M E M O R A N D U M

DATE: 7-18-69
A-830-BB01-HCB-41

TO: R. M. Wood, A-830

FROM: H. C. Bjornlie, A-833

SUBJECT: LIGHT/MAGNETIC FIELD INTERACTION EXPERIMENT

COPIES TO: J. M. Brown, D. B. Harmon, W. P. Wilson, Jr., A-830; File

The light/magnetic field (B/C) interaction experiment has been performed and concluded. A description of the experiment, the results and recommendations are attached to this memorandum.

H. C. Bjornlie
Advanced Concepts

HCB:msb
Attachment - Noted

LIGHT/MAGNETIC FIELD (B/C) INTERACTION EXPERIMENT

PURPOSE:

It is conjectured that the speed of propagation of light is modified when passing through a magnetic field. It is the purpose of this experiment to determine if such an effect exists. The experiment is to make use of existing apparatus if possible, with a minimum expenditure for the purchase of new equipment.

METHOD:

A change in light velocity is detected as a change in wave length of the affected light beam in the following manner:

One light beam of a Mach-Zender interferometer is passed through the air core of a 15 foot long solenoid, which develops a flux density of 2560 gauss. This beam is then combined with the reference beam to form interference fringes which are focussed on a multi-cell silicon-diode transducer. The electrical output of the cells, and the input current to the solenoid are simultaneously and continuously recorded.

EQUIPMENT: Light Source

University Laboratories Inc., Helium-Neon Gas Laser, Model 240, 1 Milliwatt, 6328A.

Sanborn, Model 53 battery powered 110 vdc source, provides alternate power source for laser without 60 Hz noise.

Optical System

Three front surface mirrors, approximately 1 inch x 1-1/2 inch (source and characteristics unknown).

One beam splitter, approximately 2-1/2 inch x 3 inch (Edmund Scientific - (characteristics unknown).

Collins Microflat Co., two granite surface plates with three adjustable legs, 12 inch x 18 inch x 3 inch; four granite angle plates, 3 inch x 3 inch x 4 inch, toolroom grade B.

Magnetic Field

Mag-Tran, Model SA-380 solenoid. Two concentric coils, continuously wound to produce additive flux. 15 ft. long x 2.8 inch outside dia., wound on an aluminum alloy tube of 1-11/16 inch outside dia. The wire is #3 gauge square magnet wire (.229 in) with glass filament insulation.

The solenoid is contained within a steel tube of 3 inch outside dia. x 1/4 inch wall thickness. 3/8 inch thick steel plates are bolted to welded flanges to close the ends of the tube. The tube is supported on 4 integral stands with its center line at 7 3/4 inch above the floor.

The air core of the solenoid is thermally insulated from the aluminum mandrel by two concentric PVC plastic tubes (water pipe) which provide a 1/2 inch dia. air path through the center of the solenoid.

Power is supplied by a Miller Electric Mfg. Model SR-10000IA, 50 KW at 80,160 or 320 vdc, variac controlled. The power supply is protected by a "crow-bar" circuit consisting of a IN3289 diode (GE A70B) and a 100 MFD-450 WVDC electrolytic capacitor in parallel across the solenoid terminals.

Instrumentation

Current through the solenoid is measured across a 1000 amp - 50 mv shunt.

The interference fringes are projected on a ruled line pattern of the same spacing as the fringes. The pattern is ruled with black felt tip pen on paper vellum which is cemented to a 2 inch x 3 inch microscope glass immediately above the light sensor. The sensor consists of 19 Hoffman 55C silicon cells (3/16 inch square) arranged in two rows. The cells and line patterns are arranged such that peak voltages for the two rows are phased 180° apart. Each row of cells is series wired. Output of the sensor is read as a voltage differential between the two rows of cells.

A Sanborn model 320 dual channel dc amplifier-recorder is used to record the inputs described above. When the light source is operated on ac power, a 60 Hz filter (.22 MFD - 51 KΩ) is used with the light sensor input.

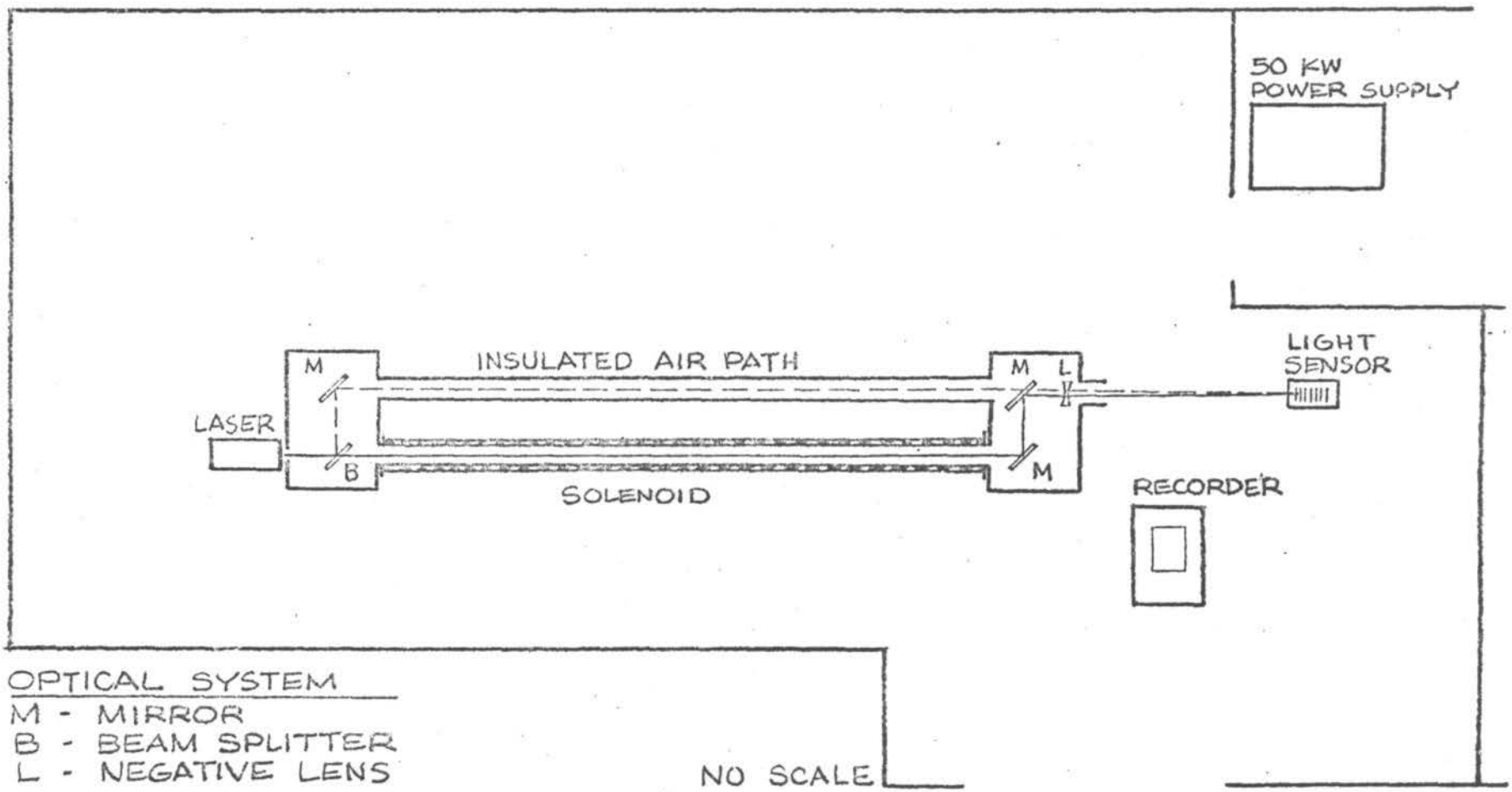
See Page 3 for schematic of equipment arrangement.

PROCEDURE:

Since the amount of anticipated fringe shift is an unknown, preliminary runs were made to visually observe fringe movement and record voltage and current readings at the solenoid. Peak power observed was 49.02 KW (570 a., 86 v.). Fringe movement was very erratic but indicated that any effect (signal) would be much less than 1λ in magnitude. To provide a quantitative picture of fringe movement, the sensor described previously was fabricated from available laboratory surplus parts. In conjunction with the chart recorder, this sensor is capable of resolving ~ 2 parts in 10^9.

The majority of the background noise was due to air temperature variations external to the solenoid. This was caused by the room air conditioning outlets immediately above the apparatus. This was cured by blocking the air outlets and constructing thermal-insulative enclosures for the light path. Additional noise was introduced via mechanical coupling with the power supply blower. This was eliminated by disconnecting the blower.

Subsequent runs using the light sensor and recorder required additional noise reduction by means of a 60 Hz RC filter and isolation of the solenoid housing from the thermal covers on the optical system.



EQUIPMENT ARRANGEMENT - UNIT 52 RM 102

PROCEDURES: (Contd)

The residual random noise was $<\lambda/50$ for most of the runs from #10 through the last one, #17. $\lambda/50$ is the distance equivalent of the previously stated resolution of ~ 2 parts in 10^9. On the chart record of runs #12 and #13 are illustrated the curve deflections which would be anticipated if the maximum field were to cause a $\lambda/40$ fringe shift. Comparing these to the actual recorded curves clearly shows an absence of signal at this field strength.

Heating of the air core of the solenoid during operation causes a predictable displacement of fringes at the average rate of 1λ/min. However, this poses no problem in signal discrimination if the field is applied and removed rapidly. The limiting cycle time for the field is approximately 4 sec. and is due to manual operation of the variac. The measured time constant of the coil (95%) is $\sim$ .01 sec.

Flux leakage at the end plate joints of the solenoid housing was checked with a Bell Gaussmeter. Readings of $\sim$ 10 gauss @ 100 a. were taken both with and without a soft-steel wire gasket between end-plate and flange.

RESULTS:

No signal of the type anticipated was observed within the limits of resolution of the existing apparatus ($\lambda/50$ or ~ 2 parts in 10^9).

RECOMMENDATIONS:

When the theory is sufficiently advanced to be able to predict the effect within a few orders of magnitude, the possibilities of experimental verification should be examined again. The following improvements to the present apparatus have been investigated.

Signal Amplification

An increase in flux density x length can be accomplished inexpensively by,

1. Addition of a second solenoid and second power supply, if available.

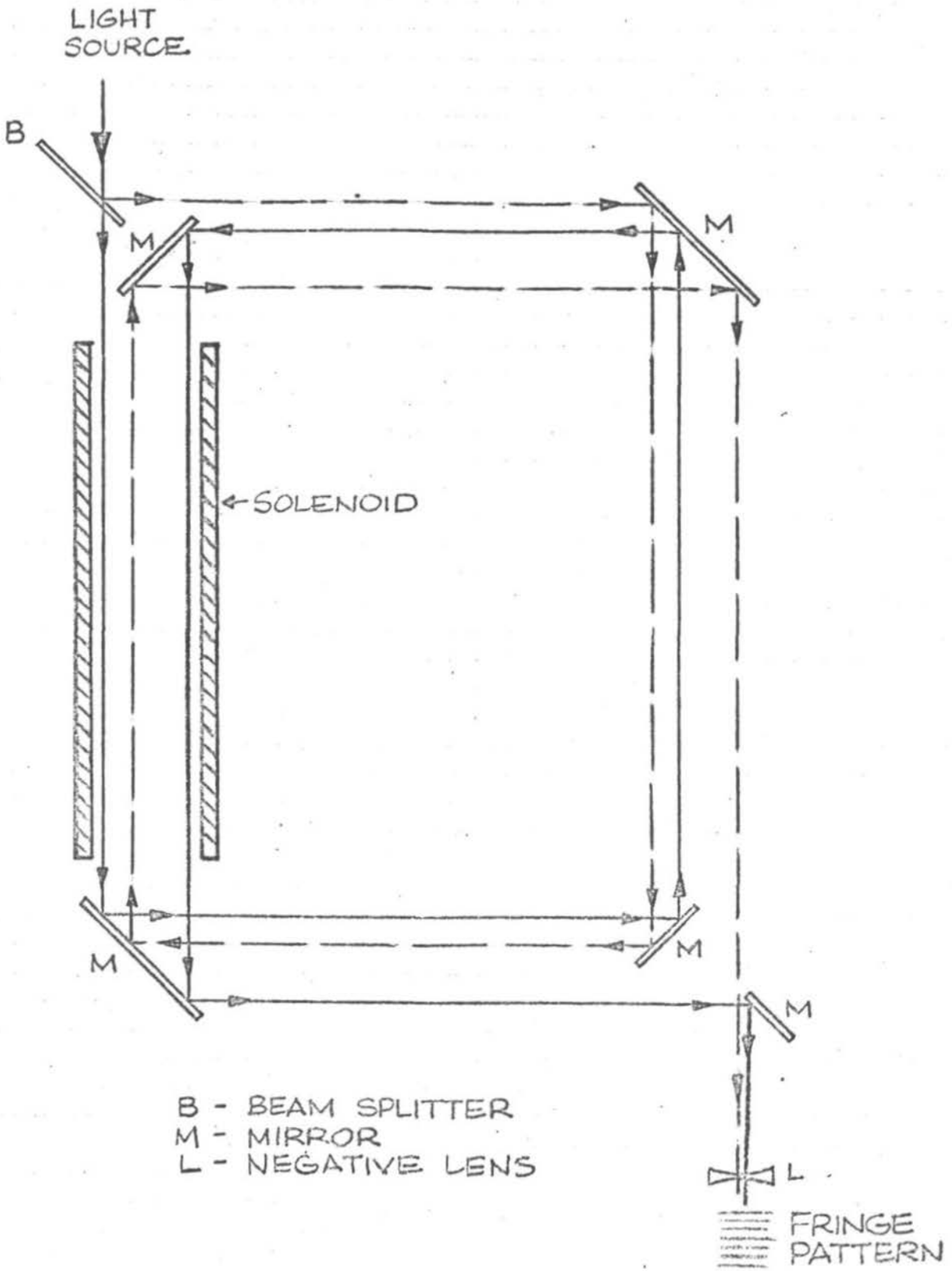
2. Recirculating the light beam through the solenoid three times.

A comparison of these techniques is shown on Page 5. The second method above was tried by modifying the existing apparatus as indicated on Page 6. To accomodate the three passes of the beam through the solenoid, the 2 PVC tubes were removed and the apertures in the end-plates were increased in size. The alignment procedure was much more difficult due to the added mirrors and path length.

COMPARISON OF PROPOSED MODIFICATIONS TO LIGHT/MAGNETIC FIELD EXPERIMENT
(Performance Is Compared To Original Experiment In Percentages)

MODIFICATION	MAG. FIELD		SIGNAL	TEMP. NOISE	RANDOM NOISE	SIGNAL
	Gauss-Meters	Power KW	%	(N_t)%	(N_R)%	N_R
A Two Identical Solenoids on Existing Power Supply. Flux Directions Opposing Each Other.	16,550	51	144	~10	100	1.44
B Two Identical Solenoids On Separate Identical Power Supplies. Flux Directions Opposing Each Other	23,000	98	200	~10	100	2.00
C Single Solenoid On Existing Power Supply. Light Beam Recirculated to 3 Times Existing Path Length.	11,500 Act. 34,500 Eff.	49	300	100	~250	~1.2
D Modification A, Plus Light Beam Recirculated to 3 Times Existing Path Length	16,550 Act. 49,650 Eff.	51	432	~10	~250	~1.7
E Modification B, Plus Light Beam Recirculated to 3 Times Existing Path Length	23,000 Act. 69,000 Eff.	98	600	~10	~250	~2.4

SCHEMATIC OF MACH-ZENDER INTERFEROMETER WITH DOUBLE LOOP LIGHT PATHS.



RECOMMENDATIONS (Contd.)

Although this modification increases the signal threefold, random noise is also increased, fringe brightness is reduced by a factor of 9 and fringe definition is degraded. With the existing sensor, slightly modified, it was not possible to approach the resolution previously attained. This technique requires a laser of greater intensity and coherency than was used, in order to achieve the quality of fringe pattern required.

Improved Resolution

Resolution can be improved by developing a more sensitive sensing technique and using synchronous methods for isolating signal from background noise. By projecting the fringe pattern on a $\perp$ screen having alternating reflective and absorbtive lines of the same spacing as the fringes, the entire cross section of the light beam can be used as a fringe shift indicator. This image of variable brightness can be focussed, by means of lenses, on a highly sensitive, fast reacting light sensor. A bridge circuit can be used to convert its change in resistance to a recordable signal.

H. C. Bjornlie
Advanced Concepts
28 May 1969

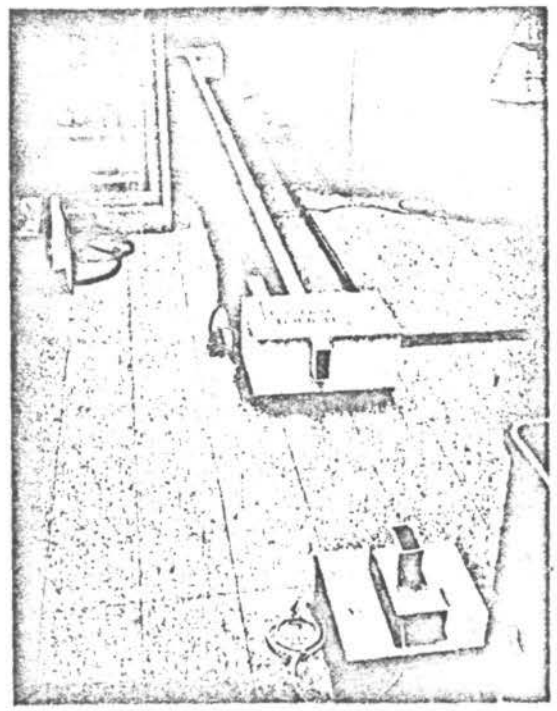


Fig. 1. General Arrangement Of Experimental Apparatus. Optical Sensor In Lower Right Corner

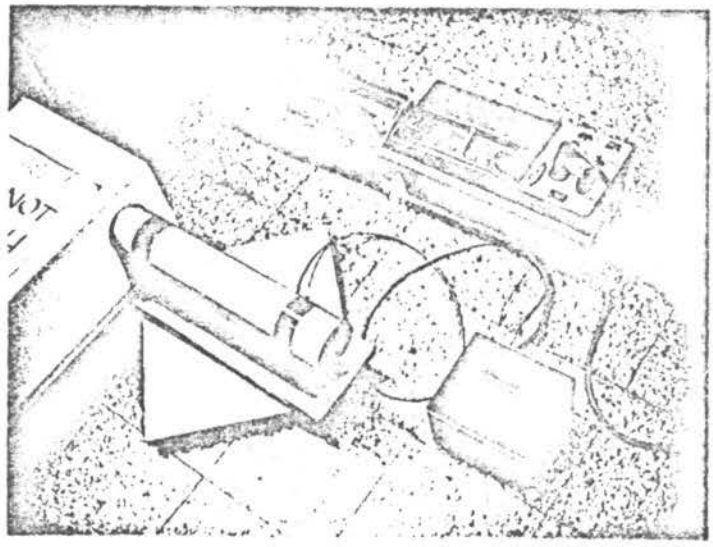


Fig. 2. Light Source He-Ne Gas Laser (6328Å) With 110 v. dc Battery Power Supply

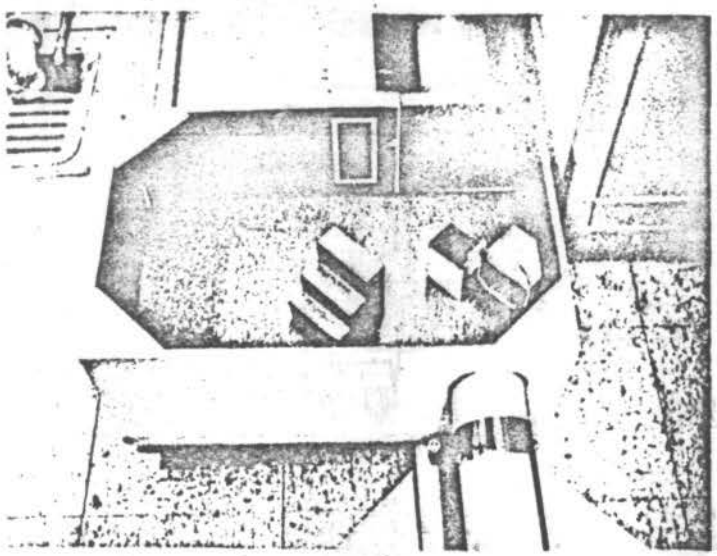


Fig.-3. Interferometer, Near End, With Cover Removed.- Optical System is Arranged For Double-Loop Path. End Plate Of Solenoid Is In Upper Right, In Line With Laser Axis.

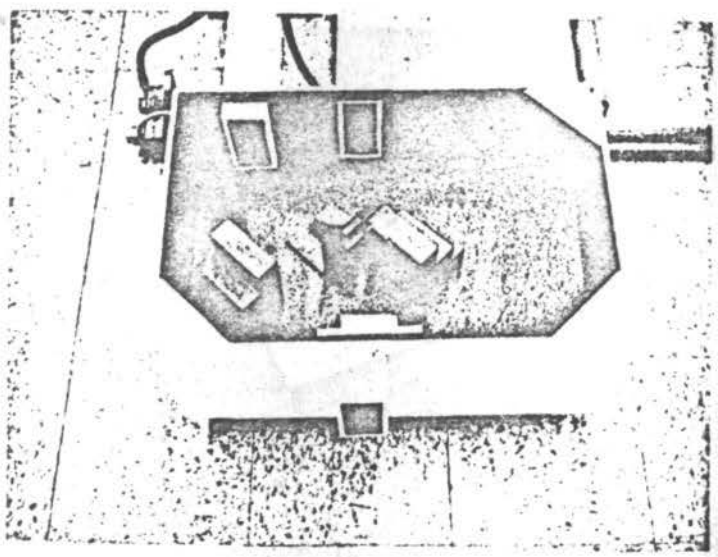


Fig. 4. Interferometer, Far End, With Cover Removed. Optical System Is Arranged For Double-Loop Path.

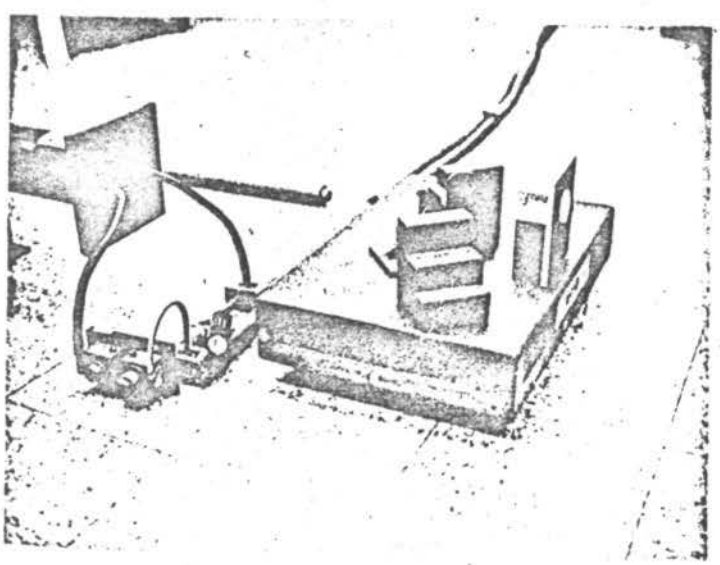


Fig. 5. Interferometer, Far End, With Complete Housing Removed. Optical Element At Right Is Negative Lens. Solenoid End Plate Is At Left. Protruding Leads Attach To "Crow-Bar" Circuit And Power Cables. Thermal Insulating Tubes Lie On Floor Behind Solenoid.

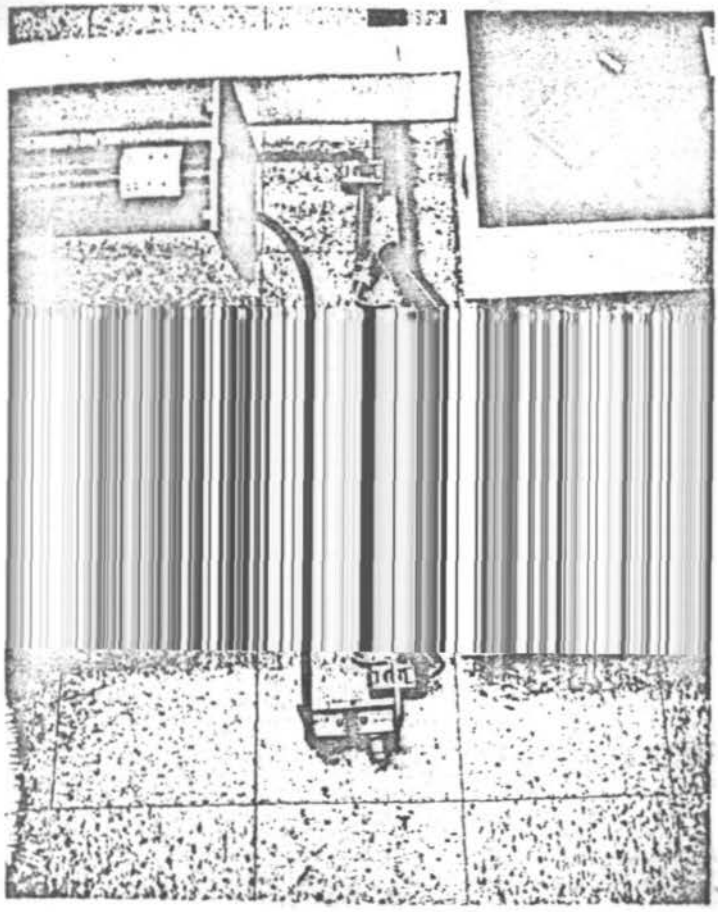


Fig. 6. Far End Of Solenoid Showing "Crow-Bar" Circuit And Power Cables.

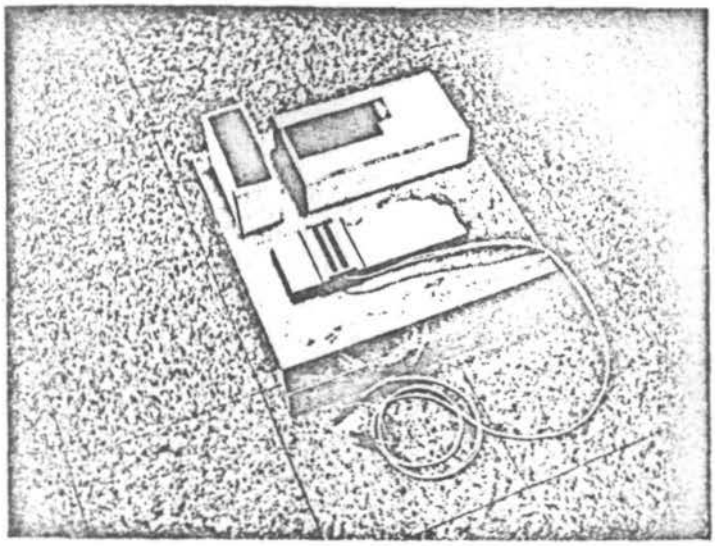


Fig. 7. Optical Sensor With Housing Removed.

Fig. 8. Interference Fringes. Center Section Shows 5-1/4 Wave Lengths, Lower Section (Barely Visible) Shows 1-3/4 Wave Lengths

MEMORANDUM

W.F.W

DATE: 2-14-68
A-830-BB01-JMB-1

TO: R. M. Wood, A-830

FROM: J. M. Brown/D. B. Harmon, A-830

SUBJECT: CURRENTLY PREFERRED PROPULSION CONCEPT

COPIES TO: C. P. Thomas, A-830; File

REFERENCE:

INTRODUCTION

In a previous memorandum, Reference 1, a broad spectrum of propulsion concepts was listed and discussed. Certain general directions of effort which could lead to a propulsion concept were outlined in this reference. The purpose of this memorandum is to review the efforts of the past six months, indicate the presently preferred propulsion concept, point out the various degrees of confidence felt for each parameter or portion of the propulsion concept, and indicate the direction of future effort.

BACKGROUND

The propulsion concepts spectrum listed in Reference 1 essentially consisted of a generic listing of all known possibilities. For various reasons of flexibility, efficiency, and funding the concepts were screened so that three generic types remained for consideration:

1. External sources - a. Earth Magnetic Field
   b. Earth Electrostatic Field
   c. Earth Gravitational Field

2. Stored Energy - Nuclear Annihilation

3. Free Field Energy - a. Brutino Field
   b. Air Molecules

Furthermore, for space propulsion, types 1 and 3b are eliminated. Thus, efforts during the past six months have been directed along the general approach of nuclear annihilation and brutino free field energy.

Nuclear annihilation consists of converting the individual (orbital) electrons (and nuclear particles) into photons (neutrinos and/or brutinos). Since the nuclear binding forces as well as the forces which hold individual nuclear particles together are presumed to be due to brutino fields (i.e., brutino flow patterns), by sufficiently rearranging the fields it should be possible to break up matter. Matter annihilation requires high intensity fields and the degree of intensity may depend somewhat upon the individual matter particle being annihilated. When technology has advanced so that sufficiently high fields are obtained, matter annihilation undoubtedly will be discovered as a matter of course, and in a very short time after achievement of adequate field intensity. Analytical work could be performed with the goals of defining the required field strength and optimum characteristics for annihilation as well as with the goal of achieving high intensity fields. Efforts along these lines have not been pursued directly since the chance of beating current established methods of physics is deemed not as good as for the free field energy concept.

One free field energy concept using brutinos basically is a scheme for beating the second law of thermodynamics. The statistical mechanics interpretation of the second law implies that assemblages of particles must have configurations which either remain static or must pass to a more uniform state. This free field energy concept is based on taking particles (brutinos) from a uniform population into a vehicle (or propulsion subsystem) then releasing them in a particular direction. The propulsive force results from the recoil of the directional release of the particles. Energy and linear momentum are conserved in the process. The conservation of angular momentum has not been examined and may be a problem. Such organization processes are generally believed to exist, but are not understood. Another free field energy concept consists of forming neutrinos from free brutinos, both groups of which travel in the same direction, which results in a thrust throughout the vehicle in a direction opposite the neutrino flow. Work in this area is judged to have a greater chance of success than on nuclear annihilation.

EFFORTS DURING THE PAST SIX MONTHS

The primary efforts during the past six months have been approximately half on the general kinetic particle equation of continuity and half on the relativity observations.

The general kinetic particle equation of continuity is believed to be the general equation which mathematically represents all configurations of matter and radiation in the universe. (There is a possibility that an added "equation of state" may be necessary.) Thus, everything in the universe is uniquely determined as a solution to this equation with the appropriate boundary conditions. The present status of the paper containing the equation derivation is that there is an uncertainty in one section of the probability analysis. Once this is cleared up the paper would be complete and accurate. Future work should be directed toward finding solutions. For example, the easiest one to find is the particle distribution which is constant with the three space coordinates, the two directional coordinates, and time, and varies with speed -- i.e., the Maxwell-Boltzmann distribution. Achievement of the Maxwell-Boltzmann distribution from this formulation, if realized, should be regarded as a significant accomplishment.

During the last three months efforts were directed toward the relativity observations (gravitational deflection of light, gravitational red shift, rotation of perehelia, Michelson-Morley experiment, particle accelerator performance, Compton effect, and abberation of light). Two significant reasons for analyzing these observations are: 1) to obtain insight into the solution of the general kinetic particle equation, and 2) to establish the credibility of the general approach; i.e., to the postulated kinetic particle universe. Two papers have been completed on the relativity observations: 1) A Kinetic Particle Analysis of The Gravitational Deflection of Light, and 2) A Newtonian Analysis of Compton Scattering. The first paper was based on very simple mathematical assumptions, which appear to be consistent with the kinetic particle postulates, and predicts a result which is very near the observed result and which is much closer than the generally accepted relativitistic prediction. The second paper obtains a prediction of Compton scattering using Newtonian mechanics which is indistinguishable from the relativistic prediction. Newtonian mechanics results rigorously from the kinetic particle postulates and, the significance of this second paper, is that relativistic theory is not necessary to explain the observed effect. Current efforts are being directed toward particle

accelerator performance and to the more basic problem of "force" definition in terms of brutinos and various types of brutino field arrangements.

FREE FIELD ENERGY PROPULSION CONCEPT

Only three brutino free field concepts are known. All three collect brutinos from an omnidirectional field and emits directionally. One concept emits these brutinos in the form of neutrinos (and/or antineutrinos), another emits in the form of photons, and another emits in the form of free brutinos. The brutino capture-neutrino release is believed to be the mechanism of gravitation and thus, a process known to exist. However, a mechanism for directional release must be obtained for this concept. In addition, in order to achieve an acceleration level of 1 g, many orders of magnitude increase in emission rate must be obtained. Both of these problems are considered to be challenging. The brutino capture-photon release mechanism may be the basic mechanism which produces the energy of a star. If so, then a brutino to photon production mechanism exists. Directional release of photons can be achieved using reflectors and is no problem. Thus, if the mechanism actually exists then the speed-up (by a factor of many orders of magnitude for 1 g) problem is the challenging problem. All the portions of the third free field energy concept, brutino capture-brutino directional release, appear at least as uncertain and difficult as the worse of either of the other two concepts and, as such, is not considered further.

The attached table presents a summary of the factors currently believed to be pertinent to achievement of the brutino to neutrino, and brutino to photon free field propulsion concepts. In addition, an indication of the confidence felt for each parameter is presented.

FUTURE EFFORTS

The immediate problem is to start performing experiments. Just as soon as an appropriate technician, or research scientist, is available the experiments will be initiated. Further work on the relativistic observations will continue, as defined earlier in this memorandum. These efforts will continue as long as they are fruitful. Work on the kinetic particle equation of continuity also will be accomplished on a lower priority basis. Evening efforts will be directed generally toward a revision of Advanced Physics.

J. M. Brown, A-830

D. B. Harmon, A-830

References:

1. "Space Propulsion Concepts", memorandum to R. M. Wood from J. M. Brown, dated 8-14-67.

2. "Proposal for Electrostatic/Magnetic Experiments", memorandum to R. M. Wood from J. M. Brown and D. B. Harmon, dated 12-20-67.

TABLE I

FREE FIELD ENERGY PARAMETERS AND ASSOCIATED UNCERTAINTIES

GENERAL	CONFIDENCE (BETTING ODDS)
Galilean Reference System	0.99
Brutinos Can Unify Known Physics	0.99
Kinetic Particle Eq. of Cont. Represents All Entities	0.9 or 0.99
PARTICLE DEFINITION	
Photon Description	0.01 or 0.5
Neutrino Description	0.01 or 0.1
Electron Description	0.5
PARTICLE INTERACTIONS	
Photons and Electrons Interact as Indicated by Grav. Defl. of Light and Compt. Scattering Anal.	0.99
Matter Particles Collect Free Brutinos and Emit Neutrinos (thus causing gravitation)	0.9
We Can Find Mech. for Speeding Up ν Production	0.2
We Can Find Mech. for Directing ν 's	0.05
We Can Find γ Prod. Mech.	0.05
We Can Speed Up γ Prod. (Given Above)	0.2
EXPERIMENTS	
At Least One Experiment in Reference 2 Will Succeed (Electrostatic/Magnetic Experiments)	0.2
Velocity of Light Will Be Affected By Magnetic Field	0.5
Compton Wavelength Can Be Determined Accurately (Utilizing Laser or Moessbauer)	0.9
High Magnetic Field Can Be Generated With Counter-Rotating Charges	0.5

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DOUGLAS

CONTENTS

DATE: 27 June 1968

A-830-BB01-JMB-2

TO: R. M. Wood, A-830

FROM: J. M. Brown, A-833

SUBJECT: PROPOSED VEHICLE R&D PROGRAM (Project BITBR)

COPIES TO: D. B. Harmon, Jr., W. P. Wilson, Jr., A-830; File

REFERENCE:

Attached is a description of the Vehicle R&D Program which highlights the technical aspects of the background and outlines the immediate future efforts. The efforts outlined in this memorandum are intended to reflect the feedback from the Management Briefing, "Advanced Vehicle Concept Research" which started on 2 May 1968. Note particularly that for each different principal area of the effort there are definitely identifiable initial goals whose achievement or non-achievement can be assessed. Subsequent goals are identified but become more nebulous. Finally, note that the section on the lumped-parameter analysis of the electron should provide a determination of all the background field parameters. In turn, this will provide the capability to compute the amount of fringe shift for the experiment currently being performed to measure the effect on the velocity of light produced by a magnetic field.

This memorandum should serve as the core for a comprehevsive description of the project which is independent of the project personnel.

J. M. Brown

J. M. Brown, A-833

JMB:msb
Attachment - Noted

PROPOSED VEHICLE RESEARCH AND DEVELOPMENT PROGRAM

25 JUNE 1968

DOUGLAS PRIVATE

INTRODUCTION

The purpose of this memorandum is to outline a tangible step-by-step research and development program which will provide firm answers regarding a number of building blocks which are identified as possible elements of advanced propulsion systems. Two principal approaches and a secondary approach are outlined. The principal approaches consist of evolving the systems from basic physics and evolving directly from an analysis of UFO (Unidentified Flying Object) observations. Of course, any information generated from one approach will be fed into the other approaches.

The basic physics approach to a great extent is based on a new theory of physics - the kinetic particle theory. The program outlined here will rigorously examine the validity of the kinetic particle theory using a sure, but laborious, lumped-parameter analysis. It is also proposed to supplement the lumped-parameter analysis with an elegant, but not necessarily sure, parallel approach. Laboratory experiments are described which test the kinetic particle theory and, at the same time, are very close to vehicle propulsion configurations.

An ancillary approach to vehicle design is based on the assumption that UFO's are extraterrestrial vehicles and that design clues may be obtained by studying data from these vehicles. These data may be obtained from the literature, individual observers, or from communication schemes utilized by the vehicles. The data obtained may be usable to directly configure vehicle type experiments or to give technical insight into the vehicle design.

In order to cover all bets a number of miscellaneous avenues have been, and will continue to be, pursued with low priority. A discussion of these efforts is included in this memorandum. This discussion completes a comprehensive coverage of the Advanced Concepts efforts.

The final section of this memorandum summarizes the immediate tasks which it is anticipated will be pursued.

VEHICLE OBSERVATION BACKGROUND

There are many UFO (Unidentified Flying Objects) observations which are readily explainable by the extraterrestrial vehicle hypothesis and which are difficult to explain with any other hypothesis. The bulk of these "extra-terrestrial vehicles" have characteristics which are consistent with out current understanding of scientific limitations, even though their capabilities exceed our current technology. Exceeding our current technology, of course, is quite consistent with the extraterrestrial vehicle hypothesis. Some of the "vehicle" observations, however, indicate capabilities which exceed our scientific limitations. The principal capability of this type is that indicated by extremely high acceleration rates and other gravitational control (anecdotal) data. The vast majority of the "vehicle" sightings indicate that strong magnetic fields are generated by the vehicles. These fields are presumed to be connected with the propulsion system.

This background indicates that some UFO's may be extraterrestrial vehicles; they certainly have not been proven otherwise. The existence of extra-terrestrial vehicles indicates that vehicles can be built which would have capabilities quite useful to McDonnell Douglas Corporation. In addition, if the UFO's are vehicles then the UFO observations give clues for guiding a research and development program for evolving the vehicles. In summary, the results of an analysis of the UFO observations provide the basis for MDC management to allocate a small expenditure for high risk-high payoff vehicle R&D. At the same time, the observations provide guidelines for conducting the vehicle R&D.

KINETIC PARTICLE THEORY BACKGROUND

The postulates of a comprehensive kinetic particle theory of physics were formulated and published in 1965, see Reference 1. The consequences of these postulates were examined somewhat in Reference 1 but in greater depth in Reference 2, still greater depth in Reference 3, and further during the past year by the Advanced Concepts personnel in the Research and Development Organization of the McDonnell Douglas Astronautics Company.

The postulates of the theory are that space and time are separate and absolute (Galilean) and that all matter, radiation, and a background ether consists of one type particle which obeys the law of inertia, is smooth, elastic, and spherical. Otherwise, the particles are completely inert and all forces, e.g., nuclear, electromagnetic, decay, and gravitation, are produced by particle collisions.

Classical mechanics results rigorously from the postulates. The theory would be accepted by the physics community as a unifying theory if the following three goals were achieved:

1. The elementary particles were derived from the postulates.
2. Special theory of relativity observations were derived from the postulates.
3. The mechanism of gravitation were derived from the postulates.

The approach currently being taken to achieve the above, as well as other results, is to derive the characteristics including relativistic effects and the fields, of all fundamental particles. Current understanding of the various areas is outlined in the following paragraphs.

The elementary particles are believed to be stable[1] concentrations of the basic background particles. The configuration of an electron is defined in the most detail of all the elementary particles. The electron is believed to be a two-component vortex in which the axial flow corresponds to the magnetic moment while the tangential flow corresponds to the angular momentum. The two flows together make the electrostatic field when the electron is at rest. When moving, the two flows make the electrostatic and the magnetic field. The quantitization of the electron mass, and of the angular momentum for all particles is believed to result from a self-induced pinch, or mutual shielding, phenomena. All elementary particles are either translatory waves (photons, neutrinos, gravitons) or standing waves (electrons, muons, pions, kaons, neucleons, and other bayron's) in the ether.

[1] In terms of elementary particles, life times significantly longer than 10^{-23} sec are "stable". Particles with lifetimes up to only a few orders of magnitude greater than 10^{-23} sec are termed "resonances".

Special theory of relativity observations are believed to result since all observed phenomena in the universe are waves (translatory or standing) of classical (Newtonian) particles and thus are governed by the classical wave equation, $\nabla^2\varphi = -(1/c^2)\partial^2\varphi/\partial t^2$ (c = speed of light). In this equation the square of each space coordinates has exactly the same role as $-c^2t^2$. Thus, considering a space-time continuum with x, y, and z on the same basis as i c t ($i = \sqrt{-1}$) is quite similar to considering a classical wave existing in an absolute space-absolute time.

Gravitation is believed to be due to the gradual collection of basic particles from the background by all matter and then a pulse emission of a group of the basic particles in the form of a non-interacting particle (graviton or neutrino).

A general equation has been derived during the past year, see Appendix A, which represents the characteristics of large numbers of the basic particles. This equation, in principle, provides the capability for comprehensively investigating all ramifications of the theory. However, the equation is complex and closed form solutions may be difficult to obtain.

This kinetic particle theory predicts that photon velocity will be reduced if light goes along a magnetic field against the field lines and increased when with the field lines. Current theory predicts no change. A laboratory experiment currently is in process to examine this effect.

In summary, the kinetic particle theory is a precisely formulated theory which is capable of being rigorously tested. The first analysis block, the derivation of classical mechanics, has been completed. The first major step of subsequent blocks, the continuum equation, has been derived. Qualitative descriptions of the expected solutions of the continuum equation are available and should be quite useful in seeking solutions. These qualitative descriptions provide the basis for all areas of physical science and are sufficiently detailed that they provide a feeling that the theory should be successful.

VEHICLE PROPULSION BACKGROUND

The types of propulsion which are of primary interest are gravitational control and amplification and matter annihilation, see Appendices B and C. Gravitational control and amplification research currently is along the line of verifying the previously defined gravitational mechanism, see Page 6, determining how to increase the graviton (or neutrino) production rate by many orders of magnitude (possibly with high magnetic fields), and simultaneously directing the gravitons opposite the vehicle desired thrust[1]. Matter annihilation consists of changing matter into photons or the basic particles which would be directionally emitted. Again, the primary approach to annihilation is by the use of high magnetic fields. In fact in all these propulsion schemes it appears that a quickly changing magnetic field (which, of course, is equivalent to a changing electrostatic field) or fields is the only approach so far identified to initiate the propulsion mechanism. Note again that the high magnetic fields in the UFO reports and the high acceleration rates may be consistent with the kinetic particle theory.

The kinetic particle theory of matter provides the capability for examining gravity control and amplification, matter annihilation to basic particles, and matter annihilation to photons. Current physical theory only provides the capability of examining the last named propulsion concept. The next section outlines the step-by-step analytical and experimental approaches to examine these propulsion concepts.

A a final note on propulsion concepts it seems that any one of three different arguments justify the experiment to produce in the laboratory as high a magnetic field as possible. These separate arguments are:

1. UFO data indicate the use of high magnetic fields.
2. The propulsion concepts derived from the kinetic particle theory indicate that high magnetic fields would be used.
3. From current physics it seems to be a safe bet that new, unidentified propulsion concepts would utilize high magnetic fields.

[1] Such a scheme may permit a human to withstand acceleration rates of hundreds, or thousands, of g's.

For all of these reasons, high magnetic field generation schemes will be studied analytically and experimentally.

CONTINUUM EQUATION ANALYSIS

The first step in the evaluation of the consequences of the postulates of the kinetic particle theory of physics consisted of deriving all of classical mechanics. This step has been accomplished, see Reference 3. This first step was accomplished by considering the basic particles individually, or two at a time. The next step requires a quantitative description of ensembles of large numbers of the basic particles, since it is presumed that large numbers of basic particles are required to make an individual photon, neutrino, or electron, for example. These particles are the "objects" which are observed in nature while the laws of classical mechanics are generalized laws which "govern" the action of the particles of nature. The continuum equation is a general integro-differential equation which describes the action of large enough numbers of the basic particles so that the particles produce the action of a continuum.

Appendix A consists of the derivation of the continuum equation. The equation consists of a number of operations upon the particle density function in phase space. The density function is represented by φ and depends upon three spatial coordinates (x, y, z), three velocity coordinates (Ω, s), and upon time. The function is defined such that at a given time the expected number of particles in an increment of phase space (a position space increment $\Delta x \Delta y \Delta z$ times a velocity space increment $\Delta\Omega\Delta s$) is given by $\varphi \Delta x \Delta y \Delta z \Delta\Omega \Delta s$. The equation relates the net density of particles at a particular (position) phase space point convected out less the density of particles scattered in plus the density of particles scattered out to the time rate of increase in the particle density function.

While this equation is believed to be quite general in that a complete human, for example, is presumed to be one solution, or eigenstate, of the equation, it is not anticipated that the equation would ever be used to derive complex assemblages. Instead, the equation should be useful for deriving

assemblages up to and possibly through the quantum levels and thus forming a new basis, possibly with slightly modified consequences, for quantum theory. In particular, it is anticipated that photons, neutrinos, gravitons, electrons, and all the other nuclear particles (all of which in current physics are postulated) should result as eigenstates of the equation.

In working on this equation there are a number of distinct avenues which can be pursued. The first item should be to obtain an independent check of the derivation. The area which is most likely to have an error is the analysis of the probability of scattering into a given increment of velocity space. Even if the in-scattering analysis is correct as presented in Appendix A, it is quite possible that a more useful form of the result could be derived by an alternate approach. Another item is to examine the existence of solutions. For many differential equations it has been possible by utilizing established techniques to prove that various types of solutions do, or do not, exist. Such investigations could well be worthwhile. However, the significant problem is to find stable, non-trivial eigenstates of the equation. The simplest non-trivial solution anticipated corresponds to the Maxwell-Boltzmann distribution in the kinetic theory of gases. This distribution consists of a uniform spatial distribution of particles which have a variable distribution of speeds. The exact conditions necessary and sufficient for this solution are unknown. The assumption of ergodicity and the less restrictive assumption of particle chaos are strongly believed to be sufficient. The next more complex solution of interest is to determine if a double vortex (standing wave) solution corresponding to the conjectured electron exists. If this were a solution, then the kinetic particle theory of science would be established - this being recognized as a major milestone.

If this step were accomplished then the next step will be to examine the time-varying solutions to ascertain if the electron goes through a cycle of growing (collecting basic particles from the background) then shedding a neutrino or graviton. If so, and if the shedding rate is quantitatively correct, then the mechanism of gravitation will have been established. The final step to obtain a propulsion concept is to examine the effect of externally

applied electromagnetic fields on the shedding rate. The application of steady state and varying magnetic fields, electrostatic fields, and photon fluxes should be examined. If the shedding rate can be increased several tens of orders of magnitude and can be directionally released, then the gravity amplification propulsion concept will exist.

This research on the continuum equation is recognized as being of a high order of difficulty, but the payoff is high. It should be noted, however, that each step is quite definitive in that not only the goal but the approach to each step should be quite clear to an expert on partial differential equations.

Extensions and modifications of this approach which would examine all fundamental particles as well as the matter annihilation propulsion scheme seem to be clear and not worthy of dwelling upon at the present time.

LUMPED PARAMETER ANALYSIS

Lumped parameter techniques applied to the analysis of the conjectured elementary particle configurations have the advantage of providing, within net fineness constraints, straight-forward sure methods of proving, or disproving, the stability of the configurations. Thus, for a given configuration selection, a routine, sure, but laborious analysis technique exists. It is felt that the conjectured electron configuration has a high likelihood of being sufficiently accurate so that, coupled with its extreme stability (lifetime $>10^{21}$ years), a relatively coarse lumped parameter analysis would prove stability.

EXPERIMENTS TO SIMULATE ELEMENTARY PARTICLES

Once an analysis (closed form or lumped-parameter) of an electron is completed which provides a steady-state description, then a simulation of the electron in the atmosphere using air molecules can be constructed. Such a simulation may be useful to check on a lumped-parameter steady-state solution. However, the principal utility of the simulation is expected to indicate standing wave patterns, if they exist, and the free-field collection - neutrino/

graviton ejection cycle, which is believed to exist. This type simulation could be extremely useful and possibly could be extended to all of the fundamental matter particles including their interactions as well as photon emission.

ANALYSIS OF UFO OBSERVATIONS

Three avenues appear worthwhile for obtaining useful data from the UFO's:

1. Compilation of data in the literature.
2. Interviews with "contactees".
3. ESP

There are many books (100's), magazine articles, and other sources of UFO reports. If the data in these reports were carefully organized and scientifically studied, which to our knowledge has never been done, it is possible that useful clues to the construction of a vehicle would emerge. In view of this, a concerted effort is now in process to extract all useful data from the tens of UFO books and the many magazines which currently are at hand. In extracting the data the only criterion will be whether or not the item extracted is descriptive of the UFO or its occupants or of the local environment. A form has been evolved for recording the extracted data, see Appendix D. It is anticipated that most events would be reported on the one page. However, extensive reports such as D. W. Fry's would start with this form but would extend many pages. Eventually this portion of the program should result in an extensive report which provides broad coverage of the literature.

For the purposes here a "contactee" is defined as a person who may have vehicle data (principally propulsion data) which would be useful design clues. Appendix E is a start of making a list of potential contactees. Once the list is completed a cost/payoff ordering will be made and the interview plan will be firmed up.

Throughout much of the UFO literature there are indications that the observers have been communicated information by non-conventional means, presumably by extra sensory preception (ESP). Comments such as "I heard it in

my head" are common. A low priority effort will be made to study the literature, to measure the signal carrier (most likely electromagnetic fields), and to determine how to communicate in this manner. If it can be established that the communication scheme is real, then the last goal certainly should be achievable. If the communication scheme can be established, this in itself would be a significant achievement. However, the utility to us would be to obtain vehicle clues by "eavesdropping" or possibly by a direct back and forth communication link. The first step in this program beyond the low level literature survey will be to measure the magnetic fields (and possibly other phenomena) around someones head when he is supposedly receiving ESP communication.

MISCELLANEY

The approach so far utilized in the development of the kinetic particle theory of physics has been to continually broaden the scope of qualitative application of the theory as a result of reading a large number of books in diverse scientific areas while at the same time generally tightening the analysis everywhere throughout the structure and particularly making the analysis perfectly rigorous where possible. It is believed that this approach is being successful and should be continued.

There are a large number of phenomena, particularly so called psychic phenomena, which appear to be beyond current science. These phenomena may not be physical, but they may be. In case of the latter, then clues to the structuring of a new theory may result from a study of these phenomena. In order to maximize success potential a small literature survey and limited investigation effort on all strange phenomena appears to be well worthwhile. Along this line there exists the phenomenon of "water dousing" which undoubtedly works but is not understood. This phenomenon is definitely worth examining and it is planned to investigate it in the forthcoming months.

Finally, experiments which the kinetic particle theory predicts outcomes which differ from current theory will be considered for performing. A particular experiment along this line is the "magnetic field effect on light

velocity" experiment currently being performed. The weakness of this experiment is that the effect has not been quantitatively determined. This will be remedied as a result of the analysis outlined above in the Continuum Equation Analysis or Lumped-Parameter Analysis.

IMMEDIATE PRIORITIES

Item	Personnel
Continuum Equation Analysis	Pipes/Brown
Check Equation	
Examine Existence of Solutions	
Derive Maxwell-Boltzmann Distribution	
Derive Electron Steady State	
Lumped-Parameter Analysis	Brown
Examine Electron Steady State	
Generation of High Magnetic Field	Bjornlie
Generate Higher Field Than Previously Generated	
Search for Interactions (Grav./EM) Not Previously Sought	
Analysis of UFO Observations	Wilson
Compile and Organize Literature	
Plan Interviews of Contactees	
Miscellaney	
Complete Magnetic/Light Speed Experiment	Bjornlie

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W.T.W.

M E M O R A N D U M

Date: 8-14-67
A-830-BB01-JMB-2

TO: R. M. Wood, A-830

FROM: J. M. Brown, A-830

SUBJECT: SPACE PROPULSION CONCEPTS

COPIES TO: D. B. Harmon, Jr., C. P. Thomas, A-830; File

INTRODUCTION

The purpose of this memorandum is to describe potential propulsion concepts which could be used primarily for propulsion in space, but also possibly could be used in the atmosphere or underwater.

Some of the concepts described have not been analyzed to any appreciable extent and, in fact, could be considered as more of a gleam-in-the-eye rather than actual concepts. However, it appears worthwhile to write down these concepts in order to provide some management insight into the research approach being followed, to provide a better communication among those working on the concepts, and to provide proprietorship dates in case a need arises for such things as patent claims. This memorandum can thus be considered as a working document which will be updated continually as additional analysis results are obtained, while some concepts undoubtedly will be discarded as further analyses indicate lack of promise. One final comment is that the concepts are written in the framework of physics as described in Advanced Physics, Third Edition.

PROPULSION REQUIREMENTS

Vehicle mission propulsion requirements always depend upon the range and always require acceleration. Some missions require deceleration, also. The next significant mission requirement is the transit times. Currently, there are effective propulsion systems for almost any range. In fact, there usually are several types available for a given mission range. However, as transit time requirements are diminished, many known systems are eliminated. The known systems which remain may become quite expensive. The primary motivation for obtaining new propulsion concepts then becomes a matter of lowering the cost and lowering transit time.

The propulsion forces for long range space propulsion systems are used primarily for acceleration and deceleration. For shorter range

systems, the forces are required for acceleration and deceleration and for overcoming gravitational fields (principally the earth's gravitational field). At even shorter ranges, atmospheric friction becomes significant. In atmospheric propulsion systems, gravitation and air friction are the principal propulsion energy dissipators. For earth surface (terrestial and water) systems, and for underwater systems, friction produced by the gravitational field is the principal energy user. In earth systems (atmospheric, surface, and underwater), friction is not only a propulsion energy dissipator, but is also generally used to provide the propulsion force.

SPECTRUM OF SPACE PROPULSION CONCEPTS

In order to propel a vehicle in space, energy in the form of moving particles must either be supplied from an active or natural existing external source, must be stored on the vehicle and emitted in a given direction, or must be collected by the vehicle from the (omni-directional) background and released in a given direction.[1]

The first active concept is illustrated by a beam of particles in a pipeline (e.g., wire or open beam) from the ground. A natural existing source is photons from the sun , which impinge on a vehicle (solar sail) to produce motion. Other possibilities are to use existing electrostatic, magnetic, or gravitational fields.

Stored energy, again in the form of moving particles, can be in the form of elastic energy, charged particles, thermal energy, chemical energy, nuclear energy, or stored fields. All concepts require momentum exchange between the released mass and the vehicle for propelling the vehicle. Elastic energy results when one continuum is confined by another continuum of particles (which can be neutrally charged) and can produce propulsion upon release. The amount of energy released per unit mass of the continua involved is very low. Charged particles can be released to provide an impulse and, since they achieve a much higher velocity when they are released than elastic particles, the impulse per unit mass released is higher than for elastic storage. Also, taking into account the total mass of particles which can be stored, along with their individual velocity, gives a greater total impulse per unit mass than can be obtained from elastic energy. Thermal energy is realized by storing mass in a continuum of matter which can be released (again, directionally) in the form of photons. For a given continuum, the maximum amount of releasable mass is obtained when the continuum is a plasma. Photons then can be released until the continuum cools to ambient conditions, and the continuum may end up in the solid state.

---

1. These laws probably could be generalized to a non-particle universe. However, this would cause extra effort and would not be useful for this working document -- at least, at this time.

The temperature which maximizes total impulse is the temperature at which the total mass of the container and the heated continuum is a minimum. The total impulse per unit total mass is very small and the system will not be considered further. Chemical energy results in the release of photons or electrons which themselves can be directionally accelerated, or can be used to directionally accelerate neutral particles. The technology for this latter mechanism, i.e., directional acceleration of neutral particles, is well known and will not be explored further at this time. Nuclear energy can be accomplished by a rearrangement, without annihilation, of existing protons and neutrons which make up neuclei (fission and fusion), or by the annihilation of electrons, protons, or neutrons of a neucleus. The technology for achieving this latter process is not well known. However, the available energy from the "working fluid" is two orders of magnitude greater than any of the other concepts. The final stored energy concept possibility is to store a field (probably only a magnetic field), and then to directionally release the energy in this field. The field is presumed to consist of an ordered arrangement of the background gas (the brutino free field). Impulse is provided by releasing this field of particles in a given direction. The amount of energy which can be stored, per unit mass of matter, in this manner is probably miniscule, and will not be considered further. No other forms of stored energy propulsion are known.

The last family of propulsion concepts consists of collecting brutinos, or gas molecules, from the free field which are moving omnidirectionally and then releasing them in a given direction. In this concept, in order for momentum for the complete system (vehicle and background) to be conserved, the vehicle must be accelerated in the direction opposite the release of particles. The mechanism for collecting free particles is believed to be known, but only for very small collection rates. Directional release at the small rates also can be achieved. However, methods for increasing the rate to levels providing high vehicle accelerations are not known.

The more promising concepts are discussed in the following sections, to provide additional sifting and to outline future efforts. The concepts which are not discussed further are listed below, with the reason for rejection:

Concept	Rejection Reasons
Active External Source	Low Efficiency - Low Flexibility
Sun Photon Source	Low Efficiency - Low Flexibility
Atmospheric Motions	Low Efficiency - Low Flexibility
Stored Energy - Charged Particles	Low Efficiency
Stored Energy - Elastic	Low Efficiency
Stored Energy - Thermal	Low Efficiency

Concept	Rejection Reasons
Stored Energy - Chemical	Low Efficiency
Stored Energy - Nuclear Fission	Low Efficiency
Stored Energy - Nuclear Fusion	Concept Being Pursued By Others
Stored Energy - Magnetic Fields	Low Efficiency

The concepts remaining for consideration are:

External Sources - Earth Magnetic Field
External Sources - Earth Electrostatic Field
- Earth Gravitational Field
Stored Energy - Nuclear Annihilation
Free Field Energy - Brutino Field
- Air Molecules

EXTERNAL SOURCES

The mechanisms of the interaction of vehicle magnetic and electrostatic fields (stationary or moving) with the earth's magnetic and electrostatic fields are known and are predictable from currently available physical theory. The upper limits of efficiency of such systems are not predictable by currently available physical theory. A new theory, such as the brutino theory, has a low, but not negligible, probability of resulting in significant increases of efficiency of such systems. The following actions could be pursued in the area of vehicle magnetic-electrostatic fields interacting with the earth's magnetic-electrostatic fields:

1. Wait for the rigorous photon-electron, etc., build up to electro-magnetic theory. Then, apply the results to determine efficient configurations.

2. Try to conjecture the electromagnetic results of the brutino theory, and apply them to determine efficient configurations.

3. Try experiments to test conjectures in 2.

4. Try experiments to extend existing electro-magnetic theory, independent of 1, 2, and 3, above.

Gravitation is presumed to be due to the radiation of neutrinos and anti-neutrinos. Gravitational forces on a vehicle, thus, can be negated by capturing, or randomly rebounding (which transmits the same momentum) the earth-emitted neutrinos and anti-neutrinos. The only method of radically affecting the interaction of neutrinos (and anti-neutrinos),

which I can think of, is with a magnetic field (on the vehicle). Pursuance of anti-gravity propulsion thus could be along the following routes:

1. Rigorous step-by-step buildup of the brutino theory.

2. Try to conjecture the neutrino and anti-neutrino interactions with magnetic fields (moving and stationary), and apply the results to make up a configuration.

3. Try experiments to test conjectures in 2.

4. Try experiments to determine gravitational interactions, independent of 1, 2, and 3, above.

STORED ENERGY

Nuclear annihilation consists of converting the individual electrons (orbital and those making up the nuclei) into photons. The only concept for accomplishing this under steady state conditions, that I can think of, is by using intense magnetic fields. A magnetic field may be in the wrong direction for annihilation since, when the field is applied, the electrons line up so that their binding force is strengthened instead of weakened, as a result of the field. However, if the field strength can be increased sufficiently (and focused in some way), it may be possible to annihilate matter in the way that matter accelerated close to the speed of light is annihilated. Another possibility, is to accomplish annihilation by transient magnetic fields. The possible approaches, here, are:

1. Rigorous step-by-step buildup of the brutino theory.

2. Try to conjecture the matter-magnetic field stability mechanism, and conjecture a configuration.

3. Try experiments to test conjectures in 2.

FREE FIELD ENERGY

The free-field energy concepts use gas molecules (of the atmosphere) or brutinos for propulsion. Both concepts collect omni-directionally and emit directionally. Both concepts obey the conservation of energy and momentum laws, but violate the second law of thermodynamics. The collector for the brutino field is an electron. The propulsion problem is to increase the collection rate, and then invent some scheme for directional emission. The problem using the atmosphere is to invent an omni-directional gas collector, which provides a stable growing vortex that will emit a slug of

air in a predictable direction. The approaches are:

1. Rigorous step-by-step brutino theory development.
2. Conjecture stability-emission and try to get a configuration.
3. Run experiments on the configuration.

The first type of experiments which could be run here are the photon stability-drag simulation, using volumes of air, compressed and accelerated to sonic speed.

RECOMMENDATIONS

I strongly recommend that the rigorous brutino theory be supported to as great an extent as possible. For example, a good mathematician should be assigned to the problem nearly full time. I should continue tightening up my analysis of all of physics, and to conjecture all the interactions and mechanisms idscussed here. I should explore earth magnetic and electrostatic field interactions along the line of the paper you are currently preparing -- possibly dig deeper into each area to define and push the boundaries. Photon stability-drag experiments are recommended, but not strongly.

J. M. Brown

J. M. Brown, A-830

JMB:ccf

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TO: W. P. Wilson, Jr., A-833

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DATE: 8-22-68
A-830-BB01-JMB-6

TO: R. M. Wood, A-830

FROM: J. M. Brown/D. B. Harmon, Jr./W. P. Wilson, Jr., A-830

SUBJECT: GA PROPULSION SYSTEM

COPIES TO: File

REFERENCE:

INTRODUCTION

This memorandum contains a description of a GA (Gravity Amplification) propulsion system that may have applicational possibilities. The significance of this presentation is that a complete propulsion system is described which has the two properties:

1. The system agrees in general concept with the kinetic particle theory of physics.

2. The components of the system consist of known and available, pieces of hardware.

From certain viewpoints the above statements may not seem too important, but in consideration of the advanced concepts goals the descriptions presented here are significant. The utility expected of this memorandum is for guiding further analyses and experiments.

CONCEPTUAL DESCRIPTION OF THE SYSTEM[1]

All matter, and only matter[2], is believed to set up a gravitational field. In the kinetic particle theory the mechanism of the gravitational field is presumed to be due to the collection by matter of basic particles from the free field and then ejecting the basic particles in the form of a composite, non-matter and non-radiation interacting particle. This composite particle is the graviton which moves at the speed of light and has an angular momentum of $2\hbar$. In general, the basic particle collection is from an omni-directional field and the composite particle emission is omni-directional. A net force can be obtained by emitting all the gravitons in a given direction - the force on the emitter will be opposite the graviton emission direction.

Such a force for a vehicle on the earth's surface would be twenty orders of magnitude less than the earth's gravitational force. In order to obtain a 1 g propulsion system, for example, it is thus necessary to increase the graviton production rate by twenty orders of magnitude.

[1] This gravitational mechanism used in this system is described in Reference 1.

[2] Anti-matter is a form of matter.

Copy No. 4

An electron is the smallest piece of matter which has been identified. An electron is believed to have a gravitational field. The gravitons emitted by an electron probably either are along the spin axis (and, if so, hopefully only in one direction) or are perpendicular to the spin axis. Directionality of the graviton emission presumably can be obtained by aligning the electron spin vectors, using a magnetic field, all in the same direction (and sense). An additional magnetic field may be required to assure graviton emission in a particular direction. Graviton production rate presumably can be increased by using extremely large steady state magnetic fields (megagauss, or more) with a small, very high frequency component. A frequency corresponding to the rate at which light goes around the electron classical circumference may be required, i.e., 10^{23} cps, for this high frequency component.

SYSTEM HARDWARE

The system consists of an electron source to supply initial electrons and to replace electrons which leak out, an electron polarizer to align the electron spin axes, a torroidal electron accumulator which contains the aligned electrons all moving in a circular path,and a magnet external to the electron accumulator, see Figure 1.

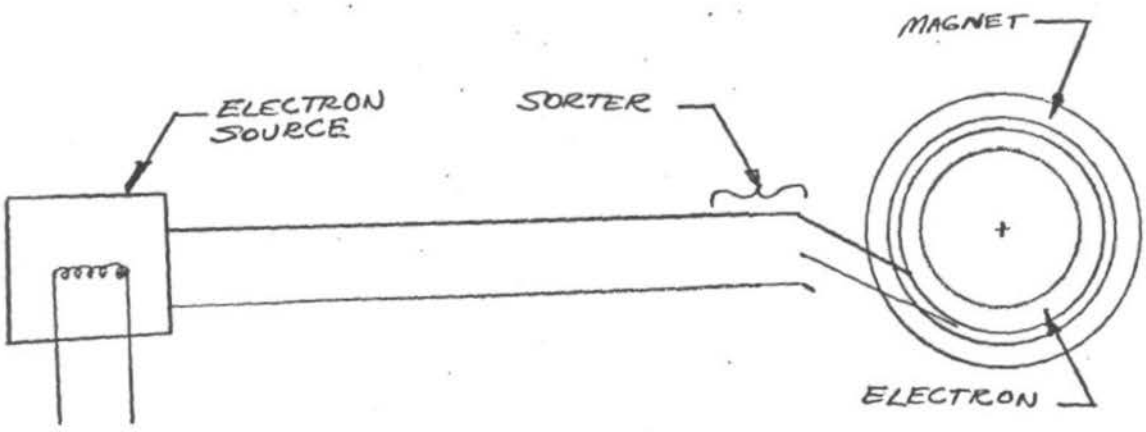

FIGURE 1

GRAVITY AMPLIFICATION PROPULSION SCHEMATIC

The electron source is simple. It must supply electrons to fill the accumulator initially. Subsequent demands are made only to resupply electrons which are accidentally lost from the accumulator.

An electron polarizer is used in g-factor experiments on the electron. The polarizer aligns the electron spin axes all in the same direction but not in the same sense. A sorter at the right end in Figure 1 takes those with one sense and inserts them tangentially into the accumulator. The ones in the other sense are either dumped or turned around and sent into the accumulator in the same direction as the other electrons.

The accumulator keeps the electrons moving all at one prescribed speed at a given time and parallel to the centroidal axis of the torroid. The electrons are presumed to consist of small time varying density regions so that the electrons themselves form the high frequency component of the magnetic field. The motion of the electrons produce a large magnetic field.

The external magnet produces the directionality of the graviton release - presumably normal to the paper in Figure 1, either in or out of the paper, but not in both directions.

CONCLUDING REMARKS

There are a large number of conjectures in the conceptual system described. Many of these conjectures for the various components are amenable to analytical and experimental checks; some can be checked only by an experimental model of the complete system. It is anticipated that further definitive work will be accomplished.

J. M. Brown, A-833 D. B. Harmon, Jr., A-830 W. P. Wilson, Jr. A-833

References:

1. "Proposed Vehicle R&D Program (Project BITBR)"
2. Memorandum A-830-BB01-JMB-2, 27 June 1968, to R. M. Wood from J. M. Brown

Wilson

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DATE: 9-16-68
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FROM: J. M. Brown, A-833

SUBJECT: CURRENT RECOMMENDED TASKS FOR 3-6 MAN EFFORT

COPIES TO: D. B. Harmon, Jr., C. P. Thomas, W. P. Wilson, Jr., A-830; File

REFERENCE:

Introduction

This memorandum outlines the rationale and tasks for Advanced Concepts which are recommended if the anticipated 3-6 man level funding is realized for the next 12 months.

Theoretical Approach

The principal concept which we have been pointing toward is a scheme in which randomly moving particles are organized, then directionally released for performing work. It is strongly believed that gravitation is produced by an organizational mechanism and, for that matter, all attractive forces probably result from similar mechanisms rather than from distortions in the space-time continuum as in current science. In view of these remarks, in view of the fact that an electron is the smallest matter particle, (and probably the simplest) and with the assumption that an electron has a gravitational field, the electron has a central role in the development of the vehicle concept - in addition to its central role in the theory development.

Qualitative descriptions of the mechanisms for all the properties of the electron (and positron) are now available except for the graviton production mechanism. The most recent major question unanswered was concerned with the mechanism for producing the discrete properties, such as its rest energy. The mechanism for producing this discreteness is believed to result from density waves which travel throughout the electron. It is conceivable that molecular chaos may govern for the electron and this requirement may be the factor which produces the discreteness in the electron and in all of quantum field theory in general. The graviton production mechanism has been defined in gross terms.

A rigorous analysis of the electron may require the Continuum Equation, the Boltzmann Equation, or the BBGKY approach. All of these avenues should be pursued vigorously.

Experimental Approach

An atmospheric model of the electron not only has the theory advantage of simulating the electron, but also has the potential practical advantage of indicating how to organize molecules for atmospheric propulsion. These advantages weighed against the disadvantages of using non-ideal gas particles

and not knowing the "vortex" size in advance strongly indicate that we should proceed with the atmospheric "electron" as soon as possible. Once a stable vortex is found and if shedding does occur, then it should be a simple matter to simulate external fields for directing and amplifying the process.

With regard to electromagnetic type experiments, it is clear that if a gravity amplification type space propulsion system exists or can be built by MDAC-WD then it must result from the application of magnetic, electrostatic, and/or photon fields in appropriate strengths, geometries and time sequences. I feel extremely confident that all the possible interactions have not been found, very confident that we can find some new ones, and somewhat confident that a gravity amplification propulsion system could be found in just this way with no other supporting analysis. With the supporting analysis, or conjectures, which are available, I feel more confident in this approach.

Recommended 3-6 Man Program

It appears that a rigorous analysis of the electron probably will come from Advanced Concepts personnel; either from present personnel, our consultant, or from new hires. It does not appear to be good judgement to expect the analysis to come from any other source. If new personnel are hired they should be young PhD mathematical physicists who are willing and able to work on this project. Such men are hard to find, but a little ingenuity and effort will turn them up (for example, Mr. Clark Bullard).

The present experimental program (velocity of light/magnetic field experiment) should be augmented as soon as possible with the atmospheric electron and the gravity amplification vehicle experiments. New personnel would not be required to implement these programs.

The present interview program may uncover useful information. However, even with a six man team it seems a considerably better bet to minimize, but not terminate, this effort.

Concluding Remarks

The following points regarding this recommended program seem worthy of emphasizing:

1. The theoretical approach should be expanded, but still must remain self-contained in the Advanced Concepts area.

2. The theoretical approach is believed to be quite "end-product" oriented.

3. The experimental program is being expanded with a strong emphasis on the end product.

4. Ancilliary investigations of psi phenomena, other unusual phenomena, and contactees are being minimized.

5. The actual effort recommended is consistent with the rough draft briefing which has just been prepared.

J. M. Brown, A-833
Advanced Concepts

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A-830-BIO1-JM3-53

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. Brown, A-833

FUNDAMENTAL CONSTANTS OF PHYSICS I - SPEED OF LIGHT

COPIES TO: D. B. Harmon, H. C. Bjornlie, L. A. Stelnert, W. P. Wilson, A-830

REFERENCE:

Introduction To The Series Of Memos

The current fundamental constants of physics consist of a minimum known set from which all other physical constants can be derived. One known set consists of eight constants plus the constants representing the masses of some one-hundred quantum matter/anti-matter particle pairs. The purpose of the memo and the planned series of memos on the fundamental constants of physics is to derive the above mentioned eight fundamental constants from the four basic constants which characterize the brutino universe.

The brutino universe is an absolute (Euclidian) space-absolute (Galilean) time system containing spherically symmetric repulsive (kinetic) particles. These particles are all identical and are named brutinos. This system is characterized by four constants, which are termed the basic constants of the universe. One set of these four constants is the mean speed of the particles (with respect to their center of mass), the mass of the particle, the diameter of the particle, and the mean free path.

The set of current fundamental constants considered in this series of memos consists of:

1. Speed of Light
2. Fine Structure Constant
3. Charge of Electron
4. Planck's Constant
5. Mass of the Electron
6. Mass of the Proton
7. Gravitational Constant
8. Weak Coupling Constant
9. Hubble's Constant
10. Density of the Universe

This memo interrelates the speed of light to one of the basic brutino constants.

The next nine memos will interrelate the remaining nine fundamental constants (above) to the basic brutino constants. In addition, the mechanisms of the remaining quantum particles are discussed briefly.

Analysis of the Speed of Light

The speed of light (or more generally, photons) is the magnitude of the velocity with which photons move. In current physical theory this speed is a constant for any selected observational frame of reference. In brutino theory this speed is a constant with respect to the center of mass of the "local" background in which it is being transmitted. It is tacitly presumed that the

speed measured using the special relativity interpretation of the universe is the same as the speed relative to the brutino local background. This assumption is strongly believed to be warranted [1] but actually can not be tested until the brutino theory is developed further. In any case, corrections to the analysis given here as a result of this type refinement will be small.

A photon is presumed to be a localized [2] disturbance in the background which transmits "observable" energy from one region of space to another. This disturbance in effect is a wave which is constrained almost completely from lateral spreading and which oscillates transversely rather than longitudinally as might be anticipated for a gas. The reason for the differences between the photon wave and a wave in a gas is attributed to the former system consisting of a wave (the photon) and a background of photonless balls while the latter consists of a wave (of balls), background balls and photons which interact with the background balls and with the balls making the wave.[3]

The photon (wave) is thus transmitted at a velocity which is measured with respect to its immediate background, or more precisely, with respect to the center of mass of the local background. The background is presumed to have a Maxwell-Boltzmann distribution of speed [4] and also presumed to be "locally" isotropic. The background thus has a mean speed and a root mean square speed which is $\sqrt{3\pi/8}$ times the mean speed.

Consider the case where a photon is defined by the brutino configuration inside a sphere whose center is at the center of the momentum concentration (as measured relative to the background). Now presume that the photon is traveling into homogeneous background and that the configuration inside the sphere (which sphere moves with the photon) is unchanged from one time to the next time.[5] Thus, no work is done by the background upon the photon and, thus, the photon (wave) propagates by an "isothermal" (i.e., constant energy) process.

[1] This belief is based on the large number of observations which indicate the constancy of the speed of light.

[2] Localisation must be defined arbitrarily since any one photon is "felt" throughout the universe - in principle.

[3] All this statement indicates is that the two systems are significantly different.

[4] This rigorously results from the postulates as long as the configuration is isotropic in space and time.

[5] Actually this assumption is not valid as evidenced by the galactic red shift which is discussed later. However, this effect is believed to have almost no impact on the wave propagation speed.

Furthermore, all the brutinos in the photon then can be moving at the same speed as the background in an isothermal process - the energy transfer results from the brutino directions being biased. The photon propagation speed thus is

$$c = U/\sqrt{3}$$

where U is the brutino mean speed. Since c is known

$$U = 2.997925(\sqrt{3}) \times 10^8 = 5.18 \times 10^8 \text{ m/s}$$

J. M. Brown, A-833
Advanced Concepts

JMB:msb

MEMORANDUM

Date: 6-18-69
A-830-BB01-STF-42

TO: D. L. Royer, H-009 (M/S 1-13)

FROM: S. T. Friedman, A-833

SUBJECT: "STATE OF THE ART" SEARCHES ON (1) ROUND VEHICLES AND (2) MAGNETO-AERODYNAMIC DEVICES

COPIES TO: H. C. Bjornlie, J. M. Brown, D. B. Harmon, L. A. Steinert, W. P. Wilson, R. M. Wood, A-830; File

Per our discussion I would appreciate your providing State of the Art Searches as follows:

1. Round or lenticular shaped aircraft such as that described in U. S. Patent #3,103,324 "High Velocity, High Altitude V.T.O.L. Aircraft", September 10, 1963, by N. C. Price, (only 1963 or later).

2. Electrical and/or magnetic devices for propulsion or control of aircraft, submarine, or space vehicle heating, attitude, drag, communications blackout, radar cross section, etc. Examples are U. S. Patents #3,162,398 "Magnetohydrodynamic Control Systems", M. U. Clauser, et al, December 22, 1964 and #2,997,013 "Propulsion System", W. A. Rice, August 22, 1961. (Cover period from 1960 on.)

S. T. Friedman, A-833
Research and Development
Advanced Concepts
Advance Systems & Technology

STF:msb

Approved: J. M. Brown, Supervisor

OK Barwood

DATE: 10-28-68
A-830-BB01-WPW-12

TO: R. M. Wood, A-830

FROM: W. P. Wilson, Jr., A-833

SUBJECT: EXPERIMENTAL RESEARCH AND FIELD DATA ACQUISITION - PROJECT VEHICLE

COPIES TO: J. M. Brown, D. B. Harmon, C. P. Thomas, A-833; File

REFERENCE: 1) Prior Related Memoranda and Communications - Appendix 1
2) Current Notes on Project Objective Approach - Appendix 2

INTRODUCTION

During the project review and planning meeting of October 24 and 25, 1968 certain approaches to the objectives were discussed. To further project objectives and as a corollary to recent theoretical work in the area of basic particles and radiation, it appears quite advisable to implement and expedite the means to:

1) Conduct certain basic laboratory experiments.
2) Provide for related field observations and data acquisition.

Experimental objectives are to:

1) Attempt to discover and examine any possible, previously unobserved interaction, between particles of mass or matter in steady state and time variant electric and magnetic fields.

2) Emphasize simplicity, utility and effectiveness - with adequate documentation for theoretical analysis and considerations for practical applications.

Field observations and data acquisition: Can be accomplished by portable "self-sustaining" installations and mobile "on-the-spot" instrumentation and observational capabilities. The primary objectives are:

1) Observe and record physical events coincidental to anomalistic atmospheric occurrences.

2) Re-examine other natural physical events such as high energy lightning discharges for possible previously unobserved side effects - (gravity gradient abberations, etc.).

3) Correlate data to serve as guides for laboratory research and endpoint applications.

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A brief review of the referenced memoranda indicates that certain of the suggested experiments may be related generically and as to basic hardware and instrumentation requirements. A comprehensive review of the material is underway and a categorical listing as to type and/or similarity will follow. Experimental design philosophy criteria as discussed at the last meeting is briefly tabulated:

Pros	Cons
1. Low Cost	1. Expensive
2. Gain Knowledge Independent of Success or Failure	2. Often Done Inadvertently
3. Uniqueness	3. Risky
4. Safety Considerations	4. Poorly Planned
5. Logical Reason to Expect Results	5. Long Delays
6. Pertinent	6. High Visibility
7. Importance	7. Low Payoff
	8. Difficult to Justify or Explain

Additional considerations as to feasibility and priority should be discussed; from this a general plan of procedures can be formulated.

Field Data Acquisition

The two-method approach of "portable self-sustaining" and "mobile" could be complimentary to the specific project objectives in addition to supporting the research of the Space Sciences Department. To this end preliminary discussion with the concerned people have been conducted and a "first level" survey of possibly available "in-house" hardware is underway.

As a result of a 28 October meeting, Dr. William Hildreth will submit a listing of preferred objectives and instrumentational requirements as related to the proposed lightning research. A coupling of this information with the specific needs of the "vehicle" project will produce a basic outline as to the type, quantity and approximate cost of the overall requirements.

OTHER EXPERIMENTS

More recently certain other possibly complimentary and supplemental experiments have been discussed. If they are not redundant to other items, they will be integrated into the "items to be considered" listing.

A. Atmospheric simulation of electron model.

B. Rotating charge (capacitor) voltage amplification.

C. Magnetic properties of moving current carrying conductor.

D. Magnetic field generation, rotating particles;
Measure, charge density - lifetime - gravitational effects - influence on other particles, etc.

E. Particle - Radiation Interaction;
Bombard electrons with high energy photons under various conditions and measure for possible gravitational effects.

ITEMS FOR FURTHER CONSIDERATION

Note: The following material is abstracted from various memoranda and discussions of related experimental research. It is presented as an aid to provide an orderly framework for additional consideration. Tabulation is in the order of its appearance or origin and may be redundant in some cases.

SOURCE

Reference (1) - 8-14-67 - Memorandum Brown - Wood, "Space Propulsion Concepts".

Page 5 - "Try experiments to test conjectures . . . . . .".

Item 1 - Test matter - magnetic field stability mechanism.

Page 6 - "Run experiments on the configuration . . . . . .".

Item 2 - Photon stability - drag simulation (accelerate compressed air to sonic speed).

Reference (2) - 12-20-67 - Memorandum Brown/Harmon - Wood, "Proposal For Electrostatic/Magnetic Experiment".

Pages 7 and 8 -

Item 3 - Electron and magnet interaction (three part experiment using same basic hardware).

Reference (3) - January 1968 - Research Report - K. M. Evenson and A. D. Goedeke, "Ball Lightning Research".

Reporting ball lightning and phenomena observations, instrumentation and suggestions for future experiments (see following Reference 11, "Unsolicited Proposal To Investigate Ball Lightning").

Item 4 - Mobile field data acquisition capabilities.

Reference (4) - 2-14-68 - Memorandum Brown/Harmon - Wood, "Currently Preferred Propulsion Concept".

Page 3 - Future Efforts

Item 5 - Discusses methods and emphasis on need for performing experiments.

Reference (5) - 3-1-68 - Memorandum Wood - File, "UFO Experiments".

Items 6 to 19 inclusive. A tabulation of 14 suggested experiments some of which are related generically and may be accomplished with similar hardware.

Reference (6) - 6-21-68 - Memorandum Brown - Wood, "Advanced Concepts Briefing".

Item 20 - Presents "Big Picture", discusses broad scope of program and need for theoretical and experimental research in specific areas.

Reference (7) - 6-27-68 - Memorandum Brown - Wood, "Proposed Vehicle R&D Program".

Page 10 - Discusses vehicle development, philosophy and methods of approach and various means for experimental research.

Item 21 - Experiments to simulate elementary particles (atmospheric model, electron simulation).

Pages 12 and 13 -

Item 22 - "Magnetic field effect on light velocity".

Page 14 -

Item 23 - "Generation of high magnet fields".
- "Search for interactions (Grav./EM not previously sought".

Reference (8) - 8-22-68 - Memorandum Thomas - Wood, "The New Vehicle".

Pages 3 and 4 -

Item 24 - Discusses potential dangers of experimentation.

Reference (9) - 8-22-68 - Memorandum Thomas - Wood, "Magnetic Experiments".

Item 25 - Velocity of propagation of magnetic field.

Reference (10) - 8-22-68 - Memorandum Brown/Harmon/Wilson - Wood, "GA Propulsion System".

Item 26 - Test for possible gravity amplification effects in interaction of electron beam, magnetic field and photon radiation configurations.

Reference (11) - 8-23-68 - Research Proposal - Space Sciences Department, "Proposal To Investigate Ball Lightning".

Item - (Refer to Item 4, Field Data Acquisition Facilities).

Reference (12) - 8-26-68 - Memorandum Thomas - Wood, "Recommended Experiment".

Item 27 - Bennett Sturmertron G-Field Experiment.

Reference (13) - 8-27-68 - Memorandum Brown - Wood, "Concerning The Absence Of Formal Contact".

Discusses rationale and philosophy of a formal contact with intelligent beings of extraterrestrial origin.

Item 28 - Field research and data acquisition might provide further relevant information.

Reference (14) - 9-16-68 - Memorandum Brown - Wood, "Current Recommended Tasks for 3-6 Man Effort".

Experimental Approach - Pages 6, 7 and 9.

Item 29 - Atmospheric model of electron.

Item 30 - Electromagnetic type of experiments.

Item 31 - Velocity of light/magnetic field experiments.

Item 32 - Ancillary investigations of psi phenomena, etc.

Reference (15) - 10-28-68 - Page 3 this memorandum, "Other Experiments".

Items 33 - 38 (Reference Experiments A, B, C, D, E).

SUMMARY

It is hoped that a review of these items and a further consideration of potentially fruitful experimental research will produce paths to the end product objectives. As a budgetary consideration experimental thinking has been oriented to relate as much of the research to the same hardware as might be practical. Specific experiment design and required engineering could follow a program analysis and definition.

W. P. Wilson, Jr., A-833

WPW:msb

INDEX

APPENDIX 2

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W. P. Wilson

DOUGLAS PRIVATE

MEMORANDUM

Date: 3 June 1969
A-830-BB01-WPW-37

TO: R. M. Wood, A-830

FROM: W. P. Wilson, Jr., A-833

SUBJECT: FIELD DATA ACQUISITION REQUIREMENTS

COPIES TO: J. M. Brown, D. B. Harmon, H. C. Bjornlie, A-830; File

REFERENCE: 1) Memorandum A-830-BB01-JMB-13 Atmospheric Van Meeting, dated 7 November 1968
2) Memorandum A-830-BB01-WPW-14 Mobile Field Data Acquisition Instrumentation, dated 14 November 1968

INTRODUCTION

This memorandum discusses the sensor and operational requirements for a mobile and partially self-sustaining remote, semi-permanent, field data acquisition system designed to obtain the signatures of anomalous atmospheric phenomena unidentified flying objects, i.e., UFO's.

The applied rationale is an attempt to define potential anomolistic targets with their space-time outputs which may produce observable effects. By relating a general description of their possible outputs to the normal background of physical phenomena it is possible to obtain an understanding of sensing requirements. Following the UFO sensing requirements, the requirements for sensing ball lightning and various other meteorological phenomenon are developed.

The final section of this memorandum presents the operational requirements such as set-up time, time on station and fail safe considerations.

UFO TARGETS

A basic analysis of UFO reportings strongly indicates that their presence and operation may be associated with any one or a combination of several observable physical phenomena. They may produce steady state and cyclic changing, magnetic, electric, electromagnetic (photon) and gravitational fields. They may emit nuclear particles, generate steady state or acoustical atmosphere pressure fields and leave pronounced residual effects.

The targets may produce weak or strong signals with respect to the ambient background and may be within range of the sensors for long periods to short time intervals. The shortest interval would most probably be associated with a close range fly-by. For this reason, it may be seen that the shorter times might produce the strongest signals.

For example, a very close fly-by at 10,000 feet per second could be within the range of practically all sensors for a period of several seconds. A data system that would not saturate and could record all possible signals for these conditions would provide significant information. Therefore, sensor system capabilities which will respond in the magnitude range of ambient to a high level, to give spectral content (and polarization, where applicable), and to be activated over the full time of event, would be the ideal system for these extremes.

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In fact, the above target event apparently establishes the ideal goals of a data system.

The capabilities actually selected, i.e., the fall-back position accepted, should be those which approach this event as near as is practical. In view of these considerations, Table I partially lists the UFO sensing requirements. Table II presents the EM spectrum in bands, wavelength, frequency and period relationships.

These tabulations are compressed from a lengthy but not exhaustive survey of related literature, current methodology and commercial instrumentational offerings.

METEOROLOGICAL REQUIREMENTS

The primary meteorological requirement is to record ball lightning phenomena including the environmental conditions prior to and after the event occurrence. The longest lived ball lightning has a signal life corresponding roughly to the shortest UFO signal. Even shorter signals are produced by ordinary lightning. The data system should be designed to record these events based on the known signatures of lightning or other electric, magnetic, electro-magnetic and acoustical phenomena. It is possible that there are some gravitational effects and, therefore, the data system should include a capability to record gravitational changes.

The suggested approach for recording lightning is to monitor the background *electric field with slow-time recording, then, at a threshold in absolute* level or rate of change, fast time recording equipment would be automatically initiated. After the event either automatic or manual cut-off could be utilized. The problem then is to determine the thresholds and to prevent equipment saturation during the event. Tables are being prepared to examine the pertinent characteristics of lightning related phenomena and other meteorological requirements.

OPERATIONAL REQUIREMENTS

The utility and continuing success of a field data acquisition system such as this, equates directly to the quality of pre-planned operational capabilities and procedures. This should include standard operating procedures coupled with the flexibility of "in-field" improvisation.

Among the many items to be considered, the following are considered to be the most critical:

- Mobile Capability
  1. Selection of sites - Range / Time on Station

2. Cruising Capabilities

   a. Monitoring while in motion
   b. Set-up time when event occurs

3. Monitoring - vs. in-depth recording while on site

4. Data Processing - On site
   Relay
   Return to home

5. Fail-Safe Considerations - What if all electrical things go out?

   a. Diesels still running
   b. Diesels not running, mechanical gadgets, etc

6. Personnel Safety

o Remote Field Stations

1. Selection of Sites and Accessability

   a. Degree of self-sustainment
   b. Range and depth of monitoring

2. Data Acquisition and Processing

   a. Most suitable or useful methods
   b. On-site, relay, return home

3. Fail Safe, Down Time Back Up

   a. Event induced causes
   b. Local power source failures
   c. Vandals or other reasons

4. Personnel Safety

To further the definition of the particular requirements, a continuing study of field installations, methods and instrument applications is being conducted. This study has and will include trips to typical observation locations and discussions with persons knowledgable in the field of atmospheric electrical observations.

W. Paul Wilson Jr.
W. P. Wilson, Jr.
Advanced Concepts

WPW:msb
Attachments - Noted (DP)

TABLE I - UFO SENSING REQUIREMENTS

1. MAGNETIC VECTOR - H FIELD, UNITS IN GAMMAS ($1 \times 10^{-}$ Oersted)

	Duration Sec	> 10	1	10^{-1}	10^{-3}	10^{-6}
3 Components	Ambient	50,000 ± 20	50,000 ± 0.1		50,000	± 0.01/t
2 Places	Lower Limit	±10	±1	±1	±100	$\pm 10^3$
	Upper Limit	$\pm 10^8$	$\pm 10^8$	$\pm 10^8$	$\pm 10^8$	$\pm 10^5$

Sensors - Magnetometer, Absolute and Relative Measurements
Readout Analog, Real Time
Cesium Beam - Varian Model V-4938 — Approximate Cost $10,900

Magnetometer, Gradient Sensing Readout: Analog, Real Time
(Three) Internally Constructed, - Approximate Cost $250.00 Each — 750

2. ELECTRIC VECTOR - VOLT/METER

	Duration Sec	> 10	1	10^{-1}	10^{-6}
3 Components	Ambient	100			
	Lower Limit	± 100	± 1	± 1	± 0.01
2 Places	Upper Limit	±10,000	±1,000	±1,000	±10

Sensors - Electrostatic Voltmeter, Absolute and Relative Measurements
Readout Analog, Real Time To Chart Recorder
Comstock & Wescott - Model 12008 - — Approximate Cost $ 3,100

Electrometer, Relative and Gradient
Readout Analog - Real Time To Chart Recorder
(Three) Internally Constructed - Approximate Cost $150.00 Each — 450

3. ELECTROMAGNETIC - RADIO - WATTS AND/OR VOLTS/METER

	Duration-Sec		10^{-3}	10^{-6}	10^{-12}	Secs/Cycle
Polarization	Ambient	City	10^{-2}	10^{-4}	10^{-6}	Volts/Meter
		Country	10^{-4}	10^{-6}	10^{-8}	Volts/Meter
Direction	Signal		10^{-12}	10^{-12}	10^{-12}	Watts (μV/50Ω)

Sensor - Broadband Spectrum Analyzer Absolute Measurements

Power - Amplitude and Spectral Content .01 to 1,250 Mhz

Readout in Real Time, Time Domain and Frequency, Visual Display and Analog or Digital Data to Chart or Magnetic Tape Recorder

Hewlett Packard Model 8554L R.F. Section with the 8552A I.F. and 140S Display System

Approximate Cost $6,000

Radiometers and Auxiliary Radio Equipment — Approximate Cost 3,500

Readout In Real Time, Visual Display, Analog or Digital To Chart or Magnetic Tape Recorder

4. ELECTROMAGNETIC - IR - WATTS AND SPECTRAL CONTENT

	Duration-Sec	10^{-12}	10^{-13}	10^{-14}
Polarization	Ambient	Limits Vary As To Location, Day-Night & Local Artificial Heat & Light Conditions		
Direction	Signal	Expected Levels To Be Determined		

Sensors - Standard Radiometric or Photographic Techniques, Polarity & Color Sensing, Thermal & Photosensitive Devices

Radiometers - Photometers and Spectrometers
Suitable Manufacturers Types and Approximate Cost To Be Determined
Will Be RElated To Following Two Items (5) and (6)
Readout: Analog, Digital to Chart or Magnetic Tape Recorder

5. ELECTROMAGNETIC (OPTICAL) - POWER LEVELS AND SPECTRAL CONTENT

	Duration-Sec.	2.3×10^{-14}	1.4×10^{-14}	Secs/Cycle
Polarization	Ambient	Day-Night Atmospheric & Local Artificial Lighting Conditions		
Direction	Signal	Expected Levels To Be Determined		

Sensors - Photographs (Movie Camera - Color)
Photo-Optical Tracking - Photographic, Still & Motion Picture - Black-White & Color
Polarity & Color Sensing, - Related Spectrum Analysis Instrumentation & Readout as Under Item (4)

6. ELECTROMAGNETIC (UV)

Duration-Sec	1.4×10^{-14}	3×10^{-26}	(Soft X-Ray)	
Ambient	Day-Night, Atmospheric & Local Artificial Lighting Conditions			
Signal	Expected Levels To Be Determined			

Sensors - Photo-Optical Tracking - Photosensitive Devices & Photographic Materials, Polarity Sensing
Related Spectrum Analysis, & Readout Instrumentation as Under Items (4) and (5)

7. ELECTROMAGNETIC (X-RAY)

	(1) Soft X-Ray	(2) Hard X-Ray	(3) Gamma Radiation
Duration	May Be Coherent CW, Periodic or Random Radiation @ 3×10^{-16} - 3×10^{-19} Secs/Cycle or Discrete Particles vs. Time		
Ambient	Day-Night Atmospheric & Local Normal Background		
Signal	Any Levels Above Background, Time Averaged, Steady State or Particles vs. Time		

Sensors - Gamma Sensitive Photographic Materials - Radiation & Particle Counters, Crystal Scintillators To Measure Photon Flux and Energy

Readout: Spectral Content - Time Density Averaging To Analog or Digital Data To Chart or Magnetic Tape Recorders.

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8. GRAVITATION -

	Duration	Secular
Ambient		
Signal		

9. ATMOSPHERIC PRESSURE

Duration-Sec	>10	10^{-1}	10^{-4}
Ambient			
Signal			

Nuclear Particle

10. NATURAL AND RESIDUAL SIGNATURES

Odors

Ground Deformation

Response of Trees and Plants, Animals, Humans,

Vehicle Parts

II. SITE CHARACTERISTICS

Location

Terrain

Time of Day

Weather Conditions (Required for UFO and Ball Lightning)

TABLE II

EM SPECTRUM CLASSIFICATION

ARBITRARY STANDARD USAGE BY BANDS IN WAVELENGTH - FREQUENCY - TIME

BAND		WAVELENGTH- λ $3\times10^8/fcps$		FREQUENCY-fcps $3\times10^8/\lambda$		TIME PERIOD-t Sec. $(3\times10^8/\lambda)^{-1}$		EXPLANATION OR APPLICATION
		Meters		Cycles/Second		Seconds		
MP		3×10^{11}	1×10^{8}	10^{-3}	3	1×10^{3}	3.3×10^{-1}	Micro Pulsations-Cosmic & Geophysica
ELF		1×10^{8}	1×10^{5}	3	3×10^{3}	3.3×10^{-1}	3.3×10^{-3}	Extremely Low Frequency - Cosmic & Geophysical
VLF	4	1×10^{5}	1×10^{4}	3×10^{3}	3×10^{4}	3.3×10^{-3}	3.3×10^{-4}	Very Low Frequency - Longwave Radio
LF	5	1×10^{4}	1×10^{3}	3×10^{4}	3×10^{5}	3.3×10^{-4}	3.3×10^{-5}	Low Frequency - Longwave Radio
MF	6	1×10^{3}	1×10^{2}	3×10^{5}	3×10^{6}	3.3×10^{-5}	3.3×10^{-6}	Medium Frequency - Broadcast Radio
HF	7	1×10^{2}	1×10^{1}	3×10^{6}	3×10^{7}	3.3×10^{-6}	3.3×10^{-7}	High Frequency - Shortwave Radio
VHF	8	1×10^{1}	1.0 Meter	3×10^{7}	3×10^{8}	3.3×10^{-7}	3.3×10^{-8}	Very High Frequency-Commercial Radio
UHF	9	1.0 Meter	1×10^{-1}	3×10^{8}	3×10^{9}	3.3×10^{-8}	3.3×10^{-9}	Ultra High Frequency - Radio & Radar (P-L)
SHF	10	1×10^{-1}	1×10^{-2}	3×10^{9}	3×10^{10}	3.3×10^{-9}	3.3×10^{-10}	Super High Frequency - Radar (L-S-X)
EHF	11	1×10^{-2}	1×10^{-3}	3×10^{10}	3×10^{11}	3.3×10^{-10}	3.3×10^{-11}	Extremely High Frequency - Radar (X - K - Q - V)
MM	12	1×10^{-3}	1×10^{-5}	3×10^{11}	3×10^{13}	3.3×10^{-11}	3.3×10^{-13}	Micrometric - Radio to Far Infrared
INFRARED		1×10^{-5}	1×10^{-6}	3×10^{13}	3×10^{14}	3.3×10^{-13}	3.3×10^{-14}	Longwave IR & Thermal Radiation
INFRARED		1×10^{-6}	6.8×10^{-7}	3×10^{14}	4.4×10^{14}	3.3×10^{-14}	2.3×10^{-14}	Near Infrared to Visible Light
VISIBLE		6.8×10^{-7}	4.2×10^{-7}	4.4×10^{14}	7.1×10^{14}	2.3×10^{-14}	1.4×10^{-14}	Visible Light to Near Ultraviolet
ULTRAVIOLET		4.2×10^{-7}	7×10^{-7}	7.1×10^{14}	3×10^{15}	1.4×10^{-14}	3.3×10^{-15}	Near UV to Far UV (Vacuum)
ULTRAVIOLET		1×10^{-7}	1×10^{-8}	3×10^{15}	3×10^{16}	3.3×10^{-15}	3.3×10^{-16}	Far UV to Soft X-Ray Radiation
X-RAY		1×10^{-8}	1×10^{-9}	3×10^{16}	3×10^{17}	3.3×10^{-16}	3.3×10^{-17}	Soft X-Ray to Hard X-Ray & Gamma
PARTICLE & COSMIC RAY								

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ADVANCED VEHICLE CONCEPTS RESEARCH

2 May 1968

R. M. Wood
J. M. Brown
D. B. Harmon

OUTLINE

INTRODUCTION	R. M. WOOD
UFO OBSERVATIONS	R. M. WOOD
APPROACH TO A NEW SCIENCE	J. M. BROWN
VEHICLE APPLICATIONS	D. B. HARMON
RESEARCH AND DEVELOPMENT PROGRAM	R. M. WOOD

INTRODUCTION

INTRODUCTION

HISTORY OF DAC INTEREST

TWO APPROACHES TO NEW VEHICLES (DFO)

- o NEW TECHNOLOGY
- o NEW SCIENCE PRINCIPLES

WHAT WE'VE LEARNED FROM UFO'S

- o A DFO CAN BE BUILT
- o UFO'S GIVE CLUES

DESCRIPTION OF THE NEW SCIENCE

- o CURRENT
- o SCIENCE ASSUMPTIONS AND LIMITATIONS
- o FUNDAMENTALS OF A NEW SCIENCE

PROGRAM APPROACH

- o UFO DATA, ANALYSIS, AND TESTS
- o NEW THEORY ANALYSIS AND EXPERIMENTS
- o OTHER UNEXPLAINED PHENOMENA
- o ASSEMBLE INFORMATION INTO VEHICLE CONCEPT

COMPETITION AND IMPORTANCE TO MDC

RECOMMENDED PROGRAM

UFO OBSERVATIONS

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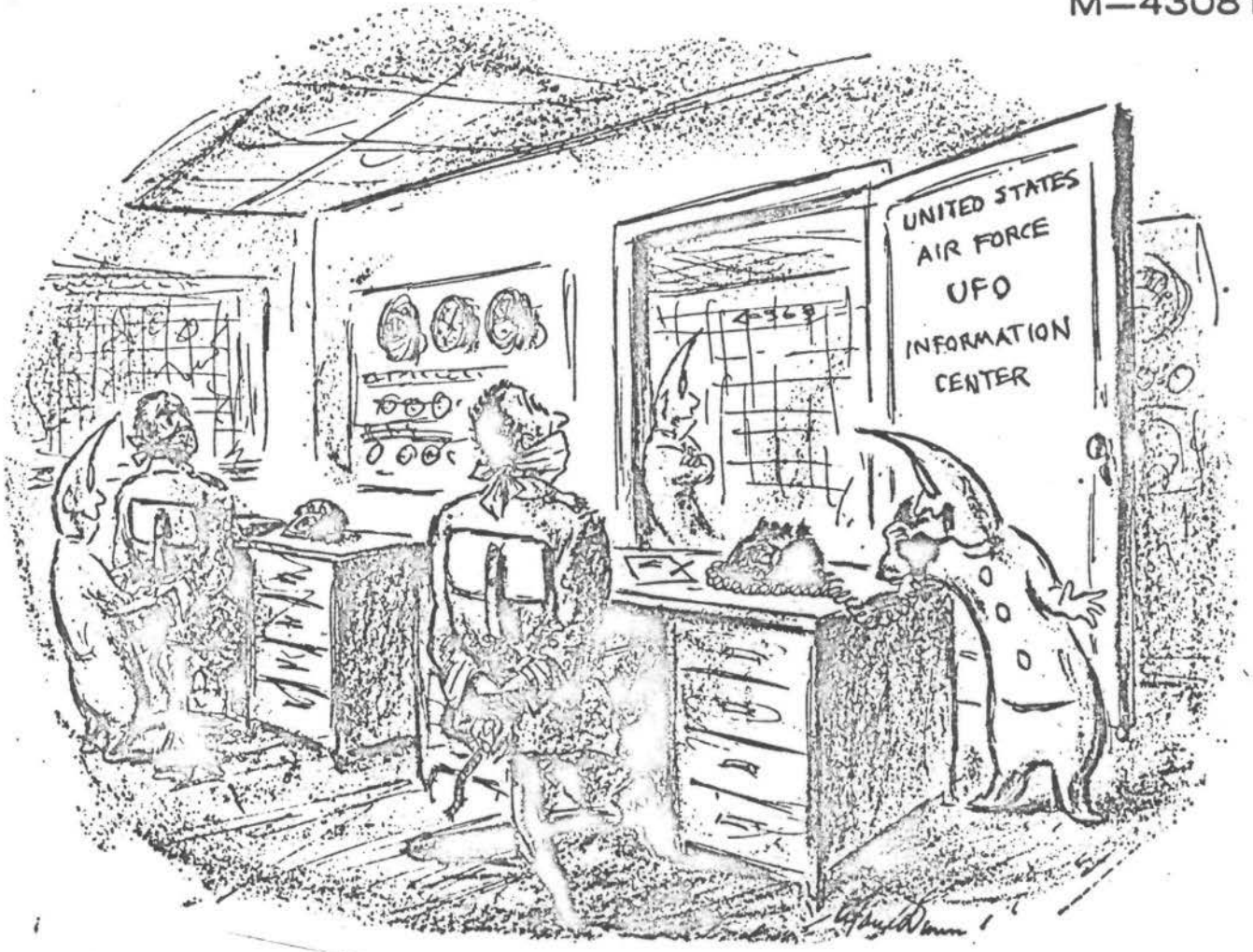
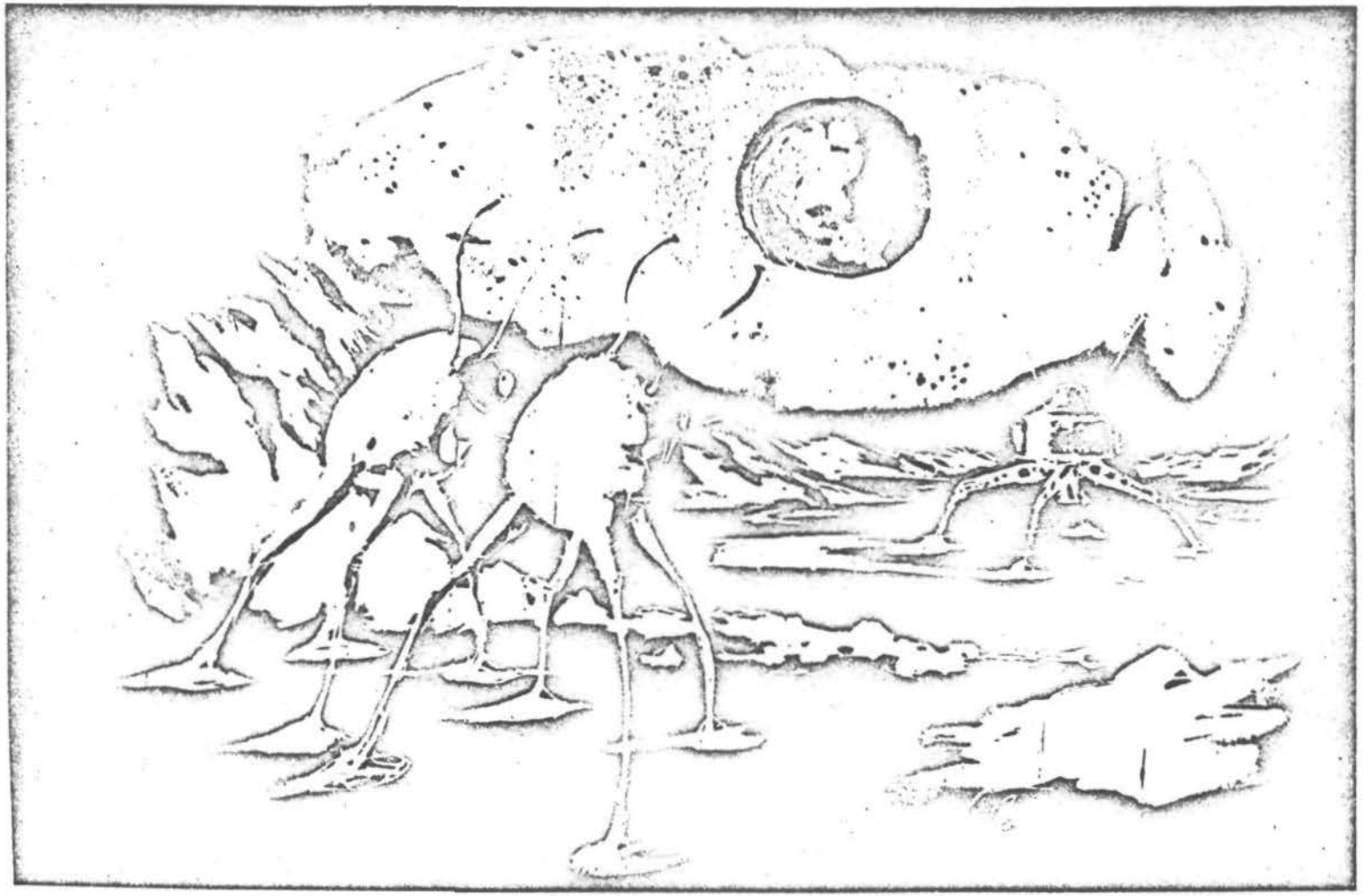


"I assure you, Madam, if any such creatures as you describe really existed, we would be the first to know about it."

M-43101

"WHY, THEY'RE PLAIN FOLKS, LIKE US!"



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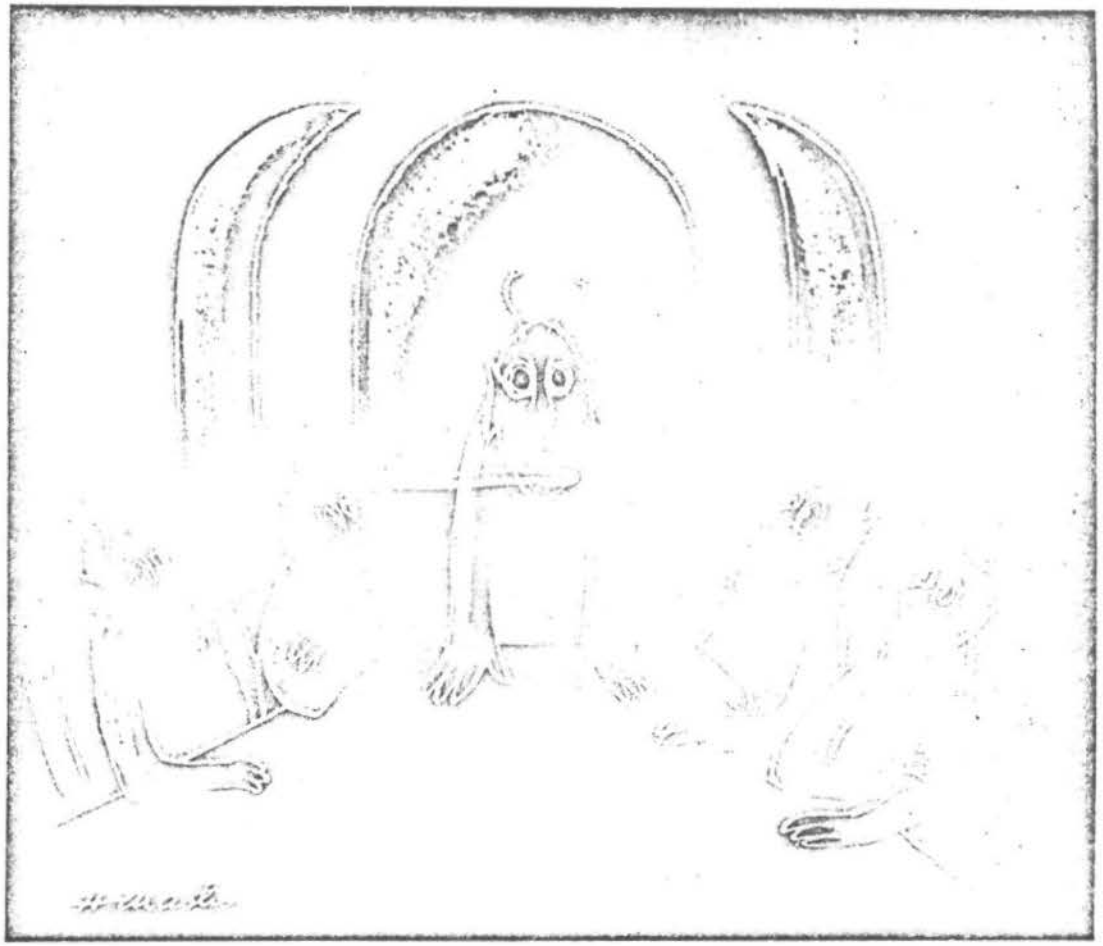
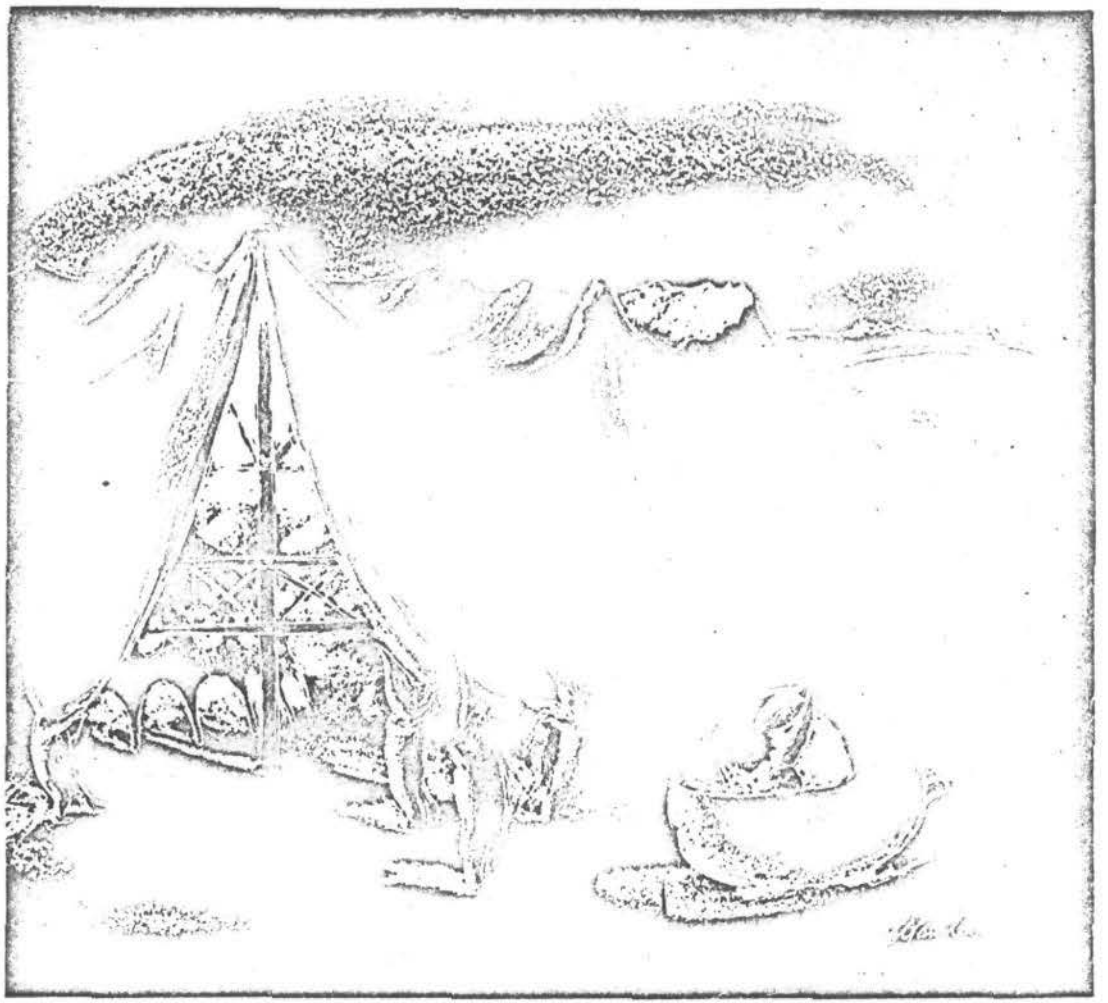


"I SAY IF THEY KEEP TOSSING HARDWARE UP HERE, WE KEEP BUZZING THEIR SWAMPS."

M-43103

"ALL RIGHT, MEN,
YOU CAN TAKE
DOWN THOSE CRATERS NOW."



ARE UFO'S REAL - YES!

ANECDOTAL DATA - OVERWHELMING AMOUNT

- o SPECTRUM OF SIGHTINGS
- o THE OBSERVERS

PHYSICAL DATA

- o PHOTOGRAPHS - 100's OF CASES
- o GROUND MARKINGS - 10's OF CASES
- o OTHER PERMANENT SIGNATURES - 10's OF CASES

TYPES AND NUMBER OF OBSERVATIONS

PHENOMENON	NUMBER OF REPORTS
UNEXPLAINED LIGHTS IN THE SKY	MILLIONS*
WELL FORMED MANEUVERING SHAPES	HUNDREDS OF THOUSANDS*
DETAILED MANEUVERING SHAPES	THOUSANDS*
CLOSE-UP VEHICLE VIEWS	THOUSANDS*
PERSONAL CONTACTS WITH HUMANOIDS	HUNDREDS*
CLAIMED VEHICLE RIDES	TEN(S)

*SEEN BY ORDINARY PEOPLE DOING ORDINARY THINGS

INFORMATION SOURCES

NEWS MEDIA	- NEWSPAPER: 50 EVENTS/DAY
	- RADIO: SEVERAL EVENTS/DAY
MAGAZINE ARTICLES (NON-UFO MAGAZINES):	3 ARTICLES/MONTH
UFO MAGAZINES:	10
NON-UFO BOOKS (BIBLE, CHARLES FORT, ETC.):	10
UFO BOOKS:	SEVERAL HUNDRED
UFO ORGANIZATIONS:	25

PLUS INDIVIDUAL WITNESSES

RECURRING UFO CHARACTERISTICS

VISUAL

SIZE	- 1 FT. → 300 FT.: OFTEN 30 FT.
SHAPE	- USUALLY DISK-LIKE WITH DOME, OFTEN CIGAR OR FOOTBALL (change of shape in flight & dispersion in flight)
MOTION	- HOVER TO HI V, HI G, ROTATE, INSPECT, TRACK, FLY FORMATION, DOGFIGHT WITH PLANES AND THEMSELVES, EVADE, LAND.
GENERAL	- OFTEN GLOW OR HAVE LIGHTS, CHANGE COLOR, LOOK METALLIC, HAVE "ANTENNAS", "FINS", "LANDING GEAR", ETC., DISAPPEAR, HAVE MARKINGS.

FIELD EFFECTS

MAGNETIC FIELDS	- VERY STRONG
ELECTRIC FIELDS	- SOME CASES

HAVE MADE BURNS UNDER CLOTHING, CARS STOP, LIGHTS GO OFF, RADIO INTERFERENCE, TV INTERFERENCE

PRESSURE ON HEADS

LIFTING OF WATER IN RESERVOIR AND OBJECTS

RECURRING UFO CHARACTERISTICS (CONTD.)

MATERIAL EFFECTS

HAVE STRONG ODORS (H_2S, etc.)

GIVE OFF MATERIAL (MISTS, ANGEL HAIR, OTHER RESIDUE)

GROUND PRINTS, BROKEN TREE LIMBS, LIFTOFF THERMAL DAMAGE, RESIDUAL RADIOACTIVITY

SOUND

NO SOUND USUALLY, NO SONIC BOOMS, OCCASIONAL BUZZ, WHINE OR ROAR (TAKEOFF)

TOUCH

SMOOTH, HARD, HOT.

UFO "PASSENGER" DATA

DANIEL FRY - THE WHITE SANDS INCIDENT - 4 JULY 1950

OBLATE SPHEROID - 30 FT X 16 FT - DARK BLUE LANDING, LATER SILVER

DIFFERENTIAL ACCUMULATOR (ENERGY SOURCE), 2 FORCE RINGS

RODE - FELT NO ACCELERATION EVEN AT 10 G's.

PROPELLED BY MOVING ELECTRONS, SETTING UP VARIABLE MAGNETIC FIELDS, WHICH FORM NEW ELECTRIC FIELDS, WHICH RESONATE, WHICH IS SIMILAR (IS) GRAVITY

PLATINUM RADIATED WITH PHOTONS SETS UP (ANTI-GRAVITY) CHARGED MATERIAL WHICH WILL LAST TWO WEEKS.

INVISIBILITY ACCOMPLISHED BY RAISING PHOTON FREQUENCY, PASSING THROUGH METAL, THEN LOWERING.

UFO "PASSENGER" DATA (CONTD.)

BETTY AND BARNEY HILL - THE INTERRUPTED JOURNEY - 19 SEPTEMBER 1961

PANCAKE - DOUBLE ROWS OF WINDOWS - 200 FT DIA. X 10+ FT. HIGH - OUTSIDE CORRIDOR - PIE SHAPED ROOMS - TUBE AT CENTER

BOOK - STAR MAP (WITH PEGASUS) - COLUMN WRITING

OCCUPANTS - 5 FT. - ENGLISH SPEAKING - BLACK SHINY COATS - BLACK SCARF - UPWARD SLANTED EYES

SPOT ON CAR - REMOVED PAINT - OSCILLATED COMPASS

ANTONIO VILLAS-BOAS - FLYING SAUCER OCCUPANTS - 15 OCTOBER 1957

ELONGATED EGG - THREE METAL SPURS IN FRONT - CENTER OVAL ROOM - RECTANGULAR OUTER ROOMS SILVERY METAL WALLS

OCCUPANTS - 5 FT. - DOG NOISES - UPWARD SLANTED EYES - GRAYISH ONE PIECE UNIFORMS

TRACTOR ELECTRICAL FAILURE (ON COMMAND)

ATMOSPHERE SMELLED OF BURNING PAINTED CLOTH

PRELIMINARY CONCLUSIONS FROM THE OBSERVATIONS

"NO SUCH THING AS AN INFORMED [UFO] SKEPTIC", DR. JAMES E. McDONALD

CANNOT ESCAPE THE HYPOTHESIS THAT SOME UFO'S ARE INTELLIGENTLY CONTROLLED VEHICLES

(AEROSPACE COMPANIES MUST REFLECT THIS POSSIBILITY IN THEIR PLANNING)

VEHICLES MUST BE EXTRATERRESTRIAL

CONSERVATIVE TO ASSUME PERFORMANCE AT LEAST TO OUR SCIENCE LIMITS

($I_{sp} \leq 10^7$ sec or $E \leq mc^2$)

CONCLUSIONS NOT BASED ON UFO OBSERVATIONS

DOES INTELLIGENT EXTRATERRESTRIAL LIFE EXIST IN THE UNIVERSE? ALMOST CERTAIN!

- STARS ARE EXPECTED TO HAVE PLANETS
- MANY PLANETS EXPECTED TO HAVE EARTH-LIKE ENVIRONMENT
- INTELLIGENT LIFE MAY EVEN BE COMPATIBLE WITH NON-EARTH-LIKE ENVIRONMENT (THUS, EVEN SOLAR SYSTEM PLANETS OTHER THAN EARTH MAY HAVE INTELLIGENT LIFE)
- MARS SATELLITES
- PULSARS
- METEORITE LIFE FORMS
- MANY CIVILIZATIONS MUST EXIST
- SHKLOVSKI-SAGAN IS BEST SUMMARY

TECHNOLOGY FOR SOME CIVILIZATIONS MUST HAVE ADVANCED TO OUR KNOWN SCIENCE LIMITS

- I_{sp} of 10^7 sec
- SPEEDS CLOSE TO SPEED OF LIGHT

EXTRATERRESTRIAL VEHICLES EXIST AND MANY CIVILIZATIONS ARE WITHIN REASONABLE TRANSIT TIME OF THE EARTH

18 QUESTIONS

SOME OBVIOUS QUESTIONS*

POORLY UNDERSTOOD NATURAL PHENOMENON	- INCONSISTENT WITH DATA
SECRET TEST VEHICLES (OURS OR THEIRS) [EARTH]	- ILLOGICAL
IF EXTRATERRESTRIAL, WHY NO CONTACT	- NOT IN BEST INTEREST?
WHY NO CRASHED UFO'S	- A FEW, BUT EFFECTIVE DESTRUCT SYSTEMS
WHY NOT LOTS OF GOOD PHOTOS IF UFO'S ARE REAL	- MANY EXIST
WHY NOT SEEN IN CITIES RATHER THAN REMOTE DESERTS AND SWAMPS	- THEY ARE
ARE SIGHTINGS HALLUCINATIONS	- VIRTUALLY IMPOSSIBLE
HOW ABOUT HOAXES	- THOUSANDS ARE, QUICKLY ESTABLISHED
WHY NO SONIC BOOMS	- NEW TECHNOLOGY
HOW CAN ONE ACCOUNT FOR NON-INERTIAL TURNS AND MANEUVERS	- NEW SCIENCE
WHY DON'T OPTICAL-TRACKING PROGRAMS PHOTOGRAPH UFO'S	- THEY DO
WHY DON'T OUR RADAR SYSTEMS SEE UFO'S	- THEY DO
IF NOT INTRA-SOLAR, HOW ABOUT REASONABLE INTERSTELLAR TRANSIT TIMES	- NEW TECHNOLOGY, MAYBE SCIENCE
WHERE COULD THEY BE COMING FROM	- BOTH SOLAR SYSTEM AND STARS
WHY NOT DETECTED BY MILITARY RADAR THROUGHOUT WORLD	- THEY ARE
WHY NOT SEEN BY MILITARY AND AIRLINE PILOTS	- THEY ARE
WHY NOT SEEN BY ASTRONAUTS IN ORBIT	- THEY ARE
WHY NOT SEEN OCCASIONALLY BY LARGE CROWDS RATHER THAN SINGLE WITNESSES	- THEY ARE

GE[illegible]G ALL THEY WANT
DON'T WANT TO INTERFERE (POL
PLAN COVERT TAKEOVER
AFRAID OF DAMAGE TO FLEET, CAPTU
DON'T CONSIDER US WORTHY OF CONTAC
POLICY SAME AS OURS ON MARS

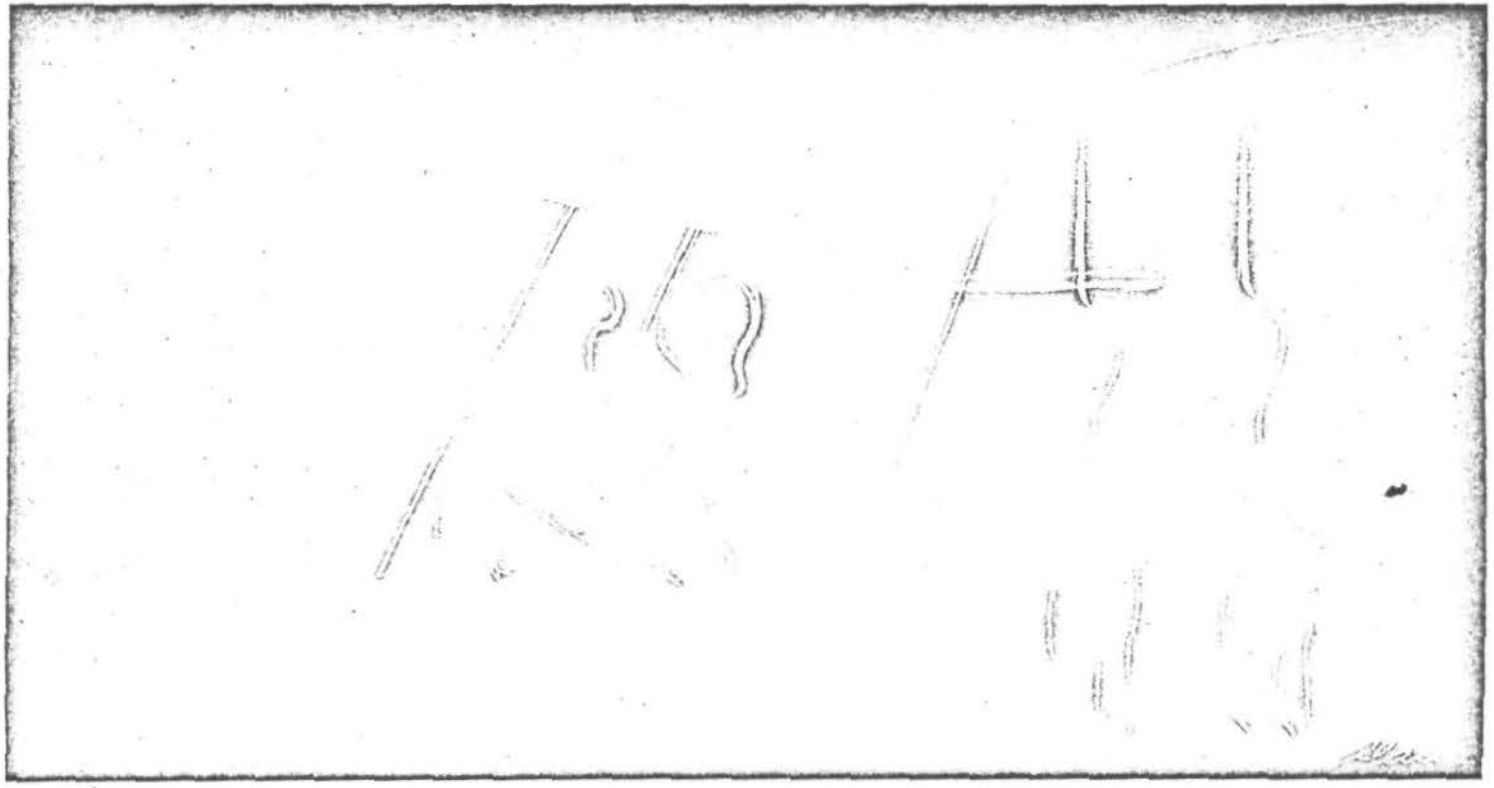
*DR. J. E. McDONALD, "ARE UFO'S EXTRATERRESTRIAL SURVEILLANCE CRAFT?" (ANSWERS BY WOOD AND BROWN)
TALK GIVEN TO AIAA, LOS ANGELES, 26 MARCH 1968

M-43132

"AMMONIA! AMMONIA!"

M-43131

"IT ISN'T SO MUCH THE HEAT OUT THERE. IT'S THE HUMIDITY."



UFO'S VERSUS SCIENTIFIC LIMITATIONS

CURRENT TECHNOLOGY

- "MOTHER" VEHICLES >> THAN APOLLO
- SMALL EXCURSION VEHICLES WITH CONVENTIONAL PROPULSION
- LOW ACCELERATION RATES
- LOW VELOCITIES IN THE ATMOSPHERE

CURRENT SCIENCE LIMITS

- FUSION PROPULSION
- FIELD PROPULSION (FOR EXCURSION VEHICLES)
- MATTER - ANTIMATTER PROPULSION (POSSIBLY)
- MATTER ANNIHILATION PROPULSION (POSSIBLY)

BEYOND CURRENT SCIENCE

- MANNED VEHICLES WITH ULTRA-HIGH ACCELERATION RATES (1,000 g's)
- DISAPPEARING VEHICLES (POSSIBLY)
- NO SOUND WHEN MOVING FAST IN ATMOSPHERE
- ESP COMMUNICATION
- GRAVITY CONTROL

Beyond Speed of Light (?)

UFO OBSERVATION SUMMARY

CANNOT DISCOUNT ALL DATA - SOME MUST BE VEHICLES

VEHICLES MUST BE EXTRATERRESTRIAL

EXTRATERRESTRIAL HYPOTHESIS RELAXES OUR TECHNOLOGY CONSTRAINT

MANY "OBSERVED" VEHICLES ARE CONSISTENT WITH KNOWN SCIENCE LIMITS

- SUCH VEHICLES WOULD BE QUITE VALUABLE

MANY "OBSERVED" VEHICLES GO BEYOND OUR KNOWN SCIENCE LIMITS

- SUCH VEHICLES WOULD BE PHENOMENAL

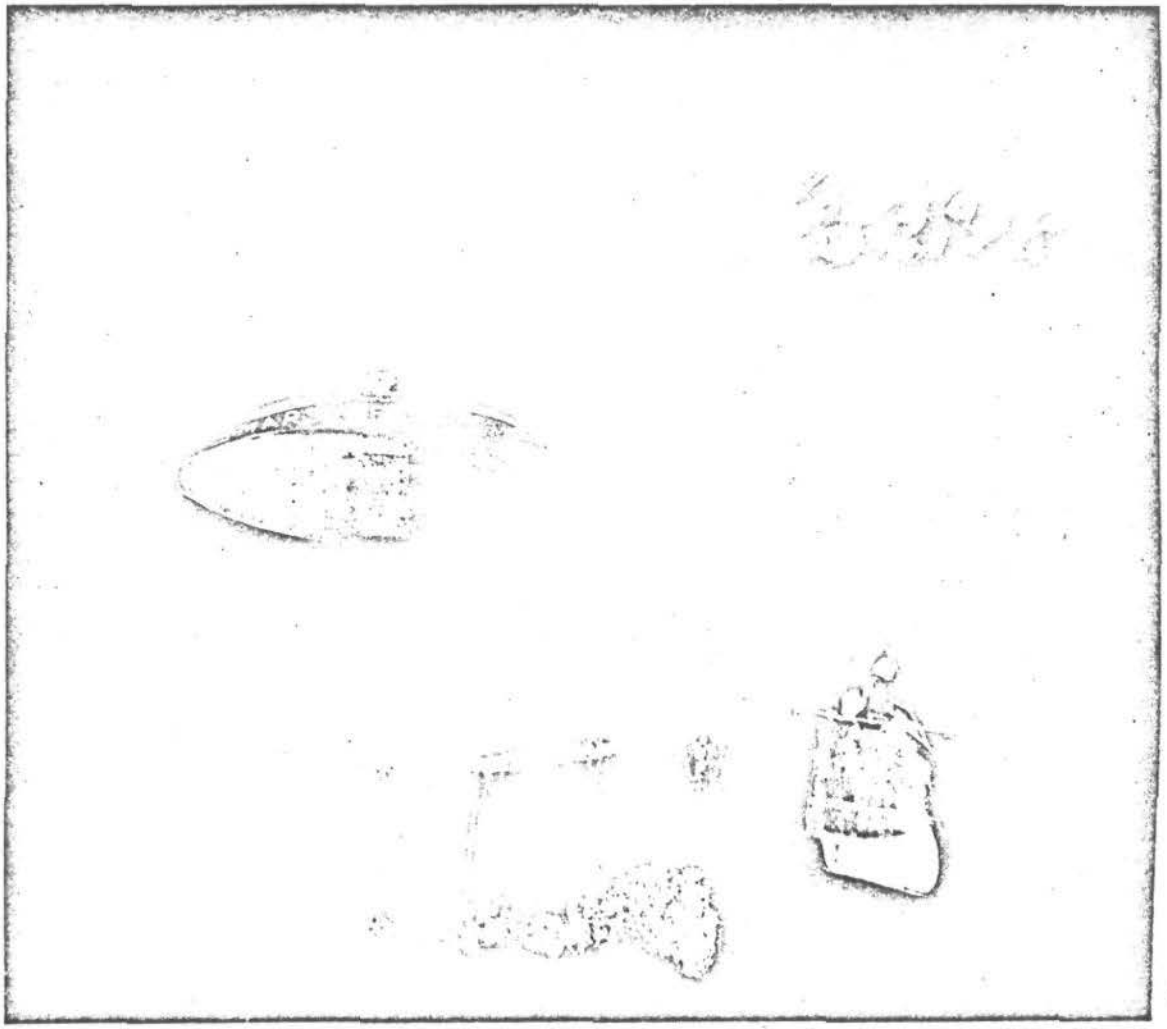
OTHER REPORTED CAPABILITIES WOULD BE EXTREMELY VALUABLE

- ESP - COMBAT
- DISAPPEARING CAPABILITY
- HAND-HELD ANTI-GRAVITY DEVICES
- PENCIL PARALYZER

CONTACTEE DATA COULD BE USEFUL

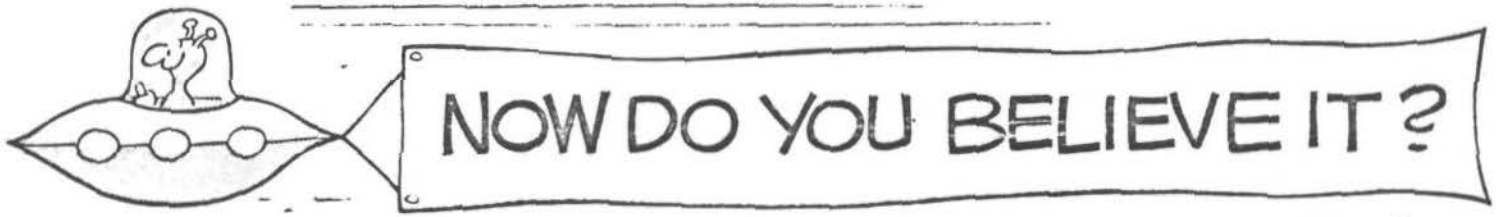
- EXPERIENCING HIGH ACCELERATIONS WITHOUT FORCES
- VISUAL INTERNAL APPEARANCE OF VEHICLES

M—43080



"IT'S A FLYING OBJECT,
BUT IT'S NOT EXACTLY
AN UNIDENTIFIED
FLYING OBJECT."

M-45258



APPROACH TO A NEW SCIENCE

SCIENCE (CURRENT AND NEW)

PHILOSOPHY OF SCIENCE

- MAKE OBSERVATIONS (NATURAL DATA, EXPERIMENTAL DATA)
- MAKE BASIC SCIENTIFIC ASSUMPTIONS (i.e., POSTULATES)
- TRY TO DERIVE THE OBSERVATIONS
- CONTINUE SEEKING MORE BASIC SCIENTIFIC ASSUMPTIONS TO CONNECT MORE OBSERVATIONS

CURRENT SCIENCE

- FUNDAMENTALS
- INCONSISTENCIES
- UNADDRESSED PHENOMENA

NEW SCIENCE

- DESIRED GOALS
- FUNDAMENTALS
- RIGOROUS RESULTS
- WORK IN PROCESS

SPACE-TIME CONTINUUM POSTULATED ($x^2 + y^2 + z^2 - c^2t^2 = 0$)

CONSERVATION LAWS POSTULATED

ENERGY PLUS MASS, MOMENTUM, ANGULAR MOMENTUM, CHARGE, STRANGENESS, BARYON NUMBER, LEPTON NUMBER, PARITY, SPIN

RADIATION AND NUCLEAR PARTICLES ARE POSTULATED

RADIATION PARTICLES	*MATTER PARTICLES*	
GRAVITONS*	ELECTRONS	PROTONS
PHOTONS*	MUONS	NEUTRONS
NEUTRINOS	PIONS*	100's OF OTHERS
	W* (Decay)	

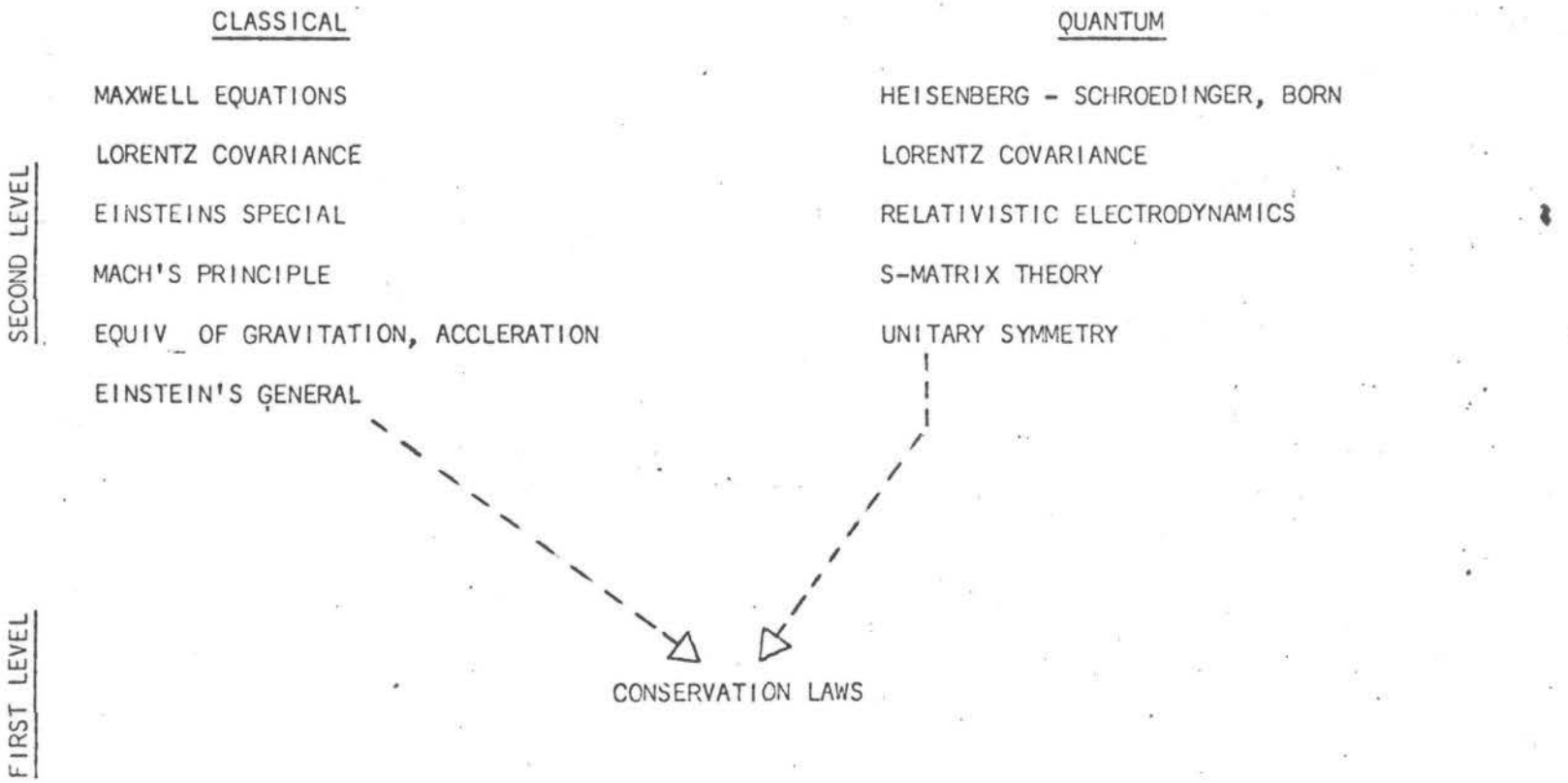
MANY RULES POSTULATED FOR PARTICLE INTERACTIONS

NOT ALL PARTICLES INTERACT WITH EACH OTHER

"STEADY" FORCES DUE TO CONTINUOUS SUB-QUANTAL EXCHANGE OF VIRTUAL PARTICLE

* FORCE PRODUCING EXCHANGE PARTICLE AS DESCRIBED BY RELATIVISTIC QUANTUM THEORY

THE FUNDAMENTALS OF PHYSICS



PROBLEMS WITH CURRENT SCIENCE - INCONSISTENCIES

QUANTUM PROBLEMS

PARITY VIOLATION

INFINITIES

RELATIVISTIC PROBLEMS

GRAVITATIONAL DEFLECTION OF LIGHT

ROTATION OF PLANET PEREHELIA

GRAVITATIONAL RED SHIFT

PHENOMENA UNEXPLAINABLE BY CURRENT SCIENCE

- GRAVITY AMPLIFICATION
- PSYCHICAL PHENOMENA

DESIRABLE GOALS OF A NEW SCIENCE

ATTEMPT TO DERIVE ALL OBSERVATIONS FROM A COMMON SET OF ASSUMPTIONS

- REMOVE INCONSISTENCIES IN CURRENT SCIENCE
- EXPLAIN UNADDRESSED PHENOMENA

HOPE TO FIND THE "TRUE" FUNDAMENTALS

- WOULD PREDICT ALL NEW OBSERVATIONS
- WOULD DETERMINE WHICH UFO OBSERVATIONS ARE POSSIBLE
- WOULD DETERMINE HOW TO BUILD A DFO

FUNDAMENTALS OF THE NEW SCIENCE — Brief History

SEPARATE SPACE - SEPARATE TIME (GALILEAN)

ONE FUNDAMENTAL PARTICLE

INDESTRUCTIBLE	d @ 10^{-21} cm	$10^{-20} \rightarrow 10^{-30}$
SMOOTH	m @ 10^{-50} gm	$10^{-40} \rightarrow 10^{-60}$
ELASTIC	ρ @ $10^{70}/cm^3$	$10^{-50} \rightarrow 10^{-70}$
SPHERICAL	$v \approx \sqrt{2}$ SPEED OF LIGHT	

RADIATION AND NUCLEAR PARTICLES ARE ASSEMBLAGES

ALL FORCES ARE PRESSURES, ~~AND~~ Pressures PRODUCE ALL INTERACTIONS

ATTEMPTS TO PROVIDE COMPREHENSIVE FOUNDATION FOR CURRENT SCIENCE (WAVE EQ., MAXWELL'S EQ'NS.)

ADDITIONAL INFORMATION MAY BE DERIVABLE

THEORY IS A CLASSICAL ~~ETHER~~ THEORY

ETHER CONSISTS OF SAME CONSTITUENTS AS MATTER AND RADIATION

WELL CHARACTERIZED BY THE TITLE "KINETIC PARTICLE THEORY OF PHYSICS"

HISTORY OF THE ETHER

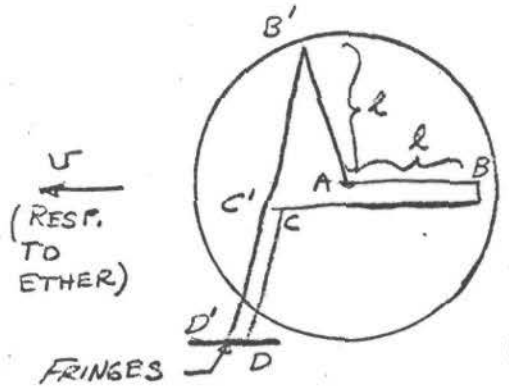
PRIOR TO MICHELSON - MORLEY EXPERIMENT

RIGID LUMINIFEROUS MEDIUM

MEDIUM FOR TRANSMITTING LIGHT AND OTHER EM PHENOMENA

LUMINIFEROUS - PERMITTED PLANET AND OTHER MATTER MOTION

MICHELSON - MORLEY EXPERIMENT (RICHTMEYER, KENNARD, LAURITSEN)



LIGHT PRESUMED TRANSMITTED LIKE SOUND

$t_{ABC} = \frac{2\ell c}{c^2 - v^2}$ $\quad t_{A'B'C'} = \frac{2\ell}{\sqrt{c^2 - v^2}}$

$t_{ABC} - t_{A'B'C'} = \ell v^2 / c^3$ SHOULD SHIFT FRINGES

MEASURED SHIFT WAS MUCH LESS

IMPACT (E. T. WHITTAKER)

LORENTZ (AND FITZGERALD) - MATTER SHORTENS IN DIR'N OF v BY $\sqrt{1 - v^2/c^2}$

- IF ALL MATTER IS A FIELD THEN SHORTENING CAN BE DERIVED

POINCARÉ - ETHER (AND ABS. MOTION) CAN'T BE DETECTED

- ASSUME ETHER DOESN'T EXIST

= CIRCUMVENTS PROBLEM OF MATTER MOTION THROUGH RIGID MEDIUM

LORENTZ/POINCARÉ - EVOLVED SPECIAL THEORY OF RELATIVITY

MAXWELL'S EM THEORY REQUIRES ETHER CHARACTERISTICS

- DISPLACEMENT CURRENTS

QUANTUM ELECTRODYNAMICS REQUIRES ETHER CHARACTERISTICS

(WHITTAKER ATTEMPTED TO REVIVE INTEREST)

KINETIC PARTICLE THEORY OF PHYSICS

MICHELSON-MORELY RESULTS DUE TO MATTER SHORTENING

MATTER MOTION PROBLEM OBVIATED

MATTER AND ETHER (AND RADIATION) MADE OF SAME PARTICLES

MOVING MATTER PICKS UP PARTICLES ON FRONT DROPS FROM REAR

MATTER (AS RADIATION) MOTION IS WAVE-TYPE PHENOMENON

More recent work

(1) Principle of Relativity remark
Newtons time.
Maxwells eqns take invariant
(Recall Feynman's ~~[illegible]~~
Lorentz transf. & Special
theory.
(~~Recall Feyn~~

(2) Present Interpretation of Relativ.
all observables are standing or translating waves.
Governed by Classical Wave Eqn.
$x^2, y^2, z^2, -c^2t^2$ have same role
thus - ~~[illegible]~~ have
special theory says.

Start Here

RIGOROUS RESULTS OF NEW SCIENCE POSTULATES

DEFINITIONS

MOTION, TIME, MASS, INERTIA, FORCE, ENERGY, MOMENTUM, ANGULAR MOMENTUM

CONSERVATION LAWS (Derived, Rather than postulated)

MASS, ENERGY, MOMENTUM, ANGULAR MOMENTUM

ANYTHING POSSIBLE WHICH DOESN'T VIOLATE THESE CONSERVATION LAWS

CHARGE, SPIN, ETC. ARE OBEYED STATISTICALLY (discrete chunks of ang. mom.) (Non-Conservation possible)

PORTION OF PHYSICS GENERALLY HELD TRUE BY MOST PHYSICISTS →

RESULTS RIGOROUSLY FROM SIMPLE POSTULATES

UNIVERSAL LAWS

INDESTRUCTIBLE PARTICLES (BRUTINOS)

BASIC PARAMETERS

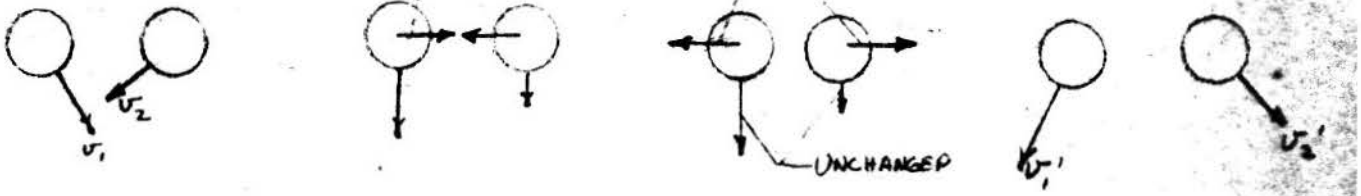
d - Brutino DIAMETER

v - Speed

m - Mass

ρ - No./Vol.

COLLISION MECHANISM (HUYGENS' PRINCIPLE)



PRE-COLLISION ORIGINAL FRAME	PRE-COLLISION CENTER OF MASS REFERENCE FRAME	POST-COLLISION CENTER OF MASS REFERENCE FRAME	POST-COLLISION ORIGINAL FRAME

RESULTS IN - CONSERVATION OF MASS, ENERGY, LINEAR MOMENTUM, AND ANGULAR MOMENTUM

THE CONTINUUM

ALL OBSERVATIONS IN THE UNIVERSE HAVE RESULTED FROM A UNIFIED ACTION OF A LARGE NUMBER OF THE BASIC PARTICLES

ONLY STABLE ASSEMBLAGES THUS ARE OF INTEREST

NEED A FUNDAMENTAL EQUATION REPRESENTING THE ACTIONS OF LARGE NUMBERS OF THE BASIC PARTICLES

THE BASIC PARTICLES BEHAVE LIKE A MONATOMIC IDEAL GAS

THE GENERAL EQUATION FOR THE MONATOMIC, IDEAL GAS HAS NEVER BEEN WRITTEN

BOLTZMANN (TRANSPORT) EQUATION IS NEAREST THING, BUT ASSUMES THE MOLECULAR CHAOS PRINCIPLE WHICH OBVIATES THE POSSIBILITY OF STABLE DENSE ASSEMBLAGES (e.g., THE PHOTON AND ELECTRON)

THE CONTINUUM EQUATION

$\varphi = \varphi(x,y,z,\Omega,s,t)$ - $x,y,z,\Omega s$ DENSITY FUNCTION OF PARTICLES AT TIME t - UNITS T/L^4

EXPECTED NUMBER OF PARTICLES INSIDE PHASE SPACE VOLUME IS $\varphi \Delta x \Delta y \Delta z \Delta\Omega \Delta s$

$$\vec{\nabla}\cdot(\vec{v}\varphi) - 2\pi d^2 \int \varphi_1 d\Omega_1 ds_1 \int \varphi_2 f(\Omega,s) \sqrt{s_2^2 + s_1^2 - 2 s_2 s_1 \cos\theta}\, d\Omega_2 ds_2$$

$$+ \pi d^2 \varphi \int \varphi_1 \sqrt{s^2 + s_1^2 - 2 s s_1 \cos\theta}\, d\Omega_1 ds_1 = -\frac{\partial \varphi}{\partial t}$$

NET PARTICLES CONVECTED OUT - PARTICLES SCATTERED IN

+ PARTICLES SCATTERED OUT = INCREASE OF NUMBER INSIDE

$f(\Omega,s)$ :: PROBABILITY OF IN-SCATTERING PER UNIT VELOCITY

DISCUSSION OF THE CONTINUUM EQUATION

EQUATION IS NEW, QUITE GENERAL, AND QUITE COMPLICATED

NEXT STEP IS TO CHECK DERIVATION - PROBABILITY ASPECTS

TRY TO SOLVE

- DERIVE MAXWELL-BOLTZMANN SPEED DISTRIBUTION
  - MAJOR ACHIEVEMENT
- DERIVE JUST ONE STABLE HIGH DENSITY SOLUTION
  - WOULD FIRMLY ESTABLISH THE KINETIC PARTICLE THEORY

PROGRESS POSSIBLE WITHOUT SOLVING EQUATION

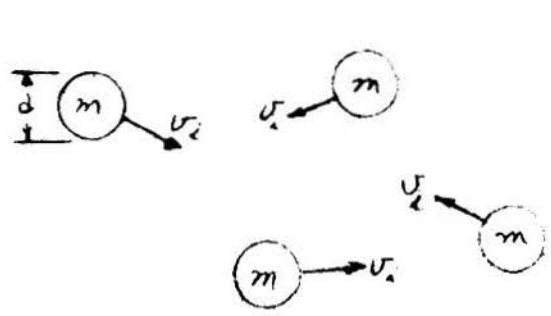
- USE RIGOROUS RESULTS
- ASSUME EXISTENCE OF FUNDAMENTAL PARTICLES (AS CURRENT SCIENCE DOES)
- ATTEMPT DERIVATION OF RELATIVITY OBSERVATIONS
- ATTEMPT DERIVATION OF QUANTUM ELECTRODYNAMICS OBSERVATIONS
- ATTEMPT DERIVATION OF NEW PARTICLES AND FORCE INTERACTIONS
  - WHICH ARE BEYOND CURRENT SCIENCE

~~Simplest Solution of Boltzmann Equation~~ ?

BACKGROUND SPEED DISTRIBUTION

ASSUME - MOLECULAR CHAOS PRINCIPLE (LACK OF ORDER) (For Rigor must be Simplest Sol'n of Boltzmann Eq.)

SIMILAR TO A PERFECT GAS OF ATOMS

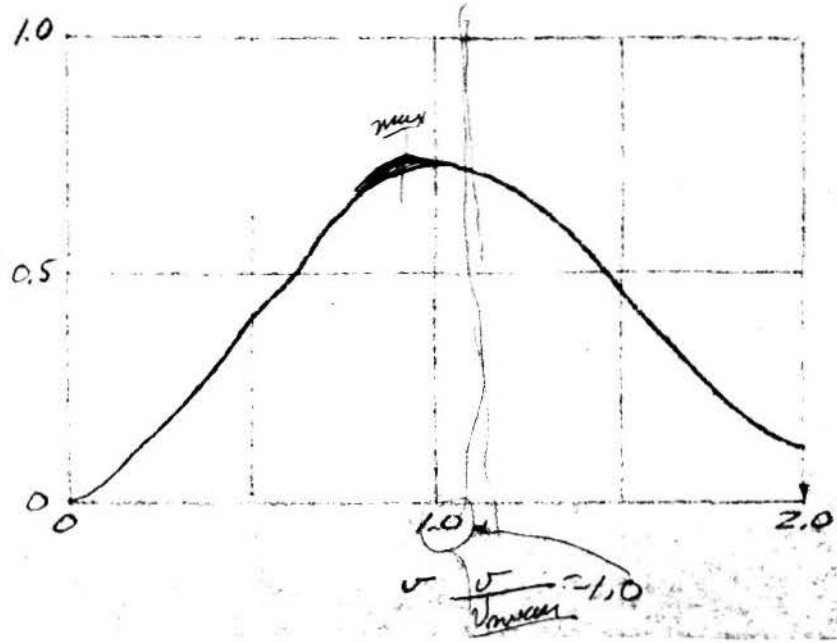


DERIVE MEAN FREE PATH - $\ell = \frac{1}{\sqrt{2}\,\pi\, \nu\, d^2}$

DERIVE SPEED DISTRIBUTION - MAXWELL/BOLTZMANN

$$f(v) = \sqrt{\frac{27}{8\pi^3}}\ \frac{1}{v_{rms}^3}\ \exp\left(-\frac{3v^2}{2v_{rms}^2}\right)$$

$$v_{rms} = 1.086\, v_m$$



38.1

other CONJECTURES OF THE NEW THEORY

WHAT ARE PHOTONS

- CONCENTRATIONS OF BASIC PARTICLES
- SPHEROIDAL
- d ≈ 10^{-15}cm FOR ALL MASSES
- VARY MASS BY VARYING DENSITY
- "SONIC" WAVE PROPAGATION
- LATERAL VIBRATION
- ANGULAR MOMENTUM?
- E = NO. PARTICLES X MASS OF EACH X SPEED^2

WHAT ARE ELECTRONS

- TWO COMPONENT VORTEX
- EXTENDED FLOW FIELD ($1/R^2$)
- NET ANGULAR MOMENTUM
- MAGNETIC MOMENT
- E DEFINED BY PHOTON ENERGY TO PRODUCE
- $M = E/c^2$
- CLASSICAL RADIUS - FLOW REVERSAL RADIUS
- MOTION - NEW SHAPE, NEW MASS

WHAT ARE ATOMS (Combine fields, unbalanced → let off photons — thus unchanged chem energy)

WHAT ARE THE FORCES

- ALL FORCES ARE COMPRESSIONS - REPEATED COLLISIONS OF BASIC PARTICLES
- NEW FORCE - PINCHING FORCE TO "GLUE" PHOTONS, POSSIBLY TO GLUE ELECTRONS
- GRAVITATION - ALL MATTER COLLECTS BASIC PARTICLES FROM BACKGROUND, FORMS, AND EJECTS
  - NON-INTERACTING PARTICLE (NEUTRINO OR GRAVITON)
- ELECTROMAGNETIC - MAGNETISM (FLOW INTERACTIONS)
  - CHARGE (FLOW INTERACTIONS)
  - COLLISIONS (PHOTON INTERCHANGE)

Stop here.

RELATIVISTIC OBSERVATIONS

OBSERVATION	ANALYSIS STATUS
GRAVITATIONAL DEFLECTION OF LIGHT	COMPLETE - AGREES WITH DATA
COMPTON SCATTERING	COMPLETE - AGREES WITH DATA SOME QUESTION ON MASS GROWTH
PARTICLE ACCELERATORS (mass Growth)	DEPENDS UPON COMPTON SCATTERING
MICHELSON - MORLEY	COMPLETED BY LORENTZ
ABBERATION OF LIGHT	COMPLETED BY LORENTZ
PARTICLE LIFETIME - VELOCITY DEPENDENCE	HAVE CONCEPT
ROTATION OF PEREHELIA	KNOW SOME EFFECTS
GRAVITATIONAL RED SHIFT	KNOW SOME EFFECTS
$E = mc^2$	SLIGHT RE-INTERPRETATION OF DEFINITION

SOME QUANTUM ELECTRODYNAMICS OBSERVATIONS

Don't get rigorously know why ang. mom. is quantized!!

QUANTIZATION OF RADIATION AND MATTER

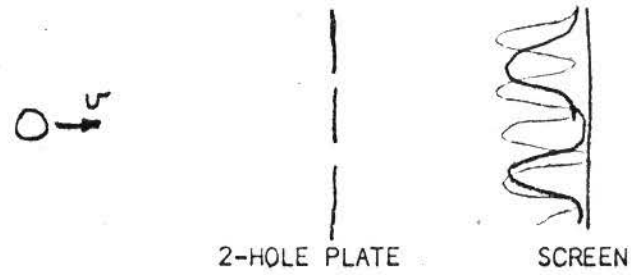
MAY RESULT FROM EIGENSTATES IN BACKGROUND "GAS"

INDETERMINISM PRINCIPLE

RESULTS DIRECTLY FROM MATTER AND RADIATION HAVING ANGULAR MOMENTUM $= \frac{n\hbar}{2} = \frac{h}{2\pi}$.

uncertainty of position in wavepath

ELECTRON DIFFRACTION (WAVE PROPERTY OF MATTER)



ELECTRON DOES GO THROUGH

BOTH HOLES AND RE-FORMS

CONTRAST OF CURRENT AND NEW FOUNDATIONS OF PHYSICS

CONCEPT	CURRENT	NEW
MASS	[MASS AND ENERGY ARE	MASS IS INDESTRUCTIBLE
ENERGY	[INTERCHANGEABLE	ENERGY IS MASS IN MOTION
LINEAR MOMENTUM	CONSERVED (postulated)	CONSERVED (Derived from basic Other Particle Interaction)
ANGULAR MOMENTUM	CONSERVED (postulated)	CONSERVED (Derived from basic Other Particle Interaction)
SPACE	[SPACE AND TIME ARE	SPACE IS VACANT ARENA
TIME	[INTERCONNECTED TO GIVE $v_{max} = c$ AND PRODUCE "STEADY" FORCES	MOTION OF MASS DEFINES TIME
TIME PARITY	POSTULATED-CONSERVED	DERIVED FROM MOTION REVERSAL
GRAVITATION	MASS PRODUCED CURVATURE IN SPACE-TIME CONTINUUM	CONVERSION OF BACKGROUND PARTICLES TO LOW X-SECT. PART.
RADIATION PARTICLES	POSTULATED - LITTLE WORK ON MORE FUNDAMENTAL DERIVATION	OPTIC WAVE PACKETS IN BACKGROUND
VELOCITY OF LIGHT	POSTULATED	DERIVED WAVE (Trans-MISS. Velocity)
NUCLEAR PARTICLES	POSTULATED - WORKING TOWARD MORE FUNDAMENTAL DERIVATION	STATIONARY EIGENSTATES IN BACKGROUND
CHARGE	POSTULATED - ALWAYS - CONSERVED	DERIVED FLOW FIELD - STATISTICALLY CONSERVED
INDETERMINISM PRINCIPLE	ANGULAR MOMENTUM COMES IN DISCRETE VALUES (DERIV.)	ANGULAR MOMENTUM COMES IN DISCRETE VALUES (DERIV.)
CLASSICAL MECHANICS	MACROSCOPIC APPROX.	ALWAYS APPLIES
QUANTUM MECHANICS	POSTULATED	DERIVABLE?
ELECTROMAGNETISM	DERIVED FROM QUANTUM MECHANICS	DERIVED FROM QUANTUM MECHANICS
THERMODYNAMICS	DERIVED FROM QUANTUM MECHANICS	DERIVED FROM QUANTUM MECHANICS

INVESTIGATION OF UNEXPLAINED PHENOMENA

RATIONALE

INVESTIGATE ANY UNEXPLAINED PHENOMENON

(COROLLARY - WOULD LIKE TO SUPPORT ANY PROPOSED THEORY WHICH CAN'T BE PROVEN INCORRECT)

OREGON VORTEX

"HAUNTED" HOUSES

WATER DOWSING

UFO'S (DUAL ROLE)

PSYCHIC PHENOMENA

EXPERIMENTS TO TEST THE THEORY

PHOTON VELOCITY SHOULD BE AFFECTED BY A MAGNETIC FIELD

DIRECTLY DETERMINE MAGNETIC FIELD PROPAGATION VELOCITY [c]

ACCURATELY DETERMINE WAVELENGTH SHIFT OF COHERENT PHOTONS

BACKSCATTERED FROM LOW VELOCITY FREE ELECTRONS

FORCES AND TORQUES BETWEEN ELECTRONS SHOULD DEPEND UPON THEIR ORIENTATION

ESP MAY BE MAGNETIC PHENOMENA

MEASURE FIELD NEAR HUMAN HEADS

DETERMINE FORCE ON DOWSING ROD

YEAR'S PROGRESS ON THE THEORY

PRIOR TO START OF YEAR

POSTULATES STATED

GRAVITATIONAL DEFLECTION OF LIGHT

GUESSES AT PHOTON, NEUTRINO, AND ELECTRON CONFIGURATIONS

DURING YEAR

CONTINUUM EQUATION

REFINEMENT OF GRAVITATIONAL DEFLECTION OF LIGHT

MECHANISM OF GRAVITATION

COMPTON SCATTERING AND MASS GROWTH OF MATTER WITH SPEED

INSIGHT INTO OTHER RELATIVITY OBSERVATIONS

INSIGHT INTO PARTICLE CONFIGURATIONS

PROBABLE THAT SCHROEDINGER EQUATION RESULTS FROM PRESENT POSTULATES AND ASSUMED EXISTENCE OF ELECTRONS

IDENTIFICATION OF SEVERAL LABORATORY EXPERIMENTS

PROGRESS ON THEORY ANTICIPATED FOR NEXT YEAR

* ARRIVE AT A FIRM POSITION ON CONSISTENCY OF THEORY AND ALL RELATIVITY OBSERVATIONS

* PROVE NON-RELATIVISTIC QUANTUM THEORY (SCHROEDINGER) RESULTS FROM POSTULATES PLUS ASSUMED ELECTRON

* INVESTIGATE THE POSSIBILITY OF RELATIVISTIC QUANTUM THEORY (DIRAC EQ.) BEING CONSISTENT WITH POSTULATES

CONTINUUM EQUATION

COMPLETE DERIVATION

EXAMINE EXISTENCE OF SOLUTIONS

OBTAIN PHOTON AND/OR ELECTRON EIGENSTATE??

* IF STARRED ITEMS WERE PROVEN CONSISTENT WITH THE POSTULATES THEN THE KINETIC PARTICLE THEORY WOULD EXCEED CURRENT THEORY

PROGRESS ON THEORY ANTICIPATED FOR NEXT YEAR

* ARRIVE AT A FIRM POSITION ON CONSISTENCY OF THEORY AND ALL RELATIVITY OBSERVATIONS

* PROVE NON-RELATIVISTIC QUANTUM THEORY (SCHROEDINGER) RESULTS FROM POSTULATES PLUS ASSUMED ELECTRON

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* IF STARRED ITEMS WERE PROVEN CONSISTENT WITH THE POSTULATES THEN THE KINETIC PARTICLE THEORY WOULD EXCEED CURRENT THEORY

VEHICLE APPLICATIONS

VEHICLE APPROACH

FORCE GENERATION SCHEMES

- o MATTER - ANTI-MATTER ANNIHILATION
- o MATTER ANNIHILATION
- o GRAVITY AMPLIFICATION
- o OTHER "FREE ENERGY" SCHEMES
- o ELECTRIC OR MAGNETIC FIELD INTERACTION

CONFIGURATION/UFO OBSERVATIONS

EXPERIMENTS

GRAVITY AMPLIFICATION

- POSSIBLE MECHANISM
  - *COLLECTION OF BACKGROUND PARTICLES*
    - HI MAG FIELD/GEN BY ELECT FIELD
    - ORGANIZED BACKGROUND FLOW THRU VEHICLE
  - GENERATION OF GRAVITONS AT FRONT OF VEHICLE
    - CONVERT MAG FLOW TO GRAVITONS BY ADDING ANGULAR MOMENTUM
    - ALLOWS OCCUPANTS TO TAKE ULTRA-HIGH ACCELERATIONS
  - DIRECTIONAL RELEASE
    - OBTAINED BY DIRECTION OF ANGULAR MOMENTUM ADDITION
    - GIVES FORCE AND MANEUVER CONTROL

- "FREE ENERGY" SOURCE

VEHICLE EXPERIMENTS

GENERATION OF HIGH MAGNETIC FIELDS

MECHANICALLY ROTATE CHARGES

ROTATION OF MAGNETS

ROTATION OF MAGNETS IN LARGE MAGNETIC FIELD

HEATED RING-ROTATING MAGNET

RESEARCH AND DEVELOPMENT PROGRAM

RATIONALE

UFO'S IMPLY EXTRATERRESTRIAL VEHICLES EXIST

EVEN WITHOUT SEEING UFO'S EXTRATERRESTRIAL SPACE VEHICLES MUST EXIST

THUS, A DFO CAN BE BUILT

OUR CURRENT TECHNOLOGY IS FAR FROM OUR RECOGNIZED SCIENCE LIMITS

A DFO CAN BE BUILT WITHIN OUR SCIENCE LIMITS

USE ALL UFO ANECDOTAL DATA (PHILOSOPHY: HEAR EVERYTHING AND USE SOME OF IT TO OUR ADVANTAGE)

USE ALL OUR KNOWN SCIENTIFIC PRINCIPLES

TRY THEORETICALLY TO FIND NEW SCIENTIFIC PRINCIPLES

TRY EXPERIMENTALLY TO FIND NEW SCIENTIFIC PHENOMENA

- ANALYSIS AND LAB DUPLICATION OF UFO DATA
- EXPERIMENTS INDICATED BY NEW THEORY
- MEASUREMENT OF ANECDOTAL, UNEXPLAINED PHENOMENA

THREE-WAY APPROACH

UFO DATA COLLECTION AND ANALYSIS

- INTERVIEWS WITH CONTACTEES
- MEASUREMENTS OF UFO OBSERVABLES
- ANALYSIS OF LITERATURE

NEW SCIENCE DEVELOPMENT

- CONTINUUM EQUATION SOLUTION
- RELATIVISTIC OBSERVATIONS ANALYSIS
- ANALYSIS OF QUANTUM OBSERVATIONS
- INVESTIGATION OF ANY UNEXPLAINED PHENOMENA
  - ORGANIZE REPORTED RESULTS
  - MEASUREMENTS OF EVENTS OF OPPORTUNITY
- LABORATORY MEASUREMENTS AND EXPERIMENTS

VEHICLE PROTOTYPE R&D

PAST YEARS ACCOMPLISHMENTS

(24 MAN MONTHS)

THREE NOTEBOOKS

CONTINUUM EQUATION

EXPERIMENTS IN PROCESS

- MAGNETIC FIELD EFFECT ON LIGHT VELOCITY
- ESP

UNEXPLAINED PHENOMENA INVESTIGATIONS

- OREGON VORTEX
- HAUNTED HOUSE
- UFO SIGHTINGS (PLAYA DEL REY, ELSINORE)

STUDYING

- QUANTUM ELECTRODYNAMICS, UFO MAGAZINES AND BOOKS, PSYCHICAL BOOKS

—SOME EFFORT ON ALL THREE AREAS

TASKS FOR SIX-MAN EFFORT

CONTINUUM EQUATION - BROWN, PIPES AND TURNER?

CHECK, EXISTENCE PROOFS, IS WAVE EQUATION A SOLUTION?

LABORATORY EXPERIMENTS - BJORNLIE PLUS ONE SCIENTIST (HENDERSON?)

SYSTEMATICALLY START EXPERIMENTS

RELATIVITY OBSERVATIONS - PHYSICIST (WILLETT?)

COMPARE WITH THEORY

QUANTUM OBSERVATIONS - PHYSICIST (WAHL?)

COMPARE WITH THEORY

UFO DATA AND ANALYSIS - SCIENTIST OR ENGINEER (WILSON?)

PRODUCE A SCIENTIFIC SUMMARY

OTHER UNEXPLAINED PHENOMENA - SCIENTIST OR ENGINEER (WILSON OR THOMAS?)

PRODUCE A SCIENTIFIC SUMMARY

PROVIDE BROAD MANAGEMENT/TECHNICAL GUIDANCE (WOOD, HARMON, BROWN?)

PERSONNEL QUALIFICATIONS

ABLE TO THINK OUTSIDE CURRENT PARADIGM

NOT AFRAID OF FAILURE

HIGH RISK OPERATION

SELF DIRECTED

MINIMIZE SUPERVISION

DIVERSE PROGRAM SUBTASKS

GOOD INDUSTRIAL SECURITY RISK

Healthy Balance in Basic Loyalties ← Family, Country, Company, Mankind

~~Examine personal objectives as well as usual checks~~

WILLINGNESS TO WORK SUB-ROSA

ESTABLISHED CREATIVITY

WIDE BACKGROUND (GENERALISTS RATHER THAN SPECIALIST)

SCOPE OF SYSTEM DESIGN, ANECDOTAL DATA, THEORETICAL PHYSICS

CROSS FERTILIZATION OF IDEAS

INTERDISCIPLINARY EFFECTS

COMPETITORS EFFORTS

HUGHES (~ 10 MEN AT FULLERTON UNDER MEIERS)

LOCKHEED SUNNYVALE

RAND HAS PROPOSED PROJECT

MARTIN HAD (HAS) GRAVITY PROJECT

(AS HAVE SEVERAL OTHER COMPANYS)

SEVERAL COMPANYS HAVE UFO RELATED EFFORTS

RAYTHEON (HAS HAD COMPUTER PROJECT FROM CONDON/U. OF COLO.)

OTHER COUNTRIES IN BUSINESS

RUSSIA NOW HAS UFO PROJECT

GREAT BRITAIN AND FRANCE HAVE MUCH MORE ENLIGHTENED OUTLOOK AND GREATER INVESTIGATIONS GOING ON

IMPORTANCE OF EFFORT TO COMPANY

VEHICLES - IMMEASUREABLE

THEORY - SIGNIFICANT

HIGH MAGNETIC FIELDS - SALABLE

ESP - HEARING AIDS

- ENEMY INTELLIGENCE

RECOMMENDATIONS

SIX-MAN FUNDING FOR ONE YEAR

BRING IN DOD AT END OF YEAR IF RESULTS WARRANT

MAINTAIN TIGHT SECURITY CONTROL

- o MDC PRIVATE
- o STRICT NEED-TO-KNOW

PROVIDE PRIORITIES FOR MANPOWER AND EQUIPMENT

PROVIDE SECURE AREA FOR PROJECT

A Unifying Kinetic Particle Theory of Physics[1]

by

J. M. Brown

INTRODUCTION AND SUMMARY

A unifying theory of physics is advanced which is based on seven postulates: space is absolute, everything is comprised entirely of one type particle, the particles can neither be created nor destroyed, the particles move with an average speed equal to 1.4 times the speed of light, the particles are spherical, the particles are smooth, and the particles are elastic. The particles pervade the entire universe and localized condensations make up radiation and matter. The condensations are produced by a newly discovered self-induced pinch effect. All composite particles (radiation and matter) are eigen states of the localized condensations which are held together by the background particles. Even in the condensed states the basic particles move at 1.4 c. Radiation particles translate at "sonic" speed for the background (i.e., at speed c) while the basic particles in matter follow closed curved paths so that the center of gravity of matter can be at rest or can be moving with linear velocities lower than the speed of light. Motion of the basic particles at the speed of light, in radiation and matter particles, is achieved by adding new background particles to the forward face and ejecting basic particles from the aft face. The characteristic eigenstates are the "quantum" properties of the universe, the "sonic" speed characteristic of radiation and matter are the "clativity" properties of the universe.

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[1] This paper is based on Advance Physics, Third Edition, JMB Co., Los Angeles, 45, California, 18 April 1967.

THE BRUTINO

The basic particle which makes up the universe is named the brutino. The mass of an item is defined as the number of brutinos which comprose the item. The brutinos move in a straight line except when they collide. The collision interaction time for brutinos is instantaneous. Collisions are such that for a reference frame in which the normal component of velocity just prior to impact are equal and opposite, then the normal components are reversed while the tangential components are not affected. This collision mechanism provides the definitions of "elastic" and "smooth."

The set of postulates given above rigorously results in the following six universal laws of physics:

1. Everything in the universe is made up of one type of particle, the brutino.

2. Everything always moves with constant velocity unless it collides with something else.

3. Mass can neither be created nor destroyed.

4. Linear momentum can neither be created nor destroyed.

5. Angular momentum can neither be created nor destroyed.

6. Energy can neither be created nor destroyed.

Law number 2 is Newtons (or Galileo's) first law of motion. The next two of Newton's laws result directly from the definition of force. A force is defined such that a brution is said to experience a force when the brutino experiences collisions with other brutinos. A force is measured by the number

of collisions per unit time times the change in linear momentum produced by each collision. A force thus is defined as mass times acceleration and forces always occur in pairs, each element of which is equal and opposite the other.

RADIATION PARTICLES

A radiation particle is a dense collection of brutinos which translates at "sonic" speed (sonic as determined by the average speed of the background brutinos). The first two questions concerning radiation particles are the stability mechanism and the propogation mechanism. Mechanisms of stability and propogation are described now with a qualitative proof that these mechanisms are valid. The approach taken is to show that a stabilizing pinching force is generated by initial impacts of the background particles on a stationary composite particle (i.e., a stationary localized condensation), that if held together the composite particle can move without slowing down, and that when the composite partilce is moving the initial impact pinching force still exists and only initial impacts are of any consequence.

This paragraph shows that a radial force directed toward the center of a composite particle is produced by initial collisions between the background and the composite particle when the composite particle is at rest. This inwardly-directed force is termed a pinching force. The force results from a diminishment of the number of background particles along a ray as the ray passes through the composite particle. Since the force produced on the composite particle is proportional to the number of background particles available for impacting, the force due to the ray gradually diminishes. As equal and opposite ray similarly diminishes. The difference in the forces produced by these two rays compresses the composite particle. thus, initial collisions

between the background particles and particles making up the composite particle produce a stabilizing pinching force.

In this paragraph it is assumed that a composite particle can remain stable; then it is proved that there is a non-zero velocity at which thee particle can move with respect to the background without slowing down. Determination of the magnitude and invariance of the speed is almost trite. The composite particle, as constituted, is merely a dense region of the background gas, and its mechanism of transmission is as a wave in which the front fact continually gains particles while the aft face continually loses particles. Transmission speed is independent of the density and is the "sonic" speed for the gas. This mechanism, of course, covserves energy and linear momentum for the composite particle.

The next step in the proof is to show that when the composite particle is moving at sonic speed and initial collision pinching force will still be generated. For a moving composite particle a transverse pinch effect will be generated, as in the stationary ease, since the force's existence (but not necessarily its magnitude) is independent of the axial motion.

To demonstrate axial stability, instead of considering the forces acting, it is more convenient to rely upon proven theorems of gas dynamics. A point sound source in an ideal gas produces a wave of energy which is diminished axially only by the inverse square spreading. Since the particles in this present theory act like ideal gas atoms, and since the transverse pinching force is generated to prevent transverse spreading, the composite particle will not spread/or contract axially. Thus, initial collision transverse and axial pinching forces exist for the moving composite particle.

The final step is to show that only initial collisions are of any consequence. For this proof it is presumed that the composite particle is sufficiently of porous so that the probability of collision is low for a given background particle. (Incidentally, this is a restriction which probably is not required for the mechanism.) The probability of a second collision then is quite low and can be neglected. Also, since the particle is moving at sonic speed there is no chance of the background being disturbed by continual collisions with the composite particle and, thereby, producing a feedback which could affect stability. thus, it appears that the stability and propogation mechanisms described for radiation particles are valid.

A photon is believed to be a spherical composite particle with a density which is greatest at the center and which gradually decreases away from the center until it approaches the background density. Defining the size of a photon as the volume which contains a given percentage of its mass, then all photons are believed to be approximately the same size; the mass variation is due primarily to a density variation. The principal way a photon vibrates is believed to be planar with its double amplitude equal to its wave length. As the photon is perturbed from its nominal path the transverse forces opposing the transverse motion increase as a result of the photon moving toward those opposing brutinos and the transverse forces in the direction of the transverse motion decreases. These forces are stabilizing and produce the characteristic vibration. As the photon mass is increased the restoring force apparently increases at a greater rate than the rate of mass increase. The increase in force is due to mass increase and decrease in spacing between brutinos. The photon has angular momentum about an axis which passes through the photon nominal path perpendicular to the plane of its path. The angular momentum

is defined as the average absolute value of the photon linear momentum times the perpendicular distance the photon is from the point formed by the normal projection on the nominal path. This angular momentum is invariant for all photons since the amplitude and wave length are inversely proportional to the mass. This constant presumably is Planck's constant, h. Based on these presumptions, the energy of a photon is given by $h\nu$, where ν is the number of cycles per unit time which the photon experiences.

Neutrinos and antineutrinos are similar to photons except that they rotate about theer translational path instead of vibrating transversely. Their angular momentum, Planck's constant divided by two, is a result of this rotation. The neutrino is left-handed and the centineutrino is right-handed.

Photons, neutrinos, and antineutrinos are the radiation particles. The first radiation particle formed in the universe probably was formed as a result of the chance collection of background brutinos. Many radiation particles are continually formed by this process but an appreciable rate of production results from matter collecting background brutinos and later limiting them in the form of radiation particles as explained in the next section. The particles also are destroyed, but their lifetimes are in the order of a billion years.

The rate of production and destruction of radiation particles, other than their conversion to matter and re-emission by matter, is so small that all of present day physics is based on the presumption that the particles can neither be created nor destroyed. However, as will be shown later, the formation process provides good explanations of gravitation. The small galactic red shift which is observed is explained by a gradual destruction of a photon.

ELECTRONS

An electron is a toroidal shaped cloud of brutinos. The brutinos move with an average velocity with a magnitude of 1-4c and which has a tangential (rotational) component of c and a component around the toroid across section. These two components result in a helical motion of brutinos making up the electron. The negative electron is left-handed and the positive electron is right-handed. The electron is held in its circular shape by the same type of pinching force that holds the radiation particles together. The electron is propogated in its circular path by the same wave type mechanism that the radiation particles utilize.

The phenomenon of charge results from flow fields of the background brutinos. The flow pattern is a circulation which consists of a component in through the center of the toroid and around the outside which is in the direction of the brutino component of motion around the toroid cross section and another component which is in the direction of the rotational motion of the complete toroid about its center of mass. The flow patterns for unlike charged electrons mesh together so that the background brutinos press the electrons together while like charged electrons flow patterns interface and repel each other.

The stabilization mechanism of the electrons is presumed to result in only one stable mass and radius of the electron. Further, as time passes an electron is believed to continually collect background brutinos and, therefore grow in mass. At certain excess mass levels, an electron will emit either a photon along its axis of rotation or a neutrino (or antineutrino) in the plane of the toroid. this brutino collection-photon emission process is the source of a stars energy and the brutino collection-neutrino emission process is the cause of gravitation.

An electron has angular momentum about the axis perpendicular to its toroidal plane. The angular momentum presumably is due to the electron and to the charge flow pattern of the background brutinos. The value of the angular momentum is Planck's constant divided by two.

When an electron is at rest (with respect to the background) it has the shape of a circular toroid. When the electron moves it takes an elliptic shape which moves parallel to the minor axis. The thickness of the toroid is the greatest at one end of the major diameter and a minimum at the other major diameter end. This difference in cross section provides the mechanism of translation of matter. The direction of motion is the same as the direction of the tangential velocity of the ellipse at the major diameter end with the greater thickness. This mechanism results in an electron's velocity being limited to a value less than the speed of light, since at that velocity the major diameter end with the smaller thickness must have a zero thickness. Thus, before reaching the speed of light an electron will be converted into a radiation particle.

Collisions of photons with electrons and electrons with electrons make up most of the phenomena observed in nature. When a photon collides with an electron the photon breaks into two photons. One photon is captured and becomes a part of the electron and the other rebounds in a random direction. This mechanism results in an electron having a moving mass greater than its rest mass. The amount of mass growth is derived from the laws of the conservation of energy and linear momentum. The mass at velocity is equal to the rest mass divided by $(1 - \beta^2)$ where β is the speed of the electron divided by the speed of light. During the collision of two electrons, photons are interchanged in a manner analogous to the photon-electron collision.

By accelerating an electron through a magnetic field (a magnetic field later is indicated to be a background brutino flow pattern) the ratio of its force due to charge divided by its mass can be dtermined as a function of the electron velocity. The force change due to motion is increased by the factor $\sqrt{1 + \beta^2}$ since the force lines cut are increased by this factor. The mass grows by the factor $1/(1 - \beta^2)$. Thus, the force due to charge divided by the mass increased by the factor $\sqrt{1 + \beta^2}(1 - \beta^2) = \sqrt{1 - \beta^2}$. This factor, of course, correlates the observations.

The amount of energy available in photon form which is contained in an electron, or any type of matter, is equal to the mass of the matter times the square of the speed of light. This, of course, is the famous formula of Einstein $E = Mc^2$.

Electrons can be formed by the chance collection of background brutinos. Another electron source probably is provided by electron pair production by the collision of sufficiently massive photons.

Electrons, like photons, are extremely stable and, other than conversion into photons of equal mass, electrons have lifetimes in the order of a billion years.

NUCLEAR PARTICLES AND ATOMS

A nuclear particle consists of two or more electrons which have a common axis of rotation and a common center of gravity. The electrons thus form concentric rings in a plane. Nuclear particles consist of the same number of positive and negative electrons or exactly one excess positive electron or one excess negative electron. The innermost electron for matter is a positive electron while for antimatter it is a negative electron. Nuclear

particles are held together by the same type pinching force as that holding an electron and radiation particles together.

An atom is the simplest assembly of uncharged matter. An atom consists of a central nucleus of protons and usually neutrons and a number of electrons which orbit in spherical shells. The nucleus is held together by a pinching force similar to that which holds the previous particles together. However, the pinching force has reached the limit of its range in the case of large nuclei. The degradation in force at longer ranges is due to brutinos scattering back into the region where the force difference is tending to be generated and thus negating the pinch effect. The orbital electrons, as all the simpler forms of matter already discussed, have only distinct radii at which they can remain stable. Thus, balancing the centrifugal and electrostatic forces gives only one linear velocity, and only one vlaue of electron mass--since mass depends directly upon the speed, for an electron in a given orbit. In addition the angular momentum of each orbit then results as Planck's constant divided by two. With these constraints one precise value of photon mass is emitted or absorbed as an electron changes from one orbit to another.

GRAVITATION AND MAGNETISM

A gravitational field is set up by matter. The field consists of background brutinos flowing into the matter, a slightly lesser number of background brutinos flowing out of the matter, small amount of neutrinos and antineutrinos flowing out, and an even smaller amount of photons flowing out. Another mass placed in the vicinity of the matter will feel an inward force since the brutinos in the form of neutrinos and antineutrinos do not transfer momentum to the mass.

Magnetism is a flow pattern of the background brutinos which is set up around and through a piece of matter by the matter. In order for the matter to set up the flow it is necessary that its electrons take an elliptic shape as if the matter were going to move. However, if instead of moving the matter remains at rest then the background brutinos will flow into the matter opposite the direction which the motion of the bar would have had.

DOUGLAS PRIVATE
MEMORANDUM

DATE: 8-1-68

TO: R. M. Wood, A-830

FROM: J. M. Brown/W. P. Wilson, Jr., A-833

SUBJECT: INTERVIEW WITH BARBARA J. HICKOX

COPIES TO: File

REFERENCE: Report No. 680701-2, Tape #2

Mrs. Barbara J. Hickox was interviewed by J. M. Brown and W. P. Wilson, Jr. on 31 July 1968 from 10:15AM to 11:00AM at her residence which is at 153 East 53rd Street in Long Beach, California.

Mrs. Hickox reported to Mr. and Mrs. C. K. Druffel of NICAP that she had seen and ridden an aerospace vehicle manned by extraterrestrial beings. The purpose of the visit was to explore the possibility of obtaining useful technical information from Mrs. Hickox.

Mrs. Hickox lives with her daughter Tracy (age 6) in a very inexpensive house in a very old section of town. Mrs. Hickox works, on call, as a contract key punch operator which pays her $3.00 per hour. She is approximately 5' 9" tall, weighs approximately 160 pounds, and is around 40 years old. She has been married several times - her maiden name is Hickox.

At the very outset of the discussion Mrs. Hickox made it clear that she did not want to be exploited. She stated that she had given away ideas worth four million dollars to various people and she didn't want to give away any more. On the other hand, she said she was making all the money she wanted and had all the luxuries of life. She was not interested in getting involved by becoming rich.

We did not discuss her observations made while aboard the vehicle. She talked about a unique method for producing a vacuum, a unique method for transmitting radiation energy non-violently (in contrast to a laser), a patent she had issued to her on a piece of furniture fashioned after the spacecraft propulsion system, and her method of making extensive sketches in order to convey her ideas to other people. I absolutely could not make sense out of what she was saying. However, we did not explore these questions further in order not to be in the position of accepting useful information then being potentially liable for that information.

We discussed the possibility of employing Mrs. Hickox as a consultant. We told her that if she accepted employment as a consultant the company would expect to own any ideas divulged by her. She would, in return, receive the agreed-upon hourly compensation. We agreed to proceed with background information gathering to prepare a recommendation to our management that she be employed as a consultant at a rate of slightly over $3.00/hour. If our checks on her resulted in our recommendation to management and if management concurred, then a few exploratory hours of her time would be utilized. Further time might then be warranted to go into various areas in great depth. Primarily in her description of the vehicle and its propulsion system.

J. M. Brown, A-833

W. P. Wilson, Jr.

JMB:WPW:msb

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MEMORANDUM

DATE: 2-18-69
A-830-BB01-CPT-15

TO: R. M. Wood, A-830

FROM: C. P. Thomas, A-833

SUBJECT: A NEW COMMUNICATION MODE

COPIES TO: J. M. Brown, D. B. Harmon, W. P. Wilson, Jr., A-830

REFERENCE:

Attached to this memorandum is a loose discourse on the feasibility of a new communications mode which could be a parent or a product of a new propulsion mode.

C. P. Thomas

C. P. Thomas, A-833
Advanced Concepts

CPT:msb
Attachment - Noted

Copy No. 5

A NEW COMMUNICATION MODE

With the advent of longer-range supersonic flight vehicles, and the approach of possible interplanetary travel, communications and navigation needs play an ever-increasing role in the system performance of any vehicle-ground system complex. This paper examines the possibility of a new communications-navigation concept utilizing a mode of information transfer adapted from natural phenomena other than electromagnetic.

I. Requirements

The requirements for an ideal system would be:

1. Point-to-point communications
2. Point-to-area communications
3. Non-interference by natural phenomena
4. Range minimum and maximum practically unlimited
5. No blank regions
6. Universally utilizable
7. Low power required
8. Real-time identification
9. Real-time authentication
10. Non-interference with existing FCC allocations
11. Non-injurious
12. Compatible with natural phenomena
13. Near-infinite information transfer rate capability
14. Adaptable to existing information source and readout facilities without system degradation
15. Utilizable in traffic handling
16. Practically limitless traffic-handling capacity
17. Utility in all classes of communications; for instance: air-air, air-ground, air-submarine, submarine-submarine
18. Antenna compatibility with all types of requirements
19. Construction feasibility within existing hardware techniques
20. Communications - Navigation - Identification modes operable without switching off any mode, preferably as an integrated mode
21. No degradation or interaction by use in any variation of environment, manufactured or natural
22. Real-time readout, and real-time transmission in any language, based on real-time translation from any language to any language on both readin and readout circuits
23. Minimum possible jammability
24. Minimum possible error rates
25. Maximum possible error correction capability
26. Real-time maximum coding and decoding capability
27. If possible, the CNI system to operate in the same mode as a propulsion mode
28. Maximum possible reliability
29. Maximum achievable simplicity compatible with performance requirements.

II. Possibilities

These requirements eliminate systems utilizing the following modes:

1. Electricity
2. Magnetism
3. Light (Optics)
4. Heat
5. Hydraulics
6. Electromagnetics
7. Nuclear Energy
8. Solar Energy
9. Combustion
10. Sound
11. Mechanics

It leaves little with which to work. The two modes which possibly could satisfy most if not all of the requirements are:

1. Gravity
2. Magnetohydrodynamics

Actually, mhd is disqualified in strict interpretation of the rules of the game; however, a combination of gravity and mhd could satisfy the requirements.

It could be that the eliminated modes cannot be utilized per se as modes of communication, but some may be utilized as means of creation, control, or modulation of a mode which satisfies the most requirements possible.

III. Discussion

It is interesting to note that the two modes most likely to satisfy the requirements are the least understood of all forms of energy as they occur in nature. No one yet knows why gravity "pulls". No one yet knows why the acceleration caused by the "pull" of gravity is uniform for all densities of bodies. (What are the tolerances?) No one knows whether the "pull" of gravity is a field which is set up (or transmitted) at c or greater than c. No one has yet defined the term "mass" on a self-sustaining basis - only by its effects. No one has caused a true gravitational field to exist.

For purposes of discussing a gravitational mode of communications, we will set up some definitions, parameters, and hypotheses.

1. Any matter with "mass" has a gravitational field of its own.
2. If we concur with the concept of the Universe being a sum of particles, then a gravitational field in a given piece of matter is set up by an excess of collisionless particles emanating from the matter over collisionless particles entering the matter and an excess of collision particles flowing toward the matter over collision particles flowing away from the matter. The sum of the flows of collisionless and collision particles in opposite directions is equal.

3. The "instantaneous phenomena" exists.

There is only an indefinite newspaper reference to phenomena measured at a speed greater than c; however, it may be significant. The New York Times, shortly after the first Soviet nuclear shots at Novaya Zemlya, reported the Soviets as reporting earth-current records taken in Antarctica of the leading-edge pulse of the shots with no measurable time delay from the time of the detonation. At c the time delay would have been in the order of 0.05 second, which is discernible in terms of world-wide atomic clock accuracy, which the Soviet earth-current scientists claim to have had at that time. In any case, the Times article quoted the Soviet scientists as stating that there was an "instantaneous effect" phenomenon with no discernible time delay between Novaya Zemlya and Antarctica, measured in earth-current flow effects alone.

If we accept the "instantaneous effect" phenomena as reported by the Soviets, then an analysis or a hypothesis as to the cause is in order. Incidentally, the Soviet report as stated in the Times also stated that all Soviet earth-current recording stations the world over recorded the same "instantaneous effect" electrical phenomena.

It is interesting to note the comparative status of earth-current facilities between the Soviet and U.S.A. at that time: there were 30 known earth-current recording stations in Russia proper alone, not counting those known to be in Siberia, Antarctica, and in seagoing ships. There were only 3 stations in the entire North American continent.

Before exploring a hypothesis for the cause of an "instantaneous effect", however, let us repeat hypothesis #3: There is an instantaneous phenomenon in the organization of natural energy.

There is a remarkable similarity of organizations of matter of different magnitudes having their own gravitational fields, if we look at known organizations from the atom through the supergalaxy. Included in this family are the atom, planet with radiation belts, blue-white star, galaxy, and supergalaxy. Each has an inner core and outer core, with the inner core representing a region of low energy level, and the outer core representing a surrounding region of high energy level. In these various organizations of matter it is evident that the outer cores represent a concentration of at least a magnetic field; possibly also a concentration of free electrons; and certainly a concentration of photons. In organized matter of the particle class, including proton and electron, the inner and outer core structure cannot be justified except as a continuum of the hierarchy of structures having their own gravitational field.

Taking into consideration those organizations of matter which indicate a departure from this hypothesis (i.e., Mercury, Moon, Mars), it is curious to note that their surface gravities represent a negative departure from the expected gravitational field by virtue of the surface gravity of most of the other planets. Another curious coincidence is the fact that none of these bodies has radiation belts, nor an organized magnetic field.

One explanation could be that each body of these organizations of matter has a gravitational field which is the sum of hierarchical "sub-matter" comprising the organization, the "sub-matter" having its own inner-outer core structures and attendant gravitational fields. In this case, "sub-matter" refers to that matter of inner and outer core hierarchical structure which can add up to a body as large as a moon or planet with or without radiation belts. The "sub-matter" follows hierarchical patterns of organized magnetic field structure, inner and outer core structure, and gravitational field effects.

In the cases of Mercury, Moon, and Mars, it is plain that with the lack of an organized magnetic field, and the assemblage of "sub-matter" with the organized fields of the "sub-matter" in random orientation, only the gravitational fields of the "sub-matter" are organized.

It appears that there may be emanation of an excess of collisionless particles from the outer core of the hierarchy of inner and outer core structures. (Mercury, Moon, and Mars would have no such emanation on the planetary level) These particles may be so small as to approach the infinitesimal in size, and may travel so fast as to approach limitless velocity. Let us call such particles "i's" ("imaginaries" or "infinitesimals" traveling near "infinite" velocity).

Since the emanation of an excess of i's would occur only in matter where organized magnetic fields and inner and outer cores exist, it appears that some interrelationship between these factors could hold true. The only plausible one - although the relationship may in reality be wholly "implausible" - would seem to be that the outer core represents a specific location of "overcrowded" energy. The release of energy from this overcrowded state probably would vary from the optical spectrum to ultraviolet, infrared, x-ray, and possibly other photons, with different emanations from different magnitudes of cores; however, the one emanation common to all magnitudes within the hierarchy would be the same as that for brutinos.

A characteristic probably worth consideration is that in the hierarchy, the smaller the outer and inner core structure, the higher the magnetic field density.

A characteristic common to all magnitudes within the hierarchy is that inner and outer cores appear to be consistently spherical. Further, it appears that gravitational field effects are the same with respect to any cores of equal size, and essentially the same in any one body of matter in all radial directions from its concentric cores.

Another characteristic worth mentioning is that two entities of matter demonstrate a gravitational effect only if both have inner and outer core structures, either as primary to the magnitude involved within the hierarchy, or as "sub-matter" structure.

The problem of how the proton and electron fit into the hierarchical structure is not simple. One fact, however, stands out above any conjecture: both particles have organized, high-density internal magnetic fields.

Since no simple concentration of any magnetic field at the highest experienced density has ever produced a gravitational field, we may assume that the gravitational field of a proton or electron is produced by a formation common to larger magnitudes in the gravitational hierarchy: the inner-outer core structure.

It may be that high-density magnetic fields do emanate i's, but not in an organized fashion, and that the outer-inner core structure is the only one which emanates i's predominantly as if from a point source, thereby creating a gravitational field. If true, this is further argument for the existence of the outer-inner core structure in a proton and electron.

In any inner-outer core structure within the hierarchy from atom to supergalaxy, the presence of radiation belts can be argued as a part of the total structure contributing to the existence of outer and inner cores. However, radiation belts cannot be part of the structure leading to outer and inner cores of the proton and electron as they evidently are in structures only from atomic upward. We must look for some other natural phenomenon which is beyond the scope of this paper.

However, if we are to tie together the instantaneous effect, Soviet earth-current recordings, and i's, it would appear that a nuclear detonation with its mass-energy interchange relationships would produce a leading edge pulse reflecting a change in i-production balance in the hierarchical balance.

Since the transfer is from mass to energy, it involves a loss of gravitational fields (or, a loss of i-production) in the amount of time necessary for the transfer to take place. The very first loss would be concurrent with the first atom's interchange from mass to energy. The loss would have an effect on every member of the inner-outer core i-producing hierarchy. It might be said that the entire balance of the universe is affected, especially if i's do exist and do travel at near-infinite velocities.

The effect on electrons would be noted in earth-current activity as an "instantaneous" earth-current effect.

If we proceed on the basis of inner-outer core structure from the atom upward, then an orderly picture can be drawn. Each magnitude within the hierarchy represents a trapped magnetic field, and trapped belts of protons and electrons, in balanced trapping action. If i's are emanated from outer cores, then the organized trapped magnetic field could be the supplier of particles from which i's are shed; and the radiation belts serve as trapping agents to trap more magnetic field particles from the background field to replace that part of the trapped field lost in being shed as i's. It appears that, normally, a steady-state balance is maintained; for instance, in a planet, the trapped magnetic field, the trapped radiation belts, the inner-outer core structure, the i-emanation, and planetary rotation would be interdependent. That these states are not constant is attested to by the repeated sudden increases and decreases in the earth's rotational velocity. The most direct cause of rotational velocity change could be a change in

background magnetic field density, which would lead to a change in trapped field density. Commensurate with any such change would be a change in i-emission from the outer core, or a change in g.

In smaller formations in the hierarchy - such as atoms and molecules - a change in the background magnetic field, or a change in orbital speed of electrons, or a change in density of inflowing i's, could change the electron flow structure of any associated assemblage of electrons.

IV. A Possible Example: ESP (Equilibrium System Perception)

If a communication mode already exists in nature utilizing a gravity system, we possibly could find it in that portion of mammalian physiology which is dependent upon gravity for its continuous and successful operation.

In the human being, there is only one sense which does not use a transducer: the equilibrium system. The eye transforms optical wave lengths to energy suitable for conduction along the optic nerves; the ear system translates audio range waves to the same kind of energy for conduction along the auditory nerve; likewise smell, touch, and taste.

The equilibrium system, however, operates directly on external energy affecting directly the energy conduction in the equilibrium nerve from the semicircular canals to the brain. The semicircular canals are in reality loop antennas, oriented in planes almost exactly at 90° to each other; when a person is standing, there are two loops in the vertical plane, sensing energy flowing through them horizontally, and one in a horizontal plane, sensing energy flowing through it vertically.

It is a curious fact that the equilibrium system utilizes double the antenna in a vertical plane that it does in a horizontal plane. It suggests that available energy signals are far more plentiful vertically than horizontally; the energy source would logically appear to be gravitational. It appears even more logical when considering that equilibrium system operation most probably depends on a reference with the stability unique to gravitation.

In birds and primates it has been demonstrated that the equilibrium nerve which is connected to the semicircular canals goes to the brain, thence to every muscle in the body. The main branch of the nerve after exit from the brain extends through the spinal cord, with every branch extending from every vertebra traceable to every associated muscle in the body. It affords physiological proof of the coordination of the body depending upon a stable reference - and no reference other than gravity fits the requirement, since a constant, stable reference with respect to the vertical is required. In humans, however, the equilibrium nervous system is not so well defined. The entire system through the spinal cord is traceable; however, each branch leaving each vertebra is so small and delicate that it defies tracing to the associated muscle.

This difference between species explains why an anthropoid can habitually perform outstanding feats of acrobatics as normal actions in trees,

and why birds have an excellent navigation system; their equilibrium systems are far better developed and more sensitive than that of the human being.

As underdeveloped and insensitive as it may be, the human being's equilibrium system succeeds in performing its task: to sense vertical and horizontal references provided by nature, and provide a means of coordination of motor nerves and muscles to act and react properly, based on the vertical and horizontal references sensed.

The operation of the equilibrium system depends, then, on the stable reference - presumably gravity - providing a constant signal which is sensed by the equilibrium loops (semicircular canals). Any movement of any portion of the body is accomplished by coordination of intent and muscle action with the stable equilibrium signal providing the reference upon which the movement is based and accomplished.

There seems to be no physiological nor neurological reference which shows or explains which part of the brain or medulla oblongata which is responsible for the equilibrium function. From the meager information available, it must be tentatively concluded that there is no function in the brain and medulla which is without parallel or integrated structure and function with the equilibrium nervous system.

Suppose that the reference signal (which we are postulating to be gravitational) is not solely a stable signal - that it is modulated with information which may be incoherent, coherent, or both. The means of modulation may be disregarded for the moment; we are concerned primarily with the possibility of existing modulation.

If there is coherent information, it could be received and ignored inasmuch as body control would depend on the stable reference only. On the other hand, if there is coherent information, it could be received, detected, and used. Reception and detection would conceivably be so subtle to the person involved that the received intelligence would appear to be his own thoughts. If there is reception of coherent information, this could be the reason that the fact of reception is not recognized nor accepted as a normal part of mammalian and animal kingdom communications.

One curious occurrence which indicates a high degree of veracity in the gravitational-equilibrium postulate was the behavior of the animals in the Tacoma Zoo during the onset of the Alaskan earthquake. Within all limits of accuracy possible, it was determined that at the time of onset of the quake - before the initial seismic pulse had time to leave the local area - the Tacoma Zoo animals sensed a major disruption, and started a vocal disturbance at fortissimo level, making the Zoo sound like a concurrent source of all bedlams in history. The most interesting fact of this racket was the aspect of its orderliness: the birds with the highest navigational sense (ducks and geese) started their wild honking first; then natural progression followed down the scale, with the animals of lowest navigational sense joining the disharmony last. Clearly their usually stable reference had been disturbed, and they were complaining.

The Tacoma Zoo authorities have stated that the animals react in this manner to every earthquake, but that the Alaskan quake evidently provided them with cause for the most severe vocal demonstration in the Zoo's history. The manifestation of disturbance was not entirely vocal, as the animals also ran about frantically, and the birds flew about as if trying to escape from an unseen assailant.

If indeed this mode of reception exists, and includes coherent information, there should be a method for bringing it out in the open for observation and testing. This has been done.

V. Development and Experimentation With the Human Link

If the coherent information includes information in the English language (including numerical information), then our instrument can be constructed to utilize those factors.

If the equilibrium system honors a stable reference, then possibly it could be made to honor coherent information content in the reference. Since all muscular coordination and action is based on the reference provided through the equilibrium system, then perhaps muscle action can be made to act on the coherent information. For instance, if it is sensed that an "a" is received, then the finger could be instructed by the coordinated motor system to point to an "a" on a chart.

To make the finger, hand, and arm obey 3-dimensional instructions to point to any letter is unnecessary, since we can put all letters and digits on a chart in one plane. The chart can be slippery; and a sliding instrument placed on the chart, with a finger on the sliding instrument, so that the hand and fingers need move in two dimensions only.

It was found that the best sliding instrument is a small "jigger" glass, inverted, which has an indentation in the base in which a fingertip will rest. The angle of the sides of the glass provides a structure which will resist tipping over from the horizontal force supplied through the fingertip.

The chart should be made so that the maximum movement efficiency can be utilized. It was decided at first that an alphabetical circle was best; later, it was modified to an ellipse.

It was further hypothesized that if coherent information exists as a modulated portion of the stable (gravitational) reference, then it would be identical for any number of persons in immediate proximity to each other; therefore, if two or three persons were to operate as concurrent receivers, each with a finger on the inverted glass, the strength of the received signal could be multiplied by the number of persons contributing.

On the very first trial, it was found that there is literally a plethora of intelligent information available through this method, that there are uncountable constant sources of information. Since authentication of both source and information was impossible, the experiment was continued based on observation alone, without judgment as to the source or content. The time of these experiments was in April, 1965.

Unauthenticated information was received from locations indicating ranges up to hundreds of millions of light-years away. If the source location were correct, the instantaneous link indicated a mode of communication approaching infinite velocity, - many magnitudes greater than c, in any case. When the link was utilized as a two-way link, the indication of this phenomena was even stronger, as conversation ran back and forth with no apparent lag where, by the concept of c, such a link would be impossible.

It was decided that inasmuch as a reception was made, a transmission had been made, and that a controlled test should be performed. First, however, requirements should be established for being a good receiver, and for a good transmitter.

From the small experience up to April 1965, we had learned that the best description of a good receiver is a person who has found his inner peace. One who has learned that concern and worry are not the same; who has found minute-to-minute, hour-by-hour, day-by-day, month-by-month, year-by-year ways of meeting everything, ranging from happiness and joy to boring normalcy to extraordinary adversity with calm acceptance, gaining victory when necessary; accepting failure when unavoidable, and turning it to success whenever possible. It takes a relaxed mind and body to be a good receiver.

A good transmitter is a person who can think one thought, excluding all other thoughts, even from his subconscious, without thinking himself into doing so. Top-flight lecturers and show people have this quality - persons like Danny Kaye and Johnny Carson are good transmitters. They hold their audiences because their conscious and subconscious (through the equilibrium system) transmit identical messages concurrently. The conscious message, of course, is vocal.

A person who is both a good transmitter and receiver has the capability of switching functions and attitudes instantaneously as necessary.

Our first step was to train two receivers. Two teenagers were chosen; a boy 15, and a girl 14. The training involved using a third person (male, age 45) as transmitter. This person would transmit to any person anywhere (who would identify himself) and the person would transmit back, with the teenagers receiving the message. It was noted day by day that they would move the inverted glass over the communication alphabet faster and faster, until finally they could not move the glass as fast as they could detect what they received. At that point they discarded the glass and merely voiced the received message concurrently with reception of the message.

Through all of this training it was decided that authentication of the link was to be avoided. It was found that any attempt to authenticate usually resulted in jamming the link, and entered sufficient doubt in the mind of the receiver such as to seriously hamper his ability to receive. We discovered that complete faith in the success of the method is a requirement for successful training - both on the part of the receiver and transmitter.

VI. Testing

At the end of a two-week training and practice period it was decided that a closed-room, controlled factual link test was in order. It was decided that the simplest information was to be utilized: card suits.

From a deck of cards, the four aces were removed. The Ace of Spades was discarded, as the spade in the center was large and ornamented. The deuce of spades was removed. The four cards then were placed face up, side by side, in 2-spade, A-heart, A-diamond, A-club order. The remainder of the deck (47 cards) was shuffled and placed face down. A 5" x 7" white card with a 1/2" diameter hole cut in the center was used by the transmitter to sight through at the upturned card face suit symbol to be transmitted.

The transmitter sat in the living room on a couch, with a card table in front of himself, with the cards arranged as described above. He faced the dining room, with the receiver sitting at the dining room table, about 12 feet away from the transmitter, with the back of the receiver facing directly toward the transmitter.

The transmitter would draw a card, mentally note the suit, and set the card down, face down. He then would sight through the holed 5" x 7" card at the suit symbol of the corresponding suit of the four face-up cards. His vision included only the whiteness of the 5" x 7" card, the hole in the card, the suit symbol, and the surrounding white area of the face-up card made visible by the hole-card. As soon as the transmitter established within himself that he was transmitting properly (excluding all other thoughts but the image of the card suit being observed), he said "now". The time interval between drawing the card and "now" was usually 3 to 5 seconds. As soon as the transmitter said "now", the receiver stated one word: the name of the suit being received.

By this method, 42 out of the 47 cards were transmitted and received correctly, the correct suit being stated correctly by the receiver on the first try. The 5 missed ones were analyzed by the transmitter to be errors on his part: he had allowed extraneous throughts to clutter his transmission. Each time an error was made, without knowledge of the receiver, the suit was retransmitted, making it appear as if a new card had been turned. On each of the 5 first-try errors, the second try was correct.

The interesting fact about the second tries was that the receiver knew they were second tries in spite of the efforts to mask the fact. It was realized afterward that the receiver <u>should</u> have known in spite of whatever masking attempts were made.

A simplification of the odds for 42 out of 47 successes would be that the odds in favor of the successes would be 1 out of 4^{42}.

So, it would appear that there is a communication link which is capable of transmission and reception of at least simple factual information. In this case, there were 5 errors out of 47 bits (10.6%), which is well within known error correction techniques.

The degree of authentication by this technique lends some credence to the reception of messages from sources on an instantaneous basis which should have involved from minutes to megayears delay, for it was the daily practice with links at light-minutes to light-years range which developed the capability of the receiver to receive factual information and read it out consciously.

In all of man's experience in physics, engineering, and psychology, the propagation velocity of a gravitational field has never been determined; nor has it been determined as to what generates the field. It could be (although it may not be) instantaneous. In all of man's experience in physics, engineering, and psychology, never has he encountered any proven instantaneous phenomena.

VII. Discussion of Manufactured Link

If indeed the instantaneous phenomena does exist, then the only reasonable postulation as to the means for its existence would be through modulation of instantaneous gravity fields. If this is so, then the task is: first, generate a gravitational field; and second, modulate the field.

If an experiment were set up in order to attempt modulation of a gravitational field, it would have to include apparatus generating a gravitational field and apparatus with which to modulate the field. The first try would use humans as receivers; if successful, a receiver would be constructed to supplant the humans as receiver.

Generation of the gravitational field would be accomplished as much as possible in a manner similar to nature: with an inner and outer core. A hollow sphere of soft iron could serve as the outer core; two coils of wire, one above the north pole, one below the south pole, both carrying D-C to establish a trapped field common to both and the iron outer core; for an inner proton belt. A glass "doughnut" filled with H_2, and capacitor plates on the inside and outside radii, the inside charged positively and the outside charged negatively; and for the electron belt, an evacuated tube containing a heater coil, obtaining free electrons through thermionic emission.

On the D-C magnetizing current passing through the north and south coils, voice modulation can be impressed, which will modulate the trapped magnetic field, which in turn should modulate both charged belts, and hopefully the gravitational field generated in the outer core.

The dimensions of the setup could be such that the entire assemblage could fit on a table top; the financial dimensions, however, might not fit within existing limitations.

By so doing it would be possible to duplicate (with much stronger signal strengths) communication as it exists in mammals on the direct mind-to-mind level; voice-direct-to-mind communications, using a manufactured transmitter with the voice; and controlled communications at unlimited ranges with other civilizations. (It can be shown, with the assumption that the universe is bounded, that the existence probability of civilizations other than ours approaches 100%.)

It should be stressed that in mind-to-mind communications, most links attempting to deal with factual information fail. It appears that if one end of the link is regarded as the interrogator and the other the responder, the responder often responds to interrogations with a wishfully true answer rather than a factual one. It has been found that the mind-to-mind link is loaded with wishful thoughts and jamming influences such as pretenders, impostors, interrupters, kidders, and just plain liars. If this type of communication is to be utilized, it will need much refinement over the present mode of utilization (mind-to-mind). It can be expected that with controlled transmissions and receptions, the transmitter (and interrogator) will be authenticatable as much as they are in presently used electromagnetic systems; and reception will afford much higher selectivity, and will be less subject to broad spectrum jamming.

VIII. Some Communication Samples

In communicating with many sources at many different ranges, a variety of topics was covered which could fill pages on subjects from sociology, government, economics, warfare, crime, and medicine to engineering and science.

A very few of the communications dealt with space ships, their operation, and their construction. Most of those contacted were reluctant to talk about these subjects.

The few times we were able to enter communications with anyone willing to discuss any mathematics involved in space-propulsion, the link was unmercifully jammed by unknowns, indicating that there are those who deem it our task to find our own solutions.

Some of the more interesting communications are summed here:

1. One source who stated that he was from another universe discoursed quite freely about their space ships and space travel.

   It was made quite clear that he did not mean another galaxy or supergalaxy. He stated that he knew of our planet and had been by several times, never having landed. He stated that it took about 5 of our days to travel here from his universe, using normal cruise speeds; that with top speed it could be accomplished in 3 days.

   He stated that the rotor (propeller) in the ship is about 3 feet in diameter, with 4 arms, and flattened tear-drop shaped magnets at the end of each arm. (It could have been that he meant high permeability material rather than permanent magnets.) He further stated that advanced ships accomplish the same thrust with 2-foot diameter rotors. The rotor arms are hollow, with rods going to the magnets, and a pitch control mechanism rotating the magnets. The magnets change pitch with rotation of the control mechanism in the rods. Acceleration and speed of the ship were controlled solely by pitch control of the magnets.

He also stated that the power relationships in the operation of their ships were contrary to our concepts of power. His power equation was:

$$P_t = P_p + P_r + P_i + P_e + P_f$$

where: P_t = Total power into the ship
P_p = Power required to propel the ship
P_r = Power required to rotate the rotor
P_i = Power for instrumentation
P_e = Power for all other equipment
P_f = Power for overcoming friction

He stated that if we regard the total power input as the volume going through a cylinder, with the rotating magnets drawing the power through the cylinder only in the volume covered by rotation of the magnets, and that power being drawn through doing the work of drawing the remainder of the power through inside the radius of rotation of the magnets, we would understand. The power being drawn through by the power drawn through by the magnets then could be tapped for propulsion, rotor drive, friction losses, and other power requirements.

He stated that "tapoffs" of power passing through the cylinder in that part of the radius between the center shaft and magnets was accomplished by conductor rods angling down and out of the cylinder, drawing the power out the rods. The best reconstruction possible of his description indicates that these rods are placed with their top ends at 30° to the rotor shaft.

He also stated that the 3 balls under most scout ships were where propulsion power is fed out which is summed vectorially, and it is common to ships built by civilizations in primary stages of space ship building.

He indicated that a ring output method of power is more advanced. The pilot has a control stick which can be vertical, or tipped in any direction toward a circular limit. The output of the ship is from a ring in the bottom of the ship which is segmented and integral with the ship's shell, the output being in the direction of tip of the control stick and in a magnitude commensurate with the degree of tip of the control stick.

This method of propulsion power output was stated to be more efficient as it gave a direct directional output, whereas the 3-ball output method involved vector summing of outputs from each ball; the latter was said to involve losses through the vector summing process.

2. Many different sources talked about their metallurgy. In the main, it was within our knowledge. There was one source, however, which talked about a totally different concept of metallurgy. He stated that they made their own atoms, constructing them concentrically. It had to be accomplished on planets or moons without radiation belts, with great "guns" firing the atoms at an accumulator. Through making concentric atoms they can construct extremely light metals with an excellent balance of strength, malleability, and brittleness by virtue of being able to construct the central atom with far fewer neutrons than normally required for the total number of protons in both the outer and inner atoms.

   Through this method, it was stated, they are able to make absolutely pure light metals with higher tensile strength and less brittle than we ever could through any alloy making methods we have.

   He also stated that their mother ships while in space manufacture oxygen and nitrogen atoms from particles gathered in space; are totally self-sufficient and never need to land.

3. One source told us of mother-ship building facilities on Saturn. He stated that there are virtually no trees on that planet, that civilization there is almost completely based on metallurgy. They can, for instance, make a tuba in a fraction of the time we require, with far superior workmanship. He stated that they have outdoor factories, over 50 miles long, to build mother ships 50 miles long. The factory is a deep open trench dug in the ground, surveyed accurately so that the curvature of Saturn is eliminated. He stated that the power plant for a mother ship was a number of power plants used in the scouts operating in parallel.

   He stated that the most difficult part of laying out a factory was to establish one straight line over the 50-mile length, since it was a 3-dimensional problem fraught with optical aberrations. He also stated that they only had three such factories on the entire planet.

   An interesting sidelight to this description of factories on Saturn is that there are many reports of a single sighting of a UFO of a "cigar shape" type off the coast at Los Angeles which calculations showed to be a minimum of 20 and a maximum of 50 miles long.

4. One communication was with a source who stated that he was in a galaxy 5.4 million light years from us. He stated that c was merely another boundary through which it is possible to pass.

5. One communication was with a source who stated that he was in "another galaxy which you call Andromeda". He stated that "c is Earth's coffin" inasmuch as when it becomes necessary to leave our planet we will not know how since we will not have conquered c. He emphasized the point that in communicating as we were we were proving that c could be conquered. (By our standards, <u>not</u> proof.)

   He stated that the smallest particle in the universe is an infinitesimal which travels at near infinite speed.

6. Many descriptions of many ships were given. One type, an umbrella-shaped affair with an indented center on top and a plane-surfaced bottom, was said to be 8, 12, and 16 ft diameter shapes.

   Other ships were described as 35, 45, and 75 feet in diameter. The 75-foot ship was the smallest described which was said to be capable of interstellar travel. Ships not circular horizontally ranged from a few hundred yards long to 50 miles long.

   There was only one ship encountered in all communications which was privately owned, and described as one mile long, and owned by a man who owns a space ship factory in a planetary system other than the solar system. The ship was his "private yacht".

7. Many varied and thorough descriptions of other civilizations, economics, governments, religions, educations, and social structures were received, even to various structures of organization in crime. These subjects alone could fill a book.

IX. Some Second Order Unexplained Communications

In many samples of communicating with unauthenticatable sources, it was apparent that it is possible to communicate with persons who have deceased. The length of time elapsed since death seems to have no bearing on the ability to communicate.

It appears possible for that portion of a person which survives after death to travel in time, for such as the case in many communications. Some vivid descriptions of past events were given through this means.

Perhaps the most significant cause for pursuing this aspect of communications was the strong indication of an entirely new concept in particle physics, if indeed we live in a particle-based universe. The closest approach this writer has seen toward a rational analysis is in Terletskii: "Paradoxes in the Theory of Relativity".

There are several approaches which could apply to a solution:

1. Infinitesimals (i's) traveling at near-infinite velocity;
2. Imaginary mass particles;
3. Negative mass particles.

The imaginary mass particle would seem to be the particle best suited to to time travel.

For any particle, according to Terletskii (p.82)

$$P = \frac{E}{c^2} u$$

$$c^2M^2 = \frac{E^2}{c^2} - P^2 = \frac{E^2}{c^2} - \frac{E^2u^2}{c^4}$$

$$M^2 = \frac{E^2}{c^4} - \frac{E^2u^2}{c^6}$$

where P = momentum

E = energy

M = proper mass, a 4-dimensional invariant representing a a natural generalization of Newtonian mass

u = velocity

if $u > c$,

then $M^2 < 0$, meaning that proper mass is an imaginary quantity.

According to Terletskii (p.82), "we have come to the conclusion that it is physically admissible for particles to exist with an imaginary proper mass and move with velocities higher than the velocity of light."

Further, Terletskii says (p.106-7): "IS IT POSSIBLE TO DETECT PARTICLES WITH IMAGINARY MASSES?"

"We have already seen that particles of imaginary mass do not carry negentropy and therefore cannot be used as signals. Thus, it appears that they cannot be detected at all and that they are in this sense unobservable objects.

However, in talking about particles of negative mass, we have already seen that objects exist which cannot be detected by orginary instruments, but which can be found with the help of measuring devices of a fundamentally new type. We should therefore examine the possibility of the existence of special instruments capable of detecting particles of imaginary mass.

Since the systematic detection of absorption or emission of particles of imaginary mass would lead to the violation of the second law of thermodynamics, we must reject the possibility of the construction of a device capable of detecting a particle of imaginary mass at a given point. This does not mean, of course, that we completely deny the possibility of detecting any effect due to a particle of imaginary mass at a given point, since there is no prohibition on the occurrence of fluctuations in which such particles can collect at one point, the second law of thermodynamics being violated locally, thus leading to the operation of an instrument of the usual type.

Although instruments detecting a particle of imaginary mass at a given point are forbidden, instruments detecting the emission of such a

particle at one point and its absorption at another point as a single event are not. Thus, for example, if a particle of imaginary mass carries an electric charge, then the process of its emission by particle A and its absorption by particle B can be detected in nuclear emulsions from the track left by particle A before it emits the particle of imaginary mass and the track of particle B formed after the absorption of the particle of imaginary mass. In other words, it appears possible that we can register the process of charge exchange between charged and neutral particles involving a particle of imaginary mass (i.e., the process which is commonly considered as a process in which a virtual particle is exchanged).

Consequently, particles of imaginary mass can be experimentally detected in principle, although only with the help of special instruments or special experiments in which the processes of emission and absorption of such particles are detected simultaneously."

The point which became most significant to us who were training the teenage subjects was that their unique factual proficiency resulted from unquestioning practice in communicating with sources claiming to be multi-millions of light years away, with no discernible time delay involved.

X. Language

Communication with distant unauthenticatable sources, although always accomplished in English, almost without exception provided an interesting facet in language. All sources, of any distance and age, preferred and attempted to communicate using the Greek alphabet symbols, both capital and small letters. The symbols represent phrases which are "rephrasable" as applied within different contexts, and apparently represent a universal language, which is best termed as prehistoric Mayan. The vestiges of this language are apparent in Polynesian tongues, American Indian, Eskimo, Yakut (spoken by the Oriental Uighur tribe of Turkey), Greek, and in northern India tribal tongues.

CONCLUSIONS

1. The development of mind-to-mind communications as a means of study of the gravitational phenomena is practicable within social and business limitations only to a certain point; that point has been reached. Further development is possible, i.e., to a point of vocal real-time readout and near-100% factual reliability; however, it would require a real isolation from society and business associations, and a basic research philosophy; the persons involved also would require training of their families in order to maintain the gains realized during company training.

2. Were probability theory employed, it is this writer's estimation that it would show gravity fields to be 1) the most likely basis for mind-to-mind communications, and 2) the most likely means for satisfying the requirements of the ideal CNI System.

3. Were a gravity-CNI System developed, it would automatically offer a gravitational field propulsion system as a byproduct.

4. This dissertation is at best a qualitative and conceptual speculation concerning the possibility of technologically leapfrogging into the optimum CNI System, rather than slowly evolving into it through years of modification engineering.

   Actuality can be reached only through sound, quantitative research and development. The highest probability approach for successful transition from concept to sound engineering would be through applied mathematics with a concurrent experimental program.

5. This writer is of the opinion that a gravity-modulated CNI System is feasible in hardware, be it through infinitesimals or imaginary mass particles.

C. P. Thomas
Advanced Concepts

Terletskii, Yakov P., Paradoxes In The Theory Of Relativity, Plenum Press, New York, N.Y. 10011, Library of Congress Catalog Card Number 68-19185, 1968

WORKSHEET
FORM 30-103S (7-43)

REPORT NO.	NAME AND LOCATION OF PHENOMENON	TAPE NO.	CONT.	SIGHT
680618-1	Joseph Dickoff - Lake Havasau, Parker Dam, Ariz	1		×
680628-1	Meriam Ovaskainen - Amsterdam, Holland	3	×	
680701-1	Meriam Ovaskainen (Brief Summary) RE: 680628-1	3	X	
680701-2	Barbara June Hickox - Las Vegas, Nevada	2	×	×
680708-1	George Nelson, (Film Phenomena) - Yucca Valley			
680708-2	Gene May - Edwards Air Force Base, Calif.		×	×
680709-1	Mitchell & Leslie Geriminsky - Hawthorne, Calif.	4		×
680718-1	Identification of Rock Sample - So. Calif.			
680729-1	(Ref. 680708-1) Lunar Eclipse - Yucca Valley			
680809-1	Hickox Interview by WPW and JMB in Long Beach		×	×
380909-1	Yucca Valley Lightning Photos of Lightning			
680725-1	(Reference 680718-1) Material Identification Preliminary Report			
681007-1	SUPPLEMENTAL REPORT RE: 680628-1 680701-1	3	X	

REPORT NO. 680718-1

IDENTIFICATION OF ROCK SAMPLE

A one-half section of a "wedge-shaped", rock-like pebble of unknown origin was submitted to the writer on July 6, 1968 for possible identification.

The object was received as being a fractured portion of one of two identical items. These two items had been among several hundreds of other identical items found randomly distributed about various yards in a Southern California neighborhood prior to September 1967. It was thought that objects may possibly have fallen from a low flying aircraft or other type of vehicle. If items are of an unusual composition, further investigation as to source will be initiated.

It seems advisable to identify item with as little destruction as possible and establish the following:

1. Physical Description
   - Color and apparent composition
   - Geometry and physical dimension
   - specific gravity
   - Hardness
2. Chemical Composition
   - Radioactivity
   - Semi quantitative analysis

Additional tests or analysis that may be appropriate dependent upon above findings.

SUBMITTED FOR ANALYSIS 7/18/68

W. P. Wilson
July 18, 1968

REPORT NO. 680725-1
REFERENCE NO. 680718-2

MATERIAL IDENTIFICATION
PRELIMINARY REPORT

MATERIAL: Gray, rock prisms

SAMPLES: One equalateral triangular prism - rock like material, intact.

Two, approximately 1/2 sections of a fractured prism as above.

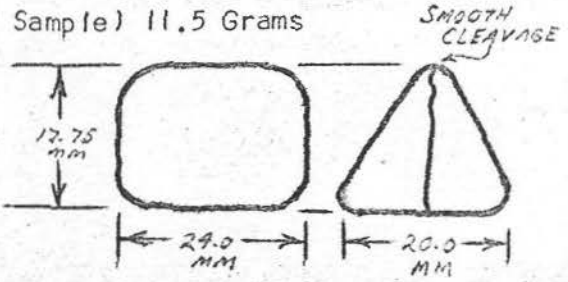
PHYSICAL DESCRIPTION:

COLOR - Gray primarily, homogenous with fine dark speckles.

DIMENSIONS - Approximately 17.75 mm high, 24.0 mm long, 20.0 mm across three faces.

WEIGHT - (Intact Sample) 12.5 Grams (Fractured Sample) 11.5 Grams

SURFACE - Finished, smooth faces and rounded corners. (objects appear to have been cut from raw material and lapped to final smoothness and dimensions)



TECHNICAL CHARACTERISTICS:

SPECIFIC GRAVITY - 2.54 WATER ABSORBTION - (5 Hours submersion 25°C) Not measurable.

HARDNESS - (Moh Scale) Approximately 7

RADIOMETRIC - Not radioactive (Normal background)

RADIATION - (Infrared, ultraviolet, gamma) - No iridescence or phosphorescence observed. Diamagnetic.

GEOLOGICAL - Appears to be a fine grained sandstone containing particles of mica and quartz of natural origin. (Possibly river bottom or glacial deposit).

CHEMICAL COMPOSITION:

X-RAY DIFFRACTION - Mixture of:

A. Cebollite $Ca_5Al_2(OH)_4Si_3O_{12}$

B. Greenalite $Fe_3Si_2O_5(OH)_4$

C. Pargasite $(Na_1K)Ca_2Mg_4Al_3Si_6O_{22}(OH)_2$

A spectrographic, semiquantitative analysis and other testing as required will be completed and reported as a supplement

W. Paul Wilson Jr.

W. P. Wilson, Jr.
11 September 1968

REPORT NO. 680708-2

REPORT OF POSSIBLE UFO CONTACT

RE: GENE MAY - Former Douglas Aircraft Company Test Pilot

INFO SOURCE: George W. VanTassel - Owner & Operator of Giant Rock Airport and Cafe - Yucca Valley, California

During a conversation with Mr. VanTassel Sunday morning 7 July 1968 at the Giant Rock Cafe, he volunteered the following information as having originated from a "reliable source".

Abstract:

During the early development of the X-15 type, supersonic aircraft several years ago, a test pilot from Douglas Aircraft Company asked for and was allowed an unofficial flight in one of the experimental aircraft. The craft and pilot, GENE MAY was dropped from the Mothership with fuel for ten minutes. During drop and initial burn time, Mothership and X-craft were clearly visible to radar operations. Mothership changed course, radar tracked X-craft during flight acceleration and trajectory. Large unknown bogie appeared on radar screen in proximity - X-craft and bogie blips merged, aircraft radio contact interrupted, craft disappeared for approximately three hours. Choppers and search craft were scrambled. No further contact could be made.

Pilot May later explained: Large UFO moved into area, contacted and took aircraft and him inside. May talked with crew members for few minutes, was taken to craft commander. He talked with him and other top officers for approximately 2-1/2 hours, realized that long time had elapsed and asked to be released. Pilot and craft was dropped from proper altitude and with forward velocity to complete a safe landing without base radio contact.

May immediately related occurrence to operations personnel - was discredited and subjected to psychiatric counciling. May reminded all persons present that he had only 10 minutes fuel and was airborne for three hours. He then became very reluctant to discuss the incident further. Pilot's wife, Mrs. May May, was contacted by AFB personnel and told to disregard any unusual comments that her husband might make to her.

NOTE: Preliminary follow-up indicates that a person named Gene May had been employed by Douglas Aircraft as a test pilot and that he died from natural causes about three years ago.

W. P. Wilson, A-833

July 8, 1968

MEMORANDUM

G8-52-ARL-1007
July 12, 1968

To: R. M. Wood, A-830

From: F. F. Hall, G8-52

Subject: PHOTOGRAPHIC APPEARANCE OF THE 12 APRIL 1968 LUNAR ECLIPSE

Our goal on the April lunar eclipse was to obtain time lapse movies of the entire event. This effort was frustrated by clouds which moved into the southeast end of the Elsinore Valley, where we had set up our equipment. Since the northwest end of the valley was clear, we disassembled the movie camera and did manage to get several still shots of the total phase of the eclipse from the Ortega Highway. The enclosed photograph with the muddy background is a fairly accurate color rendition of the last phases of totality taken at 2050 hours, which was 22 minutes before the total eclipse ended. This was a four second exposure on Kodacolor X film, ASA 80, using a 200 mm lens at f/4. The resulting print has been enlarged three times over the negative size. You will notice the star Spica below the moon. The southern border of the moon appears much brighter since this was not a central eclipse, but rather with the moon passing through the southern edge of the earth's umbra.

The second photograph enclosed with the black background was taken at 2125 hours, 13 minutes after totality. It is enclosed to show the forward scattering caused by the thin cirrus overcast, which was not apparent during totality, probably because there was not sufficient light to show the thin clouds. This exposure was two seconds, with the other conditions the same as the other photograph.

I hope these photographs will be helpful in your attempt to evaluate the interesting lunar eclipse photographs which your secretary showed me several days ago, with the unidentified flare-like objects.

On the afternoon of 9 July 1968, while conducting experiments here at Huntington Beach with our pulsed laser, we observed two holes in the sky, similar to the photograph you furnished several months back. There was a partial alto-cumulus overcast which was evidently penetrated by two A4D aircraft which we observed taking off from Los Alamitos Naval Air Station some ten minutes before we noticed the holes. Instead of a round single hole, a figure eight appearance was generated with the snow trails falling away and being sheared from the hole location by variations in wind height aloft. I took several pictures of this phenomenon with the Nikon camera, 50 mm lens, and Ectachrome film. When the slides are back I will be happy to show them to you. That the water droplet alto-cumulus clouds were converted to ice crystals was evidenced in the 46° halo which could be seen in the fibrus streaks coming from the hole. Evidently, the hole in the sky is not such a rare phenomenon after all.

Freeman

Freeman F. Hall
Research Scientist

F^2H/jbg

34 degrees 7 min. north

116 " 27 min. west

8025 JEMEZ YUCCA VALLEY

6 July 68
CONVENTION
SEPT 28-29

THE ECLIPSE SLIDE

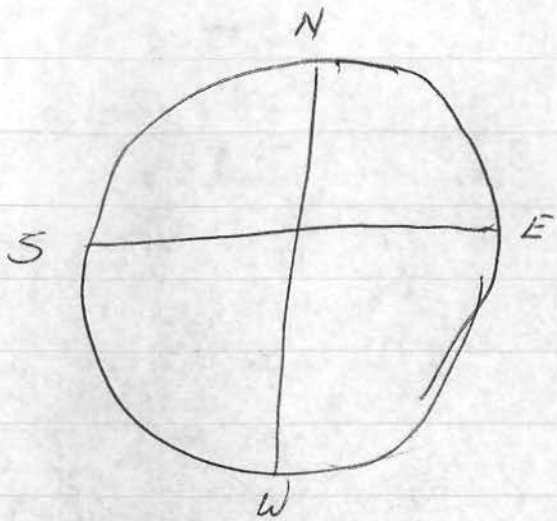
LAST MOON ECLIPSE — DURING 1ST PHASE

CAMERA 35 MM KODAK - AUTO.

LOCATION - YUCCA S. SIDE OF VALLEY

ECLIPSE VISABLE - (LOWER L. QUADRANT 3RD SLIDE) WHISPEY CLOUDS (UPPER RIGHT QUADRANT)

Explain many facets of the endmeter



N. MAG. AZMUTHS

ISOGONIC CHART

SECULAR VARIATION

ANNUAL VARIATION

SOLAR-DIURNAL VARIATION 1 PM

EAST DECLINATION = 15°

MAGNETIC DIP

BEARINGS WITH RESPECT TO A MERIDIAN

AZIMUTH ~~OF A LINE~~ DIRECTION OF A LINE AS GIVEN BY THE ANGLE BETWEEN MERIDIAN & LINE

28 July 1968

N 70 FT. OF S. ½ of NW ¼ of SE ¼ of the SW ¼ of the SW ¼ of section 3 - Township 1, Rng 5 E. San Bernd. Base & Meridian - official Gov. Plat Map

MAG NO. 110° E 45° EL

CAMERA - EASTMAN KODAK - MODEL 35R4 AUTOMATIC

SETTING: INFINITY

FILM: Sears & Roebuck, 35 mm Color Slide Film 64 ASA

12 APRIL 68 ① -22 MIN TOTAL ECLIPSE : 2050 HRS
② +13 MIN " " 2125 HRS

. ELSINORE VALLEY - ORTEGA HIGHWAY
TOTAL OCCURED 2112 AFTER F. F. HALL, 68-52

MOON ECLIPSE FRI. 12 APRIL 1968 TOTAL 2112 HRS PST
KODACOLOR X ASA 80 - 200MM LENS AT f/2

8 July 1968

REPORT NO 680708-1

PRELIMINARY INFORMATION

ORIGINAL MOON ECLIPSE PHOTO - SLIDE

Location:	Yucca Valley, California (Lat. & Long. to be Determined)
Date and Time:	To be determined (photo taken during 1st phase of moon eclipse this year)
TAKEN BY:	Observer Mr. George Nelson, Yucca Valley, California P. O. Box 202, Zip Code 92284
Witnessed By:	Mrs. Nelson and neighbors
Camera:	Eastman Kodak - 35mm Automatic Model, Camera Settings and Attitude at time of photo to be determined.

Comments:

This original slide first observed by this reporter Friday June 21, 1968 at an informal meeting of UFO enthusiasts in Yucca Valley area. At request of above observer, was brought to this area to be copied and to obtain enlargements for further study. Original MUST BE RETURNED to owner Mr. George Nelson.

Details:

Observer, family and friends were in yard at residence in Yucca Valley viewing moon eclipse. Observer Nelson decided to try taking a picture of it and pointed camera in direction of moon, he took one exposure on a frame near middle of roll and returned camera to house. He stated that "he wasn't even sure that he got a picture".

Observer and witnesses stated that during the time they were viewing the eclipse and associated parts of the evening sky no other lights were seen. The "whispey" clouds in upper right quadrant of slide near unknown bright lights were clearly visible.

W. P. Wilson

W. P. Wilson

REPORT NO. 680729-1
REFERENCE NO. 680708-1

FOLLOW UP INFORMATION
LUNAR ECLIPSE PHOTO-YUCCA VALLEY, CALIFORNIA

The location from which the above referenced Moon Eclipse photo was taken was visited Sunday, 28 July 1968 at approximately 3:00PM PDST. Observer and witness, Mr. & Mrs. George Nelson supplied the following additional information:

TIME PHOTO TAKEN:

Friday Evening, 12 April 1968 - Approximately 9:00PM.

Weather: Clear except for occasional high altitude "whispey" clouds.

Location: Rear yard of residence - 8025 Jemez St., Yucca Valley, Calif.

Coordinates: Latitude 34°, 7 Min. North, Long. 116°, 27 Min. West

Legal Description: (Taken from property title)

N.70 of S. 1/2 of NW 1/4 of SE 1/4 of the SW 1/4 of the SW 1/4 of Section 3 - Township 1, Range 5 E. San Bernardino Base and Meridian according to Official Government Plat. Map

Attitude of Camera: (Approximate)

Hand held - 5-1/2 Ft. above ground
Azimuth - Magnetic North 110° E., Elevation above horizon 50°

Camera: Eastman Kodak Model 35R4, Automatic (35mm)
f Stop Setting - Automatic, Time - Automatic, Distance - Infinity

Film: Sears & Roebuck - 35mm Color Slide - 64 ASA
Developed by Sears Photo Service

Comments: Above location in foothills of mountainous region - E. side of 29 Palms High - SE area of Yucca Valley community.

- All persons present during the observation and taking of photo reiterated that no matches were lighted and that except for the moon and stars no fires, lights or combustion of any kind was in the field of view.
- Several daylight photos were taken at location and approximate attitude to establish range and field of view.
- Independent information fixes the time of eclipse totality (in the Elsinore Valley area) as 2112 Hrs. PST - Friday 12 Apr 1968.

W. P. Wilson
7-29-68

YUCCA VALLEY LIGHTNING PHOTOS

TAKEN: Saturday Evening 10 August 1968, 9:00PM PDST

BY: W. Paul Wilson, Jr.

LOCATION: Yucca Valley, California. Latitude 34° 7 Minutes N., Longitude 116° 27 Minutes W.

MERIDIAN: E. 1/2 Lot 3 of N. 1/2 NE 1/4 SE 1/4 SW 1/4 Section 12 Township 1 Range 5 E., San Bernardino Base and Meridian.

OBJECTIVE: Approximately 11 Miles Distant.

CAMERA: Eastman (Reflex) Kodak "Pony" 828.

ATTITUDE: Azimuth Magnetic N. 55° E, Elevation 10° - 15°.

Mounted Tripod, Approximately 5 feet above ground.

SETTING: f4.5, Time 1/200, Range 50 feet - manual trip.

FILM: Eastman, Super X Color No. 828, ASA 80.

COMMENTS:

1. Photos are exposures No. 7 and 8 of 8-frame roll. Four exposures were taken from a position facing N/E on N/E corner of above described 5-Acre lot.

2. Lighter picture (Frame 8) was taken concurrently with a very extensive overhead lightning flash that illuminated entire valley floor.

3. Weather was totally overcast; heavy clouds with long periods of electrical displays followed by heavy rains and continued lightning.

4. Objective was in area of numerous strikes that appeared to be beyond and behind first range of foothills lying in general direction of nearby Marine Corp Training Base.

5. Photos were taken at private residence of Mr. & Mrs. Councilman, Yucca Valley.

6. Additional data as to reference points on picture will be reported.

W. Paul Wilson Jr.
9/9/68

Report No. 681007-1

Reference Report No. 680701-1

No. 680628-1

SUPPLEMENTAL REPORT
COMMUNICATION PHENOMENA

Friday evening 4 October 1968 Miss Meriam Ovaskainen (reportee and observer of communication phenomena in above reference report) contacted this reporter at his residence in Hawthorne and advised that she had additional notes re the original communications.

The radio involved in the phenomena was returned to observer after having been played continuously for many weeks on all channels (AM and FM). No operational abnormalties were observed at any time.

The additional information as copies from her hand written note is as follows:

"The following is the dialogue I both heard and participated in. It seemed to be transmitted over an FM radio station.

"You are interested in people, aren't you. The individual has limitless capabilities, resources he can use...."

The contact was as if the voice were only a means of communication, not the real individual speaking - but his thoughts interpreted into tangy metallic sounding syllables and coherent phrases by the means of electronics. That is the impression I got. His voice was hard to discern from some static and crackling on the radio. For all I know, it may have been transmitted from near-by. Perhaps, as was suggested, it wasn't the radio at all. The two hours of beeping beforehand from the radio, made me think it was the radio; and also I could hear it better with my ear close to the radio.

The voice said he was far off. Yet he was addressing me personally as though I might be intelligent enough to understand his communication.

So far the whole thing was question, answer. When I asked what are you working on, for it seemed that it was a project of a kind, the voice replied 'something like a chemical power cell'. I didn't understand and don't remember the precise terms of chemistry. All that was said was said in such a way as though it were understood that it was easily comprehended. I tried in vain to understand the explanation and apparently he, whoever it was, couldn't explain it in any more simple terms. If this was someone from another planet he expected the listener to be quite advanced scientifically.

That's about all I can remember of the incident."

W. P. Wilson

W. P. Wilson, A-833
7 October 1968

on a June evening, 1966
Amsterdam

The following is the dialogue I both heard and participated in. It seemed to be transmitted over an FM radio station.

"You are interested in people, aren't you. The individual has limitless capabilities, resources he can use . . . "

The contact was as if the voice were only a means of communication, not the real individual speaking - but his thoughts interpreted into tinny metallic sounding syllables and coherent phrases by the means of electronics. That is the impression I got. His voice was hard to discern from some static and crackling on the radio. For all I know, it may have been transmitted from nearby. Perhaps, as was suggested, it wasn't the radio at all. The two hours of beeping beforehand from the radio, made me think it was the radio; and also I could hear it better with my ear close to the radio.

The voice said he was far off. Yet he was addressing me personally as though I might be intelligent enough to understand this communication.

So far the whole thing was question-answer. When I asked what are you working on, for it seemed that it was a project of a kind, the voice replied 'something like a chemical power cell.' I didn't understand and don't remember the precise terms of chemistry. All that was said was said in such a way as though

it were understood that it was easily comprehended. I tried in vain to understand the explanation and apparently he, whoever it was, couldn't explain it in any more simple terms. If this was someone from another planet, he expected the listeners to be quite advanced scientifically.

That's about all I can remember of the incident.

1 July 1968

REPORT NO. 680701-1

REPORT OF
COMMUNICATION PHENOMENA

DATE OF OCCURRENCE: 25 June 1966 TIME: Approximately 8:00PM

PLACE: Holland, Amsterdam

DATE & PLACE OF INTERVIEW: 1) Telecon 6-28-68, 8:15AM Lawndale, California
2) Interview 6-28-68, 10:15AM Lawndale, California

INTERVIEWED BY: W. P. Wilson

CLASS OF PHENOMENA: Possibly ESP, Observer to Source - Conventional Radio, Source to Observer

NATURE OF COMMUNICATION: Continuous beeping for approximately two hours followed by mechanical sounding English language for approximately 15 minutes. Messages from source weak and difficult to read - could be peaked with radio dial adjustment.

OBSERVER: Miss Miriam Ovaskainen, Female Caucasian, AGE: (Now 22) OCCUPATION: Student and part time employee, Research Library, UCLA.

ADDRESS: 14823 Mansel Avenue, Lawndale, California, Phone: 676-6735
(May be contacted evenings or weekends)

WITNESSES: (Can verify strange beeping - were not present during spoken message.)

1. Karen Nichols, (Aka) Karen Kovac, 175A S. Holly Avenue, Compton, California, Phone: 631-5348, (Alternate Address 162 High Dr., Laguna Beach, California
2. Miss Anna Lisa Holli, Kettujie 4a 56, Helsinki 80, Finland

SENSOR: 1. Portable Transistor Radio, Made in Japan - "York" Model TR-107, AM-FM-AFC, Ten Transistor - Slide Rule Dial, Freq. 540-1600KC AM 88-108MC FM

Physical Size: 7-1/2" Wide, 3-1/2" High, 3-1/2" Deep

Imported by New York Transistor Corp., 150 Fifth Avenue, New York, New York 10011.

2. Radio was physically examined and operated for approximately 48 hours by Interviewer and was found to be in:
   A) good operating condition,
   B) adequate sensitivity and frequency coverage on the AM and FM bands,
   C) and at the time of this writing did not appear to have any abnormal operating characteristics.

DETAILS OF OCCURRENCE:

Observer and two female companions (above witnesses) on vacation in Europe - motoring in Amsterdam during afternoon and early evening on date of occurrence - all subjects were listening to transistor radio in vehicle. - Beeping noise suddenly broke in and blocked out all radio programs. - Interference continued for approximately two hours regardless of vehicle location and appeared across most of the AM radio channels. Observer arrived at residence alone and carried radio onto street where interference ceased and normal programs were received - returned to vehicle, phenomena reoccurred. Observer placed her ear against radio in effort to hear or find a program through interference. Heard mechanical sounding, possibly male, voice addressing her in English language, beeping stopped. Surprised subject formulated questions in her mind and was answered by voice through radio. Voice sounded as though it was "coming from a long distance", was weak and difficult to copy at times and could be peaked up by tuning around 1 Mhz on dial - no other programs could be found during contact. Questions, answers and general conversation continued for approximately 15 minutes - terminated suddenly - normal program material resumed. Subject thought she heard the BBC being announced before turning the radio off.

TEXT OF MESSAGE:

Subject appeared reluctant to discuss total contents of communication at this time. Partial statements from source were: "Where are you?" --- "You have a great understanding of people" --- "The universe is sloping, is bent over" --- She further understood a portion of the message to mean: "There is no Hell" --- "Hell is here on this plane".

ATTITUDE OF OBSERVER:

Subject was asked if discussing the incident caused any discomfort or feelings of apprehension, she replied: "None at all, in fact I'm very happy to see that someone is really investigating this sort of thing. I want to help in any way possible".

She voluntarily offered the radio for examination and indicated that she would be quite willing to undergo additional interrogation under controlled conditions.

She was willing to talk freely about the incident but appeared to be reluctant to relate details of the message at this time.

In conclusion, subject appeared to be well educated, rational and was articulate. It further appeared, that she either in fact became involved with some type of phenomenon or sincerely believes that she did.

W.P. Wilson

W.P. Wilson, A-833

WPW:msb

TELECON
6-28-68
5

UFO COMM. CONTACTEE VIA RADIO

REFER MRS. ANN DRUFFEL - WORKING WITH DR. JOSEPH BROWN

MISS MIRIAM OVASKAINEN 20 - STUDENT

14823 MANSEL AVE - LAWNDALE, CALIF. 90260

PHONE 676-6735 — VERY SIGNIFICANT TO CERTAIN RESEARCH NOW ENGAGED IN

CALLED 3 00 PM ADVISED WILL BE HOME 5 00 PM (FROM MDC)

CALLED 6 00 PM FROM RESIDENCE IN HAWTHORNE ADVISE WILL BE IN LATER

DATE JUNE 25 1966 (DIARY) TIME 1 AM PM PLACE AMSTERDAM DURATION OF CONTACT 15 MIN. 15 M LANGUAGE ENGLISH VISIT

1) TYPE OF RADIO STATION FREQUENCY — POSSIBLE AM 100 KC AM FM

2) DID SIGNAL REACH AT OTHER POINTS ON DIAL? BEEPING OLD

3) DID " RECCUR AT OTHER TIMES? NO

4) WAS THERE ANY OTHER UNUSUAL NOISES OR OTHER TYPES OF SIGNALS NO

5) WHAT PROGRAM STATIO WAS USUALY ON THAT PART OF DIAL? ONK.

6) DID IT OVERIDE REGULAR PROGRAM? YES

7) HOW DID YOU HAPPEN TO BE TUNED TO THAT STATION? TRYING TO FIND A RADIO PROGRAM MUSIC

8) TEXT OF MESSAGE —

9) MISS ANNA-LEISA- HOOLLI HOLLI

— METTUTIE 4A 3C HELSINKI 80 FINLAND COUNTRY

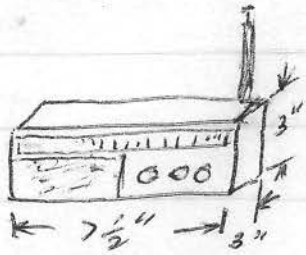
COUSIN MR JOUKO TANSKANEN — MAISALLA - FINLAND

10) REAR HOUSE 149

RADIO YORK MODEL TR-107 TEN TRANSISTOR AM FM BFO SLIDE RULE DIAL

FREQ - 540 - 1600 KC SERIAL 5080099

88 - 108 MC



NEW YORK TRANSISTOR CORP.

150 FIFTH AVE., NEW YORK, N.Y. 10011

MADE IN JAPAN

29, JUNE 68

RESEARCH LIB. STUDENT/EMPLOYEE 2½3 WEEK July

1. Signal could be Tuned broadly
2. KAREN NICOLS · (AKA) KOUSE
   175 A S. HOLLY COMPTON PH 6315348
   POSS: 162 HIGH DR. LAGUNA BEACH.
3. WILHELMINA GUSTHAUSE - PAVILION 3
   DR. TROELLSTAN DR. CHASE

4. where are you — long distant

MITCHELL & LESLIE GERIMINSKY

PERSONAL INTERVIEW 10 JULY 1968

The following material is an interview related to an observation of a possible aerial phenomenon. Today's date is 10 July 1968, the time is approximately 9:30 PM. The interview is being conducted by W. Paul Wilson, Jr., at his residence, 5336 West 126th Street, Hawthorne, California. The purpose of this interview is to collect information for scientific investigation and research of various types of aerial phenomenon. This will be an interview of the observer Mitchel Geriminsky.

Q: Now Mitchel I asked your Mother if it was alright for me to interview you with regards to this and she said "yes", it was. Did you get permission from your mother to discuss this with me?

A: Yes I did.

Q: What is your name?

A: My name is Mitchel Geriminsky.

Q: Will you spell that please?

A: M I T C H E L L G E R I M I N S K Y.

Q: And what is your address?

A: 5337 W. 126th Street.

Q: It is my understanding that last night you observed something unusual in the sky near the moon, is that correct?

A: Correct.

Q: What was the date?

A: July 9, yes.

Q: Approximately what time?

A: About 10:00 P.M.

Q: How did you happen to observe it?

A: Well, I went outside to relax and all of a sudden I saw this thing coming through the sky. It stopped around the moon and then went like in a circle.

Q: At this point I might say Mitch, that I will ask you certain specific questions. You think about your answers, speak slowly, distinctly and clearly. In those cases where you can answer yes or no you go ahead and answer yes or no and in this way we can get through the interview in a reasonable amount of time and then following this I will have you tell the story in your own words and I might ask a couple of other questions. Where were you standing when you observed this unusual occurrence?

A: I was standing on the porch of the house.

Q: The porch - facing what direction? You indicate by your finger that you were facing the South-East, easterly direction. What did you see?

A: I saw like a shooting star that was coming over, real fast, stopped near the moon and it went like in circles and let off streams of smoke.

Q: I see. Alright now what was the size of this object? By approximately, Can you relate it to the size of the moon?

A: Well, it was about - like here is the moon and it was about like that.

Q: Almost as big as the moon, is that what you are indicating?

A: Yes, almost.

Q: What was the shape of it?

A: Oval.

Q: Oval shaped. What was the color of it?

A: I couldn't see anything but like a white, a real shiny white.

Q: Like a shiny white. What part of the sky was it in? In relationship to the moon at that time?

A:

A: Like what do you mean?

Q: Well was it to the left of the moon, or to the right of the moon, under it?

A: It was to the left.

Q: I see. How far to the left when you first observed it?

A: It was about 10 miles.

Q: With rough approximation it appeared to be about 10 miles away What direction was it traveling?

A: Traveling to the right.

Q: Unhuh, that would be more towards the south then. It was traveling sort of from the Easterly on the right hand side of the moon or to the East and was traveling towards the moon. Is that correct?

A: Correct.

Q: Alrighty. How long did you observe it approximately?

A: About 20 minutes.

Q: Was it similar to anything that you have ever observed before?

A: No.

Q: Did it shine brightly?

A: Yes.

Q: Did it give off any strange lights or different colors?

A: No.

Q: Did you hear any noise from it?

A: No.

Q: Did it maneuver in any way or move about in any way?

A: Yes.

Q: How did it move about?

A: Like in a circle around and let off streams of smoke afterwards.

Q: Uhhuh. Where was it when you last saw it?

A: It was on the side of the moon.

Q: On the side, well which side?

A: The left side.

Q: In other words it never did go completely under the moon or past it?

A: No.

Q: I see, was it to the left side, was it very close to the moon on the left side?

A: About 5 miles.

Q: I see. Was it above or below the moon?

A: It was in the middle.

Q: Kind of like in the middle, when you last saw it. OK. What did it do when you last saw it?

A: When I last saw it?

Q: Uh huh.

A: It took out away from me and then it disappeared.

Q: I see. OK, would you tell us in your own words now just from the time you stepped out on the front porch what you saw.

A: Well, I stepped out on the front porch to relax and all of a sudden I saw something flying through the sky like a shooting star and it stopped, it went around like in circles, heaping streams of smoke out from it and then it went a little closer and then afterwards it stayed out a little bit, then it came back, and you know stayed there, sat there and then it went away and just disappeared.

Q: Well, then as I understand it after you had stepped out on the porch you glanced up towards you might say the southeastern portion of the sky towards the moon. There was a very bright moon last night. And you observed this object in the sky east of the moon. You said it was possibly 10 miles, you judged it to be 10 miles.

A: About 10 miles.

Q: And it was half to three-quarters the size of the moon. It was oval in shape, a very bright color, would you describe the color as silvery.

A: A white silver like. Real shiny.

Q: Did it appear to be like light might have been reflecting from it or did it appear to be giving off its own light like the, like it appears to be coming from the moon?

A: It was giving off its own light.

Q: Could you see any other details about it?

A: No.

Q: Would you make a guess as to what it was?

A: Well, a flying saucer, a UFO.

Q: You have lived in the area here where there have been many large aircraft in the air various times of the day and night, you have observed them? Is that correct?

A: Yes.

Q: Did this appear in any way or look like anyone of the aircraft you have ever seen?

A: No.

Q: Or does it look like anything you have ever seen before in your life?

A: No.

Q: Do you have anything that you could think of now that we haven't asked and answered here by way of opinions or observations. What we are concerned with is just what you saw. Well, I will ask you - you say that your brother and your father observed this?

A: Yes.

Q: At what point did they observe it?

A: On the porch.

Q: On the porch. Did you call your brother and your father out to observe this?

A: Yes. I called my brother and he called my Dad.

Q: What is your brother's name.

A: Leslie.

Q: How does he spell his name?

A: L E S L I E

Q: Leslie? Now what is your father's name?

A: Alfred.

Q: A L F R E D?

A: Yes.

Q: How do you spell your last name?

A: G E R I M I N S K Y

Q: This is a very interesting report Mitch. I certainly appreciate your taking the time to give it to me and if at any time in the future you ever observe anything that is at all unusual I would also appreciate your letting me know about it. Now I wonder if your brother would care to come over and give us a little story on what happened as to what he saw. Thank you very much Mitch.

This portion of the interview is the interrogation of Mitchell's brother Leslie who is witness #1 to this observation.

Q: What is your name son?

A: Leslie.

Q: Leslie what?

A: Leslie Geriminsky.

Q: Would you spell that please?

A. G E R I M I N S K Y

Q. Spell your first name please.

A. LE S L I E.

Q: Spell your first name please?

A: [illegible]

Q: And how old are you?

A: 12-1/2.

Q: 12-1/2. I discussed the possibility of your talking with me with your Mother and she said that it was OK. Did you get permission from your parents to come over here and talk about this?

A: Uh huh.

Q: Very good. It is my understanding that last night later on in the later part of the evening you observed something unusual in the sky. Is that correct?

A: Uh huh.

Q: What did you observe?

A: Well,

Q? In your own words.

A: It was like you know like two platters put together like a flying saucer.

Q: I see. Have you ever seen a flying saucer?

A: No.

Q: Have you heard descriptions of a flying saucer?

A: Yes.

Q? And it looked a little bit like the description that you had heard?

A: Yes.

Q: What was the size of this object? Approximately, in relation to the size of the moon? Was it as big as the moon, or half as big, or bigger than the moon?

A: It wasn't as big as the moon.

Q: But was it almost as big as the moon?

A: I can't remember -

Q: Was it about the size of a large automobile headlight, did it look like?

A: Hmmmm.

Q: What was the color of it?

A: White.

Q: White. What part of the sky did you first see it in?

A: Left.

Q: The left side of the sky. Would that be toward the East from the moon? The direction you are pointing and you are pointing East, and it was towards the East side away from the moon and the moon at that time was approximately southeast in direction. Where were you standing when you observed it?

A: On the porch.

Q: And you were looking towards the East?

A: East.

Q: Did this object look like anything you have ever seen before in your life?

A: Uh uh. (no)

Q: You've lived in the area here where there is large aircraft in the air almost all the time day and night and you have seen them have you?

A: Yes.

Q: Did this look at all like any conventional or any aircraft that you have ever seen before?

A: Uh uh. (no)

Q: Have you seen the aircraft with the landing lights on when they're approaching for a landing? Did it look at all like that?

A: No.

Q: Did you hear any strange noise associated with this?

A: No.

Q: How long did you observe this?

A: I don't know about 15 minutes.

Q: I see. About what time of night was it? Do you recall?

A: No.

Q: Did you have any idea how fast it was traveling?

A: Uh uh. (no)

Q: Did you observe it until it disappeared?

A: Yes.

Q: Where was it when it disappeared?

A: It was disappearing in the face. It was going backwards.

Q: Going backwards?

A: Uh huh. (yes)

Q: Did it approach the moon while it was traveling or go towards the moon, or away from the moon?

A: It was shooting off like streams.

Q: Well, while it was traveling did it move towards the moon or away from the moon or above it or below it? Or did it make circles around it or what happened?

A: It was a little bit towards it.

Q: A little bit towards it?

A: Then it went away.

Q: Then away. Now it went towards the moon and then away from the moon?

A: Uh huh. (yes)

Q: Now tell me about this giving off something, you said it gave off something?

A: Smoke or something. Like smoke.

Q: I see, like smoke. Did it look as though it might have been some large sky rocket or something that somebody shot up there a little late for the Fourth of July?

A: uh uh. (no)

Q: It didn't look at all like any type of sky rockets or aerial bombs that you've seen shot off on the Fourth of July?

A: No.

Q: Did you have any idea how fast it was traveling?

A: Uh uh. (no)

Q: Did you observe it until it disappeared?

A: Yes.

Q: Where was it when it disappeared?

A: It was disappearing in the face. It was going backwards.

Q: Going backwards?

A: Uh huh. (yes)

Q: Did it approach the moon while it was traveling or go towards the moon, or away from the moon?

A: It was shooting off like streams.

Q: Well, while it was traveling did it move towards the moon or away from the moon or above it or below it? Or did it make circles around it or what happened?

A: It was a little bit towards it.

Q: A little bit towards it?

A: Then it went away.

Q: Then away. Now it went towards the moon and then away from the moon?

A: Uh huh. (yes)

Q: Now tell me about this giving off something, you said it gave off something?

A: Smoke or something. Like smoke.

Q: I see, like smoke. Did it look as though it might have been some large sky rocket or something that somebody shot up there a little late for the Fourth of July?

A: uh uh. (no)

Q: It didn't look at all like any type of sky rockets or aerial bombs that you've seen shot off on the Fourth of July?

Q. Speaking of these streams that it let off, they went out from both sides of it?

A. No just one side, towards the moon.

Q. I see. Well Les we certainly want to thank you for answering these questions and if any time in the future you should ever observe anything unusual like this I would certainly appreciate it if you would let me know about it. Now I would like to ask or continue the interview with you and your brother and ask your brother some questions. Up to now the interview has been conducted individually and independently and with the two of you together we can bring some more light to this observation.

Now Mitch could you give us any additional details on your observations of this, these streamers that came out from this object?

A. Well, these streams that came out, to me they looked like they just, like they went you know, just went out and disappeared.

Q. Uh huh. Could you give us kind of a word picture of it? The tape recorder can't record the motions of your hands. Give us a word picture.

A. It blew out.

Q. Would it be something like a jet trail from a supersonic aircraft?

A. No.

Q. Was it a kind of a gas, gaseous looking material?

A. Yea. Like real big, real big and huge, gas, gassy. Film like, film.

Q. Did it shoot out in streams from this object?

A. Yes.

Q. Like it may have been coming from a nozzle or from a point source?

A. Yes.

Q. I see. Then when this material shot out did it shoot out on both sides?

A. No, just one side.

Q. That was towards the moon?

A. Yes.

Q. How far out from the side of the craft or the object did it shoot?

A. About maybe 20 feet.

Q. That is in relationship to the apparent size of the object, it was several times further then the diameter or the size of the object?

A. Yes.

Q. Did this material that was shot out from this object, did it remain compact in a stream or did it gradually spread out like a fog?

A. Spread out like a fog.

Q. I see. Was that after it had gone away from the craft quite a ways?

A. Yes.

Q. Now, can you give us a little more detail on the maneuvers or how this thing moved?

A. It went around, like circles, it went side to side.

Q. Alright now were the circles this thing went around in, were they larger, were the circles larger then the object itself?

A. No.

Q. You mean very tight, say like small circles?

A. Well, like it went further out and then it came in like.

Q. You mean kind of like a little small orbit?

A. Yes.

Q. How long did it do this maneuver?

A. About maybe 5 minutes.

Q. Then what other type of maneuvering did it do?

A. A little bit from side to side, just a little tiny bit.

Q. It moved slightly from side to side? Did it ever go straight up or straight down?

A. No.

Q. How far from when you first observed it till you last saw it do you figure that it traveled? How many times its diameter?

A. I don't know.

Q. Did it travel a long way or a short distance?

A. From where it was?

Q. From where you first saw it till the time you last saw it.

A. S short distance.

Q. It would be a few times its own diameter then?

A. Yes.

Q. How about you Les can you think of anything else about this object that you observed in the sky?

A. No.

Well boys I want to thank you very much. Your Mother and Father would like for you to go home and if there are any further questions on this that comes up, we will ask you about them a little later. Now you say your Father saw this for the last few minutes of the observation?

A. Well he seen it for a little while but then he waited and said "Aw, it might not be anything, but he figured out there was something up there.

OK, well thank you very much.

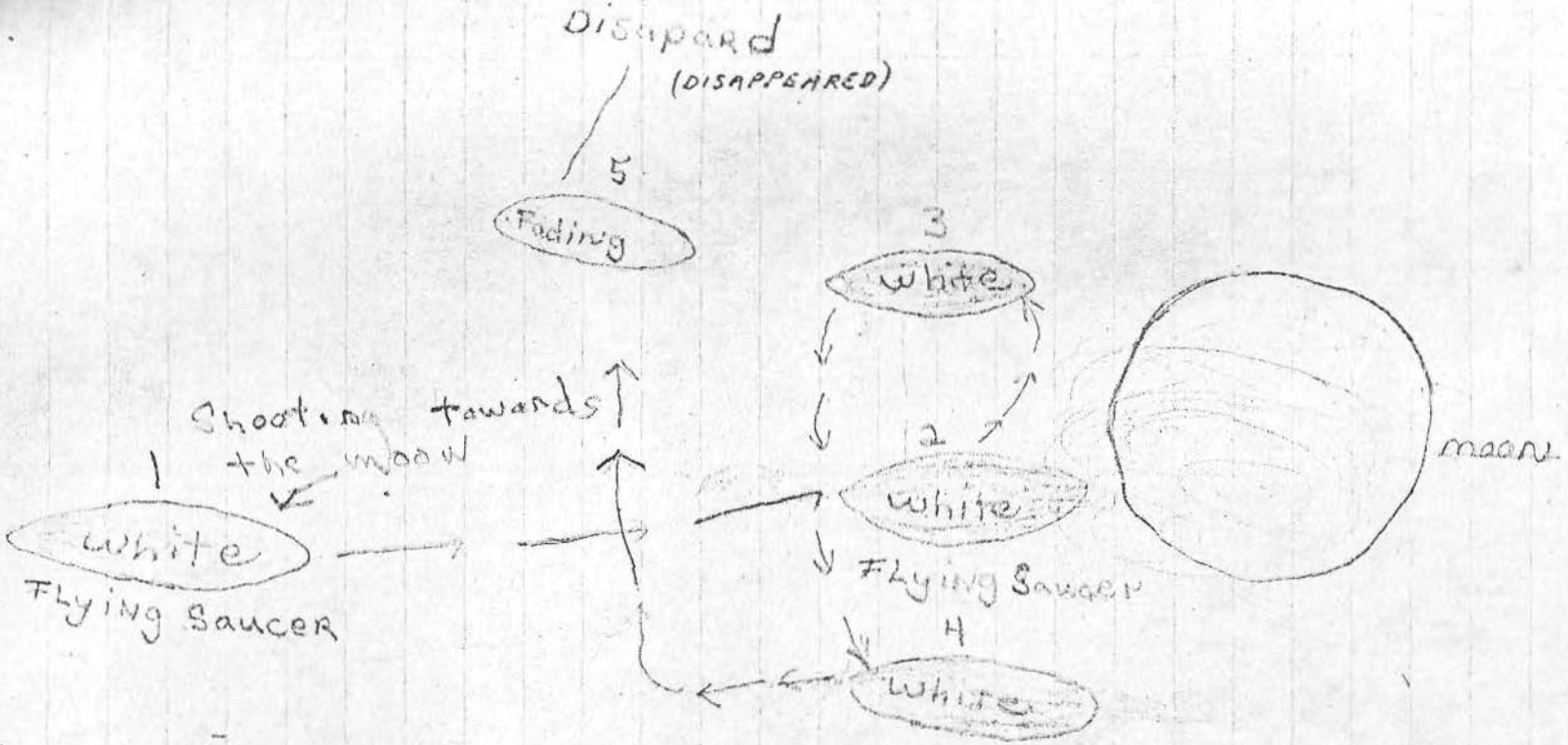
END OF INTERVIEW

Additional Note:

Immediately following the interview Mitchell Geriminisky and his brother Leslie both agreed to attempt to make sketches of their observation and make these drawings available to this interviewer. (Sketch attached to this report).

It is the opinion of this interviewer that both boys were sincere and did observe some unusual happenings or aerial phenomenon on this occasion.

RECEIVED 7-1



Hawthorne UFO Sighting
Tuesday, 9 July 1968
Sketch of UFO Sighting Made
and Submitted by Mitchell Geriminsky
Concurred with by Witness Leslie
Geriminsky =

This happend at about 9.30 P.M.

Reference Report No. 680709-1
Tape No. 4

JOSEPH DIKOFF INTERVIEW (TELECON)

18 JUNE 1968

Interview by

W. Paul Wilson

This is a recording of a conversation made Tuesday Afternoon, June 18, 1968 from Hawthorne, California to Van Nuys, California. The conversation is between myself, Paul Wilson and Joseph Dickoff, President of W&D Electronics in Van Nuys, California. The information is related to a recent sighting of an Unidentified Flying Object by Mr. Dickoff.

Q. Identify yourself will you Joe?

A. Well, this is Joseph Dickoff, W&D Electronics Corporation. Saturday, let's see the date Saturday was the 15th day of June 1968.

Q. 15th day of June 1968?

A. That's Saturday at Lake Havasau a mile this side of Parker Dam. I was in a cove. About 11:15 -

Q. On your boat?

A. No we were in a cove. About 11:15 I was lying on my cot and I was looking up at the stars. The most beautiful evening and the water was still and I was naturally - the seven years that I have been there I have always been looking up into the sky to see if I could see any objects that are not average objects, you know like the stars and the moon, but anyhow I was looking up into the sky looking for a satellite, which to my estimation travel about 15,000 miles an hours, and naturally a satellite goes overhead to the circumference of the earth, correct?

Q. Yes, you're right!

A. Now, about 11:15 I noticed this lighted object going from my left to the extreme point of my forehead directly straight up and on beyond and through the stars till it disappeared. It approximated three times the speed of a satellite.

Q. OK and what approximate direction of magnetic?

A. Well, it was going straight up direct overhead.

Q. Going straight up direct overhead?

A. Yes. It kept on going from my extreme left all the way up through, straight up through, straight up, going in beyond the stars and it disappeared.

Q. Well, it did go from the East to West?

A. No, no, oh no! To the left of the diameter of the earth, the circumference of the earth directly to the point of the earth, straight up.

Q. Now did it come into view suddenly?

A. Yes. Suddenly it came into view, suddenly. It attracted my attention to my left and I watched it until it went straight up directly overhead of the earth and straight up and beyond the stars and it disappeared.

Q. Alright can you give us any description of the color?

A. The color was kind of a slight orange, very pale orange and white. Now about a half hour later in that same area, in the darkened portion of the universe, around the stars, the stars were around this darkened area, there were approximately five orange flashes in staggered positions.

Q. I'll be darned! Can you give us any coordinates in so far as constellations are concerned, like the North Star or the Dipper or anything?

A. No, no. Well, wait a minute. It was up above the "Old Grandmother in the Chair" or something. I'm not an astrologist.

Q. Some of the common things that most of us know about are the North Star, the Big Dipper, the Little Dipper.

A. In the area of the Dipper.

Q. I see, the Big Dipper?

A. Yea. So anyhow in this darkened area, which was surrounded with the stars, there were these five orange flashes that I would say were five times larger then the brightest star.

Q. I'll be darned!

A. Orange and flashy in color. And it went off and on like a light bulb.

Q. Five of them?

A. Yes. In various positions within that area of the universe.

Q. Can you give us a feeling for size of the objects?

A. Well I determined my size by stating that it's five times larger than the largest star.

Q. Five times larger than the largest star! Alright, now were they symmetrical in formation?

A. Well, it seemed like it was in a, well it started out to give me a circular pattern but then the last two broke away from the circular pattern.

Q. How long did this display occur?

A. Oh, the flashes?

Q. Yes.

A. Oh, I would say about three minutes, within five minutes.

Q. Did they go out simultaneously or one at a time or -?

A. One at a time.

Q. One at a time! Hmm.

A. It was the most fantastic thing I've seen up there. It simulated, you know when you shoot a skyrocket.

Q. And then they burst?

A. Then they burst, this was in the color of orange, as I stated before and it was beyond the stars.

Q. Well, these two sightings that I saw when I was out in the desert, I don't know whether I told you about that or not, these were orange, kinda orange and then sorta yellowish whitish yellow on the outside. Is that something the way these were?

A. Something like that.

Q. Right. The things that I saw looked like large neon lights. About the color of a neon light, then it went on out to a whitish yellow.

A. In fact I was teasing my girlfriend that I sighted these saucers up there, unidentified objects -

Q. Did you call anybody elses attention to it?

A. Yes. In fact, she was the one, I called it to her attention and then she was the one that saw the flashes and I saw them and she didn't want to say anything because she thought maybe she was seeing things and then I brought it up and the she brought it up.

Q. I see. So the saucers were verified?

A. Yes. So I called it to Chuck's attention to see this speedy object going up through -

Q. Did Chuck see it?

A. Chuck missed it. He missed it.

Q. Yea, they're fast.

A. Yea, very fast. I would say three times the speed of a satellite.

Q. Well that is very interesting. Well now you belong Joe.

A. Well, I've actually seen an object that flies just above the mountains there horizontally towards Site 6 from the dam and then shoot up through the clouds, and then straight up and disappear with an orange flame behind it.

Q. When was this?

A. This was last year.

Q. The sighting last year however, there was a loud noise associated?

A. There was a noise yes.

Q. How would you describe that noise?

A. The noise seemed to be riding with the flame and the flame was almost directly behind the object.

Q. And you didn't have that delay, time delay?

A. Oh, no, no, no. While you were looking at the object you could hear the sound. A jet does not do this. A jet, you can see the jet travel and then you can hear the sound after it seems like a pretty good delay there.

Q. It's an interesting phenomena that you don't get that time delay, you know that?

A. Well yea, because it's right there. Well, whenever you see flame it would be directly behind any object. The jets, I've never seean any flame behind any jet.

Q. I don't recall the velocity of the propagation of sound but there is a direct relation of the time lag between the observing and hearing of the sound, depending on the velocity of the source of the noise.

A. Well, any object that is built, the only object I really know has the flame and the sound behind it is the rocket. It was no rocket. A rocket just goes so high but this thing here was just that little light that I saw, but the object that I saw last year had a flame similar to a rocket but the speed was tremendous, but it was going horizontally. That's why I differentiated the rocket from this object. So the rocket shoots straight up from the ground then it starts to go into its curvature. But this object was going horizontally along the lake and above the mountain and then made a left curve towards the sky and went straight up until it disappeared.

Q. It too was traveling at high velocity?

A. Oh, I would say so. I have never seen any of the, I am so familiar with aircraft and rockets and I have never seen anything go like that.

Q. That is something isn't it? I wonder what photograpnic techniques would one use in order to try to catch something at nighttime?

A. Well the only possible technical information I could give you that way would be to have a large opening lens like maybe an 1.1 or 1.2 with a very very fast fast film, which naturally the fastest film would be black and white,of course you would have to be equipped with a camera so you could shoot it.

Q. There isn't any motion picture or sequential photographic equipment then?

A. Oh, sure, most lens on a motion picture camera are in that range. You have to use a high speed emulsified emulsion, high speed film emulsion in the motion picture camera.

Q. I see. Well have you had a chance to look into that camera equipment package that we talked about?

A. No, I haven't.

Q. That might be a good one because I would like to have some camera equipment available with that capability.

A. The chances of getting a photograph of an object like that would be better with a motion picture camera. But you would have to have it loaded as I say, with a high speed emulsion type film.

Q. This is saying then that a person would have to have nighttime load in that thing?

A. Possibly. You would have to be prepared for a situation like that because anyone that carries a motion picture camera normally carries colored film. That is no where near the speed of black and white file at night time. You would have to have one set up, carry it and my suggestion would be if a guy could locate a real cheap housing unit with a real good wide open lens and just keep it loaded with a high speed black and white film and keep it with him in case - now this is twice that I have run into something going up there. It would be nice to have photos of the things.

June 14, 1968

Gentlemen at KLAC,

Tonight I listened and enjoyed your Sky NET program. The guest speakers as well as the callers brought up some very provocative questions. From sightings that have been seen, the conclusion that seemed to be drawn was that intelligent beings from beyond our own solar system operate these U.F.O's.

My concern is not so much the sightings, but possible contact with these intelligent beings. I have heard that radio waves from afar have penetrated down to us, whether they be sent from outerspace and other planets, or from the UFO's themselves. I would like to relate quite an unbelievable experience for what it is worth.

This happened two years ago on Monday night, June 27th, 1966 at about 9:30 p.m. in Amsterdam. I had with me, on my car trip in N. Europe a small "York" Am fm transistor (battery) radio. As we were driving along the Dutch countryside towards Amsterdam (from Zeeland to the north) the radio went on the blink and wouldn't play. There was just a continual beeping sound, kind of like Morris code. While looking for a hotel, I took the radio out of the car and it played perfectly. I brought it back in and it started to beep furiously like a geiger counter. — Strange indeed, but here is the

strangest part. My two friends left me in charge of the car while they went to inquire about a hotel room. Suddenly a tangy, fabricated, metalic voice came on through the air. It was distinguishable. I had to listen closely. The voice sounded like a mechanically synthesized one that we heard demonstrated once in a chemistry class, where sounds are reworked to imitate a human voice.

The voice that I heard was such a voice, speaking in a sort of melodic tangy monotone. It was strange - not like an ordinary radio program - just this voice and it was as if it were addressing itself to me personally - I had this kind of perception. The voice said "You like people, don't you" and some other perfectly human and applicable to the human experience comments. Now that might have been feasible for some amature practical joker. But what I heard next convinced me that this was not a human voice nor a human being. I had the feeling I could communicate with it and did so. While forming questions both in my mind and verbally, amazing as it may seem, the voice replied as if answering the very question. Call it mental telepathy or E.S.P. but the

two seem to go hand in hand in establishing or attempting any understanding or communication. The only thing I clung to the voice was what he then said, as if in reply to my questionings. It was a male-toned voice who said "The universe slopes downward." What individual would ever have such a thought, or what's more express it. The way the voice said it, I could visualize the galaxies of the universe moving in one directed path. It was a strange experience needless to say. But the most striking thing was the rapport between the tangy voice and my sentiments. The contact that was made to me seems to have been made deliberately - the signalling radio inside the car, then the anonymous speaker when the car was empty of people except for myself. It occured to me that it may have been possible for whatever frequency he was on to reach my thought: the frequency of my radio inside the car.

After listening and speaking back (for I was amazed) the sequence came to a end and there was a pause and someone else, a Welsh said that this program would be aired again the following week. It seemed to be a BBC broadcasting station but the commentator said something about Washington. What do you

What other possible explanation could you offer for this experience? Before this I felt a profound agitation, an expectancy for something to happen, similar to what many felt recently here in Southern California. If you find time and have any suggested answers please drop me a line; the address is:

Miss Ovaskainen (Miriam)
14823 Mansel Avenue
Lawndale, Calif. 90260

P.S. If you decide to use any of this material, I would prefer to remain anonymous, but this incident is submitted for interest's sake. I would be interested in hearing whether others have had similar or other types of communication of extra-terrestrial sources. This might make another interesting research project or topic for the Sky Net program.

Thank you.

Sincerely,
Miriam Ovaskainen

COMMUNICATION PHENOMENA

SUBJECT: Claim of Mrs. Betty Stone, Van Nuys housewife, who claims to have held mental and automatic writing contact with "space person", Vesta, from Venus over past five years.

Address: Mrs. Betty Stone (Husband Mr. Jack Stone)
8032 Lesner, Van Nuys
DIckens 3-3505

INTERVIEWER: Mrs. Ann Druffel (on behalf of NICAP)

SOURCE OF FIRST KNOWLEDGE REGARDING CONTACTEE: I first learned of Mrs. S. from Mr. Pete Papiro, an acquaintance. Mr. P. is a fellow member of the Los Angeles Astronomical Society. We met in the Optical Shop of the Society in Griffith Observatory, where we are both working on reflecting telescopes. Mr. P. impressed me as a young man of good sense, intelligent and sincere. He told me first of Mrs. S. quite reluctantly, since he did not wish to appear naive or a "crackpot" because he personally believed her story. He apologized for his belief in her but says it is because he has known her since grammar school days, is a close friend of hers and also of Mr. S's, and always known her to be in all ways a truthful person.

INTERVIEWER'S IMPRESSION OF MRS. S.: Mr. S. was interviewed at her home on Feb. 25, 1960 for about two hours. She is a slender, quick person appearing to be in her early 30's. She seems intelligent, well read, and cultured. Her eyes are frank and her whole manner gives one the im pression of a well-adjusted, honest person. Her home is very nicely furnished, in a middle class neighborhood, and is neat and clean.

Mrs. S'S STATEMENT IN SUMMARY FORM: Mrs. S., for as long as she can remember, has believed that other planets are inhabited. Her parents tell her that when she was as small as three years, she would watch the sky and talk about there being men on other worlds. Her childhood interest carried over into adulthood, and when she first read Adamski's Flying Saucers Have Landed, she felt that this book was truthful. She and Mr. S. (who shares her interest, though somewhat indifferently) have corresponded with and visited him frequently. She also studied and read the books of the other contactees, as well as being familiar with the more objective authors. She frequently visited the book shop of a Mr. Lewis nearby, in order to get the most recent publications in the saucer field, and it was there that she met Mrs. Penny Frank, 5929 Jamelson, Encino. Mrs. F. shared Mrs. S's vital interest in UFO. The two of them read Rick Williamson's book, in which he described a home-made ouija board made out of shelf paper, a small glass, and a printed alphabet. One evening in January or February 1955, Mrs. F. got the idea to try this out for herself. She received a message that day to the effect that she was being contacted by someone. She shared this experience later with Mrs. S., and for some weeks the two of them used this means to receive other messages. Mrs. F. described what was happening to Adamski, who cautioned against the use of this ouija board. They were also told through their contact to cease the use of the board, that a better way of communication would be shown them. Shortly after this Mrs. F. began "automatic writing", and Mrs. S. shared this with her almost from the first.

Mrs. S. stated that her arm would start tingling, a "weird" sensation until she became used it it, and that this tingling would be the signal that the writing would begin. The messages customarily took 20-25 minutes each to receive. Often the two women were together at the time the messages came, and when one's arm tired the other would take over without so much as a break in the thought of the sentence. The handwriting of Vesta, who was their contact, and was a male inhabitant of Venus, was completely different from either of the two women. Mrs. S described the personality of Vesta as kind, good, but firm. Vesta's wife, Doro, also sent messages through them, and her handwriting was altogether different from Vesta's and the two women. Doro was described as very sweet, soft, and feminine. There were other personalities who sent messages from time to time, but Vesta is the ordinary contact for them.

The automatic writing messages continued from the early part of 1955 for two years to 1957, when Vesta stopped this method of communication because it was too slow. It was replaced by messages by mental telepathy, and these have been going on for the past three years. Mrs. S. and Mrs. F. also can communicate with each other through telepathy, but not completely at will.

At one time, Mrs. S. had a whole cedar chest full of messages which she had received through automatic writing, but burned them upon the suggestion of the Space People. Her young son had gotten into some and had spread them around outside, to the consternation of the neighbors and to the S's embarrassment. It was some relief to Mrs. S. to be told to burn the messages. However, she kept some of the "meatiest" ones (those which predicted things to come, which were later fulfilled) in a red note book, which she thought she still had. She looked la st night for the red note book in order to show it to me, but received a mental message that she needn't look for the book because it had been burned too. She couldn't remember burning it but evidently she had since she had been unable to find it. She had no samples of the automatic writing to show me.

The messages by automatic writing do not come anymore. When I suggested I should like to have a handwriting expert compare her normal writing with that done by her contacts, she agreed that this would indeed be a way of learning whether she was telling the truth, but that she no longer received any messages in this way.

The main purpose in Vesta's contact with Mrs. S. and Mrs. F. is purportedly so that the Venusian will have a channel of communication in carrying out an important task, the full import of which has yet to be revealed. She was told in 1955 that the task would take some 15 years to complete, and it has taken 5 years already until Mrs. S. and Mrs. F. have developed the "patience" to let Vesta work at his own speed. In the past the slowness of his pace irked her, and she often was at the point of giving up the whole business, but now she is ready to accept the task of whatever the contact will entail. She does not, however, want the tasks to be required of her in any way to interfere with her duties and responsibilities to her husband, her children (12 yrs. and 13 yrs.). She seems assured by Vesta that they will not interfere. She says the last messages have spoken of making "physical contact" with space people. She is not too excited about this possibility be-

cause physical contacts were promised by Vesta in the past, in which dates and places were mentioned. But when Mrs. S. and Mrs. F. kept the appointments at the places mentioned, and space people did not show. Mrs. S. states that strangely enough she was never "disappointed" over these failures to show since she understood that the space people were building up their patience and confidence in themselves (that is, that Mrs. S. still believed in the messages in spite of the broken appointment.) She feels, however, that Mrs. F. and herself were "not ready" for actual contact at the time because each of them had tiny children at home, demanding their hourly attention. However, now all their respective children are in school except Mrs. F's youngest boy, 5 years, and both of them feel they have the time to devote to actually carrying out the plans of the Space People, whatever they may be.

Mrs. S. was early convinced that these messages were really from Venus and space people, rather than being some outpouring of her "subconscious" or unconscious telepathy between her and Mrs. F. because the Space People predicted various events which would occur which "seemed silly" at the time but which came true. She said the predictions involved things "important only to themselves" as proof, such as a predicted addition of a large family room on their home and the construction of a swimming pool in the back yard. At the time Vesta predicted these, the S's were planning to move from their home. However, they decided to stay and the construction occurred as predicted. The same things happened with predictions that Mrs. S. would return to work, which she did for one year and one-half, and also that the F's would make improvements on their home.

She admits that the above happenings do not constitute proof of predictions fulfilled to an outsider investigating the case, but that although she has asked Vesta several times to send various friends and inquirers "proof", he has always disregarded such requests, and that he would most likely disregard a couple of questions I left with her regarding NICAP. She has never tried to provide investigators with "proof", since she feels no need of providing it to anyone. She says Mr. S. beleives her, as does Mr. F. believe Mrs. F., although the two husbands remain somewhat disinterested. She knows the messages to be authentic, and since Vesta feels no need to provide tangible "proof" she does not either. She remained very objective during our discussion of this touchy part of the subject and was content with my dubious manner.

She claims that although Vesta "knows what is going to happen", that he cannot in any way interfere with free will, and can only make suggestions to her as to a course of action to follow.

MRS. S's PHILOSOPHICAL THINKING: Mrs. S. believes in reincarnation, having received instructions on this and other subjects from Vesta. She herself, she has learned, lived on Venus as a person called Lorda, before volunteering to be born as an earth person to fulfill this mission. She said her parents told her that when she was a small girl and barely able to write letter that she wrote the name "Lorda" all over her home, on walls, books, etc. This she had not remembered until reminded of it. The message that she had formerly lived on Venus as Lorda did not come through her, but was received rather through Mrs. F.

at a time Mrs. S. was not present. Mrs. S. felt this constituted proof to her and her parents as to the truth of the messages. Mrs. F. also lived formerly on Venus.

She says that Vesta has referred her to many books and other sources so that she and Mrs. F. can extend their "knowledge". They often mentioned books which the two women had never heard of before (just as they had previously known nothing of ouija boards and automatic writing), but then a short time later they would be given these books casually by a friend or they would "lay their hands" on them in a book store. Evidently it was from such books that most of the unusual theories she speaks of came.

The references that the space people have referred her to include Leadbeater's book on astral experiences, and Madame Blabatskity on Theosophy. She described "astrals" to me at some length, saying they were disembodied entities who are, voluntarily or involuntarily, in a "middle-ground existance" between physical life and another existence from which they can be reincarnated. She takes their reality very much for granted.

She also mentioned her belief in the counterpart theory, but did not relate this to involving two different planes of existance. She merely thinks that "somewhere in the world" everyone has an identical double.

She has learned through the space people that religion is a helpful way of life which is useful in leading good lives, but that all religions, especially the great ones, i.e. Catholicism, Buddhism, Judaism, are all serving the same purpose and equally hold truth. Christ to her is a more man, having no divinity. She believes in an Infinite God. Vesta has told her that Christ "has walked Venus and the other planets at times."

Mrs. S. had a Catholic backgroung, but ceased practicing the Faith at 15 years of age. Mrs. F. was converted to Catholicism some years after her marriage, but she too, has ceased to practice it.

MRS. S's ATTITUDE TOWARD OTHER CONTACTEES: Mrs. S. feels that Adamski and Truman Bethurum are authentic and on the level. She feels that Adamski's early contacts with the space people as described in his first two books w ere authentic, but she criticized sharply his custom of profiting monetarily from his experiences. She suggested that the space people's original purpose in contacting him (to make aware to earthpeople that flying saucers and space people existed) has been fulfilled, and that his later claims are perhaps "embroidering" for financial gain.

Mrs. S. claims that most of the so-called contactees are frauds and laments their adverse influence on the UFO field. She claims to know a secret set of questions known also to Adamski, by which she can tell whether a contactee is authentic or not. She claims that Adamski has tried the questions on her soon after her experiences with Vesta began, and has accepted her as authentic.

AFSCA and Gabriel Green she criticized sharply. She expressed her anxiety that AFSCA might be communistically inspired and financed. She is especially upset when she finds various groups which she attends

for awhile to be prejudiced against various racial, religious, or ethnic groups. She feels there are probably others who are receiving authentic message from Space but do not speak out for fear of being identified with the "crackpots". She criticized groups professing interest in UFO who become involved in spiritualism, cultist/religions, etc.

She was unaware of Wilbur Smith's investigation of contactees, although she was familiar with him and his work, and had corresponded once with him regarding her experiences. She never received any questionnaire from him and was interested in hearing about his latest article in Space Probe.

MRS. S's ATTITUDE TOWARD NICAP: She is familiar with Major Keyhoe's books and admires his objectivity in his search for the answer to the riddle of the UFO. She knew nothing of NICAP but approved of its aims as I described them to her. She eagerly borrowed some back copies of the UFO Investigator and stated that she wanted to become a member so that she could receive the publications. She is discouraged with her former attempts to read contact literature, such as Van Tassel's magazine.

MRS. S's ATTITUDE TOWARD UFO: Mrs. S. has frequently seen red, orange, and green fireballs, also blinking lights in the sky which later disappeared straight up. However, she does not look upon these as "flying saucers", niether does she regard as a true flying saucer a domed object she and Mrs. F. viewed two days ago over her home. This last changed shape to an ellipsoid before disappearing at great speed and did not reflect in the sun as she felt it should have had it been made of metal. She prefers to wait until the saucers are seen by her in their classic shape, ala Adamski, with portholes, dome, landing gear balls, et. She does not understand why flying saucers should appear in disguised shapes, (fiery balls, etc.) or why they should change shape.

INTERVIEWER'S OPINION OF MRS. S's STATEMENTS: Throughout the interview Mrs. S's conversational tone and manner seemed very normal. At no time did I catch any hint that she might be lying or evading the truth in any way. I was tempted to believe that her statements might actually hold reality for her, but in what way this could be accomplished I do not know.

I cannot believe major portions of her story, because vast portions of her philosophical and religious thought conflict squarely with my own knowledge (Roman-Catholic religious and Scholastic philosophy). The phenomena she speaks of (reincarnation, astral experiences, counterparts) I feel have yet to find more reasonal explanations in the little-known field of psychic phenomena.

Yet, Mrs. S. seems to be a very normal person in all other ways. She has a normal family life, a large circle of friends and acquaintance, and is constantly engaged in social gatherings. She holds a great interest in helping a local groups provide music apparatus, playthings, etc. to a nearby school for the mentally retarded child in Northridge.

Another fact in Mrs. S.'s favor is the fact that she has not attempted to exploit her experiences for financial gain. She seems unknown at the recent AFSCA convention, is unknown to other UFO investigators in this area, and according to her own statement, has refused many offers made by contactee groups to lecture, write, or otherwise publicize her

experiences, although she seems to possess the necessary poise, speaking manner, and ease of thought to succeed on the contactee speaker's circuit.

Two explanations which might possibly hold the answer to Mrs. S's story are as follows: 1. She and Mrs. F. have invented the story, either consciously or subconsciously. 2. She and Mrs. F. might in some way be under Mr. George Adamski's hypnotic influence. I admit both of these theories, especially the last, are far-fetched, but, then, too, is Mrs. S's story.

ELECTRON/GAS ANALOGY EXPERIMENT.

PURPOSE:

It is proposed to simulate the helical ring-vortex model of the electron in macro-scale in the atmosphere for purposes of determining the validity of the model and ascertaining some of its pertinent characteristics. In detail, the experiment will attempt to include the following:

1. Generate a helical ring-vortex which will be stable and self-sustaining for a speafic time period. The vortex is to be formed in a gas atmosphere and have a central-axis particle-velocity of mach 1.
2. Verify by photography the existence of the vortex and measure its flow reversal diameter.
3. Determine the effect of geometric and gas flow variables on the flow reversal diameter.
4. Generate multiple vortices which can be positioned near each other and measure the forces resulting from their interaction.

FEASIBILITY

From discussion with Dr. J. Xerikos and examination of photographs taken of his master's thesis project, it is apparently possible to generate vortices at sonic velocities. Whether such a vortex can be self-sustaining for any significant time period is highly speculative.

If the experiment is to be done at a pressure of one atmosphere, the pressure levels associated with Mach 1 velocity would require the use of an aerodynamic wind tunnel with sufficient cross section to permit the desired changes in boundary geometry. Photography could be done with the E.L.&S. HYCAM camera which is capable of up to 10,000 frames/sec of 16mm. film. The camera resolution is 60 lines/mm. and 400 ft. of film will provide .8 sec. duration at 10,000 f/sec. (approx. ½ of film length is used during the camera accelerating process) Individual line tracers of smoke, vapor or larger particles could be injected into the vortex to indicate flow direction. Cost of photography would run ~$1000-2000 for several runs.
The mechanism for generating multiple vortices for the purpose of measuring their interactions has not been investigated but on the surface it would seem far from simple.
By doing the experiment at much less than atmospheric pressure, it may be possible to use facilities less sophisticated than the sonic wind tunnel. However, the reduced gas density indicates a larger dia. vortex which may also pose facilities problems.
Although the experiment can be performed with relative simplicity at gas velocities of less than mach 1, it is thought that the sonic velocity is a valid constraint and the results of such an experiment would be meaningless. It should also be relatively easy to produce a pair of subsonic vortices.

and measure their interaction forces. The results in this case may have greater validity.

Before it is possible to be more specific about facilities requirements and costs, it would be highly desirable to determine theoretically the anticipated vortex size and configuration details.

H. C. BJORNLIE
2/12/69

cc. J. M. BROWN.

MEMORANDUM

DATE: 12-20-67

TO: R. M. Wood, A-830

FROM: J. M. Brown/D. B. Harmon, A-830

SUBJECT: PROPOSAL FOR ELECTROSTATIC/MAGNETIC EXPERIMENTS

COPIES TO: C. P. Thomas, A-830; File

REFERENCE:

Introduction

The kinetic particle theory of physics has indicated the existence of several types of Electrostatic/Magnetic phenomena which are not predicted to occur by Maxwell's electromagnetic equations. The specific phenomena considered here are concerned with the static interaction of magnetic and electrostatic fields. More specifically, it is conjectured that, if the kinetic particle theory of physics is correct, then the following three interactions should result:

1. There should be an axial static force pair and a couple between a single electron and a magnet under certain conditions.

2. There should be a couple between two electrons.

3. If the spin axes of two electrons are constrained in certain specific ways then an attractive force pair should occur which is approximately equal to twice the value of the usual repulsive force. Also, with a positive and a negative charge, and the same axis constraint, a repulsive force twice the usual attractive force should occur.

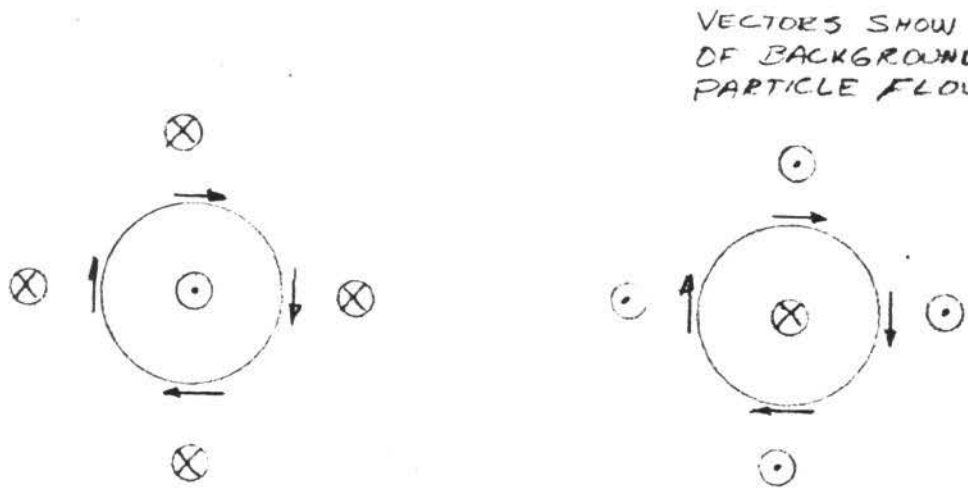
The purposes of this memorandum are to present the detailed mechanism by which these three interactions are conjectured to be produced and to define inexpensive experiments which may test these conjectures.

Background

The kinetic particle mechanisms of charge and static magnetism are presented now. In addition, the mechanism by which a magnetic field is induced by a moving electron is illustrated.

Charge is a closed circuit flow of background particles which is produced by a source-sink doublet having a twist causing a vortex motion. The flow is left-handed for a positive charge. Figure 1 shows the two types of charges.

Figure 2 is a detailed sketch of the flow patterns of an electron.



a. Negative b. Positive

FIGURE 1 CHARGES

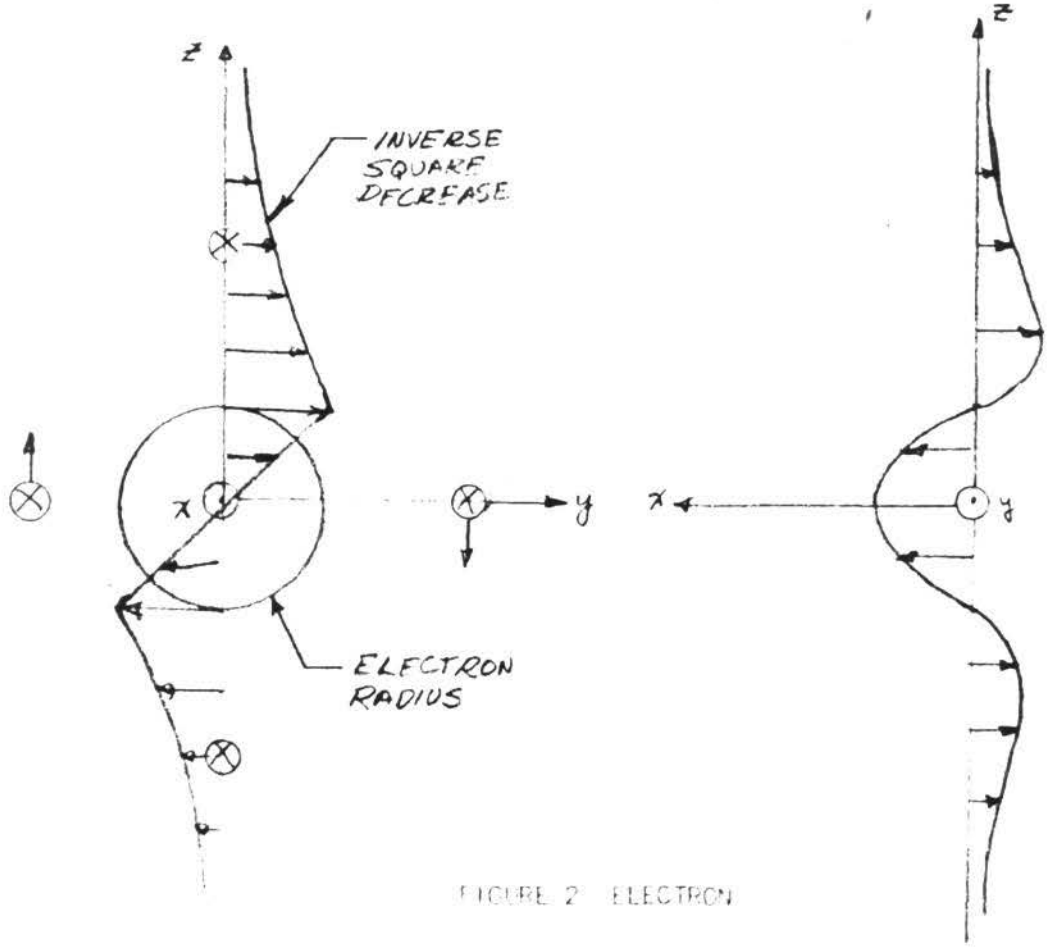


FIGURE 2 ELECTRON

The electron "radius" is defined by the circle which has flow components only in the YZ-plane. The flow parallel to the X-axis is the magnetic field, which can be represented by a vector parallel to X. The flow parallel to the YZ-plane is the electrostatic field and it also can be represented by a vector parallel to X.

Magnetism is a closed circuit flow of background particles produced by a source-sink doublet having no twist. One possible mechanism of static magnetism is for the electron shapes to become deformed into a configuration for translatory motion but be constrained from translating. (The particles making up the nucleus also would be deformed similarly. The deformation is superimposed upon the deformations associated with the electron and nuclear particle orbital motions.) This type of deformation results in a closed circuit flow of background particles in the direction opposite the direction which the electron would tend to take, see Figure 3.

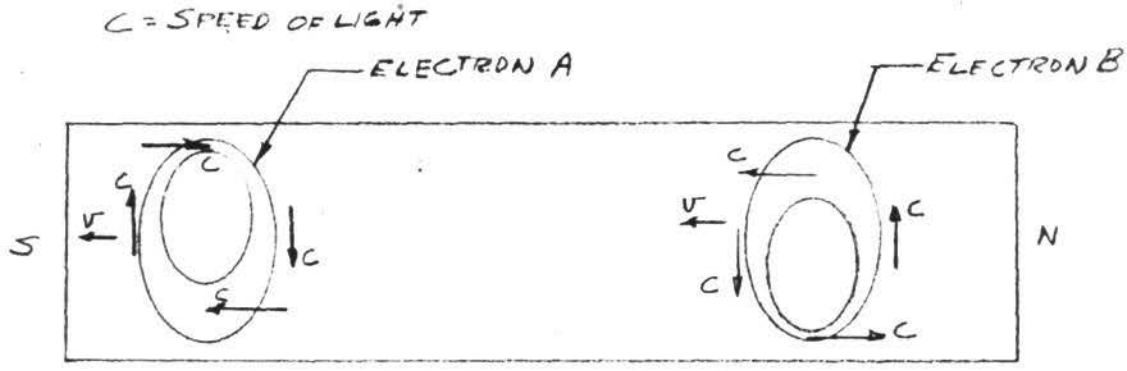


FIGURE 3 STATIC MAGNETIC FIELD

In this figure orbital electrons A and B are shown with the deformations associated with a translation to the left - the orbital paths are not shown. The translation shown by v will not occur if the background particles flow from South to North. Another possible mechanism of static magnetism might result from aligning the electron orbital axes parallel to the North-South line in a bar of matter. This mechanism is discussed after the mechanism is presented by which a moving electron sets up a magnetic field.

A translating electron sets up a magnetic field which consists of a circulation around the electron path, see Figure 4. The electron is moving into the plane of the paper and the circulation of the lower part overshadows the opposite circulation of the upper part.

The static magnetic field may be produced by the electrons in orbit setting up a flow pattern along the orbital axis, see Figure 5.

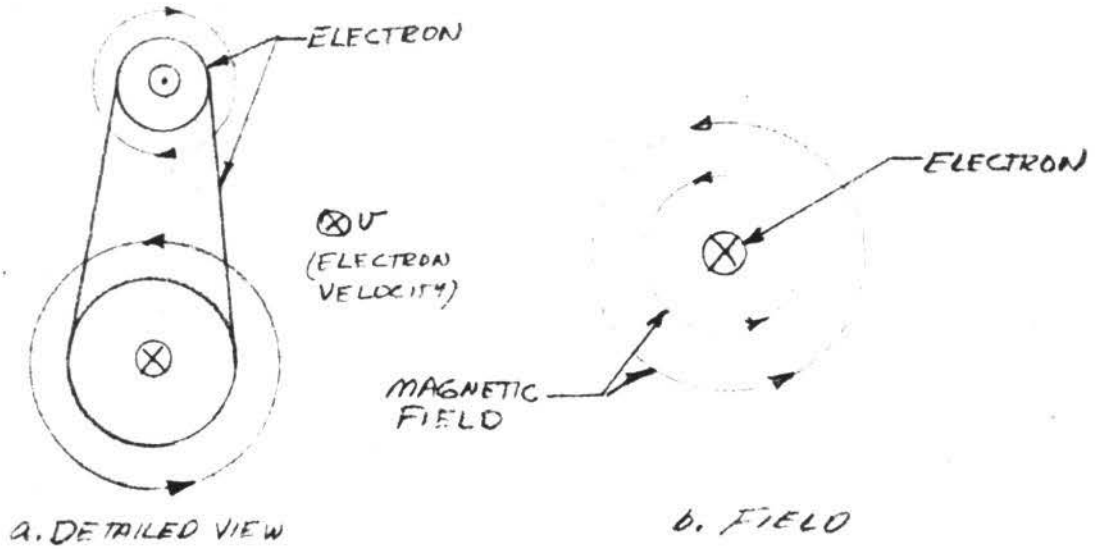


FIGURE 4 ELECTRON MOVING INTO THE PAPER

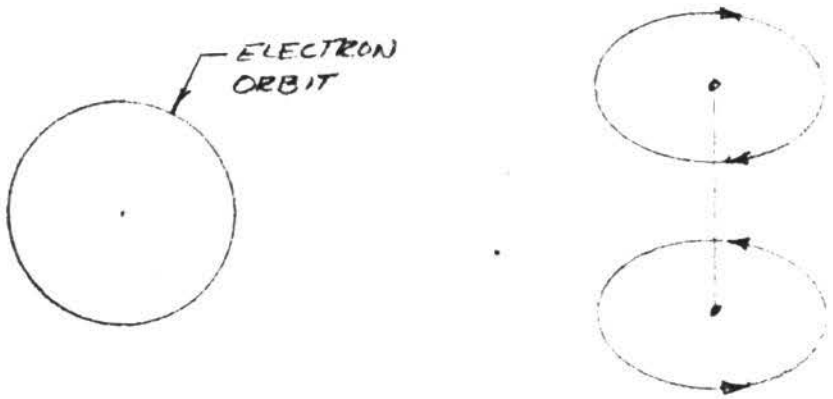


FIGURE 5 ALTERNATE STATIC MAGNETISM MECHANISM

Interaction Mechanisms

The interaction mechanisms of an electron with another electron and an electron with a magnet are presented now.

Figure 6 shows a negative electron at A and another negative electron at

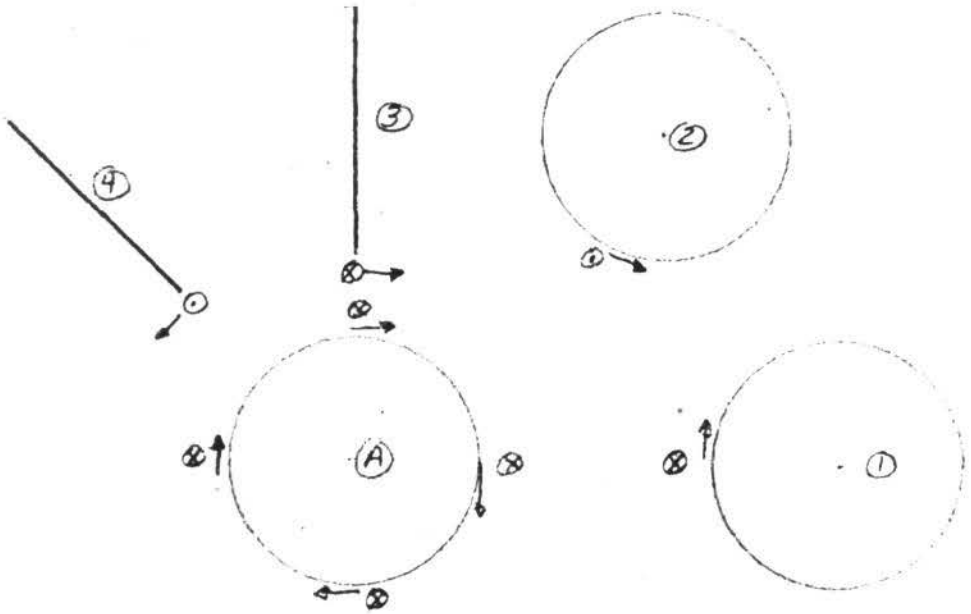


FIGURE 6 NEGATIVE ELECTRON AT CENTER WITH ANOTHER NEGATIVE NEGATIVE ELECTRON PLACED AT VARIOUS LOCATIONS

positions 1, 2, 3 and 4. In all cases it is seen that the fields do not mesh. At position 1 the rotational components on the same side of the electron do not mesh while at 2 the twist components on the same side of the electron do not mesh. At 3 both components mesh on the side of A closer to 3 but interfere on the opposite side of A. This position may either produce a lower repulsion than 1 and 2, or the electrons may rotate about their spin axis untill they are positioned as in 1 or 2. Position 4 produces the largest repulsive force of all. This position, however, also probably would not be maintained without a constraining field.

When a negative (electron) and a positive (proton) charge are brought together their fields interact so that their spin axes are aligned in the same direction, see Figure 7. A few trials at other relative locations will show that

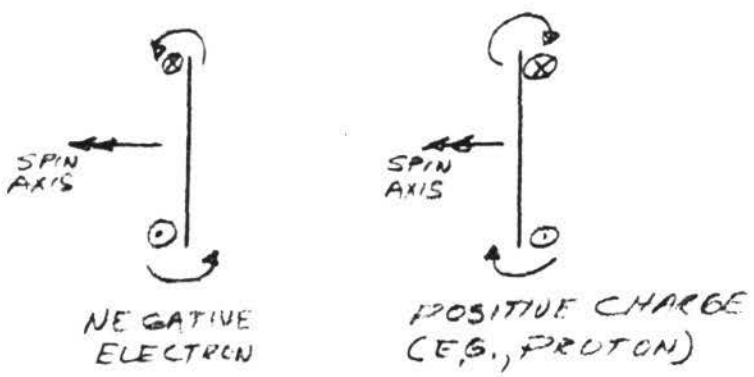
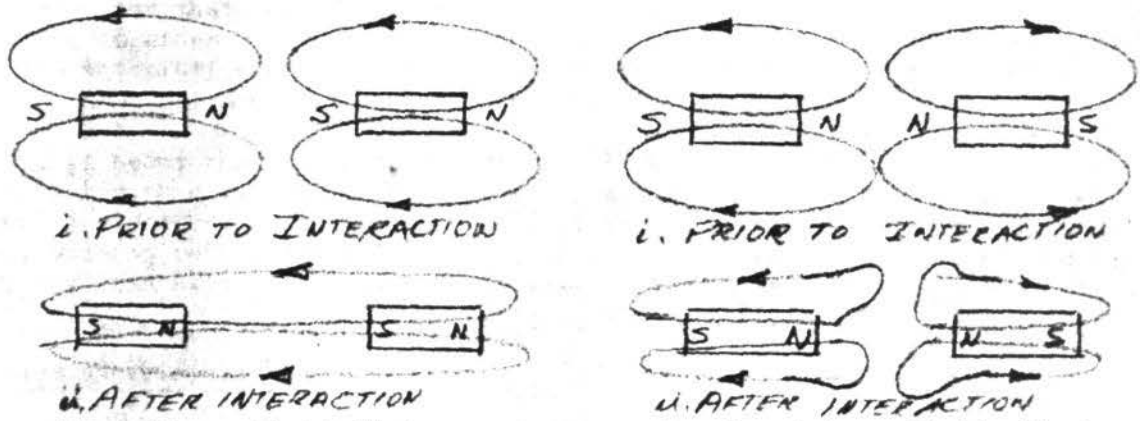


FIGURE 7 INTERACTION OF A NEGATIVE ELECTRON AND A PROTON

either the above position or the proton on the left side are the only stable (fixed mass center) positions. In this case the two particles are attracted until they are close together. If the mass centers are allowed to move then the electron and proton will orbit about each other to form the hydrogen atom. By constraining the axes of the proton and the negative electron it is possible to produce repulsion as well as different levels of attractive forces, as was the case with two negative electrons.

Two magnets interact when their axes are aligned in the manner shown by Figure 8. In Figure 8a the fields mesh together and the free field forces the magnets together. In Figure 8b the fields clash and build up a denser region of background particles between the magnets so that the magnets are forced apart.



a. Attraction - Fields Mesh b. Repulsion - Fields Clash

FIGURE 8 MAGNET INTERACTION

Consider now the interaction of a negative electron and a magnet. If the spin axis of the electron is not constrained as it is moved toward a magnet generally, there will be no interaction, see Figure 9. At position 1 there is no

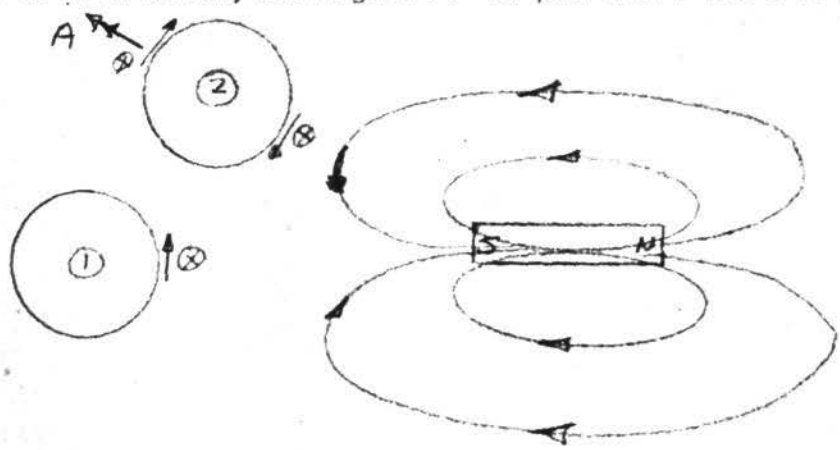
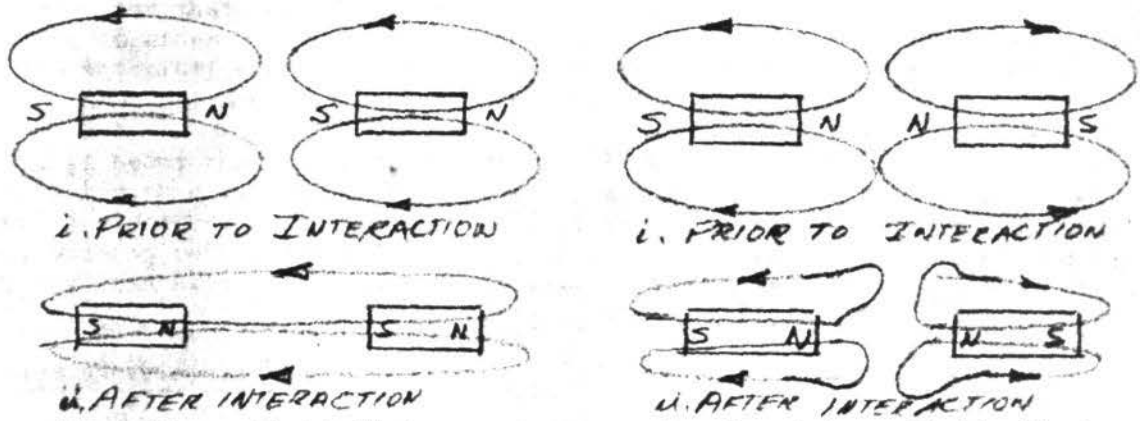


FIGURE 9 ELECTRON AND MAGNET INTERACTION

either the above position or the proton on the left side are the only stable (fixed mass center) positions. In this case the two particles are attracted until they are close together. If the mass centers are allowed to move then the electron and proton will orbit about each other to form the hydrogen atom. By constraining the axes of the proton and the negative electron it is possible to produce repulsion as well as different levels of attractive forces, as was the case with two negative electrons.

Two magnets interact when their axes are aligned in the manner shown by Figure 8. In Figure 8a the fields mesh together and the free field forces the magnets together. In Figure 8b the fields clash and build up a denser region of background particles between the magnets so that the magnets are forced apart.



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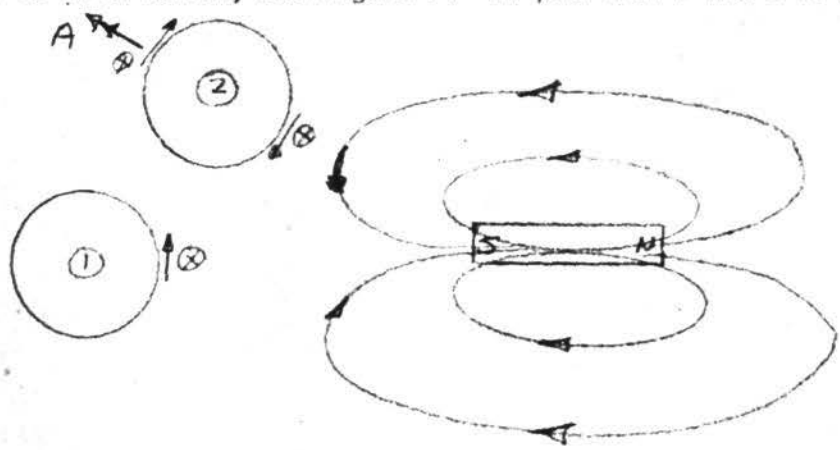

FIGURE 9 ELECTRON AND MAGNET INTERACTION

The first proposed experiment is to place a large number of electrons on each metal plate of a charge collector. The charge collector then will be suspended by long strings. The magnet will then be brought to different positions relative to the plate and it will be noted whether or not there is any motion of the plate - either along the shaft, rotational, or any other type of displacement.

The second proposed experiment is to support the charge collectors so that they are face-to-face and so that they can only rotate. The plate will be clamped while being charged then when both are charged they will be released. The charge collectors then should rotate.

The third experiment will consist of supporting the uncharged charge collectors face-to-face by long strings and constraining the collectors from motion at the hemispherical end of the shaft. Measurements then will be made of the forces lying in the charge collector planes which result when electrons are placed on both plates.

Recommendations

It is recommended that the foregoing experimental program be initiated without delay. Concurrently with the experimental program it is recommended that the hydromechanical analogy of charge and magnetism be developed so that comprehensive mathematical descriptions of all the phenomena discussed in this memorandum will be available.

J. M. Brown, A-830

D. B. Harmon, A-830

JMB/DBH/msb

TOP

WHEN
WHO
WHAT
WHERE
WHY

OBSERVABLES
EVENT DOCUMENTATION

1. Date, Time and/or Duration of Event.
2. Observer - Who or What Accomplished Observation
3. What was Observed
   - A. Physical or mechanical object or objects
   - B. Lights, Sounds, Reactions or Other Phenomena
4. Place of Occurrence
   - A. Where Did Event Occur
   - B. Point in Space
   - C. Geophysical Location
5. Physical Description
   - A. Size, Shape, Color, Texture, Doors, Material
   - B. Dynamic Activities - Lights, Sounds, Motions, Velocities
6. Force or Energy Field Effects - Static or Dynamic
   - A. Electromagnetic, Magnetic or Electric
   - B. Accoustical or Mechanical
   - C. Particle Radiation - Radio Activity
   - D. Gravitational
7. Physiological Effects
   - A. Event, Post Event, Residual or Delayed
8. Psychological Effects
   - A. Event, Post Event, Residual or Delayed
9. Plant and/or Animal Reactions
   - A. Event, Post Event, Residual or Delayed
10. Other Coincidental Occurrences
    - A. Pre-event, Event and Post Event
    - B. Local or Wide Spread - i.e., Power Failure, Animal Unrest, etc.
    - C. Atmospheric, Geophysical - i.e., Holes in the Clouds, Earth Tremors, Explosions, Loud Noises, Fallen or Deposited Materials

OBSERVABLES
SENSORS & OBSERVATIONAL
CAPABILITIES

1. HUMAN (Direct)
   - A. Visual - Direct Observational Sighting
     - Time of observation
     - Position in space or location - direction of motion - duration (relate to standard reference and/or absolute coordinates with instrumentation aids)
     - Physical description
       - Size, shape - apparent changes - erratic or unusual movements
       - Motions - Rotation, Velocity and position changes or movements
       - Color - Photon emission - Glowing - Pulsating - Paint or Material, etc.
   - B. Hearing - Sounds
     - With and without auditory aids - Kind, Amplitude, Duration as compared with characteristics of familiar sounds or unusual, new experience.
   - C. Smell
     - Associated odors as compared with familiar, usual or unusual experiences. Relative strength and duration (residual).
   - D. Taste
     - A particular sensation of tasting not necessarily associated with smell - brackish, acid, salty, sweet, etc.
   - E. Touch (Physical Feelings)
     - Sensations of warmth, coldness - feel of material surfaces - texture, structure, vibration, etc. Burns or other physiological body changes, etc., Immediate or delayed
   - F. Feelings (Psychological)
     - Pre-event, Event and Post Event - residual or delayed. Possible PSI phenomena.
2. HUMAN (Indirect) - Measureable or Analytically Obtained:
   - A. Material Phenomena - Physical Changes in or on Materials - Burns, Marks or Scars - Changes in Position, Color, Texture, Possible Radiation Effects. Pre-Event, Event and Post Event, Residual, Delayed, Temporary or Permanent Permutations. Physical Residule.

Sensors & Observational Capabilities (Contd.)

B. Instrumented Observations & Recorded Data - Optical, Electromagnetic, Accoustical, Mechanical.

3. ANIMAL (Direct & Indirect)

Pre-event, Event and Post Event, Delayed or Residual
Actions or Reactions - Physiological Changes
Laboratory Analysis - Possible PSI Phenomena

4. PLANT (Direct & Indirect)

Physical Changes - Immediate, Residual or Delayed
Bent, Broken, Burnt, Died, etc.
Laboratory Analysis - Possible PSI Phenomena

QUESTIONS

1. How would we decide that the technical information contained in a contactee report is worth considering?

2. If every UFO report were true, it would contain technical information.
   A. How to group and/or classify the kinds of information so as to be subsequently most useful.

3. What are the principle characteristics of an object that would cause an Air Base to scramble fighters and/or attempt to intercept?

4. In a multiple witness sighting, how do we determine which witness has the most accurate overall description of event?

17 FEB. 1969

TO: R [illegible] A 830

FROM: W.P. WILSON JR A 833

SUBJECT: FIELD DATA ACQUISITION REQUIREMENTS

~~[illegible]~~

COPIES J. M BROWN, DB HARMON H C BJORNLIE WWH ?

REF. FR

INTRODUCTION

This memorandum ~~presents~~ discusses the sensor and operational requirements for a mobile field data acquisition system designed to obtain the signature of unidentified flying objects, i.e., UFO's.

The ~~rationale~~ applied rationale is an attempt to define potential anomolistic targets with their space-time outputs which may produce observable effects. By relating a general description of their possible outputs to the normal background of physical phenomena it is possible to obtain an understanding of sensing requirements.*

The final section of this memorandum presents the operational requirements such as set-up time, time on station and fail safe considerations.

* Following the UFO sensing requirements, the ~~needs for~~ requirements for sensing ball lightning and various other meteorological phenomena are developed.

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ANOMALOUS ATMOSPHERIC PHENOMENA

FIELD DATA ACQUISITION FACILITIES

(FDA)

MOBILE & SEMI-FIXED (PARTIALLY SELF SUSTAINING)

MOBILE – DESIGN ~~FOR~~ OBJECTIVES

1) FOR TOTAL MOBILITY, UTILITY & RELIABILITY WITH
   OPTIMUM QUANTITY & QUALITY OF DATA CAPABILITY

2) A TO OBJECTIVELY & SUBJECTIVELY OBSERVE & OBTAIN OVERALL SIGNATURES OF UFO'S
   OR OTHER ANOMALOUS PHENOMENA.

3) B. TO BETTER UNDERSTAND PRESENT OBSERVABLES & DISCOVER AREAS AND/OR MEANS
   TO SENSE POSSIBLE PRESENTLY UNOBSERVED PHENIMENA;

C.

FIELD DATA ACQUISITION

MDAC-WD's Atmospheric Sciences Branch and Advanced Concepts Joint Portable-Mobile Field Data Acquisition Facilities.

INTRODUCTION

In the furtherance of certain objectives in Advanced Concepts research and to provide critical data for the Atmospheric Sciences Department, it has been observed that much of the information needs (as to atmospheric phenomena and electrical disturbances), are similar.[1] [2] It therefore seems advisable to provide a Portable-Mobile field data acquisition capability jointly useful for these and other efforts.

Through extended discussions between concerned persons, a basic summary and outline for the general scope and depth of observations has been suggested as outlined on pages 2 and 3.

It is hoped that a further study of instrumentation and supplemental requirements will result in recommendations for an adequately outfitted, extremely versatile portable-mobile capability. To this end additional related discussions will be conducted and findings will be reported as a continuation to this document.

W. P. Wilson, A-833
11 November 1968

cc: R. M. Wood; A-830
A. D. Goedeke, A-830
W. W. Hildreth, A-830
J. M. Brown, A-833

[1] Ball Lightning Research Report, January 1968, DAC-60941, K. M. Evenson and A. D. Goedeke.

[2] Proposal to Investigate Ball Lightning, 23 August 1968, MDAC-WD Space Sciences Department, DAC Letter A-13P1349-68-508Q.

BASIC REQUIREMENTS
FIELD DATA ACQUISITION

(1) MOBILE-READY ACCESS, MANNED

(2) PORTABLE-REMOTELY INSTALLED, SELF-SUSTAINING

AREAS OF OBSERVATION

- Earth Sciences
- Atmospheric
- Cosmology

Reexamine prior observations, and make new observations for possible unreported effects

Anomalistic Phenomena

INSTRUMENT TO OBSERVE & RECORD

Magnetic Gradients

Electric Gradients

Gravity Gradients

Air-Earth Currents

Conductivity

EM Spectrum
- X-Ray
- UV
- Optical
- IR
- Radio

Particles (Nuclear)

Acoustic Phenomena
- Seismic
- Subsonic
- Sonic
- Ultrasonic

- Time
- Location
- Direction
- Density (Magnitude)
- Energy/Frequency
- Polarization

- o Events
- o Quantitative
- o Qualitative
- o Time Domain

Basic Requirements - Field Data Acquisition (Contd.)

Meteorological Air, Temperature, Humidity, Pressure Wind, Speed and Gradient Temperature Gradient Ion Pair Production Aerosol Number Weather - (Observe or photograph) Clouds, Rainfall, Ice, Snow, Etc.	- Location - Time - Magnitude	Standard Instrumentation - Manual or Automatic Observations & Recording
Cosmic & Atmospheric Events Physical - Solid Objects, etc. Coherent Radiation	- Far & near field - Ranging & Locating - EM & Mechanical (Light, Radio or Sound)	o Photographic Records o Astronomical Observations o Radar Ranging o Suitable Transducers o Multi-channel Radio o Graphic Recorders o Magnetic Recorders
Unusual Sensing	- Plant, animal & human reactions or residual effects	o Visual Observations o Interrogation o Magnetic Recorders o Photographic Records

TABLE I - [redacted] SENSING REQUIREMENTS

1. MAGNETIC VECTOR - H FIELD, UNITS IN GAMMAS (1×10^{-5} Oersted)

	Duration Sec	> 10	1	10^{-1}	10^{-3}	10^{-6}
3 Components	Ambient	50,000 ± 20	50,000 ± 0.1		50,000 ± 0.01/t	
2 Places	Lower Limit	±10	± 1	± 1	±100	$\pm 10^3$
	Upper Limit	$\pm 10^8$	$\pm 10^8$	$\pm 10^8$	$\pm 10^8$	$\pm 10^5$

Sensors - Magnetometer, Absolute and Relative Measurements
Readout Analog, Real Time
Cesium - Varian Model V-4938 - Approximate Cost ~~$5,000.00~~ $10,900.00 ?

Magnetometer, Gradient Sensing
Readout Analog, Real Time
(Three) Internally Constructed, - Approximate Cost $250.00 Each 750.00

2. ELECTRIC VECTOR - VOLT/METER

	Duration-Sec.	> 10	1	10^{-1}	10^{-6}
3 Components	Ambient	± 100			
2 Places	Lower Limit	± 100	± 1	± .1	± 0.01
	Upper Limit	±10,000	±1,000	±1,000	±10

Sensors - Electrostatic Voltmeter, Absolute and Relative Measurements
Readout Analog, Real Time To Chart Recorder
Comstock & Wescott - Model 12008 - Approximate Cost $3,100.00

Electrometer, Relative and Gradient
Readout Analog - Real Time To Chart Recorder
(Three) Internally Constructed - Approximate Cost $150.00 Each 450.00

3. ELECTROMAGNETIC - RADIO - WATTS AND/OR VOLTS/METER

	Duration-Sec.		10^{-3}	10^{-6}	10^{-12}	Secs/Cycle
Polarization	Ambient	City	10^{-2}	10^{-4}	10^{-6}	Volts/Meter
		Country	10^{-4}	10^{-6}	10^{-8}	Volts/Meter
Direction	Signal		10^{-12}	10^{-12}	10^{-12}	Watts (1 μV/50Ω)

Sensor - Broadband Spectrum Analyzer Absolute Measurements

Power - Amplitude and Spectral Content .01 to 1,250 Mhz

Readout in Real Time, Time Domain and Frequency, Visual Display and Analog or Digital Data To Chart or Magnetic Tape Recorder

Hewlett Packard Model 8554L R.F. Section with the 8552A I.F. and 140S Display System

Approximate Cost $6,000

Radiometers and Auxiliary Radio Equipment — Approximate Cost 3,500

Readout in Real Time, Visual Display, Analog or Digital To Chart or Magnetic Tape Recorder

4. ELECTROMAGNETIC - IR - WATTS AND SPECTRAL CONTENT

	Duration-Sec	10^{-12}	10^{-13}	10^{-14}
Polarization	Ambient	Limits Vary As To Location, Day-Night & Local Artificial Heat & Light Conditions		
Direction	Signal	Expected Levels To Be Determined		

Sensors - Standard Radiometric or Photographic Techniques, Polarity & Color Sensing, Thermal & Photosensitive Devices

Radiometers - Photometers and Spectrometers

→ Suitable Manufacturing Types and Approximate Cost To Be Determined.

→ Will Be Related To Following Two Items (5) and (6)

Readout: Analog, Digital to Chart or Magnetic Tape Recorder

5. ELECTROMAGNETIC (OPTICAL) - POWER LEVELS AND SPECTRAL CONTENT

	Duration-Sec.	2.3×10^{-14}	1.4×10^{-14}	Secs/Cycle
Polarization	Ambient	Day-Night Atmospheric & Local Artificial Lighting Conditions		
Direction	Signal	Expected Levels To Be Determined		

Sensors - Photographs (Movie Camera - Color)
Photo-Optical Tracking - Photographic, Still & Motion Picture - Black-White & Color
Polarity & Color Sensing, - Related Spectrum Analysis instrumentation & Readout as Under Item (4)

6. ELECTROMAGNETIC (UV)

Duration-Sec	1.4×10^{-14}	3×10^{-26}	(Soft X-Ray)
Ambient	Day-Night, Atmospheric & Local Artificial Lighting Conditions		
Signal	Expected Levels To Be Determined		

Sensors - Photo-Optical Tracking - Photosensitive Devices & Photographic Materials, Polarity Sensing
Related Spectrum Analysis, & Readout Instrumentation as Under Items (4) and (5)

7. ELECTROMAGNETIC (X-RAY)

	(1) Soft X-Ray	(2) Hard X-Ray	(3) Gamma Radiation
Duration	May Be Coherent CW, Periodic or Random Radiation @ 3×10^{-16} - 3×10^{-19} Secs/Cycle or Discrete Particles vs. Time		
Ambient	Day-Night Atmospheric & Local Normal Background		
Signal	Any Levels Above Background, Time Averaged, Steady State or Particles vs. Time		

Sensors - Gamma Sensitive Photographic Materials - Radiation & Particle Counters, Crystal Scintillators To Measure Photon Flux and Energy

Readout: Spectral Content - Time, Density Averaging To Analog or Digital Data To Chart or Magnetic Tape Recorders.

8. GRAVITATION -

	Duration	Secular
Ambient		
Signal		

9. ATMOSPHERIC PRESSURE

Duration-Sec	>10	10^{-1}	10^{-4}
Ambient			
Signal			

10 Nuclear CAP Particle

10. NATURAL AND RESIDUAL SIGNATURES

Odors

Ground Deformation

Response of Trees and Plants, Animals, Humans,

Vehicle Parts

8. GRAVITATION -

	Duration	Secular
Ambient		
Signal		

9. ATMOSPHERIC PRESSURE

Duration-Sec	>10	10^{-1}	10^{-4}
Ambient			
Signal			

10 Nuclear CAP Particle

10. NATURAL AND RESIDUAL SIGNATURES

Odors

Ground Deformation

Response of Trees and Plants, Animals, Humans,

Vehicle Parts

TAB 11

EM SPECTRUM CLAS

ARBITRARY STANDARD USAGE BY BANDS IN

BAND		WAVELENGTH- λ $3\times10^8/fcps$		FREQUENCY-fcps $3\times10^8/\lambda$		1
		Meters		Cycles/Second		
MP		3×10^{11}	1×10^{8}	10^{-3}	3	1
ELF		1×10^{8}	1×10^{5}	3	3×10^{3}	3.
VLF	4	1×10^{5}	1×10^{4}	3×10^{3}	3×10^{4}	3.
LF	5	1×10^{4}	1×10^{3}	3×10^{4}	3×10^{5}	3.
MF	6	1×10^{3}	1×10^{2}	3×10^{5}	3×10^{6}	3.
HF	7	1×10^{2}	1×10^{1}	3×10^{6}	3×10^{7}	3.
VHF	8	1×10^{1}	1.0 Meter	3×10^{7}	3×10^{8}	3.
UHF	9	1.0 Meter	1×10^{-1}	3×10^{8}	3×10^{9}	3.
SHF	10	1×10^{-1}	1×10^{-2}	3×10^{9}	3×10^{10}	3.
EHF	11	1×10^{-2}	1×10^{-3}	3×10^{10}	3×10^{11}	3.
MM	12	1×10^{-3}	1×10^{-5}	3×10^{11}	3×10^{13}	3.
INFRARED		1×10^{-5}	1×10^{-6}	3×10^{13}	3×10^{14}	3.
INFRARED		1×10^{-6}	6.8×10^{-7}	3×10^{14}	4.4×10^{14}	3.
VISIBLE		6.8×10^{-7}	4.2×10^{-7}	4.4×10^{14}	7.1×10^{14}	2.
ULTRAVIOLET		4.2×10^{-7}	7×10^{-7}	7.1×10^{14}	3×10^{15}	1.
ULTRAVIOLET		1×10^{-7}	1×10^{-8}	3×10^{15}	3×10^{16}	3.
X-RAY		1×10^{-8}	1×10^{-9}	3×10^{16}	3×10^{17}	3.
PARTICLE & COSMIC RAY						

TABLE 3

LIGHTNING

Prior to Event

$E, \frac{dE}{dt}$ vs. time

Event

$E_{max.}$, H_{max}, etc.

TABLE 4

OTHER METEOROLOGICAL REQUIREMENTS

W.P.W.

1) IS THERE POSSIBLY A DISCREET FIXED RATIO OF ORGANIZED TO DISORGANIZED ~~BROWN~~ COSMIC BACKGROUND EXISTS?

2- IF STABLE ORGANIZATION MUST EXIST IN A HOMOGENEOUS ENVIRONMENT IN ORDER TO EXIST, THEN THOSE ORGANIZATION WILL INDUCE INEQUALITY IN THEMSELVES OF THE RANDOM FIELD TO OTHER AREAS. THESE ASYMMETRIC FIELDS OF ENVIRONMENT ABOUT THESE ORGANIZATIONS MAY WELL BE THE BASIS FOR E-M & G DEFINED FIELD STRUCTURES OR VECTORS WHICH ARE NOT IN THEMSELVES DISCREET QUANTIZED PARTICLES BUT RATHER, LEVELS OF INFLUENCE IN EITHER ISOTROPIC OR COMBINATIONS OF ANY PREFERENTIAL DIRECTION VECTORS. FROM THESE PERTURBATIONS, WHICH MAY EXIST IN THE BACKGROUND AT C (OR SOME V=C ANOTHER DISCREET RELATIONSHIP)

W.P.W.

1) IS THERE POSSIBLY A DISCREET FIXED RATIO OF ORGANIZED TO DISORGANIZED ~~BROWN~~ COSMIC BACKGROUND EXISTS?

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THE PHYSICAL COMPOSITION OF MATTER

INTRODUCTION:

In consideration of the many aspects of our material world and ~~material to the point the~~ Universe one might conjecture as to the basic structure and/or composition of all physical things; what is beyond our present knowledge of the basic atomic structure and sub atomic particles? The question might then follow; as to just how far we may apply the materialist process of Subdivision to the things seen to be matter or observable in the sense that we can understand them?

It may then be reasonable to assume by deduction that there ~~may~~ indeed be a finite point or plane wherein things may exist (possibly in a transitory state or condition) that may not be purely physical as recognized by our present level or capability of understanding. From this imagined cross-over point, it may also be interesting to set a level of reference for additional deductions or conjecture.

PHYSICAL APPLICATION OF BASIC MATTER

26 AUG 1967

(1)

IN CONSIDERATION OF THE MANY ASPECTS OF OUR PHYSICAL WORLD, ONE MIGHT CONJECTURE AS TO THE BASIC STRUCTURE & COMPOSITION OF THINGS PHYSICAL, BOTH OBSERVABLES & UNOBSERVABLES. THE QUESTION THEN FOLLOWS AS TO JUST HOW FAR DO WE APPLY THE ANALYTICAL PROCESSES OF SUBDIVISION BEFORE THINGS CEASE TO BE MATTER & PHYSICAL IN THE SENSE THAT WE CAN UNDERSTAND THEM WITHOUT CONJECTURING IN THE REALM OF METAPHYSICS, IT MAY STILL BE REASONABLE TO ASSUME BY DEDUCTION THAT THERE MAY BE A FINITE POINT OR PHASE WHEREIN THINGS MAY EXIST (POSSIBLY IN A TRANSITORY CONDITION) AS RELATED TO OUR PRESENT CAPABILITY OR LEVEL OF (LEVEL OF) THAT ARE NOT NECESSARILY PURELY PHYSICAL AS WE UNDERSTAND.

FROM SUCH AN IMAGINED CROSS-OVER POINT IT MAY ALSO SEEM REASONABLE TO SET A LEVEL OF REFERENCE FOR ADDITIONAL DEDUCTIONS & BASIC IDEAS ACCUMULATED FROM OTHERS & AS PRESENTED HERE, THEY ARE NOT NECESSARILY IN THEIR PARTICULAR ORDER OF PRIORITY BUT AS THEY CAME TO MIND.

1. ALL MASS MATTER, AND EACH FUNDAMENTAL PARTICLE IS A COMPOSITE OF THE SAME PROTYLE RECEIVED FROM & SUSPENDED IN A FINITE, REAL & PRESENT IN THE UNIVERSAL HOMOGENEOUS (?) BACKGROUND HOMOGENEITY RADIATION.

2. THE IDENTITY AND CHARACTERISTICS OF ALL MATTER & SUBATOMIC PARTICLES WITH & WITHOUT MASS IS DIRECTLY EQUIVALENT TO THEIR PARTICULAR INTERDEPENDENT & RESULTANT GEOMETRIC CONFIGURATION & STATE OF EXISTANCE.

3. THE INTRASTRUCTURAL CONFIGURATION, ACTIVE, REACTIVE CAPABILITIES OF EACH INDIVIDUAL SUBSTANCE THROUGHOUT THE ENTIRE SPECTRUM OF [illegible] PARTICULAR, IS DEPENDENT UPON ITS PROXIMITY TO AND POSITION IN ITS PARENT RELEVANT FRAME OF TIME & SPACE & [illegible] NEIGHBORING STRUCTURES

- CONT'D -

PHYSICAL APPLICATIONS
OF BASIC MATTER

4. THE EXISTANCE OF FORCE, ENERGIES, RESULTS FROM THE REQUIREMENT THAT ALL THINGS MUST EXIST IN A STATE OF DYNAMIC EQUILIBRIUM.

5. ENERGY MAY BE CONSIDERED AS MASS IN SOLUTION IN THE SOLUTE OF SOLVENT OR AS THE TRANSITORY STATE OF ALL MATTER. PROTYLE

6. USE FOR APPLICATIONS TO CORRECTLY CONTROL ALL OF MATTER - FORCES / ENERGIES CAN BE ACCOMPLISHED AND IS THROUGH basic manipulation that do not attempt violate the state of Universal Equilibrium.

RADIATION & PARTICLES & FINITE MATTER
IN
CONTROLLED ENERGY SYSTEMS

As we consider the practical ~~many~~ aspects of our physical world, ~~it~~ we may basically ~~seem only logical~~ to conjecture as to the ~~nature of~~ infinite composition or structure of its basic ingredients. The question then follows

INTRODUCTION

~~In a search for Inherent truth~~

In the ~~consideration~~ of subatomic ~~nuclear~~ novel and practical

When, attempts one considers

When ~~In~~ one attempts to consider the possible ~~possibility of practical~~ application of subatomic substances in useful engines and controlled energy systems, we might look to the natural resources in our practical physical world.

~~RADIATION ENGINES~~ ~~SUBATOMIC PARTICLES~~

RADIATION ENGINES & SUBATOMIC PARTICLES & RADIATION ENGINES
~~IN~~ ENGINES

~~CONTROLLED ENERGY SYSTEMS~~
INTRODUCTION

~~To consider or speculate the possible application of substance~~ ~~we know~~ The engineering community has often considered ~~frequently speculated~~ with ~~the possibilities of apply possib~~

The ~~engineering and~~ Scientific and Engineering community has

The speculative possibility that subatomic substances might be practicly applied to controlled energy system and

among the many considerations lying just over the present Scientific horizon, ~~and~~ is the speculative possibilty that subatomic substances may

W. P. Wilson
27 Aug 1968
(A)

Sub atomic Particle &
Radiation Engines

Introduction

~~Standing just~~ Over the horizons of modern scientific achievements ~~stand~~ the distinct possibility that subatomic particles, radiation and energies can be harnessed and applied to ~~used in~~ prime moving and momentum conversion systems. To ~~bring~~ such system capabilities are to be brought from beyond pure conjecture we may have to reexamine old and new concepts from a different point of view, and Review and reevaluate known physical ~~matter~~ factors, and possibly ~~couple~~ them with ~~with the~~ "new look".

~~During the consideration of~~ while considering the many aspects of our physical world we have learned much and more conjectures as to the basic structure and composition of all things ~~physical~~. The question has been asked as to how far we might apply the processes of analytical ~~analytical process of subdivision~~ before things cease to be physical ~~in our sense~~. Without conjecturing in the realm of metaphysics it seems reasonable to assume, by deduction (1), that there may be a point or plane wherein things can ~~may~~ exist that are not purely physical in our sense or recognized by man's system. ~~Further~~, (2) that at this point substances or things may exist in a transitory state without mass from which all energy, mass, matter and physical forces are derived and observed.

W. P. Wilson
24 Aug 1968
(A)

Sub atomic Particle &
Radiation Engines

Introduction

Over the horizons of modern scientific achievements is the distinct possibility that subatomic particles, radiation and energies can be harnessed and applied to prime moving and momentum conversion systems. To bring such system capabilities are to be brought from beyond pure conjecture we may have to reexamine old and new concepts from a different point of view, and further Review and reevaluate known physical factors, and possibly couple them with the "new look".

While considering the many aspects of our physical world we have learned merely and moved conjectures as to the basic structure and composition of all things. The question has been asked as to how far we might apply the processes of analytical division before things cease to be physical. Without conjecturing in the realm of metaphysics, it might seem reasonable to assume, by deduction (1) that there may be a point or plane wherein things can exist that are not purely physical in our sense or recognized by man. Further, (2) that at this point substances or things may exist in a transitory state without mass from which all energy, mass, matter and physical forces are derived and observed.

Evolution in a ... time

Our physical existence is controlled W.P. ...

by ~~two~~ THREE basic postulates:

I. The nature and identity of any substance, ~~particle of matter~~ is directly equivalent to its particular state of existence and the resultant interdependent geometrical configuration and position in space and time. which FROM THIS WE IMPLY further states:

1. All matter, mass and each fundamental particle is a composite of the same PROTYLE received from and suspended in a real and finite homogenous background that exists as a Universal Saturate in space and time.

2. The intra-structural configuration, active and ~~re~~ reactive capabilities of all substance, throughout the entire spectrum of organized radiation, particle, mass & matter is dependent upon its proximity to, or interaction with substance in neighboring structures and/or its position in a particular ~~referent~~ ~~frame of reference in~~ reference frame of time and space.

VELOCITY

II. The existence of all forces, ~~and~~ energies and/or substance interactions results from a fundamental requirement that "all things must and do exist in a state of Universal Equilibrium".

1.

BACKGROUND STRESS ...

1. Energy may be considered as, "mass in a transitory state in solution with the Homogenous Universal Saturate".

2. All fundamental ~~fo~~ & initiating forces emerge from the "finite balance between Universal Equilibrium and the transitional state of the Universal Saturate".

III The orderly control, direction and/or application of all substances, matter and forces a engineer may be accomplished by ~~means~~ those methods that do not violate the natural state of Universal Equilibrium, & the Unity of time & space.

1. ~~absolute~~ Space & time are absolute immutable separate entities such equated to unity from which our real time & periodicity (periodicity) may be referenced & related.

2. It appears that relativistic $T_a = \sqrt{c^2 \times 1 + t_r^2}$ might be a valid assumption
ELAPSE TIME WHERE T_a = ABSOLUTE TIME IN SPACE & C = VELOCITY OF LIGHT
& t_r = OBSERVED REAL TIME AS RELATED TO C

3. absolute distance and velocity are related to T_a & S_A
~~FSd~~ as D_{TS} & V_{TS} THROUGH THE GEOMETRIC MEAN or the ~~facts~~ $\sqrt{2}$
WHERE $T_a = 1$ $S_A = 1$ & $D_{TS} = \sqrt{T_a^2 + S_A^2} = \sqrt{1+1} = \sqrt{2}$

4. there are 3 classes of ~~Distance~~, time, and velocity & distance
(1) Absolute, Relativistic and MEASURED ~~Real~~ (EARTH ... MEASURED)

SPACE TIME ~~DISTANCE~~	$\sqrt{T_A^2 + T_M}$	REAL TIME ~~MEASURE~~
SPACE VELOCITY ~~TIME~~	$\sqrt{V_A^2 + V_M}$	REAL VELOCITY
SPACE DISTANCE	$\sqrt{D_A^2 + D_M^2}$	REAL DISTANCE

IF: ABSOLUTE TIME (T_a) = unity (1)

ABSOLUTE SPACE (S_a) = unity (1)

THEN ELAPSED ABSOLUTE TIME $T_{ae} = \frac{1}{1 - t_R}$

WHERE t_r = RELATIVE TIME OR $\sqrt{1 + t_m \times C_x^2}$

WHERE t_m = REAL TIME MEASUREMENT

C_x = TIME FOR LIGHT TO TRAVEL FROM POINTS A → B IN SPACIAL DISTANCE A → B

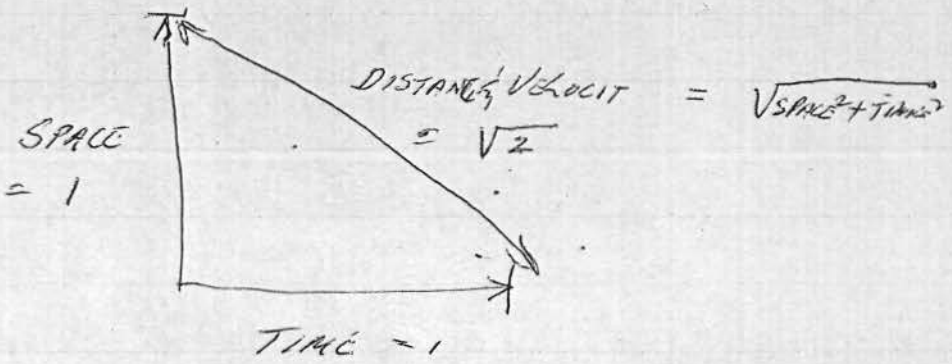
THEREFORE $T_{Re} = \frac{1}{1 - \sqrt{1 + t_m \times C_x^2}} + 1$ $\quad t \& S$ = VELOCITY

AND DISTANCE IN SPACE = $D_{SA} = \frac{1}{1 - V_r}$

WHERE V_r = RELATIVE VELOCITY or $\sqrt{1 + V_M \times C_{xv}^2}$

WHERE V_M = VELOCITY MEASURED IN REAL TIME

C_{xv} = SPACIAL DISTANCE TRAVELED BY LIGHT AT TIME t



A. All matter, mass and each fundamental particle ~~is~~

1. ~~is~~ A composite of the same protyle received from and suspended in a ~~finite and~~ real and finite homogeneous backround that ~~which~~ is exists as a Universal Saturate in space and time.

B 2. The nature and identity of any ~~each~~ substance is directly equivalent to its particular state of existence and resultant interdependant geometrical configuration and position in space and time.

C. The intra-structural configuration, active and reactive capability of all substances, throughout the entire spectrum of organized radiation, particles, mass & matter is dependant upon its position in a particular referent frame of time and space and its proximity to neighboring structures.

D. The existence of force, energy & substance ~~material~~ interactions in substance results from a fundamental requirement that "all things must and do exist in a state of Universal Equilibrium"

E. Energy may be considered as the ~~Solute of~~ mass in a transitory state as a solute in solution with a ~~the solvent of~~ the Homogeneous Universal Saturate. ~~in transitory state~~ state of transition ~~transitory state~~

F. all fundamental ~~Basic~~ initiating forces emerge from the basic requirement of the Universal Equilibrium

IV absolute time and space are immutable separate entities from which our real time and passage of events between ~~special~~ & ~~material space~~ may be referenced ~~by~~ by $\sqrt{t_x^2 + t_A}$

$$t_A = \sqrt{t_r^2 + t_x^2} \quad \text{or} \quad t_r = \frac{1}{\sqrt{t_x^2 +}} \quad t_a = \frac{1}{1 - \sqrt{c^2 t_r^2}}$$

$$t_A = \sqrt{c^2 + t_r^2} \qquad t_a = \sqrt{c^2 \times t_r^2}$$

$$t_a = \sqrt{t_r^2 \times c^2} \qquad T_a = \frac{1}{1 - t_R}$$

$$\text{SPACE} = \frac{1}{1 - t_a^2}$$

$$t_R = \sqrt{1 + t_r^2 \times c_x^2}$$

t_A C_X = THAT TIME OCCUPIED DURING THE TRAVEL OF LIGHT ~~IT TAKES LIGHT~~ TO TRAVEL FROM POINT A → B IN THAT SPACIAL DISTANCE between ~~FROM~~ A → B

in the

F. Basic ~~force and subsequent~~ and initiating the initiating forces emerges from the infinite ~~relationship~~ balance between Universal Equilibrium and the transitional state of the Universal Saturate.

2

The Construction & nature of all matter, mass, particles, radiation, energy & force may be consider ~~deduced~~ from the following ~~postulates~~ deduction

1. All matter, mass and each fundamental particle is a composite of the same particles received from and suspended in a finite and real homogenous background ~~in the~~ existing ~~Universe~~ as a Universal saturate in space and time.
2. The nature of all matter etc -

THEORETICAL PHYSICS 31 DECEMBER 1968

MDAC-WD SANTA MONICA

MEMO

TO: Joe Brown

FROM: Paul Wilson

SUBJECT: Physical Properties of Magnetic & Gravity Fields

DISTRIBUTION: D. B. Hickman, W. P. Wilson Jr.

As a result of certain recent observations on the sub-quantal particles and their possible interrelationships, it is projected that:

1. All gravitational fields result from, or both of or are derived from magnetic fields.

2. Mathematical relationships can be derived to rigorously prove or disprove the projection

3. Suitable physical experiments can be constructed to verify the mathematical predictions.

W. Paul Wilson Jr.

31 December 1968

10/29/68
W.P.W

1

PARTICLE - RADIATION INTERACTION EXPERIMENTS

AS AN OUT GROWTH OF RECENT THEORETICAL DISCUSSIONS CONCERNING THE BASIC COMPOSITION & CONFIGURATION OF THE ELECTRON CERTAIN CONJECTURES WERE MADE & QUESTIONS RAISED: SPECIFICALLY:

1. IF GRAVITONS ARE INITIATED IN THE ELECTRONS COULD THEIR PRODUCTION SOMEHOW BE AMPLIFIED, BY ORDERS OF MAGNITUDE, IN THE PREFERRED DIRECTIONS?

2. IS THERE A POSSIBILITY THAT PREVIOUSLY UNOBSERVED SIDE EFFECTS MAY RESULT FROM SUBJECTING ELECTRONS TO CONTROLLED BOMBARDMENT WITH BEAMS OF COHERENT, DENSE & ENERGETIC PHOTON RADIATION?

3. CAN SIMPLE & USEFUL EXPERIMENTS BE CONSTRUCTED TO EXAMINE THESE POSSIBILITIES?

<u>EXPERIMENTAL APPROACH</u>:

1. CONSIDER PROPERTIES OF ELECTRONS

2. DEVISE METHODES OF CONTAINMENT, POLORIZATION & AND MEANS TO OBSERVE INTERACTIONS

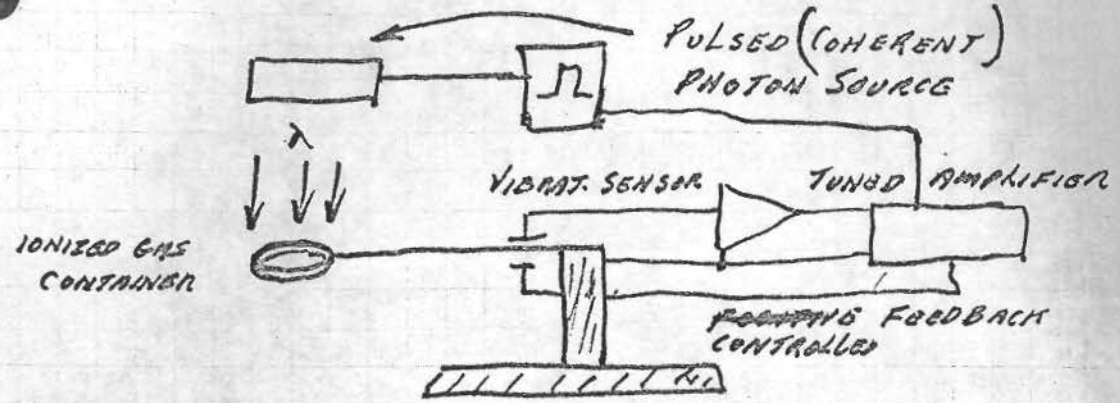
3. CONSIDER RADIATION SOURCES, ENERGY & POWER LEVELS

4. PROVIDE MEANS TO OBSERVE, MEASURE & RECORD APPLIED (INDIVIDUAL & COMBINED) POWER, ENERGY &/OR RADIATION SOURCES & TIME RELATIONSHIPS.

(1)

10/24/68
W.P.W.

SIMPLE EXPERIMENT NO. 1



MOMENTUM ACCUMULATOR - MECHANICAL RESONATOR

1. BOMBARD SIMPLE IONIZED GAS CONTAINER (NEON TUBE) WITH PERIODS OF PHOTON PULSE BURSTS. REP. RATE TUNED TO ½ BY NATURAL VIBRATIONAL FREQUENCY OF SUPPORTING TORSION CANTILEVER.
2. PROVIDE MEANS TO APPLY STATIC, ELECTRIC AND TIME VARIANT ?/OR MAGNETIC FIELDS THROUGH AND ABOUT VARIOUS AXIS OF TARGET.
3. ASCERTAIN THAT PHOTON RADIATION IS THE ONLY COUPLE IN THE POSITIVE FEEDBACK LOOP. ANY ALL MECHANICAL VIBRATION SHOULD BE INITIATED & SUSTAINED BY PHOTON PULSE BURSTS.

(2)

29 JULY 1968
W.P.W.

REPORT OF MISC. FIELD OBSERV.

REP. NO. C80729-2

~~PROLOGUE~~ PREFACE

DURING RECENT DISCUSSIONS WITH VARIOUS PERSONS AS TO THE POSSIBILITY OF (PRESENTLY UNKNOWN) STANDING WAVE PATTERNS OF FORCE OR ENERGY FIELDS ON THE EARTHS SURFACE, IT CAME TO LIGHT THAT CERTAIN GERMAN SCIENTISTS HAVE DOCUMENTED RESEARCH IN THIS AREA.

Possibly related to but not necessarily composed of observable magnetic gravitational fields

(ENGLISH TRANSLATION OF THE PAPERS IS NOW BEING COMPLETED.)

PREMISE

TENTATIVE INFORMATION INDICATES THAT CERTAIN FORCE FIELDS MAY EXIST ON NEARLY SYMETRICAL RECTANGULAR (OR EQUILATERAL) COORDINATES. THE DIMENSIONS & POSITION OF WHICH ARE DEPENDANT UPON THE GEOGRAPHIC LATTITUDE & LONGITUDE POSITIONS NORMAL TO & IN THE SOUTHERN CALIF. AREA. THE "INTO THE EARTH" & OUT OF THE EARTH" CENTRAL FORCE FIELD POINTS ARE ON APPROX. SQUARE CONFIGURATIONS OF ~~APPROX~~. 65 FT. POINT TO POINT DIMENSIONS. THEY ARE SYMETRICAL WITH ~~RESPECT~~ TO POSITION BUT VARY IN DIMENSIONS AS THEY ARE LOCATED ~~LOCATED~~ MORE NORTHERLY OR SOUTHERLY ABOVE OR BELOW THE EQUATOR. (AS THE EARTHS POLES ARE APPROACHED, THE PATTERNS BECOME MORE OF A TRAPEZOID WITH PARALLEL NORTH & SOUTH SIDES)

FIELD OBSERVATIONS PHENOMENA

~~PHYSICAL EVIDENCE~~ OF THIS HAS NOT BEEN OBSERVED BY THIS REPORTER. ~~HOWEVER~~, WHILE CONSIDERING THE ~~THINKING ABOUT THE~~ PROBABILITY OF ~~THE EXISTANCE OF SUCH~~ SUCH THAT ~~FIELD OBS~~ FORCE OR ENERGY FIELDS MAY EXIST, ~~EXISTING FIELDS WERE OBSERVED:~~

WAS ALSO ENTERTAINED

THE THOUGHT THAT NATURAL PHYSICAL OCCURANCES MIGHT BE OBSERVED "COINCIDENTAL WITH ~~AS COINCIDENCE OR~~ OR AS A RESULT OF" ANY SUCH ~~FORCE FIELDS~~ ANOMALYS.

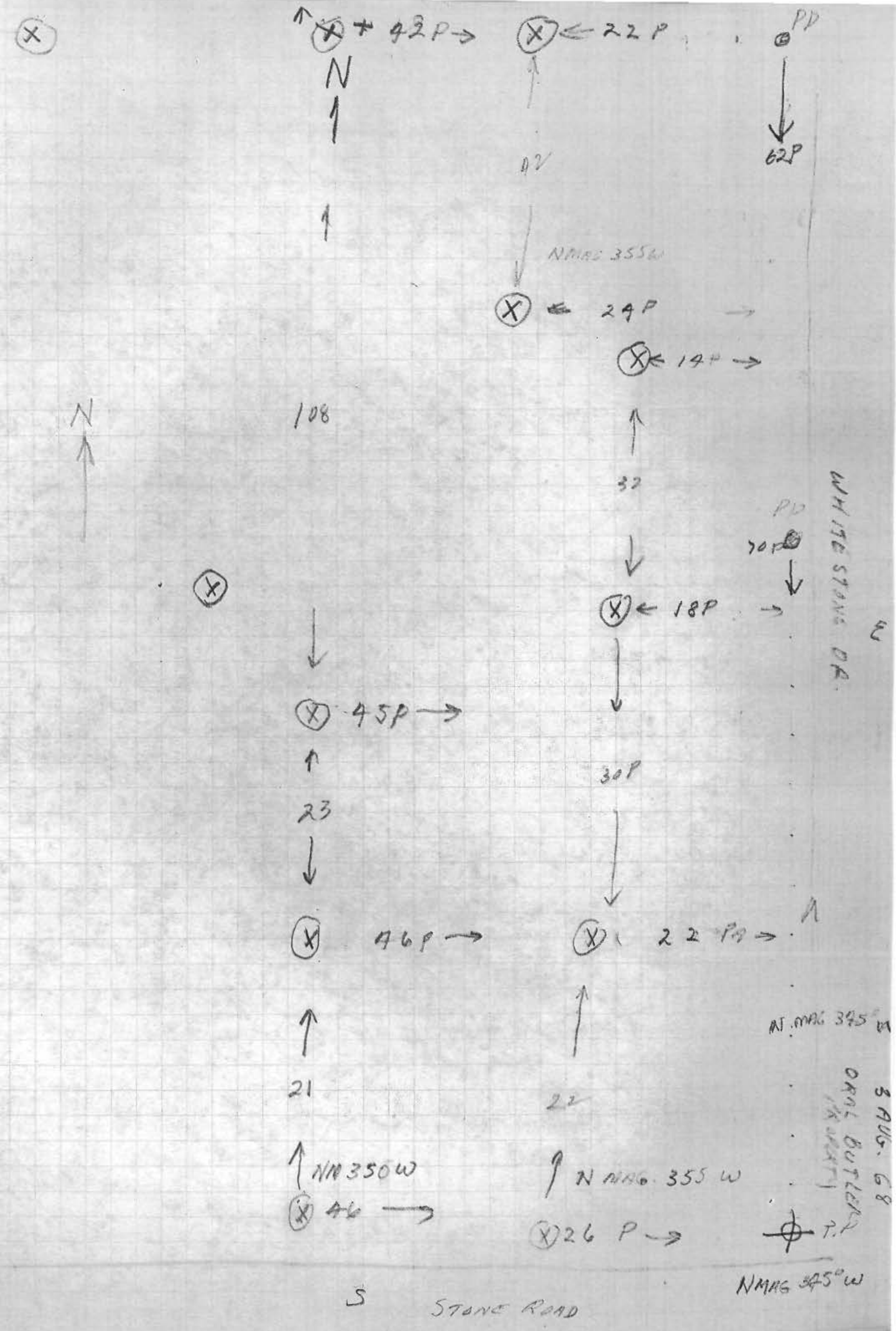
DURING THE COURSE OF EXAMINING ~~CERTAIN~~ PARCELS OF FLAT LAND ACREAGES IN THE YUCCA VALLEY, CALIF. (HIGH DESERT AREA) THE ~~REGULAR~~ APPEARANCE ~~OF~~ SOMEWHAT ~~SOMEWHAT~~ REGULARLY LOCATED ANT HILLS WAS NOTICED. APPEARANCE OF CERTAIN

MISC. FIELD OBS (ANTS)

A LARGE BLACK SEEMS TO BE ONE OF SEVERAL SPECIES OF HARVESTER ANT
THE PARTICULAR SPECIES OF ANT ~~SEEMS TO BE ONE~~ OF SEVERAL TO
SEED GATHERING.
BE FOUND IN THE AREA. THIS PARTICULAR ANT IS CONTINUOUSLY COLLECTING
A CERTAIN TYPE OF DARK COLORED WEED SEED, WITH OVAL HEAD AND A
LONG THIN TAPERED TAIL ~~THAT~~ CYLINDRICAL
~~WAS~~ TWISTED INTO A SPIRAL CONFIGURATION. ~~THE~~ THE ANTS AFTER
~~HAVE~~ ARE DISTANCE FIRST TRAINING THE SEEDS INTO THEIR HOLE LATER BRING
THEM TO THE SURFACE & DEPOSIT THEM IN A DISTINCTIVE, SHALLOW, INVERTED
CONE SHAPED, PATTERN SURROUNDING THEIR HILL. AS A RESULT OF THIS
PRACTICE, THEIR ~~LOCATION~~ LOCATION IS EASILY OBSERVABLE FROM A DISTANCE.
IT FIRST APPEARED THAT ~~THE~~ PARTICULAR COLONIES MIGHT BE OCCURRING ALONG
SOMEWHAT SYMETRICAL LINEAR COORDINATES. THEREFORE A PRELIMINARY
EXAMINATION TO DETERMINE IF THIS WAS SO & IF SO WHY SUNDAY JULY 28, 1968
WAS CONDUCTED IN A LARGE FLAT
ACREAGE ADJACENT TO A HILLY AREA AS FOLLOWS ON NEAR THE GIANT ROCK
AIRPORT GREENA

1. ANT HILL NO 1 WAS LOCATED & MARKED WITH A VERTICAL STICK MARKER
2. ANT HILL NO 2 WAS LOCATED & MARKED AS ABOVE
3. A MAGNETIC COMPASS BEARING WAS TAKEN ALONG A PROJECTED LINE OF THE TWO MARKERS & FOUND TO BE N. MAG. 20 DEG. E.
4. AN IMAGINARY PROJECTION ON THE SAME BEARING WAS LOCATED. APPROX. 500 YARDS DISTANCE
5. HILLS NO 3 - 4 - 5 - 6 & 7 WERE FOUND & MARKED ALONG THIS LINE SPACED AT MULTIPLES OF APPROX. 20 PACES.
6. TWO OF THE ANT HILLS WERE NOT OF THE SAME SPECIES ONE WAS A SMALLER BLACK ANT & THE OTHER A RED ANT
7. ADDITIONAL COLONIES WERE LOCATED ON LATERAL PROJECTIONS EASTERLY OF APPROX 20 PACE MULTIPLES
8. HILLS NO 8 - 9 - 10 - 11 - 12 WERE LOCATED ALONG AN SIMILAR BEARING OF N. MAG. 20° E APPROX. 40 PACES E. OF FIRST OBSERVATION
9. PRELIMINARY INVESTIGATION TENDS TO INDICATE THAT THE ANT COLONY LOCATIONS MAY BE POSSIBLY BE BASED ON MORE THAN COINCIDENCE
10. OBSERVATIONS ~~AT THIS TIME~~ WERE INTERRUPTED ~~AT~~ AND WILL BE CONTINUED AT A LATER DATE

W. P. WILSON
July 29, 1968



N
42P
22P
PD
62P
NMAG 355W
24P
14P
108
32
PD
70P
18P
WHITE STONE DR.
E
W
45P
30P
23
46P
22 PA
N. MAG 345° W
3 AUG. 68
21
22
NM 350W
N MAG. 355 W
46
26 P
T.P.
NMAG 345° W
S
STONE ROAD

28 August 1968
W. P. Wilson, Jr.

SUGGESTED STANDARD FORMAT
FOR TAPE INTERVIEWS

TITLE: Interview of Mr. Subject (Code Name if Appropriate) as related to an (Observation - Contact, etc.) of/or with a (UFO Aerial Phenomenon - Flying Saucer, etc.)

PREAMBLE: (To establish Who, What, Where, When, Why, and Limitations)

1. This is a (magnetic or other) recording of an interview being conducted in (City County State) Date and Time

2. The interview is being conducted by and in the presence of Mr. etc. and Mr. etc. the person now speaking. Mr. _____ will act as moderator.

3. The sole purpose of this interview is to GATHER collect information that may be of scientific interest, ~~or value.~~ All ~~resulting~~ information contained herein is to be considered confidential and proprietary and shall not be revealed to other persons for any reason except as agreed to by and with the consent of ~~the participants~~ PERSONS NOW PARTIC. AUTHORIZED AGENTS OF MDAC-WD.

4. (If appropriate) For purposes of security and to insure right of privacy the true names of the principles and/or observers, will not be used but (They, He, She, etc) will be referred to and addressed as (Smith, Jones, Etc.)

5. (For Minors or Juveniles), Prior permission for interview should have been obtained from parent or guardian).

Q. Address Subject - What is your age? And Occupation?

A. Answer _____

Q. Is this interview being conducted with the knowledge and consent of your parent or guardian? Answer.

Introduction

Q. 1. Address Subject - What is your age and occupation?

A. _____

Q. 2. Do you understand that the information to be discussed during this interview will relate only to observations made by you (and other persons if any) and will not include any ideas or inventions of a proprietary nature?

A. _____

Q. 3. To the best of your knowledge and belief are the incidents and or observations to be discussed during this interview true and factual occurrences?

A. _____

Q. 4. Now, Address Subject - It is our (my) understanding that at some time in the past you (saw, heard, or were involved with) something unusual?

A. _____

Q. 5. To the best of your recollection, what was the date, time and place of this occurrence?

A. _____

Q. 6. Statement - Now, Address Subject will you tell us, in your own words, just what it was that you saw (heard etc.)?

NOTES:

1. Allow uninterrupted narration for suitable period, make notes and question subject between periods.

2. Close a particular session or end of tape with time notation and future action if there is to be any.

3. Date and identify all taped material and prepare for safekeeping.

WOP.a.

PLASMA AND UNIVERSAL GRAVITATION

$G^{1/2}$ is dimensionally charge/mass and is $2.58 \cdot 10^{4}$ e.s.u. per gram. That it may actually be electrostatic charge per gram thus offers itself as an explanation of gravity. But this naive interpretation has been avoided because of the formidable problems incurred by the apparently complete nonpolarity of gravity and the absence of a satisfactory mechanism for the accumulation of the required amount of charge on one body, e.g., $1.54 \cdot 10^{27}$ e.s.u. for the earth and $5.16 \cdot 10^{29}$ e.s.u. for the sun. On the other hand there are several reasons to believe that gravity is actually of electrical and magnetic origin. Let us summarize several of these reasons:

(1) Experimental evidence shows that the earth is being continually and uniformly bombarded by cosmic radiation at a rate evidently in excess of 10^{15} cosmic-ray particles per second. Moreover, the "primaries" of cosmic radiation are apparently almost entirely positive ions. (9). As a matter of fact our magnetic field is such as to permit penetration by charges only of $e/m \doteq 10^{14}$ e.s.u./gram or less. Therefore electrons would need to have relativistic masses of around $3 \cdot 10^{3} m_0$ to penetrate the earth's magnetic field. While this is well within the energy range of cosmic radiation, at least many times more positives than negatives should be and evidently are able to penetrate into the Earth's atmosphere. But at a minimum of 10^{15} elementary positive charges per second or about 10^{6} e.s.u. per second for the whole earth the charge on the earth would increase at a rate of at least 10^{13} e.s.u. per year.

(2) The magnetic moment of the earth has the value required by a circulating charge distribution corresponding to the charge $G^{1/2} M_\oplus$ distributed approximately uniformly throughout the earth(1), i.e.,

$$\mu_\oplus = e_\oplus \hbar_\oplus / 2 M_\oplus c \qquad \text{(iii.35)}$$

where $e_\oplus$ is $G^{1/2} M_\oplus$, $\mu_\oplus$ the earth's magnetic moment, $\hbar_\oplus$ the "mechanical moment" of the earth and c the velocity of light. This relationship was first noticed by P.M.S. Blackett(1a) and applies also to the sun and other stars.

(3) In reference(1) the author presented a general unification concept which seems to show that the same fundamental laws apply in celestial as in atomic and molecular (and probably also nuclear) systems. Moreover it was there shown that gravity is intimately related to the radiation from the central body. The most important correlation bearing out this intimate relation to atomic systems is the observed coupling between orbital and spin states brought out in reference(1).

(4) It is possible to take a large "sample" of the matter on the earth, namely that comprising the atmosphere, or $5.27 \cdot 10^{21}$ grams, and show that it contains, within experimental error, the required electrical charge, namely about $1.36 \cdot 10^{18}$ e.s.u. Thus, if we treat the atmosphere as a concentric-sphere, the condensor

with the base of the atmosphere or the lithosphere as the inner sphere, the charge q on the atmosphere is found to be

$$q = CV = r_1 r_2/(r_1 - r_2) \int_{r_1}^{r_2} (dV/dr)\,dr \doteq 4 \cdot 4 \cdot 10^{17} (dV/dr) \qquad \text{(iii.36)}$$

Experimentally (dV/dr) amounts to about 0.6 to 3.17 volts/cm (positive vertically upward so that q is positive) near the earth's surface. The average value is required to be 3.1 volts/cm in order that $G^{1/2}M = q$ which is in excellent accord with the observed atmospheric potential gradient.

(5) There is a tremendous accretion process going on in the solar system that amounts evidently to about 10^{15} grams of micrometeorites on the earth each year (Whipple)(9). Assuming a ratio of more than one thousand to one for the gaseous material (H, He, CO_2, H_2O, , etc.) compared with solids in the accretion process as indicated by relative abundance data, there may be about $3 \cdot 10^8$ grams/sec total accretion on the earth. This is, at least within an order of magnitude, the amount of accretion necessary to maintain a constant $e/m_e(G^{1/2})$ or on the earth against the observed cosmic radiation accumulation of charge.

(6) If the earth's mass increase due to accretion were $3 \cdot 10^8$ grams/sec., one might expect the suns's accretion to amount to $3 \cdot 10^8 \cdot 4\pi r_\odot^2 / \pi r_\oplus^2 \doteq 10^{18}$ grams/sec. assuming that the earth merely intercepts that portion of the (probably) spherically distributed total mass flux to the sun corresponding to the cross-sectional area of the earth. There is an approximate check on this total flux in the conditions existing in the chromosphere of the sun. This may be shown as follows:

The electron density at the top of the sun's chromosphere is about $2 \cdot 10^{11}$ cc which is therefore also approximately the positive charge density. If matter were undergoing effectively "free fall" into the sun, its velocity would be $(GM/r_\odot)^{1/2} = 4 \cdot 10^7$ cm/sec. This velocity corresponds, through the relation $\frac{1}{2} m v^2 = \frac{3}{2} RT$, to a temperature of about $2 \cdot 10^7$ °K for a gas of average molecular weight unity. This agrees approximately with the temperature of the solar corona as evidenced by the appearance of charged atoms, e.g., iron, chromium, nickel, with charges of +13 to +16 in it. Hence the accretion on the sun may be as much as $n_0 m_H v (4\pi r_\odot^2) = 2 \cdot 10^{11} \cdot 1.7 \cdot 10^{-24} \cdot 4.5 \cdot 10^7 \cdot 4\pi \cdot (7 \cdot 10^{10})^2 \doteq 10^{18}$ g/sec. in agreement with the above earth-sampling result.

It is of interest that this kinetic energy of accretion is $\frac{1}{2} m v^2 \doteq \frac{1}{2} \cdot 10^{18} \cdot 2 \cdot 10^{15} = 10^{33}$ ergs/sec which is about the known solar constant, namely $2 \cdot 10^{33}$ ergs/sec. Apparently one thus has a likely explanation for the solar constant that need not include, or is at least approximately of the same relative importance as, the $H \rightarrow He$ reaction via the carbon-nitrogen cycle that is supposed to be taking place in the core of the sun.

(7) In stars, galactic nuclei (and a postulated supergalactic center) the average kinetic energy of any body should be approximately the negative of the gravitational energy $GM^2/\bar{a}$ where $\bar{a}$ is the mean distance from any element of mass to the center of the system. Therefore

$$T \doteq GM^2/N \cdot k \cdot \bar{a} \qquad \text{(iii.37)}$$

From this assumption the following are approximate values of the quantities in equation iii.37 for three bodies of great interest to us (based on an average atomic weight of 0.5).

Body	M(grams)	N	r(cm)	T(°K)
sun	$2\cdot10^{33}$	$2\cdot10^{57}$	$4\cdot10^{10}$	$\sim 2\cdot10^{7}$
effective galactic nucleus	$\sim 3\cdot10^{43}$	$\sim 10^{67}$	$\sim 10^{17}$	$\sim 10^{11}$
effective supergalactic nucleus	$\sim 10^{56}$	$\sim 10^{80}$	$\sim 10^{-2}$–10^{-1}	$\sim 10^{16}$–10^{17}

Based on the above facts together with the quasi-lattice model of plasma outlined above, let us now present the following "plasma model" of gravitation:

Celestial bodies are "positively" charge particles existing as (positive) lattices meshed in tremendous multi-electron lattices (or "cryscapades") in which the circulating electron lattices exist between and among the positive ions, i.e., in interplanetary, interstellar and intergalactic space, exactly as electrons in metals and plasma exist in the free space between the positive-ion lattice.

The charging of celestial bodies positively is easily understood and computed in terms (1) of the ion-cut-off characteristics of the powerful magnetic fields of celestial bodies and (2) of the binding energy of plasma for positive ions. First consider the selective absorption of an excess of positive ions by celestial bodies on the one hand and an excess of electrons by interplanetary, interstellar and intergalactic space on the other.

In order to understand why more positives than electrons are able to penetrate the magnetic field of bodies such as the sun and the earth one need simply realize that the cut-off energy is of the order of a billion electron volts even for the earth and, of course, greater for the sun and other luminous stars. To have such large energies, positive ions need to have relativistic masses actually not much greater than their rest masses, however, velocities always at least approaching closely the velocity of light. But it would be necessary for electrons to have relativistic masses more than 10^3 times greater than their rest mass in order to penetrate the magnetic fields even of planets to say nothing of stars and galaxies. It is instructive to consider the radii of circular orbits of nuclei and electrons moving as "satellites" of the earth and sun in or near the eclyptic plane. From the equation

$$Mv^2/r = e\,v H_\perp/c \qquad \text{(iii.38)}$$

and realizing that the component of magnetic field $H_\perp$ perpendicular to the velocity vector falls off as the cube of the distance, one obtains

$$r/r_0 = (eH_0 r_0/Mc^2\beta)^{1/2} \qquad \text{(iii.39)}$$

where the zero subscript designates the value at the surface of the body in question and $\beta = v/c$. Equation iii.39 gives for protons and other completely-striped ions $r/r_\oplus \doteq 10\,\beta^{-1/2}$ for the earth, and $r/r_\odot \doteq 10^3\,\beta^{-1/2}$ for the sun. But for electrons $r/r_\oplus \doteq 400\,\beta^{-1/2}$ for the earth, and $r/r_\odot \doteq 4\cdot10^4\,\beta^{-1/2}$ for the sun. These are therefore the closest distances of approach for ions and electrons of external origin. Note that the

earth's magnetic field at 60 earth radii (the moon-earth distance) about balances the sun's magnetic field at one AU (the earth-sun distance). This means that penetrating positive particles of $0.8 < \beta < 1.0$ originating outside the earth-moon system would orbit finally about the earth in an orbit inside the moon's orbit, but electrons in this range of energies would be so far out from the earth that they would be governed strictly by the sun's magnetic field. Likewise protons originating outside the solar system and finally orbiting around the sun at $0.8 < \beta < 1.0$ would orbit the sun "inside" the sun's "asteroid" system but electrons would orbit only "outside" the asteroid-ring system. These conditions seem to define the limits of the earth and the sun as nuclii placing the minor planets in a different category than the major planets. That is, the major planets in this respect would be little "sisters" to the sun whereas the minor planets would be "daughters".

Now for electron-positron pair formation the photon energy is 10^6 e.V. . This corresponds to a temperature of about 10^{10} °K. Therefore the galactic nucleus should be able to "emit" large quantities of "electrons-positron" pairs, in fact even more than photons, because the spectral displacement law (the Wein law) would have the wave length of maximum intensity for emission from the galactic center at "less" than the "Compton wave length" for this electron-positron pair. By decay and rearrangement the main radiation from the center of our galaxy might therefore be expected to be simply protons and electrons or H-atoms of initial kinetic energy about 10^{-6} ergs per particle. These would have slowed down, by gravitational attraction to the galactic center, to about 10^7 cm/sec. at $3 \cdot 10^{22}$ cm (30,000 l.y.) from the center of radiation. This is approximately the observed velocity of hydrogen in our region of interstellar space. Therefore it seems reasonable to assume that the observed hydrogen in interstellar space is really predominantly that emitted as "soft cosmic radiation" from the galactic center. Moreover, from the high-energy "tail" of the Stephan-Boltzmann radiation from the galactic center one should except to find in our region of space hydrogen atoms or ions (soft cosmic rays) of velocity near the velocity of light, i.e., with energies perhaps 10^3 to 10^4 times greater than the average of the Stephan-Boltzmann spectral distribution radiated from the galactic center.

The existence of a supergalaxy now a quite definate reality, would lead one to look for a "supergalactic" nucleus of effective diameter comparable to the diameter of the supergalaxy's satellites, namely the galaxies, or 10^{23} to 10^{25} cm. The supergalaxy would be the final one because in the system-within-the-system concept any system is in general, i.e., within a factor of about 10, about 10^7 times greater in diameter than its satellites. But at 10^{29} cm the "red shifts" go to zero, hence all radiation either from the super-galactic nucleus or one of its satellites not intercepted by a primary, secondary, tertiary, etc., satellite would be returned, by space-curvature, to the gigantic nucleus. Now at the tremendous temperature of the supergalactic nucleus ($\sim 10^{17}$ °K) the peak of the radiation distribution would have an energy $h\nu$ of about 10^{13} e.V. with an upper limit radiation, corresponding again to the high-frequency tail of the Stephan-Boltzmann distribution, around

10^{17} e.v. . This is approximately the observed upper-limit energy of cosmic radiation and this model for cosmic radiation is therefore consistent with observations and predicts that the source of the cosmic rays of highest energy is the supergalactic nucleus which is emitting simply in accord with the well-established Stephan-Boltzmann radiation law.

Next, applying the concept of the plasma let us compute the charge on a celestial body. A plasma has an "energy well" of depth given (for an overall uncharged plasma) by equation iii.33. This means that the plasma can "absorb positive ions" until the increase in energy due to repulsion, i.e., the energy $CV^2/2$ of the charged "condenser" ($q = CV$), exactly balances the energy of the plasma providing one sprays the plasma condensor with positive charge. (Actually cosmic radiation is doing just this as far as the earth and presumably all other bodies are concerned). The earth as a plasma (it is a good conductor and therefore metallic, or a plasma, as far as the macroscopic earth is concerned) should therefore be able to absorb positive charge until the energy increase caused by this charge is

$$CV^2/2 = q^2/2C = N \cdot |E_i| \qquad \text{(iii.40)}$$

and the charge is

$$q = (2C \cdot N \cdot |E_i|)^{1/2} \qquad \text{(iii.41)}$$

For a chemical (or solid) plasma of the nature of the earth $|E_i|$ amounts to around 10^{-11} ergs per positive ion. Also assuming an average atomic weight of 30, $N_\oplus \doteq 10^{50}$. Furthermore, $C_\oplus = r_\oplus = 6.4 \cdot 10^8$ cm . Therefore $q_\oplus = (2 \cdot 6 \cdot 10^8 \cdot 10^{50} \cdot 10^{-11})^{1/2} = 10^{24}$ e.s.u. This agrees almost precisely with $G^{1/2} M_\oplus$ and definately, it would seem, identifies $G^{1/2}$ with charge per unit mass. Note also that for the earth

$$|E_i| \doteq GM_\oplus^2/2a \cdot N;$$

the condition $NkT \doteq GM^2/2a$ give somewhat (possibly 3 times) too large a temperature evidently because the binding energy is largely chemical.

One may likewise compute the (positive) charge on the sun from equation iii.41, i.e., from the equation

$$CV^2/2 = GM^2/2a = q^2/2C = q^2/2a$$

or

$$q = G^{1/2} M \qquad \text{(iii.42)}$$

However, one finds that $|E_i|_\odot$ must be about 500 e.v. for the sun. This is consistent with the composition of the sun and the fact that practically all of the orbital electrons of the atoms up to about Z = 13 to 15 should have been stripped at the thermal environment of the sun, and therefore are plasma electrons. For example, one needs less than 2 per cent of the sun to be atoms of atomic number 15 or greater to account for this "plasma" energy.

It is important to realize in this model that net universal

attraction despite an excess of positive charge on a body is associated with the "energy well" of the plasma and ideal, metallic (or plasmatic) polarization, i.e., an effectively infinite dielectric constant. In fact the increased energy $CV^2/2$ is exactly balanced by the decreased energy due to the interaction of the charge q with the negative charge of inter-planetary electrons bonding the celestial particle in the celestial lattice. Indeed, owing to excellent conduction in the plasma each particle-on-a-particle is held to the system, despite the local positive excess by the familiar "image force" with a strength determined simply by the binding energy of elementary ions for the plasma, as determined by the "energy well".

UNIVERSAL PLASMA DEVELOPMENT

As noted above the supergalactic nucleus should emit at a maximum intensity in the energy range of about 10^{13} e.v. per photon. At this frequency, which is above the Compton wave length for neutrons, the photons should decay in their (relativistic) half-life cycle to matter itself, i.e., possibly first to neutrons (if the photon is not identically a neutron to start with), α particles, etc., and the electrons all probably initially, as they leave the nucleus, in charge balance. An electron excess then becomes trapped in the space between the supergalactic nucleus and its satellites by the magnetic fields of the galaxies, leaving therefore an excess of negative charge in this space and an equal positive excess, owing to the greater penetration of the positives, in all of the galaxies combined. Under conditions where the positives and negatives can recombine to neutral atoms in the free space between the galaxies the "neutrals" can then accrete into the galaxies without being hindered by magnetic fields. Evidently neutral accretion must take place universally at a fixed ratio to the charge accretion in order to maintain the gravitational constant. The penetrating positive excess thus adds charge to the galaxies leaving an equal amount of excess negative charge in the space between the galaxies and supergalactic nucleus, providing the "chemical" binding energy of the galaxy to its positive super-galactic nucleus. This same process is repeated between a galactic nucleus and "its" satellites; by emission followed by decay to charged particles, a positive excess of which is able to penetrate the galactic satellites, the constellations, galactic clusters and the stars of the galaxy also become positively charged. Moreover, the excess negative charge remaining behind, owing to the inability of all but a relatively few of them compared with the positives to penetrate the satellites, add to the "negative-excess" inter-galactic charge. The hard cosmic rays of the primary process each produce, of course, a large number of high energy, positive and negative secondaries. Thus these secondary charges again become separated to some extent (about one part in 10^{14}) within the galaxies by the tremendous dynamo-action of the rotating magnetic fields of the stars and clusters of stars of the galaxy, and the greater penetrating power of the high-energy "tail" of the positives of this softer cosmic radiation. One should realize that this process repeats itself again between the stars and their planets by soft cosmic radiation from the star itself, and again between the planets and their satellites by cosmic-ray "star" formation inside the

system. This latter process is the predominant one and occurs in all systems. That is, cosmic-ray "star" (or explosion) processes occurring inside any given system will be subject to the same dynamo-action of the rotating magnetic moment of the bodies of the system as between the supergalaxy and the galaxy described above, irrespective of the order or size of the system. This dynamo-action thus serves to produce a "positive excess" on all massive bodies and a "negative excess" throughout all space, extragalactic, intergalactic, interstellar and interplanetary.

CHEMICAL BINDING IN PLASMA

A remarkable feature of the plasma interpreted by the quasi-lattice model is that it provides a means, under high internal temperatures and high density, for realizing "chemical-binding" energies far in excess of that in the strongest chemical bonds in our terrestrail environment, e.g., as in CO, N_2, diamond, platinum, etc. For instance, it was indicated that the "chemical" or plasma binding energy in the sun may be about 500 e.v. per atom. This concept is simply that when the nuclei of a plasma are sufficiently close together, and the temperature high enough to remove by ionization many or all of the electrons of atoms that are ordinary core electrons comprising the positive-lattice ions at low temperatures, the chemical-binding energy then becomes comparable to $\sum_{i=1}^{z} I_i$, where z is the total number of electrons per atom removed by ionization and moving in the quasi-lattice of the plasma, and I_i is the ionization potential of the i^{th} electron.

This seemingly quite plausible property of plasma thus offers a simple explanation for the high-density dwarf stars. That is, if a body were comprised largely of high atomic weight nuclei, e.g., atoms of 16 electrons or more, and had an internal temperature of say 10^8, about 16 electrons per positive ion would be plasma electrons, and the binding energy would then be tremendously greater than in a plasma with only one or two electrons per positive ion. At such a large binding energy the density would be comparably large.

This feature of the quasi-lattice model of the plasma also offers a plausible explanation of the tremendous binding energy of nuclei if one also postulates a new realm of elementary particles, e.g, of size as much smaller than a nucleus as the stars, constellations, and clusters of stars are smaller than a galaxy. A photon might then be regarded as a plasma comprising a tremendous number of more elementary particles (e.g., Frenkel's "N-particles") (2) with a "positive excess" of $4.77 \cdot 10^{-10}$ e.s.u. per galaxy, and a neutron as a plasma with no charge excess. Realizing that the proton with its large positive excess is a stable plasma, one also realizes that the combination of two such plasma one with maximum possible positive excess and the other with no positive excess, e.g., the proton and the neutron, would combine to form a plasma of a still deeper "energy well" simply because it is more massive. The tremendous log of new, strange particles that are known to comprise atomic nuclei is strongly suggestive of extremely minute, "nuclear galaxies" with characteristic

minute galactic clusters, globular clusters, constellations, stars and planets held together in extremely tight, high temperature plasma.

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$$-E_L = (30Z^2/d)(1 - 0.8/dZ^{4/3}) \qquad (III.33)$$