What does it mean if one says: ‘I believe in God’?

Eric Whittaker compares the usefulness of God as a human idea to the usefulness of imaginary numbers.

There was undoubtedly a time when it would have meant that I believed that there was a powerful old man sitting on a throne on the top floor of a three-decker universe. But what does it mean now? Some people insist that it must mean that someone called God exists as an objective fact (whatever that means), but is this essential? On the contrary is it acceptable to regard the existence of God as an idea of the human mind? I think one can clarify the matter to some extent by considering two very much simpler questions of belief, in mathematics and physics, in which one cannot easily distinguish objective fact from ideas of the human mind. But first it is perhaps best to consider the history of the belief in God or gods.

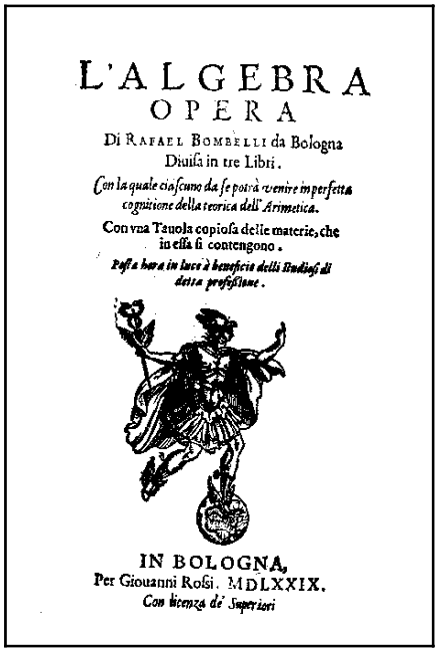
It is commonly said that Judaism, Christianity and Islam all proclaim belief in the same God, the God of Abraham, who is in fact proclaimed to be the only real God. In the history of religion I think one can distinguish three different approaches, all of which initially involved many gods. The one that I find most difficult to understand is the classical religion of the Greeks and Romans. These people did not apparently attribute the existence of the world to the gods, – they were just part of the existing order. In Crete you can visit the cave where Zeus, the king of the gods, was born. They were superior to people and more powerful, but they seem to have been little more than characters in a soap opera. I find the religion of ancient Egypt much more attractive. People tend to be put off it by the fantastic animal-headed figures of many of the gods, but it was through the gods that the world came into being, and different gods represented different aspects of divinity. I do not know enough about Hinduism to be sure but I imagine that similar comments would apply to that.

The religious view that reaches us in the Old Testament also envisages the existence of many gods, but these are not accepted simultaneously. Each nation or locality has one or a few gods, and they are in competition with one another. The Lord thy God is a jealous God! And they can demonstrate their relative powers through the fortunes of their people. Gradually from this background the Jews developed their belief in the power and love of God which we have inherited from them, and it was the Jewish ideas about the character attributed to the God of Abraham that made him so manifestly unique. It not only made their religion monotheistic but also paved the way for the insight into the nature of God provided by Jesus. I am not sure that Mohammed’s God is the same at all.

Now let us consider some much simpler questions of belief that arise in maths and physics. I suppose everyone believes in the existence of the real numbers. The positive whole numbers 1, 2, 3, 4 etc. are obvious, and as soon as one starts taking things away, or sharing them, negative numbers and fractions become almost equally obvious. Historically, and practically in school, irrational numbers like $\sqrt{2}$ have caused much more trouble, but no-one doubts that the diagonal of a square that is 1 unit long on each side has a real and definite length, and the square root of 2 is well known to be 1.4142135, and on and on for ever. But there is no real number which when multiplied by itself gives -1. All positive numbers multiplied by themselves give a positive number, and so do all negative numbers. To mathematicians this seemed to be a very unsatisfactory position, so they invented an imaginary number that would do just that, the square root of minus one. You can’t express it in numerals, and so as it is imaginary they just called it *i*, for imaginary. Well it has turned out to be a very useful idea. It is not just that *i* times *i* gives minus one. It does all sorts of other things that you would never have expected. Quite remarkably it links together those other two peculiar

mathematical numbers, *e* and π, because it turns out that *e* raised to the power of *i*π is -1. Also if you raise *i* to the power of *i* (that is multiply together *i* instances of the number *i,* whatever that means) you get a real number that you can work out on a pocket calculator, namely 0.2078795763 (to the first ten figures, but going on and on for ever). It has all sorts of uses, and nowadays physicists would be lost without it. So I certainly believe in the square root of minus one. It is not a real number; it is an idea of the human mind, and yet it seems to be an objective fact that is part of the way things work.

There are a lot of things in physics that come into the same mixed category. In the 1890s people started trying to pass an electric current through a vacuum, and found that it was carried by things that travelled in straight lines but could be deflected by electric charges, so they concluded that these were little particles of some sort that carried an electric charge, and they called them electrons. However the more that was found out about electrons the more difficult it was to believe that they really were little particles. You could never tell where they actually were until they hit something. They were more likely to be in some places than others, but there was always a small chance of them being anywhere else. When they arrived somewhere and hit something you could never tell which way they had travelled to get there, only that there were different probabilities that they had taken a variety of routes. They turned out to be essential constituents of atoms but they certainly weren't particles within the atoms.


L'ALGEBRA
OPERA
Di RAFAEL BOMBELLI da Bologna
Diuisa in tre Libri.
Con la quale ciascuno da se potrà venire in perfetta cognitione della teorica dell'Arimetica.
Con vna Tauola copiosa delle materie, che in essa si contengono.
Posta hora in luce à beneficio delli Studiosi di detta professione.
IN BOLOGNA,
Per Giouanni Rossi. MDLXXIX.
Con licenza de' Superiori

Rafaele Bombelli invented the imaginary number *i*.

They form patterns within the atoms rather like the vibrations of a violin string – there are some places where the string is vibrating with a large amplitude and points in between where it is still, and the more of these there are the higher the harmonic that is being generated. But the vibrations are not vibrations of anything, like a violin string; they are more like the smile on the face of the Cheshire cat after the cat had disappeared. So what are these particles called electrons? Are they objective facts or are they ideas of the human mind? Whatever they are I certainly believe in electrons. They form the picture on my television screen, and they make my computer work.

Equally I believe in God. It is difficult to see how anything that we talk about can be other than an idea of the human mind. Non-believers say that the idea of God was invented because people felt a need for him. But the square root of minus one was invented because mathematicians felt a need for it. Non-believers say that the idea of God is absurd because he is alleged to have incompatible characteristics – being a god of love and yet creating a nature red in tooth and claw, and an earth rent by catastrophes. But electrons have incompatible characteristics – hitting things like a particle, travelling like a wave, and existing as harmonic vibrations of nothing.

One could say that objective realities never change whereas ideas of the human mind do change. We no longer believe that electrons go round an atom like planets round the sun, and we no longer believe that God foreordained a small proportion of people to have an infinitely long life of bliss, and the majority to have an infinitely long life of torment. Ideas of the human mind can change. You could say that when we discuss electrons we are really telling stories about the way that they behave. You could even say that there is not a total difference between describing small scale electric effects in terms of electrons and describing large scale electric effects like thunder-storms in terms of the god Thor.

So I do not know the difference between an objective reality and a construct of the human mind that enables me to discuss how the world works, and that is what my belief in God enables me to do.

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