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Comments on the Origin and Spread of the 2019 Coronavirus

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Abstract

We propose that the new coronavirus which first appeared in the Hubei province of China was probably linked to the arrival of a pure culture of the virus contained in cometary debris that was dispersed over a localised area of the planet-China. The sighting of a fireball some 2000 kilometers north of Wuhan on 11 October 2019 followed shortly after with the first recorded cases in Hubei is suggestive of a causal link. Gene sequencing data of the virus that show little or no genetic variations between isolates, combined with available epidemiological data point to the predominance of a transmission process directly from an "infected" environment, with person-to-person transmission playing a comparatively weaker secondary role. The facts relating to this epidemic are discussed and placed in the context of other pandemics that have been recorded throughout history.

Keywords: Coronavirus • Epidemiology • Comets • Panspermia

Introduction

With a new coronavirus (2019-nCoV) that has affected tens of thousands of people in mainland China, including many hundred deaths, and with its consequences wreaking havoc in the financial and business world, the truest cause of this and other similar pandemics needs to be urgently and honestly explored. All the epidemiological, genetic, geophysical and astrophysical data appear to be consistent with a primary cause associated with the deposition of dust carrying the virus was transported through the troposphere and deposited in the wider environs of China including parts of the China Sea.

The first cases of 2019-nCoV infection in the human population were reported during November 2019 localised in Wuhan in the Hubei province of China. It is interesting that this followed remarkably close on the heels of a cometary bolide that exploded on 11 October 2019 lighting up the skies above north-east China over Sonjyan City in the province of Jilan. The bolide may have been part of the Orionid meteor stream that contains the debris of comet P/Halley.

Although the sighting of the fireball itself was some 2000 km distant from the epicentre of the coronavirus outbreak in Wuhan, a loosely held cometary bolide carrying the virus may have fragmented in the troposphere prior to the fireball event. Micron-sized dust including bacteria and viruses released from such a fragment may then have become dispersed over a wide area and this material could fall non-destructively to the ground. Such a scheme of events, although representing an unorthodox point of view, has been discussed extensively by the late Sir Fred Hoyle and one of us close upon 4 decades ago [1-3]. Over this period support for the astronomical and biological ideas underlying the contingent theory of cosmic life – panspermia-has grown to the point to being compelling [4,5].

In the case of the new coronavirus (2019-nCoV) we note that conventional theories of infection are being strained to the limit in their capacity to account for the unfolding facts. In our view, the virus itself became dispersed in the troposphere and was transported to ground level being first incorporated as the nucleation centres of rain and mist, the first cases showing up during November 2019 in

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Wuhan. Infective dust/droplets might still (in February 2020) be falling over a wide region of China, even possibly affecting ships at sea.

It is also entirely likely in our view that other virus-carrying fragments that became more widely dispersed in the stratosphere might still lead to smaller clusters of disease – for instance at the Ski resort in Mont Blanc as might well have happened. Thus a continual world-wide vigilance is therefore not out of place and the monumental efforts of Governments and Health authorities worldwide must be praised. Hoyle and Wickramasinghe [1-4] have argued that the draining out of a viral sized inoculant once it became widely distributed in the stratosphere could take several years. This happens with a distinct seasonal bias for viruses like influenza and indeed also for the smallest dust particles uplifted during powerful volcanic eruptions. Whether the October/November 2019 event leading to 2019-nCoV was entirely localised over China and therefore largely containable still remains to be seen.

Data from Epidemiology and Sequencing

A recent paper by Huang et al. [5] and commentary by Cohen [6] highlights many unusual aspects of the outbreak of nCoV-2019. The evidence clearly demonstrates that many cases of disease (about 30%) arose in locations unconnected with the Wuhan seafood and meat market. The speculation that bats were an intermediary reservoir for the virus isolated in humans has not been confirmed, and it is possible to argue that all the animals currently harbouring the virus may have been infected from the same external source. The "lethality" or "death rate" from this epidemic appears to increase in older patients with pre-existing conditions with and overall death rate estimated at 1-2%.

Phylogenetic analyses of nCov-2019 sequences show little by way of sequence variation across a wide range of samples thus indicating low mutation rates approximating closely to what would be expected for a pure culture [5-7]. (See also: http://virological.org/t/clock-and-tmrca-based-on-27-genomes/347). This fact combined with the available epidemiological data points to little or no human-to-human transmission except from instances of close proximity with high doses of virus delivered at very close quarters. A contact transfer interpretation is also confounded by the fact that intimate social units may often have shared or sampled the same infected space, so transfer and "co-infection" cannot always be distinguished. In instances where a group of people who shared a confined geographical space become affected, but with one individual case appearing ahead of others (which we would expect statistically) the concept of "the super spreader" has been introduced, but this is not based on any independent scientific evidence.

Whilst the number of reported cases (as of mid-February) keeps soaring in China it is comforting to note that spread in more distant locations around the world has been largely contained, being confined in the main to persons who have contracted the disease from visiting China or neighbouring East Asian locations – the regions where the virus was deposited from its primary cosmic source. We predict that over a few weeks the entire population of China, and possibly its environs, would have been sub-clinically affected and thus acquired "herd" immunity when the epidemic in China would come to an end. Whether other foci of infection (from independent "fall out") develops around the world remains to be seen.

A Comparison with SARS

In an earlier communication, the possibility was discussed that the 2003 SARS outbreak (also caused by a corona virus), which started in China may similarly have been triggered by a space event [8]. In this case the virus may have been introduced into the troposphere from a disintegrating fragment of a carbonaceous meteorite at a location east of the Himalayan mountain range. Prevailing winds from the West might then have transported the virus eastwards to make a first deposition in China, a situation consistent with the first appearance of SARS. The subsequent course of its global distribution, however, depended on stratospheric transport and mixing, thus leading to a global fall-out continuing seasonally over a few years, eventually coming to an end due to a combination of factors including exhaustion of a primary source and the development of immunity.

Evidence of Viruses Reaching the Ground

It is only relatively recently that scientists have been able to fully grasp the enormous magnitude of the microbial and viral content of the terrestrial biosphere. We now know that a typical litre of surface seawater contains at least 10 billion microbes as well as some 100 billion viruses-the vast majority of which remain unidentified and uncharacterized to date. Recently an international group of scientists collected bacteria and viruses that fell through the rarefied atmosphere near the 4000 metre peaks of the Sierra Nevada Mountains of Spain [9]. They arrived at an astonishing tally of some 800 million viruses falling per square metre per day with an associated smaller tally of bacteria-all of which would ultimately fall upon the Earth's surface.

The assumption normally made is that all such viruses and bacteria necessarily originate on the Earth's surface itself, swept upwards in air currents, and then fall down; but in such a model many difficulties associated with upward transport processes are ignored. In our view, some fraction of this vast number of falling microbes must originate outside the terrestrial biosphere – viruses and bacteria that are actually expelled from comets.

Independent evidence can be obtained from sampling the stratosphere for its bacterial content. By analysing samples of the stratosphere from a height of 41 km using balloon-borne equipment we had already obtained in 2001 an estimated input of 20-200 million bacteria per square metre per day, as well as 10 to 100 times more in the form of viruses, falling downwards to the Earth [10].

If we take into account all the facts available to date we cannot avoid the conclusion that vast numbers of bacteria and viruses continue to fall through the Earth's atmosphere, and it seems inevitable that a significant fraction is of external origin. We are also beginning to obtain further evidence pointing to the first signs of bacterial life being lodged in ancient rocks that formed 4.2-4.3 billion years ago at a time when the Earth was being relentlessly bombarded by comets. The strong indications are that comets carried

the first bacteria to our planet at this time, and moreover that the entire subsequent evolution of life on Earth took may have taken place against the backdrop of comets regularly introducing new genes in the form of bacteria and viruses [3,11].

Organic structures identifiable with bacteria and viruses have been reported in carbonaceous meteorites over several decades, including studies by Pflug [12]. Figure 1 shows one of many carbonaceous structures in the Murchison meteorite that were identified with fossilised microbiota including a virus resembling the corona virus.

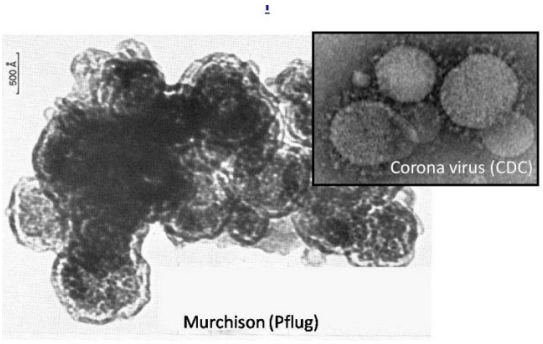

Figure 1. Electron micrograph of organic structure within the Murchison meteorite compared with the structure of the coronavirus [12].

Relation to Historical Evidence

Reports of the sudden spread of plagues and pestilences punctuate human history throughout the millennia [2,3]. The various epidemics, scattered through history often bear little or no resemblance one to another. However, they generally share a common property of suddenly afflicting entire cities, countries or even widely separated parts of the Earth in a matter of days or weeks. The Greek Historian Thucydides describes one such event-the plague of Athens of 429BC thus:

"It is said to have begun in that part of Ethiopia above Egypt….On the city of Athens it fell suddenly, and first attacked the men in Piraeus; so that it was even reported by them that the Peloponnesians had thrown poison into the cisterns….."

This event from Classical Greece bears striking similarities to the modern unfolding events in China relating to the new coronavirus. Thucydides writes that many families were simultaneously struck by a disease with a combination of symptoms hitherto unknown in more recent epidemics. The idea of an enemy (the Peloponnesians) poisoning the drinking water bears a striking similarity to what has happened in the Corona virus outbreak in China.

The orthodox point of view, that is by no means well-proven, is that major pandemics, such as the present coronavirus and indeed pandemic influenza, start by a random mutation or genetic recombination of a virus which then spreads across a susceptible population by direct person-to-person contact. If this were the case, it is somewhat surprising that all major pandemics tend to be self-limiting. In general, they are relatively short-lived, usually lasting about a year, and that they do not eventually affect the entire human population which would not be expected to have any prior immunity to a totally new pathogen. We would argue alternatively that a primary cometary dust infection is potentially the most lethal, and that secondary person-to-person transmissions can progressively reduce virulence thus resulting in a diminishing incidence of the disease over a limited period.

Many recent pandemics of viral disease, including influenza, are known to have followed a similar pattern of behaviour and a number have first appeared in China [2,8]. Following the initial deposition in a small localised region (eg: Wuhan, Hubei province, China) particles that have already become dispersed through the troposphere will fall to ground in a higgledy-piggledy manner, and this process could be extended over a typical timescale of 1-2 years until an initial inoculant of the infective agent (embedded in submicron cometary dust) would be drained.

Conclusion

In conclusion we affirm that it is prudent for Governments and Public Health Authorities around the world to maintain their state of high alert until more is discovered. At the same time assertions of false knowledge, such as the existence of "superspreaders", are probably a hindrance to understanding truest causes and thereby in dealing constructively and indeed compassionately with an unfolding crisis. In our view, it will also be prudent to put in place a programme of regular stratospheric sampling, using the most modern gene sampling techniques, essentially expanding what was begun in 2001. By such a program we could be forewarned of incoming offending bacteria and viruses before they fall to the troposphere and eventually to the Earth. We have a typical lead time of 1-2 years (time of fall through the stratosphere) during which time appropriate public health measures including production of vaccines could be put in place.

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