

PANORAMA

The Force is With Them¹

The communication loop between earth-based ground stations and interplanetary spacecraft allows extremely accurate measurements of the radial [along the line-of-sight —*Ed.*] velocities of these distant man-made machines. As these spacecraft hurtle toward the fringe of the solar system, the visible sun dwindles to a small, bright point, and its gravitational field falls off as the inverse square of the distance. At least, that is what is supposed to happen.

Four far-flung spacecraft, (Pioneer 10, Pioneer 11, Ulysses, and Galileo) are experiencing a mysterious decelerating force not encompassed by the Law of Gravitation. It's a tiny force, but it seems real. Making it even more puzzling is the fact that it is decreasing according to the inverse distance from the sun rather than the inverse square. Is it a non-solar force? Is it "new" physics? Or maybe just an artifact of the spacecraft and ground-based equipment?

The fact that four spacecraft feel its tugging suggests the force is real. But the motions of the distant planets do not seem to be affected by it. So everyone is perplexed. Most think that the effect is an artifact of the data processing and will disappear as more data comes in. We'll see. In the meantime, see "the missing mass stays missing" below.

On Varshni's stance

As pointed out in the book *Geocentricity*, in the mid-seventies an astronomer named Varshni noted that based on the spectral types of the quasars alone (that is, not on their radial velocities), the quasars then known seemed to fall on 57 concentric shells about the earth. Varshni was interested at the time in promoting his theory that the quasars are in our own Milky Way, thus avoiding the geocentric implications of 57 concentric shells.

Some time later, when geocentrists started to make wide-spread use of Varshni's observation, a rumor was spread that Varshni had "recanted." Eventually it was discovered that Varshni had *not* recanted and, even though at the time there were seven times as many quasars known as when Varshni wrote his original paper, he still maintained

¹ Reprinted from Wm. Corliss, *Science Frontiers*, No. 120, Nov-Dec, 1998, p. 2. (Box 107, Glen Arm, MD 21057.)

that if they were classified by spectral type they would still fall on concentric shells about the earth (though there would be more than 57 of them).

Lately the topic came up again on a forum on the Internet in which these old claims were raised against Varshni. An anonymous contributor sent the following reply in defense of the geocentric model:

The notion of “concentric spherical shells” having a common center shouldn’t be a big surprise. Odd it would be if the shells were concentric and didn’t have a common center, no? Varshni is pointing out that the shells are concentric to our position, based on correlation of spectral data and red shifts (treating the latter according to the Standard Model, namely, as Doppler effects, thus invoking the Hubble relation).

When someone makes a claim on the order of “If someone were to view the solar system from outer space, they would not see the Sun move around the Earth,” one must pose the question: how does *that* observer know himself to be at rest, and not himself co-moving with the Sun? The questioner is situating himself so as to guarantee the desired Copernican result. When we read that satellite cameras prove the Earth rotates, I marvel at the logical fallacy that must be swallowed to accept such statements as evidence of any kind at all. Prove that the camera is absolutely motionless (with respect to what is the problem), and maybe you have something there. Otherwise, all one detects is relative motion at this raw observational level. This kind of reasoning, from a defective analogy, doesn’t go very far in countering Varshni.

Speaking of anger, note that a story was circulated in the early 1980s that Varshni had recanted his theory, so that no one would have to deal with the Quasar Distribution Problem at all. Varshni pointed out that the story being circulated was a false one — he had never recanted. We geocentrists ask, Why is there such hostility to anti-Copernican evidence, even when published in refereed journals by non-geocentrists like Varshni; hostility enough to generate a demeaning rumor that Varshni had recanted his findings? Is that the best Varshni’s critics can do, is get rid of the “problem” by expunging its existence by trickery? I’m curious as to how one defends this situation, as proponents of academic freedom and pursuit of scientific truth.

Do any of our readers know who wrote this?

The Sagnac effect and the Michelson-Morley experiment

This is by the same mystery writer as above:

The premises can be itemized as follows: if an aether exists, the fact that the Earth's orbital motion around the Sun cannot be measured with respect to it must be accounted for. The converse is true for the Earth's axial rotation: the Sagnac effect, from the point of view of most aether theories, exhibits the Earth's rotational motion with respect to the aether.

The challenge lies in explaining why aether entrainment arises from the earth's rotation but not from its annual revolution. All entrainment theories (including those that adopt the principles of inertial frame dragging) falter on this point.

Geocentricity cuts the Gordian knot by affirming that the aether, as an infinitely rigid body, rotates diurnally on an axis through the Earth's poles. This accounts for the Sagnac effect and the null-results of Michelson-Gale, etc. Sufficiently accurate Rayleigh spectrometers using phase-feedback optical techniques have existed since the early 1990s for detection of the presumed orbital component, and the latest laser ring gyros are more sensitive yet. The aether bears the Planck density (ρ) of $3.6 \times 10^{93} \text{ g/cm}^3$, treating this fundamental density as the current subquantum reality rather than an initial state condition (e.g., the proposed Big Bang's initial density). Why not adopt the virtual particle view of quantum spacetime foam of Hawking instead? Because, as Redmount & Suen have shown in 1993, such formulations are unstable against decay into wormholes. An actual subquantum domain consistent with the work of Vigier & Bohm answers best to the geocentrists' proposal. Such an approach explains the +376 ohm reactive impedance of the supposed vacuum of free space as well.

In short, geocentricity and the aether are related in the manner set forth above, explaining both the M-M and Sagnac results thereby. This is not sleight-of-hand in the least: it is a legitimate explanation of the results, however controversial.

Note that geocentrists have long proposed (since at least 1981) that interferometric measuring devices should be brought on board the space shuttle to make the kind of nonterrestrial measurements that could falsify the geocentric thesis (viz, by proving that entrainment is common to all planets & bodies). In point of fact, though, it is the acentrist who has no data to support aether entrainment on any body other than our own Earth. Proposals for such experiments have been dismissed inasmuch as the thesis to be tested has already been rejected

beforehand. The geocentric critic cannot point fingers at geocentrists for failing to follow through: his own camp has rejected testing nonterrestrial entrainment. Significantly, if such a test were made, and it failed to detect entrainment (on Mars, or the Moon), the dogma of the anti-geocentrists would have been dealt a near-mortal blow. Such an undesirable experimental result (e.g., reading Mars' motion around the Sun with an interferometer) is just as much feared as it is discounted.

Geocentrists don't expect anyone to try the test anytime soon: the results have already been assumed without evidence, a priori. Paracelsus tore up his students' papers for merely regurgitating Aristotle without conducting experiments — who is going to tear up student papers today for regurgitating Einstein without experimentation?

In conclusion, I agree with our critic: we *should* expect to find these same effects on other planets on acentric grounds. On geocentric grounds, however, this is not the case. Geocentrists were the first to propose a falsification of their own theory. The acentrists have no interest in conducting an experiment that could jeopardize their own model. Who is upholding the higher standard of science here?

More about the Voyager space probes

The following is from a NASA press release entitled "Voyager Status" and dated February 1, 1999.

Both Voyager spacecraft are healthy and are continuing to explore the environment at the very edge of the solar system, sending back particles, waves and fields data from the far outer heliosphere, the outermost region of the Sun's influence.

Voyager 2 continues to operate normally after ground controllers regained contact with it in early November 1998. The flight team continues to use the spacecraft's alternate transmitter, which was enabled by saving software on board the craft when communications were briefly lost in November. Onboard software was modified late last year to ensure that the spacecraft would automatically attempt to reestablish radio communications with Earth if a similar problem were to occur.

A sequence to turn off Voyager 2's scan platform was also completed on schedule in November. Voyager 1's scan platform will be turned off in mid-2000. Shut-down of the scan platforms is one of several planned actions to conserve electrical power as the plutonium naturally decays inside the Voyagers' onboard radioisotope

thermoelectric generators. These actions to conserve electricity will extend the Voyagers' lifetimes through 2020.

Five of Voyager 2's 11 science experiments — the cosmic ray instrument, low-energy charged particle instrument, plasma science instrument, plasma wave instrument and magnetometer — continue to gather and return data. The spacecraft, which is now 8.6 billion kilometers (5.3 billion miles) from Earth, is departing the solar system at an angle 48 degrees to the south of the ecliptic plane at a speed of 15.9 kilometers per second (35,000 miles per hour). Round-trip light time from Earth to Voyager 2 — the time it takes for a radio signal to reach the spacecraft and for confirmation to be returned to Earth — is currently about 16 hours.

Voyager 1, the most distant man-made object in space, continues to operate normally. The spacecraft, which is currently 10.9 billion kilometers (6.8 billion miles) from Earth, is departing Earth's neighborhood at 35 degrees north of the ecliptic plane at a speed of about 17.3 kilometers per second (38,752 miles per hour). Round-trip light time from Earth to Voyager 1 is about 20 hours.

A setback for time travel

Two separate teams at Fermilab and CERN have shown that there is a fundamental difference between going forward in time and going backwards in time. In the 1950s physicists thought that elementary particles obeyed physical laws coupled to three symmetric properties of the universe and that they would obey them even if the universe was reversed. The three symmetric properties were the flip-flopping of spatial directions with their mirror images, swapping matter for antimatter, and time running in reverse. Later experiments proved this notion in error.

In the mid-fifties it was found that particles behave differently if their directions are reflected in a mirror. In the mid-sixties it was discovered that exchanging antimatter for matter made no difference to the mirror problem. Now, evidence shows that the universe is also asymmetric when time reverses.

The CERN team allowed antiprotons and liquid hydrogen to annihilate each other in matter-antimatter collisions. The reaction produces particles called kaons and antikaons which can switch from one to the other. After looking at 1.3 million transformations, they noted a slight difference in the kaon-to-antikaon rate versus the reverse rate. The processes would be interchanged if time were to flow in reverse.

The Fermilab group produced a high-energy beam of kaons and found particle tracks whose shape would differ if time were reversed. The different pattern was found in 1811 examples of a rare type of kaon decay.

Of course, the reason for the asymmetry is not known. One possibility is that there is some super-weak force in the universe, or the effect could relate to the entropy constraints the firmament places on atomic matter.

Faster than light communication?

Einstein was always bothered by quantum mechanic's insistence that the speed of light is not an inviolate quantity. In the July 25, 1997 issue of *Science* (p. 481), experiments at the University of Geneva have confounded Einstein. Physicists sent two beams of entangled photons over fiber optics channels to two stations 10.9 kilometers apart. Although the total energy of the photons is fixed, minute fluctuations of energy are possible, however. When the photons passed through the analyzer, depending on its energy, it will either be counted or not. The result, each photon of the pair knows what its partner does, and does the same thing. What happens at one detector has some influence on what happens at the other. Furthermore, the effect does not fall off with increasing distance which means that quantum events far away in the cosmos might influence events in earth. In practice the correlation could be used for encryption, but one would need to control what happens to a correlated photon at one end to communicate to the other, a thing which is not [yet] possible according to the research team.

Another evolutionary origin of galaxies problem

Matt Visser, in a paper entitled "Energy Conditions in the Epoch of Galaxy Formation,"² looked at the big bang theory with an eye to the classical general relativity gravity equations and found a glaring violation in the energy conditions for galaxy formation. The energy density, momentum density, and stress conditions of the theory require that there be no large violations of the classical energy conditions at temperatures far below the temperature of the firmament (10^{32} K). Yet at a time when the temperature was below 60 K, such a violation must

² M. Visser, 1997. "Energy Conditions in the Epoch of Galaxy Formation," *Science*, **276**:88-90.

have occurred. Visser concludes his abstract with the sentence “This implies that no possible combination of ‘normal’ matter is capable of fitting the observational data.” In other words, the big bang (Friedmann-Robertson-Walker) model won’t fit the evolutionary time scale unless large quantities of “abnormal” matter is introduced.

The Heisenberg Uncertainty Principle: is it real?

In an Internet debate last September, a knowledgeable anti-geocentrist raised the issue that the Heisenberg uncertainty principle negated the need (and by convoluted logic, the reality) of the firmament. The same day that the critique was posted, *Science News* published a report doubting the reality of the uncertainty principle.³

The uncertainty principle stems from the dual nature of particles such as the electron. On the one hand electrons behave as particles, and on the other hand they behave as waves. The act of measuring the position or momentum of an electron collapses its dual nature. We measure either its wave property or its particle property, but we cannot measure both together. The uncertainty principle is usually stated two ways. If the energy of a particle is measured to high precision then one does not know when the particle has that energy or, one can measure the momentum of a wave or particle but will have little or no idea of its position.

In the September 3 issue of *Nature* German experimenters report that the mere existence of information about an object’s path causes its wave nature to disappear. This means that an underlying mechanism obscures either the wave or particle nature of the object. The mechanism is called entanglement or correlations.

At the University of Konstanz a research team passed ultra-cold rubidium atoms across a pattern of laser light that splits each atom’s path. This enables the atoms, as waves, to simultaneously take divergent routes through the experimental apparatus. As long as no one tries to measure which way the atoms went, they emerge with an interference pattern, but should a detector be in place, the interference pattern vanishes. The detector in this case was a microwave field that oriented the spins of the atoms upwards if they took one path and downward if they took another.

The experiment shows that the wave-particle duality only needs entanglement and correlation to exist. The uncertainty principle has nothing to do with the wave-particle duality. Critics maintain that the

³ P. Weiss, 1998. “Wave or Particle? Heisenberg, take a hike!” *Science News*, **154**:149.

uncertainty principle is broader than wave-particle duality and still applies to other situations.

In my original paper on the firmament, which appeared in *Bulletin of the Tychonian Society* issue no. 43, 1987 I surmised that the uncertainty principle was not the cause of the vacuum state fluctuations (also called Planck particles) which make up the fabric of space and time, but that it was the fabric itself which caused the uncertainty principle. This was simply due to the fact that if the elementary particles were ever to be made aware of these firmamental particles, they would be sucked into the material of the firmament in less than an instant. The “unawareness” is maintained by the wave nature of the entity. It seems that it is the entanglement, not the correlation, which causes the appearance of the uncertainty principle. When the microwaves were introduced into the German experiment the atoms were disentangled, and the interference pattern disappeared. Paradoxically, the experiment strengthens the case for geocentricity.

More problems for the big bang

The following is reprinted from the *Meta Research Bulletin* produced the Tom van Flandern.

W. Q. Sumner, “On the variation of vacuum permittivity in Friedmann universes,” *Astrophysical Journal*, **429**:491-498, 1994. In a paper most remarkable for its appearance in the *Astrophysical Journal*, Sumner points out that the Friedmann expanding-universe models that are the basis of big bang cosmology must all require that the permittivity of the vacuum will become more dilute as the universe expands. This is because big bang cosmology requires that space itself expands, as opposed to matter simply moving outward through space.

So the vacuum permittivity (*e.g.*, its ability to store electric potential energy) is a function of the Friedmann radius of the universe. This will cause both meter sticks and atomic clocks to appear to change with time as the universe expands or contracts. However, the frequency of atomic emissions depends on the radius of the universe squared, and therefore must change twice as rapidly as the change in photon wavelength that produces the redshift of galaxy light. When these two effects are combined, it turns out that the redshifted light from galaxies indicates that galaxies are really approaching, not receding. Therefore the present universe must actually be collapsing, not expanding — a

significant oversight of all previous work done with the Friedmann big bang models.⁴

The missing mass stays missing

One of the outstanding cosmological mysteries of the twentieth century will not be solved before the end of the century, it seems. The mystery is called the missing mass. It shows up in the following way.

We all know the popular ideas about orbits. NASA and other space agencies around the world use Newton's laws of gravity to launch spaceships into space. Under rare circumstances they may use the more complicated Einsteinian gravity, but that's rare and only reasonably applicable for the orbits of atomic clocks. These earth-based gravitational laws work fine around the solar neighborhood. They even seem to work fine for distant stars in orbit about one another. The first hint of trouble comes when one considers larger groupings such as star clusters. The Pleiades, for example, doesn't obey the "virial theorem." At least, it seems that way. That theorem says that the stars should have equal amounts of kinetic energy (energy of motion). The stars seem to have more energy than the star count indicates. In other words, it looks as if there are more stars than we can see; a missing mass, in other words.

The problem gets larger when we look at the orbits of stars about their galactic centers. When we do that, the orbits suggest that there are anywhere from 3 to 30 times more stars than we can count. But wait, the problem gets worse. When we look at clusters of galaxies the virial theorem says that there is 100 times more mass in the cluster than we can see and count. That's what's meant by the *missing mass*.

Now various proposals have been put forth to account for the missing mass. It could be in the form of faint stars, too faint to be seen. It could be in the form of cold, dark matter, too dark and cold to be seen. It could be in the form of "ghost galaxies," galaxies whose stars never started to shine. But none of these can be proven. As Vera Rubin of the Smithsonian Astrophysical Observatory said recently, "We're sort of in a black room doing an all-black puzzle."⁵

There is one proposal that is rarely stated and widely ignored and that is that gravitation may not behave the way science thinks it does.

⁴ Tom van Flandern, 1994. "Remarkable papers in the journals," *Meta Research Bulletin*, 3(3):39-40. Meta Research, Inc., 6327 Western Ave., NW, Washington, DC 20015-2456.

⁵ Quoted by J. Glanz, 1999. "News Focus: How dark matter became an unlikely media star," *Science*, 283:923. (12 Feb.)

In the firmament model we expect quantum mechanical properties to apply to the very small and to the very large, that is to atomic particles and to the universe as a whole. For the very small, the mass is inversely proportional to the square of the size, thus an electron is less massive than a proton but is also much larger. That is why the electron “surrounds” the proton, because its wavelength is much larger than the proton’s. In the other extreme, the mass of the universe should again be inversely proportional to the square of its diameter, that is, it would seem very light. Clearly, I think, the problem lies in our physics and not in the unobservable.

The error of the theologians of the (Galileo’s) day in upholding the centrality of the earth was that of thinking that our knowledge of the structure of the physical world is in some way imposed by the literal sense of Holy Scripture.

— Pope John Paul II

In *Agenda for the Third Millennium*, (London: Harper Collins), 1997