

Natural Theology Today¹

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I Thank you for inviting me to participate in this symposium in honour of Antonio Rosmini. The major task of philosophy, the task which most philosophers have pursued for the past three millennia, is to articulate in words and justify to others a true metaphysics - a true account of the ultimate constituents of reality and how they interact. But some philosophers have believed that the human mind has no capacity to reach conclusions of such generality, and they have set themselves the minor task of explaining why the major task cannot be pursued. Like Rosmini, I believe that the major task can be pursued; and I also believe that the intellectual climate of our time, and in particular the philosophical climate of the empiricist tradition, is favourable to its pursuit.

The empiricist tradition, the tradition of Locke, Berkeley and Hume, which is the major source of the kind of philosophy practised in the English speaking world today, dated from and was inspired by the Scientific Revolution of the seventeenth century. It held that if philosophy is to reach well justified conclusions, it must start from the foundations which are most evident. These of course include our beliefs about our sensations and thoughts and other constituents of the mental life which so interested Hume. But even about these we cannot have incorrigible beliefs. And, once that is recognised, we must also recognise that we have innumerable other beliefs whose truth is almost equally evident - perceptual beliefs (about what we are seeing now), memory beliefs, very general and almost universally accepted beliefs of science and history (that substances are made of atoms, and that the earth is many millions of years old): and also some moral beliefs - that genocide is evil, that it is good to feed the starving, and obligatory to care for your own children. On these foundations we can build - using standards of deductive inference (of what is entailed by what) and of inductive inference (of what is evidence for what) which we and almost all our contemporaries who meditate on their ordinary practice and on the more technical practice of science can see to be correct. In this way we can build not

merely a theory of physics or history (a theory concerned with a particular aspect of reality) but a metaphysics (a theory concerned with reality as a whole). Most of my contemporaries in the empiricist philosophical tradition, which fifty years ago so abhorred “metaphysics”, now see themselves as metaphysicians; and they seek to reach metaphysical conclusions by careful and rigorous arguments, sensitive to the conclusions and methods of the physical sciences.

Inevitably within this climate of thought there arises the question of the existence of God - whether the ultimate real entity is a personal being, all-powerful and all-good, on whom all else depends. The task of producing arguments to show that that is so is the task of natural theology. Most Anglo-American philosophers are of course atheists, and the metaphysic they seek to build is a materialist one. But they have an interest in and sympathy towards the task of natural theology, so different from the disdain which their predecessors showed fifty years ago. Like Rosmini, however, I believe that there are good arguments for the existence of God. And whatever might be the preferred methods of individual philosophers, if this is to be shown to the wider culture of our generation, it must be shown by the methods of the physical sciences - for they in that wider culture constitute the paradigm of knowledge. Rosmini too believed that the Christian thinker must represent his views in ways that the contemporary culture could understand. And so too did that greatest of all Italian philosophers, St. Thomas Aquinas. In the “five ways”, he argues to the existence of God from evident observable phenomena (that things are in the process of change, that things cause other things etc.) by arguments of a type commended by the best secular thinkers known to him (Aristotelian logic) using what he supposed to be the results of science (“all things in the process of change are caused to change by something else”). Today we have a better understanding of science and its methods than he did; and those of us who believe in his conclusion - that there is a God - will need to use them if we are to show that conclusion to today’s world. If you are to persuade someone of some truth, you must start from where they are and use the methods which they see as correct. I believe that for most of its history, Christian thinkers have always sought to do that.

For the practices of the Christian religion (and of any other theistic religion) only have a point if there is a God- there is no point in worshipping a non-existent creator or asking him to do something on Earth or take us to Heaven if he does not exist; or trying to live our lives in accord with his will, if he has no will. If someone is trying to be rational in practising the Christian (or Islamic or Jewish) religion, he needs to believe (to some degree) the credal claims which underlie the practice. These claims include as their central claim, one presupposed by all the other claims, the claim that there is a God. None of those thinkers of the first eighteen centuries of Christianity who

thought that there are good arguments for the existence of God thought that all or even most believers ought to believe on the basis of those arguments, nor that conversion always required accepting those arguments as cogent. Most Christians may well have taken God's existence for granted. Most converts may have believed beforehand that there is a God; their conversion often involved accepting more detailed claims about him (e.g. that he became incarnate in Christ). Of course conversion also involves a resolution to act on credal beliefs in certain ways - not merely to believe that there is a God, but to worship him. But the beliefs are necessary, and if you don't have them initially, you need to acquire them. True, if someone did not initially have the credal beliefs, they may have come to believe on the basis of religious experience in some sense rather than on the basis of natural theology. But nevertheless in my view, most Christian thinkers before 1850 held that there are these arguments available, and that those who do not initially believe that there is a God and are rational can be brought to see that there is a God by means of them.

Many post-Kantian religious thinkers have drawn our attention to the roles of religious experience and religious tradition in sustaining religious belief. It is indeed a basic principle of rational belief - which I call the Principle of Credulity- that what seems to you to be so on the basis of experience, probably is so- in the absence of counter-evidence. If it seems to you that you see me lean on the lectern or hear my voice, then probably you do- unless you wake up and find that it was all a dream, or someone shows you that really there is no lectern there; what seems to be a lectern is really a hologram. And it is also a basic principle of rational belief which I call the Principle of Testimony, that what people tell you is probably true- in the absence of counter-evidence. And so if your teachers told you that the Earth is many millions of years old, or you read in a newspaper that there has been an earthquake in Turkey, these things are probably so - unless you learn something else which casts doubt on them. When doubt is cast, we need positive arguments to show that there is a lectern there, or that the Earth is many millions of years old. There can be no justification for not extending these general principles of rationality to the case of religious belief. If you have had an experience apparently of God, you probably have; and if your teachers tell you that there is a God, it is rational to believe them - in the absence of counter-evidence. Counter-evidence may take various forms - the fact of pain and suffering may seem incompatible with the existence of God or so render it improbable; and rival teachers may tell you that there is no God. Counter-evidence may be strong or weak; and even if fairly strong may (rationally) not disturb the belief of someone who has had an overwhelmingly strong religious experience or believes on the authority of innumerable teachers of diverse

backgrounds. But in general the presence of counter-evidence opens up the question of the existence of God which then requires to be backed up by positive arguments (and/or to have negative arguments rebutted) if belief that there is a God is to be rational. But since there is so much more doubt about the existence of God in the sceptical West of today than in most previous cultures and centuries, the need for natural theology is far greater than ever it has been before—both to deepen the faith of the believer, and to convert the unbeliever.

So various philosophers of today have sought to revive from the past different kinds of argument for the existence of God. Some have revived ontological arguments². Ontological arguments of course differ from all the other traditional arguments in that they start, not from something observable, but from purported logically necessary truths; and they purport to be deductively valid. But a major problem is that if there were such a valid argument, “There is a God” would itself be logically necessary, and so its negation would be incoherent or self-contradictory. But it seems to me fairly evident that the proposition “There is no God”, while perhaps false and even in some sense demonstrably false, is not incoherent. It does not contain any internal contradiction. And from that it follows that these cannot be a sound ontological argument.

Then there is the tradition of attempting to produce deductively valid arguments from premises evident to the senses. It is not unreasonable interpretation of Aquinas’s *Summa Theologiae* 1.2.3. that he sought there to give five such arguments. Those in our day who have sought to give such arguments have for the most part tried to do so with the aid of Thomist (or neoThomist) terminology³. But the enterprise of producing such arguments is also, I think, an enterprise doomed to failure. For if it could be achieved, then a proposition which was a conjunction of the evident premises together with “there is no God” would be incoherent, would involve self-contradiction. But again propositions such as “there is a Universe, but there is no God”, though perhaps false, and even in some sense demonstrably false, seem fairly evidently coherent.

So my own preference is for the third tradition of natural theology. This begins from premises evident to the senses and claims that they make probable the existence of God. Such arguments purport to be inductively cogent, not deductively valid arguments. Arguments of scientists or historians from their data of observation to their general theories or claims about the past or the future, also do not purport to be deductively valid, merely inductively cogent. Thinkers were not very clear about the distinction between inductive and deductive arguments during the first 1000 years of the Christian era,

and not much clearer until the eighteenth century. So it would be anachronistic to say that the patristic writers were seeking to give inductive, or alternately deductive arguments. But the arguments of so many British empiricists of the eighteenth century, culminating in Paley's Natural Theology, do seem to me fairly clearly and intentionally inductive. What I have sought to do in my own natural theology is to give rigorous form to inductive arguments to the existence of God from phenomena evident to the senses, showing the close similarities between such arguments and arguments to a deep theory of physics, such as Quantum theory; or to the arguments of historians or detectives to some particular person having done some deed. The many such arguments for the existence of God can be ordered by the generality of their premises- the phenomena from which they begin. The most general phenomenon is that there is a Universe; the argument from the Universe to God is the cosmological argument. Then you have arguments of two main kinds from the order in the Universe; these are teleological arguments. One is the argument from the universal operation of natural laws, which I call the argument from temporal order. The other is the argument from the existence of human and animal organisms, which I call the argument from spatial order. Then there is the argument from consciousness- that humans (and animals) are not merely bodily organisms, but are conscious beings (with sensations and beliefs, thoughts, desires and purposes). Then there are arguments from particular miraculous events within history, and above all the Resurrection of Jesus - or rather, since it is disputed whether these events happened, from the public evidence about them. And finally there are arguments from the very widespread phenomena of religious experience. As are arguments from particular phenomena to some deep physical hypothesis, or to some claim of a historian, the arguments are cumulative. Each phenomenon (each clue) gives some degree of probability to the hypothesis. My view, for which I have argued at length elsewhere⁴, is that the various arguments for the existence of God taken together make the latter significantly more probable than not (even when arguments against the existence of God are also taken into account). Constraints of time however mean that all that I can hope to do in this paper is to exhibit the pattern of such arguments, and make it plausible that the first three arguments which I have mentioned do give significant probability to their conclusion.

I have sought to show how such arguments work with the aid of confirmation theory (that is, the calculus of probability, used as a calculus for stating relations of evidential support between propositions). I represent by $P(p/q)$ the probability of a proposition p on evidence q . I use Bayes's Theorem,

$$P(h/e\&k) = \frac{P(e/h\&k) P(h/k)}{P(e/k)}$$

to elucidate the relation between the probability of a hypothesis h on evidence of observation e and background knowledge k , and other probabilities. To use this calculus does not involve supposing that exact values can be very often given to the probabilities involved. That exact values cannot often be given is evident enough even when h is some paradigm scientific theory. It would be very odd to say that the probability of Quantum Theory on the evidence of the photoelectric effect was 0.3217. Some probabilities can be given exact values- but this usually happens only when the probability is 1, 0 or $\frac{1}{2}$. More often, all we can say is that some probability has some rough value- more than this and less than that, and that in consequence some other probability has some other rough value- close to 1, or fairly high or less than that. My concern has been to prove that when e is a conjunction of propositions which set out the publicly available evidence for and against the existence of God, and k is tautological background evidence (viz. contains nothing relevant to h) and h is the existence of God, $P(h/e.k)$ is "significantly greater than $\frac{1}{2}$ ".

All that the calculus does is to set out in a rigorous formal way the factors which determine how observational evidence supports more general theory. The relevant points can be made easily enough in words, but less rigorously and with their implications less clear. What the calculus brings out is that a general theory h is rendered probable by observational evidence e (and if we put k as a tautology, we can now ignore it), in so far as (1) $P(e/h \& k)$ (the posterior probability of e) is high, (2) $P(h/k)$ (the prior probability of h) is high, and (3) $P(e/k)$ (the prior probability of e) is low. The first condition is satisfied to the extent to which you would expect to find e if h is true. Obviously a scientific or historical theory is rendered probable, in so far as the evidence is such as you would expect to find if the theory is true. (I could say "the theory is rendered probable in so far as it yields true predictions" but only if it is understood that the "predictions" may be evidence observed either before or after the theory was formulated. It is, I suggest, irrelevant to whether evidence supports a theory whether it is 'new' evidence found by testing a theory, or 'old' evidence which the new theory explains.)

However, for any e you can devise an infinite number of different incompatible theories h_n which are such that for each $P(e/h_n \& k)$ is high but which make totally different predictions from each other for the future. (i.e. predictions additional to e). Let e be all the observations made so far relevant to your favourite theory of mechanics- let's say General Relativity (GTR). Then you can complicate GTR in innumerable ways such that the resulting new theories all predict e but make wildly different predictions about what will happen tomorrow. The grounds for believing that GTR is the true theory is that GTR is the simplest theory. $P(h/k)$ means the a priori probability that

h is true, or- put less challengingly- is the measure of the strength of the a priori factors relevant to the probability of h . One such a priori factor is content- the bigger a theory, the more and the more precise claims it makes, the less likely it is to be true. But we can ignore this factor if we are comparing theories of similar content; and, even when we are considering the non-comparative probability of a theory on evidence, scientific examples show that simplicity is more important than content for determining prior probability- for theories (which satisfy the other criteria well) of large content are regarded as probable, so long as they are simple. The simplicity of a theory, like its content, is something internal to that theory, not a matter of the relation of the theory to external evidence.

We can see again the importance of this criterion from a different kind of example, a detective investigating a burglary finds various clues- John's fingerprints on a burgled safe, John having a lot of money hidden in his house, John being seen near the scene of the burglary at the time when it was committed (which we summarize by e). He then puts forward a hypothesis (h) that John robbed the safe, which is such that it leads us to expect the clues which were found ($P(e/h \& k)$ is quite high. But there are an infinite number of other hypotheses which have this property. We could, to take but one example, suggest that Brown planted John's fingerprints on the safe, Smith dressed up to look like John at the scene of the crime, and without any collusion with the others Robinson stole the money and hid it in John's house. This new hypothesis would lead us to expect the phenomena which were found just as well as does the hypothesis that John robbed the safe. But the latter hypothesis is rendered probable by the evidence, whereas the former is not. And this is because the hypothesis that John robbed the safe postulates one object - John - doing one deed - robbing the safe - which leads us to expect the several phenomena which we find. The simplicity of a theory is a matter of it postulating few entities, few kinds of entity, few properties, few kinds of property, and ways of behaving which are unchanging in simple respects. The latter, if we are postulating persons as our entities, involves attributing to them purposes, beliefs, and powers which are constant over time, or only change in regular ways. If we are postulating natural laws, it involves using few mathematical terms and mathematically simple operations⁵. Of course many accepted scientific theories these days seem to some of us quite complicated, but they are accepted because they are simpler than any other theory which satisfies the other criteria equally well.

$P(e/k)$ is a measure of how likely e is to occur if we do not assume any particular theory to be true. The normal effect of this term in assessing the probability of any particular theory h , is that e does not render h very probable if you would expect to find e anyway (e.g.

if it was also predicted by the main rivals to h which had significant prior probability). $P(e/k) = P(e/h \& k) P(h/k) + P(e/h_1 \& k) P(h_1/k) + P(e/h_2 \& k) P(h_2/k)$ and so on for all the h_n rival to h (where all these together with h are such that at least and at most one of them must be the true theory in the field). This value will clearly be determined largely by the terms n for which h_n has a relatively high prior probability, and which give to e a relatively high posterior probability. To the extent to which rivals to h which give e a relatively high prior probability, themselves have a low prior probability (in comparison with h), the posterior probability of h will be high.

The hypothesis that there is a God is the hypothesis of the existence of the simplest kind of person which there could be. A person is a being with power to bring about effects, knowledge of how to do so, and freedom to make choices of which effects to bring about. God is by definition an omnipotent (that is, infinitely powerful), omniscient (that is, all-knowing), and perfectly free person; he is a person of infinite power, knowledge and freedom; a person to whose power, knowledge and freedom there are no limits except those of logic⁶. The hypothesis that there exists a being with infinite degrees of the qualities essential to a being of that kind is the postulation of a very simple being. The hypothesis that there is one such God is a much simpler hypothesis than the hypothesis that there is a god who has such and such limited power, or the hypothesis that there are several gods with limited powers. It is simpler in just the same way that the hypothesis that some particle has zero mass or infinite velocity is simpler than the hypothesis that it has 0.32147 of some unit of mass or a velocity of

221,000 km/sec. A finite limitation cries out for an explanation of why there is just that particular limit, in a way that limitlessness does not. Although the existence of anything at all is perhaps enormously improbable a priori, the existence of a very simple being (h) has a far higher prior probability ($P(h/k)$) than does the existence of anything else (except in so far as the latter is rendered probable by the former). Taking the inductive procedures of science and history seriously forces that conclusion on us.

It follows from God's omniscience and perfect freedom that he will be perfectly good. For being omniscient, he will know which actions are good. The goodness of an action provides a reason for doing it; and being perfectly free, he will be subject to no irrational influences. The worth of an action alone will move him to perform it. So if there is a God, he will seek to bring about good things; and so it is not improbable that he should create a universe, an orderly universe, and within it embodied rational creatures such as humans. It is good that there should be a beautiful universe. Beauty arises from order of some kind - the orderly interactions and movements of ob-

jects in accord with natural laws is beautiful indeed; and even more beautiful are the plants and animals which evolved on Earth. It is a further good thing that there should be human beings who can choose between good and bad, choose whether to grow in power and knowledge, and so choose whether or not to enter into a loving relationship with God himself. Humans have limited power over their bodies and acquire naturally some knowledge of how the world works. We have to know which bodily movements will make what difference to the world, in order to be able to choose which differences to make to the world - and that involves there being regularities in the world which are simple enough for us to detect. We can then use them to mould the Universe for good or ill- to develop an agriculture, and to make houses and bridges or bombs and prisons, and to send humans to the moon. So God has at least two reasons to make not merely a universe but one in which there is temporal order (the conformity of objects to natural laws); and in which there are human beings (whose bodily part exhibits that immense complexity characteristic of a highly sophisticated machine)- viz. spatial order. With e as the premisses of the cosmological argument and the two forms of teleological argument, $P(e/h\&k)$ is not too low.

But unless there is a God, it is most unlikely that there would be a universe at all. The universe is a big thing consisting of very many separate objects of varying finite size and mass. That it should exist on its own uncreated is therefore (since it consists of many things with complicated properties) - by normal scientific criteria - very much less likely than that God should exist. And it is most unlikely that the Universe would come into existence caused by anything else than God, because any other possible cause is much less simple than God. And it is immensely unlikely that if there is a Universe, it should be governed by simple natural laws. For natural laws are not entities. To say that all objects obey Newton's laws is just to say that each object in the Universe behaves in a way that Newton's laws state, i.e. has exactly the same properties of movement in reaction to the presence of other objects, as does every other object. It is immensely unlikely that every other object should behave in exactly the same way- a priori, unless there was a common cause of their having the properties they do. And any other possible cause is much less simple than God. (Even if you suppose some impersonal cause to be just as simple a postulate as God, the simplest kind of person there could be, there is no reason why it should bring about this sort of universe.) And, in a world with natural laws, it is immensely unlikely that there should be humans (and animals) unless either God made them by a special creation, or made just those natural laws and provided just those initial conditions which would allow the evolution of humans (and animals) from some initial state of the Universe.

In 1859 Darwin produced his explanation of why there were complexly organised humans and animals in terms of the laws of evolution operating on much simpler organisms. His explanation is surely correct. But the question then arises as to why there are laws of evolution which have the consequence that over many millennia simple organisms gradually give rise to complex organisms. No doubt because these laws follow from the basic laws of physics. But then why do the basic laws of physics have such a form as to give rise to laws of evolution? And why were there the primitive organisms in the first place? A plausible story can be told of how the primeval 'soup' of matter-energy at the time of the 'Big Bang' gave rise over many millennia, in accordance with physical laws, to those primitive organisms. But then why was there matter suitable for such evolutionary development in the first place? With respect to the laws and with respect to the primeval matter, we have the choice, of saying that these things cannot be further explained, or of postulating a further explanation. In recent years scientists have drawn our attention to how 'fine-tuned' is the Universe. It needed a certain density and a certain velocity of recession of its matter-energy at the time of the Big Bang if life was to evolve; and increase or decrease in respect of density or velocity (or some other respects) by one part in a million would have made the Universe non-life-evolving. Likewise the physical constants of the natural laws had to lie within narrow limits if life was to evolve. If God made the natural laws and the initial state of the Universe, then - for reasons already given as to why he might well bring about humans and animals - it is to be expected that he would give the initial state and the laws these features. But if God was not responsible, the probability of such an initial state and laws of the requisite kind would be immensely low - for the same kind of reason as the reason why it would be immensely improbable that there would be a universe at all, and one governed by simple natural laws of any kind. With e again as the conjunction of the premises of our three arguments, $P(e/k)$ is not going to be too much greater than the top line of the right side of Bayes's Theorem - $P(e/h \& k) P(h/k)$ - because hypotheses rival to theism either have a far lower prior probability than theism (e.g. the hypothesis that the Universe was created by a million gods) or do not make it in the very least probable that e would occur (e.g. the hypothesis that chance determined the character of natural laws).

So arguments from the three phenomena which I have considered give significant probability to the existence of God. There is not time to develop the case further here, but my own view (argued elsewhere) is that when we add arguments from the other phenomena to which I briefly alluded earlier and also bring into the equation arguments against the existence of God (e.g. from evil), we get a strong case for the existence of God. However the taste which I

have given you of the possibilities today for the third tradition of natural theology, articulatable with the aid of probability calculus, will I hope be enough to suggest that the prospects for natural theology are bright - and that, I think, is something Rosmini would welcome.

NOTES

1. Much of this paper uses material which I have published elsewhere in many places - most recently in a paper "A New Programme of Natural Theology" delivered at a conference in Nantes in September 1998 on "Analyse et Theologie" and to be published (in French) in the proceedings of that conference.
2. See, for example, Charles Hartshorne, The Logic of Perfection, Open Court, 1962, ch. 2; Norman Malcolm, "Anselm's Ontological Arguments", Philosophical Review 69 (1960) pp. 41-62; and Alvin Plantinga, God, Freedom and Evil, George, Allen and Unwin, 1975, pp. 85-112.
3. See, for example, David Braine, The Reality of Time and the Existence of God, Clarendon Press, 1988.
4. See my The Existence of God, Clarendon Press, revised edition, 1990; and the short simplified version, Is There a God? Oxford University Press, 1996.
5. For a full account of the nature of simplicity, see my Simplicity as Evidence of Truth, Marquette University Press, 1997.
6. In the Christian tradition God is "three persons in one substance". i.e. three persons each of whom have the listed divine characteristics, and have an essential unity - the Son and the Spirit being eternally and necessarily caused to exist by the Father. Arguments to the existence of God are then best construed as arguments to the existence of God the Father, from which the existence of Son and Spirit follows - in my view by logical entailment. The simplicity of God which I consider in the text is the simplicity of God the Father - that a simple theory has complicated consequences does not make it any less simple. I ignore this complication in subsequent discussion, for the sake of ease of exposition. For my own developed account of the divine nature see The Coherence of Theism, Clarendon Press, revised edition, 1993; and The Christian God, Clarendon Press, 1994. See chapter 8 of the latter book, for why the existence of the Father entails that of the Son and Spirit.