

Bird Flu and a good God

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Politicians, scientists, farmers and others have been concerned about the possible progress of Avian Influenza (H5N1) from Eastern Asia to Europe. Migratory waterfowl are the natural reservoir for the virus, but domestic poultry are especially susceptible to epidemics of it. It can be transmitted between farms by mechanical means. Stringent sanitary measures can reduce the risk of infection and spread.

Concerns are not only of it affecting our poultry, but the possibility of it crossing the genetic barrier and affecting humans. This is effected by a mixing and re-assortment of genes (antigenic shift) in the host. In this situation, there can be a genetic exchange between the avian and human influenza viruses, making the avian form more accessible to humans. Basically, viruses consist of a capsule carrying a genetic strand with which they infect a host cell.

This exchange occurs when two varieties of a virus infect the same host cell. When this happens, the genes can be mixed and are then transferred into a recombined virus. Some forms of flu virus can infect birds and pigs, while another may infect pigs and humans. So, if the bird and human forms meet in a pig, the recombined bird virus may now be able to infect humans. *This does not involve making new genes*; it is simply a redistribution of existing genetic material. It is not, therefore, an example of evolution as normally defined. The new version of the virus is given a modified label by scientists, which reflects its origins.

We do know, of course, that viruses can also undergo mutations. Typically, these may originate from errors in copying the genes. The influenza virus is very prone to this since the genetic material in the virus is in the form of a single

strand of RNA instead of DNA. The transcription process for RNA is not so accurate as that in DNA. In the latter case, there are two complementary strands, and each strand acts as a template for checking the copy. A previous article in *Origins* described one aspect of the 'proof-reading' process (Peet, 2006). Since RNA is single-stranded, there is not this information back-up.

Some mutations change the shape of the proteins on the viral surface. As a result, the infected host may not recognise the nature of the invader which can afflict the victim until the immune system is able to take over.

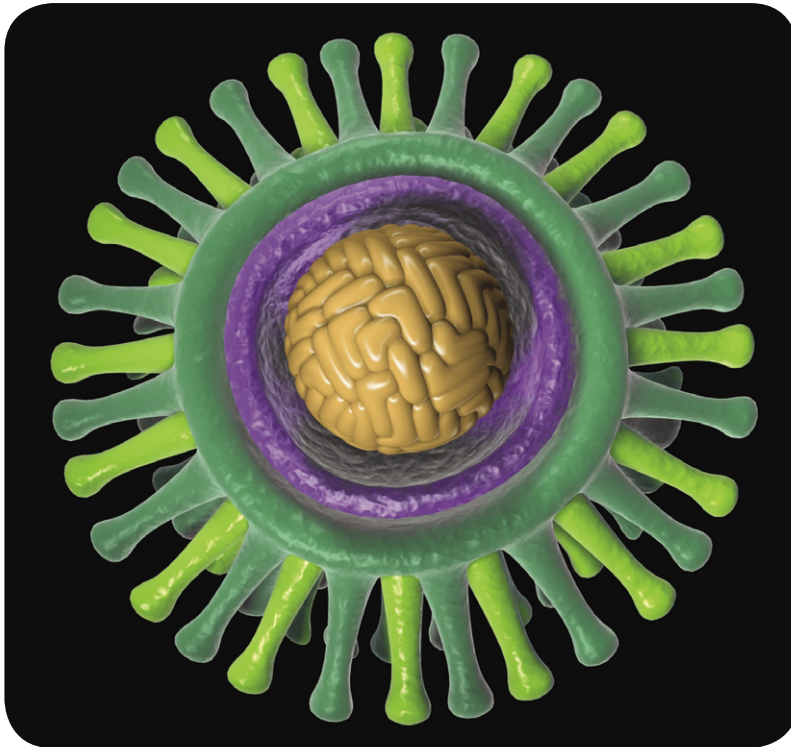
Bad bugs?

There is another underlying problem for the Bible believer. It is aptly summed up in the title of a talk by the Australian creationist, John Mackay (2004), 'Did a Good God Make Bad Bugs?' (see also Bergman, 1999). The problem is obviously far wider than that presented by the bird flu.

It is generally assumed that viruses are of themselves bad and so questions arise as to their origin. *Viruses are parasitic but for a beneficial reason*. They carry genetic material which can be



Poultry farm chicken. Photo © Photoboxchange.



Avian influenza H5N1. Illustration © www.istockphoto.com.

transferred to cellular life such as bacteria, so helping them adapt to a new or changed environment. The virus has been described as a “remarkable mechanism for the exchange of genetic material”. Holmes (1996) said, “viruses have shaped the entire structure of the ecosystem.”

They also depend on the host cell to duplicate the genetic material, so they have no reason to kill the cell! They control bacterial growth and can be used as a treatment for bacterial diseases. By their action, they can aid survival of bacteria (again, bacteria are not of themselves bad: we depend on good bacteria) and maintaining ecological balance.

One scientist, S. Morse, wrote that by humans “disrupting the established ecological order, people inadvertently encouraged the adaptation of a ‘weed’ species that more often than not brought them fever and misery” (Creager *et al*, 1990, p.18).

For example, there has been a lot of publicity about the methicillin-resistant *Staphylococcus aureus* (MRSA) bug in our hospitals. In fact, it has been around for decades and about 40% of the population are carriers. The hospitals, of course, are populated with the sick (and so vulnerable) and the antibiotic treatments have killed off other bacteria, allowing the MRSA bug to dominate. It has become clear that the cause of its spread has been poor hygiene, but one way of treatment may be to use a bacteriophage (one form of a virus) to attack the bacterium. Viruses are an ideal means of transporting healthy genes to ‘infect’ damaged cells in gene therapy.

Good viruses can become bad by mutation of the viral gene or by that of the host preventing its normal function. It can move across barriers

between genera as a result of bad environmental management by man. That is a failure by mankind to heed the creation mandate to care for God’s creation. ■

References

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