

285 Broad Avenue  
Leonia, N. J.  
April 5, 1957

Urantia Brotherhood  
533 Diversity Parkway  
Chicago 14, Illinois

Attention: Mrs. M. Rowley  
Secretary-General

Gentlemen:

Enclosed you will find a copy of an article which I plan to submit to the "Gravitational Society" this April 15, 1957. This paper is the result of a year's effort in blending vital information set forth in the Urantia Book with the basic scientific knowledge now accepted in the technical fields of cosmology.

You will note that I have refrained from referring to the Urantia Book as much as this paper will be directed to a technical group. The type and knowledge is in itself so radical to the technical mind, as to cause considerable comment, without bringing into the picture any celestial or metaphysical origin. I hope that you will find the arrangement of sufficient interest and as gratifying as I have, and that you will consent to the use of names, etc., taken from the book in the preparation of this paper. As you will note, the most reassuring thing is that present day technological advance fits the celestial picture in all aspects.

This paper is required at the Gravitational Society by April 15, 1957, therefore, your permission to release the paper is desired the earliest possible date. My Philadelphia address is:

531 E. Monca Road  
Havertown, Pennsylvania

but I would appreciate your answer to the above address.

Thank you for your continued cooperation.

Sincerely,

*A. A. Zachow*  
A. A. Zachow

*Doctor said ok to  
give permission.*

April 8, 1957

*Got his  
home address*

Mr. A. A. Zachow  
285 Broad Avenue  
Leonia, New Jersey

Dear Mr. Zachow:

Thank you for sending us a copy of the article which you plan to submit to the "Gravitational Society" April 15, 1957, using material from the Urantia Book. It is most interesting and seems to us exceedingly well done, although of course we are not physicists.

We are glad to give you permission to release the paper and will be very interested in any comments which you may care to pass on to us.

If you are ever in Chicago, we would be very glad to talk with you.

Cordially yours,

Secretary-General

Marian Rowley

*Lita Rowley*

May 4, 1957

Mr. A. A. Zachow  
531 E. Monoa Road  
Havertown, Pennsylvania

Dear Mr. Zachow:

We have been hoping to hear from you as to any reactions or comments you may have received regarding the article you planned to submit to the Gravitational Society on April 15. Did you get any comments, either adverse or favorable?

We would also be interested in knowing something about the Gravitational Society. Is it a national or local society? What is its purpose? You mentioned that it was a technical group. Are the members in industry, teachers, students? So far we have not been able to find any information about the society and we would appreciate your help. We would also be interested in knowing something about yourself, your background, your work, and so on. We are especially curious as to where you got the Urantia Book.

Some of our people who have seen your article have asked for extra copies of it. If you have extra copies, would it be possible for us to have a few? Would there be a charge? If you do not have extras, may we have your permission to reproduce it ourselves?

We would really appreciate hearing from you.

Cordially,

Secretary-General

Marian Rowley

GRAVITATIONAL ENERGY  
AND ITS INTER-RELATIONSHIP TO  
THE SCIENCE OF COSMOLOGY

---

Gravitational Energy will ever retain a cloak of mystery until the scientific mind has a more enlightened concept of creation. Much more formidable study is required in the cosmological field, before there will appear answers to the 'why's' in sub-particle physics. Energy, in all of its various manifestations is but the direct product of GOD'S puissant personality. Of the basic energies that pervade the Universes, the 'Causation' of most material mass of electronic origin, "appears" to be linear-gravity. It is reasonable that during this era of civilization, man will change this concept, but only when "mindal energy" becomes non-spatial. It will be the attempt of this paper to show the microscopic as well as the macroscopic relationship of Gravity - to the cause and the Creator.

The influx in scientific material gathered and presented in the field of cosmological study during the past five years by such men as: L. E. Aller<sup>1</sup>, H. C. Urey<sup>2</sup>, G. W. Hill<sup>3</sup>, H. Alfren<sup>4</sup>, H. S. W. Massey<sup>5</sup>, G. P. Kuiper<sup>6</sup>, and others such as, A. G. Wilson<sup>7</sup>, using the John Hopkins Luminon attachment, establishes without a doubt an apparent infinitude to the galaxies. Further, with new equipment - uniformity and pattern in these complex regions of space is now beginning to appear to be well established. It is this uniformity which should provide the key to 'Gravitational Energy'. To this end, a somewhat unusual hypothesis of the macrocosm will be presented which is dependent on galactic manifestations not generally known.

Man has astronomically established that the apparent center of our Universe, in the observable portion of the Milky Way, has a definite but slow-moving

clockwise direction of rotation. H. Shapley, estimated in 1918 that this 'Center' of our Galaxy lay in the great star cloud of Sagittarius, approx. 50,000 light years (L.Y.) distance. This distance has been revised to 30,000 light years. (One light year is approximately 5,865,696,000,000 miles). Although this paper differs somewhat on distance magnitude and 'Center', these two established facts will be used to present a concept of a 'time and material' creation, pervaded over and brought into existence by the Celestial Father.

To plot the Galaxies, the Earth will be oriented in relation to the Milky Way, using the accepted reference North and South Galactic Poles established in the plane of the Milky Way. (See W.S. Krogdahl<sup>8</sup>.) Observations over many years have shown that in the Milky Way plane, the densest matter appears to the North and West directions, with sparsely located nebula at almost undetectable distances to the East and South. Our Solar System is stated to be located in a southern direction from the Sagittarius 'Center', near the end of this Galaxy. At this point, it is necessary to take exception to the general established cosmological picture, and state that the 'Center' of this Galaxy is not the star cloud of Sagittarius, but that it is some 200,000 light years past it in a north direction, giving a radius to this galaxy of approximately 250,000 light years. This 500,000 light year diametrical region will be termed a Superuniverse, with it revolving about some 'Center' in a counter-clockwise direction. If this Superuniverse rotates, there must be other Superuniverses that also rotate. But, how far distant is this 'Center' around which all of creation moves, and how many Superuniverses are there?

To answer these questions, it will be helpful to use the atom as a reference model. With this in mind, it is reasonable to assume that the 'Center' of the Superuniverses will contain as much, in all probability, more mass than all of the Superuniverses. Further, it takes little reflection to accept that this 'Center' region will be unique and of unusual construction, for by whatever logic used, it is of celestial design and conception. Because of this, the mass will undoubtedly be of perfect construction, though probably of a somewhat different material matter from this Universe, thereby permitting the diameter of the 'Center' to be nearly equal to the dimensions of a Superuniverse, but many-fold more dense. Based on present concepts, this density and space distance should satisfy Kepler's Laws of planetary motion and Newton's n-body law of Universal Gravitation. Figure 1, shows the orientation of 500,000 diametrical light year regions about a 'Center', with a necessary buffer zone of a 100,000 light years between Superuniverses. Also, with the uniqueness of the 'Center', it is reasoned that it will require a 200,000 light year buffer zone. With these requirements, Figure 1 dimensionally shows that only seven Superuniverses are possible. But, this also establishes that the diameter of the 'Center' region should not exceed approximately 450,000 light years. But does this still satisfy Newton's n'body law? If we estimate that each Superuniverse has 1/10 the mass of the 'Center', we see from Figure 2 by the Newton's fundamental 2-body law that:

$$m d = Mx \quad \text{where } m = \frac{M}{10}$$

Then,

$$\frac{M}{10} (475,000) = Mx \quad d = 47,000 \text{ light years}$$

$$x = 47,000 \text{ or approx. } 50,000 \text{ light years.}$$

This establishes still another unique feature of the 'Center', that the major mass is located at the periferal. For this to be so, it is necessary to consider a cylindrical arrangement of the spheres making up this region, as shown in Figure 3. The height of the cylindric arrangement is guesstimated at ten (10) times the diameter, with the thickness of the thin walled cylindrical region to be approximately 100,000 light years. To keep the Galactic System balanced, this cylindrical region should rotate clockwise.

Logical reasoning dictates that, within this 'Center', there must be other formations, for there must be some central spiritual and possibly material mass of electronic origin, which has always been in existence - and will always be - the origin of the omnipotent Celestial Father. In all probability, this "Center" does not move - since it is the source of all forms of pervading energies of the Universes. This 'Center', will be termed the "Isle of Paradise" and the entire 'Center' region, the Central Universe or Havona. Logic dictates that this Central Universe is of the most advanced concept of spirituality, therefore, is not subject to time and material relationships as experienced in the Superuniverses.

In addition to the organized Central Universe and the seven Superuniverses, there are additional space regions in formation, for when the 200 inch reflection telescope is directed Southward and Eastward, considerable numbers of nebulae are discernable. (The 200" Mount Palomar telescope range is stated to be 1,000,000,000 light years). Figure 1, indicates that diametrically from the edge of a Superuniverse to the edge of an opposite Superuniverse, it is only 1,900,000 light years, yet repeatedly astronomers see nebulae formations at

distances of from 70 to 190,000,000 light years. Figure 4, should help to answer this question. The first space level contains many star cloud formations such as the Andromeda Nebulae which are mistakenly plotted as part of our Galaxy, whereas actually they are moving in the reverse direction of rotation. This condition alone has led numerous astronomers to believe that parts of the Universe are receding at phenomenal rates.

It is now necessary to return to a more detailed discussion of one of the Superuniverses since energy manifestations on earth are a direct product of this Galactic Organization. Figure 5, is the suggested graphical orientation of one of the ten (10) major sectors of the Superuniverse containing Earth. This Superuniverse will be termed Orvonton. In this hypotheses, ten (10) major sectors have been deemed the maximum division possible, as will be borne out later by further breakdown. Also, part of this hypothesis requires the integration of a concept that the 'Center' of all Superuniverses, major and minor sectors, universes, etc., is a celestial created sphere, termed an 'Architectural Sphere'. Each of the special 'Center Spheres' are 'perfect', containing spiritually advanced entities created by the Celestial Father to assist in the governing of the Universes. These spheres are considered to be of material mass of electronic origin, but having a spectral frequency range not yet observed in our domain. It is from these spheres, which are 'receiving' and 'transmitting' stations, for the "Isle of Paradise", that all forms of energy are manipulated. Figure 5, shows that with a U'major the 5th located 125,000 L.Y. (light years) from Uversis, it is possible to arrange an organized creation within a 250,000 L.Y. radius



U'major the 5th can graphically support 100 subdivisions, or 100 minor sectors. Each minor sector in turn has an architectural sphere around which 100 Universes revolve. Our minor sector is termed Ensa, and its architectural sphere has been termed U'minor the 3rd, which is located in the star cloud of Sagittarius. It should be noted that astronomers presently feel that the star cloud of Sagittarius is the center of our Universe, having estimated its distance at 30,000 light years. This is in close agreement with the 37,000 L.Y. shown in Figure 5.

Our Universe will be termed "Nebadon", and as seen from Figure 5, it rotates about U'minor the 3rd in a clockwise direction. This direction of rotation is verified by the astronomers. (Krogdahl<sup>8</sup>). The architectural sphere of "Nebadon" is termed "Salvington", around which 100 constellations revolve. Our constellation is named "Norlatiadek", the architectural sphere of "Norlatiadek" is named "Edentia". Each constellation in turn breaks down into 100 local systems, which are the last of the major subdivision and extend the galactic picture some 230,000 light years from our Superuniverse 'Center'. Because of variations that exist, the extreme of a Superuniverse is estimated at 250,000 light years. A local system can conceivably have up to 1,000 Solar Systems, where the number of worlds in a Solar System can vary from one upwards, depending on the method by which a system was created. (The greater percentage of Solar Systems is believed to consist of one world.) The Solar System in which Earth is located is termed "Monmatia" and our Sun has a counter-clockwise direction of rotation about the architectural sphere Jerusalem, of our local system "Botania".

Fig. 5 lists the quantity of spheres or worlds believed capable of physically existing in the various subdivisions of a Superuniverse. The seeming impossible condition, is for the case of a minor sector, which must fit 1,000,000,000 worlds in the small 1200 L.Y. region, shown in Figure 5. A more careful study of this problem, however,

indicates that the region is not as crowded as it first appears. The space available on each side of the architectural sphere is 600 L.Y., in which there can only be one universe (containing 10,000,000 spheres). This space in miles is  $5,865 \times 10^{12}$  miles/L.Y.  $\times$  600 L.Y. =  $3.519 \times 10^{15}$  miles. Dividing  $3.519 \times 10^{15}$  miles by  $1.0 \times 10^7$  spheres =  $3.519 \times 10^8$  miles of space per sphere. Comparing this with the earth's diameter which is only 8,000 miles and its orbit which has a semi-major axis of only  $9.3 \times 10^7$  miles, things become more plausible. Even our sun whose diameter is 109 times the earth or  $8.75 \times 10^5$  miles, easily fits within this space region as do the remainder of the worlds in the Superuniverses.

With this basic and brief review of a uniform macrocosm, it is now in order to investigate the microscopic principles of the Universal Father. To this end, wavelike energy manifestations designated Quanta, by M. Planck in 1905, shows the relative integrity of matter by the fact that energy can be absorbed or released only in exact amounts. But the vibratory or wavelike behavior of a quantum of energy is wholly determined by the dimensions of the material structure. And since the dimensions of each atom nucleus are not identical, the Quanta of energy radiating may not be in phase with each other. This factor has caused considerable laboratory difficulty, but has established that electric or gravitational force alone cannot hold the atom together. (Massey<sup>9</sup>). It is in this light that it is reasoned that the integrity of the nucleus is maintained by the reciprocal cohering function of the L-meson, which can cause the electric charge of the nuclear particles to be tossed back and forth between the proton and neutrons, in micro-micro seconds. Thus, the alteration of the energy status is so rapid that the electric charge is deprived of the opportunity to function as a <sup>superficial</sup> descriptive-influence. It appears

that the proof of this function may lie - in the fact that after performing this nuclei stabilizing function for a period of time, the  $\pi$ -meson or  $\mu$ -meson decays into an electron and neutrinos. If this is true, the meson is one of the most important particles of the atom, and not useless as considered by today's standards. (A.R. Snell<sup>10</sup>)

Though the L-meson may answer the cohesive problem of the atomic nucleus, it brings <sup>to</sup> the foreground the difficult problem of what establishes the intrinsic angular momentum, the electronic charge and the magnetic moment? To partly answer this, we submit an unusual observation. It is suggested that the electron is composed of 100 unique particles, the smallest subdivisions of matter, named the ultimaton. The ultimatons do not describe orbits or whirl about in circuits within the electron, but do spread or cluster in accordance with their axial rotational velocities, which determine the magnetic moment characteristic. The same velocity of axial revolution can also determine the negative or positive charge. The ultimaton is capable of accelerating revolutionary velocities to the point of partial anti-gravity behavior, but in itself cannot gain critical escape velocity of deindividuation and return to the Creators puissant energy state. Thus, the ultimaton is the fundamental energy particle bringing into existence the electronic stage of energy which is the basis of all materialization in the seven Superuniverses.

It is now necessary to submit an additional concept, since the formation of all matter appears to be intelligently controlled and systematized, the same as the formation of the cosmos. Therefore, it is in order to state that one of the principal functions of the architectural spheres is to provide a headquarters for celestial created beings, whose sole purpose in creation is to manipulate, control

and transform all of the energies emanating from Paradise. These beings will be called Universe Power Directors, and though they can bring about all types of transmission phenomena, they cannot create energy. But, it is by the presence of these directors in all local Solar Systems, that there exists a balanced Universe of energy and matter, for they can alter the rotational velocity of the ultimatons to permit its return to the puissant energy stage.

The proof of the existence of the Deity created beings is not possible, but the result of their ever-present energy is, and in a form realizable for it is visualizable. With reference to E. W. Muller's<sup>11</sup> recent article showing the atomic construction of tungsten there is seen well organized voids, which result from the existence of an energy field at the time of solidification of the tungsten. This powerful energy stream, existent in all matter, will be termed linear gravity, or as commonly called gravitational energy.

In summary, matter appears to manifest inherent energy and exhibit self-contained power, but the lines of gravity involved in the energies concerned in all physical phenomena must be derived from and dependent on Paradise. Puissant energy appears to be the Universal Fathers initial powerful-directional, mass movemented, mighty-tentioned and forcible reacting energy, carefully organized through the Power Directors, to control the Grand Universe.

A. A. Zachow

A. A. Zachow  
531 E. Mance Rd.  
Eavertown, Pa.

April 4, 1957.

REFERENCES

1. L. H. Aller - *Astrophysics, Nuclear Transformations, Stellar Interiors* 1954.
2. H. C. Urey - *The Planets, their origin and development* 1952.
3. G. W. Hill - *The Radiant Universe* 1952.
4. H. Alfren - *On the Origin of the Solar System* 1954.
5. H. S. W. Massey - *Electronic & Ionic Impact Phenomena* 1952.
6. G. P. Kuiper - *The Sun* 1953.
7. A. G. Wilson
8. W. S. Krogdahl - *The Astronomical Universe* 1957.
9. H. S. W. Massey - *Atoms & Energy* 1956.
10. A. R. Snell - *A Survey of Particles of Physics, American Scientist*  
Vol. 45, No. 1 January 1957.
11. E. W. Miller - *Special Issue on Ion Microscope - J. Of Applied Physics,*  
Vol. 28, No. 1, January 1957.