
THE principal Design of this excellent Treatise, is (in the Words of its Ingenious Author) To present the younger sort of our Nobility and Gentry with a Compendious, Pleasant, and Methodical Tract of MODERN GEOGRAPHY, that most useful Science which highly deserves their Regard in a peculiar manner. It consists of two Parts, whereof the first gives a General, and the second a particular View of the Terraqueous Globe.

In the General View, the Author has (1.) Illustrated, by way of Definition, Description, or Derivation, such Terms as are necessary for a right Understanding of the Globe, adding Analytical Tables of the following Treatise. (2.) He hath given in such pleasant Problems, as are performable by it, and the manner of their Performance. (3.) He hath subjoyn'd divers plain Geographical Theorems, clearly deducible from the foregoing Problems. (4.) He has advance'd some Paradoxical Positions in Matters of Geography, yet equally certain with the Theorems. Lastly, He has taken a Transient Survey of the whole Surface of the Earth, as it consists of Land and Water. Next in the particular View he has
has given the Maps, and a clear Prospect of all remarkable Countries, and their Inhabitants, particularly as to their.

1. **Situation**, both for Latitude and Longitude, for the more readily knowing them.

2. **Extent**, or true Dimension in English Miles, from East to West, and from South to North.

3. **Division**, into the more general Parts, and how such Parts are readily found.

4. **Sub-division**, into particular Provinces, how these are most readily found.

5. Chief Towns, giving their modern Names, and how those Towns are most readily found.

6. **Names**, as called by the Ancients, or by some more Modern, with the Etymology of the English Name.

7. **Air**, as to its Temperature, as also the **Antipodes** of that part of the Globe.


9. **Commodities**, there produced.


11. **Arch-bishopricks**, their Number and Names.

12. **Bishopricks**, their Number and Names.

13. **Universities**, their Number and Names.

14. **Manners**, that is, the natural Genius and Temper of the People, and their most noted Customs.

15. **Language**, its Composition and Propriety, and in many the **Pater Noster** as a Specimen thereof.


17. **Arms**, how Blazoned, and the proper **Mottos**.

18. **Religion**, the chief Tenets thereof, and when, and by whom Christianity was planted, if at all.

To these, two Parts is annex'd an **Appendix**, comprehending the European Plantations, and Factories in Asia, Africa.
The Celestial World Discover'd, or Conjectures concerning the Inhabitants, Plants, and Productions of the Worlds in the Planets. Written in Latin by Christianus Huygens, and Inscribed to his Brother Constantine Huygens, late Secretary to His Majesty King William, in 8vo, with 5 Copper Cuts of Illustration.

The Ingenious Author of this Discourse, having spent much Time, and taken great Pains in making Celestial Observations and Discoveries by Telescopes of the largest Sizes, and other Instruments; and having moreover acquainted himself with the latest and best Observations and Discoveries made by other Modern Astronomers; and having well weighed and considered the Import and Significance of them, comes in this Book to acquaint his Brother the Heer Constantine Huygens, (who was also a great lover of these Inquiries, and who was the Person that furnish'd him with the excellent Telescopes he made use of, Wrought with his own Hand, wherein he had for his Diversion acquired an extraordinary Art and Dexterity, unknown to any besides himself) and by the Publication of it, if he thought fit, likewise to acquaint the Learned World, what upon the Result of all, his Opinion and Belief was con-
cerning the Form, Structure, and Fabrick of the Universe, or the whole visible World, and the Reasons and Arguments that induced him thereunto, which he hopes may seem reasonable enough to Men Skilled in Geometrical, and Astronomical Sciences, such as he wishes his Readers may be. But because he was well aware that many of them might be Persons of differing Qualifications, and such as could not, or would not understand the Cogency of them, or from Prepossession would endeavour to Carp at, and make Arguments against the whole Doctrine there delivered, therefore he endeavours to Enumerate and Obviate such as are most likely to be produced for that end: The first of which he conceives, may be of such as are ignorant of Mathematical Knowledge, who will be apt to represent it as a Whimsey only of a disturbed Brain, they thinking it impossible to measure, or any wise to be ascertained of the Magnitudes and Distances of the Celestial Bodies, and as to the Earth’s Motions they look on them as Fictions, and not capable of being proved: To such he answers, that he does not assert those things as absolutely demonstrated, but rather as probable Conjectures, and that he leaves every one free to judge of them as they please. And to such as may think them useless, since they are only Conjectural, he answers, upon the same account, all other Physical Knowledge may be rejected, since that also for the most part is but Conjectural; and yet we know the Studies of those things are very commendable, and afford great Pleasure, Satisfaction, and Benefit, even to such as think them Contradictory to Holy Writ, to suppose other Worlds, or Animals then those of the Earth, because such are not mention’d in the History of the Creation. He thinks there has been enough said to shew that the Description of the Creation in the Bible, was only with Relation to the Earth, and not at all with Respect to the other Parts of the World, then what were here
visible; nor can it be Detrimental to Religion, but will,
be rather, as he conceives, a means to make Men have a
lesser Esteem of these Earthly Things, since they are but
small, with Respect to the other World, and to have a
greater Veneration and Adoration of that wonderful
Wisdom and Providence which is universally displayed
through the whole Fabric of the Universe. As to the
Form and Disposition of the Whole, and of the Parts of
this Universe, he agrees with the System of Copernicus;
for the better Explication of which he hath added two Fi-
gures, the first of which shews their Order and Positions,
and the second their Comparative Magnitudes. And
because by reason of the smallness of these Figures, the
true Proportions could not be sufficiently express, he has
added a particular Explication, expressing in Numbers
the Distances of their Orbs from the Sun in the Center,
and the Times of their Periods in them: Next of their par-
ticular Magnitudes, and so of their Proportions to each o-
ther, and to the Body of the Sun. And since it hereby
appears that the Earth is moved about the Sun, as well
as the other Planets, (which all the best of the Modern
Astronomers do now believe, and none but such as are
of a more dull Apprehension, or are otherwise over-pow-
ered by their Superiors, do deny, or make any scruple
positively to assert) and that those Planets are Enlight'ned
by the Sun in the same manner as the Earth is, and some
of them as $h$ and $t$ have their own Moons, or Secondary
Planets moving about them, sometimes Eclipsing them,
and Eclipsed by them as the Earth also is by its Moon,
and that some of them are much bigger, as well as some
others smaller than the Earth; and so that the Magni-
tudes are not proportion'd, either according to their
Order or their Distances; since also they are observed to
have the same kinds of Motion, both Annual and Diur-
nal, therefore he thinks it very probable that they do
resemble the Earth also in other Qualifications; for that
we have no Argument to the contrary why they should not, nor is this way of Reasoning from the Agreement in some to alike Agreement of other precarious, since 'tis the most usual Method of discovering the insensible Parts of the World by their Similitude to the more Sensible, as in Anatomy we judge of the Parts of a Creature, by the Similitude we find they have to the Parts of some other before known. From this Topick therefore he thinks we may safely conclude that the other Planets have solid Bodies, and Gravity towards their Centers, as the Earth hath since, we find them to have the same Figure, and the same Motions, and the same Concomitants, and that they have Atmospheres and Air, and Water, &c. And since it would be too great a Depreciating of them, and a too much Over-valuing of the Earth, to suppose them not to be likewise Adorned with the more admirable Productions and Fabricks of Plants, and Animals, which more evidently manifest the Wisdom and Design of the Divine Architect, which we find the Earth to be Enriched and Beautified with, but to suppose them only lifeless Lumps of Matter; as Earth, Water, &c. Or vast Deserts, barren Mountains, Rocks, &c. This he says would sink them too much below the Earth in Beauty and Dignity, which this Method of Reasoning will in no wise permit. He conceives therefore we must suppose, and believe them to have Animals as well as the Earth; and so of necessity Plants for their Nourishment. And those possibly not much different from those we have, both as to their outward Form, and as to their internal Structure, and as to their Method of Production, or Propagation, and their Increase or Growth. And that if there be any Difference, most probably it must arise from the differing Distances of those Globes from the Sun, which is more likely to affect the Matter than the Form. Wherefore though we can-
not be ascertained what these Differences are, yet we may reasonably conclude, that they are Composed of Solids and Fluids; for that the Production and Nutrition of these Animals must be made by Fluids; and thence also that the Parts of them for Motion must be somewhat like those of Terrestrial Animals; whether Beasts, Fishes, Birds, or Insects; that is, they must have Legs, Finns, Wings, &c. Though not exactly the same with ours, since the Fluids may be more various, as to their Number, and as to their Density, and as to their Rari- fication and Conglaciation, some of these Globes being much further off, and somewhat nearer to the Sun, and its powerful Rays. And so the Fluids of b and p may not be so apt to be Frozen, nor those of q and q to be Rarified into Vapours, neither of which would destroy the Form and Use of Water for the Vegetation of Plants.

And because though we should allow these Globes these Ornaments and Furniture, yet though we suppose them deprived of the principal Production and Master-piece of all, and for whose Use and Benefit all the rest seem to be made, we should too much Exalt and Over-value this Globe of the Earth, and too much Depreciate all the other. Therefore he thinks we must suppose them to have Rational Animals also, and that those have all those Senses, and other necessary Organs for Reasoning that Men have here, and that they do use them, and have procur'd thereby the same Advantages, and Improvement of that Faculty, that in the like Cases Men have done here upon the Earth. And since we find that Fire in many Cases is of great Use, he thinks that we must suppose it common to all the other Globes also. But to judge of the Magnitude, or exact Shape of those Animated Bodies in the other Planets, by the Magnitude of those Globes, he thinks we have no Medium.
to direct us, since we find that Nature does not restrain
itself to such Rules of Measure as might seem the best to
us. But since the Principal Use of Reason, which he sup-
poses to be the same as here seems to be for the Con-
templation of the Works of the Creatur, and the Im-
provement of Arts and Sciences, he conceives that those
Inhabitants do not only Contemplate and observe the
Stars, but that they have also made an Astronomy, and
Cultivated such Arts as conduce thereunto; as those of
Geometry, Arithmetick, Opticks, &c. and that of
Writing, by which they may Register their Observa-
tions to their Posterity. And thence he concludes they
must have Hands and Legs, or such like Limbs, and an
erect Face by which they may be enabled to perform
such Actions as are necessary for those Purposes, and in
general he thinks it probable that they may have many
Arts and Sciences, the same with ours, though possibly
not all, but yet others instead thereof, not less Valuable.
Nor would they seem less Wonderful and Pleasant to us,
could we be Transported thither by some powerful Ge-
nius, which since he despairs of, he endeavours in his
second Book to give us his Judgment concerning the
Phenomena of the Heavens, what they might appear to
one of us suppos'd to be there in one of them, which he
Founds on the Knowledge we now have of them, as to
Magnitude, Distance, &c. And here, after he has Cen-
sured Father Kircher's Iter Extaticum (a Book Publish'd on
the like Subject) he begins to tell what must be the Phae-
nomena of the Sun, and Planets, seen in &c, and next what
the same must be seen in Venus, which since with a sixty
Foot Telescope, and all his Diligence, he could never
discover to have Spots, or differently illuminated Parts,
as are visible in Mars, Jupiter, and Saturn: He Conje-
tures that the Reflection of Light from it is made by
the Atmosphere about it, and not by the Body it self.
Thirdly, What they are in Mars, which he makes much
less
then *Venus*, or the *Earth*, tho' without a *Moon*, and further distant from the Sun. And Fourthly, *What in Jupiter* and *Saturn*, which so vastly exceed all the other three, both for their Magnitude, and for their Concomitants, *Jupiter* having 4, and *Saturn* 5, together with a Ring, whereas the Earth has but one, and the other 3 none at all. Upon Explaining the Phenomena of these, he more largely insists, and has therein Summ'd up all the latest and best Phenomena that have been observed concerning them, as to the 5 *Moon's* about *Jupiter*, he confesses that he had not seen the 2 innermost of them, yet he Considers in the Observations of Monsieur Cassini, and suspects also that there may be more yet discovered, when the Glasses of 170, and 210 Foot made the most Accurate by his Brother, shall come to be used for that Purpose. But what to determin concerning the Furniture, or Nature of all these *Moon's*, though he thinks them to be much the same with that of our Moon, Yet as he conceives, being not sufficiently inform'd, by Observation, that the *Moon* has the like Furniture as the *Earth* has, he is at a Stand, and knows not well what to determin concerning them. He grants we can plainly discover that the *Moon* has Mountains, and Valleys, and other Asperities as the *Earth* has; but as he conceives there are no Seas nor Rivers, for that he thinks it more probable that those Spots which others have supposed Seas, are only great Plains of a darker Colour, his Reason is, for that there are divers inequalities to be discovered in them the same as in other Parts of its Surface, and from thence he imagines there can be no Rivers, and consequently no Water, nor any Atmosphere, or Air. These are the Difficulties which perplex him, which if he could have removed, and that he could have been assur'd there had been Water, he could have allow'd it all the other Priviledges, and with *Xenophanes* have furnish'd it with Inhabitants, Cities, &c. But as he conceives of
t, he can neither allow it to have Animals, no, nor Plants. And yet at last he says, 'tis not improbable but that it may have Plants and Animals too, but they must have another sort of Nourishment. Now by this Cure of the Moon he has pass'd the same upon all the other Moons, to wit the Concomitants of $4$ and $h$, which he judges to be of the same Nature, and to expose the same part always towards their primary Planet, as the Moon does to the Earth, by a Phenomenon of one of the Moons of $b$, the Consideration of which Suggested to him that the Phenomena of the Heavens must be to their Inhabitants, if they could have any, and for all the rest gives an Instance of those of the Moon. Then he proceeds to consider the Sun and the fix'd Stars, promising the Magnificence of the Solar Systeme; this he does by Words, because Schemes he could not render 'em large enough to represent the proportionate Magnitudes of the Orbs to the Minuteness of the Plenary Bodies; for the Orb of Saturn would require an Area of 360 Foot in Diameter, and that of the Earth, one of 36 Foot to draw them proportionate to the Globes, for the Orb of the Earth is 12000 times the Diameter of the Earth's Ball. And consequently the distance of the Earth from the Sun will be above 17 Thousand, or 17 Millions of German Miles. To make the largeness of these Distances the more conceivable, he Computes them by the Times that a Cannon-bullet (suppos'd to pass a hundred Fathom in a second of Time) would spend in passing those Spaces, whence he concludes it would be 25 Years passing to the Sun from the Earth, 125 from $4$, and 250 from $h$. Then he proceeds to consider the Body of the Sun, where he is nonplus'd, as about the Moon; for he is not satisfied whether it be a solid, or fluid Body, but he inclines to think it a Fluid. Next, he knows not what to think of Animals, or Vegetables in it, since there can be nothing like any thing we know, by reason of
of the continual Fire and Heat which would consume all such as we have here. He thinks therefore it might be made for the Illuminating and Enlivening of the Parts of the other Planets. And as for the fix’d Stars he conceives them to be so many Suns, and to be dispers’d in the vast Expansion of Heaven at various Distances, and each of them to have a proper System, and Planets moved about them. And tho’ it be impossible for us ever to see those Planets, by reason of their vast Distance, yet from the Analogy that is between the Sun and Stars, we may judge of the planetary Systems about them, and of the Planets themselves too, which probably are like the planetary Bodies about the Sun, (that is) that they have Planets and Animals, nay, and Rational ones too, as great Admirers and Observers of the Heavens as any on the Earth. This Represents to us a wonderful Scheme of the prodigious vastness of the Heavens; so that the distance between the Earth and the Sun, though of 17 Millions of German Miles, is almost nothing to the distance of a fix’d Star. And because of the Difficulty in making Observations for this Purpose, in the common Ways, he therefore proposes a new Method of his own for this Purpose, which he also explains, and by that one may the better conceive the vastness of the distance of one of the nearest, as for Instance from the Sun; which by this way he proves to be 27664 times the Distance of the Sun from the Earth; and to make this Distance yet more comprehensible, he makes use of the former Explication, by the time that a Cannon-bullet moved as swift, as hath been just now Explained. Wherefore multiplying 27664 by 25, he finds that a Cannon-bullet moving a hundred Fathom in a Second would be 700000 Years in its Journey betwixt us and the fix’d Stars; here by the way he makes some Reflections on Des Cartes’s Vortices, and explains his own Sentiments concerning the Present State of the Universe, nor will
he trouble his Mind about their beginning, or how made, as knowing it to be out of the reach of human Knowledge or Conjecture.

Upon the whole Matter you will here find the Ingenious Author's Opinion concerning the Universe with all the Arguments for it drawn from the most accurate Observations that have been hitherto made that are Pertinent thereunto. The only Failure, seems to come to be in his Opinion concerning the Moon and Secondary Planets. Upon which Subject, there may perhaps be shortly Published a Brief Discourse of one who is of a somewhat differing Sentiment.

III. Orang-Outang, five Homo Sylvestris: Or the Anatomy of a Pygme, compared with that of a Monkey, an Ape, and a Man. To which is added a Philological Essay concerning the Pygmies, the Cynocephali, the Satyrs and Sphinges of the Ancients, &c. By Edward Tyfon, M. D. Fellow of the Colledge of Physicians, and of the Royal Society, &c. London, in 4to. 1699.

The Ingenious Author of this Treatife, having of­ ten obliged the World with his Anatomical Discoveries and Observations on several curious Subjects, of which there is a Catalogue at the end of this Traeft, has here given us a very Ample, as well as Accurate Account of this strange, and indeed surprizing Animal, a Creature rarely, if ever seen by our World, at least in this Age, of which I shall give a short, and but imperfect Abstract; for to take notice of all that is Remarkable, were to Transcribe the whole, and refer the more Cur­ rious to the Perusal of the Discourse itself, well Merit­ing.
ting the Time of the most Knowing and Learned Re-
der, who will find ample Satisfaction therein.

And first in the Preface, our Author gives an Account of his Undertaking, viz. To give a Comparative Survey of this Animal, with a Monkey, an Ape, and a Man, shewing wherein they agree, and in what Particulars they differ from each other, and in the Philological Essay, he proves there were such Creatures as the Ancients called Pygmies, Cynocephali, &c. And that these were all either Apes or Monkeys, and not Men. As to this Grang-Outang which was brought from Angola in Africa, but taken up higher in the Country, he begins with the several Names by which it has been called by several Writers, and observing the great Confusion in Authors Treating of the Ape, or Monkey-kind, he obliges himself to give a more particular Description of this, and thro' he observes it in many things more agreeable to a Man, than any of the Ape kind, yet he by no means allows it to be Humane, but a Brute-animal, sui generis.

And before he comes to the particular Description of it, he presents us with a Text in Aristotle, describing the Ape kind, which he Englishes, and gives a Comment thereon, shewing wherein the present Subject agrees, or differs from it, and then proceeds to give an exact Account of the outward Shape and Size of the Creature dissected, which was 26 Inches high, and in this he is very particular in the Proportions of every part, and takes notice of the Figures and Descriptions given by Tulpin, Bontius, Gesner, &c. Wherein they agree, or differ from this, all which Figures he gives us a Copy of, and quotes at large several Authors, Ancient and Modern that have mentioned, or treated of it, and so comes to the Anatomy of its several Parts. I shall remark some few, of them I thought more observable, as that its Skin was whitish, and adhered pretty firmly, and had the Membrana Adiposa next to the Skin, as in Man, and under that the
Carnosa. The Seminal Vessels passed between the two Coats of the Peritoneum to the Scrotum, as in Man, whence our Author Argues, Nature designed this Creature to go erect, since 'tis otherwise in all Quadrupedes. The Omentum was fastened as in Man, different from what the Parisians found in the Monkey. Treating of the Ductus alimentalis, which he makes the Proprium quarto modo of an Animal; he takes occasion to recommend the more Nice Examination of the intermediate Species of Beings between Plants and Animals, as the Zoophite, of which he once met with one that had a sensible Contraction, or Motion of some Parts, but nothing like the Structure of any Parts or Organs like an Animal. The Stomach was like a Man's, there was no Bezoar Stones in it, which Bontius says are sometimes found in the Stomach's of Apes. The Word Bezoar he observes comes from the Persian Pa-zahar, contra venenum, and recommends it as an excellent Medicine, and quotes the same Bontius for the Stone bred in the Bladder of Men, as an extraordinary Diuretic, and Sudorific. Treating of the Intestines he finds the Apendicula Vermiformis, as 'tis in Men, tho' 'tis wanting in Apes and Monkeys. The Liver likewise the same as in Man, and different from the Monkeys, as was also the Ductus Hepaticus, the Spleen, Pancreas, Glandula Renales. And speaking of the Kidneys, he hints at the Reason why Bleeding has been Successful in a Suppression of the Urine, the Tubuli Urinarii being overpress'd by the Fullness of the Blood-vessels that run between them. The Aorta, and Cava were as in Man. The Testes were not in a Scrotum, but more Contracted by the outward Skin nearer to the Os Pubis, by the sides of the Penis, whence he queries whether the having them so placed, may contribute to the Salacioufness of the Ape-kind, of which he gives a remarkable Relation or two, and proceeds to the several Parts and Vessels of the Testes, which were conformable to those in Man. The Penis dif-
differed, had no Frænum, nor is he certain whether it had any Glans.

As to the middle Venter, the Lungs had five Lobes in Colour, Substance, Situation, and all Circumstances like a Man's, as was the Trachea, and the Pericardium was fastened to the Diaphragm, just as 'tis in Man, which is usual in Brutes. Whence he raises another Argument that Nature designed it a Biped, and gives the Reason why 'tis so fastened to assist the Diaphragm in Expiration, which otherwise the Liver and Stomach would draw down too much into the Abdomen. The Heart, &c. much the same as in Man. The Larynx, Cartilages, Muscles, Os Hyoides, and all the Organs of Speech the same exactly, as 'tis in Man, excepting the Tongue, and the Rough of the Mouth.

Coming to the Head, he observes the Brain in all Respects, exactly resembling a Man's. From the Agreement of which Parts he argues that the nobler Faculties in the Mind of Man must have a higher Principle, and that Matter Organized could never produce them.

In the next place our Author examines the Bones, and by the way touches at the Dispute between Vesalius, and others in Relation to Galen, whether he ever dissected human Bodies, or only Apes. Then he Inserts Riolamii's Treatise, Intituled, Simia Osseologia, &c. Upon each Chapter, whereof he makes his particular Remarks, shewing wherein the Orang-Outang agreed more with a Man than a Monkey, in more than 20 Particulars, and ends this Discourse with an account of the Muscles, for which he owns himself obliged to Mr. Cowper, as likewise for the designing all the Figures which are done with the greatest Accuracy, and curiously Engraved on eight large Plates, Representing the Creature both before and behind, then 2 Fig. likewise with the Skin off, shewing all the Muscles, then the Skeleton, and lastly the several Viscera.
He concludes this Discourse with a Recapitulation of 48 Particulars, wherein the Orang-Outang more resembled a Man than Apes and Monkeys do, and 34 wherein it differed from a Man, and more resembled the Ape and Monkey-kind.

We come now to the Philological Essay concerning the Pygmies of the Ancients, wherein our Author shews that in all Probability this Creature gave the first Occasion of this Story, which he traces up to the Original, and finds Homer to be the first that mentions it, and their fighting with the Cranes, of which Geranomachia he gives the Reason. He Cites the several Authors, Ancient and Modern, that have any where mentioned them, and upon the whole concludes that the Pygmies were not a diminutive Race of Mankind, as has been generally thought but this Creature, which he proves at large, Instancing and Explaining the several Accounts of them in Homer, Athenaeus, Aelian, Pomponius Metas, Pliny, Onesicritus, Ctesias, Herodotus, Hellenicus, Aristotle, Strabo, Nonnus, Albertus Magnus, Isaac Casaubon, Gesner, Jo. Talentonius, Olaus Magnus, Barth line, &c. Commenting upon the particular Treatise of the last upon this Subject. In the next place, coming to Treat of the Cynocephali of the Ancients, he shews these likewise to have been Apes only, and not Men, and in this, as well as the Pygmies, and other Particulars shews Ctesias to be a very fabulous Writer, giving the History of this Animal from the Ancients, with his own Remarks thereon, and so proceeds to Treat of the Satyrs, Pan, Aegypan, Sylvanus, Silenus, and the Nymphae, all which he shews were several Species of Apes, or Monkeys. In the last place he speaks of the Sphinxes, which he says are a sort of Ape, or Monkey bred in Ethiopia; these he describes out of Pliny, Agatharchides, Diodorus Siculus, Philostorgius, and Phil. Cameranus, who saw one of them at Verona, and so Concludes this Learned and Ingenious Treatise.