What power the Sea hath to produce or hasten Putrefaction in some Bodies, and to preserve others; as Wood, Cables, and others that are sunk under it?

Of the Power ascribed to the Sea to eject Dead Bodies, *Succinum*, *Ambergris*?

Of the shining of the Sea in the night?

What are the Medical vertues of the Sea, especially against *Hydrophobia*?

What is its vertue to Manure Land? And what are the Plants, that thrive best with Sea-water?

* *The particulars whereof (saith the Author) are here omitted, Sir* Robert Moray *and Dr.* Wallis *having by their more accurate Inquiries about* Tides *made them needless.*

Some Considerations

Concerning the Parenchymous *parts of the Body.*

These were communicated by the Inquisitive Mr. *Edmund King* at the Instance of the *Publisher*, as follows;

The *Parenchymous* parts of the Body, are by *Anatomists* generally supposed to be in very many places wholly *void of Vessels*; designed chiefly to fill up Cavities and Interstices between the Vessels, and to boulster up the same, and to convey them through the parts.

But having many years endeavoured to excarnate several parts of the Body, *viz.* the Liver, Lungs, Spleen, Kidneys &c. (not to name the *Placenta Uteri*, which seems to be *Parenchymous* too;) and being very desirous to make a *Scheme* of the Vessels of any of these, what ever they were, I fixt upon; I found, notwithstanding all my care to preserve the Vessels, when I was freeing them, as heedfully as I could, from the supposed *Parenchyma*, that in every breach, I made, either with my fingers or otherwise, all my endeavours were destructive to my purpose; and if, upon examination of those bits, much of which is called *Parenchyma*, I met in them more Vessels, than I had preserved in the parts whence they came: And though the Portion were never so small, yet my bare eye could make this discovery; much more could I, when assisted by a *Microscope*, perceive, I had destroyed more Vessels, than preserved, in despight of the exactest care, I was capable to use. And being not a little concern'd, that I should undertake to preserve the Vessels by such a Cause, as I saw plainly to be their destruction (were the part never so big, or never so small) I was both confounded and tired. For I saw (and so must any, that will attempt this work) in my endeavouring to preserve one Vessel of a traceable magnitude, I spoiled an infinite number of others less discernable, which were as truly Vessels, as the other, differing only in size and figure (as to appearance.) Then reviewing what mischief I had done in every place, quite through the whole Tract of my Fingers, Knife, &c. I began to think with my self, That it was not impossible for these parts to consist wholly of Vessels curiously wrought and interwoven (probably for more Uses, than is yet known;) And the consideration,

tion, which came into my mind, of a piece of fine Cloth (which conſiſts of ſo many ſeveral minute Hairs, call'd *Wool*) was no diſcouragement to this opinion. Yet I durſt not be ſo preſumptuous as to indulge my ſelf too much in it; much leſs to venter preſently to ſpeak of a thing, which ſeem'd to contradict ſo many Learned Men's belief. But being reſtleſs, till I might receive more ſatisfaction in the thing, I iterated experiments over and over; ſome of which prov'd ſo ſucceſsfull to my apprehenſion, that I was encouraged in the years 1663. and 1664. to diſcourſe of it to ſeveral very worthy Perſons, as Mr. *Boyle*, Sir *William Petty*, Dr. *Williams*, Dr. *Lenthal*, Dr. *Jaſpar Needham*, Dr. *Samſon*, (who afterwards ſent me a Letter from *France*, intimating the acquaintance, he had made with the Learned *Steno*, who hath ſince publiſht ſomething of the ſame Diſcovery) Mr. *Daniel Cox*, and Mr. *Samuel Parker*, &c. who doubtleſs cannot but remember, that then I related to them, I found much cauſe to believe, that that ſubſtance, commonly call'd *Parenchyma*, was in moſt, if not in all its *Parenchymous* parts, full of Veſſels; however it had been imagin'd by all, I could ever meet with, to conſiſt in great part of a ſubſtance, in many places void of Veſſels, deſigned for ſuch uſes, as are above mentioned.

Againſt which I have now further to alledge, 1. That I obſerve in a piece of *Muſculous* Fleſh (ſo call'd) either raw, roſted, or boyled, *&c.* that if I ſo far extend it, as to make it to be ſeen through, I can (aſſiſting my Eye) perceive it full of Veſſels, placed as thick as is poſſible to be imagin'd (the fat if there be any, being firſt removed) there appearing then nothing, but veſſels, yet ſo as with a *Microſcope* may be ſeen through, when they are extended. 2. That, if any one, as he is at dinner, take a piece of fleſh, and begin either at the head or tail of a *Muſcle*, he may divide it *in infinitum*, all along from head to tail, without breaking any thing of that, called Fleſh, only theſe tranſverſe *Fibres*, that ſeem to ſtitch them together, and (as I am apt to think) paſs through the very Bodies of the ſmalleſt of them, and quite through the whole Muſcle up the very Cutaneous porofities; ſo that there is not one of theſe ſmall *ducts*, that run *per longitudinem*, but 'tis furniſh'd with a ſufficient number of outlets, when need requires, though too minute to ſuffer any *alimentary* juice to paſs tranſverſly (in a living Body) or any other liquor, when the Body is dead and cold. But to wave their uſe at preſent, and to return to what I was ſaying, Compreſs between the fingers this bit of fleſh, and you ſhall find the Juice, eſpecially if the Meat be Hot, to go before your fingers toward either end you pleaſe; but if you compreſs both ends, you ſhall ſee it ſwell into the middle; and again, if you preſs the middle, it will run out at both ends. But further, ſuppoſe a piece of fleſh, called *Parenchyma*, as big, or as little as you pleaſe, in any part of the Body, and let me prick it with a Needle, where you ſhall appoint; if you feel it, I preſume you will acknowledge, a *Nerve*, or a *Fibrilla*, related to it, is touch'd: if you feel it not, I am ſure ſome liquor either ſanguineous or other, will follow the Needle: And from whence can that come, but out of Veſſels? unleſs accidentally,

accidentally, as by a *Contuſion*, &c. it be extravaſated; in which caſe my Argument will not be injured, becauſe the part is depraved, whereas I ſpeak of the parts, as they are in their natural State.

To confirm and illuſtrate all which, I deſire, that the following *familiar* Obſervations may be conſidered:

1. If a Horſe, fat and fair to look on, without a hollow to be ſeen between his Muſcles, be rid extreme hard, and into a great ſweat, and then kept one day without water or moiſt meat, you ſhall ſee him look ſo thin in many places, as in the *muſculous* parts, that you will hardly beleive it to be the ſame Horſe, eſpecially if he be (as the phraſe is among Horſe-maſters) a *Naſty* or *Waſh-Horſe*. The cauſe of which thinneſs will eaſily be granted to be only an exhaſtion of Juice, expended out of the Blood, which did ſtuff out theſe Veſſels. And whoever, that is uſed to ride hard, ſhall obſerve, how thick this foul Horſe breaths, and at what a rate he will reek and ſweat, will not much wonder at the alteration. But if the Horſe be a hardy one, and uſed to be hard ridden, then you will ſee, that one days reſt, and his belly full of good meat and drink, will in one day or two almoſt reſtore him to his former plight, the food being within that ſhort ſpace of time ſo diſtributed, that all the Veſſels will be repleniſh'd again, as before. And the cleaner the Horſe is, the ſooner recruited, and the leſs ſign of hard riding will appear. This ſeems to ſhew the facility, with which the Juice, called Blood, paſſeth; Which ſurely, if there were ſuch a thing as a *Parenchyma*, might by ſeveral accidents (not difficult to mention) be ſo depraved in ſeveral parts of it, that it might loſe its receptive faculty; than which it may be thought to have none of greater uſe, being ſuppoſed to be without Veſſels.

2. Diſcourſing ſometimes with *Graſiers* in the Country, about the Paſture of Cattle, I have been informed by them, that, if they buy any Old Beaſts, Oxen, or Cows, to feed, they chooſe rather thoſe that are as poor, as can be, ſo they be ſound; becauſe that, if they are pretty well in fleſh, what they then add to them by a good paſture, though it make them both look and ſell well, yet it will not make them eat ſo well, their fleſh proving hard and verry tough: Which ſome may ſuppoſe to be the age of *Parenchyma*; and ſo it is of that ſo called. But if thoſe Beaſts be old and extremely poor, then they feed very kindly, and will be not only very fat, but ſpend well, like young ones, and eat very tender.

Of which I take the reaſon (excluding a *Parenchyma* now) to be this. When an Oxe or a Cow is grown old, and in an indifferent plight as to his *fleſh* (for ſo it is call'd) all thoſe Veſſels having been kept at that ſize for the moſt part, have contracted a tenſeneſs and fermneſs, and their *fibers* leſs extenſive, not ſo fitted for the reception of more unctuous particles to relaxe them; and that additional unctuous matter, which occaſions fatneſs, is forced to ſeek new quarter, any where (often remote from Muſcles) where it can be with leaſt difficulty received; ſometimes to one place, ſometimes to another,

ther, as may be ſeen in Shambles: Whereas, if there were ſuch a thing as a *Parenchyma*, that certainly would, like a hungry Sponge, immediately ſwell up in ſeveral parts, (which without much difficulty might be diſcover'd in diſſection) and more eminently, where it ſhould find the pores moſt patent: And in the diſſection of ſuch Muſcles it would be very ſtrange, not to find ſome, if not many, pieces of them in various ſhapes, to the great inconvenience of the parts, in which they are ſeated: Which yet I confeſs I could never find in any Muſcle, unleſs it were where there had been a *Contuſion*, or an *Impoſtume*, or the like. But according to my opinion of the *Parenchymous* parts, the reaſon, why the Fleſh of a very lean Oxe or Cow, that hath got new Fleſh in a good paſture, eats tenderer, ſeems to be this: That in a very lean Beaſt the Veſſels deſſeined for admitting and diſtributing the nouriſhing Juice, are ſo near contracted, and lye ſo cloſe together, that, when once they are relax'd, by the freſh and unctuous nouriſhment, they extend every way in all *extenſive* parts, until in a ſhort time the whole Creature is, as it were, created a new, having got new fleſh upon old bones: And the neceſſity of extreme extenſion makes all thoſe parts, that are, as has been ſaid, for the admiſſion of nouriſhment, ſo thin and fine, that it will make the lean Beaſt, put into a rich paſture, eat young and tender: Whereas one of the ſame Age, that never was very poor, fed in the ſame paſture, ſhall eat hard and tough.

3. It has been obſerved, that Corpulent Perſons in ſome Diſeaſes, that ſeize on them, do fall away to wonder, not only in the Waſt, but in the Arms, Legs, and Thighs; and the very Calves of the Legs have been obſerved ſo flaccid and looſe, that one might wrap the skin about the bones. The reaſon whereof, according to the opinion deliver'd, may be eaſily rendred to be, A great Conſumption of the Stock of Liquors, that in Health kept the Veſſels turgid; Which Veſſels I ſuppoſe to make up thoſe Muſcles. But when the Pores are obſtructed, that the nouriſhment is hindred (which then alſo uſes to be but ſparingly adminiſtred) and ſweats, either ſpontaneous, or forced, are large, there muſt needs be a great expence of thoſe Liquors, the ſupply being but inconſiderable: which cannot but contract all theſe ducts of all ſorts nearer together, and make them much leſs in themſelves, meerly from Exhauſtion: Or, if there ſhould be no ſweats, the internal Heat ſpends the ſpirits, and dries up the Liquors; the conſequence whereof may reaſonably be preſumed to be this Flaccidity of parts, and great and ſudden Change, made in them; not that there is need of any *Parenchyma* to fill up theſe Muſcles, conſidering what hath been ſaid. Mean while, I humbly conceive, that if it be in any part of a Muſcle, their Ingenuity, that plead for it, will put them upon ſome experimenrs, to bring it to Ocular Demonſtration, either in a Living or Dead Muſcle, any kind of fleſh, raw, roſted, boyl'd, or in what they can beſt make it out. And when I ſhall be convinc'd of an Errour in what I have diſcourſed, I ſhall beg pardon for giving the Occaſion of the trouble of that Experiment, which ſhall prove a

Parenchyma in any Muſcle; and think my time well ſpent in receiving a full ſatisfaction of the ungroundedneſs of my opinion; and readily ſubmit to the Author, with a grateful acknowledgement of my Obligation to any one, that ſhall rectifie me in my miſtake, if it be one.

Obſervables

Touching Petrification.

THough much hath been already ſaid and written of *Petrification*, yet 'tis conceived, that all that comes ſo far ſhort of a competent ſtock for the compoſing of a perfect *Hiſtory of Petrification*, that the incompleteneſs thereof ought to awaken the more diligent attention of the Curious, and to call in their aid for Additions, thereby ſo to increaſe and to complete the *Materials* for that work, that it may the better ſerve to clear and make out the Cauſe of that Tranſmutation. And that the rather, becauſe if it lay in the power of humane Skill (by the knowledge of *Nature*'s works) to raiſe *Petrification*, or to allay, or prevent it, or to order and direct it (which perchance in time might be attained the ſaid way) much uſe might be made of this Art; eſpecially if it could be made applicable to hinder the Generation of the Stone and Gravel in humane Bodies, or to diſſolve the Stone, where 'tis formed; beſides other valuable Uſes, that might be excogitated.

Upon this Conſideration, care *is*, and further *will be* taken in theſe Papers, to record, among other Obſervables of Nature, what ſhall be communicated of this kind of *Change*.

In *Numb.* 1. 2. and 5. ſeveral Relations have been made belonging to this Argument. Much of it, together with conſiderable Reflections may be ſeen in Mr. *Boyle*'s *Eſſay* of *Firmneſs*: In *Helmont de Lithiaſi*, where, among other remarques, is recited the Teſtimony of *Paræus*, of a *Petrified Child* ſeen at *Paris*, and by the Owner uſed for a *Wheiſtone*: In *Deuſingius*'s Hiſtoria *Infantis in Abdomine inventi*, *& in duritiem lapideam converſi*: In Mr. *Hook*'s *Micrography*, and in others. To omit now, what has been related (but perhaps not well enough atteſted) by Authors, concerning the ſtupendious Petrifications of whole Companies of Men, and Troops of Cattle; by *Aventinus* lib. 7. *Annal. Bojorum*; by *Purchas* in his *Pilgrimage* p. 426. in fol. printed at *London* 1614. and, (of a Troop of *Spaniſh* Horſemen) by *Joſ. Acoſta* lib. 3. c. 9.

To all which, the Curious Dr. *Beale* now adds a Narrative of a Stone, not long ſince taken out of the Womb of a Woman of his neighbourhood neer *Trent* in *Somerſetſhire*, by inciſion, and afterwards perfectly cured, though ſhe had born the Stone with extreme torments for 8. or 9. years. The operation he relates to have been made in *Eaſter* laſt; after which time, he affirms to have ſeen the Stone, and weigh'd it in Gold-Scales, where it wanted ſomewhat of four Ounces, but had loſt of the weight, it formerly had, being