An Answer to Four Papers of Mr. Hobs, *lately Published in the Months of* August, *and this present* September, 1671.

In the former part of his first Paper;

BY reason of a Proposition of Dr. *Wallis* (*Prop.* 1. *Cap.* 5. *De Motu*) to this purpose (for he doth not repeat it *Verbatim*:) *If there be supposed a row of Quantities infinitely many, increasing according to the natural Order of Numbers,* 1,2,3,&c. *or their Squares,* 1,4,9,&c. *or their Cubes,* 1,8,27,&c. *whereof the last is given. It will be a row of as many, equal to the last, in the first case, as* 1 *to* 2; *in the second case, as* 1 *to* 3; *in the third, as* 1 *to* 4, &c. (Where all that is affirmed, is but; *If we SUPPOSE That; This will Follow.* Which Consequence Mr. *Hobs* doth not deny: and therefore all that he saith to it, is but Cavilling.)

Mr. *Hobs* moves these Questions, (and proposeth them to the *Royal Society*, to pass a judgment on them.) 1. *Whether there can be understood* (he should rather have said, *supposed*) *an infinite row of Quantities, whereof the last can be given.* 2. *Whether a Finite Quantity can be divided into an Infinite Number of lesser Quantities, or a Finite quantity consist of an Infinite Number of Parts.* 3. *Whether there be any Quantity greater than Infinite,* 4. *Whether there be any Finite Magnitude of which there is no Center of Gravity.* 5. *Whether there be any Number Infinite.* 6. *Whether the Arithmetick of Infinites be of any use, for the confirming or confuting any Doctrine.*

For answer. In general, I say, 1. Whether those things *Be* or *Be not*; yea, whether they *Can* or *Cannot be*; the Proposition is not at all concerned, (which affirms nothing either way;) but, whether they can be *supposed*, or made the *supposition, in a conditional Proposition.* As when I say, *If* Mr. Hobs *were a Mathematician, he would argue otherwise*; I do not affirm that either *he is*, or ever *was*, or *will be* such. I only say (upon supposition) *If he were*, what he is not; he would not do as he doth. 2. Many of these *Quære's* have nothing to do with the Proposition: For it hath not one word concerning *Gravity*, or *Center of Gravity*, or *Greater than Infinite.* 3. That usually in *Euclide*, and all after him, by *Infinite* is meant but, *More than any assignable Finite*, though not Absolutely Infinite, or the greatest possible. 4. Nor do they mean, when Infinites are proposed, that they should *actually Be*, or be *possible to be performed*; but only, that they be *supposed*. (It being usual with them, upon *supposition* of things *Impossible*, to infer useful Truths.) And *Euclide* (in his second *Postulate*) requiring, *the producing a streight line Infinitely, either way*; did not mean, that it should be *actually performed*, (for it is not possible for any man to produce a streight line Infinitely;) but, that it be *supposed*. And if AB * be *supposed* so produced, though but one way; its length must be *supposed* to become *Infinite* (or *more than any Finite length assignable*;) For, if but *Finite*, a Finite production would serve. But, if so produced both ways; it will be yet *Greater*, that is, *Greater than that Infinite*, or Greater than was necessary to make it more than any Finite length assignable. (And whoever doth thus *suppose Infinites*; must consequently *suppose*, *One Infinite greater than another*.) Again, when (by *Euclide's* tenth Proposition) the same AB *, may be *Bisected* in M. and each of the halves in *m*, and so onwards, *Infinitely*: it is not his meaning (when such continual section is proposed) that it should be *actually done*, (for, who can do it?) but that it be *supposed*. And upon such (*supposed*) section *infinitely continued*, the parts must be (*supposed*) *infinitely many*; for no *Finite* number of parts would suffice for *Infinite* sections. And if further, the same AB so divided, be *supposed* the side of a Triangle ABC *; and, from each point of division, *supposed* lines (as mc, Mc, &c.) parallel to BC: these parallels (reckoning downward from A to BC) must consequently be (*supposed*) *infinitely many*; and those, in *Arithmetical progression*, as 1, 2, 3, &c. each exceeding its Antecedent as much as that exceeds the next before it;) and, *whereof the last* (BC) *is given*: (and their Squares, as 1, 4, 9, &c. their Cubes, as 1, 8, 27, &c.) And this I say, to shew that the *supposition of Infinites* (with these attendants) is not so new, or so *Peculiar* to *Cavallerius* or Dr. *Wallis*, but that *Euclide* admits it, and all Mathematicians with him; as at least *supposable*, whether *Possible* or not.

*See *Tab*. I. *n*. II.

*See *Tab*. I. *n*. III.

*See *Tab*. I. *n*. IV.

In particular, therefore, to his *Quære's*, I answer, 1. There may be *supposed* a row of Quantities *Infinitely many*, and *continually increasing*, (as the supposed parallels in the Triangle ABC, reckoning downwards from A to BC,) *whereof the last* (BC) *is given*. 2. A Finite Quantity (as AB) may be *supposed* (by (by ſuch continual Biſections) diviſible into a number of parts *Infinitely many* (or,more than any Finite number aſsignable:) For there is no ſtint beyond which ſuch diviſion may not be *ſuppoſed* to be continued; (for ſtill the laſt, how ſmall ſoever, will have two halves;) And, all thoſe Parts *were in* the Undivided whole; (elſe,where ſhould they be had?) 3. Of *ſuppoſed* Infinites,one may be *ſuppoſed* greater than another: As a, *ſuppoſed*,infinite number of *Men*,may be *ſuppoſed* to have a *Greater* number of eyes. 4. A ſurface, or ſolid, may be *ſuppoſed* ſo conſtituted, as to be *Infinitely Long*, but *Finitely Great*, (the Breadth continually Decreaſing in greater proportion than the Length Increaſeth,) and ſo as to have *no Center of Gravity*. Such is *Toricellio's Solidum Hyperbolicum acutum*; and others innumerab'e,diſcovered by Dr.*Wallis*, Monſieur *Fermat*,and others. But to determine this,requires more of *Geometry and Logick* than Mr.*Hobs* is Maſter of. 5. There may be *ſuppoſed* a number *Infinite*; that is, greater than any aſsignable Finite: As the *ſuppoſed* number of parts, ariſing from a *ſuppoſed* Section *Infinitely continued*. 6.There is therefore no reaſon,on this account, why the Doctrin of *Euclide, Cavallerius*, or Dr. *Wallis*, ſhould be rejected as of no uſe.

But having ſolved theſe *Quære's*, I have ſome for Mr. *Hobs* to anſwer, which will not ſo eaſily be diſpatched by him. For though *Suppoſed Infinites* will ſerve the Mathematicians well enough: yet, howſoever he pleaſe to prevaricate (which, he ſaith, is *for his Exerciſe*,) Mr.*Hobs* himſelf is more concerned than they,to ſolve ſuch *Quære's*. Let him ask himſelf therefore, if he be ſtill of opinion,that *there is no Argument in nature to prove, the World had a Beginning*: 1. Whether,in caſe it had not, there muſt not have paſſed an *Infinite number of years* before Mr. *Hobs* was born. (For,if but *Finite*,how many ſoever,it muſt have begun ſo many years before.) 2. Whether,now, there have not paſſed *more*; that is,*more than that infinite* number. 3. Whether, in that *Infinite* (or *more than infinite*) number of *Years*, there have not been a *Greater* number of *Days* and *Hours*: and, of which hitherto,*the laſt is given*. 4. Whether,if this be an Abſurdity, we have not then (contrary to what Mr. *Hobs* would perſwade us) an *Argument in nature* to prove,*the world had a beginning*. Nor are we beholden to Mr.*Hobs* for this Argument; for it was an Argument in uſe before Mr.*Hobs* was born. Nor can he ſerve himſelf (as the Mathematicians do) with *ſuppoſed Infinites*; For his Infinites, and more than Infinites of Years, Days, and Hours, *already paſt*, muſt be *Real Infinites*, and which have *actually exiſted*, and whereof the *laſt is given*; (and yet there are more to follow.) Mr. *Hobs* ſhall do well (for his Exerciſe) to ſolve *theſe*, before he propoſe more *Quære's* of *Infinites*. And this I ſay, to ſhew that Mr. *Hobs* is, as much as any, concerned to ſolve the *Quære's* by himſelf propoſed.

In the latter part of his firſt Paper,

HE gives us (out of his *Roſet. Prop.* 5.) this Attempt of *Squaring the Circle. Suppoſe* DT *be* $\frac{2}{3}$ DC, *and* DR *a mean proportional between* DC *and* DT: *the Semidiameter* DC *will be equal to the Quadrantal Arc* RS, *and* DR *to* TV.

That the thing is falſe, is already ſhewed in the Latin Confutation of his *Roſetum*, publiſhed in the *Philoſophical Tranſactions* for *July* laſt paſt.

As it is now in the Engliſh; his Demonſtration is peccant in theſe words, (*Col.* 2. *lin.* 31, 32, 33.) *Therefore -- the Arc on* TV, *the Arc on* RS, *the Arc on* CA, *cannot be in continual proportion*; (with all that follows:) There being no ground for ſuch Conſequence.

And the thing is manifeſt *; for ſince that, by his conſtruction,
DC. CA. Arc on CA extended ∺
DR. RS. Arc on RS extended ∺
DT. TV. Arc on TV extended ∺
} are *in the ſame cantinual proportion, of the Semidiameter to the Quadrantal Arc*;

Let that proportion be *what you will*; ſuppoſe, as 1 to 2; and conſequently, DC to CA being as 1 to 2, it will be to the Arc on CA, as 1 to 4: And by the ſame reaſon, DR to the Arc on RS, and DT to the Arc on TV, muſt alſo be as 1 to 4: And therefore the Arcs on TV, on RS, on CA; that is, 4 DT, 4 DR, 4 DC; will be in the ſame proportion to one another, as (their ſingles) DT, DR, DC: But theſe (by conſtruction) are in continual proportion; therefore thoſe Arcs alſo, as they ought to be. Indeed, if (by changing ſome one of the terms) you deſtroy (contrary to the Hypotheſis) the continual proportion of DT, DR, DC, you will deſtroy that of the Arcs alſo (which are ſtill proportional to theſe:) but ſo long as DT, DR, DC, be in *any* continual proportion

* See *Tab.* 1. *n.* V.

portion

portion (whether that by him afsigned or any other) thofe will be in the fame continual proportion with them. As if for DT, DR, DC, be taken Dt, Dr, DC, in any continual proportion (greater, lefs, or equal to his) the Arcs on *tu*, on *rs*, on CA, (extended) will be in the fame continual proportion.

But (which is the common fault of Mr. *Hobs*'s Demonftration) if this Demonftration were good, it would ferve as well for any propofition as that for which he brings it. For if, instead of $\frac{2}{5}$, he had faid, $\frac{4}{9}$, $\frac{1}{2}$, $\frac{1}{100}$, or what elfe he pleafed; the Demonftration had been juft as good as now it is, without changing one fyllable: That is, it will equally prove the proportion of the Semidiameter to the Quadrantal Arc, to be, *what you pleafe*: As any may prefently fee, who doth but read over his Paper.

In his fecond Paper,

HE pretends to *confute a Theorem, which hath a long time paffed for truth*; (and therefore doth no more concern Dr. *Wallis*, than other men.) And 'tis this, *The four fides of a fquare being divided into any number of equal parts, for example, into* 100; *and ftreight lines drawn through the oppofite points, which will divide the Squares into* 100 *leffer Squares: The received opinion* (faith he) *and which* Dr. Wallis *commonly ufeth, is, that the Root of thofe* 100, *namely* 10, *is the fide of the whole Square.* Which to confute, he tells us, *The Root* 10 *is a number of Squares, whereof the whole contains* 100; *and therefore the Root of* 100 *Squares is* 10 *of thofe Squares, and not the fide of any Square; becaufe the fide of a Square is not a Superficies, but a Line.*

For Anf. I fay, that 'tis neither the opinion of Doctor *Wallis*, nor (that I know) of any other (fo far is it from being a *Received Opinion*, which Mafter *Hobs* infinuates as fuch) that 10 is the Root of 100 *Squares* (For furely a *Bare Number* cannot be the fide of a *Square Figure*:) Nor yet (as Mafter *Hobs* would have it) that 10 *Squares* is the Root of 100 *Squares*: But that 10 *Lengths* is the Root of 100 *Squares*. 'Tis true that the *Number* 10 is the Root of the *Number* 100, but not, of a 100 *Squares*: and, that 10 *Squares* is the Root (not of 100 *Squares*, but) of 100 *Squared Squares*: Like as 10 *Doufen* is the Root, not of 100 *Doufen*, but of 100 *Doufen doufen*, or *Squares of a Doufen*. And, as, there,

there, you must multiply not only 10 *into* 10, but *Dousen into Dousen*, to have the Square of 10 *Dousen*; so here 10 *into* 10 (which makes a 100) and *Length into Length* (which makes a *Square*) to obtain the Square of 10 *Lengths*, which is therefore 100 *Squares*, and 10 *Lengths* the Root or side of it. But, says he, the Root of 100 *Soldiers*, is 10 *Soldiers*. *Answer*. No such matter: For 100 *Soldiers* is not the product of 10 *Soldiers into* 10 *Soldiers*, but of 10 *Soldiers into* the *Number* 10: And therefore neither 10, nor 10 *Soldiers*, the Root of it. So 10 *Lengths* into the *Number* 10, makes no Square, but 100 *Lengths*; but 10 *Lengths* into 10 *Lengths* makes (not 100 *Lengths*, but) 100 *Squares*.

So in all other proportions: As, if the number of *Lengths* in the *Square side* be 2; the number of *Squares* in the *Plain* will be *twice two*, (because there will be *two* rows of *two* in a row:) If the number of *Lengths* in the *side*, be 3; the number of *Squares* in the *Plain*, will be 3 times 3, or the Square of 3: If that be 4, this will be 4 times 4: And so in all other proportions. Of which, if any one doubt he may believe his own eyes *.

* See Tab. I. n. VI. VII. VIII. IX.

And this Mr. *Hobs* might have been taught by the next Carpenter (that knows but how to measure a Foot of Board) who could have told him, that because the *side* of a Square Foot, is 12 *Inches in* Length, the Plain of it will be 12 *times* 12 *Inches in Squares*: Because there will be 12 Rows of 12 in a Row.

His third Paper,

WHich came out just as the Answer to the two former was going to the Press, contains, for substance, the same with his second, and the Latter part of the first: And so needs no farther Answer.

Only I cannot but take notice of his usual trade of contradicting himself. His second Paper says, *The side of a Square is not a Superficies, but a* Line: His third says the quite contrary, (Prop. 1.) *A Square root, (speaking of Quantity) is not a* Line, *but a Rectangle*. Other faults, falsities, and contradictions, there are a great many.

As for Instance: He tells us first, *In the natural Row of Numbers*, as 1, 2, 3, 4, 5, 6, &c. *every one is the Square of some number in the same Row*; (that is, of some Integer number; which

which is notoriously false.) This he contradicts in the very next words, *But Square numbers (beginning at 1) intermit first two numbers, then four, then six, &c; so that none of the intermitted numbers is a Square number, nor hath any Square root.* (If these *intermitted numbers*, between 1, 4, 9, 16, &c. *be not Squares* how is it that *every one* in the whole row is a *Square*, and that of some Integer number?) But this again is contradicted *prop.* 2. where 200 (one of such intermitted numbers) is made a *Square*, and $14\frac{4}{14}$ the *Root* of it.

Again; in his *Definition* he tells us, that *a Square Root multiplied into it self produceth a Square:* But (*prop.* 2.) he multiplieth *the Root* $14\frac{4}{14}$ (not into it self, but) into 14 (a part thereof,) to make 200, which he will have to be *the Square* of that Root. Nor is it a meer slip of negligence in the computation, but his Rule directs to it; *Any number given is produced by the greatest Root multiplied into it self, and into the remaining Fraction.* Whereof he gives this instance: *Let the number given be* 200 *Squares, the greatest Root is* $14\frac{4}{14}$ *Squares* (he should rather have said *Lengths*; but that is a small fault with him;) *I say, that* 200 *is equal to the product of* 14 *into it self* (*which is* 196,) *together with* 14 *multiplied into* $\frac{4}{14}$ (*which is equal to* 4:) that is $14\frac{4}{14}$ multiplied into 14. But this calculation is again contradicted in his third proposition, where he calculates *the same Square* otherwise, as we shall see by and by. In the mean time let's consider this alone, and see the contradictions within it self. His Rule bids us multiply *the greatest Root into it self*, &c. This *greatest Root* he says is $14\frac{4}{14}$; yet doth he not multiply this, but 14 (a part thereof) *into it self and into the Fraction* $\frac{4}{14}$. Again; if $14\frac{4}{14}$ be *the greatest Root*, what shall be *the remaining Fraction*? Doth he take the Root of 200 to be more than $14\frac{4}{14}$ by some further *remaining Fraction*? If so, he should have told us what that Fraction is; for $\frac{4}{14}$ it is not, this being part of his *greatest Root* $14\frac{4}{14}$. But if we should allow (as I think we must,) that by *the greatest Root* he means sometimes $14\frac{4}{14}$, sometimes 14, (that is, if we allow him to contradict himself,) yet how comes he by the Fraction $\frac{4}{14}$? For, $\frac{2}{14}$ is too much (the square of $14\frac{2}{14}$ being more then 200, as by multiplying $14\frac{2}{14}$ into it self will appear;) which destroys his whole design; for 14, multiplied into $14\frac{2}{14}$, will not make 200, but 198; contrary to his rule. But further, it is so gross a mistake, to make 200 the Square of $14\frac{2}{14}$, that every Apprentice boy, (that can but multiply whole numbers, and fractions,) could have informed him better, who would first have reduced the fraction to smaller terms, putting $14\frac{2}{7}$ for $14\frac{4}{14}$, and then multiplying $14\frac{2}{7}$ into it self, would have shew'd him, that the Square of $14\frac{4}{14}$, that is, $14\frac{4}{14}$ multiplied into it self, is (not 200, but) $204\frac{4}{49}$.

But the Root of 200, is the said number $10\sqrt{2}$, which is less than $14\frac{2}{14}$, and bigger than $14\frac{2}{15}$: the Square of that being somewhat more than 200; and, of this, somewhat less; but either of them within an unite of it.

$$
\begin{array}{r}
14\frac{2}{7} \\
14\frac{2}{7} \\
\hline
56 \\
14 \\
4 \\
4 \\
\frac{4}{49} \\
\hline
204\frac{4}{49}
\end{array}
$$

But this second Proposition, is (as I said) contradicted by his third, which makes the Square of $14\frac{4}{14}$ to be $200\frac{1}{49}$, (by what computation, we shall see by and by;) and then finds fault, that this and the former do not agree. (But 'tis no wonder they should disagree, when both are false.) *The same Square* (saith he) *calculated Geometrically, consisteth (by Euclid. 2.4.) of the same numeral great Square 196, and of two Rectangles under the greatest side 14 and the Remainder of the side, and further of the Square of the less segment; which altogether make* $200\frac{1}{49}$. (He might have learned to reckon better; but let us see how he makes it out.) *As by the operation it self* (saith he) *appeareth thus: The side of the greater segment is* $14\frac{4}{14}$ (this was, but now, the side of the whole square, how comes it now to be but the side of the greater Segment?) *which multiplied unto it self* (saith he) makes 200: (no; but $204\frac{4}{49}$:) *The product of* 14 *the greatest Segment into the two Fractions* $\frac{4}{14}$ is 4, *and that added to* 196 *makes* 200: (if by two fractions $\frac{4}{14}$, he mean, as he ought by his Rule, the Fraction 4 twice taken, or the double of it, it will be not 4, but 8, and this added to 196 make 204; But all this he puts in his pocket, for it comes not into account at all.) *Lastly, the product of* $\frac{2}{14}$ *into* $\frac{2}{14}$, *or* $\frac{1}{7}$ *into* $\frac{1}{7}$ *is* $\frac{1}{49}$; which with the first 200 makes $200\frac{1}{49}$: (But he forgets himself, for his lesser segment was not $\frac{2}{14}$, but $\frac{4}{14}$; he should therefore have said $\frac{4}{14}$ into $\frac{4}{14}$, or $\frac{2}{7}$ *into* $\frac{2}{7}$, is $\frac{4}{49}$.) His calculation therefore should have been this: The greater segment is (not $14\frac{4}{14}$, but) 14; which multiplied into it self makes (not 200, but 196): The Rectangle of the greater segment 14, into the lesser $\frac{4}{14}$, is 4: And this taken a second time, is another 4: The lesser segment (not $\frac{2}{14}$, but) $\frac{4}{14}$, or $\frac{2}{7}$, multiplied into it self, is (not

(not $\frac{1}{49}$, but) $\frac{4}{49}$: All which added together make not 200$\frac{1}{49}$, but 196 + 4 + 4 + $\frac{4}{49}$ =) 204$\frac{4}{49}$, which is just the same with 14$\frac{2}{14}$ multiplied into it self. So that, had he known how to multiply a number into a number, especially when incumbred with fractions (which it is manifest he doth not,) he would have found no disagreement between the *Arithmetical calculation*, and what he calls the *Geometrical*. But I am ashamed (for him) that so great a pretender to such high things in Geometry, should be so miserably ignorant of the common operations of practical Arithmetick.

His repeated Quadrature he now expresseth thus, *The Radius of a Circle is a mean Proportional between the Arc of a Quadrant and two fifths of the same.* But instead of *two fifths*, he might as well have said the *half*, or *tenth*, or *hundredth part*, &c; or (taking T in DC produced beyond C,) the *double, decuple, centuple, &c.* or *what you please*: For his Demonstration would have proved it, which is this. *Describe a Square ABCD, and in it a Quadrant DCA. In the side DC* (continued if need be,) *take DT two fifths of DC*, (or its Half, Double, Hundredth part, or what you please;) *and between DC and DT a mean proportional DR; and describe the Quadrantal Arcs RS, TV. I say, the Arc RS is equal to the streight line DC. For seeing the proportion of DC to DT is duplicate of the proportion of DC to DR, it will be also duplicate of the Proportion of the Arc CA to the Arc RS, and likewise duplicate of the Proportion of the Arc RS to the Arc TV. Suppose some other Arc, less or greater than the Arc RS, to be equal to DC, as for example* rs; *Then the proprrtion of the Arc* rs *to the streight line DT will be duplicate of the proportion of RS to TV, or DR to DT, which is absurd; because D*r *is by construction greater or less than DR. Therefore the Arc RS is equal to the side DC; which was to be demonstrated.* Which demonstration therefore proving indifferently *every* proportion, doth not indeed prove *any*. In brief: The force of his Demonstration is but this; *DT being to DC as* 2 *to* 5 (or in any other proportion) *and DR a mean proportional between them; RS will be so between TV and CA; and therefore* rs (*greater or less than RS,*) *will not be a mean proportional between TV and CA*: which is true; *but why it may not be equal to DC*, we have nothing but his word for it; there being nothing to shew, that *DC is equal to such a mean proportional*. Again; though *rs* be not a mean proportional between TV and CA, yet it may be between *tv* and CA, which serves his Demonstration as well;

 which

which is indifferent to any three continual proportionals,as was ſhewed before.So that now we have had three Demonſtrations of this Quadrature,(in his *Roſetum*, in his *firſt* paper, and in his *third,*) and this common fault in all of them, that they equally prove the proportion by him propoſed, or any other what you pleaſe. But ſuch his Demonſtrations uſe to be.

And this is what I thought fit to ſay to Mr.*Hobs's* ~~Four~~ Three *Papers* (rather to ſatisfie the importunity of others, than becauſe I thought them worth Anſwering*:*) And ſubmit the whole,with all Reſpects, to the *Royal Society*, to whom Mr. *Hobs* makes his Appeal.

His Fourth Paper;

WHich came out ſince the *Three former* were anſwer'd, (containing ſome faint endeavors to re-aſſert ſome things in them,) is but meer Trifling, or worſe than ſo.

What he would therein inſinuate concerning *God* (that we may as well prove *Him* to have had a Beginning, as that the World had) ſmells too rank of Mr.*Hobs*. We are not to meaſure Gods *Permanent* Duration of Eternity, by our *ſucceſſive* Duration of Time: Nor,his Intire *Ubiquity*,by Corporeal *Extenſion*.

What in it concerns *Mathematicks*, (whether his own or others,)is ſo weak and trivial,(and ſaid only,that he may ſeem to ſay ſomething,though nothing to the purpſe,) that I ſhall truſt it with thoſe to whom he makes his appeal, without thinking it to need any Reply; The view of what he writeth againſt, being a ſufficient Anſwer to all he ſaith.

New Obſervations of Spots *in the* Sun; *made at the Royal Academy of* Paris,*the* 11,12 *and* 13*th of* Auguſt 1671; *and Engliſh't out of the French,as follows.*

IT is now about twenty* years ſince, that Aſtronomers have not ſeen any conſiderable *Spots* in the Sun,though before that time, ſince the Invention of Teleſcopes, they have from time to time obſerved them.The Sun appeared all that while with an entire brightneſs,and Signor *Caſſini* ſaw him ſo the *ninth* of this month of *Auguſt*.

* *See* Numb.74.*p.* 2216; *whence it will appear, that ſome ſuch Spots were ſeen here in* London, *A.*1660. *And Monſ.* Picard *affirm'd to Dr.* Fogelius *at* Hamburg, *that he had ſeen ſome in* October 1661. *witneſs the ſaid* Doctor's *own Letter, written to the Publiſher* Auguſt 11th *laſt.*

But

Tab. I. Trans. No 75.