

COVID-19: FROM THE VIEWPOINT OF A SCIENTIST WHO IS ALSO A PRIEST

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Introduction

Epidemics were not unknown to the peoples of biblical times. They were called plagues, and were interpreted as the acts of a vengeful God as punishment for a rebellious people. There was no such explanation given in March this year, when enormous swarms of locusts devastated vast swathes of crops in East Africa. Our notions of God, and of the causes of such invasive happenings, have changed, and are more informed.

The current pandemic of a coronavirus, specifically: Covid-19, has heightened both our fear and our loathing of viruses. Over the years, viral diseases such as smallpox, poliomyelitis, measles and chickenpox have wrought much suffering on people. Currently, there is no doubt that a great deal of pain, grief and hardship has resulted from Covid-19's arrival, both directly, through the severe illness and sometimes fatal outcome it has caused, and indirectly, in the isolation people have endured with consequent loneliness, and loss of income and livelihoods.

Thus, it may appear somewhat insensitive for this paper to opine the view that viruses are a rather beautiful and clever part of God's wonderful creation. For yes, God, the creator of heaven and earth, and all that therein is, in his wisdom, made viruses, amongst the vast panoply of his created works! Although not visible to the naked eye, or even under an ordinary light microscope, viruses are actually the most abundant biological entity on earth, and outnumber all other types, both plant and animal, put together. Furthermore, they are essential for the survival of all other created things. Hence my acclamation of them!

The wonder that is a virus – the facts

A virus is a most intriguing creation for it is both primitive and sophisticated. Firstly, there is dispute as to whether it really is a living organism. A virus comprises some genetic material (either DNA or RNA) wrapped in a protein coat. On its own, is an inert entity. It can do nothing until it finds another organism which it invades and uses for its own particular end, namely to reproduce. A virus is thus a parasite. The fact that, alone, a virus cannot replicate itself, is the reason some consider it not to be a form of life. However, there are a number of definitions of 'life', not only scientific, but also philosophical and theological. This aspect will not be considered further here.

When a virus encounters another organism, it attaches itself to the outer membrane of some cells of this host - in the case of Covid-19, to the cells lining a person's nasal cavity and throat. It penetrates that membrane and enters the inside of the cell - the host has become infected. Then the virus integrates its genetic material (RNA in the case of Covid-19) into that of its host, and proceeds to use the host's cellular machinery both to replicate its own genetic material, and to synthesise its specific viral proteins. Thus, the virus cleverly manipulates another organism

both to make abundant copies of its viral genome (= the complete set of genes present in an organism), and to make the viral envelope, and in a very short time millions of copies of the viruses are produced. Usually, the host cell becomes so full of them that it dies and bursts, so releasing them to infect more cells. Alternatively, the new viruses may simply 'bud' off the host cell, to spread to other cells. The virus does use some of its own limited number of enzymes to facilitate part of the replication process, and it is the action of one of these that the drug 'Remdesivir', currently being trialled to treat Covid-19 patients, inactivates.

I find that life story an astonishing and innovative way of existence!

Viruses probably originated just over three billion years ago, when life was in its very primitive stages, existing simply as single cells, although it is not known for sure as there is no obvious fossils record of viruses. That viruses are still around today is testament to their success as creations. It is estimated that there are at least 100 million different viruses, living in all types of life: plants, animals, birds, fish, insects and, importantly, bacteria (see below). Usually, they co-exist harmlessly.

You may find the following shocking! We humans have trillions of viruses inside us, and on our skin. We are completely unaware that these viruses live harmoniously with us, just as we are also probably unaware how vital they are to our existence. Without them, we would not be here.

Moreover, and prepare for another shock! Some of our own DNA is viral in origin. It comprises, about 8% of our total genome, in roughly 100,000 different pieces. Our viral DNA is not just a relic of evolution, but it is often beneficial to us. Some of its known functions include protecting us against disease, helping us to digest certain food, and controlling some gene activity.

Thus, viral DNA, inserted into our ancestors eons ago, inherited over the ages and carried down to us today, helps to make us tick and keep us well – now, isn't that awe-inspiring?

Viruses are integral to nature, that is, to the entire created order. Crucial to this are the viruses that infect bacteria. These are called: bacteriophages, and overall, are the predominant types of viruses. Bacteria are another of God's marvels of creation, for they are as vital to life as viruses are. Bacteria decompose organic matter found in both the soil and in the oceans, and recycle substances, including as nitrogen and carbon. This is particularly important because these elements are necessary for life, and plants and animals cannot make them for themselves. Bacteria produce them as they decompose matter but keep them within their structure. However, viruses that use bacteria as their hosts, kill them in the process causing them to burst, and this releases these essential elements into the environment, thereby rendering them available for plants and animals to utilise.

In this way, viruses play an indispensable role in the survival, dynamics and balance of all the ecosystems (= biological communities of interacting organisms and their physical environment, for example, the Amazon rainforest; a desert; a coral reef) that comprise life on earth.

Viruses are astounding, magnificent, creations of God. 'O Lord, how manifold are your works! In wisdom you have made them all' (Psalm 104, verse 24).

God and his creation

'God saw all that he had made, and it was very good' (Gen. 1:31).

There are a number of meanings of the word 'good'. In the creation story, the implication is that God values all that he has made. Each member of the created order is good of itself, it is a functioning, surviving entity, it has wholeness. And it is also good for the rest of creation, as part of the greater whole.

That describes viruses exactly. They function exquisitely, God's handiwork was excellent, enabling viruses to survive for over three billion years – they are inherently good. They are also of immense worth for the rest of the natural world, playing a vital supporting role within it, so they have a moral goodness.

God indeed made viruses very good.

Humans: co-creators with God

Our belief is that God created us human beings in his own image. One of the many aspects of that is that humans reflect some of God's creative ability. Humans have a great capacity to be inventive, ingenious and original. This is manifest in, for example, contemporary advances in science and medicine. However, the recent developments in molecular cell biology and genetics have been possible only because of viruses, particularly bacteriophages.

The God given resourcefulness of human beings has harnessed firstly, the ability of viruses to cut the host's DNA at a specific point, secondly, viral enzymes in order to make endless copies of RNA and DNA in the laboratory, and thirdly, the ability of viruses to infect cells, which has enabled gene therapy, using modified viruses to carry a desired gene into a cell. This has, and continues to, revolutionise medicine, and its healing power and potential.

God made viruses, and he made humans with intellect and ingenuity. I believe this is how God's creation continues in his world today – those he made in his image are now co-creators with Him.

Science and religion

It used to be said that science and religion were in conflict. Today, I, and many others think this is not so. Rather, I believe that science enhances our knowledge and experience of God. We now understand God's role as that of one who works in and through the processes of nature, including, through the people he has created. He remains omnipotent, but He chose to make a universe that is an ongoing process, continually changing. He didn't just create once, a one job lot, but as a creation that evolves over time.

The genetic material randomly changes all the time – it mutates. Some changes are harmful, some are beneficial, most are neutral. Mutations are the foundation of evolution, and are God's way of maintaining, developing and enhancing his creation. Animals and plants and viruses alter, some become extinct, new species appear. The physical world is never constant either - coast lines alters as land is eroded and falls into the sea, while elsewhere, new islands appear in oceans as a result of volcanic activity. The entire universe is expanding. The evidence that God's creation is always changing is ever before us if we will only look.

God's superb creation is dynamic, never static, and his work of creation carries on ceaselessly. That is God's way.

Human suffering

God gave his human creations freedom – freedom to choose between right and wrong, and between good and evil. That was a risk; there are consequences. Usually, human suffering arises because of selfish or malicious acts by one person on another. However, the current pandemic is caused by a virus, but is not malicious or selfish, it is just itself, going through God's way of dynamic mutation, change and development.

It may sound cold hearted and lacking sympathy, but part of balance within God's created order is an economy of nature, which, when viewed from the human perspective, has downsides, and may not be what we ourselves would choose. On the African plains, we marvel at magnificent lions living in prides with their cubs, and also at the herds of graceful antelopes quietly grazing nearby. But lions hunt and kill these innocent creatures in order to eat and to feed their cubs, and so to survive. Similarly, crocodiles catch and eat adventurous wildebeests on their yearly migration during which they have to swim across African rivers. These are instances of the natural processes of life within the economy of the created order – there is life and there is death.

A minute number of types of viruses out of the millions that are known, cause suffering and death to humans. Even they are God's creations. Like lions and crocodiles, they too, are instances of the natural processes of life. It is not intentional on God's part - he did not make viruses in order to cause human suffering, it is a consequence of the wider, integrated workings of the created order, in all its forceful majesty. God does not want people to suffer, but he permits it.

Furthermore, God neither sends suffering to an individual, nor offers an individual exemption from suffering. But when suffering comes, God comes too, and is there alongside us, to comfort and lead us through it. Our way of discipleship is knowing that God in Jesus came and experienced suffering, sharing human pain at it very worst. And he showed us that the end is not the Cross, but the resurrection. After suffering, the scars will remain, but God gives us the opportunity to emerge from the darkness into the light, changed and transformed.