We Are Not The Center of The Universe:
The Role of Astronomy in the Development of Morality in Adam Smith

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Adam Smith's contemporaries compare him to Isaac Newton. Smith was the Newton of moral philosophy as Newton was the Newton of natural philosophy. So John Millar, a student of Adam Smith, states that as far as natural jurisprudence "The great Montesquieu pointed out the road. He was the Lord Bacon in this branch of philosophy. Dr. Smith is the Newton" (Millar [1803] 2006, ii. 404-5, n.). Parallels between Smith and Newton continue to our days (e.g. Skinner 1979). The gravitational force of Newton is morphed into the gravitational force of self-interest or of market in Smith's *Wealth of Nations* ([1776] 1981), or of sympathy in the *Theory of Moral Sentiments* ([1759] 1984) so much so that Mark Blaug describes self-interest and sympathy "as deliberate attempts by Smith to apply this Newtonian method first to ethics and then to economics" (Blaug [1980] 1992, p. 52; see also Raphael 1978; Hetherington 1983).

Yet the influence of Newton on Smith is not without tensions (e.g. Schliesser 2005; Montes 2006; Montes 2008). Looking at sympathy as the gravitational force that keeps individuals together in society a-la-Newton, may present a rather mechanical view of humanity. But Smith's system, even his economic system, is not a mechanical system (Spengler 1978). Even the gravitational force of his market or his natural prices may not be mechanically Newtonian (Andrews 2014). Helvetius may highlight some of the difference between Smith and Newton—substituting Smith for Helvetius in the following description would generate a portrait of Smith that few would recognize: "Helvetius […] was determined to become a Newton of morals by 'treating morals as any other science, and by making from morals an experimental physics' and by making from ethics a science based on mathematically calculated laws (Helvetius 1758, 1:13; Martin 1994, 7-107). Montesquieu was accompanied in his rejection of the Newtonian mathematization of physics by his friend Georges-Louis Leclere de Buffon, who argued based on the naturalist nominalism of the life sciences against the mathematical (mostly geometrical) generalizations of the mechanical sciences" (Platon 2011, p. 558). Smith deeply admires Montesquieu and Buffon.

Regardless of Smith's admiration for Newton, the almost exclusive focus on Newton and Newtoniaism may obfuscate the larger role that astronomy in general may have had on Smith. If Christopher Berry (2006) is correct in stating that "it is a significant feature of the period that 'science' did not exist in some separate intellectual compartment but permeated the polite and literature culture" (p. 115, see also Wilson 2009), than we can see how the study of astronomy in general, and the passage from Ptolemaic to Copernican system in particular, may have affected Smith's understanding of moral development and the role of commercial societies in moral development.

I use the work of Bertrand de Fontenelle (1657-1757)—*Entretiens sur la Pluralite des Mondes (1686)*, first translated in 1688 as *A Discovery of New Worlds* ([1686] 2012), then translated also as *Conversations on the Plurality of Words* ([1686] 1990)—to demonstrate my point. Both Smith and Fontenelle claimed that using our imagination we can place ourselves at a distance that allows us to humble the arrogance of our vanity, which otherwise leads us to believe we are the center of the universe, both literally, for Fontenelle, and morally, for Smith. Fontenelle published *Conversations* (1686) before the publication of Newton's *Principia* (1687). His use of imagination and mental experiments do not fit well with Newtonian empiricism. Indeed, Fontenelle strongly opposed Newton's physics (Adkins 2000, p. 437). Yet, his account of the Copernican system, which emphasizes the development of humility due to our place in the universe is quite similar to Smith's description of moral development as a non-mechanical process of imagining ourselves at a distance from our own conduct to be able to judge ourselves impartially.

This paper is based on the idea that, for Smith, a commercial society may generate a fostering ground for the development of morality: the constant interaction with strangers trains the "men within our breast" to see us from an impartial prospective, which is the base of our moral development (Paganelli 2010). So, understanding the relationship between astronomy and morality may help us see the depth of the effects of commerce on society. It builds on the understanding that Smith describes the complexity of human motivations and the relevance of both knowledge and morality for a prosperous development of both the individual and society.

Astronomy and Fontenelle

The Scottish universities in the 18th centuries were at the cutting edge in the sciences, and in astronomy in particular. They taught Newton even before Newtonianism was taught at Cambridge, where Newton was. Edinburgh was in fact the first university to teach Newtonianism. All the major Scottish Universities had copies of Newton's *Principia* soon after its publication: Newton's *Principia* was published in 1687 and it was in Edinburgh's library as early as 1690. In Glasgow it appeared in 1695 and a bit later in Aberdeen and St Andrews (Shepherd 1982).

Smith studied at Glasgow, Scotland, then at Oxford, England, then went back to Scotland to teach first at Edinburgh and then at Glasgow. Smith studied natural philosophy (including astronomy and Newton) at Glasgow under Robert Dick. And most likely he brought his interest in astronomy with him from Glasgow to Oxford where it is probable that he started to work on his "juvenile" essay "History of Astronomy" (Scott 1965). The essay was spared from the flames upon Smith's death and was published posthumously by Smith's executors. Smith claimed to have kept revising this juvenile essays until the end of his days. And he left it to his executioners to decide whether worth publication (Ross [1995] 2010).

Smith was familiar with Fontenelle. Fontenelle was a widely popular French writer and elite popularizer of natural sciences (e.g. Rendall 1971; cf. Marsak 1959). Adam Smith owned the 1752 edition of his collected works, which are in possession of the University of Tokyo, even if the volume containing the *Entretiens sur la Pluralite des Mondes* is now missing. He listed the 8 volumes in his own manuscript Catalogue of his library of 1781 (Mizuta 1967; Mizuta 2000). Francis Hutcheson, Smith's teacher, in the part of his lectures dealing with natural affections, which most likely Smith attended, mentioned "Agents, capable of moral Affections, in the most distant Planets"—and indirect reference, which the editor of the volume attributes explicitly to Fontenelle (Hutcheson [1725] 2004, p. 115). David Hume cited Fontenelle five times in his *Essays* ([1752] 1985, p. 7, 174-5, 194, 218, 464), and Smith himself mentioned Fontenelle by name in one of the few instances in which Smith gives proper credit to other authors (TMS III.ii.23). Joseph Spengler goes so far to claim that the idea of the invisible hand in Smith is possibly borrowed from Fontenelle (Spengler 1978, p. 43). My claim is instead that the mechanism Fontenelle uses to explain the heliocentric

system is remarkably similar to the mechanism through which Smith describes the development of the human moral system.

Fontenelle published his *Conversations on the Plurality of Worlds* in 1686, less than 2 years before Newton's *Principia*. Using a dialogue between a philosopher and a Marquise over the course of five nights, Fontenelle explains the works of the solar system as understood in his day. The philosopher and the Marquise walk in the gardens at night, looking and marveling at the skies. Fontenelle opens the dialogue with the realization that we are fooled to believe we are at the center of the universe, that the earth is fixed and all the planets and stars revolve around us, because of our perception and especially because of our vanity.

> "Our folly is to believe that all nature, without exception, is destined for our use […] On this principle one could easily imagine, first of all, that the Earth had to be resting at the center of the universe, while all the heavenly bodies, which were made for her, took the trouble to turn around her and light her" (p. 14).

When the philosopher explains to the Marquise the Copernican system, he explains it in terms of humbling our vanity. The great contribution that Copernicus gave us is humility. Copernicus humbled our arrogance by letting us see that we are not the center of the universe but we are just one planet in a multitude:

> "He [Copernicus] did well," I answered, "to have put down the vanity of men, who had given themselves the greatest place in the universe, and I'm pleased to see the Earth pushed back into the crowd of planets."
> "Surely you don't believe," she cried, "that the vanity of men extends all the way to astronomy. Do you think you've humbled me by telling me the Earth moves around the Sun? I swear to you I do not have less self-esteem."
> "Good Lord, no, Madame!" I said. "I know fully well that people are less jealous of their place in the universe than in a drawingroom, and the ranking of two planets will never be as important as that of two ambassadors. However, the same desire which makes a courtier want to have the most honorable place in a ceremony makes a philosopher want to place himself in

> the center of a world system, if he can. He's sure that everything is made for him, and unconsciously accepts that principle which flatters him, and his heart will bend a matter of pure speculation to self-interest."
> "Honestly," said the Marquise, "this is a calumny you've invented against mankind. We should never have accepted Copernicus's system then, because it is so humiliating" (p. 16-17).

Yet, when the philosopher explains to the Marquise how "the Earth shines like the moon does" if the Earth is seen from the moon (p. 24), he encourages her to fly with the imagination half way between the earth and the moon. From the new prospective, they can see how things actually work. From the earth prospective, the earth looks big and fixed. From the earth, the earth does not shine, but the moon does. But from the moon prospective, the moon looks big and fixed and the earth small, shining, and rotating around it.

> "Appreciate then what it means to be advantageously placed. So what makes the Moon shed light on us is that it's a firm, solid body, which reflects these balls [of light] to us. Now I know you won't disagree that the Earth has this same firmness and solidity. Appreciate then what it means to be advantageously placed. Because the Moon is far away from us we see her only as a luminous body and forget that she's a great mass like the Earth. And the reverse; because the Earth has the misfortune to be seen from too close, it seems to us to be nothing but a great mass, fit only to furnish pasture for animals, as we don't perceive that it shines, since we can't place ourselves at a distance from it."
> "It happens the same way, then," said the Marquise, "as when we're dazzled by stations higher than our own, and we don't see that in essence they are very much the same."
> "It's the same thing," I answered. "We want to judge everything, and we're always at a bad vantage point. We want to judge ourselves, we're too close; we want to judge others, we're too far away. If one could be between the

> Earth and the Moon, that would be the proper place to see them well. One should simply be a spectator of the world, not an inhabitant" (p. 25).

Fontenelle continues the night encounters between the philosopher and the Marquise for four additional nights. Each night, they fly with the imagination to a different planet and see how the universe looks like from there, explaining therefore the different planets of the solar systems. So, for Fontenelle, to understand the actual size and movement of the moon and the earth, as well as the other planets in the solar system, we need to be on any of them. When we are able, thanks to the imagination, to place ourselves at an equal distance between earth and the moon, or between the earth and any other planet, we finally realize the actual size of both celestial bodies and that both rotate around the sun.

Now, let's see how Smith describes our moral development, while keeping in mind the following things. First, that Fontenelle invites us to use the imagination to change our position and place ourselves at a distance from our actual selves on earth. Second, that he claims it is our vanity which conduces us to our ego-centrism or earth-centered understanding of the universe. Third, that the lack of distance from ourselves and from earth misleads us. And finally, that by looking at ourselves from a distant place, like the moon, or another planet, we humble our arrogance and we realize we are just one in a multitude and not the center of the universe.

Astronomy and Smith

Smith describes the development of human morality starting with the realization that individuals are naturally biased by their self-love. Our self-love deceives us into believing that anything that happens to us is more relevant that the same happing to others. In fact, a trivial thing happing to us is more important than a catastrophic event that happens to others.

> The most frivolous disaster which could befal himself would occasion a more real disturbance. If he was to lose his little finger to-morrow, he would not sleep to-night; but, provided he never saw them, he will snore with the most profound security over the ruin of a hundred millions of his brethren, and the destruction of that immense multitude seems plainly an object less interesting to him, than this paltry misfortune of his own (TMS III.iii.4, p. 136-137)

Our problems or joys are perceived bigger than others' because they are ours. This is because our vanity deceived us in thinking we are the center of the universe, just like our vanity for Fontenelle deceives us into believing the Earth is the center of the universe.

> Every men, therefore is much more deeply interested in whatever immediately concerns himself, than in what concerns any other man: and to hear, perhaps, of the death of another person, with whom we have no particular connexion, will give us less concern, will spoil our stomach, or break our rest much less than a very insignificant disaster which has befallen ourselves. […] Every man may, according to the proverb, be the whole world to himself (TMS II.ii.2.1, p. 82-83)

Yet, nature balanced our self-love and our vanity with our desire to be approvable and approved by others (e.g. TMS I.i.3-4, p. 16-31). To be praiseworthy and praised we need to lower the pitch of our passions to make them appealing to others (e.g. TMS I.ii.3, p. 34-38 and TMS III.ii, p.113-134). There is only one way we can do it. The same way in which Fontenelle invites the Marquise to do to understand that the Earth is not the center of the universe. We need to place ourselves with our imagination in the shoes of the other, being the other a physical other near us or an imaginary other inhabitant of the Moon or of Venus, and see ourselves from their point of you.

> I can form a just comparison between those great objects and the little objects around me, in no other way, than *by transporting myself, at least in fancy, to a different station*, from whence I can survey both at nearly equal distances, and thereby form some judgment of their real proportions. […]
> In the same manner, to the selfish and original passions of human nature, the loss or gain of a very small interest of our own, appears to be of vastly more importance, excites a much more passionate joy or sorrow, a much more ardent desire or aversion, than the greatest concern of another with whom we have no particular connexion. His interests, as long as they are surveyed from this station, can never be put into the balance with our own, can never

> restrain us from doing whatever may tend to promote our own, how ruinous soever to him. Before we can make any proper comparison of those opposite interests, we must change our position. We must view them, neither from our own place nor yet from his, neither with our own eyes nor yet with his, but from the place and with the eyes of a third person, who has no particular connexion with either, and who judges with impartiality between us. (TMS III.3.3, p. 135)

Once we travel with our imagination in the shoes of an other and imagine how the other sees us, we lower the pitch of our passions to a level that we think the other will find acceptable. This process allows us to develop the ability to judge ourselves as impartially as possible, to see our passions, our troubles, and our joys for their actual size. The result of seeing ourselves at a distance is the same for both Smith's moral system and Fontenelle's solar system: we humble our arrogance and we realize we are not the center of the universe but just one in a multitude.

> Though every man may, according to the proverb, be the whole world to himself, to the rest of mankind he is a most insignificant part of it. Though his own happiness may be of more importance to him than that of all the world besides, to every other person it is of no more consequence than that of any other man. Though it may be true, therefore, that every individual, in his own breast, naturally prefers himself to all mankind, yet he dares not look mankind in the face, and avow that he acts according to this principle. […] When he views himself in the light in which he is conscious that others will view him, he sees that to them he is but *one of the multitude in no respect better than any other in it.* If he would act so as that the impartial spectator may enter into the principles of his conduct, which is what of all things he has the greatest desire to do, he must, upon this, as upon all other occasions, *humble the arrogance of his self-love*, and bring it down to something which other men can go along with. (TMS II.ii.2.1, p. 83. Emphasis added)

Indeed, the humbling power of the ability to see ourselves from the point of view of a third impartial party is so strong, Smith believes, that it is the only thing that allows us to behave morally. Recall the reaction of the Marquise to the Copernican system and the realization that the Earth is just another planet…

> It is he [the impartial spectator] who, whenever we are about to act so as to affect the happiness of others, calls to us, with a voice capable of astonishing the most presumptuous of our passions, that *we are but one of the multitude, in no respect better than any other in it*; and that when we prefer ourselves so shamefully and so blindly to others, we become the proper objects of resentment, abhorrence, and execration. It is from him only that *we learn the real littleness of ourselves*, and of whatever relates to ourselves, and the natural misrepresentations of selflove can be corrected only by the eye of this impartial spectator. (TMS III.iii.4, p. 137. Emphasis added)

For Smith, the arrogance of our self-love deludes us into thinking that the whole world revolves around us. Viewing oneself from a different and distant point of view decreases our natural tendency toward self-deception and increases the propriety of one's behavior. The point of view we require, for Smith, is not necessarily that of our friend or neighbor, but the point of view of a stranger. In front of strangers and distant acquaintances, an individual would generally restrain the more self-indulgent and excessive passions and be more composed than when by himself or in front of family and close friends:

> Are you in adversity? Do not mourn in the darkness of solitude, do not regulate your sorrow according to the indulgent sympathy of your intimate friends; return, as soon as possible, to the day-light of the world and of society. Live with strangers, with those who know nothing, or care nothing about your misfortune. (TMS III.3.39, p. 154)

Changing place with the aid of our imagination and looking at ourselves from a distance makes us realize that the universe does not revolve around us. This process

humbles the arrogance of our self-love and allows us to develop morally. As shown with textual evidence, this process is similar to how Fontenelle, in his *Conversation on the Plurality of Worlds,* describes the realization that we are not the center of the physical universe. The philosopher and his lady-companion make an imaginative journey to the moon and to the other planets in the solar system, and look down on Earth. By changing perspective, they too humble their arrogance realizing that Earth and humankind are not the center of the universe. But they too need to see the Earth not just from a neighboring point, but from the point of view of strangers, not from the point of view of fellow inhabitants of the Earth, but of strangers, imaginary inhabitants of the Moon and of the other planets in the solar system.

Conclusion

For Smith, frequent exposure to strangers fosters our ability to see ourselves impartially—the base of moral behavior. Commerce enlarges one's opportunities to interact with strangers and introduces distance in interpersonal relationships. Commercial societies may therefore be environments amenable to facilitating proper and moral behavior.

The process of imagining ourselves in a different place and seeing ourselves from that distant point of view allow us, for Smith, to develop the impartiality which is indispensable for humbling our vanity and recognizing that we are just one in a multitude, and that the whole universe does not revolve around us. That is, viewing ourselves with the eyes of a distant other is the mechanism that allows us to develop morally. Sympathy may be the Newtonian gravitational force which holds together different human beings. But that sympathy, that is the mechanism thought which we place ourselves in the shoes of others to look back at ourselves, is also similar to how Fontenelle explains the passage from the Ptolemaic to the Copernican system to his Marquise.

Smith's description of the development of our moral system seems therefore to parallel the passage from a Ptolemaic to a Copernican system. In particular, in Smith the understanding of the moralizing function of commercial societies can be seen as influenced, in part at least, by his studies in astronomy.