



Bacteria from Outer Space?

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Example of comet is Hale-Bopp © March 6, 1997 by
Dean Ketelsen, Tucson, Arizona.

Earthfiles, news category.

December 3, 2000 Europe -

Mad Cow Disease Spreading in Europe

Mad Cow Disease continues to panic Europe. Several countries including England, Spain, Germany, Portugal, Belgium, Switzerland and The Netherlands have all reported the fatal disease. The European Union's agricultural minister told reporters, "Mad cow disease knows no borders, but is moving from one member state to another."

This week, a German public information hot line crashed from overload. Poland has banned beef from neighboring European countries; and Croatia, Estonia and Latvia have banned German and Spanish beef for at least five years. Beef wholesalers from Spain to Germany have seen their meat sales drop 50%. In Athens, Greece, butchers threatened to close until the government could assure safe meat products. In Italy, celebrities are giving vegetarian recipes on television.

The *New York Times* quoted one Italian butcher as saying, "It's as if we were suddenly facing bubonic plague. Is it the cows? Or have we gone mad?" The public has a right to be concerned. Not only does the disease microbe called a prion make holes in brain tissue and cause general physical and mental deterioration and ultimately death, but a similar prion has been detected in humans with Creutzfeldt-Jakob disease. Prions are the smallest infectious agents known and are puzzling because they are 100% protein and do not have nucleic acids considered necessary for reproduction in all life forms. So, what exactly are prions? And where did they come from?

Unknown Bacteria in Earth's Atmosphere

Some scientists think prions and some destructive viruses and bacteria have hitchhiked to earth from comet debris. Famous astrophysicist Fred Hoyle and Prof. Chandra Wickramasinghe in Britain have hypothesized that cyclic pandemics of disease, including flus, which have periodically swept the earth might be directly linked to organisms from the cosmos. Going even further, Professors Hoyle and Wickramasinghe have argued there is high probability that living microorganisms were brought to earth by comets long ago at the birth of the solar system. That concept of extraterrestrial life seeding is known as "panspermia," an idea that emerged in the 19th Century.



A comet passing earth, Hale-Bopp photographed
© March 17, 1997 by Michael Terenzoni, Marana, Arizona.

In the past two weeks, Dr. Wickramasinghe established a new Center for Astrobiology at Cardiff University in Wales and was quoted by a reporter at *The Daily Mail* as saying "a tiny form of primitive alien life," has been discovered in the earth's upper atmosphere. According to the story, the Indian Space Research Organization released a balloon to an altitude of ten miles to collect atmospheric samples to look for organisms. Dr. Wickramasinghe allegedly told *The Daily Mail*: "This is the first time we have direct evidence for the hypothesis that comets seed life on other planets" and that there is a "hitherto unknown strain of bacteria now being studied, a bacteria "different from anything we have seen before."

On December 2, I reached Dr. Wickramasinghe by phone at his Cardiff office to discuss *The Daily Mail* news story.

Interview:

Chandra Wickramasinghe, Ph.D., Professor of Applied Math and Astronomy and Director, Cardiff Center for Astrobiology, Cardiff, England: "What happened, I should make it quite clear, is there was an inadvertent leak of this information from the Indian Space Research Organization and when that happened it sort of got around to various places and press agencies and the obvious people who wanted to talk about it was myself and my colleague, Sir Fred Hoyle. I kept referring the reporters back to India, but either they did not get much luck from them or they decided they wanted to have a quick response from Fred Hoyle or myself.

BUT DID YOU SAY, AS QUOTED IN THE NEWSPAPER, THAT THIS IS A 'HITHERTO UNKNOWN STRAIN... SO DIFFERENT FROM

ANYTHING ELSE WE HAVE SEEN BEFORE'?

That is the impression I was given by my collaborators in India. They still have not come out in public to make the announcement.

ARE THEY STUDYING THIS BACTERIA STRAIN WITH DNA ANALYSIS? IS THAT WHAT IS BEHIND THESE STATEMENTS?

They are studying with the fullest range of biochemical and microbiology techniques that are available. The institution that is handling this is some of the best in the world and certainly the very best in India in Hiderabad, the center for cellular and molecular biology

AND ISN'T THERE AN IMPLICATION HERE THAT IF THOSE SCIENTISTS OR ANYONE ENDS UP WITH A STRAIN OF BACTERIA UNLIKE ANYTHING ON THE EARTH THAT THERE COULD BE HUGE MEDICAL IMPLICATIONS FOR SOMETHING THAT COULD CAUSE A LOT OF PROBLEMS WITH THE HEALTH OF ANIMALS, PLANTS OR HUMANS?

I think that is inevitably the case and myself and my colleague, Fred Hoyle, has written about this for over a couple of decades now. We think many of the diseases of plants and animals, many of the epidemics that have punctuated human history over the centuries, has to be understood in terms of continuing input by micro-organisms from outside. Most of the time, these micro-organisms that are coming from space on comets would be harmless. They wouldn't do very much. They would just lay on the surface water and surface soil and would not get incorporated into astrobiology in any way. But..

BUT YOU SAY YOU ARE FINDING THESE STRAINS OF BACTERIA BY HIGH FLYING BALLOONS AND THAT MEANS THEY ARE UP IN THE UPPER ATMOSPHERE

I think that is the implication of the work that's being leaked.

AND IF THIS BACTERIA IS A HITHERTO UNKNOWN STRAIN SO DIFFERENT FROM ANYTHING THAT ANYONE HAS SEEN BEFORE, HOW IS THE INDIAN SPACE RESEARCH ORGANIZATION WORKING WITH IT? WHAT PRECAUTIONS ARE THEY TAKING?

I think I have to refer back to the people doing it. There are obviously high containment facilities everywhere.

BUT IF THERE IS THE HYPOTHESIS OF PANDEMICS ON THE PLANET, OR UNUSUAL DISEASES COULD BE ATTRIBUTED TO BACTERIA OR PRIONS EVEN - LIKE THE PRIONS ASSOCIATED WITH MAD COW DISEASE?

Yes.

COULD THEY HAVE BEEN INTRODUCED TO THE EARTH BY SOME PASSING COMET?

I think that is very likely proposition. I think it's more than a likelihood. Given the fact that comets are full of organic material and organic material of great complexity... only about 6 months ago, there was a report that there were five interstellar dust particles that were observed by the Stardust Mission - a spacecraft searching towards the comet for rendezvous in 2004. It's a little way off for the rendezvous, but already they have analyzed 5 interstellar dust particles and found that the chemical structures of these particles are of a kind that would be fully consistent with bacterial material.

There is other evidence as well, so one cannot get away from the fact that you could get structures such as prions, structures that are biological, maybe DNA, abundantly present in comets. And comets deposit this stuff in the upper atmosphere. And it rains down on the surface of the earth. And as I said, hundreds of thousands of bacterial material could be falling over the surface of the earth, per square meter of the surface of the earth, every single day. And that's a huge amount

WHO SPECIFICALLY IS DOING THE RESEARCH ON THIS UNIDENTIFIED STRAIN OF BACTERIA?

It's a group of biologists at that center of Indian Space Research Organization. They are the people who are supporting it. It is their facility involved in sending the balloons into the upper atmosphere. But the actual biological analyses is being done at the Center for Cellular and Molecular Biology in Hiderabad.

WHEN DO THEY EXPECT TO MAKE A FORMAL RELEASE ABOUT THE DATA?

There are publications they are trying to get into, journals, and that is the reason for holding back. They want to get it accepted in a peer-reviewed journal before they make a formal announcement.

HAVE THE INDIAN RESEARCH ORGANIZATION SCIENTISTS IN THEIR DISCUSSION WITH YOU INDICATED WHAT SPECIFICALLY IS SO DIFFERENT ABOUT THIS BACTERIA COMPARED TO KNOWN EARTH BACTERIA? ARE THEY LOOKING AT THE GENOME SEQUENCING?

They certainly are, I have access to that material in Cardiff and that is being considered at the moment - full bacterial genome map is what is needed, but it hasn't been done yet.

BUT IF THEY ARE TRYING TO BE PUBLISHED IN PEER REVIEWED JOURNALS, IT MEANS THEY MUST HAVE ENOUGH DATA TO SUBSTANTIATE...

Yeah, yes. They have enough data and that is the reason for the leak and for my possibly making untimely comments on it. I personally was so excited by the discovery that when someone asked me if it was true, the rumor that was going around, I couldn't resist saying there is truth in it."

Websites:

<http://www.astrobiology.cf.ac.uk>

Credits

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