

Science before Science Study Group

Week Eight

Begin with Prayer

Prayer before Study

Almighty God, You who are the creator of all things and our loving Father, send us Your Holy Spirit to illuminate our minds so that we can understand how You have revealed Yourself to us through the world around us.

Grant to me
keenness of mind
capacity to remember,
skill in learning,
subtlety to interpret,
and eloquence in speech.

May You guide the beginning of my work, direct its progress, and bring it to completion.

We ask this through Thy Son, Jesus Christ

Amen

Chapter 2: A False Sense of Certitude

- Our faith in modern science is a blind faith – we are not even aware that it is a faith!
 - Revolution and Rotation of Earth; Roundness of Earth; Nothingness of the Atom
- Talked about improper knowledge, infra-scientific knowledge and proper knowledge
- Science is viewed as problematic –
 - Its mechanical; not concerned with man; spawns dangerous technologies; robbed us of our common sense; creates a defeatist or nihilistic impression
- What is missing is the science before science – philosophy!
 - We cannot avoid it – even saying that we don't need philosophy is a philosophical debate!
- Philosophy is a real science and requires real work!
 - Logic-chopping error – letting clarity be primary and not reality! Like Kant and others!

Chapter 3 First Things First (1)

- The senses are the means through which we know everything
- All of modern sciences is based on information we get through our senses
- Modern science as taught today destroys our trust in the senses (ironically!)
- Our culture is full of wrong thinking about the senses and common sense
- The senses have not given us false information – sometimes we have erroneously deduced false information from them.
- Little errors in the beginning cause big errors later on – mistrust of the senses is not a little error but it is one we make!
 - Descartes wanted all things to have the clarity of mathematics – rejected the senses as source of certain knowledge
- The Big Physics at the base of our culture must give primacy to the real!

Chapter 3 First Things First (2)

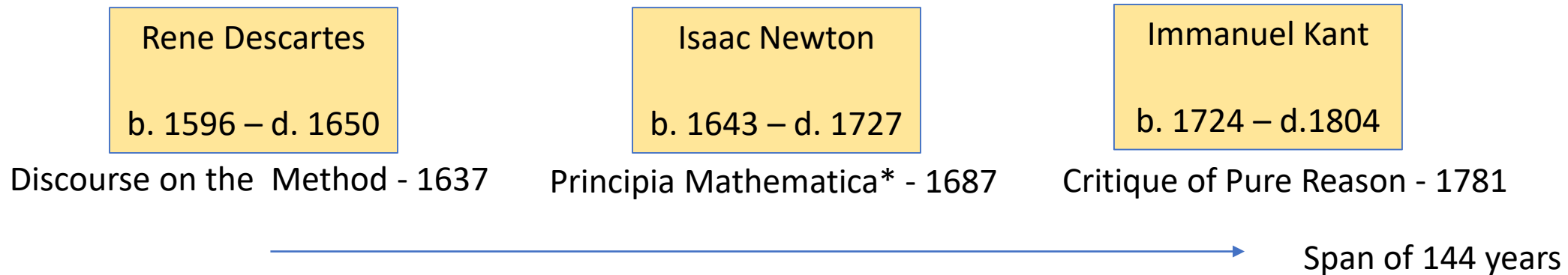
- Sensorial knowledge is knowledge that comes to us through the senses and is particular (this dog, this glass, etc.)
- Early Greek philosophers wrestled with being and change
 - Heraclitus and Parmenides around 500 BC – change and being and principle of non-contradiction
 - Aristotle resolved the problem around 350 BC
 - Physical things are form-matter composites – they are something and can become something (statue analogy for matter and form)
- Physical change
 - Accidental or substantial
 - Change in properties
 - Change in what the thing is

Chapter 3 First Things First (3)

- Technical Language
 - Important to not associate with common language definitions
 - Terms include
 - Substance
 - Being
 - Accident
 - Form and matter
 - Prime matter
 - Essence
 - Nature
- Sensorial Knowledge
 - Partly material – sense experience requires a physical change
 - Partly immaterial – apprehending the form of the thing senses
 - Phantasms – particular knowledge

Explain *univocal* and
equivocal

Simple Timeline – Descartes, Newton, Kant



The Dominicans – the standard bearers of the teaching of St. Thomas Aquinas and St. Albert the Great are almost gone by the late 1700's. The truth that our knowledge begins with the senses is lost. Rejected (and not set side by side with) and replaced with the powerful scientific method which comes to dominate our thinking along with philosophical idealism from this point onward to present day.

****Full Title is Philosophiæ Naturalis Principia Mathematica***

René Descartes (1596-1650)*

- Cast doubt on the reliability of sense perception – a radical position
- True knowledge only comes through the application of pure reason
 - Minimize the role of unreliable sense perception in the sciences
 - Use most abstract elements (actually quantity - mathematics)
 - Put reason to work on the problem (mathematics preferably)
- Thinking offers a proof of existence – *Cogito ergo sum*
- He recovers God by saying – “the self exists because it thinks and that God exists because the self is imperfect and there must be a source for the idea of perfection outside of self”
- He recovers the world by saying we can clearly and distinctly perceive that bodies are “extended” – extension must be an essential part of bodies

Immanuel Kant (1724-1804)

- Primary aim – to determine limits and scope of pure reason
 - What reason can determine without the help of the senses and any other faculties - *Do you see a problem with this at the start?*
- He defined
 - A priori knowledge – necessary and universal knowledge we have independent of experience such as our knowledge of mathematics – *see any problem here?*
 - A posteriori knowledge – knowledge we gain from experience
- Kant says that reality is a joint creation of external reality and the human mind and that it is only regarding the latter that we can acquire any certain knowledge. *What is wrong with this?*
- Kant and Descartes wanted everything to have the clarity of mathematics.
- For Kant this clarity included the fabulously successful theory of Isaac Newton (1643-1727) (his Principia first published in 1687)

A Fundamental Choice

- Start in your head
 - Philosophical idealism – every philosophical theory since Descartes!
 - We know our ideas
 - We can build a consistent set of ideas
- Start with the world as we know through our senses
 - Understanding reality
 - Truth is the conformance of our ideas to reality
 - Reality has primacy of place
 - Philosophical Realism – Aristotle, St. Thomas Aquinas, Scholasticism

Interesting Fact

- Reading about St. Francis of Assisi
- His education (in the middle ages in the 1100's) – was taught in dialectics
 - Proof of any proposition required
 - Reason - analysis
 - Authority – improper knowledge
 - Experience – proper knowledge
- Showing the openness of Catholic culture to the ideas of Aristotle to come in the next century around time on St. Thomas Aquinas (c. 1250)

Chapter 4: What is Truth?

- Kurt Gödel (1906-1978)
 - Wanted to prove that we can know truth
 - Proved two key statements about systems of ideas
 - A system like geometry that start with a group of axioms
 - Two statements are:
 - There are propositions that cannot be proven true or false within the system
 - The very consistency of a system cannot even be proven within the system
 - The system may be contradictory and we may not even be able to know it!
 - Can we assert then that we cannot really know anything?
 - If yes – you are a philosophical idealist
 - If no – but don't know why – you have philosophical idealist tendencies
- This is not a problem for realists!
 - Idealist think they only know their ideas
 - Realist says that **truth is the conformity of our ideas with reality** not a system of ideas!
- “Any system that is sufficiently complicated will have to point outside of itself, because of the oneness of reality; that is, everything is related to everything else” SbS p.59

What is the *Sense* in Thinking?

- Sensorial knowledge is in some sense the source of all of our knowledge
 - Starts with the senses (sight, touch, hearing smelling and tasting)
 - Put into direct contact with things
 - We have memories of these things
 - Imagination (image-ation) – manipulation of these phantasms – can manipulate these images (e.g. solid black Lassie)
 - Recalling phantasms – again put me in contact with that coldness
 - The image is that by which we know the thing

Ideas Are Not Images

- Idea of an animal - the same as an image of an animal? No!
- It is a general idea
 - Ideas are general; images are particular
 - Not just the imagination – that can assemble a bunch of different ‘animals’
 - Cannot be handled by an image or set of images
 - But it means you already have the concept of animal – to know this set of possible animals
 - What if the animal cannot be pieced together – but is an animal of a completely different type? You will know it because you have the idea of an animal
- Read about this – p. 64 and 65

Ideas

- The idea of an animal is a universal; ideas are universals
- Nominalists – think ideas are particular
 - E.g. cannot think of a circle – but only particular ones
 - But we know it is general – set of points equidistant from one point
 - One can imagine many particular circles BUT **one would have no way of knowing that one particular circle has something in common with that particular circle**
- There is a difference between using a thing and knowing a thing
 - E.g. between memorizing something (like Shakespeare) and understanding it.
- Universality is even more present in the case of principles like the principle of contradiction
 - The idea cannot be seen in any way!
- **THE INTELLECT GIVES US GENERAL KNOWLEDGE, THE SENSES PARTICULAR KNOWLEDGE**

Where does our intellect get its general knowledge?

- Where did the knowledge of a circle come from?
 - Circle is radically different from images
 - Where do we encounter one-dimensional, colorless, odorless, soundless circles?
 - Mathematical circle cannot exist in the real world only in the mind!
 - Sensorial data – like observing sun or moon and a pie
 - From that data we abstract the idea of a circle
 - Intellect is the power or ability to pull ideas
 - Intellect
 - Inter - between
 - Legere – to read
- Substance comes after we sense any existing thing
 - A particular high type of abstraction – called separation
 - Intellect can act on phantasm and abstract universals

Nagging Question

- From particular to general – how?
 - Intellect must be of a different and higher nature than sensorial power
 - What the intellect sees is not present in the phantasm
 - When we observe Fido.....
 - The intellect acts
 - Pulls out the essence of Fido > what he is primarily
 - Vague at first but with experience more precise

Short Summary

- Intellectual knowledge in many ways analogous to sensorial knowledge
- Sensorial knowledge –puts us in contact with particular things by phantasms
- Intellectual knowledge – puts us in contact with universals by way of ideas abstracted from phantasms
- Therefore all knowledge comes to us through the senses
- Ideas are that *by which we know* things as opposed to *that which we know*
- If you forget this – you become a philosophical idealist and get locked up in your mind

Signs – Pure and Instrumental Signs

- Instrumental Sign – A ‘construction ahead’ sign
 - Primarily the sign is *that which we know*
 - Secondly represents that there is likely men ahead working on the road
 - We do not properly know the second one!
- Pure Sign – Something that brings us into contact with something else
 - It is something *by which we know* something else
- Phantasms and Ideas are Pure Signs

Another Analogy

- Sensorial knowledge
 - I become the thing I sense
 - Acquiring the form of the thing in an immaterial way
 - Not as my form