tendons, into every *Rib* of the *Thorax* at their incurvations. *This assists the former in its extensions.*

There is a great Diſpute among *Anatomiſts* about theſe Tendons, ſome alledging that this *Muſcle* doth ſend forth a double Tendon, one upwards to the lower part of the *Ribs*, and the other downwards to the upper part thereof; and theſe ſaid to raiſe the *Ribs* upwards in Inſpiration, and to bring them down in Expiration; which contrary Motions were never allowed to be performed by any one *Muſcle*: And it may well enough be ſuppoſed, that theſe Tendons thus deſcending, do ariſe from ſome other peculiar *Muſcle*, which upon a diligent Enquiry, *Diemerbroeck* tells us, he found to come from the *Muſcle* juſt laying under this, and to which it is ſo cloſely affixed, that it is ſcarce diviſable from it; which *Muſcle* he calls by the Name of *Cervicalis Deſcendens*, whoſe Tendons being variouſly planted contrary to thoſe of this *Muſcle*, do operate as variouſly in their Contractions: For that we ſee, as the Tendons of the *Cervicalis Deſcendens* do draw the *Ribs* upwards in Inſpiration; ſo the Tendons of *Sacrolumbalis* do draw the *Ribs* downwards in Expiration; for their more eaſy and better Contraction.

This you have at Tab. XV: *both in and out of its place.*

Sacer.

This extends the Loyns.

THIS hath its Name from its place, it ariſing ſharp and fleſhy from the upper part of the *Os Sacrum*, and from all the *Tranſverſe Proceſſes* of the *Loins*, and is joyned to their upper *Spines*, and hath three ſeveral Tendinous Inſertions; the firſt, in the upper part of the *Tranſverſe Proceſſes* of the *Vertebres* of the *Loins*; the ſecond, in the Root of the ſame Proceſſes; and the third, in the *Spines* of the ſame *Vertebres*.

To find this out, you muſt raiſe *Latiſſimus Dorſi*, and *Sacrolumbalis*, from their Membranous Originations, at the *Os Ileon*, *Os Sacrum*, and from the *Lumbal Spines*; and immediately under theſe, this will appear *in Situ*, it being allowed to aſſiſt *Latiſſimus Dorſi* in its Operations.

This you have at Tab. XV. *and* XVI.

Semi-

TAB. XVII

Finis Prælectionis quartæ

Semiſpinatus.

THIS ariſeth with a Tendinous Origination, according to *Diemerbroeck*, tho' by ſome, its Origination is ſaid to be fleſhy, from all the *Spines* of the *Os Sacrum*, and the *Loins*; and becoming fleſhy, doth beſtow a Nervous Tendon upon every *Spine* of the upper *Vertebres*, and marching *Obliquely* upwards, is inſerted into the upper *Spines* of the firſt *Vertebres* of the *Thorax*, extending it. *This extends the Trunk.*

Theſe with the former acting together, are allowed to bring the whole *Spine* Obliquely backward, or to either ſide; they are alſo ſaid to aſſiſt in raiſing the Trunk of the Body.

This you have at Tab. XVII.

Longiſſimus Dorſi.

THIS hath its Name from its length, it being one of the longeſt *Muſcles* belonging to the Body; and a *Muſcle* both of great Uſe, and Service to the *Trunk* in allowing it a direct Motion; as alſo of no ſmall Uſe in Progreſſive Motion, and therefore I have more properly placed this next to *Semiſpinatus*, and juſt before *Quadratus Lumborum*. This ariſing from all the *Spines* of the *Os Sacrum*, and all the *Lumbal Vertebres*, as alſo from the inner part of the *Os Ileon* where it annexeth its ſelf to the *Sacrum*. Its outward Origination being very ſtrong, nervous, and ſomewhat acute, but inwardly fleſhy; it adjoyning its ſelf in its Aſcent to the *Tranſverſe Proceſſes* of the *Loins*, and then becoming more fleſhy in its March, is ſeen to narrow himſelf; it beſtowing a ſmall Nervous Tendon on every *Tranſverſe Proceſs* of the *Thorax*, except the twelfth *Rib*, and doth inſert its ſelf in the Proceſs of the firſt *Vertebre* of the *Thorax*, although ſometimes it hath been ſeen to reach even to the *Mammillary Proceſs*. *This extends the Trunk.*

Obſ. Upon this, the whole *Sacrolumbalis* is ſaid to reſt its ſelf, it obtaining the ſame Origination with it, and is continued ſo from the end of the *Os Sacrum* even to the twelfth *Vertebre* of the *Thorax*, and in its whole Progreſs to the *Loins:*

This you have at Tab. XV. *and at* Tab. XVII.

Quadratus Lumborum.

This extends the Loyns.

THIS hath its Name from its Figure, it carrying in it a Reſemblance of a *Quadrangle* or *Square*: It ariſeth ſhort, thick and fleſhy from the back part of the *Spine* of the *Os Ileon*; as alſo from the upper part of the *Os Sacrum*, and is inſerted inwards to all the *Tranſverſe Proceſſes* of the *Loins*; juſt beneath the *Pſoas*.

This is ſhewn at Tab. XVII. *and at* Tab. XXVII. *in its place.*

Lecture V.

To which theſe following *MUSCLES* do properly belong, *viz.*

Deltoides,
Pectoralis,
Biceps,
Supraſpinalis,
Infraſpinalis,
Teres Minor,
Teres Major,
Nonus Humeri Placentini,
Subſcapularis,
Brachialis Externus,
Brachialis Internus,
Anconæus,
Gemellus,
Palmaris,
Caro Muſculoſa Quadrata,
Flexor Carpi Exterior,
Flexor Carpi Interior,
Extenſor Carpi Exterior,
Extenſor Carpi Interior,

Perforatus,
Perforans,
Extenſor Digitorum Communis,
Indicis Extenſor,
Lumbricales,
Flexor tertii Internodii Pollicis,
Flexor primi Internodii Pollicis,
Pollicis Adductor,
Pollicis Abductor,
Extenſor primi Internodii Pollicis,
Extenſor ſecundi & tertii Internodii Pollicis.
Interoſſei Manus,
Auricularis,
Minimi Digiti Abductor,
Pronator Quadratus,
Pronator Radii teres,
Pronator Radii Longus,
Supinator Radii Brevis.

Deltoides.

THE Bone inarticulated above with the *Scapula*, and below with the *Cubite*, is by *Celſus* called *Os Humeri*, or commonly the *Arm-bone*, among the *Muſcles* allowed it, we begin with this, which takes its Name from the Figure it carries in it of a Greek Δ, and therefore by ſome it is called *Triangularis*, by others *Humeralis*, it ariſing with a broad and nervous Origination from the middle part of the *Clavicle*; the *Arm*, and the whole *Spine* of the *Scapula*, and is outwardly expanded with a ſtrong fleſhy Covering, and inwardly with a Nervous Membrane, almoſt reaching the middle of the *Arm*, and is allowed to bring the ſame ei-

This lifts up the Arm.

ther upwards, forwards, or backwards, according to the various workings of its *Fibres*.

Many unskilful Perſons do uſually make *Fontanels*, or *Iſſues* in the midſt of this *Muſcle*, tho' very diſagreeable to Senſe and Art; ſince upon every Contraction of the ſame, the *Oriſice* contracting its ſelf therewith, doth at the ſame time turn out the *Pea* from its place.

This you have ſhewn at Tab. XVIII. *both in and out of its place.*

Pectoralis.

This brings the Arm *forwards.*

THIS hath its Name from its Situation, having a *Semicircular* fleſhy Origination, upon the forepart of the *Breſt*, then ariſing with a Membranous Beginning from the middle Cavity of the whole *Sternon*, as alſo from the *Cartilages* of the 6th. 7th. and 8th. *Ribs*, (formed as it were out of many *Muſcles*) and narrowing its ſelf towards its end is implanted by a ſhort and ſtrong Tendon, to the upper part of the *Os Humeri* ſomewhat under its Head; this bringing the *Arm* to the *Breſt*, or forwards, ſometimes directly, or Obliquely downwards, according to the various Actings of its *Fibres*: By ſome it is called the *Boxing Muſcle*, or *Adducens Humerum*.

This you have at Tab. I. *and at* Tab. XII.

Biceps.

This bends the Arm.

IT hath its Name from its Double-head or Origination, it firſt ariſing from the top of the *Acetabulum Scapulæ* outwards, by one Subſtance; and ſo running under the Ligament of this Juncture over the *Head* of the *Os Humeri*, and through a Channell inſculpt for him, it is there bound in by a proper Ligament; next it ariſeth broad fleſhy and Nervous, from the *Coracoidall* Proceſs of the *Scapula*, and is carried over to the inner *Head* of the *Os Humeri*, and in his deſcent meets with the former, and do there make one Strong and fleſhy *Muſcle*; then narrowing himſelf, is converted into a ſtrong, thick, large and Nervous Tendon, and is inſerted by an

TAB XVIII.

an Oblong and round Tendon, to the Protuberance at the upper *Head* of the *Radius*, where ſome have declared to have found it double.

It is the Tendon of this *Muſcle* which lodgeth under the middle *Vein* of the *Arm*, whoſe exterior Tendinous *Fibres*, are to be kept free from being cut in *Veneſection*; which being once cut or divided by ignorant *Blood-Letters*, do uſually produce thoſe ill Symptoms that very frequently happens from this their ignorance.

This you have at Tab. XVII. *and at* Tab. XX. Fig. I.

Supraſpinalis, or *Supraſcapularis*.

THIS hath its Name from its Situation, it being planted above the *Spine* of the *Shoulderblade*, it ariſing fleſhy and long from the Baſis of the *Scapula* above its *Spine*, filing the whole ſpace, between the *Spine* and the upper part of the *Scapula*, and marching back towards its *Neck*, gets under the Second Ligament of the *Humerus*, as doth the *Biceps*, and is obliquely inſerted by a ſtrong round and broad Tendon into the *Neck* of the *Os Humeri*, aſſiſting the former in bringing the *Arm* about, whilſt others as Strenuouſly declare that it lifts up the *Arm* with the *Deltois*.

This brings it about upwards.

This you have at Tab. XIX.

Infraſpinatus or *Infraſcapularis*.

THIS hath its Name alſo from its Situation being planted below the *Spine*, that is, covering that whole outward part of the *Scapula*, which is under the *Spine*, it ariſing fleſhy from the lower Baſis of the *Scapula*, and taking the greater part of its Cavity with it, runs backwards, narrowing its ſelf, according to the form of the part, as it paſſeth over the Juncture in a *Semicircular* Manner, and then becomes Tendinous, and is inſerted to the *Head* of the *Os Humeri*.

This brings it about directly backwards.

I humbly conceive that this *Muſcle* according to its Si-

tuation, cannot but assist the *Deltois*, and *Coracobrachialis*, in lifting the *Arm* upwards.

This you have at Tab. XIX.

Teres Minor.

This brings the Arm *upwards.*

THIS hath its Name from its figure and make, and by *Falloppius* is held to be the 8th. *Muscle* of the *Scapula*, and from its Situation he calls it *Transversalis*; and *Brevis*, and *Rotundus*, from its Origination and shape, it arising sharp and fleshy from the lower Angle of the *Scapula* at its *Basis*, and then growing more fleshy towards its *Venter*, does again lessen its self, in its oblique descent, where becoming Tendinous, is inserted into the *Neck* of the *Os Humeri*, helping forward the Motion of the 4th. *Muscle*; some *Anatomists* supposing it to be only as a part thereof. This by *Spigalius* is called *Octavus Humeri Placentini.*

If I mistake not, Mr. *Cowper* has here committed no small Error in directing the *Nonus Humeri Placentini* to *Rotundus Minor* in the Index, and then *Rotundus* to *Teres Minor*, which he tells in Page 138. Cap. 25. that it is reckoned the eight *Muscle*, and therefore by some is called *Octavus Humeri Placentini*, but this I suppose was thus penn'd, on purpose to Rectify other Mens mistakes, as he assures us in his Preface.

This you have at Tab. XIX.

Teres Major, or *Rotundus Major.*

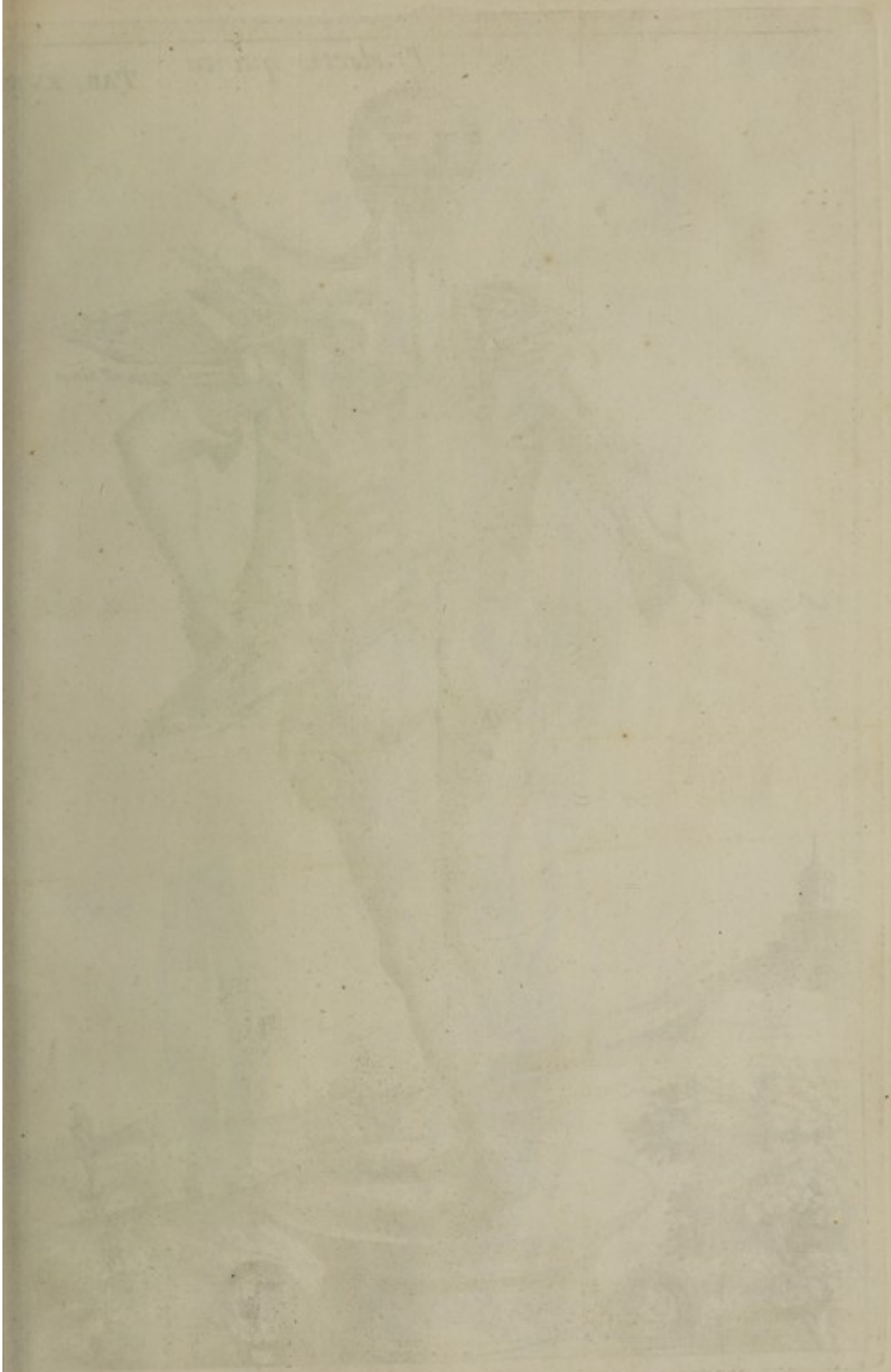
This draws the Arm *backwards and downwards.*

THIS ariseth fleshy from the lower Angle of the *Scapula*, and then growing round, doth ascend obliquely with the former, ending with a short, flat, and strong Tendon, a little below the *Neck* of the *Os Humeri*, it bringing the *Arm* somewhat backwards and downwards.

Here is another of *Medicasters* complaints against me, in that I write the former to be an *Elevator*, when as it is so generally allowed a *Depressor*: But I take my Authority for this assertion from the late Dr. *Crowns* syllabus, who was a sufficient Original for me to Copie after.

This you have at Tab. XIX.

Nonus




Os Humeri
Cutis à Dorso retracta

TAB XX.

Fig. 1.

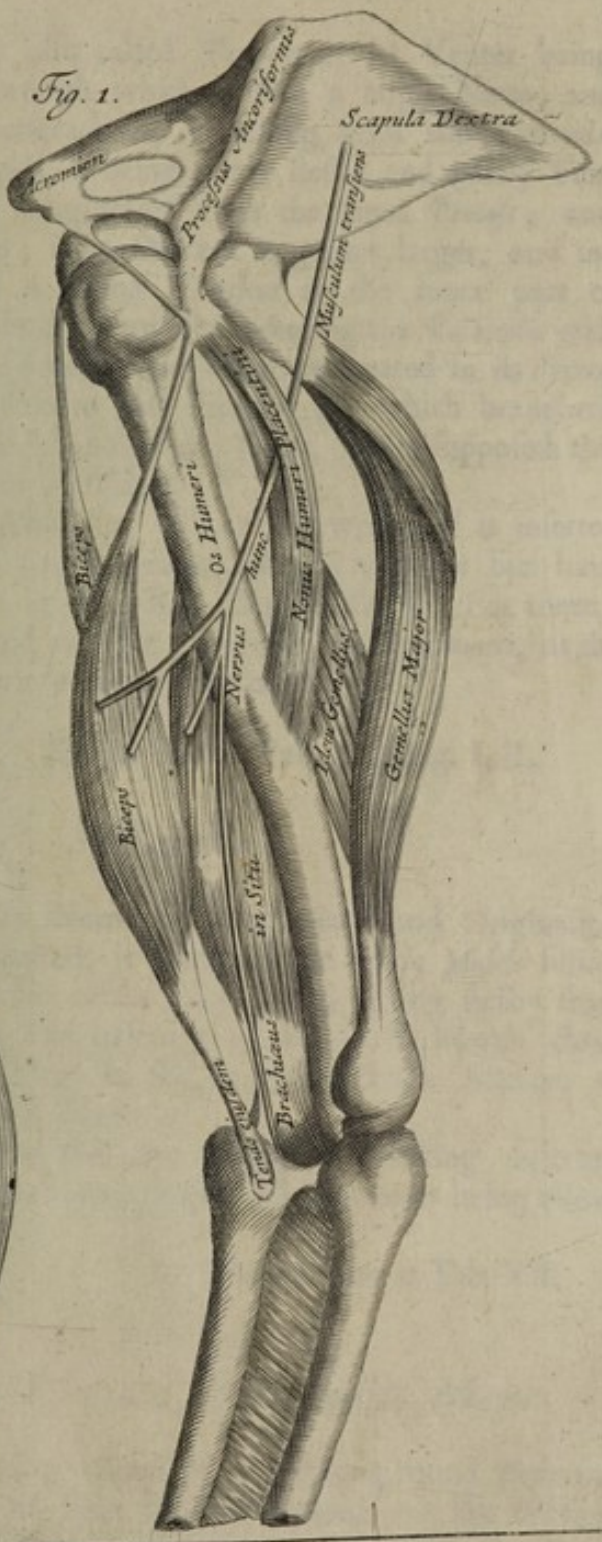
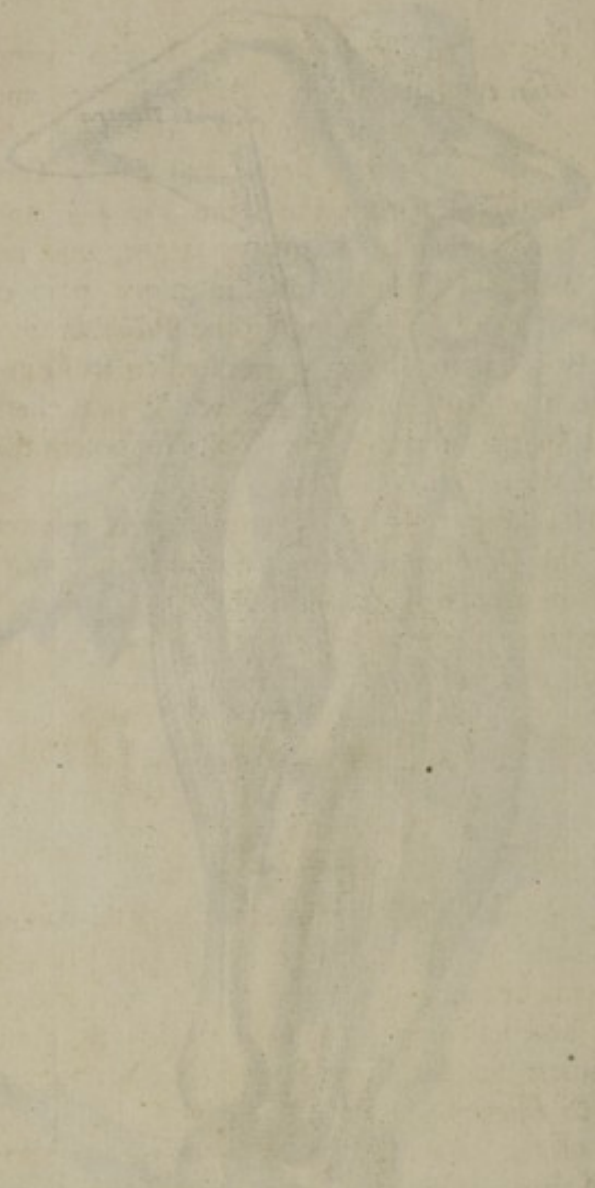


Fig. II.



Nonus Humeri Placentini.

BY ſome this is alſo called *Perforatus*, its Venter being perforated, through which paſſeth a large *Nerve*; and *Coracoides*, and *Coracobrachialis*, it ariſing from the *Coracoidal Proceſs* of the *Scapula*, it being partly fleſhy and partly Tendinous at its ſaid Origination from the ſame *Proceſs*; and marching forwards; in its Deſcent it grows larger, and inſerts its ſelf with a ſtrong Tendon at the inner part of the *Os Humeri*; about its middle, bringing the *Pectoralis* with it forwards to the Breaſt; and being perforated in its *Venter*, a large *Nerve* is ſeen to paſs through it, which brancheth its ſelf into ſeveral *Muſcles* of the *Cubite*. *Riolan* ſuppoſeth this to be only a Part of the *Biceps*.

This aſſiſts the former in its motion.

And whereas, *Medicaſter* tells us, I write, it is inſerted into the *Neck* of the *Os Humeri*, there's no body but himſelf will find it in my firſt Engliſh Book; For there I writ it is implanted into the middle of the *Os Humeri*, as the Figure its ſelf doth evidently diſcover.

This you have at Tab. XX. Fig. I, II.

Subſcapularis.

THIS hath its Name from its Place and Origination where it is planted, it being a large fleſhy *Muſcle* filling the inner hollow part of the *Scapula*, and ariſing fleſhy from its *Baſis* inwards, and leſſening its ſelf in its March along the Bone, doth inſert its ſelf in a *Semicircular* Manner to the *Neck* of the *Os Humeri*.

This brings the Arm *outwards.*

Theſe *Muſcles* of the *Arm* acting or working together, do bring the *Arm* about; this by all *Anatomiſts* being allowed a *Depreſſor*.

This you have at Tab. XII.

Brachialis Externus, or *Gemellus Major*.

THE *Cubite* being framed of two oblong round *Bones* called *Radius* and *Ulna*, the firſt planted near the *Orbite* of the lower part of the *Shoulder Blade*, with which the *Ulna* is

This extends the Cubite.

articulated; the *Ulna* being thick and solid in its upper part, having two visible Processes, in the middle of which, a large *Sinus* is exsculpt, for letting in the Process of the *Scapula*, not far from the upper Joynt, where the *Neck* of the *Radius* is planted; it sending forth another Process near the inside of the *Cubite*, where it frames a proper place for the Insertions of the *Flexors* of the *Cubite*, and the *Radius* being thicker and broader in its lower part, does there make a fit Articulation with the *Carpus*.

This *Muscle* of the *Cubite* has the Name of *Gemellus*, also given it from its double beginning, it arising doubly broad and strong, first Tendinous, from the upper part of the lower *Costa* or *Rib* of the *Scapula* internally, it having a peculiar Cavity a little under its *Neck*, and then growing fleshy in its Descent, does joyn it self to the inside of the *Os Humeri*, where he meets with another fleshy Origination both broad and fleshy from the upper and back part of the same Bone, and there making one, is inserted to the upper and outward part of the *Olecranium*, and is allowed an *Antagonist* to *Biceps Internus*.

This you have at Tab. XX. Fig I.

Brachialis Internus.

This doth assist the former.

THIS ariseth backwards from the inner Head of the *Os Humeri*, and becoming fleshy, doth ascend to the Middle of the same, almost inseparably mixing it self with the former, and is inserted partly fleshy, and partly Nervous to the outside of the *Olecranium*, on that part which we usually lean on; and by some, it is allowed as a *Flexor Cubiti*.

This you have at Tab. XX. Fig. I. *in its Place.*

Anconæus.

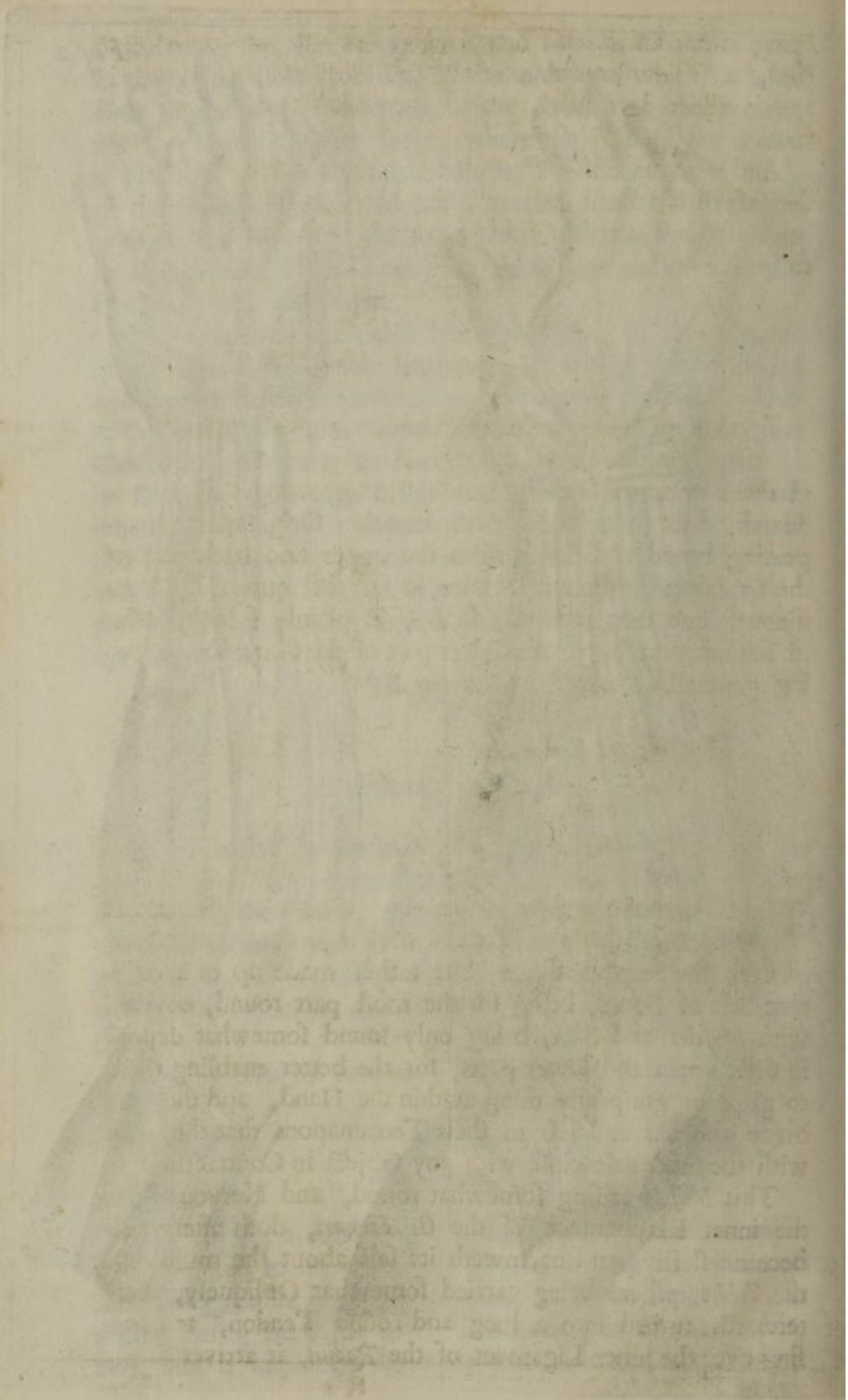
This extends the Cubite.

THIS being a small bodied *Muscle*, is by some *Anatomists* supposed to be a part of *Brevis*, it hath its Name of *Anconæus* given it, from its Situation, as *Riolan* supposeth; it arising fleshy from the lower and back part of the *Os Humeri*, and is implanted between the *Cubite* and the *Radius*, being

TAB. XXI.

Fig. 1.

Fig. 2.



being inserted with a Nervous Tendon into the side of the *Ulna*, a Thumbs length below the *Olecranium*, or Elbow, and is allowed to assist towards the extending of *Longus* and *Brevis*.

And whereas *Medicaster* tells us, I have given no *Ichon* of this *Muscle*; I shall only tell him here, as I did in my first English Book on this Subject, that it is so small, it is not to be shewn by Figure.

Gemellus.

This extends the Cubite.

IT takes its Name from its double Origination, it first arising Tendinous from the upper part of the lower *Rib* of the *Shoulder Blade* in its inside, and growing fleshy in its March, does joyn its self with its other Origination, it appearing broad and fleshy from the upper and back part of the *Os Humeri*, where it shewing its self first outwardly Tendinous, and then inwardly fleshy, is plainly seen to insert it's self into the upper and outer part of the *Olecranium*, it being generally allowed an *Extensor Cubiti*.

This you have at Tab. XIX. *and at* Tab. XX. Fig. I.

Palmaris.

This contracts the Hand.

THE Use of the Hand doth most clearly demonstrate in Dissection, that the Bones of the Fingers are not endowed with one Shape and Size, but rather made up of a different Sett of Bones, being for the most part round, covered with *Muscles* and *Skin*; being only found somewhat depress't in their upper and lower parts, for the better enabling them to gripe or grasp any thing within the Hand, and they are made also less and less in their Terminations that they may with the more ease close with any Object in Contraction.

This *Muscle* arising somewhat round, and Nervous from the inner Extuberance of the *Os Humeri*, doth afterwards become fleshy, and narroweth its self about the middle of the *Cubite*, where being carried somewhat Obliquely, is afterwards turned into a long and round Tendon, and passing over the inner Ligament of the *Radius*, it arrives at the

Palm, where it is ſeen to expand its ſelf into a very broad Tendon, and is laterally inſerted into the Roots of the *Fingers*, and ſo cloſely fixed to the *Cutis*, that without Difficulty it is ſcarce to be divided from it.

This being contracted, doth occaſion a faſt Graſping of any *Tactile* Subſtance, and the Skin above it being moveable, doth make the Gripe ſtronger, and more fixing.

This you have at Tab. XXI. Fig: I. *and at* Tab. XXII. Fig. I. *it is laid bare.*

Caro Muſculoſa Quadrata, or *Palmaris Brevis.*

P This hollows the Hand.

THIS ariſeth in the lower part of the *Mons Lunæ*, as *Diemerbroeck* writes, or as *Falloppius* aſſerts from the 8th. Bone of the *Carpus*, and marching under the *Palmaris* to the middle of the Palm of the Hand, is inſerted into the outſide of the Tendon, which divides the little Finger from the reſt.

This *Muſcle* hollows the Hand in its Contraction, drawing the *Mons Lunæ* to the middle of the Hand.

This you have at Tab. *XXI.* Fig. I, II. *and at* Tab. *XXII.* Fig. I, II.

Flexor Carpi Exterior Radialis, or *Bicornis.*

This helps the former in its contraction.

THIS ariſeth Tendinous from the inner Extuberance of the *Os Humeri*, and running ſomewhat Tranſverſly, near the outer part of the *Primi Digitorum Flexores*, is fixed to the *Radius*, and a little before its Arrival at the *Carpus*, in its Oblique Progreſs, it becomes a flat Tendon, and paſſing over the Tranſverſe Ligament, does there begin to enlarge its ſelf, and is inſerted into that *Os Metacarpi* which doth ſecure the Fore-finger: Theſe two acting together, do contract both the Carp and the Hand, one only acting, it brings it ſomewhat Obliquely lateral in its Contraction.

This you have at Tab. XXI. Fig. I. II, *and at* Tab. XXII. Fig. I. *and at* Tab. XXIV. Fig. I.

Flex-

TAB. XXII


fig. 1
Lumbricales
Palmaris
Flexores
Caro Quadrata
Ligamentum annulare
Carpi Extensor externus
Pronator Radij Teres
Flexor Carpi externus in Situ
Flexor 2di Internodij Digitorum in Situ
Flexor Carpi Internus in Situ
Palmaris ex Situ elongatus
fig. 2
Pronator Quadratus
Flexor 3tij pollicis Internodij
Pronator Radij Teres
Flexor Internodij Digitorum in Situ
Flexor 2di Internodij Digitorum ex Situ

Flexor Carpi Interior, or *Ulnaris.*

THIS ariſeth ſharp, fleſhy, and Nervous, from the inner Extuberance of the *Os Humeri*, as alſo from the upper and outward part of the *Ulna*, and running fleſhy the length of the *Cubite*, to which it adheres, hath its Inſertion by a ſhort and ſtrong Tendon at the fourth Bone of the *Wriſt*, being partly fleſhy, and partly Nervous; and doth not paſs under the *Tranſverſe Ligament*, but is only wrapt up with the common Membrane of all the *Muſcles*. *This Contracts the Wriſt.*

The Uſe of theſe *Flexors* is this, That as they are framed for Reception of any thing into them, they are always ſeen to ariſe from the inner part of the *Arm*, while the *Extenſors* we plainly ſee do take their Originations from the outward Extuberance thereof.

Here is another of Mr. *Cowpers* Efforts of Learning, in writing the *Os Humeri* the *Shoulder-blade*.

This you have at Tab. XXI. Fig. I, II. *and at* Tab. XXII. Fig. I. *and at* Tab. XXIV. Fig. II.

Extenſor Carpi Exterior Radialis, or *Bicornis.*

THIS hath two Originations, the outermoſt of which ariſeth fleſhy above the outer Extuberance of the *Os Humeri*, and in its declining March, it becomes a fleſhy Belly, and above the middle of the *Radius* it afterwards appears Nervous. The other is partly fleſhy, and partly Nervous underneath the former, and continues the ſame according to its length, but having arrived near half way, it is converted into a ſtrong Tendon, and is afterwards inſerted by a double Tendon into the firſt and ſecond *Bones* of the fore and middle Fingers, and in reſpect of its double Origination and Inſertion, it is alſo called *Geminus*. *This extends the Carpus.*

This you have at Tab. *XXI.* Fig. I. *and at* Tab. *XXII.* Fig. I. *and at* Tab. *XXIII.* Fig. I, II. *and at* Tab. *XXIV.* Fig. I, II. *and at* Tab. *XXVI.* Fig. II.

Extenſor Carpi Interior, or *Ulnaris.*

This extends the Wriſt. THIS ariſeth from the inner Extuberance of the *Arm*, as alſo from the Top of the *Cubite*, and being dilated all its whole length through it near the *Carpus*, it is converted into a ſtrong and round Tendon, by which he inſerts himſelf into a *Sinus*, above the lower end of the *Cubite*, and to the fifth Bone of the *Carpus*.

Obſ. Nature hath framed two Sets of Bones for making the *Carpus*, or *Wriſt*, by the benefit whereof, the firſt is joyned to the *Radius*, and the ſecond to the *Metacarp*, and the firſt Bone of the *Thumb*: The upper being ſo cloſely put together, that they all ſeem but as one Bone, which is taken in as it were into the *Sinus* of the *Radius*, making up an Articulation in the lower part of the *Cubite*; and the firſt and ſecond Bone of the *Carpus*, being alſo let in as it were into a *Sinus*, hollowed at the Appendix of the *Radius*, and the third Bone thereof; all which are prudently thus managed for performing thoſe various Offices which we dayly ſee the *Hand* and *Fingers* exerciſed with, as alſo by the benefit of theſe aforeſaid *Muſcles*, we plainly ſee the *Arm* to be carried either upwards, or brought downwards, or drawn ſideways, according as we pleaſe to move them.

This you have at Tab. *XXIII.* Fig. II. *and at* Tab. *XXIV* Fig. I, II. *it is laid bare, and again at* Tab. *XXVI.* Fig. II

Perforatus.

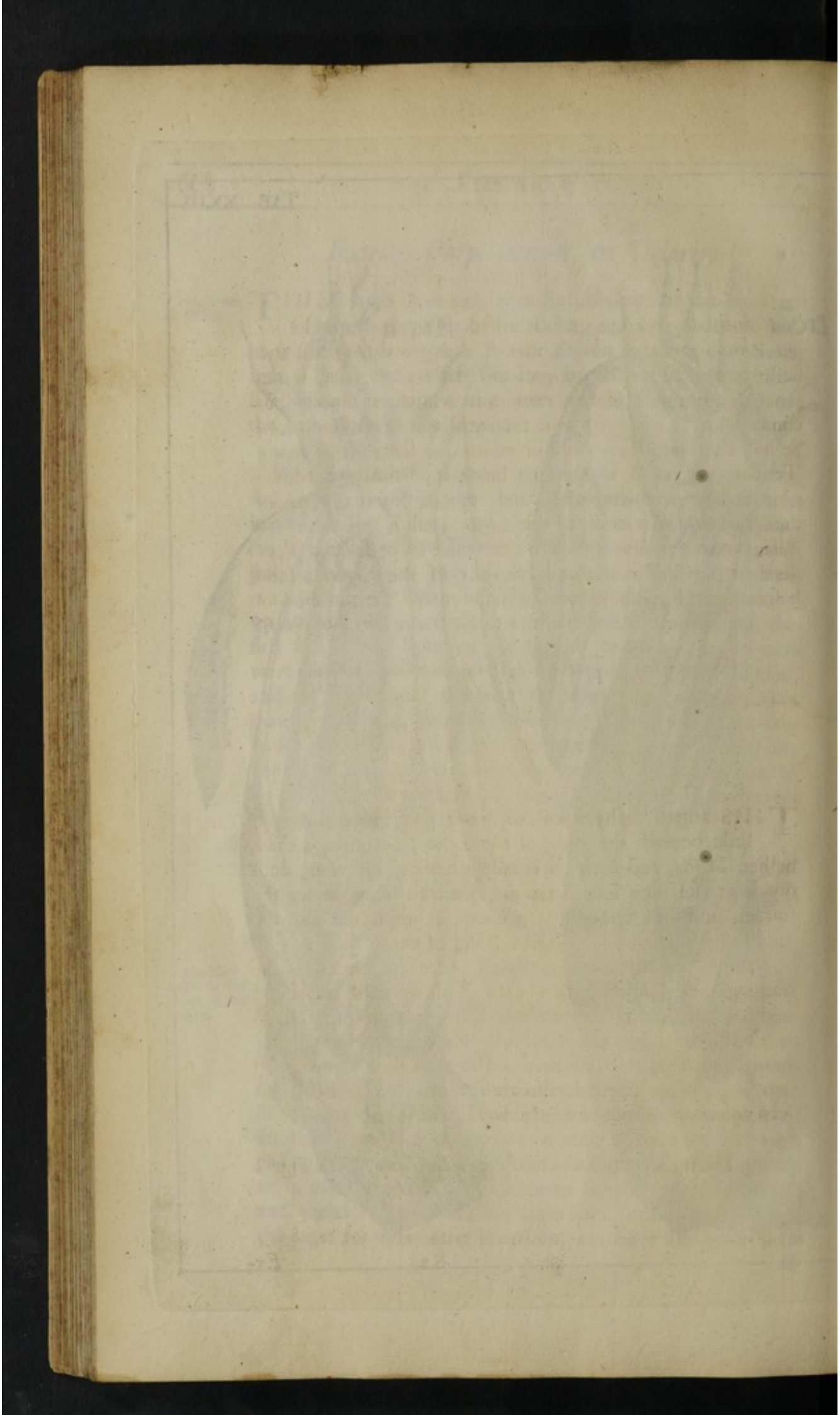
This Contracts the two Joynts of the Fingers. THE Bones of the *Metacarp* carrying an equal Correſpondence with thoſe of the *Fingers*, being as it were their next Neighbours, are of no ſmall Uſe towards the ſupporting them: Theſe alſo being larger in their upper parts, than in the lower; Nature thus contriving them ſo, on purpoſe for their receiving of *Muſcles* in theſe their empty Spaces, paſſing between the Bones of the *Metacarp*, ſhe framing theſe as ſo many convenient Lodgments for their Entertainment; and therefore, they are not only ſeen furniſhed with Appendages for their better Inſertions, but have alſo given them

Aſ-

TAB. XXIII

FIG. I

FIG. II



Asperities, for the more ready Admittance of their Tendinous Insertions.

This *Muscle* hath its Name from its perforated Tendons, and is also called *Sublimis*, from its Situation; and *Flexor Secundi Internodii*, from its use: It ariseth Nervous from the inner Protuberance of the *Os Humeri*, and growing broad and fleshy about the middle between the *Cubitus* and *Radius*, somewhat adjoyning its self to them in its March, it wholly becomes fleshy and round; after this, it divides its self into four fleshy Portions, from each of which are sent out as many Tendons, every one of which being involved in a Mucaginous Coat or Membrane, and running internally under the *Transverse Ligament* of the *Carpus*, till it reacheth the *Palm*, and afterwards doth distribute these its perforated Tendons to the first and second *Internodes* of the *Fingers* a little before their Insertions, for the more ready Transmission of the Tendons of the *Perforans*, or the *Tertii Internodii Flexor*.

This you have at Tab. *XXI.* Fig. I. *and at* Tab. *XXII.* Fig. I. *and the same layd bare at* Fig. II. *of the same* Table.

Perforans.

THIS ariseth fleshy from the upper part of the *Cubite*, a little beneath the joynt of the *Radius*, becoming a thick bellied *Muscle*, and then outwardly growing Nervous, doth divide its self into four Tendons, which passing under the former, and then through their Clefts, is implanted into the upper and forepart of the third Bone of every *Finger*. *This Contracts the three Joynts.*

Nature here hath made a very excellent Order in the framing these *Muscles*, that each of them may freely act without prejudicing each other; as also for securing them in their proper motions, she hath cut a way through the former, for these to pass freely in Order to their Operations; and not only so, but these also are so framed, as that they are seen to move without any Prejudice to the former.

This you have at Tab. *XXI* Fig. I, II. Tab. *XXII.* Fig. II.

Extensor Digitorum Communis.

This extends the second and third Internodes *of the* Fingers.

THIS ariseth partly fleshy, and partly Nervous, from the outward *Apophysis* of the *Os Humeri*, and becoming more fleshy, in less than half its Progress it is seen to narrow its self, where it also is divided into three fleshy Portions, which afterwards do run themselves into as many Tendons; all which are included in a common thin Mucaginous Coat, and passing under the annular Ligament, being thus divided, they are inserted to the upper parts of the first, middle, and third Bones, of the fore, middle, and third *Fingers*.

These Tendons reaching the ends of the third Bone, and lodging under the *Nail*, sheweth us the reason of those sharp pains which usually do happen upon Fellons here growing, or upon any Prick or Cut entring these parts.

This you have at Tab. XXIII. Fig. I. *laid bare.*

Indicis Extensor, or *Indicator.*

This extends the Fore-Finger.

THIS proper *Extensor* of the *Fore-finger*, which both by *Riolan*, and *Vesslingius* is called *Indicator*, ariseth from the outward and middle part of the *Cubite*, next the *Radius*, and Obliquely Descending, doth pass under the *Annular Ligament* with a double Tendon, into the second Joynt, and meeting with the Tendon of *Extensor Communis*, is carried to the third Bone of the *Fore-finger*.

This you have at Tab. XXIII Fig.I,II. *and at* Tab. *XXIV.* Fig. I.

Lumbricales.

These do controll the Fingers *laterally.*

THEY have their Names from their Likeness with common Earth-worms, considering their Shapes; and are also called *Flexores Primi Internodii*, from their Use, they arising from the Tendons of *Perforans*, intermixing themselves therewith, and being then again segregated thence, and growing fleshy, do intermix themselves with some of the *Interossei*, running

Fig. I.

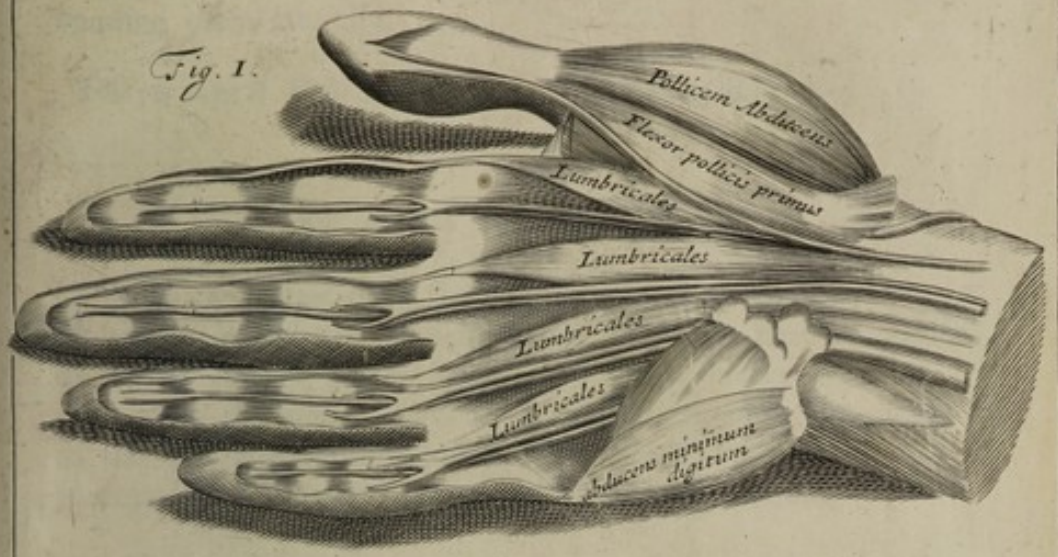
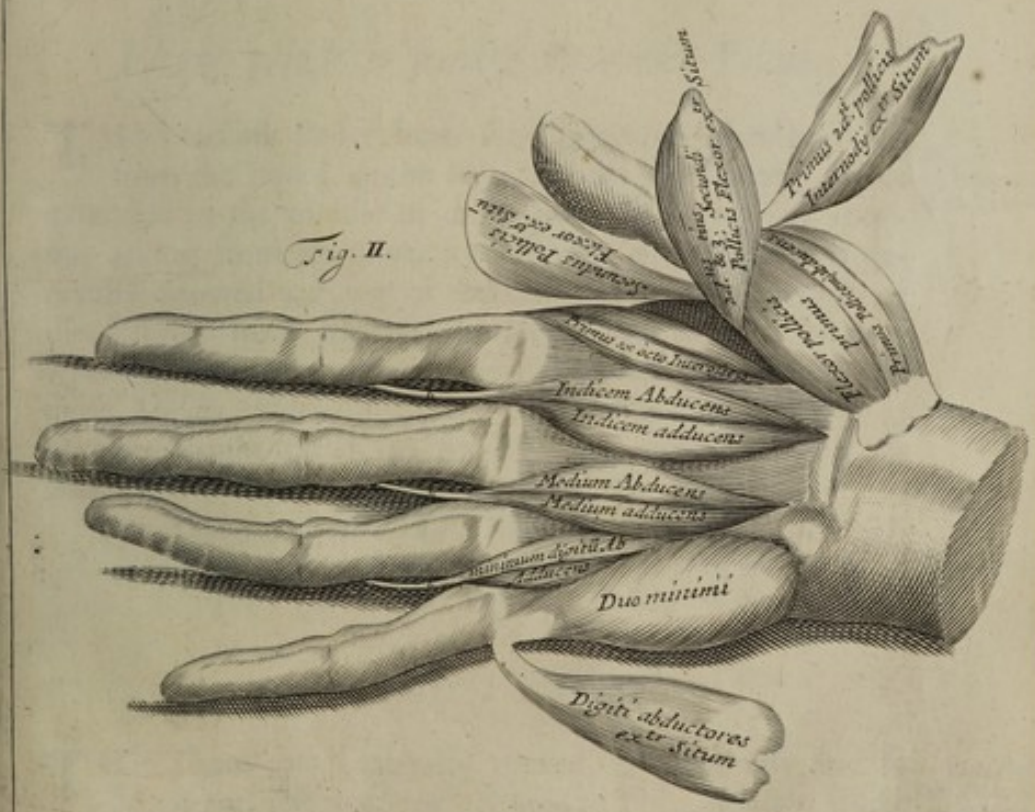

Pollicem Abducens
Flexor pollicis primus
Lumbricales
Lumbricales
Lumbricales
Lumbricales
Adducens minimum digitum

Fig. II.


Primus ad pollicis
Indicem Abducens
Indicem adducens
Medium Abducens
Medium adducens
Duo minimi
Digiti abductores

ning out at the sides of the *Fingers*, even to the third Joynt, bending them laterally.

This you have at Tab. XXII. Fig. I. *and at* Tab. XXIV. Fig. I, II.

Flexor tertii Internodii Pollicis.

This bends the third Joynt of the Thumb.

THIS oft times hath shewn its self with a double Origine, it first arising fleshy from the inner Extuberance of the *Os Humeri*, partly fleshy, and partly Nervous; and then from the upper part of the *Radius*, running forwards to the first and second Joynt of the *Thumb*, and doth implant its self at the upper part of the third Bone thereof.

This you have at Tab. *XXI.* Fig. II: Tab. *XXII.* Fig. II. *as also at* Tab. *XXIV.* Fig. II. *you have the same laid bare.*

Flexor primi & secundi Internodii Pollicis.

This bends the first and 2d. Internodes *of the* Thumb.

THIS ariseth fleshy from the *Ligamentum Annulare*, and from the Bones of the *Carpus*, under the former, and is extended to the middle of the *Thumb*, its variety of motions arising from its Diversity of *Fibres* given it, and is generally allowed a *Flexor* of the first and second *Internodes* of the *Thumb*, from whence it properly doth take its Name: *Riolan* will not allow this a *Flexor*, but rather supposeth that those *Muscles* which do arise from the Bones of the *Carp* or *Metacarp*, ought rather to be esteemed either *Abductors* or *Adductors*.

This you have at Tab. XXI. Fig. I, II. *and* Tab. XXII. Fig. I, II. *and at* Tab. XXIV. Fig. I, II. *it is laid bare.*

Pollicis Abductor.

This draws the Thumb *laterally from the* Fingers.

THE *Thumb* when laterally moved, is commonly said to be either abduced, or adduced: This *Abductor* ariseth broad and fleshy, from the inner part of the *Transverse Ligament* of the *Carpus*, and lessening its self in its Descent, at its Insertion becomes Tendinous, marching along to the up-

per and outer part of the second Bone of the *Thumb*, drawing it from the little *Finger*.

By some *Anatomists* this is called *Thenar*.

This you have at Tab. XXII. Fig. II. Tab. XXIII. Fig. II. *it is laid bare, and at* Tab. XXIV. Fig. I, II. *you have the same.*

Pollicis Adductor.

This adduceth the Thumb.

THIS ariseth Nervous as did the *Indicis Abductor*, and then growing fleshy, doth Obliquely ascend to the upper part of the first Bone of the *Thumb*, where, at its inside, it is inserted broad and fleshy, and by some this is called *Antithener*, and is allowed to bring the *Thumb* towards the *Fore-finger*, whence it gains the Name of *Adductor*.

This you have at Tab. XXIV. Fig. II.

Extensor primi Internodii Pollicis.

This extends the first Internode *of the* Thumb.

THIS ariseth Tendinous from the upper part of the *Ulna*, under the *Supinator Radii Brevis*; and then growing fleshy, does appear again Nervous, in its Oblique descent over *Radialis Extensor*, and is implanted into the first Bone of the *Thumb*.

This you have at Tab. XXIII. Fig. I. *and the same laid bare at* Fig. II.

Extensor secundi & tertii Internodii Pollicis.

This extends the second and 3d. Internodes *of the* Thumb.

THIS ariseth broad and fleshy from that part of the *Radius*, near the *Ulna*, and ascending obliquely over it, doth divide its self into two unequal parts closely put together, and is carried along in a proper Channel to the *Appendix* of the *Radius*, its upper part being somewhat fleshy, which afterwards does end in a round Tendon, and is inserted into that *Bone* of the *Carpus* which receives the *Thumb*; the other being subdivided into two small Portions of flesh, doth at length likewise become Tendinous; the first of these being inserted into the first *Joynt* of the *Thumb*, the

TAB. XXV.

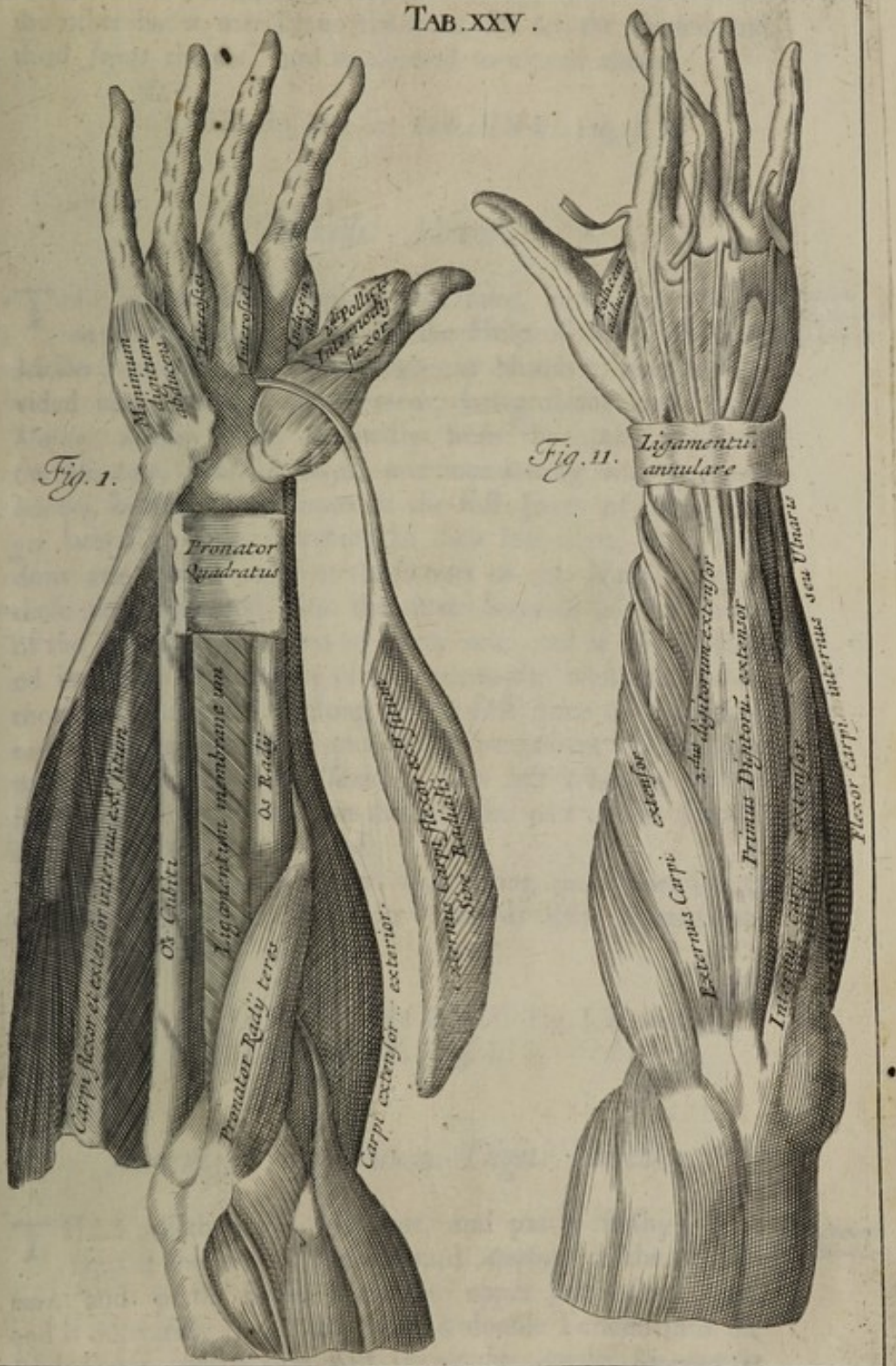
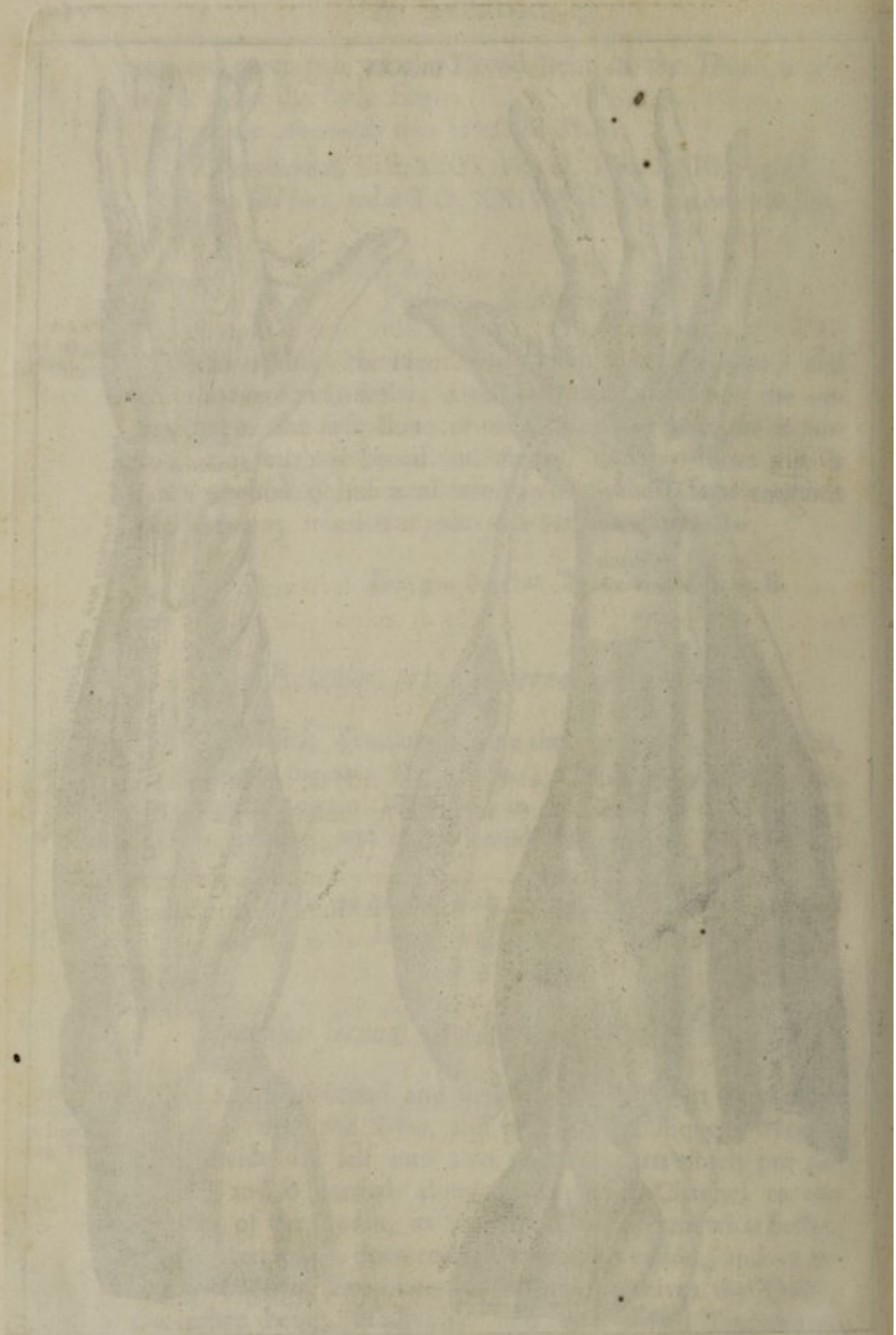


Fig. 1.
Pronator Quadratus
Os Cubiti
Os Radii
Pronator Radii teres
Fig. 11.
Ligamentū annulare
Primus Digitorū extensor
Externus Carpi extensor
Interni carpi extensor
Flexor carpi interni seu Ulnaris



the other by a membrane fixeth its ſelf to the ſecond and third *Joynts* thereof, and is allowed to extend them.

This you have at Tab. *XXIII.* Fig, *I. II.*

Interoſſei Manus.

THE *Fingers* are brought to the ſides, or to the *Thumb*, or drawn from thence by the Help of theſe *Interoſſeal Muſcles*; they being allowed Eight in Number, and are divided into *Externals* and *Internals*, being fleſhy and ſmall *Muſcles*, ariſing fleſhy internally from the upper Bones of the *Metacarp*, near the *Carpus*, and intermixing with the *Lumbricales*, become Tendinous at the firſt Joynt of every *Finger* laterally, and marching to their Inſertions, their Tendons are ſeen to end at the Roots of the *Nails*: Six of theſe are implanted into the three *Internodes* of the Bones of the *Metacarp*, *viz.* two in every one, and as one is planted inwards, the other is placed outwards, while the others more particularly do belong to the firſt Bone of the *Metacarp* ſuſtaining the *Index*, and is alſo incumbent on that part which doth receive the *Thumb*: The laſt adhering to the laſt Bone of the *Metacarp* in the outward part of the Hand, or in the Back part thereof.

Theſe do work the Fingers laterally.

When they work together, they bring the *Fingers* nearer each others, and do alſo help forwards their Extenſions, as *Galen* obſerves.

This you have at Tab. *XXIV.* Fig. *I, II, and at* Tab. *XXV.* Fig. *I.*

Auricularis, or *Minimi Digiti Extenſor.*

THIS ariſeth partly Nervous, and partly fleſhy; Nervous at the end of the outward *Apophyſis* of the *Os Humeri*, and partly fleſhy from the upper part of the *Ulna*, and is outwardly implanted with a double Tendon into the *Little Finger*, and having paſt under the *Annular Ligament* at the *Carpus*, it becomes a large round and Nervous Tendon, which is inſerted into the third *Bone* of the *Little Finger*, it

This extends the little-Finger.

intermixing its ſelf in its paſſage, with the Tendon of the *Tenſor Communis.*

This you have at Tab *XXIV.* Fig. II.

Minimi Digiti Abductor.

This abduceth the little Finger.

THIS *Muſcle* is planted in the bottom of the *Hand* under the *Little Finger*, ſhort and ſtrong, it ariſing fleſhy from the fourth *Bone* of the *Carpus*, as alſo from its third *Bone* and from the upper part of the Subjacent *Metacarp*, and extending its ſelf by it, is inſerted laterally outwards to the firſt *Joynt* of the *Little Finger*, and doth abduce it: *Riolan* writes that this may be divided into two *Muſcles.*

This you have at Tab. XXII. Fig. I. *and at* Tab. XXIV. Fig. I, II. *both in its place, and layd bare.*

Pronator Quadratus.

This turns the Radius *inwards.*

THIS ariſeth broad, and fleſhy, (being tranſverſly extended) from the lower and inner Side of the *Ulna*, and ſo paſſing over the *Ligament* that joyns the *Radius*, and the *Ulna*, doth implant himſelf into the upper and outward part of the *Radius*, with a broad beginning, much Repreſenting a *Mathematical Square*, with four Equal Sides.

This you have at Tab. *XXII.* Fig. II. *and* Tab. *XXV.* Fig. I.

Pronator Radii Teres.

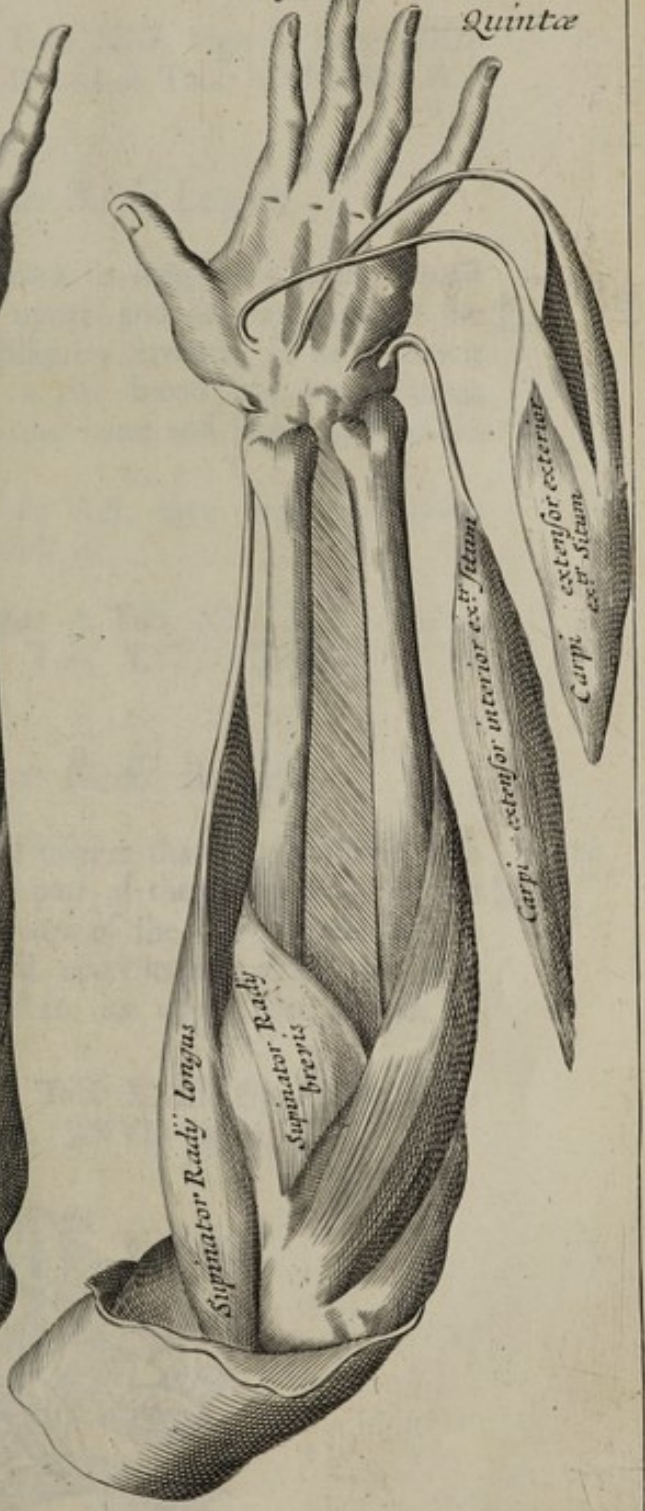
This brings the Radius *downwards.*

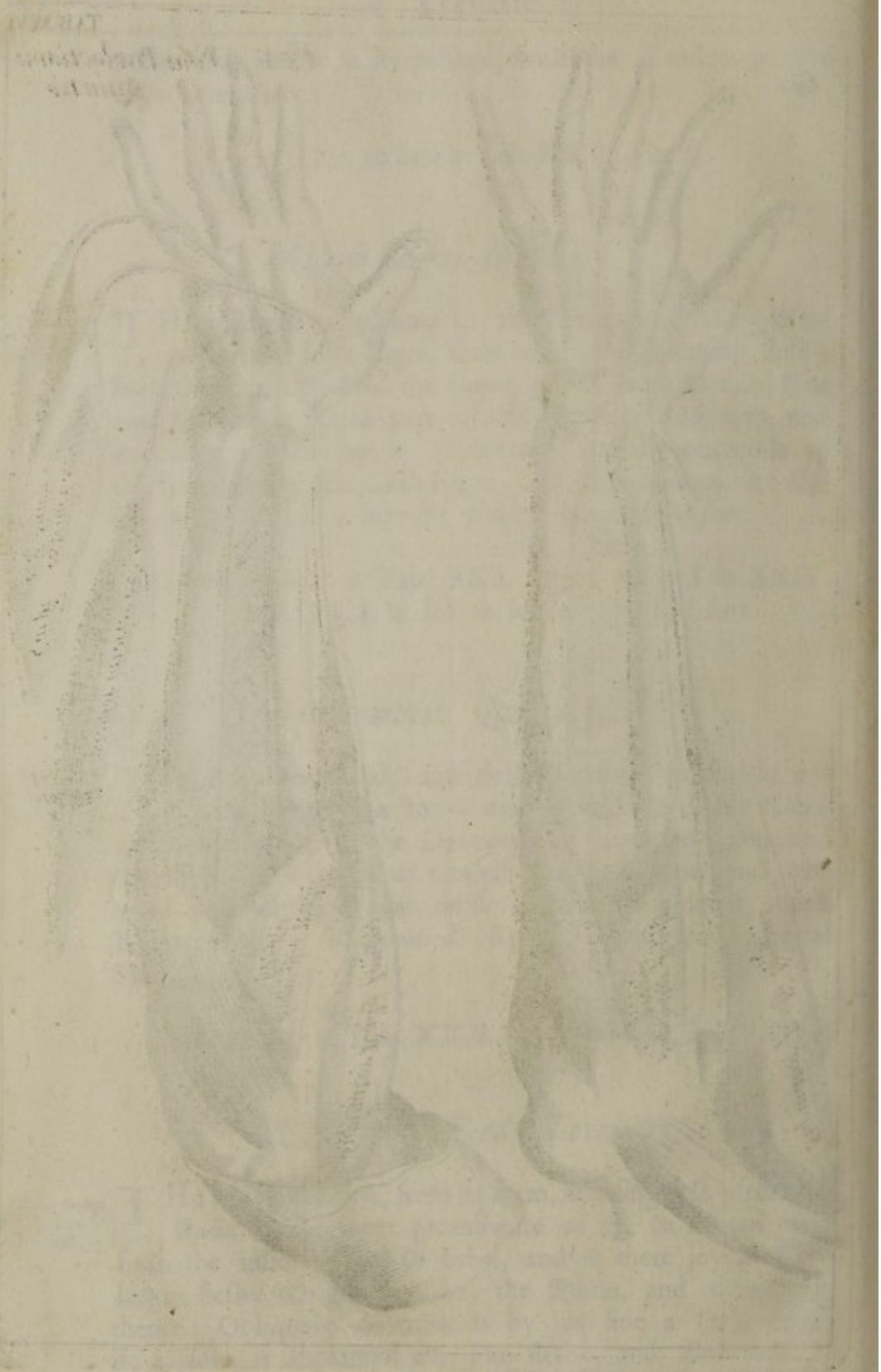
THIS is called *Teres*, from its form, it ariſing fleſhy from the *Radix* of the inner prominence of the *Os Humeri*, and from the inſide of the *Os Cubiti*, and is there joyned by a large fleſhy Origination to the *Radius*, and deſcending thence Obliquely downwards by his ſide a little above its middle, is implanted into him fleſhy, and afterwards a Nervous head or Tendon ariſeth from him, which is

in

Fig. 1.

Fig. 2. Finis Prælectionis Quintæ





inſerted into the outward *Head* of the *Radius*, and is held to bring it downwards.

This you have at Tab. *XXI.* Fig. *I.* Tab. *XXII.* Fig. *I, II. and at* Tab. *XXV.* Fig. *I.*

Supinator Radii Longus.

THIS hath its Name from its length, it ariſing broad and fleſhy from the upper and outward part of the *Os Humeri*, and running Obliquely inwards, in its deſcent it grows leſs, and becomes a flat broad and Membranous Tendon, and is faſtned to the outer and lower part of the *Radius*, near the *Carpus*. *This brings the* Arm *outwards.*

If this and its Partner do Act, they bring the *Radius* forwards, and the *Hand* with it.

This is ſhewn at Tab. *XXI.* Fig. *I. and at* Tab. *XXVI.* Fig. *I, II.*

Supinator Radii Brevis.

THIS being ſhorter and thinner than the former, doth ariſe from the outward part of the lower *Head* of the *Os Humeri*, and from the *Proceſs* of the *Ulna*, partly Tendinous, and partly fleſhy; and upon its recovering the middle of the *Radius*, is inſerted to its upper part, a little below its prominence. *This doth aſſiſt the former.*

This you have at Tab. XXIII. Fig. I, II. *and at* Tab. XXVI. Fig. I, II.

Lecture VI.

This laſt Lecture concludes with theſe following *MUSCLES*, *viz.*

Pſoas Magnus,
Pſoas Parvus,
Iliacus Internus,
Pectinæus,
Glutæus Major,
Glutæus Medius,
Glutæus Minimus,
Pyriformis,
Marſupialis,
Quadratus,
Triceps,
Obturator Externus,
Membranoſus,
Sartorius,
Gracilis,
Seminervoſus,
Semimembranoſus,
Biceps,
Rectus,
Vaſtus Externus,
Vaſtus Internus,

Suppoplitæus,
Gaſterocnemius Externus,
Plantaris,
Gaſterocnemius Internus,
Tibiæus Anticus,
Peronæus Primus,
Peronæus Secundus,
Tibiæus Poſticus,
Extenſor Pollicis,
Flexor Primi & Secundi Internodii Pollicis,
Abductor Pollicis,
Adductor Pollicis,
Extenſor Digitorum Longus,
Extenſor Digitorum Brevis,
Perforatus,
Perforans,
Lumbricales,
Abductor Minimi Digiti,
Tranſverſalis Placentini,
Interoſſei Pedis.

Pſoas Magnus, or *Lumbalis*.

This Contracts the Thigh.

AS the lower part of Man's Body is floored with a Syſtem of ſtrong Bones, by which it is joyned and ſecured to the *Trunk* by the advantageous *Ligaments* added to them; as with the *Share-Bone* before, backwards with the *Os Sacrum*, and downwards with the *Coxendix*: So is the Foot alſo divided into three parts, *viz.* The *Thigh*, *Leg* and *Foot*, to all which parts, Nature hath given the *Machiniſm* of *Muſcles*, as ſo many diſtinct Bodies, appointed as ſo many *Machines* of Motion: And Man

being framed in an erect Poſture, doth naturally require theſe boney Pillars to ſuſtain, and bear up this his Fabrick, which we ſee is every where well ſtored with various and diffe-rent Bodies, and Forms of *Muſcles*; both for the better countermanding each other in their Motions, as alſo for keeping the Limbs in that erect Poſture we for the moſt part ſee them obtain. I begin with this of the *Pſoas*, which hath its Name from its Origination, and called *Magnus* to diſtinguiſh it from that leſſer one, which is ſometimes ſhewn, it being planted in the Cavity of the *Abdomen*, and doth ariſe livid, fleſhy and large, from the two lower *Vertebres* of the *Thorax*, and the three upper of the *Loins*, and deſcending ſomewhat round, from the inner part of the *Os Ileon*, even to the *Os Pubis*, through its *Sinus*, is inſerted by a round and ſtrong Tendon into the leſs *Trochanter* of the *Thigh*, drawing it upwards, and at the ſame time bending it inwards.

Becauſe the *Kidneys* do frequently preſs upon this *Muſcle*, as *Laurentius* well obſerves, over which runneth a Notable Nerve: Such as are troubled with the Stone, do frequently perceive a ſleepineſs on that ſide of the *Thigh*, in which the Stone is lodged, occaſioned by its compreſſing this part.

This you have at Tab. XXVII. *both in and out of its place.*

Pſoas Parvus.

This doth aſſiſt the former.

THIS is not ſeen in all Bodies; when you find it, you will meet it ariſing fleſhy from the upper part of the firſt *Vertebres* of the *Loyns*, internally, within the *Abdomen*: *Bauhine* ſaith that it ariſeth fleſhy the length of a *Little-Finger*, and is dilated with a ſlender and broad Tendon above the *Pſoas Magnus*, and ends with the *Pſoas*, and *Ileon*, embracing them both very firmly: *Riolan* aſſerts he could never find this in Women: *Bartholine* writes, that that which he found in a Man at the *Hague*, had a fleſhy Origination equalling the breadth of three *Tranſverſe Fingers*, and was inſerted fleſhy into the upper and back part of the *Os Ileon*, at the beginning of *Iliacus Internus*, it being made as a Pillow to the former. Mr. *William Molins*, in the Year of his being Maſter of *Anatomy*, ſhewed this *Muſcle* in a body then diſſected by him at the *Theater* in *Chirurgeons-Hall*.

This Muſcle *lying under the former, is not to be ſhewn by* Figure.

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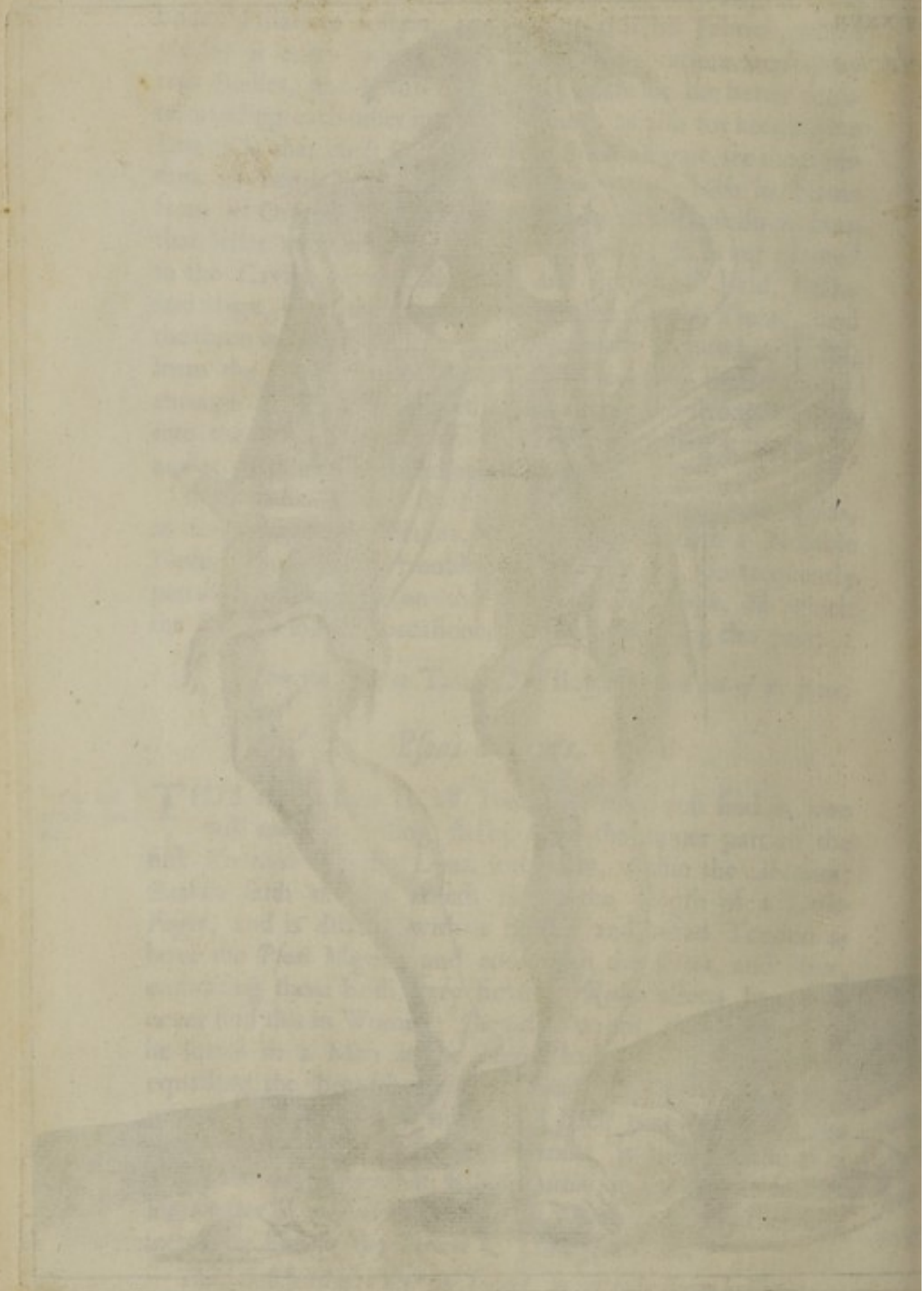
TAB: XXVII

Prælectio Sexta.



Iliacus Internus.

THIS ariſeth with a thin and fleſhy beginning, in the inner Cavity of the *Os Ileon*, and in its deſcent over it, in its lower part, it joyns its ſelf with the former, and is implanted into the ſame *Rotator* a little below it.

This bends the Thigh *directly.*

Obſ. This and the former are allowed *Elevators* of the Thigh; and whereas the *Pſoas* is faſtned above to the *Vertebres* of the *Back* and *Loins*, and this *Iliacus Internus* to the *Os Ileon*, as to the Centers of Motion; and they both being tyed downwards to the leſs *Trochanter*, as a part eaſily moveable, is thereupon drawn upwards by their Contraction, and by the Abbreviation of theſe ſaid *Muſcles*; ſo that conſequently, the whole *Thigh* hereupon muſt neceſſarily be bent, and lift up, (as being more readily pulled towards the *Vertebres* of the *Back* and *Loins*, than thoſe towards the *Thigh*) by making a Flexure of it.

Obſ. By the Benefit of *This*, and *Pſoas Magnus*, the *Thighs* are elevated and brought forwards by Contraction; and whilſt the *Tarſus* of the hinder Foot is gradually attolled, the Center of Gravitation is transferred from the *Tarſe* to the *Metatarſe* and *Toes*; and hence is it, that whilſt the Fore Foot is ready to land on the ground, the Hinder Foot, by wheeling upon the *Metatarſe* and *Toes*, doth draw the Trunk of the Body forwards, that the other Limb being extended, the Center of Gravitation may be turn'd upon the Heel of the Fore Foot: Which is the Reaſon why we are ſo ſubject to fall in running; our Body being hurryed in a violent Motion, doth raiſe the Hinder Foot from the *Tarſe* to the *Metatarſe* and *Toes* with ſo much quickneſs and violence, that the Fore Foot upon the leaſt hindrance or obſtruction, cannot ſo readily land on the Ground, or receive the weight of the Body, ſo as to cauſe a ſtop to its Fall, as Dr. *Collins* well obſerves. Again, as the *Pſoas* is faſtned above to the *Vertebres* of the *Back* and *Loins*, and the *Iliacus Internus* to the Surface of the *Os Ileon*, as to the Centers of Motion, and both of them are tyed below to the leſs *Trochanter*, as a Part more eaſily moveable; the *Thigh* thereupon is drawn upwards, by the Contraction and Abbreviation of theſe *Muſcles*, they lifting up the *Thigh* by their making this its Flexure, whilſt the oppoſite Motion

or Extenſion of the Thigh is made good by the *Glutæi*; and as the *Pſoas* and *Iliacus Internus* do pull the Thigh upwards, ſo the *Gracilis*, *Seminervoſus*, *Semimembranoſus*, and *Biceps*, do bring it backwards.

This is ſhewn at Tab. *XXVII. in and out of its place.*

Pectinæus, or *Lividus*.

This draws the Thigh *upwards and outwards.*

THIS ariſeth broad, thick and fleſhy from the outward part of the *Os Pubis*, near its *Cartilage*, and Obliquely deſcending, is inſerted by a flat and ſhort Tendon into the inſide of the *Os Femoris*, on its back part, under its leſſer *Trochanter*, bringing the *Thigh* upwards and outwards: *Bartholine* will have this to be an *Adductor*.

This *Muſcle* is an Aſſiſtant to *Triceps*; and by drawing the *Thigh* inwards, it proves of great Uſe in riding, this *Muſcle* in a great Meaſure, keeping the *Horſe-man* cloſe to his *Saddle*; and by ſome. it is allowed as a part of the ſaid *Triceps*, though it doth not ſo cloſely adhere to it, but that it may with Eaſe be ſeparated from it.

This you have at Tab. *XXVII. in its place, and laid bare, and at* Tab. *XXX. you have it ſo again.*

Glutæus Major.

This pulls the Thigh *directly backwards.*

THIS is the firſt, and the largeſt of the three *Extenſors*, which, with the other two, do make up the fleſhy Maſs of the *Buttocks*: The Skin being laid bare, they readily do ſhew themſelves; and this eſpecially ſhews its ſelf with a broad, and *Semicircular* Beginning, enated from diverſe Bones; it ariſing Tendinous, from a great part of the *Spine* of the *Os Ileon* externally, and then thick and fleſhy, from the back part of the *Spines* of the *Os Sacrum* laterally; and thirdly, from the *Os Coxendix*, large, and fleſhy, running Obliquely downwards, over the Juncture of the ſaid Bone, and then growing narrower, is implanted by a broad and ſtrong Tendon, into the firſt Impreſſion of the great *Trochanter*, and part of it alſo into the *Linea Aſpera*, on the back part of the *Os Femo-*

TAB. XXVIII.


Spina oßis Ilij
Gluteus magnus
Gluteus Medius
Pyriformis
3 Idem etiam
4 Idem Flectentes
5 Flectentes Tibiam
Gluteus magnus
et Situm

Femoris, below the aforesaid great *Trochanter*, and is said to pull the *Thigh* directly backwards.

Here Mr. *Cowper* has shewn a peculiar respect to this *Muscle*: He allowing it more Names than of any his Predecessors, making it both *Magnus*, *Major*, and *Maximus*, according to his new correct Way of Writing.

This you have at Tab. *XXVIII. in its place, and laid bare.*

Glutæus Medius.

THIS being lodged under the Tendinous part of the former *Muscle*, being much like it in its Situation and Make, doth arise fleshy from near the whole outward part of the *Spine* of the *Os Ileon*, as also broad and *Semicircular*; and descending Obliquely, doth narrow its self, enwrapping the Joynt as the former, and is inserted by a Nervous, broad and strong Tendon to the upper and outward part of the great *Trochanter*, drawing the *Thigh* upwards, and inwards, as some do suppose; whilst I humbly conceive, it doth bend it, and doth assist the former in depressing the *Os Femoris*. *This assists the former in its Extension.*

This you have at Tab. XXVIII.

Glutæus Minimus.

THIS lodging under the former, being lesser than it, as the second is smaller than the first, does also arise like it, both broad, semicircular, and fleshy, from the back of the *Os Ileon*, and is inserted with a large and strong Tendon into the upper and inner part of the Root of the great *Trochanter*; this assisting both the former in all their Actions, its *Fibres* carrying the same Series in it with those of the former; and I do humbly conceive, they do all agree in pulling the *Os Femoris* downwards, and backwards, after it has been elevated by the *Psoas*, and *Iliacus Internus*, as I have formerly shewn. *This extends as the former.*

These are generally call'd the *Cushion Muscles*, upon which we sit: All these three *Glutæi* joyntly assisting each other in extending the *Thigh*, as they are fastned above, either to

the *Os Ileon*, *Sacrum*, and *Coccix*, and are inserted either a little beneath, or into the great *Trochanter* of the Thigh, which being less ponderous than the *Trunk*, is more easily moved, than the other more fixed, and heavy Bones; because the *Thigh-Bone* playing in a Socket, may be easily depressed in Extension by the *Glutæi*; which being contracted and shortened, do pull the *Thigh* downwards, and maketh it more streight in its progressive Motion.

This is another of *Medicasters* Complaints against me, when he saith, I have given no Description of *Glutæus Minimus*, because in its place I called it *Glutæus Minor*; which said Error is copied afresh by Mr. *Cowper* in his *Anatomia Reformata*, and is not to be accounted as a *Superlative* Error in him; altho' he as well as his Brother *Medicaster* pronounces it to be such a one in me.

This you have at Tab. *XXXII. laid bare.*

Pyriformis, or *Iliacus Externus.*

This works the Thigh *about.*

THIS hath its Name from its Figure, and *Iliacus Externus* from its Situation: It ariseth thick, round, and fleshy, from the three lower *Vertebres* of the *Os Sacrum*; and Obliquely marching to the great *Sinus* of the *Os Ileon*, is inserted by a round Tendon into the fourth Impression of the great *Trochanter*, bringing the *Thigh* upwards and outwards; and considering its Bigness, it is allowed one of the thickest *Muscles* in humane Body, stuft up with variety of *Fibres.*

This you have at Tab. *XXVIII. and at* Tab. *XXIX. it is laid bare, as also at* Tab. *XXXII. you have the same laid bare.*

Obturator Internus, or *Marsupialis.*

This brings the Thigh *about outwards.*

THIS ariseth large and fleshy, from the Membrane internally which covereth the great Perforation of the *Os Pubis*; and covering that Bone, and the *Coxendix*, doth narrow its self, sending forth three or four Tendons, which are carryed through the *Sinus* of the *Coxendix*; which is arched over according to its length with a strong *Ligament*, backwards to the outward part of the *Coxendix*, where they are re-

TAB XXIX


Pyriformis ex. P. Situs
Obturator externus ex. Situs
Obturator externus
Triceps
Idem musculus exhibet vastus
ejus coherentia cum Femoris osse.
Altera ejus pars.
Biceps ex. Situs

received into a fleſhy purſe; and ſo making one Tendon, are implanted into the *Sinus* of the great *Trochanter*.

This *Muſcle* muſt be raiſed inwards, where having got through the *Sinus* under the *Ligament*, you will plainly ſee the *Purſe* ſhew its ſelf.

This you have at Tab. *XXVIII. and at* Tab: *XXXII. it is laid bare.*

Quadratus Femoris.

THIS hath its Name from its Figure, it ariſing broad and fleſhy, from the riſing of the *Os Ileon*, and from the *Appendix* of the *Coxendix*, and doth run broad, ſhort, and fleſhy towards the back part of the great *Trochanter*; and is inſerted into that ſpace of the Bone which is between the two *Trochanters*. *This brings the* Thigh *about backwards.*

The Head of *Lividus*, and a part of *Triceps* muſt be thrown off, before the beginning of this will be cleared, or *Tbturator Externus* found out: *Veſalius* doth divide this into two *Muſcles*. This is alſo called *Quadrigiminus*, and you may ſee it carries that Name in my Figure.

This you have at Tab. *XXXII.*

Triceps.

THIS takes its Name from its three *Heads*, and is the largeſt *Muſcle* of the *Thigh*, it apparently ſhewing its three Heads or Originations; all which do conclude and terminate in one: Its firſt and largeſt head being partly fleſhy, and partly Nervous, ariſing from the *Appendix* of the *Coxendix*; where tumifying, it dilates its ſelf into the back part of the *Thigh*; and then growing ſmall, doth end in a ſtrong round Tendon, at the inner and lower head of the *Os Femoris*; the ſecond ariſeth fleſhy from the *Coxendix*, at its Conjunction with the *Pubis*, and doth terminate at the Root of the leſſer *Trochanter*; and in the upper part of the *Aſpera Linea* of the *Thigh-Bone*; the third ariſeth fleſhy from the *This brings the* Thigh *inwards.*

lower part of the *Os Coxendix*, and is implanted into the *Linea Alba* of the ſaid *Os Femoris*.

This is allowed a riding *Muſcle*, bringing the *Thigh* inwards, and fixeth the *Rider* to his Seat, and may well enough be called *Muſculus Pudicitiæ*; it being aſſiſted by the *Lividus*, in keeping the *Legs* cloſe.

This you have at Tab. *XXIX in and out of its place, as alſo at* Tab. *XXX. and* Tab. *XXXI.*

Obturator Externus.

This works the Thigh *about inwards.*

THIS hath its Name from its Situation, it ariſing from the outward part of the Cavity, between the *Os Iſchium*, and the *Os Pubis*, lying under the *Pectinæus*: It ariſeth large and fleſhy, from the Membrane that enwrappeth the Perforation of the *Os Pubis* outwards; and then marching tranſverſly to the back part of the *Thigh*, (becoming narrower) is inſerted by a ſtrong Tendon into the *Sinus* of the great *Trochanter* of the *Thigh-Bone*, near the termination of the *Triceps*, and doth turn the *Thigh* inwards.

You muſt carefully bring your *Knife* inwards about the Edge of the Perforation of the *Os Pubis*, then this will plainly appear, and ſhew its Origination.

This you have at Tab. *XXIX. both in and out of its place, as alſo at* Tab. *XXX.* Tab. *XXXI. and* Tab. *XXXII.*

Membranoſus.

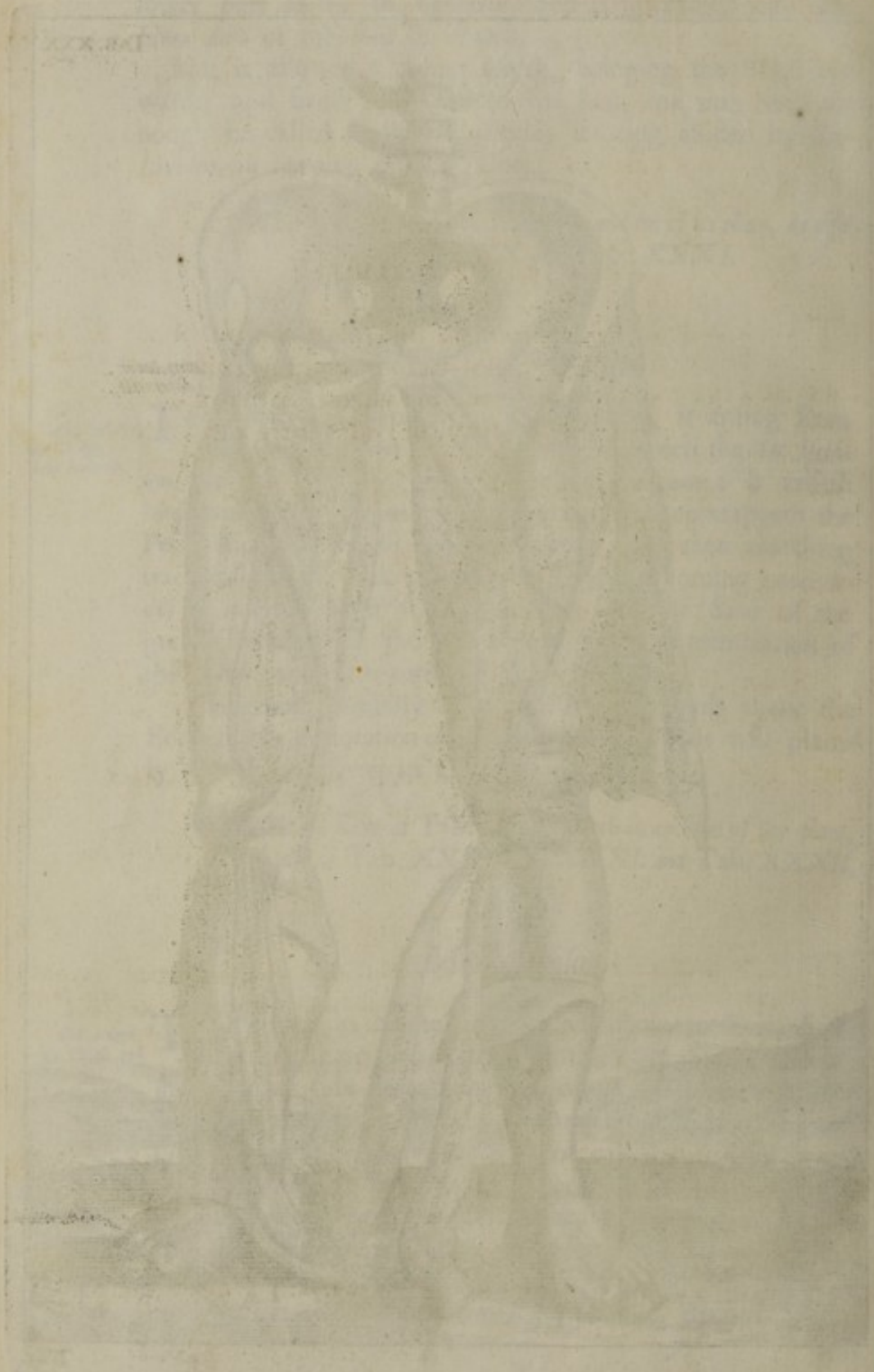
This brings the Thigh *and* Leg *outwards.*

THIS hath its Name from its Membranous Expanſion; it ariſing ſharp and fleſhy from the upper *Spine* of the *Os Ileon*, on that ſide next *Satrorius*, whence it turneth into a very long and broad Tendon, not much unlike the *Tranſverſe Ligament*; and is therefore by ſome called *Faſcia Lata*, enwrapping almoſt all the *Muſcles* of the *Thigh* in it, and not only ſo, but thoſe of the *Patella* and *Focils*, in their outward parts, and then doth joyn its ſelf with the *Ligamentum Annulare*, which keeps in the Tendons of the *Toes* and *Feet*, as ſome will have it; whilſt others as readily write, that this *Faſcia*

Lata

TAB. XXX.


Obturator externus
Membranosus ex. Sium
Rectus
Vastus internus
Biceps
Gracilis
Sartorius
Rectus
Vastus internus
Membranosus ex. Sium
Sartorius ex. Sium
Gracilis ex. Sium



Lata goes no farther than the lower part of the *Thigh-Bone*, or the upper parts of the *Focils*.

This *Muſcle* helps the Legs in Extenſion, in bringing them forwards and outwards.

This you have at Tab. XXX. *laid bare.*

Sartorius, or *Facialis*.

THIS hath its Name from the Uſe which is made of it, in ſitting croſs-legg'd; and *Faſcialis*, from its paſſing over the *Thigh* like a *Swathing-band*, in keeping the reſt of the *Muſcles* light in their places: It ariſeth with a ſharp and fleſhy beginning from the Fore part of the *Spine* of the *Os Ileon*, near the former *Muſcle*, and running Obliquely inwards over the *Muſcles* of the *Thigh*, It becomes Tendinous in its Paſſage over the inner and lower head of the *Os Femoris*, and is inſerted by a broad Tendon (as ſome Authors affirm) and round (as others will have it) below the upper part of the *Tibea*.

This brings it inwards.

Riolan writes, that this doth bring the *Leg* inwards, and therefore thinks it rather extends it.

This you have at Tab. XXVII: *and at* Tab. XXX. *in and out of its place.*

Gracilis.

THIS hath its Name from its Make and Shape; it being a very ſlender *Muſcle*, lying next the former: It ariſeth partly Nervous, and partly fleſhy from the middle of the *Os Pubis* internally, between the firſt and ſecond Heads of the *Triceps*; and growing narrower in its ſtreight Deſcent, in the inſide of the *Thigh*, doth then become a round Tendon, at the inner Head of the *Os Femoris*, it inſerting its ſelf into the *Tibia* next the former; this aſſiſting it in its Contraction, and bringing the *Thigh* and *Leg* inwards.

This doth aſſiſt the former.

This you have at Tab. XXX. *both in and out of its place.*

Seminervoſus.

This bends the Tibia *backwards.*

THIS takes its Name from its Subſtance, which may be accounted either Nervous, or Membranous; it being partly Nervous, and partly fleſhy, it ariſing ſmall and Nervous from the ſame *Appendix* as the former; and then continuing ſo half way in its Deſcent, does grow fleſhy, running by the backpart of the *Os Femoris* to the *Ham*; near which it becometh a round Tendon, and reflecting its ſelf, is inſerted into the forepart of the *Tibia*:

The three Tendons of theſe three *Muſcles*, and thoſe following, do make up the inward *Ham-Strings*.

This you have at Tab. *XXVIII. as the third* Flexor, *and at* Tab. *XXXII. both in and out of its place.*

Semimembranoſus.

This bends the Leg.

THIS hath its Name alſo from its Membrane-like Subſtance, lying juſt under the former; it ariſing with it, both broad and Membranous, and running downwards from the Protuberance of the *Os Iſchium*; where growing broader, doth continue Membranous near half its Progreſs, and after growing fleſhy, and thick, it getting under the round Tendon of the former, does afterwards make a ſhort and thick Tendon, which inſerts its ſelf into the inner Side of the *Tibia*. The fleſhy Belly of the former *Muſcle* lodging above, and this lying juſt under it, but their Tendons being quite contrarily diſtributed and diſpoſed.

This you have at Tab. XXVIII. *as the fourth* Flexure, *and at* Tab. XXXII. the ſame *both in and out of its place.*

Biceps Femoris.

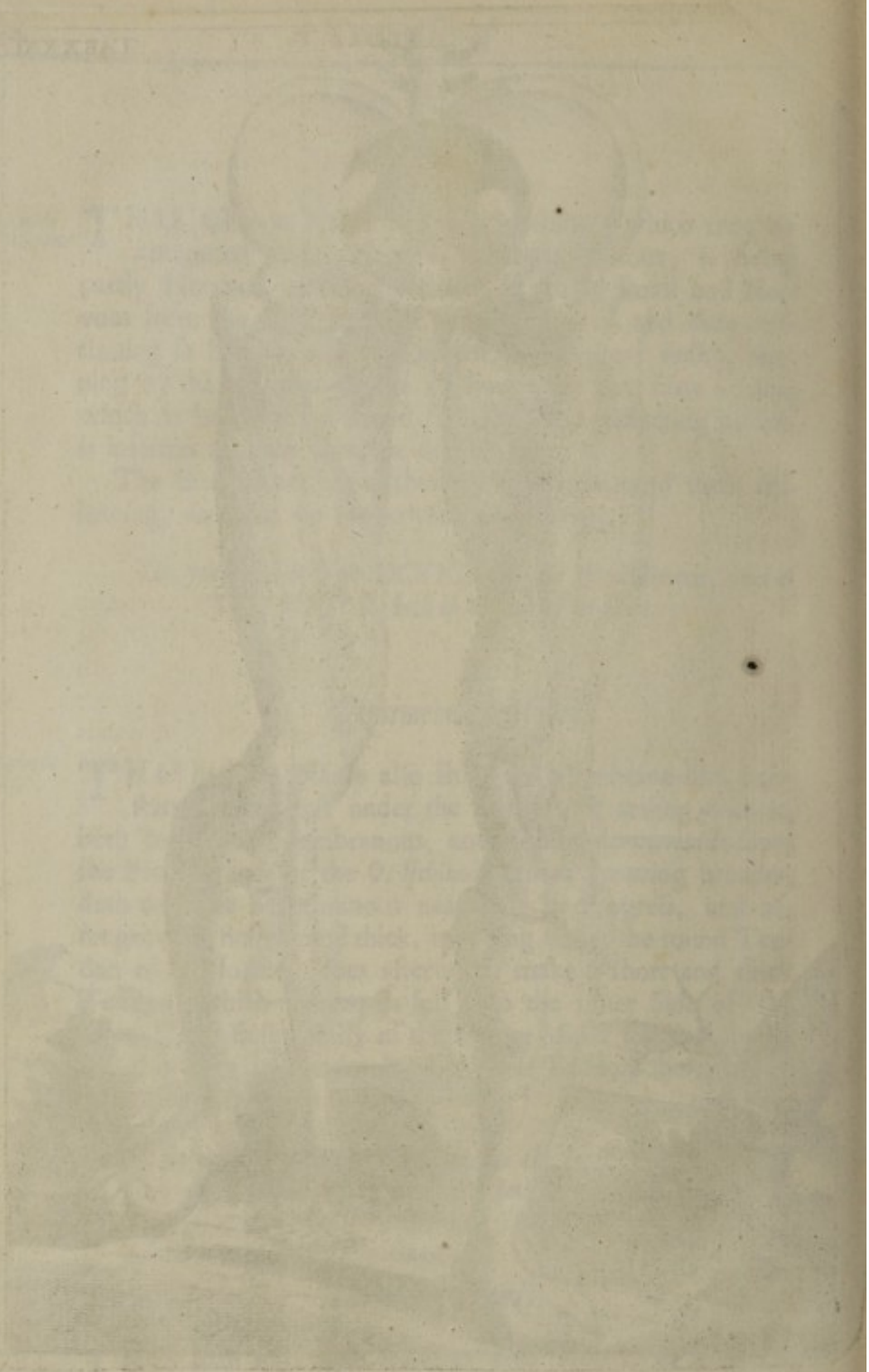
This contracts the Leg.

THIS hath its Name from its two Heads, or Originations; It ariſeth ſharp and Nervous from the ſame *Appendix* as the two former; and then growing fleſhy, and large,

in

TAB XXXI


Obturator externus
Triceps
Triceps
Rectus
Vastus externus
Vastus internus
Vastus Internus
Vastus externus
Rectus ext.r Situm



in its March, externally downwards, and having got near half its Progreſs, is ſeen to narrow its ſelf, and joyning with the other Head which ariſeth from the *Linea Aſpera* of the *Os Femoris*, where the *Glutæus Major* hath its Inſertion; and growing thicker, tho' outwardly Tendinous, as it marcheth in a Channel in the outward *Appendix* of the *Os Femoris*, it firmly ties it ſelf to the outſide of the upper *Appendix* of the *Fibula*, with its Tendinous Inſertion.

This you have at Tab. *XXVIII. as the fifth* Flexor, *and at* Tab. *XXIX. it is laid bare, and at* Tab. *XXXI, XXXII. both in & out of its place.*

Rectus Femoris.

IT hath its Name from its ſtreight Progreſs, and carries in it the true Figure of a *Muſcle*, it ariſing fleſhy from the lower *Spine* of the *Os Ileon*; and running along the length of the *Thigh*, with its thin and fleſhy Belly, it wholly becomes Tendinous, before it reacheth the *Patella*, where it expands its ſelf into a ſtrong broad Tendon, entirely covering the ſaid *Patella*, and being joyned with the Tendons of *Vaſtus Externus*, and *Vaſtus Internus*, it is inſerted with them to the upper part of the *Tibia*, at a Prominence there provided for its Reception. *This extends the Leg.*

This you have at Tab. *XXVII, and at* Tab. *XXX. and* Tab. *XXXI. both in and out of its place.*

Vaſtus Externus.

THIS takes its Name from its great *Maſs* of Fleſh, it ariſing outwardly Nervous, and inwardly fleſhy, from the outward part of the great *Trochanter*, and joyning its ſelf to the upper and outward part of the *Os Femoris*, and deſcending fleſhy to the *Patella*; it next becomes a Membranous and broad Tendon, and it mixing its ſelf with the Tendon of *Rectus*, doth help towards the making a ſtronger Covering for the *Patella*, it carrying the ſame Inſertion with it. *This extends the Leg.*

This you have at Tab. *XXXI. in its place.*

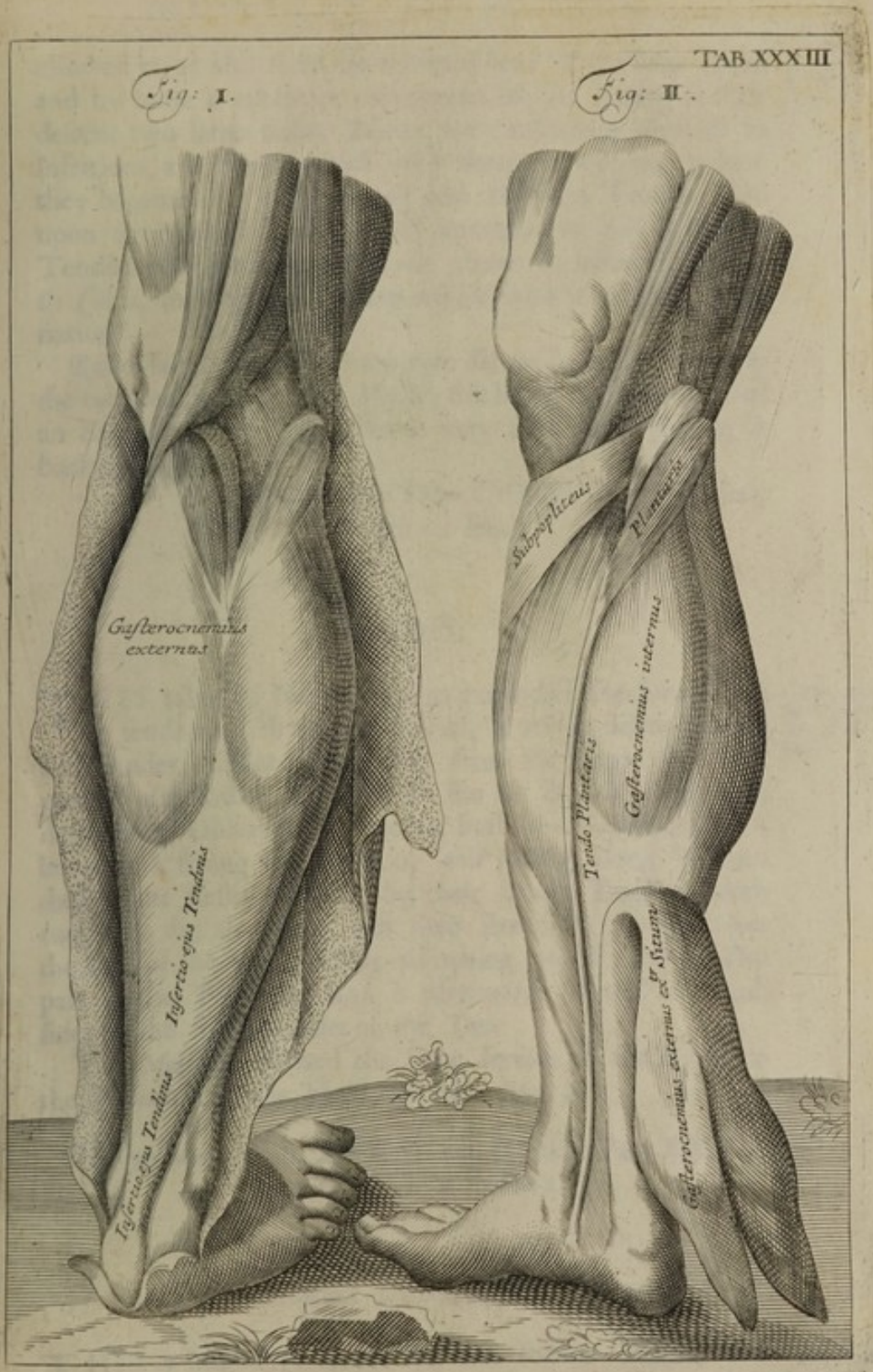
TAB. XXXII.


Pyriformis
Glutæus minimus
Marsupium
Quadrigemini
Obturator internus
Os Pubis
Obturator externus
Marsupium
Marsupialis
Vastus
Semimembranosus
Biceps
Semitendinosus
Biceps
Semitendinosus
Semimembranosus

TAB XXXIII

Fig: I.

Fig: II.



allowed it; as also from the outward head of the same Bone, and by some is taken for two proper *Muscles*, having in their descent two large fleshy Bellies, then marching towards its Insertions, are joyned to each other about the mid-way, where they become one entire strong and Nervous Tendon, and upon narrowing its self, doth intermix its self with the Tendon of *Gasterocnemius Internus*, above its Insertion to the *Os Calcis*, making one strong *Muscle* with a double Origination.

Riolan saith, That there are two *Sesamoidal* Bones, found at the two beginnings of this *Muscle*; this being not only allowed an *Extensor* of the Foot, but is very assisting in pulling it backwards.

This you have at Tab. *XXXIII.* Fig. *II. laid bare, with both its Heads.*

Plantaris.

THIS takes its Name from its expanded Tendon, which it sends into the Sole of the *Foot*, it arising fleshy, round, and slender, under the former, from the upper and back part of the lower *Appendix* of the *Os Femoris*, and then descending Obliquely, between both the *Gasterocnemii*; it becomes a strong flat Tendon, and passing along between these their fleshy Bellies, by their broad Tendons, doth run over the *Os Calcis*, and then stretcheth its self over the Sole of the Foot, firmly adjoyning its self to the fleshy part of the *Perforatus*, and is afterwards inserted on both sides to the first *Internodes* of the *Toes*.

This moves the Skin *of the* Sole *of the* Foot.

This *Muscle* is allowed the same service to the Foot, as the *Palmaris* is to the Hand, in extending it.

This you have at Tab. *XXXIII.* Fig. *II. and at* Tab. *XXXV.* Fig. *II. you see it laid bare.*

Gasterocnemius Internus, or *Soleus.*

THIS is implanted under the two former *Muscles*, and hath the Name of *Soleus*, given it from its likeness it hath with a *Sole-Fish*: It ariseth from the upper and

This extends the Foot.

back Commiſſures of the *Tibia* and *Fibula*, being livid, ſtrong and Nervous, from the backward *Appendix* of the *Fibula*, and growing larger and more fleſhy, it joyns its ſelf to that and the *Tibia*, and deſcending near half its Progreſs, doth narrow its ſelf, and becometh Tendinous, making one with the *Gaſterocnemius Externus* both in its Origination and Inſertion.

Theſe three *Muſcles*, are all united in their terminations, forming one very ſtrong Tendon, implanted into the back part of the *Os Calcis*, which by reaſon of its Largeneſs, and ſingular Strength, above the Tendons of other *Muſcles*, does gain the name of *Chorda Magna*, which being either bruiſed or wounded, (as *Hypocrates* writes) doth prove very dangerous, if not mortal; this part alſo being any time inflamed, does ſoon run into a Mortification.

Theſe three *Muſcles* contracting themſelves, do relax the *Tibialis*, and *Peronæus ſecundus*, when they have drawn the Foot upwards, and do alſo extend the *Tarſus*, by reducing it to a ſtreight Poſition, making then direct *Angles* with the *Leg*.

This you have at Tab. *XXXIII.* Fig. *II. and at* Tab. *XXXV.* Fig. *I. it is laid bare.*

Tibialis Anticus.

This bends the Heel.

THIS takes its Name from its Situation, it ariſing ſharp and fleſhy from the upper *Appendix* of both the *Focils*, and cloſely adhering to the ſides of the *Tibia*, and to the Ligament which binds them together, then being dilated, grows narrow about the midde of the *Tibia*, where it makes a ſtrong and round Tendon, which doth run Obliquely over the ſaid *Tibia*, and under the Ligament of the Foot, and is implanted into that inſide of the *Os Tarſi*; that is, before the *Os Pollicis*, and ſometimes under the ſame Ligament of the *Foot*, being divided into two Tendons, one of which is inſerted into the *Os primum Innominatum*, the other into the aforeſaid Bone of the *Os Pollicis* of the *Metatarſus*.

This *Muſcle*, I conceive doth govern the *Foot* in its Motion, keeping it from ſquayling too much outwards.

This you have at Tab. *XXXIV.* Fig. *II. and* Tab. *XXXVI.* Fig. *I.*

Pe-

TAB XXXIV


Fig. II.
Fig. I.
Pollicis extensor
Tibiæus anticus
Peroneus Secundus
Tibieus posticus
Peroneus Secundus ext.er Sibrum
Extensor Indicatoria Internodij
Extensor 3ty digitorum Internodij

Peronæus Primus.

THIS *Muſcle* doth ariſe Nervous outwardly, and inwardly fleſhy from near the upper *Appendix* of the *Fibula*, and in its deſcent, doth adjoyn its ſelf to its outward part, being outwardly round, and inwardly livid, and red next the Bone, and having marched near half its progreſs, it becomes a ſtrong flat Tendon, running Obliquely backwards through the *Sinus*, under the outward *Malleolus*, and is inſerted into the root of the *Os Metatarſi* of the great *Toe*.

This brings the Foot outwards.

This *Muſcle* draweth the *Foot* ſomewhat outwards, and governs it in progreſſive Motion, keeping it from being thrown too much inwards.

This you have at Tab. XXXVI. Fig. I. *and at* Fig. II. *it is laid bare.*

Peronæus Secundus.

THIS by ſome *Anatomiſts* is called *Semifibulæus*; it ariſing long and fleſhy about the middle of the outward part of the *Fibula*, under the former, and having made half its progreſs, it becomes Tendinous as it runs under the *Malleolus Externus*, and is implanted with its Tendon, and the Tendon of the former into the *Os Metatarſi* of the little *Toe*, and ſerves to bring the *Foot* and *Toes* outwards.

This doth all as the former.

And as the *Tibialis Anticus* and this *Muſcle*, contracting themſelves, do raiſe up the *Tarſus* from the ground in progreſſive Motion; ſo the *Gaſterocnemii* and *Plantaris* are allowed to relax the ſame, after they had been ſo contracted.

This you have at Tab. *XXXIV.* Fig. *I, II. and at* Tab. *XXXVI.* Fig. *I.*

Tibiæus Poſticus, or *Nauticus.*

THIS hath its Name from its Situation, it being planted backwards, as alſo the Name of *Nauticus*, from the uſe that *Saylers* make of it in climbing the *Shrowds*: This ariſeth partly Nervous, and partly fleſhy, from the upper and back part of the *Fibula*, as alſo near the *Tibia*, and having paſt near half its progreſs, it narrows its ſelf, and then

This brings the Foot inwards and upwards.

growing fleſhy again, it afterwards converts its ſelf into a ſtrong and round Tendon, which marcheth in a *Sinus* on the back part of the lower *Appendix* of the *Malleolus Internus*, where being bound by a ſtrong Ligament overſpreading it, and recovering the Sole of the *Foot*, is inſerted into the lower part of the *Os Metatarſi*, which joyns its ſelf with *Os Cubeiforme*, and ſometimes it hath been ſeen to afford two Tendons, one of which hath been implanted into *Os Naviculare*, and the other into *Os Innominatum*.

This is ſhewn at Tab. *XXXV.* Fig. *I. II. and at* Tab. *XXXVI.* Fig. *II.*

Extenſor Pollicis.

This extends the great Toe. THE *Toes* of the *Foot*, (as well as the *Fingers* of the *Hand*) are furniſhed with three ranks of Bones, except the great *Toe*, which is only accommodated with two Bones, all which are moved by the benefit of proper *Muſcles* allowed them. This *Muſcle* which extends the great *Toe* ariſeth fleſhy from the outward ſide of the *Tibia*, as *Veſalius* writes, where it parts from the *Fibula*, ſomewhat below its upper *Appendix*, and paſſing under the *Annular Ligament* of the *Tarſus*, in its progreſs along the upper part of the *Foot*, it inſerts its ſelf into the ſecond Bone of the great *Toe*, in its upper part, and doth directly extend the ſame: Sometimes this Tendon hath been ſeen divided into two, one of which is inſerted into the laſt joynt of the great *Toe*, the other into that *Os Metatarſi*, which lies under it.

This is ſhewn at Tab. *XXXIV.* Fig. *II. laid bare, as alſo at* Tab. *XXXVI.* Fig. *I. and at* Tab. *XXXVII.*

Flexor primi & ſecundi Internodii Pollicis.

This bends the great Toe. THIS ariſeth ſharp and fleſhy about the middle of the back part of the *Fibula*, with a double Set of fleſhy *Fibres*, marching along, then running themſelves into a Tendon, as it paſſeth over the joynt, and after that through a Channel in the inner part of the *Os Calcis*, then is implanted to the upper end of the ſecond Bone of the great *Toe*.

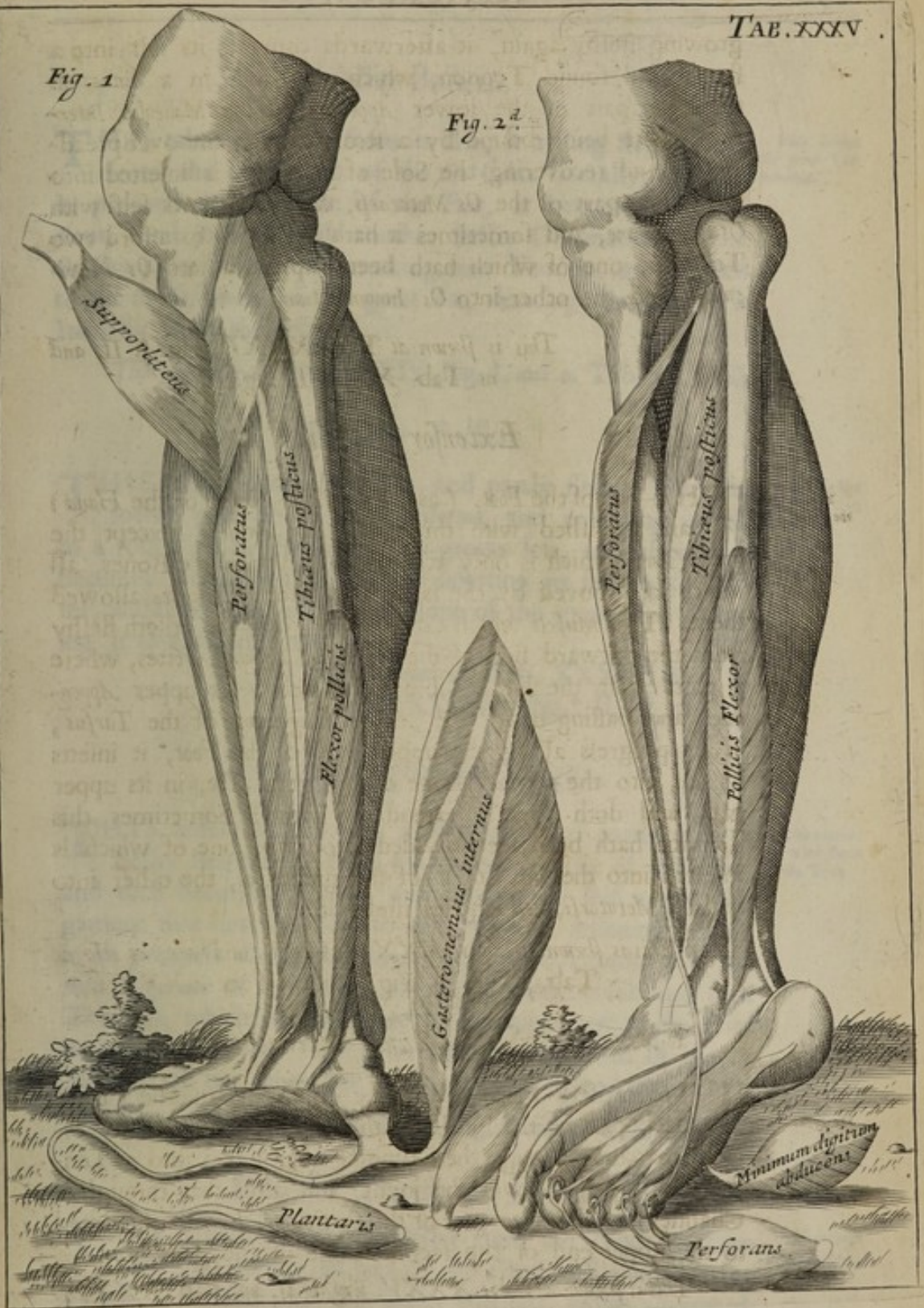
This is ſhewn at Tab. *XXXV.* Fig. *I, II. and* Tab. *XXXVI.* Fig. *II. it is laid bare, and you have this alſo at* Tab. *XXXVII.*

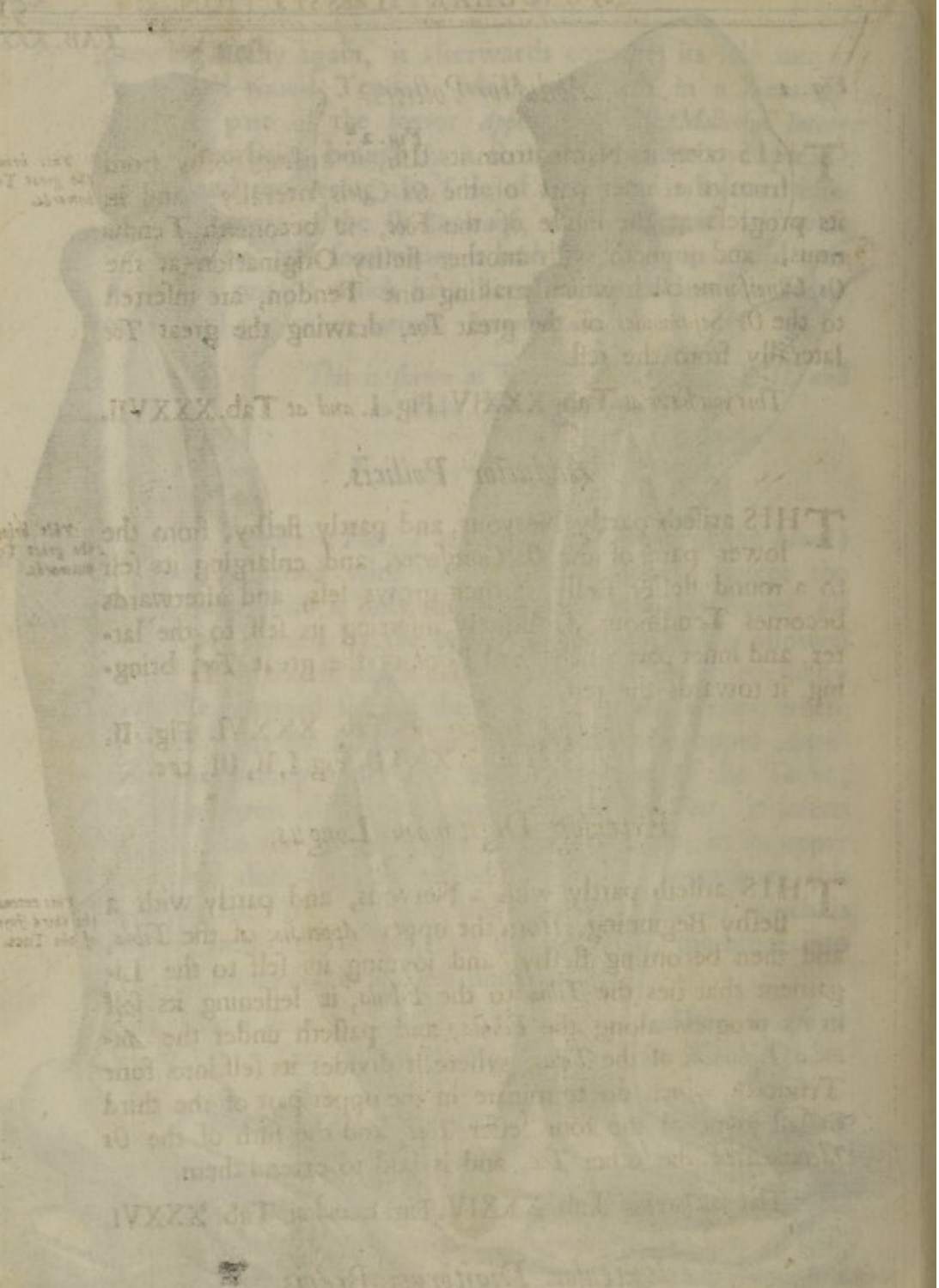
Ab-

TAB. XXXV.

Fig. 1

Fig. 2.d





Abductor Pollicis.

THIS takes its Name from its Uſe, it ariſing fleſhy from from the inner part of the *Os Calcis* laterally, and in its progreſs at the inſide of the *Foot*, it becometh Tendinous, and joyneth with another fleſhy Origination at the *Os Cuneiforme* both which making one Tendon, are inſerted to the *Os Seſamoides* of the great *Toe*, drawing the great *Toe* laterally from the reſt.

This brings the great Toe *inwards.*

This you have at Tab. XXXIV. Fig. I. *and at* Tab. XXXVII.

Adductor Pollicis.

THIS ariſeth partly Nervous, and partly fleſhy, from the lower part of the *Os Cuneiforme*, and enlarging its ſelf to a round fleſhy Belly, it then grows leſs, and afterwards becomes Tendinous, Obliquely inſerting its ſelf to the latter, and inner part of the firſt Bone of the great *Toe*, bringing it towards the reſt.

This brings the great Toe *outwards.*

This is ſhewn at Tab. XXXVI. Fig. II. Tab. XXXVII. Fig. I, II, III, *&c.*

Extenſor Digitorum Longus.

THIS ariſeth partly with a Nervous, and partly with a fleſhy Beginning, from the upper *Appendix* of the *Tibia*, and then becoming fleſhy, and joyning its ſelf to the Ligament that ties the *Tibia* to the *Fibula*, it leſſening its ſelf in its progreſs along the *Fibula*, and paſſeth under the *Annular Ligament* of the *Talus*, where it divides its ſelf into four Tendons, which do terminate in the upper part of the third or laſt joynt of the four leſſer *Toes*, and the fifth of the *Os Metatarſi* of the other *Toe*, and is ſaid to extend them.

This extends the third Joynt of the Toes.

This you have at Tab. XXXIV. Fig. I. *and at* Tab. XXXVI.

Extenſor Digitorum Brevis.

THIS ariſeth broad and fleſhy from the *Tranſverſe Ligament* that covers the top of the Foot, and then dilating its ſelf, is divided into four fleſhy Portions, which afterwards are converted into as many Tendons marching over the firſt

This extends the 2d. *Joynt.*

Internode of each leſſer *Toe*, to their upper Inſertions, and they are implanted to the upper part of the ſecond *Internodes*, interſecting the Tendons of the former.

This you have at Tab. *XXXIV.* Fig. *I. and at* Tab. *XXXVI.* Fig. II.

Perforatus.

This bends the Toes of the Second Joynt.

IT has its Name from its Tendons being perforated, and is alſo called *Flexor ſecundi Internodii Digitorum*, from its Uſe and Situation; it ariſing fleſhy from the lower and inner part of the *Os Calcis*, and having marched half way through the Sole of the *Foot*, it doth divide its ſelf into four fleſhy parts, which afterwards do become ſo many Tendons, being cleft, or opened near their Terminations, for the Admiſſion of the Entrance of the Tendons of the following *Muſcle* towards their proper Inſertions, theſe reaching no farther than the ſecond *Internodes* of each leſſer *Toe*.

This you have at Tab. XXXV. Fig. I, II. *as alſo at* Tab. XXXVI. Fig. I, II. *and at* Tab. XXXVII. Fig. I, II.

Perforans.

This bends the Toes in the 3d Joynt.

IT hath its Name from its Tendons paſſing through the former, it ariſing fleſhy from the back part of the *Tibia*, and then becoming Tendinous, is carried to the inward *Malleolus*, and running under the Ligament that proceeds from the lower *Appendix* of the *Tibia* to the *Os Calcis*, having arrived at half its progreſs through the Sole of the *Foot*, doth divide himſelf into four Tendons, which paſſing through the perforated Tendons of the former *Muſcle*, doth terminate in the third Bone of every leſſer *Toe*.

This you have at Tab. XXXV. Fig. I. *laid bare, and at* Tab. XXXVII. Fig. II. *the ſame.*

Lumbricales.

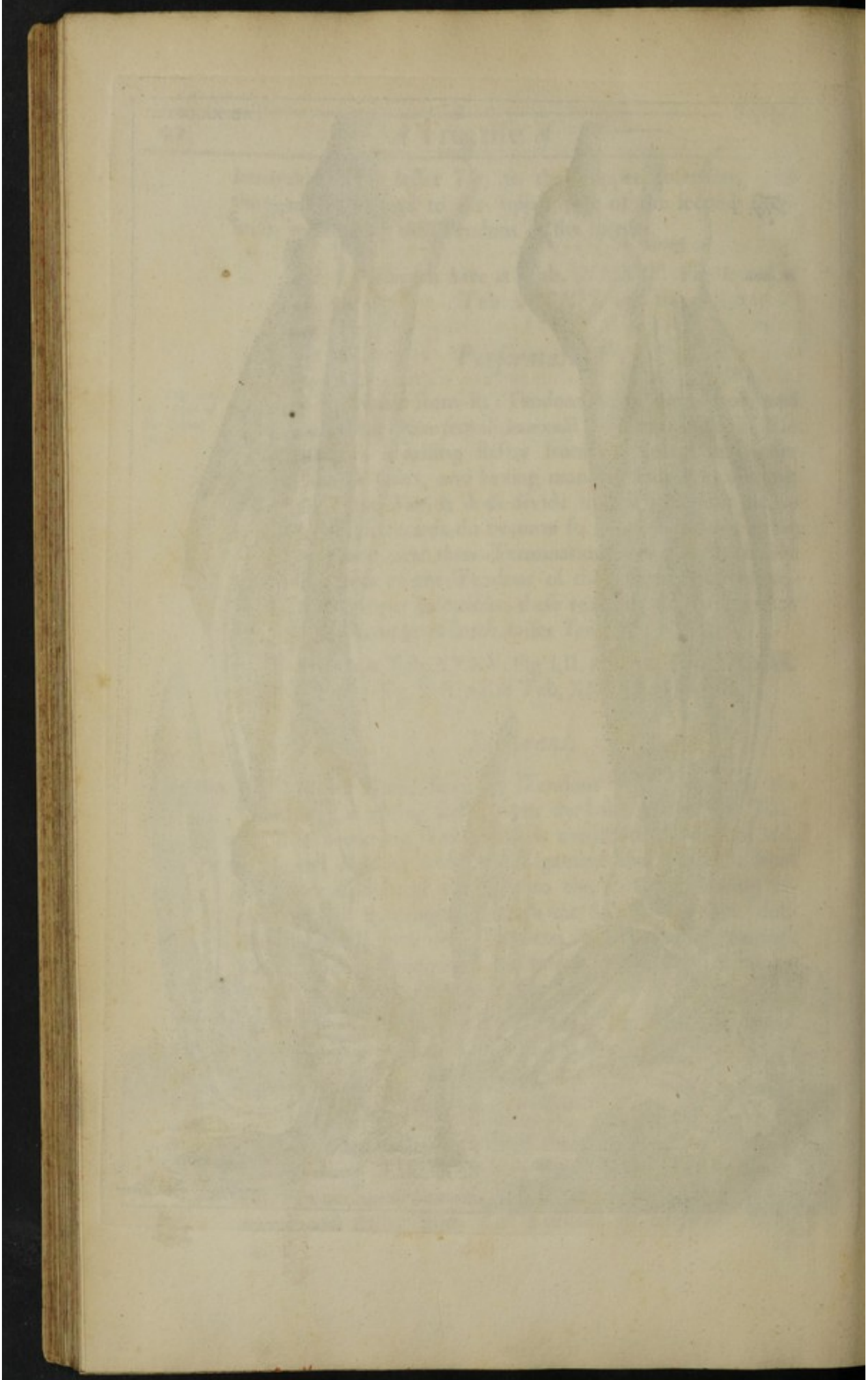
This bends the Toes in the firſt Joynt.

THEY are called thus from their Figure, they much reſembling Earth-worms in their Make and Shape, as alſo *Flexores primi Internodii* from their Situation, they ariſing round and fleſhy from the Tendons of *Perforans*, being in-

TAB. XXXVI.

Fig. 1.

Fig. 2.



inwardly inſerted by ſmall Tendons into the firſt Joynt of the leſſer *Toes*: But as I writ in my firſt *Engliſh Book* on this Subject, who ever well doth examine their Originations, may rather ſuppoſe, that they have their fleſhy Subſtance ariſing from a *fleſhy Maſs* apparently found in the *Sole* of the *Foot*, or from that *Muſculous* fleſh which is implanted in the inner *Cavity* of the *Os Calcis*; it there appearing *fleſhy* near half the *Sole* of the *Foot*, ſo that Mr. *Cowper's* Suppoſition (as he would perſwade us it is his own) touching the Origination of this *Muſcle*, is not ſo, but was long before he appear'd abroad, the opinion of others, that it was moſt likely, theſe *Muſcles* did take their Origination from this *Maſs* of fleſh there planted, as aforeſaid in the *Sole* of the *Foot*; then it becoming Tendinous, and afterwards dividing its ſelf into four diſtinct parts, does then become Tendons at their inſertions to the leſſer *Toes* laterally.

This you have at Tab. *XXXVI. and at* Tab. *XXXVII.* Fig. *I, II.*

Abductor Minimi Digiti.

THIS ariſeth outwardly Nervous, and inwardly fleſhy from the outward part of the *Heel-Bone*, and having attain'd half its Progreſs, it becomes Tendinous on the outſide of the *Foot*, and there joyning with its other fleſhy part, which hath its Origination from *Os Metatarſi* of the little *Toe*, where they do make but one Tendon, and are inſerted into the firſt Bone of the little *Toe* at its outſide laterally.

This brings the Little Toe from the reſt.

This you have at Tab. XXXIV. Fig. I. Tab. XXXV. Fig. II. Tab XXXVII. Fig. I, II. *&c.*

Tranſverſalis Pedis.

THIS doth take its Name from its tranſverſe Origination, and doth ariſe Tendinous from the *Os Seſamoides* of the great *Toe* inwards, and then growing fleſhy is tranſverſely carried over the firſt *Bone* of the great *Toe*, it bringing its leſſer *Toes* towards it.

This brings the Leſſer Toes towards the Greater.

The *Author* of this *Muſcle* doth aſſign it this Uſe, that upon drawing our great *Toe* towards our leſſer ones, we do make a hollowneſs in the *Foot*, the better for ſecuring our *Feet* in uneven places, this making our ſteps more ſteady, it being framed as a Ligament to it, to keep it from ſliding aſide, by drawing the *Metatarſe* and *Toes*, and fixing them to the Floor, which being aſſiſted by *Tibialis Anticus*, and *Peronæus Secundus*, which moving ſingly, the one carrieth the *Foot* outwards, and other inwards; but when acting together, the *Tibialis Anticus* keepeth the *Foot* from treading outwards, and the *Peronæus Secundus* hindring it from caſting inwards, whilſt this is held to give it a Steadineſs in binding or bracing down the firſt *Internode* of the Bone of the *Toe* like a *Ligature*; ſo that the line of Gravitation being carried from one Limb to another, ſupporteth the weight of the Body, in order to a new Step in progreſſive Motion, in which the hinder Limb becometh the Fore, and the Fore the hinder, which hath a double Carriage in order to Motion.

This you have at Tab. *XXXIV.* Fig. *I. and at* Tab. *XXXVI.* Fig. *II. and at* Tab. *XXXVII.* Fig. *I, II.*

Interoſſei Pedis.

This moves the Foot *Obliquely.*

THESE have their Names from their Situations, amongſt the Bones of the *Toes*, they ariſing fleſhy from the ſides of the Bones of the *Metatarſe* of the leſſer *Toes*, and becoming round bellyed, do grow Tendinous at their Inſertions, to the firſt *Internode* of every leſſer *Toe* laterally.

Theſe you have at Tab. *XXXIV.* Fig. I. *where you have Two of them, and at* Tab. *XXXVI.* Fig. II. *Two others, and at* Tab. *XXXVII.* Fig. I. *Two others, and at* Fig. II. *Four together, and at* Fig. III. *both the Four* Adductors *and* Abductors, *and the Two* Interoſſei *of the* Great Toe, *and after this, every one ſhewing themſelves apart.*

FINIS.

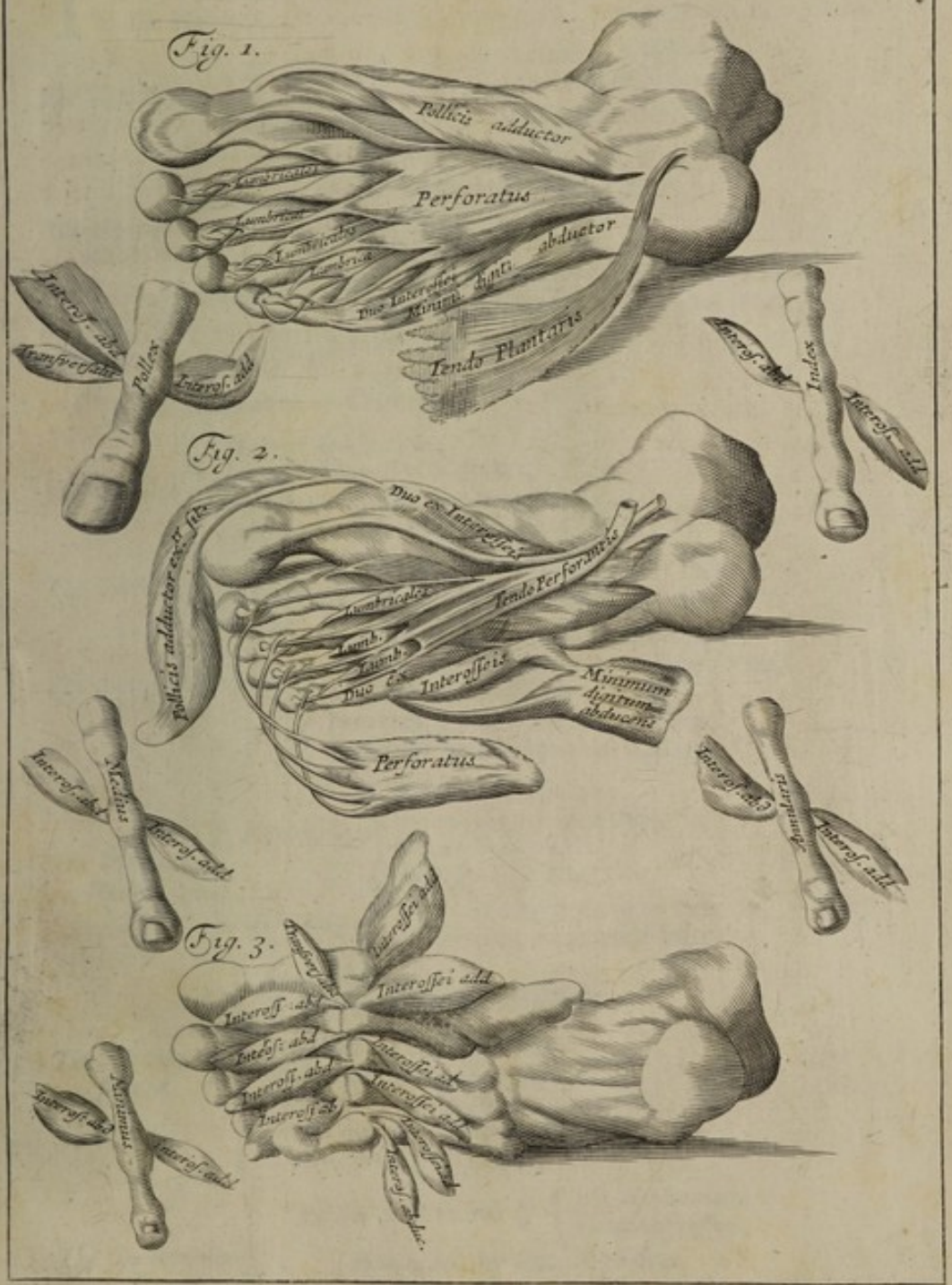
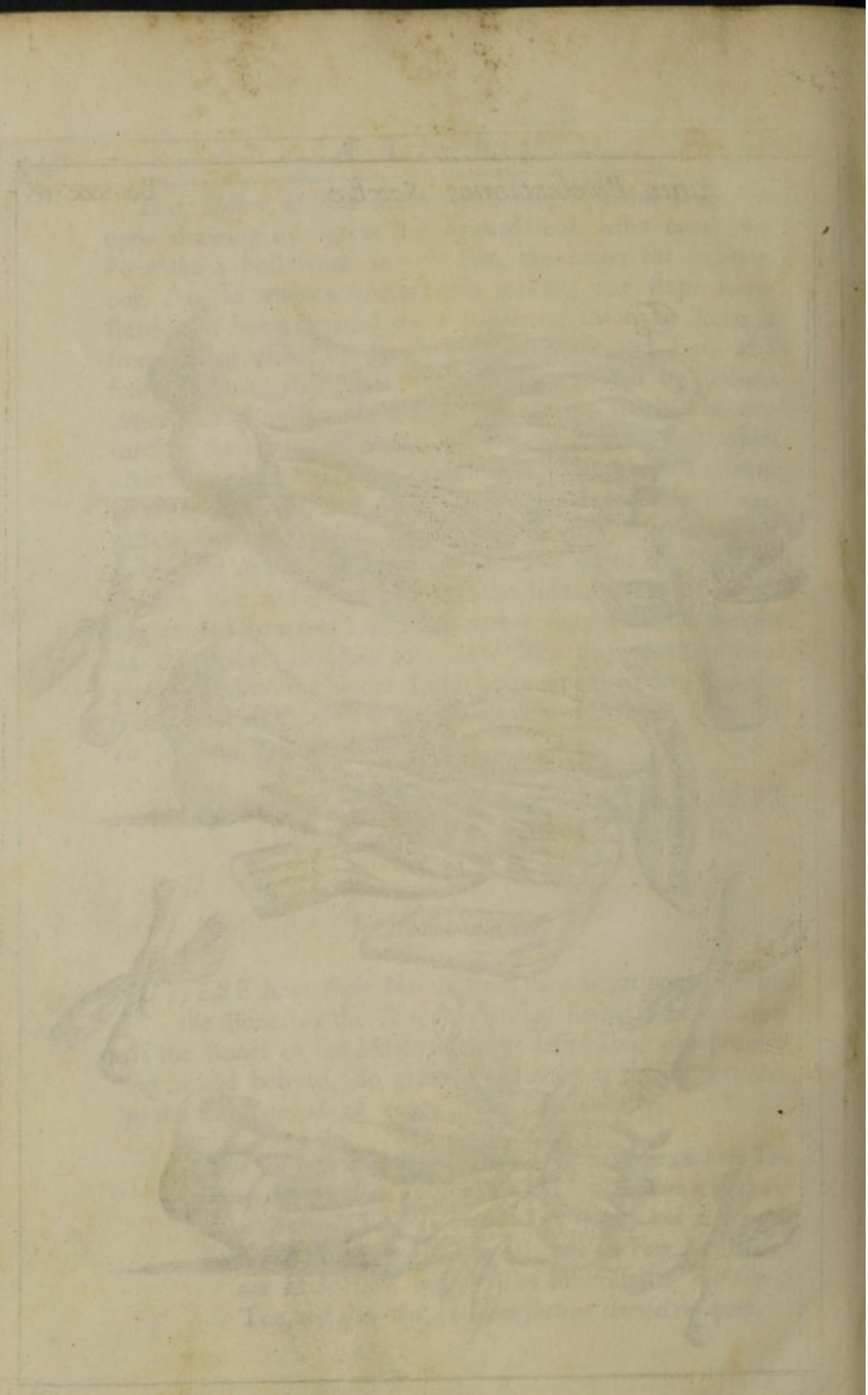


Fig. 1.
Pollicis adductor
Perforatus
Tendo Plantaris
Pollex
Fig. 2.
Tendo Perforantis
Interossis
Perforatus
Fig. 3.
Interossei add.



The TABLE, shewing the Reduction of the *MUSCLES*, each to their Proper Place, Use, and Part.

THE Forehead *is lifted up by* Frontalis.
The Hairy Scalp *is drawn backwards by* Corrugator *and* Occipitalis.

The Eyebrows,
- *The Upper is*
  - *Lifted up by* Elevator Palpabræ,
  - *Depressed by* Clausor Superior,
- *The Nether is lifted up by* Clausor Inferior.

The Eyes *are*
- *Rightly moved*
  - *Upwards by* Elevator,
  - *Downwards by* Depressor,
  - *Inwards by* Adductor,
  - *Outwards by* Abductor,
- *Obliquely*
  - *Downwards outwardly by* Obliquus Minor;
  - *Upwards internally by* Obliquus Major.

The Nose *is*
- *Dilated by*
  - Elevator,
  - Dilatator,
- *Contracted by* Constrictor.

The Lips *are*
- *Elevated by* Elevator,
- *Drawn sideways by* Abductor,
- *Brought downwards by* Depressor,
- *Purst up by* Sphincter Labiorum.

The Cheeks *are*
- *Drawn down by* Platysma Myodes, *or* Quadratus,
- *Drawn inwards by* Buccinator, *or* Constrictor.

The Nether Mandible *is drawn*
- *Upwards by* Temporalis, *or* Crotaphites,
- *Downwards by* Digastricus, *or* Graphoides,
- *Laterally by* Masseter,
- *Forwards by* Pterygoideus Externus,
- *Backwards by* Pterygoideus Internus.

The Ears *are Moved*
- *Externally*
  - *Upwards by* Elevator,
  - *Downwards by* Depressor,
  - *Forwards by* Adductor,
  - *Backwards by* Abductor,
- *Internally*
  - *by* Externus, *or* Laxator Externus,
  - *by* Internus, *or* Laxator Internus.

The Tongue *is Moved*
- *In Constriction* / *In Dilatation* *by* Lingualis,
- *Forwards by* Geniogloſſus,
- *Backwards by* Hypſiogloſſus,
- *Upwards by* Myloglosſus,
- *Downwards by* Ceratogloſſus,
- *Laterally by* Styloglosſus,

The Os Hyoïdis *is Moved*
- *Rghtly*
  - *Upwards by*
    - Mylohyhoideus,
    - Geneiohyoideus,
  - *Downwards* by Sternohyoideus,
- *Obliquely*
  - *Upwards by* Styloceratohyoideus,
  - *Downwards by* Coracohyoideus.

The Palate *is* { *Attolled by* Spænopalatinus, / *Depreſſed by* Pterygopalatinus.

The Fauces *are*
- *Dilated by* { Sphænopharyngæus primus, / Sphænopharyngæus ſecundus,
- *Contracted by* { Oeſophagæus, / Cephalopharingæus, / Stylopharingæus.

The Larynx *is*
- *dilated* (*when the* Thyrois *is*)
  - *Extended by* { Sternothyroideus, / Crycoaritenoideus Lateralis,
  - *Contracted by* { Hyothyroideus,
- *ſhut* (*while the* Arytenois *is*) *Contracted*
  - { *Directly by* Thyroarytænoides, / *Obliquely inwards by* Arytænoides,
- *opened* (*while the* Arytenois *is*) *Extended*
  - { *Rightly by* Crycoarytænoides Poſticus, / *Obliquely laterally by* Crycoarytænoides Lateralis.

The Head *is*
- *Contracted by* { Maſtoidæus, *if both move*; / *Laterally, if but one move*;
- *Extended by* { Splenius, *or* Triangularis, / Trigeminus, / Recti Majores, / Recti Minores.

Turned about by { Obliqui Superiores, / Obliqui Inferiores,

The Neck *is*
- *Contracted by* { Longus, / Scalenus,
- *Extended by* { Tranſverſalis, / Spinatus,

The Thorax *is* / *is moved*
- *Primarily by his Proper* Muſcles, *which do*
  - *Dilate in Breathing* { *Freely the* Diaphragme *alone contracted*, / *Coactively the* Diaphragme *and* outward Intercoſtal Muſcles.
  - *Conſtringe in Breathing* { *Freely the* Diaphragme *alone relaxed*, / *Coactively the* Diaphragme *and* Internal Intercoſtals,
- *Extended by* { Latiſſimus Dorſi, / Semiſpinatus, / Sacrolumbalis, } *which are retain'd in place by* { Serratus Minor, / Serratus Major, } poſtici.
- *Contracted by* { Muſculi Recti, / Obliqui Aſcendentes, } Abdominis,
- *Turned about by* Tranſverſi,
- *Secondarily by the* Lumbal Muſcles { *Contracted by* Quadratus, / *Extended by* Sacer.

The

- *The* Abdomen *is Compreſſed*
  - *Laterally by* Obliqui Deſcendentes, Obliqui Aſcendentes,
  - *Forwards by* Recti,
  - *Downwards by* Pyramidales, *or ſometimes by* Tranſverſi,
- *The* Loins *are*
  - *Contracted by* Quadratus,
  - *Extended by* Sacer,
- *The* Teſticles *are raiſed by* Cremaſteres,
- *The* Bladder
  - *Retains by* Sphincter Veſicæ,
  - *Excreates by* Detruſor Urinæ, Pyramidales, Obliqui Aſcendentes Abdominis.
- *The* Clitoris *is*
  - *Raiſed by* Muſculi Graafiani,
  - *Depreſſed by* Muſculus Labiorum Uteri Contractor.
- *The* Anus *is*
  - *Purſed up by* Sphincter Ani,
  - *Elevated by* Levatores Ani.
- *The* Penis *is improperly ſaid to be*
  - *Erected by* Erectores, *or* Directores,
  - *Accelerated by* Acceleratores.
- *The* Scapula *is moved*
  - *Variouſly by* Cucullaris,
  - *Upwards by* Levator Patientiæ,
  - *Backwards by* Rhomboides,
  - *Forwardly upwards by* Serratus minor, *Forwardly downwards by* Serratus major, } Anticus.
- *The* Os Humeri *is moved*
  - *Forwards by* Pectoralis,
  - *Upwards by* Deltois, Octavus Humeri Placentini,
  - *Downwards by* Rotundus,
  - *Is carryed about towards the* *External Part by* Superſcapularis Superior, Superſcapularis Inferior, Nonus Humeri Placentini,
  - *Internal Part by* Subſcapularis.
- *The* Cubite *is*
  - *Extended by* Gemellus Major, Gemellus Minor,
  - *Contracted by* Biceps, Brachiæus.
- *The* Radius *is*
  - *Pronated by* Quadratus, Teres,
  - *Supinated by* Longus, Brevis.
- *The* Carpus *is*
  - *Contracted by* Flexor Carpi Exterior, Flexor Carpi Interior,
  - *Extended by* Extenſor Carpi Exterior, Extenſor Carpi Interior,
- *The* Fingers *are*
  - *Contracted by* Flexor Primi, Flexor Secundi, Flexor Tertii, } Internodii;
  - *Extended by* Primus, Secundus, Interoſſei, } Extendentium Digitorum.

The Thumb *is*
- *Moved Laterally by* { Interoſſei, Abductor Minimi, Abductor Indicis.
- *Contracted* { *Firſt ly* { Flexor primi Internodii, Flexor ſecundi Internodii, } *Secondly ly* { Primus, Secundus, Tertius, Quartus, } Flexores Internodii;
- *Thirdly by* Tertii Internodii Flexor,
- *Extended by* { Extenſor primus, Extenſor ſecundus,
- *Moved* { *Laterally internally by* Adductor, *Outwardly by* Abductor.

The Thigh *is*
- *Extended Obliquely* { *Backwards by* Glutæus Major, *Forwards by* Glutæus Medius and Glutæus Minor;
- *Contracted* { *Directly by* { Pſoas Magnus, Iliacus Internus, *Obliquely by* { Triceps, Lividus,
- *Moved about* { *Upwards by* Pyriformis, *Inwards by* Obturator Externus, *Outwards by* Obturator Internus, *Backwards by* Quadrigiminus, *or* Quadratus.

The Leg *is*
- *Contracted by* { Sartorius, Gracilis, Seminervoſus, Semimembranoſus, Biceps,
- *Extended by* { Membranoſus, Rectus, Vaſtus { Externus, Internus,
- *Obliquely moved by* Subpoplitæus.

The Ankle
- *is Extended by* Gaſtrocnemius { Externus, Internus,
- *Contracted by* { Tibialis Anticus, Peronæus ſecundus,
- *Moved Obliquely Lateral* { *Internally by* Tibiæus Poſticus, *Externally by* Peronæus primus.

The Four Leſſer Toes *are*
- *Contracted by* { Perforans *in the Third* Lumbricales *in the Firſt* Perforatus *in the Second* } *Joynt*
- *Extended by* { Interoſſei *in the Firſt Joynt*, Secundi Internodii Tenſor, Tertii Internodii Tenſor,
- *Obliquely moved by* { Interoſſei, Minimi Digiti Abductor.

The Great Toe *is*
- *Contracted by* Flexor,
- *Extended by* Tenſor,
- *Obliquely moved by* Abductor.

The First *of the* Toes *are kept together by* Tranſverſalis Placentini.

The Skin
- *Of the* Sole *of the* Foot *is moved by* Plantaris,
- *Of the* Palm *of the* Hand, *by* { Palmaris, Caro Muſculoſa Quadrata.

An Appendix

OF

The HEART, and its USE: With the CIRCULATION of the BLOOD, and the PARTS of which the *Sanguinary Maſs* is made, &c.

THE Great *Architectonical* Uſe of this Principal Part, is to convey the Blood to every Part of the Body, for the vivifying and nouriſhing of the whole, which you ſhall be beſt able to underſtand, when we ſhall have declared the Manner of this Conveyance, and the Nature of that which is convey'd.

We ſhall therefore firſt begin, with ſhewing the certainty of the truth of the *Circulation* of the *Blood*, wrought by the Motion of the *Heart*, then ſhall declare what the Nature of *Blood* is, of what parts its *Maſs* doth conſiſt, how it warms and nouriſheth the whole, and conſequently in what Life is properly ſaid to conſiſt: The Action and function of every part being beſt underſtood by its natural Figure, Frame and Conſtitution.

That therefore we may demonſtrate the proper Operation of the *Heart*, We muſt curiouſly obſerve the Parts and Veſſels belonging to it, and not only of the *Heart*, but of the *Lungs* alſo, which for this purpoſe are faſtened to it, and therefore ought to be conſidered with it: Neither do I think there hath been any greater reaſon of the long Concealment of the *Circulation*, from the Diſcovery and Knowledge of man, than the looking upon the *Heart* and *Lungs* as parts of diſtinct Concernments; for altho' the *Circulation* be as true, and ſometimes more manifeſt in ſuch Animals as have no proper *Lungs* faſtned to the *Heart*, as in *Fiſhes*: Yet in thoſe Animals with *Lungs*, there can be no accurate Conſideration of the *Heart*, without them; becauſe there is no Communication of one *Ventricle* of the *Heart* with the other, but by and through them: Let us therefore firſt conſider the Frame and Structure of the *Heart*, together with the *Veſſels* diſſe-

minated through the *Lungs*, which are affixed and implanted into it.

The *Heart* of its ſelf is a firm *Muſcular*; that is, a fleſhy and fibrous part, not wholly ſolid, but having two Cavities allowed it, commonly called the *Right* and *Left Ventricles*; again, being the Orifice of the *Vena Arterioſa* is immediately faſtened to the ſame right *Ventricle*, and the *Valves* planted in the Orifice of this Veſſel, are properly framed and adapted for the Admiſſion of any thing out of this *Ventricle*, and hindring the return of any thing into it: Therefore is it moſt evident, that the *Blood* which paſſed out of the *Cava* into the right *Ventricle*, ſhould paſs out of this *Ventricle* into the *Vena Arterioſa*.

Thirdly, Being the Orifice of the *Arteria Venoſa*, is faſtned by the left *Auricle* to the left *Ventricle* of the *Heart*, and the *Valves* planted in that *Ventricle*, are framed for the Admiſſion of any thing that comes that way, and hindring all Regurgitation backwards: It is likewiſe here evident, that out of the very Frame and Contexture of the part, that what *Blood* paſſeth out of the *Right Ventricle*, through the *Vena Arterioſa* into the *Lungs*, ſhould alſo paſs out of the *Lungs*, through the *Arteria Venoſa*, into the left *Ventricle* of the Heart.

Laſtly, Being the Orifice of the *Arteria Aorta*, or Great *Artery* is immediately affixed to the left *Ventricle*, and the *Valves* implanted in it, are ſo framed on purpoſe to admit any thing out of the *Ventricle* into the *Artery*, and to hinder all paſſage out of the *Artery* into the ſaid *Ventricle*, it is likewiſe moſt evident, that what *Blood* paſſeth out of the *Arteria Venoſa* into the left *Ventricle*, be conveyed out of the left *Ventricle* into the *Aorta*, or great *Artery*: And thus have we clearly brought the *Blood* out of the *Vena Cava*, thro' moſt manifeſt open Channels, framed by Nature her ſelf, through the *Ventricles* of the *Heart*, and the *Veſſels* of the *Lungs*, into the great *Artery* or *Aorta*.

That the *Blood* may thus march, and that Nature deſign'd it ſhould do ſo, is hence ſufficiently ſhewn even from the Conſtruction of the Parts; and that it muſt neceſſarily do ſo, and that it actually goes this round, is next further to be demonſtrated.

At every *Pulſe* of the *Heart*, there is a ſmall quantity of Blood forced out of the left *Ventricle* into the *Aorta*; and this

this is manifeſt by moſt certain Experience, now the *Pulſes* of the *Heart* are ſo many, and the quantity of *Blood* ſo conſiderable that is expelled, that it cannot be denied, but there is in leſs ſpace than an hour, more *Blood* ſent out of the left *Ventricle* into the *Aorta*, than the quantity of the whole Maſs of *Blood* in the body amounts to; but whatſoever cometh into the left *Ventricle*, muſt come out of the *Arteria Venoſa*, and whatſoever comes out of the *Arteria Venoſa*, muſt firſt come through the *Vena Arterioſa*, whatſoever paſſeth through that, muſt firſt come out of the *Right Ventricle*; and whatſoever comes thence, muſt have its paſſage from the *Vena Cava*, as we have before demonſtrated out of the Frame of the Parts: Therefore, *à primo ad ultimum*, whatſoever quantity of *Blood* cometh into the *Aorta*, muſt conſequently come out of the *Cava*, but a quantity exceeding the whole Maſs of *Blood* cometh into the *Aorta* in the ſpace of an hour, therefore the ſame *Blood* muſt return out of the great *Artery* into the *Vena Cava*, which is the Circulation we mentioned, and which we contend for. And thus far for the truth and certainty of it: Now follows the manner of this Circulation.

And altho' the Manner and Nature of Circulation, (as the *Circle* its ſelf) admits of no beginning; yet for *Doctrin*'s Sake, we muſt begin ſomewhere, and for *Perſpicuity*'s Sake, we ſhall begin where motion doth laſt appear at the left *Auricle*.

The *Blood* in the *Vena Cava*, is by the *Right Auricle* forced into the *Right Ventricle* of the *Heart*; the *Heart* by its *Syſtole* or *Contraction* forceth the *Blood* out of the *Right Ventricle*, into the *Vena Arterioſa*; by Virtue of which Stroke, it paſſeth through the Branches all over through the Body of the *Lungs*, and ſo into the Branches of the *Arteria Venoſa*, through which it is conveyed to the left *Auricle*, each of theſe *Ventricles* having two large *Veſſels* annext to it; one by which it receives, the other by which it diſchargeth the *Blood*.

The *Right Ventricle* hath immediately faſtned to it, the right *Auricle*, which is as it were the extremity of the *Vena Cava*; by which the *Blood* is conſtantly conveyed into it, beſides which, it hath a large Orifice of the *Vena Arterioſa* annext to it, by which it diſchargeth the *Blood* into the *Lungs*, which it received from the aboveſaid *Auricle*: In like Manner the left *Ventricle* hath annext to it the left *Auricle*, which

is as it were the Extremity of the *Arteria Venoſa*, thro' which it receives the *Blood* out of the *Lungs*; beſides which, it hath a large Orifice of the *Aorta* annext to it, by which it diſpenſeth and diſchargeth into the *Arteries* all the *Blood* which is received from the *Lungs*; but the uſe of all theſe *Veſſels* will more clearly appear, if we conſider the ſtrange Artifice of certain *Valves*, or little *Flood-gates* planted at theſe their Orifices.

Theſe *Valves* are of two ſorts, *Tricuſpidal*, and *Sygmoidal*; the *Tricuſpidal Valves* being planted in the *Ventricles* for the Admiſſion of *Blood* into the *Heart*, and hindring its Reflux into the *Veins*. The *Sygmoidal* are planted in the *Arteries* for the Admittance of *Blood* out of the *Ventricles* into the *Arteries*, and preventing its return out of the *Arteries* into the *Ventricles*.

Having thus conſidered the natural Frame and Structure of *Ventricles*, *Veſſels* and *Valves*; we ſhall now more eaſily demonſtrate the *Circulation* of the *Blood*, and how it is naturally performed. The firſt Way being the *Vena Cava* by the *Right Auricle* to the *Right Ventricle* of the *Heart*, and the *Valves* planted in the *Ventricle*, are framed for the Admiſſion of any thing into it, and preventing all Regurgitation back. Therefore it is moſt evident, even from the very Frame of the part, that the *Blood* paſſeth out of the *Vena Cava* into the *Right Ventricle* of the *Heart*, and is thence diſperſed and diſpatcht into the left *Ventricle*, from whence by the *Hearts* Contraction, it is forced into the *Trunk* of the great *Artery*, and by the Branches of that *Artery*, into the whole Habit, and all the parts of the Body; in all which parts there being Extremities of *Veins*, anſwering to the Extremities of the *Arteries* in the ſame manner, as the Extremities of the *Arteria Venoſa* does anſwer the Extremities of the *Vena Arterioſa* in the *Lungs*.

The *Blood* is conveyed out of the Capillary Branches to the *Arteries* into the Capillary Branches of the *Veins*; and through theſe into the larger *Veſſels*, till it arrives at the *Trunk* of the *Vena Cava*, whence it is ſent back again into the *Right Ventricle* of the *Heart*; from thence thro' the *Lungs* into the left *Ventricle*, and ſo into the *Aorta*, and ſo about perpetually; and this is the manner of the *Circulation*: And thus have we abſolved the firſt part of our Diſcourſe.

In the ſecond part, we are to conſider the Nature of that which is thus circulated, and the end of *Circulation*, which is the Life of the whole. That

That which is thus circulated, we commonly call the Mass of *Blood*, which I shall not distinguish with the *Ancient Physitians* into the four Humours; but rather content my self with that Division Nature her self maketh, when the *Blood* is out of the Body. In the Body of a sound Man, take what quantity you please away by *Phlebotomy*, and let it stand some few hours, and in it you will find two distinct Substances, of different Colours, Tasts, Qualities and Operations; the one a dark, and turning towards black; the other of a darkish white, or watery Colour. These two in the *Blood*, were blended and mingled together, insomuch that all the *Whitish Liquor* was in a manner absorbed with the *Tincture* of a *Deep Red*; of these, one is said and allowed to be the proper Substance of the *Blood*; the other the *Chyle*, preserved in the *Blood*; prepared by it, and circulated with it, for the Nourishment of every part: And that it is of this nature, is evident; because, set it upon the fire, and it will not evaporate, as does the *Serum*, or the *Urine*, but will rather coagulate, and grow to the Substance of the same Consistence, Smell, and Tast, with the white of a roasted Egg; which is the true Connatural Nourishment of the parts, whose Colour and Constitution are the same.

This *Succus Nutritius*, mingled, warmed, and subtilized by the *Blood*, so much as is necessary for preservation of the *Blood*, is *sanguifyed* (that is) is conveyed into the Substance of *Blood*, the rest is conveyed with the *Blood* to the Extremities of the *Arteries*; and so past to the Habit of the Body in every part, which taking into it so much as is to be assimilated to the part, sends the rest with the *Blood* into the *Capillary Veins*, and so thro' the Great *Vessels* to the *Heart*, to be conveyed in the same Manner for the further Nourishment of the parts. The other part of the *Mass*, is the *Blood* its self, the Fountain and Original of Life, the *Primum Vivens*, and the *Ultimum Moriens*. This from its beginning having Life in its self, by the Addition of this *Nutrimental Juyce*; and without which, the *Artificer* can do nothing becoming the *Architect*, of his own House and Frame; every part being fitted for its own Reception and Habitation: Now as this hath a *Local Motion* by Way of *Circulation*, by which it provides for the *Circulation* of the parts, so hath it also a *Vital* one, by which it preserves its self.

This Vital Motion is a constant Fermentation or Working of the *Blood*, by which all the most Minute parts are secretly

divided, for the Reception of what is proper for it; and Expulsion, Amandation, and casting off whatever is obnoxious or injurious to it; but this secret Agitation of its self, and *Atomical* Division of the *Minimæ Particulæ* preserves it in its usual Vigour, and so long as its Fluidity continues, as the proper Effect of this its Vitality, it becometh brisk and lively, it causing the lively part of the *Blood* to nourish and cherish the whole.

But alas, this Life is not immortal! Nor can the *Great Architect*, according to second Causes, make such a House as shall never fall on its own Head, since that by which he first builds, and afterwards repairs, is nothing else but the *Nutrimental Juyce*, Liquor, or moist Substance which is mingled, and as it were incorporated with the Blood, which must intimately penetrate and enter the Part which it is to Nourish: Now the Parts of the Body made and kept up by it, are so long capable of Increase and Nourishment, as they continue in them a Consistence fit to receive such a Moisture, and no longer: And whereas the Bones at first were both moist and supple, as were other Parts, which by length of time grows to such a Stability, Firmness, and consequently, Dryness, that they do not admit any longer Nutrimental Juyce into them, or their proper Substance, whereby they seem to obstruct and hinder the further Growth of the Animal; and for the future, they stand in the Body more like Timber in a House, than as Trees in the Ground, as they formerly did; so other Parts of the Body after Full Age, do grow somewhat dryer and closer, and so consequently do make a greater Resistance towards their own Nourishment: For when the Skin, by reason of its Propinquity to the Air, do first grow dry, close, and shrivell'd, as we see in Decrepit Old Age: So we may also conceive that the Membranes of all the inward Parts proportionally do the same: And therefore, the *Blood* moving about to every Part, does not find an admittance for that Dew of Life which it carrys along with it; and yet so long as the *Blood* does move, there is said Life still to remain in it, although nothing else could be so said to live but its self.

But at the last, even the *Blood* its self fails of the quickness of its Vital Motion, and not being longer able, nimbly to relieve its self by a subtile Division of its parts; it at length becomes fibrous, and gets into its self a kind of dryness, which

makes

makes it unfit and uncapable of receiving its own Nouriſhment; and for want of its Vital Fermentation it formerly enjoyed, it grows more dry and more firm, it not admitting into it, its former Liquidity, to reſolve or bedew its parts; whereby it becomes ſo fibrous, as not to allow them any further Capacity of making uſe of their own proper *Menſtruum*: So that upon the failure of this *Vital*, the *Local Motion* muſt conſequently ceaſe, whereby all the parts become deprived of their Vital Influence: Whence follows a natural Death.

Thus have I humbly diſpatch'd the Second Part of the Diſcourſe concerning the Nature of the *Maſs of Blood*, and that wherein *Vitality* its ſelf conſiſts, by which at laſt we clearly underſtand the great Uſe and Function of the *Heart*.

And ſeeing all the Parts do receive their *Vital* Influence from the *Blood*, and this *Blood* (the Seat of Life) ſerves its ſelf by its own *Vital Motion*; and ſeeing this *Blood* cannot conſtantly be tranſmitted into the Parts, but by *Local Motion*, and this Motion cannot be continued but by a Forceable *Impulſe*, therefore *Nature* muſt of neceſſity make ſome part of the Body to drive it forwards, which Part muſt neceſſarily have ſome Cavities belonging to it, or allow'd it, Firſt to contain; then, ſome Veſſels to receive, as does the Ciſtern and Pipes; and Thirdly, Strength to propel or drive out: And ſuch a Part as this, in every reſpect is the *Heart*, which is Furniſhed with *Ventricles* to contain, with Veſſels annext to it, to Convey and Receive, and with a Firm *Muſcular* Body, to propel the *Blood*. Thus the Action of the *Heart*, is its proper Contraction by which it makes way for the Propulſion or driving forward of the *Blood* for its Uſe, and a conſtant *Circulation*, as alſo for the Vivifying and Nouriſhment of the whole Body.

This Accurate and Conciſe Diſcourſe of the Heart, *and its Uſe, as alſo of the* Circulation *of the* Blood, *and the Parts of which the* Sanguinary Maſs *is made, was Written by the Late Learned Dr.* Lower, *and Preſented to a Perſon of Quality, who was pleaſed to favour me therewith, in order to have it added to this my* Graphical Diſcourſe *of the* Muſcles.

FINIS.

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