SECT. VII.

The CONTENTS.

BEfore I give the Contents of this Section, I think it may be convenient, in order to the better underſtanding of what follows, to premiſe, That our Author having thus far proſecuted his Inquiries into the Nature of Light, What it is in the Luminous Body, to wit, a certain Vibrative Motion of its Parts, of a determinate Velocity. 2dly, What the Medium *is, how it is acted upon by Light, and how Light is thereby propagated, with all the neceſſary Qualifications of this* Medium. *3dly, What this Action is on the Eye, and how the Powers of Light are exerted upon the ſenſible Part thereof, to cauſe Viſion: Inſtead of proceeding farther in the Method he had propoſed to himſelf, of explaining how the Rays or Pulſes of Light from the Luminous Bodies are Reflected, Refracted or Inflected, by a ſucceſſive Refraction, bending the Ray into a Curve; which ſeveral Subjects I ſuppoſe he deſign'd to treat of, though I do not find he ever did (except of Inflection, of which ſee* Micrography, *p.* 217.) *being diverted by other inuervening Subjects, which carried his Thoughts other ways: And indeed the Field of Nature is ſo large, and ſo plentifully adorn'd with tempting Curioſities, that it is a Reſtraint upon the Collector, not to leave one before it is thoroughly examined, to reach at another. I ſay, when our Author had treated on theſe Heads ſo far, he leaves this Subject, I muſt confeſs, in ſome ſenſe imperfect; and taking occaſion from his having mention'd Time and a Human Moment, he wrote the following Diſcourſe, wherein,*

1. *The Author attempts to ſhew how we come by the Notion of Time, tho' the Impreſſions on the Senſes are all momentary.* The Communis Senſus *not ſufficient for this purpoſe, therefore there is a neceſſity of ſuppoſing ſome other Organ. This he conceives to be what we call Memory, and then he proceeds to give an Hypotheſis to explain Memory, and how it is performed: That Memory is organical: That the Soul, tho' an Incorporeal Being, yet in performing its Actions makes uſe of Corporeal Organs: That Memory is the Repoſitory of Ideas form'd by the Senſes, or rather by the Soul it ſelf.* 2. *The Action of the Soul in ordering and ſtoring up Ideas, is call'd Attention. The Author's Notion what it is: That the Place of the Repoſitory is ſomewhere in the Brain, whoſe Subſtance is the Material out of which Ideas are formed, the Chain of which is coyled up in the Repoſitory, the Soul being at the Center where the preſent Idea is made, which is the preſent Moment; and hence comes the Notion of Time and Duration, and is apprehended as a Quantity.* 3. *A Mechanical Repreſentation ſuppoſed for the better Underſtanding the ſeveral Operations of the Soul,* viz. *Apprehending, Remembring and Reaſoning. That there may be ſome certain Point in the Brain, where the Soul has its chief Reſidence, and there receives its Informations, and gives its Orders. This Repoſitory is furniſhed with*

adapted

adapted Matter for the Uſes of the Soul: Five ſorts of Matter for the Impreſſions of the Five Senſes: That for Sight explain'd by the Bononian Phoſphorus: *That for Sound by the Vaſes in antient Theaters and Uniſon-tuned Strings. Smelling, Taſting and Feeling alſo after the ſame manner are explained.* 4. *Out of this adapted Matter the Ideas formed are material and bulky, of determinate Figures, Sizes and Motions. That the Soul forms one Idea each Moment, which Moments differ in duration in different Men. A Computation of the number of Ideas that may be form'd in a Man's Life. That the Number will not be found to be an Objection againſt this Hypotheſis. That Attention is the Action of the Soul in forming Ideas, and what they are. That they continually protrude each other from the Center. That the Soul by its Radiation and the Re-action of the Ideas, becomes ſenſible of them, and ſo of Time. How it is ſenſible of many concomitant Ideas. How ſome Thoughts loſt may be recovered. That this Radiation and Re-action weakens in a duplicate proportion to the diſtance of Time. That the Soul may exert its Power on any particular Idea according to its own Will. That there is a continual Radiation of the Soul in the Repoſitory of Ideas, and is in ſome ſenſe reacted upon by them; whence comes what we call a bringing to remembrance.* 5. *The Action of the Soul called Thinking, is a more particular Radiation thereof to this or that part of the Repoſitory. Thinking is partly Memory, and partly an Operation of the Soul in forming new Ideas. Reaſon a more compleat Action of the Soul from comparing Ideas. As the Repoſitory is better ſtored, ſo the Soul acts better. The Soul a ſelf-moving Principle and* Primum Movens. *The Soul compared to the Sun in the Great World. If the Sun had Underſtanding, it would be ſenſible of the Reſiſtance its Rays meet with. This explain'd by Hearing and Seeing. A double Influence from the Sun on Bodies and their Motions. Tho' we cannot conceive how the Soul, being ſpiritual and incorporeal, acts upon Ideas that are corporeal, or can be acted upon by them; yet we are aſſured ſuch Effects are performed. That the Soul is not confin'd to act only upon theſe Ideas, but may extend its Power to every part of the Body, and poſſibly to ſome conſiderable Diſtance from the Body.* R. W.

How we come by the Notion of Time.

BEfore I come to the diſcuſſing of the particular Matters treated of the laſt Section, I would a little further conſider what I have been diſcourſing of, *viz.* Time: And here, ſince it is a general Maxim in the Schools, that *Nihil eſt in Intellectu, quod non fuit prius in Senſu*, I would query by what Senſe it is we come to be informed of Time; for all the Information we have from the Senſes are momentary, and only laſt during the Impreſſions made by the Object. There is therefore yet wanting a Senſe to apprehend Time; for ſuch a Notion we have: And yet no one of our Senſes, nor all together, can furniſh us with it, and yet we conceive of it as a Quantity. For this therefore, ſince we cannot find any external or outward Senſe, we muſt ſeek within, and we ſhall find there is ſomewhat like that which is called *Communis Senſus*, which is receptive of all the outward Impreſſions of the other Senſes. But ſtill this is inſufficient to afford us the Notion or Knowledge of Time; for the Impreſſions on that can be no other than the Impreſſions from the other Senſes, conveyed by the *Media* of the ſenſory Nerves, which muſt be alſo momentary, as well as the firſt Impreſſions, and conſequently do not yet ſufficiently inform us of the Notion of Time. Conſidering this, I ſay, we ſhall find a Neceſſity of ſuppoſing ſome other Organ to apprehend the Impreſſion that is made by Time. And this I conceive to be no other than that which we generally call Memory, which Memory I ſuppoſe to be as much an Organ, as the Eye, Ear or Noſe,

and

and to have its Situation ſomewhere near the Place where the Nerves from the other Senſes concur and meet.

Memory Organical.

Now that it is really Organical, I argue from this, that it may be both improved and impaired, it may be deſtroyed and exalted to a great Perfection. It is at ſome times ſenſible, and at other times wholly inſenſible, as particularly in Sleep: And whenever 'tis ſo, we have no Senſe of Time, but we paſs over all that Space of Time, as if it had not been, and we only come to underſtand it by other Circumſtances. Beſides, we have often known that the Memory has been quite deſtroyed by a Fall, or great Blow upon the Head, by a Fever, or other great Sickneſs; nay often by Exceſs of Drinking, all which affect not the Soul: And in probability, this might be cauſed by ſome Wound, Hurt, Bruiſe, or ſome other Diſtemper of that Part, which we conceive to be the Organ of Memory; which makes it an unfit Organ for the Soul to make uſe of for that effect; and conſequently the Soul can no more remember without the Organ of Memory, than it can ſee without the Organ of Sight, the Eye, or hear without an Ear. For the Soul, or firſt Principle of Life, tho' it be an Incorporeal Being, yet in performing its Actions, makes uſe of Corporeal Organs, and without them cannot effect what it wills.

Memory then I conceive to be nothing elſe but a Repoſitory of Ideas formed partly by the Senſes, but chiefly by the Soul it ſelf: I ſay, partly by the Senſes, becauſe they are as it were the Collectors or Carriers of the Impreſſions made by Objects from without, delivering them to the Repoſitory or Storehouſe where they are to be uſed. Which Impreſſions being actual Motions, as I have plainly proved in the Explication of the Organ of the Eye, and the Operation of Light, thoſe Motions conveyed to this Repoſitory become Powers ſufficient to effect ſuch Formations of Ideas as the Soul does guide and direct them in: For I conceive no Idea can be really formed or ſtored up in this Repoſitory, without the Directive and Architectonical Power of the Soul; and the Actions or Impreſſions ceaſe and fail without the concurrent Act of the Soul, which regulates and diſpoſes of ſuch Powers.

2. This Action of the Soul is that which is commonly called *Attention*, by which what is meant no one does further or more intelligibly explain, than only by giving the ſame Notion by ſome other ways of Expreſſion, which, it may be are as little intelligible. My Notion of it is this, that the Soul in the Action of Attention does really form ſome material Part of the Repoſitory into ſuch a Shape, and gives it ſome ſuch a Motion as is from the Senſes conveyed thither; which being ſo formed and qualified, is inſerted into and incloſed in the common Repoſitory, and there for a certain time preſerved and retained, and ſo becomes an Organ, upon which the Soul working, finds the Ideas of paſt Actions, as if the Action were preſent.

The Author's Notion concerning Ideas.

This Repoſitory I conceive to be ſeated in the Brain, and the Subſtance thereof I conceive to be the Material out of which theſe Ideas are formed, and where they are alſo preſerved when formed, being diſpoſed in ſome regular Order; which Order I conceive to be principally that according to which they are formed, that being firſt in order that is firſt formed, and that next which is next, and ſo continually by Succeſſion, from the time of our Birth to the time of our Death. So that there is as it were a continued Chain of Ideas coyled up in the Repoſitory of the Brain, the firſt end of which is furtheſt removed from the Center or Seat of the Soul where the Ideas are formed; and the other End is always at the Center, being the laſt Idea formed, which is always the Moment preſent when conſidered: And therefore according as there are a greater number of theſe Ideas between the preſent Senſation or Thought in the Center, and any other, the more is the Soul apprehenſive of the Time interpoſed.

Theſe are the *Supellex* of the Soul, and theſe are the Inſtruments it makes uſe of in the apprehending of things or Actions paſt; and by theſe it becomes ſenſible of all that it really knows, and according to the Perfection or Imperfection, the Multitude or Paucity, the Regularity or Irregularity of the Order and Diſpoſition of theſe Ideas in the Repoſitory or Memory, the Aptitude or Ineptitude of the Subſtance for Formation, Radiation, Diſpoſition, *&c.* ſo is the Soul the better enabled, Firſt, to form new Ideas aright, or rightly to apprehend the thing to be known. Secondly to apprehend the Order according

to

to which they have been formed, and are ranged; that is, to know the time, or, to ſpeak in the common Phraſe, to remember what is paſt, as if it were preſent, and how long it is ſince it was done, by the number of Ideas beween. The Soul therefore underſtands Time, or becomes ſenſible of Time, only by the help of the Organ of the Memory, which Organ is this Repoſitory of Ideas, and by means of the Order, Situation and Diſtance of the ſaid Ideas, from the Center, or one among another, ſo it becomes ſenſible of Time: And Time, as unnerſtood by Man, is nothing elſe but the Length of the Chain of theſe Ideas, between any two that are at any time apprehended together: And according to the Number of the Links in this Chain, ſo is the Impreſſion made to the Soul that apprehends it, of a longer or ſhorter time interpoſed; and the Notion of Time is the Apprehenſion of the Diſtance of Ideas from the Center or preſent Moment. And ſo Time comes to be apprehended as a Quantity, and ſo falls under the Conſideration of Geometry and Menſuration.

A ſenſible Repreſentation of the Matter.

3. Now becauſe nothing is ſo well underſtood or apprehended, as when it is repreſented under ſome ſenſible Form, I would, to make my Notion the more conceivable, make a mechanical and ſenſible Figure and Picture thereof, and from that ſhew how I conceive all the Actions and Operations of the Soul as Apprehending, Remembring and Reaſoning are performed.

I ſuppoſe then that there may be a certain Place or Point ſomewhere in the Brain of a Man, where the Soul may have its principal and chief Seat.

I will not now enter upon Arguments or Reaſonings from Experiments or Obſervations, to determine the preciſe Place, though concerning the definitive Poſition thereof, I have much that I may at another time produce: But I will only ſuppoſe at preſent, that there may be ſome ſuch Place whereinto all the Impreſſions made from the Senſes upon adapted Matter may be deliver'd; which Impreſſions, as I have elſewhere explain'd, are no other but actual Locomotions given to the Parts of Matter or Bodies ſo or ſo moved.

I ſuppoſe then this Repoſitory to be furniſhed with variety of Matter adapted for the Uſes to which the Soul applies them, which I call the Elements out of which Ideas are made; among which Variety there are principally five ſorrs fitted and adapted to receive the Impreſſions from the five Senſes; that is, one peculiar Kind for the Impreſſions of Sight, which is of ſuch a Quality, Form, Make, Bulk, or other Conſtitution, as makes it Receptive and Retentive of the Impreſſions of Light and Colours, which none of the other Bodies are capable of. Which may a little be explain'd by the Matter of the Phoſphoros made of the *Bononian* Stone, or that found out by *Baldwinus* made of Chalk and Niter; which Matters are ſo made and adapted by the Chymical Preparations of them by the force of Fire and Mixtures made in their Proceſſes, that they, ſo ſoon as expoſed to the Impreſſions of Light, receive and retain thoſe Impreſſions, though for no long time, yet enough to ſhew us a Specimen of a certain Qualification not to be found in moſt other Bodies, which may yet poſſibly be done much more powerfully and effectually by the Chymiſtry of Nature in the Digeſtions and Preparations made in the wonderful Elaboratory of the Animal Body; where all things are are ordered and adapted by the All wiſe Creator, for the Work to be done: So that nothing can be imagined wanting or redundant to perform what is by his Intention deſign'd to be done.

Another ſort of Matter I ſuppoſe to be that which is fitted to receive the Impreſſions of Sound, ſomewhat like thoſe Bells or Vaſes which *Vitruvius* mentions to be placed in the antient Theaters, which did receive and return the Sound more vigorous and ſtrong; or like the Uniſon-toned Strings, Bells or Glaſſes, which receive Impreſſions from Sounds without, and retain that Impreſſion for ſome time, anſwering the Tone by the ſame Tone of their own. And though in theſe Examples (which I am fain to bring for Explication only) there ſeems wanting the great Requiſite of a Power to retain for a long while thoſe Impreſſions which are ſo given, they all of them loſing them in a very ſhort time; yet, as I ſhall by and by ſhew, they do and will each of them retain their ſeveral Impreſſions long enough to make them ſufficient for producing the ſame Reactions whenever they are again acted upon. And ſuch an Impreſſion I ſhall prove is again given both by the Soul and by ſucceeding ſimilar Sen-

ſations: For having Potentiality of receiving, and being excited by ſuch Impreſſions, they do again renew their former Impreſſion, and afreſh ſhew their Power, in the ſame manner as the Muſical String or Bell, or the well prepared *Bononian* or *Baldwin* Phoſphorus do each ſhew their Natures, when the one is ſtruck or agitated by Motion, and the other acted upon by Light.

The like appropriated Materials I ſuppoſe alſo for the Impreſſions of the other Three Senſes, *viz.* Smelling, Taſting, Feeling; each of which are qualified to receive and retain the Impreſſions from the other Senſes. As for inſtance, the Smell being cauſed by a ſubtil and curious Exhalation from the odoriferous Body imbibed by the Air, the Olfactory Nerves are prepared with an aerial Body fit to diſſolve or imbibe that Subſtance in the ſame manner as the Air does from the odoriferous Body; which aerial Body, by means of the Olfactory Nerve, having an immediate Intercourſe and Paſſage to the Brain, does immediately convey it thither: And according to the nature of this aerial or ſpirituous Subſtance with which the Olfactory Nerve is furniſhed, ſo does it diſſolve or imbibe this or that Exhalation out of the Air. Whence I conceive that it is of diſtinct Natures in every Species of Animals, and thence that every one of them have diſtinct Senſations of the ſame *Effluvia*, and that which is congruous and agreeing to one, is of a contrary nature to another; and thence what is grateful to one is odious to another. And again, what is ſenſible to one ſort of Creature, who has an aerial Subſtance fitted to diſſolve and imbibe ſuch or ſuch a Steam, is wholly inſenſible to another that wants that aerial Subſtance, and is furniſht with one of a differing Nature. Which I conceive to be the reaſon, why Dogs and other Creatures have ſo ſtrong a Faculty of ſmelling the Scent of Animals, or the Fleſh of them, which are very hardly diſcoverable to a Man. On the other ſide, in probability Man is ſenſible of many things, as the Smell of Flowers, Herbs and Fruits, which poſſibly a Dog does very little, if at all ſcent.

The like may be ſaid of the Taſte, which I conceive lies only in the Nature of the watery Liquor conveyed by the Nerves of Taſte to the Tongue, according to the Nature of which for diſſolving this or that Subſtance of the Bodies touching it, is the Impreſſion of Taſte conveyed to the Brain. And ſo we may ſee a clear Reaſon why one Taſte may be taſted by one, which is not by another, and why one Taſte is pleaſant to one Creature which is not ſo to another, and how a Body becomes guſtable or taſteleſs, and how that which is taſtleſs in it ſelf may be made taſtable, and why that which is taſtable may be made taſteleſs. Of both which kinds I could give hundreds of Inſtances which would much confirm this my Theory, and ſhew what Improvements of this kind could be made. The like, I conceive, is to be ſaid of an adapted Matter for receiving and retaining the Impreſſions of Feeling, ſomewhat after the nature of the warming Stone, and ſeveral other ſuch Subſtances, which do imbibe thoſe Impreſſions more readily, and retain them for a longer time. Now I do ſuppoſe, that the Repoſitory is continually ſupplied with a ſufficient quantity of theſe kinds of Subſtances, with which the Senſe does continually form Ideas, and diſpoſe of them into the Repoſitory of Memory, and that without thoſe Materials, and the concurrent Impreſſions of the Senſes, it cannot form them: For otherwiſe a blind Man would have Ideas of Colours, which yet he has not, and a ſick Man would have a true Idea of Taſtes, which yet he has not.

But to return to the conſideration of the Place or Repoſitory where theſe Ideas are form'd and retain'd.

The Ideas material and bulky.

4. I ſuppoſe there may be about this place, which I will henceforward call the Center, a certain Sphere of Capacity fill'd with adapted Matter, for the Formation, Reception, and containing of all the Ideas which ſhall be emitted from the ſaid Center. Theſe Ideas I will ſuppoſe to be material and bulky, that is, to be certain Bodies of determinate bigneſs, and impregnated with determinate Motions, and to be in themſelves diſtinct; and therefore that no two of them can be in the ſame ſpace, but that they are actually different and ſeparate one from another; and as they have their diſtinct Figures, ſo have they each of them their diſtinct Qualifications of Motions and Conſtitutions.

I will ſuppoſe further, that the Soul may every moment, partly by its own immediate Power, and partly by the help of the Impreſſions produced by the Senſes, form one of theſe Ideas, and inſert it into the Repoſitory. Which Moments in ſome Men may be more, in ſome may be leſs, within the ſame compaſs of time, according to the Activity of the Soul it ſelf, and according to the Aptitude or Unfitneſs of the Matter to be wrought upon. So that in ſome there may be Four of them formed in a ſecond Minute of Time, in others poſſibly not One in two Seconds of Time: And according to the Perfection and Aptneſs of the Matter to be formed, and the Activity of the Soul in performing its Effects, ſo are there more of theſe Ideas formed within the ſame Space of time. So that a Man of an ordinary Conſtitution of Soul and Body, that is, one of a middle Degree between the more active and quick, and one of the more ſlow and dull, may within the compaſs of his Life, ſuppoſing he ſhould live to a hundred Years of Age (which yet not one of a hundred thouſand thouſand does arrive to) form within that compaſs of time, and ſtore up in his Repoſitory, a thouſand Millions of diſtinct Ideas; all which may have followed each other in a continued Series, beginning with the time of the firſt Advertency of the Child, and continuing to the time of the actual Separation of the Soul and Body at Death, Which I thus compute: A hundred Years contain 36525 Days, and 36525 Days contain 876600 Hours, and 876600 Hours contain 31557600000 Seconds. Now one with another, when the Soul is intent and acting, there may be 3600 formed within the compaſs of an Hour, and ſo one in a Second of Time. So that if the Soul could through the whole Courſe of 100 Years be continually ſo intent, and ſo acting and forming theſe Ideas, and inſerting them into this Repoſitory or Organ of Memory, there might be there repoſed 3155760000 Ideas. But by reaſon of Sleep interpoſed, one third Part of the Number will be taken off, the Soul then for the moſt part ceaſing to form Ideas, or when it does, they are only imperfect and loſt. So that there will remain but 2103840000, or to take a round Sum, but 21 hundred Millions. Now if we examine this remaining two thirds of Time or Moments, and therein conſider what part of the time remaining is loſt in Infancy, Old Age, Sickneſs and Inadvertency, we may well reckon that two thirds of theſe remaining Moments are loſt, and no Ideas at all formed in them; and ſo inſtead of 21 hundred, there will remain but the number of 7 hundred Millions. And if we again conſider how ſmall a part of theſe are induſtriouſly and carefully ſtored up, we may very well agree, that not above a ſeventh Part of theſe are ſtored up: And ſo one hundred Millions may be a ſufficient Number to be ſuppoſed for all the Ideas that may have been treaſured up in the Organ of Memory through the whole Courſe of a Man's Life, though of a hundred Years continuance; and conſequently one Year with another may be ſuppoſed to add to this Store about one Million of Ideas. But if we conſider how much this will amount to for every Day, we ſhall find that yet the Number is very much too big, and muſt be yet very much diminiſhed: For when we conſider that this will ſtill make 2738 Ideas for every Day of the hundred Years; and if a Man conſiders with himſelf how many he conceives he may have added to his Store in one Month next laſt paſt, I am apt to think he will conclude, that one with another, it will be enough to allow one Tenth of that Number for the Number of Ideas that have obtained a Place in this Repoſitory, the Organ of Memory. So that if a Man allows but two or three hundred a Day, nay, but one hundred for every Day he hath lived, ſince he was born to his preſent Moment, he will find that Number large enough to contain all the Ideas he has really ſtored up in the Organ of his Memory. As ſuppoſing a Man of fifty Years of Age, who according to that compute muſt have lived 18262 Days; and conſequently if you reckon but a hundred for each Day, muſt have 1826200. It will be very hard, I conceive, for a Man of that Age perfectly to remember ſo many diſtinct things, though yet I will not ſay it is impoſſible. But ſuppoſing he could by recollecting remember 100 Millions, and conſequently muſt have as many diſtinct Ideas, I ſee no Reaſon why all theſe may not actually be contained within the Sphere of the Activity of the Soul acting in the Center. For if we conſider in how ſmall a bulk of Body there may be as many diſtinct living Creatures as here are ſuppoſed Ideas, and every of theſe Creatures perfectly

feetly formed and endued with all its Vegetative and Animal Functions, and with ſufficient room alſo left for it to move it ſelf to and fro among and between all the reſt, ſo as to paſs by every one and touch none, we ſhall not need to fear any Impoſſiblity to find out room in the Brain where this Sphere may be placed, and yet find room enough for all other Uſes, of which we may afterwards aſſign ſome very neceſſary.

Attention what.

But to return to the Deſcription of this Organ. I do ſuppoſe that what we call Attention is nothing elſe but the Action of the Soul in forming certain Ideas, which for the preſent I will call little Images, which bear the Stamp, Seal or Mould according to which the Soul formed it in the Center of the Repoſitory. I ſuppoſe further, that theſe are continually formed by the Soul in the Center, and the preſent always protrudes thoſe that were formed before it further into the Repoſitory. So that the greater the number of Ideas are that have ſucceeded any ones Formation, the greater is the Space of Time of which we have a Senſe: and the Ideas become further and further removed from the Center, and more and more new-form'd Ideas interpoſe themſelves between the Center and the ſaid Ideas placed in Orbs at a greater diſtance, by the intruſion of freſh Ideas between the Center and them.

I ſuppoſe further, that all theſe Ideas, though they may for a long time retain the Forms and Motions impreſs'd on them by the Senſes, and by the Action of the Soul; yet notwithſtanding they being material, and ſo ſubject to change, I conceive, that as the Motions may in time decay, ſo the Form may (by ſhifting and changing place in the Repoſitory or Organ of Memory, and being protruded farther and farther from the Center or Seat of the Soul, and crouded into Orbs, though further off, yet cloſer and cloſer ſtuffed and crouded together) be in time alter'd, and ſometimes quite loſt.

I ſuppoſe further, that the Soul being ſeated in this Center, and there acting, as I ſaid, by the help of the Information and Impreſſions of the Senſes, and forming continually new Ideas, and ſo protruding them onwards, and filling the Sphere of the Repoſitory fuller and fuller from the Center, increaſing outwards. I ſuppoſe, I ſay, that this Soul by its Radiation does actually apprehend, or as it were feel, or is ſenſible of any Idea that remains treaſured up within this Repoſitory: And this it becomes ſenſible of, partly from its own Power of Radiation, and partly from the Re-action of the Ideas. It becomes, I ſay, ſenſible of them, wherever placed within the Repoſitory; partly by its own Radiation, by which it acts upon the fluid Spirits incompaſſing it, propagating from it ſelf every way *in Orbem*, a Radiation like the Sun, by which, as by a Stick, it becomes ſenſible of all thoſe Ideas that are yet unwaſted within the Repoſitory, feeling as it were their Form, their Reſiſtance, and their Re-action to its Radiations: Partly, I ſay, only by their lying in the way of the Radiation, and partly alſo by their re-acting and repercuſſing a Radiation back upon the Soul. By the Diſtance of it from this Center the Soul becomes ſenſible in ſome meaſure of the time in which the Idea was made, and how long ſince it was inſerted, there being ſo many Orbs of later or more inner Ideas formed and lying between them, which have been ſince inſerted.

By this means it becomes ſenſible of many Ideas that accompanied that Idea, when made, many of them having kept the ſame Order in which they were made; though oftimes other Ideas, not formed immediately before or after, intrude and thruſt in themſelves between, out of the order they did really ſucceed in, ſo as often to interrupt and break the Chain or Order of Inſertion.

I conceive further, that beſides the natural Decay there may be of the Form and impreſt Motion of the Ideas, there may be alſo an Impediment to this Radiation of the Soul, by the Interpoſition of other Ideas between the Center and the Idea ſought, much after the manner as the Earth interpoſing between the Moon and the Sun, hinders the Sun from radiating upon the Moon. And in ſuch caſe the Idea may ſometimes be thought to be loſt, which yet may afterwards be found again when the Obſtacle is removed.

Again, as in the Radiation of the Sun, which is as it were a Repreſentation of the Soul of the World; the Radiation of the Soul is more powerful upon Ideas at a nearer than at a further Diſtance; and their Reaction is alſo more powerful back again, and that in a duplicate proportion to their Diſtance reci-

procal much the ſame with that of Light, which is the moſt Ipiritual Action of all we are ſenſible of in the World. And thence it is, that the Memory of things long ſince done is for the moſt part very faint, unleſs in ſome caſes, where the Impreſſions made upon thoſe Ideas were at firſt very powerful, or often recalled, which may be ſaid to be a new forming of them.

There is a continual Radiation of the Soul into the Repoſitory.

I ſuppoſe further, that though by means of the continual Radiation of the Soul into this Repoſitory or Organ of Memory, it has at all times ſenſe of all the Ideas that are there repoſed, yet that Senſe is but imperfect and confuſed by reaſon of the Multitude; yet can it readily exert its Power more particularly and ſtrongly to this or that Idea, according to the Determination of its Will. And whenſoever it is upon the Action of Thinking, that is, of fixing or darting its Radiation more powerfully upon this or that Idea placed in the Repoſitory, it does according to the Power of its Radiation receive a more ſenſible Impreſſion or Repercuſſion from thoſe Ideas upon which it radiates, and thereby it does not only apprehend their Qualifications more diſtinctly, but alſo it does as it were renew or refreſh the former Impreſſions, and add to them a further degree of Perfection: And ſo though they are in a Place farther diſtant from its Center, and by the length of time or the number of Ideas that have been ſince inſerted, and ſo lie in the way of Communication, it be become more faint and weak in the retaining the firſt Impreſſion, and conſequently in its re-acting Power; yet by this ſecond Action or Radiation of the Soul upon it, its Form and Qualifications are renewed and perfected, and for the future it becomes more powerful than the reſt of thoſe at the ſame or leſſer Diſtances, that have not been by ſuch ſecond Radiations ſo renewed and invigorated; and beſides every ſuch Action of the Soul does create and form a new Idea at the Center, which has Impreſſions that are the Reſult of thoſe renewed Actions: And this having ſomewhat the like Figure and Motions or Qualifications, it has a Sympathetick Agreement with the other; and the Impreſſions from the one do more readily make the Impreſſions from the other more ſenſible, in the ſame manner as a Muſical String being moved, does make another String that is uniſon or harmonious with it, move alſo, and ſo together make the Sound the louder, or the Impreſſion the ſtronger.

Next, as I ſuppoſe there is a continual Radiation of the Soul into the whole Repoſitory of Ideas, ſo I do conceive likewiſe that every Idea ſo placed being ſo qualified as above, by particular Impreſſions of Motions, which continue for a long time ſo to move, as they were at firſt impregnated, does from ſuch its Power ſo retained, radiate a Motion of its own, which may in ſome manner alſo act upon the Soul, ſo as to excite it to Attention; and by this means alſo whenever any Idea is created and impregnated with Motions or Qualifications ſimilar to thoſe of other Ideas placed at ſome diſtance in the Repoſitory, the concurrent Impreſſions or Re-actions of thoſe ſimilar Ideas upon the Soul at that time do make the fainter to be the more notable, and ſo excite the Soul to Attention or Radiation that way alſo; and by that means it has an Excitement to be more ſenſible of the other alſo at that moment: And this I take to be that Impreſſion which we are ſenſible of, when we ſay, This brings to my Mind, or This puts me in mind, or this makes me remember, *&c.*

What Thinking is.

5. I do further conceive, that that Action of the Soul which we call Thinking, is a more particular Radiation of the Soul to this or that part of the Repoſitory, or on this or that Idea placed in it, and at the ſame time forming new Ideas in the Center of the Repoſitory; which Action of the Soul in framing new Ideas at the Center, is continued almoſt every moment: And though it doth not every moment make a diſtinct Idea, yet may it be perfecting of one, and giving new Impreſſions every moment: And thence I conceive the Body of one Idea (for as I before mention'd, I ſuppoſe them to be really corporeal and material) may have many and various Impreſſions and Motions annexed to it, poſſibly of 100, nay of 1000 Moments, whence that Idea may be ſuppoſed to be more compleat and perfect in it ſelf: And when it again comes to be acted upon by the Radiation of the Soul, all the Impreſſions or Qualifications thereof become of Power to affect the Soul with thoſe Impreſſions which it had formerly received from the Soul.

So that Thinking is partly Memory, and partly an Operation of the Soul in forming new Ideas.

Another and more compleat Action of the Soul, is the forming new Ideas from the comparing the Re-actions from several Ideas placed here and there in the Repository, and its being sensible of the Harmony or Discord of them one with another, which does produce an Idea wherein all those various Respects are in some means united and impressed upon one and the same Idea. This is an Idea of greater Perfection, and according to the Attention of the Soul in being sensible of more and more variety of former Ideas, and the Regularity and Order of its proceeding in that Action, and the more steddy and distinct manner in the Course and Progress of it, so is the Idea more compleat, as well as more compounded: And this I conceive to be that Action of the Soul which is commonly called Reasoning; and the Conclusion is the new Impression made upon the Idea informing from the comparison of other Ideas which may be contain'd in the *major* and *minor* Propositions.

Now according as the Repository is stored with more and more Ideas, so has the Soul a greater variety to range and expatiate into, whether these Ideas are only the first and more simple, such as are the Results from the Impressions of the Senses; or the more compounded, such as are made by the Result of comparing several together: And therefore accordingly the Ideas that are made from fewer and more simple Ideas, are less compounded Ideas; and those which are made from a greater number, and those more compounded Ideas, are yet more and more compounded, and more and more accomplish'd and perfect. This will give some Reason why the younger and first Results of the Actions of the Soul in forming Ideas, are more simple and less perfect, and from whence the Results of the Actions of the Soul in the elder Years, become the more compounded and perfect.

The Soul a self-moving Principle.

The Soul then is the *Primum movens*, the self-moving Principle, which has in it self a Power of radiating every way *in Orbem* from its Center of being every instant and for ever, and so is always by means of that Radiation every where as it were actually present, in every point of the Sphere of its Radiation, though yet it may be supposed to be more immediately and powerfully present in the Center of its Being. It is not, I conceive, possible to be truly understood or described, but only by Similitude; and the best Similitude for that purpose, I conceive, is the Sun in the great World.

Compared to the Sun.

Now if we consider the Sun in the Great World, we shall find it first a Being which has in it self a Power of radiating or dispersing Light into the Whole of Nature, and (consequently by this its Influence) of being as it were every where present, and of being sensible of all those other Bodies that are placed any where throughout the whole *Expansum*: For as it doth by its Radiation influence and affect every Point of the Universe, so must there be a kind of reflex Influence upon it self from every such Point: For as any one, and every one Ray it sends forth, does meet with and affect any Body in its way, so consequently must that End of the Ray that touches the Sun, have a greater or less Resistance to be moved forwards; and consequently if there were Understanding in the Sun it self, it must be sensible that this or that Ray does somewhere in its Progress receive such or such an Impediment to its Propagation or moving forwards that way. And be not only sensible, that somewhere that Ray meets with an Impediment, but it may be sensible also at what distance that Impediment or Re-action is given to its Progress: For supposing the Resistance or Re-action of all those impeding Objects, where-ever placed, to be in themselves equal, the Impediment or Resistance to that End of the Ray that is moved by the Sun, must receive a Resistance proportion'd to the nearness of the impeding or re-acting Object; and consequently the Impediment made thereby upon the End of the Ray protruded by the Sun, must be reciprocally proportionate to the Distances of the impeding Object; and consequently by the proportion'd Resistance or Re-action of the Objects, there is a manifest Distinction at that End of the Ray that touches the Sun, of the Distance of the Object touched by it. Next by the number of the Rays that receive Impediment from that Object, there is a manifest Distinction of the bigness of that Object; for if the Angle of the Cone of Rays that receive Resistance from any Object,

be

be actually made and has its Being at the Sun, and that the Distance of that Resistance be likewise distinguishable at the Apex of it at the Sun, then is there a Manifestation or Indication at the Superficies of the Sun (by means of this Radiation) both of the Distance of the affected or affecting Object, and of the Angle or Magnitude of it at that distance, and not only of the Magnitude and Distance, but of the differing nature of the Resistance or Re-action of the Object of such a bulk and such a distance, by the consecution of momentary Impressions. This I could plainly demonstrate by a Similitude drawn from the Action made upon the Organ of Hearing, from which the Ear is not only inabled to judge of the Magnitude and Distance of the Sound, but of the Flatness and Sharpness, the Musicalness and not Musicalness by the like Distinctions in it.

But it may be much better explain'd by the Eye, wherein we find, that though there be no Radiation immediately emitted by the Eye, which would make the Reactions to the Center the stronger; yet is the Eye able by the reflected Reactions only of Objects that are acted directly upon by the Sun, to discover the Figure, Colour, Magnitude, Distance, *&c.* of all Objects from which there can come to it self that free Radiation. So that the Soul in the Center of the Repository, is sensible of all the Ideas placed in it, as the Eye is sensible of all things that are placed before it.

Next, if we consider the Sun in the Great World, we shall find it to be placed in the Center of a Space, all which Space, and all Bodies placed within that Space, it does more particularly influence by an attractive Power of drawing all bulky Bodies to it, or of commanding all the Motions of them; and consequently may have sense of the Renitency of Bodies, as well as of the Motions and Distances of each of them. So that all Bodies, more especially within the Sphere of its Activity, do receive a double Influence from it; first of being radiated, inlightned and vivified; and secondly of being regulated and govern'd in their Motions by it. And hence the Bodies so placed, as they have each of them peculiar Properties, Shapes and Motions of their own, so have they also particular Influences, Radiations, Excitations and Regulations communicated to them from the Sun, which gives them not only their regulated Motions and Positions, but also a kind of new Being or Activity, by which they become visible and sensible to the rest of the World, which would otherwise be dark and insensible, and vagrant here and there uncertainly in the *Expansum* of the Universe. So that the Soul forms to it self a Microcosm, or Picture of the Macrocosm, in which it radiates, and is sensible of every thing contain'd therein, in the same manner as the Sun in the Macrocosm.

Somewhat of this kind is the Influence of the Soul upon the Ideas placed within the Sphere of its Radiation: And though I cannot cenceive how the Soul, which is incorporeal, should move and act upon the Ideas which are corporeal, or how those on the other side should by their Proprieties, Qualifications and Motions, re-act upon and influence the Soul; yet I am assured, that such Effects are performed both by the one and the other Beings; and without them, neither the Sensation, Cognition, Remembring, nor Ratiocination, could be performed; all which are plainly the Results of the conjunct Influences of the Soul, and the Ideas or Bodies placed within the Repository or Sphere of its Activity.

Now though by what I have been saying, I have endeavour'd to shew that the Soul has by its Radiation a more than ordinary and commanding Power over all the Ideas placed within the Repository; yet I would not be understood so to limit its Sphere of Radiation, as not to suppose that it may have a much bigger Sphere of influencing Power, and thereby may extend it, not only to all and every Point of the Body inlivened and preserved by it; but possibly it may extend even out of the Body, and that to some considerable Distance, and thereby not only influence other Bodies, but be influenc'd by them also. And upon this account I could produce a Multitude of Observations and Reasons, to prove not only the Possibility, but the Probability, nay almost Certainty of such an Influence, and this from the Sensibleness of others Ideas, *Lupus in Fabula*, *Fascination*, &c. of which possibly some other time.

Here

Here our Author leaves off, nor as I can find, ever reassumed this Subject; and though possibly some Persons may imagine that the foregoing Explication of these abstruse Actings of the Soul is too mechanical, and tends to the making the Soul a material Being, yet I hope the candid Reader, perusing it without prejudice, will not find the least Cause for such an Imputation, it being throughout the whole Discourse asserted and shewn to be a Spiritual, Immaterial and Self-moving Principle; and it is granted by all Men, that it both acts and is reacted upon by Body, only our Author supposes the Pictures conserving the Ideas to be material, which I hope cannot justly give offence: However, as I have said in the Preface, I hold my self not in the least obliged to defend or maintain any of his Opinions or Discourses, but fairly present them to the Ingenious as he left them. The next that follows is a Discourse of Comets wrote about Michaelmas *in the Year* 1682, *containing a Physical Hypothesis and Explication of them, from Observations made of one that appeared in* August 1680, *and on that very unusual one apppearing in* December *the same Year, and the beginning of the next Year, and on the following in* August 1682. *Wherein, after an Introduction, and setting down several Opinions of Authors that have wrote of Comets, he gives us his own Observations, Hypothesis and Explication.* R. W.

Hooke, Robert. The posthumous works of Robert Hooke, M.D. S.R.S. Geom. Prof. Gresh. &c. containing his Cutlerian lectures, and other discourses, read at the meetings of the illustrious Royal Society. In which I. The present Deficiency of Natural Philosophy is discoursed of, with the Methods of rendering it more certain and beneficial. II. The Nature, Motion and Effects of Light are treated of, particularly that of the Sun and Comets. III. An Hypothetical Explication of Memory; how the Organs made use of by the Mind in its Operation may be Mechanically understood. IV. An Hypothesis and Explication of the cause of Gravity, or Gravitation, Magnetism, &c. V. Discourses of Earthquakes, their Causes and Effects, and Histories of several; to which are annext, Physical Explications of several of the Fables in Ovid's Metamorphoses, very different from other Mythologick Interpreters. VI. Lectures for improving Navigation and Astronomy, with the Descriptions of several new and useful Instruments and Contrivances; the whole full of curious Disquisitions and Experiments. Illustrated with sculptures. To these discourses is prefixt the author's life, giving an Account of his Studies and Employments, with an Enumeration of the many Experiments, Instruments, Contrivances and Inventions, by him made and produc'd as Curator of Experiments to the Royal Society. Publish'd by Richard Waller, R. S. Secr. Printed by Sam. Smith and Benj. Walford (printers to the Royal Society) at the Princes Arms in St. Paul's Church-Yard, 1705. Eighteenth Century Collections Online, link.gale.com/apps/doc/CW0116991204/ECCO?u=sain79627&sid=gale_marc. Accessed 2 Sept. 2026.