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Conference threads, debate and correspondence

On Quasar Redshift Periodicity (Halton Arp, *APEIRON* 5, 7)

Quantum causality on an extragalactic scale seems to me prematurely concluded where it is based upon the non-velocity interpretation of quasar redshifts. Arp makes a strong case in *Quasars, Redshifts and Controversies* that quasars are blobs of matter ejected from active galaxies. Taking this hypothesis further leads me to the following conclusions.

To eject quasars, the central galactic machinery must have a mass much larger than quasars. I don't subscribe to blackhole theory, and prefer to call this galactic machine the 'nucleus'. The nucleus must have reached a critical combination of mass and rotation to split up. We should find out the energy needed for ejection and ask whether it can be furnished by the energy of rotation of the nucleus. Quasar ejection re-establishes nucleus stability until matter accretion brings it to the next ejection. The nucleus should be alternating between an advanced Jacobi ellipsoidal shape and the Poincaré instability at which splitting is a must. The nucleus rotation speed of active galaxies should be all close to a typical value because of the similar galactic caracteristics. The accretion rate of the nucleus is determined by the galactic spirals. The mass-flow velocity in the spirals determines the time period between two quasar ejections. The average ejection period must be typical because of the expected statistical equalities of mass, rotation and accretion rates of all nuclei of active galaxies. The redshift difference between subsequently ejected quasars is determined by the quasar redshift deterioration rate ($-z$,)

per unit time and the ejection period T, where $z/T = 72$ km/sec, with z being the redshift reduction between ejections.

Because quasars are ejected from the strong gravity field of the galactic nucleus, they must have particle conditions with considerably lowered restmass values. The lowered restmass of freshly ejected quasars corresponds with the nucleus and not with the gravity field of the quasar. Elsewhere (*cf*. J.P. Nieland, *Optical Aether Theory of Cosmology and Physics*), I explain that restmass reduction is significantly more than gravity theory alone predicts. The abnormally low restmass makes quasars efficient machines to turn accreted matter into an abundance of light. The lowered restmass of surface atoms prevents the build-up of an atmosphere, as with stars. Accretion should result in two types of emission, one during accretionary approach and the other immediately after impact. On impact the excess kinetic energy will be shed and contact with surface atoms of abnormal restmass will produce additional radiation. Internal radiant energy production through baryon annihilation cannot be considered because it would make quasars self-sufficient in renormalising the abnormal restmass. The quasar's restmass deficiency can be replenished only by incident radiation.

Quasar redshift cannot be related to luminosity in the normal stellar manner. Since very young quasars have not had the time to bring the accretion into full swing, they will have the lowest luminance and the highest redshift. Quasar luminance should grow with time depending on the opportunity for matter accretion. Quasar ejection into a thin galactic halo causes quasar luminance to grow slowly and preserves the high redshift longer This may be responsible for some of the deviations in Halton Arp's quasar statistics.

My quasar hypothesis is based only on the evidence in Arp's *Quasars, Redshifts and Controversies*. Other support may be existing but it is beyond my reach. Another weak point in the above arguments

is the accretion rate of the central nucleus, which depends on the hypothesis of galactic spirals flowing inwards. I have no in-depth knowledge to spiral theories, but can offer my own.

Matter in the galactic disk is subjected to the pull of gravity and outward radiant pressure. Galactic emission of particles as cosmic rays demands an equal inflow of matter in the average galaxy. The galactic disk picks up the returning matter, including gas clouds which have been pushed away by radiant pressure at an angle to the disk. The spiral flow towards the galactic nucleus must equal the outward flow of cosmic rays and gas clouds.

Active stars like the sun have about 10 billion times the surface area of dead stars, they therefore move minutely slower due to gravitation along the spiral arms. The gravity in the spirals keeps all stars close together in a string. In the spiral direction, different velocities must be expected for dead and living stars, the latter being minutely slowed down by radiation pressure. These flow differences should cause dead stars to congregate in the front of the spiral and live stars in the rear. A radiant temperature gradient should be observed across the spiral width.

Halton Arp's non-velocity quasar redshift therefore implies that quasars are ejected regularly at a time rate which is hidden in the quasar redshift periodicity of 72 km/sec. This periodicity cannot be interpreted as quantum causality.

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Demysification of Science

Science encounters a wealth of new observations about nature almost daily. Many of these observations translate into remarkable technology. Science glamorizes its role to the world, yet in conveying many important observations to others it is often very ineffective.

Communication within experimental projects of science is generally a cooperative venture, with a number of scientific disciplines moving toward a common objective. Mathematics and shorthand symbols define the physical quantities that are needed to work out the best solution to a problem. That kind of scientific communication, however, builds on a logic that mirrors the realities of nature.

The primary concern of a theoretical physicist and other science theorists is different from that of experimental scientists. Facts are interesting to the theorist because of the possibility of a common connection with one another and because of the suggestion they give of what might actually be happening in nature. It is logic which ties those facts together and fascinates the theorist. That logic builds a concept that can be adapted to many different situations. While many logical concepts about nature are capable of mathematical usage and translation into very familiar scientific symbols, that use is secondary to the value of the logical concept itself.

The mathematics of how many angels can stand on the head of a pin can appear to be quite profound to a mathematician, but is entirely lacking in physics. When we read *Descartes' Dream* by Philip J. Davis and Reuben Hersh, we come to realize that describing things mathematically does not always bring precision. By looking into the logic rather than the mathematics, we can open many more opportunities to the understanding of reality. Whoever chooses to

translate the logic into mathematics can make the attempt, but other applications are available as well.

Thousands of scientific papers are offered every year in pursuit of academic ambition. Most of the insights they may contain are lost in the jargon of science, and they require detailed evaluation if a professional evaluation is to be the result. The rest of us who are jargon illiterate are completely unable to benefit from the concepts.

The style of Stephen Hawking in his *A Brief History of Time* is greatly to be preferred to the scientific equivalent of speaking in tongues. Hawking proved in his book to a very wide audience that it was not necessary to utilize mathematics in order to describe important statements of modern science. It would not even matter that a few of those statements might be mistaken. There is special value in widening contemplation over whether the logic is sound or not. Old theories can be mistaken theories, and adding to the number of minds dwelling on the problem only adds the likelihood of better logic.

Experimental scientists who are able to write in popular language give the details of their experiments. They simply translate those details in broader fashion and more understandably. When that happens, science benefits. Others may see what never even occurred to the experimentalist. Demystification of science is important to bring men and women to science, and science to men and women. The real mark of professionalism lies in not only understanding what one is about, but in being able to explain and justify its logic. That means more than just giving mathematics and symbols.

There are a number of journals which attempt to make the transition from the mathematics and symbols of the profession to the fundamental concept. One of the most notable is *Technology Review*, published by the Massachusetts Institute of Technology. Experimenters present agreeable translations of the symbols and mathematics employed in the work itself. They do not stint on detail,

but they present the detail in a manner that is more meaningful. Writing discipline of that kind rewards the experimenter as well as the reader. Whether the reader is a scientist or a mere seeker after scientific knowledge, no one suffers from making reality available through the artistry of popular language.

Other journals, of course, such as *Scientific American*, *Physics Today*, *Nature*, and so forth, provide us with a certain amount of vernacular explanation, but too many of those writers lapse into incoherence very quickly with their dependence on science jargon. There is a time and place for mathematics, but the place is not in journals, unless it is a journal devoted to mathematics, and the time has long since passed when scientific concepts need to be limited to experimental subjects.

Philip W. Anderson, the Joseph Henry Professor of Physics at Princeton University, wrote in the February 1990 issue of *Physics Today*, "Even in theoretical physics, most of the great advances have been conceptual rather than mathematical. The basic goal of physics is not mathematical elegance or even the achievement of tenure, but learning the truth about the world about us."

If scientists grab for the brass ring of conformity rather than looking to present new understanding of basic logic, substance will never triumph over form.

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