Life from Mars?

One topic which briefly dominated the newspapers and television channels recently was the claim that scientists have discovered life from Mars. The possibility of life on Mars has fascinated many, including the wealthy American astronomer Percival Lowell, who erroneously thought he had discovered hundreds of canals by 1908. When the Viking spacecraft visited Mars in 1976, no trace of life was found, despite sophisticated detection techniques.

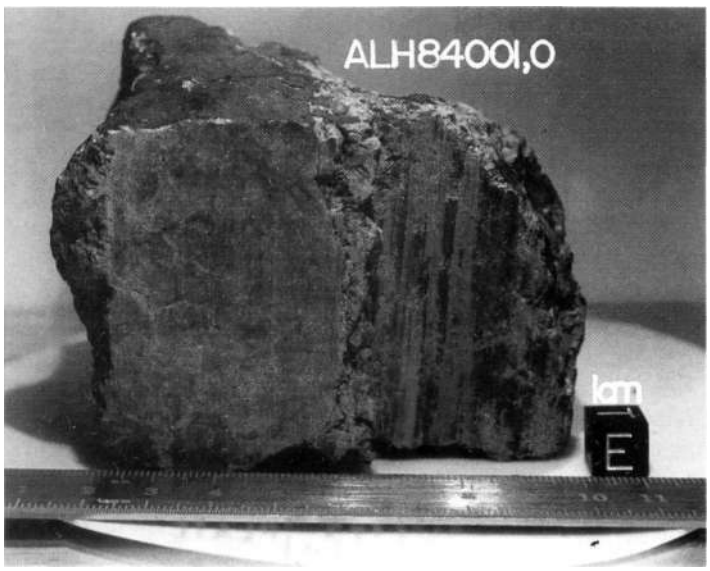
Many articles were proclaiming that this discovery would cause traditional religionists to rethink their fundamental doctrine. They argued that life on Mars would show that matter has an inbuilt tendency to form life. Thus, a Creator is unnecessary, and the Earth and humanity are nothing special. However, the professing evangelical President of the USA, Bill Clinton, was very enthusiastic, saying *'If this discovery is confirmed, it would surely be one of the most stunning insights into our universe that science has ever uncovered'*[1] But what are the facts?

WHAT WAS ACTUALLY FOUND?

It is very important to realise that no-one has found life on Mars. The announcement concerned a potato-sized rock on Earth.[2] This rock (found in the Allan Hills area in Antarctica and labelled ALH84001) is thought to be a meteorite. It contains tiny globules which superficially resemble bacteria in shape, and certain chemicals supposedly indicative of life.

DID IT COME FROM MARS?

We do not know for sure, although an affirmative answer seems to be the only thing researchers agree upon.[3] The gases trapped inside the rock's tiny pores reportedly match today's atmosphere on Mars (argon and carbon dioxide). However, its mineral composition differs from that of the 11 other meteorites believed to be martian, called SNCs after the three most famous examples, the Shergotty, Nakhla and Chassigny meteorites. ALH84001 is also claimed to be several billion years older than the SNCs. But it does have the same distinctive oxygen isotope ratio, which has supposedly remained unchanged for billions of years. This is evidence that they came from the same parent body, but is far from conclusive. For a rock to escape Mars' gravity, its speed would need to be over 5.1 km/s,[4] five times greater than that of a rifle bullet, although it is possible that an impact from a large enough asteroid could cause that.



One piece of the meteorite ALH84001 from the Allan Hills area of Antarctica. Using the scale for measure, this piece is only 10 cm (4 inches) across (photo from NASA).

HOW OLD IS IT CLAIMED TO BE?

Radiometric dating (under uniformitarian assumptions) suggests that the meteorite crystallised at about 4.5 Ga (1 Ga = 10^9 years) ago.[5] The age of the controversial carbonate globules is claimed to be 3.6 Ga.[6] However, Meenakshi Wadhwa of the Field Museum in Chicago claims that rubidium/strontium ratios indicate that their age is only 1.39 + 0.1 Ga.[7]

This rock is believed to have been chipped off from Mars by a bolide impact at about 15 Ma (1 Ma = 10^6 years) ago, and landed on Antarctica 13,000 years ago.

WAS ANY LIFE ACTUALLY FOUND?

There is not even a trace of cell walls, internal cellular structure or molecules able to store and replicate large amounts of information. All these are essential for any living organism. Chips of the rock were cultured in nutrient media and were found to be sterile.[8]

William Schopf of the University of California, Los Angeles, a leading expert on microfossils, said:

'I think it is very unlikely they have remnants of biological activity'[9]

He points out that the claimed martian objects which measure between 20-100nm (1 nm = 10^{-9}m) are much smaller than most known bacteria (500-20,000 nm). One of the smallest bacteria, *Mycoplasma pneumoniae*, ranges between 100-250 nm in diameter.[10]

The American biochemist Harold Morowitz calculated that the smallest hypothetical minimal cell we can envisage is about 100 nm across.[11] This would contain three ribosomes, a full complement of enzymes, a DNA

molecule 100,000 bases long, and a cell wall. He points out that this

> *'is almost certainly a lower limit, since we have allowed no control functions, no vitamin metabolism and extremely limited intermediary metabolism. Such a cell would be very vulnerable to environmental fluctuations.'*

Indeed, *Mycoplasma,* which are barely over this limit, can only survive by parasitising more advanced organisms. *Mycoplasma genitalium* has the smallest known genome of any living organism, which contains 482 genes comprising 580,000 bases.[12]

Morowitz points out that if the martian objects were cellular, then

> *'all the necessary functions of a cell could be carried out by an "organism" with less than 100 million atoms. Such an "organism " would be two orders of magnitude smaller than the smallest known one-celled organisms on Earth,* Mycoplasma.'[13]

Another team which analysed the rock found it lacked a key sign of biological activity.[1415] The leader, Jim Papike, director of the Institute of Meteoritics at the University of New Mexico, wrote:

> *'When we looked at the ratio* [of two sulphur isotopes, ^{32}S and ^{34}S], *there was no evidence that it was in a ratio for life forms'*

In fact, he said that the ratio pointed in the opposite direction.

SO WHAT THEN IS THE EVIDENCE FOR LIFE?

• **Carbonate globules with tiny oval and tube-shaped objects on the surface.** One explanation of these textures is that they had been produced by microbial activity. However, the key paper by McKay *et al.* concedes:

> *'The origin of these globules is controversial*'.[16]

It lists other theories for their origin, including *'high-temperature metamorphic or hydrothermal reactions*', and *'low-temperature hydrothermal conditions'.* It states that the high temperature theory is indicated by petrographic and microprobe results.

• **Molecules called *PAHs*** *{Polycyclic Aromatic Hydrocarbons,* many of which are potent carcinogens). This class of organic compounds is sometimes produced by the decay of microbes. However, this is not the only possible means of their production. Such molecules are commonly found in soot and diesel exhaust. Also, *'PAHs are very widespread compounds in asteroids and not diagnostic of life'* according to Robert Clayton, a geochemist at the University of Chicago. He pointed out that the spectrum of PAHs in the martian meteorite is a thousandfold less diverse than that found in fossils.[17]

Contamination from Earth is another possibility. It is ruled out by Richard Zare, who headed the chemistry team, because there are more PAHs deep inside the rock than on the surface. But Robert Gregory, a geologist at Southern Methodist University, Dallas, Texas, points out that UV light would destroy PAHs on the surface. Also, since the meteorite is black, it would absorb heat, and the melting snow would seep into the many fissures in the rock and concentrate PAHs on the inside.[18]

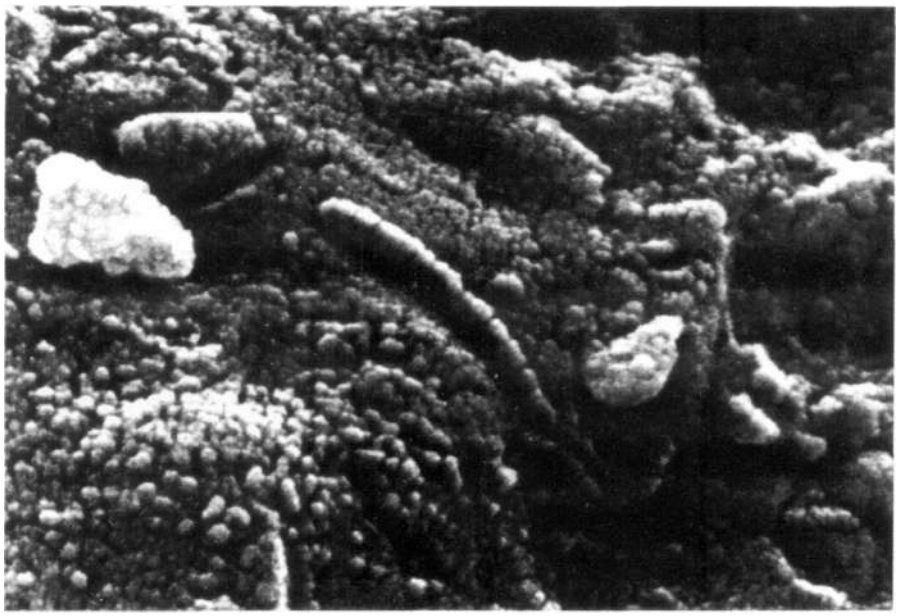
• **Magnetite and iron sulphide.** McKay *et al.* say that they

> *'could be explained by either inorganic* [non-living] *or biogenic* [coming from life] *processes.'*[19]

However, it is the occurrence of these minerals together with corrosion of the carbonate globules, which suggests (to them) a biogenic origin. Inorganic co-precipitation of magnetite (Fe_30_4) and pyrrhotite (FeS_{1-x}) requires high pH (alkaline) and strongly reducing conditions. But the observed dissolution of the carbonate suggests low pH (acidic) conditions, They state:

> *'It is possible that the Fe-sulfides, magnetite and carbonates all formed under high pH conditions, and the acidity changed at some point to low pH, causing the partial dissolution of the carbonates. But the Fe-sulfides do not appear to have undergone any corrosion, which would have likely occurred under acidic conditions.'*

They prefer a biogenic explanation, because production of those particular features do not seem *'plausible in simple inorganic models',* although



High-resolution scanning electron microscope (SEM) image of part of a patch of carbonate in meteorite ALH84001 some 50µm across which 'harbours' a 0.5µm long tube-like, fossil-like structural form (photo from NASA).

they admitted in an earlier draft that *'more complex models could be proposed'.*

The asymmetric shape of these mineral grains is suggestive of life to some. **New Scientist** reports:

> *' "What hits me between the eyes ", says Joseph Kirschvink, a team member from the California institute of Technology, is the teardrop shape, which is "the fingerprint of biology ". Crystals that grow inorganically are symmetrical'*[20]

This is not so. Crystal growth depends on factors such as concentration of the minerals, nucleation sites and surface defects on the crystal itself. A type of defect called a screw dislocation can result in rapid spiral growth on one face. However, the external appearance of crystal shape is determined by the **slowest** growing faces, because the fast growing faces grow themselves out of existence.[21]

HIDDEN AGENDA?

The noted astronomer Sir Fred Hoyle had reservations about the NASA announcement, arguing that it was perhaps a publicity stunt to gain more government money:

> *'considering NASA is absolutely avid to get funding from Congress, one has to be a bit suspicious.'*[22]

It is certainly a coincidence that the announcement came just as the US Congress was proposing to cut NASA's funding, although they had collected the rock in 1984. To be fair to the researchers, the actual scientific paper avoided sensationalism and dogmatism.

WOULD LIFE ON MARS PROVE PARTICLES-TO-PEOPLE EVOLUTION?

Finding 'primitive' life on Mars would not show that it had **evolved** there.

First, it would not rule out an Earth origin for that life. After all, if rocks can be blasted from Mars to Earth, it should be possible to blast them the other way. It is true that Earth's escape velocity (11.2 km/s)[23] is over twice that of Mars. Since kinetic energy is proportional to the velocity **squared** ($E = \frac{1}{2}mv^2$), this would require an energy nearly five times greater. Also, rocks from Mars would be attracted by the Sun's gravity, so would be more likely to intersect Earth's orbit. On the other hand, the Sun would tend to attract Earth rocks away from Mars' orbit. But the possibility still exists.[24] A less dramatic possibility, which scientists have considered for years: that spores from Earth were pushed out of the upper atmosphere into space by light pressure, especially during a solar flare. Therefore, the alleged martian life could originally have been seeded by earth life.

Second, evolutionists have not succeeded in showing how non-living matter can jump the many hurdles required to form living cells. Even the simplest self-reproducing organism[25] has 482 genes coding for enzymes about 400 amino acids long on average (see above). Each enzyme must have a precise sequence to function properly. There are 20 different types of amino acid used in enzymes. Even if only 10 units had to be exactly right in each enzyme, the chance of getting the full set by ordinary random polymerisation reactions is one in 10^{6271} (one followed by 6,271 zeroes). This is indeed effectively nil when one realises that the number of atoms in the universe is only about 10^{80} (one followed by 80 zeroes). Natural selection cannot be invoked to overcome this problem, since it requires self-reproducing entities to start with.

Particles-to-people evolutionists deny the Law of Biogenesis (life comes only from life), probably the fundamental law of biology. Without it, aseptic surgery and the canning industries could not function. Conversely, creationist scientists apply this law to its logical conclusion:

(1) Since material life has not existed forever, and
(2) life only comes from other life; therefore,
(3) the source of material life must be non-material life.

WOULD LIFE FROM MARS BE A PROBLEM FOR CHRISTIANS?

The Bible does not explicitly say that no life was created outside the Earth. Some Christians of yesteryear, for example, the British scholar Richard Bentley, even theorised that God's omnipotence and glory might be expressed by many planets with life.[26]

However, it must be noted that most supporters of extra-terrestrial (ET) life have a strong evolutionary bias, as pointed out earlier. Both Carl Sagan and H. G. Wells wrote books supporting evolution and opposing Christianity.[27] It is tragic that millions of dollars are wasted on seeking complex signals which would prove an alien intelligence, but they refuse to consider that the complex signals of our DNA and protein point to an Intelligence which made us. It is also sad to see President Clinton virtually pledging billions of dollars to help the space programme because he thinks some shapes and chemicals in a rock show that life was on Mars. Yet in the USA, millions of dollars are spent, with his approval, killing human unborn babies with heartbeats and brainwaves, because he presumably maintains that they are not alive!

Scripture strongly implies that no **intelligent** life exists elsewhere, and the millions of taxpayers' dollars spent on SETI projects have failed to refute this. The Earth was created purposely to be home for humans. It was on Earth that humans rebelled against their Creator and brought the cosmos under the curse of death and decay (Romans 8:22). It was also the place where the Creator took on the nature of one of His creatures, died for their sins and rose from the dead. It would therefore seem hard to reconcile intelligent life on other worlds with the doctrine of the Incarnation. It would also seem odd for God to create

microscopic life on other planets, but we should not be dogmatic on this.

SUMMARY

The media speculations about 'life on Mars' are premature, to say the least. Some researchers in the field believe the evidence is actually against life. Some have suggested that the claim is a publicity stunt by NASA to gain more Government funding. And at most, the evidence is vaguely suggestive of microbial life. If so, **there is still no reason that this could not have had an Earth origin.**

REFERENCES

1. Jaroff, L., 1996. Life on Mars. **Time,** 19 August, pp. 76-82 (p. 78). Such a pro-evolutionary stance is not surprising; Clinton's disregard for the absolutes of Scripture in regard to abortion and homosexual activity are well-known.
2. McKay, D. S., Gibson, E. K. Jr., Thomas-Keprta, K. L., Vali, H., Romanek, C. S., Clemett, S. J., Chillier, X. D. R, Maechling, C. R. and Zare, R. N., 1996. Search for past life on Mars: possible relic biogenic activity in martian meteorite ALH84001. Science, 273:924-930.
3. Mullins, J. and Walker, G., 1996. The oldest meteorite from Mars. **New Scientist, 151(2043):10.**
4. Article: 'Escape Velocity', **McGraw-Hill Encyclopedia of Science and Technology,** 1971, Vol. 5, p. 74.
5. Jagutz, E., Sorowka, A., Vogel, J. D. and Wanke, H., 1994. **Meteoritics, 29:478.**
6. Knott, S. K., Ash, R. D. and Turner, G., 1995. **Lunar and Planetary Science,** 26:765.
7. Kiernan, V, Hecht, J., Cohen, P. and Concar, D., 1996. Did martians land on Antarctica? **New Scientist, 151(2043):5.**
8. McKay *et al*., Ref. 2, p. 925.
9. Kiernan *et al.,* Ref. 7, p. 5.
10. Article: 'Bacteria', **Encyclopaedia Britannica,** 15th edition, 1992, Vol. 14, p. 571.
11. Morowitz, H. J., 1966. The minimum size of cells. *In:* **Principles of Biomolecular Organisation,** G. E. W. Wostenholme and M. O'Connor (eds), J. A. Churchill, London, p. 456. Cited in Michael Denton, 1986. **Evolution: A Theory in Crisis,** Adler and Adler, Bethesda, Maryland, pp. 263-264.
12. Goffeau, A., 1995. Life with 482 genes. **Science,** 270:445-446.
13. Morowitz, H. J., 1996. Letters: Past life on Mars. **Science,** 273:1639-1640.
14. **Cincinnati Enquirer,** 8 August 1996, p. 15.
15. Shearer, C. K., Layne, G. D., Papike, J. J. and Spilde, M. N., 1996. Sulfur isotopic systematics in alteration assemblages in martian meteorite Allan Hills 84001. **Geochimica et Cosmochimica Acta,** 60(15):2921-2928.
16. McKay *et al*, Ref. 2, p. 928.
17. Kiernan *et al*, Ref. 7, pp. 4-5.
18. Keirnan *et al*, Ref. 7, p. 5.
19. McKay *et al*, Ref. 2.
20. Kiernan *et al*, Ref. 7, p. 4.
21. See P. W. Atkins, 1982. **Physical Chemistry,** 2nd edition, Oxford University Press, New York, pp. 1002-1006.
22. **Reuters News Media,** London, 8 August 1996.
    Hoyle said he hoped the NASA claims could be verified: *'I'd be very pleased if it was true'* he told the **Guardian** newspaper.
23. Ref. 4.
24. This possibility was discussed by the astrophysicist Paul Davies and suggested by creationists well before the NASA announcement — see 'Planets can swap rocks' (Focus item). **Creation Ex Nihilo, 18(3),** 1996, p. 7.
25. Actually, it is questionable whether a parasite like *Mycoplasma* is really self-reproducing. Many evolutionists and creationists argue that it arose by degeneration from a more advanced bacterium which was truly self-reproducing. If so, the odds are stacked even more against evolutionists.
26. Morrow, L., 1996. Viewpoint: Mars as divine creation. **Time,** 19 August, p. 83.
27. Sagan's thoroughly atheistic world view is critiqued by J. W. Robbins, 1995. The Sagan of science. **Apologia, 4(3):** 19-29. H. G. Wells (1866-1846) was a Fabian Socialist who co-authored the three volume work **The Science of Life** with the noted atheist and evolutionist Sir Julian Huxley in 1929-1930. See article: 'Wells, H(erbert) G(eorge)', **Encyclopaedia Britannica,** 15th edition, 1992, Vol. 12, pp. 573-574.

/. *D. **Sarfati.***

Junk-making' Viruses Neutralise an Evolutionary Argument

Most of the DNA in our cells does not seem to consist of genes coding for protein manufacture. It has been unkindly labelled 'junk' DNA by evolutionists who believed it was just a useless leftover from our evolutionary history.

However, over the last few years, more and more evidence is accumulating which suggests various types of function for this alleged 'junk'. It has been shown that some acts to prevent the ends of chromosomes from fraying.

Mutations in some of the 'junk' seem to increase the likelihood of certain cancers, which strongly suggests that they are not 'useless' stretches of DNA. A part of an 'intron' (the sections interspersed between coding portions of a gene, which are then snipped out of the messenger RNA before assembly of the protein) has recently been shown to contain a regulatory switch for the gene which is defective in cystic fibrosis.[1]

Others have pointed out that the nature of the sequences in the 'junk' is similar to that of the surrounding genes in a way which suggests an error-checking function. All in all, there is now general agreement that we have only just begun to uncover the true significance of this non-coding DNA. Accordingly, the 'vestigial genes' argument for evolution is not looking healthy at all.

However, so-called 'pseudo-genes' are another matter. These are stretches of DNA which have no known function, but so closely resemble real, existing genes that they look to all intents and purposes like cars in a junkyard — once useful, now wrecked.

Pseudo-genes have been used as 'proof of common ancestry of humans and chimps as follows. Certain pseudo-genes are found in both humans and chimps. This, they argue, is powerful evidence that the genes were deactivated in some common ancestor, before the two lines diverged. It has been said that this is an even stronger argument than useful, coding DNA similarities. Genetic closeness between chimp and man is easy for the creationist to explain on the basis of common design features