

SOCIETY FOR THE INVESTIGATION OF THE UNEXPLAINED

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Our publishing schedule is four quarterly issues of PURSUIT, dated Spring, Summer, Fall, and Winter, and numbered as annual volumes — Vol. 1 being 1968 and before; Vol. 2, 1969, and so on. These are mailed at the end of the month. (Membership and our quarterly journal PURSUIT is \$10 per year. Subscription to PURSUIT, without membership benefits, for libraries only, is \$8 for 4 issues.) Order forms for back issues will be supplied on request.

PURSUIT is listed in Ulrich's International Periodicals Directory and in the Standard Guide to Periodicals; and is abstracted in Abstracts of Folklore Studies. It is also available from University Microfilms, 300 N. Zeeb Rd., Ann Arbor, Michigan 48106. The price is \$4.10 per reel. An annual index appears in the October issue.

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THE JOURNAL OF THE SOCIETY
FOR THE INVESTIGATION OF THE UNEXPLAINED

FOUNDED BY IVAN T. SANDERSON

Devoted to the Investigation of "Things" that are Customarily Discounted

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LITTLE GREEN MEN and THE LAW OF DYNAMICAL SIMILARITY

by William H. Whamond

The historical development of the UFO saga affords as good proof as any of the inescapable fact that logic is not an innate characteristic of the human race. Rather, logic is an acquired characteristic. It usually takes at least a minimum of four years of slaving at an institute of higher technical education to acquire even a modicum of it. We are all aware of the facesaving bleat, "To err is human"; just an illogical coverup of the truth that logic is inhuman/unhuman, and humanity is irrationality.

The public has been infected with the notion that science knows the answers. The impression has been put about that some savant merely turns to Page 12,709 of the Scientific Bible and quotes the appropriate formula, after which the matter is closed.

Nothing could be further from the *actual* situation.

As science is an activity conducted by humans it is axiomatic that it resembles *comic opera* just as much as does law, politics, economics or any other type of institutionalized buffoonery which characterizes the human race.

For the benefit of the skeptical reader, perhaps we should consider a few examples:

1) The scientific unit of power is called the Kilowatt, but (illogically) is only used for electrical equipment. For instance, if you have a 30kw electric car and decide to replace the motor with a gasoline motor of the same power, then it's called a 40 H.P. car. Mechanical engineers would *never* allow you to call it a "30 kw car" (even though it is still one), because they feel this might imply that mechanical engineering is merely a branch of electrical engineering! All very "logical and scientific," isn't it? Moreover, there's an *English* horsepower (76 Kg. Metre/sec.) and a *French* horsepower (75 Kg. Metre/sec.), called the "C.V." (which translates roughly as "horsesweat!"). Presumably French horses are more amorous than English horses and pursuit of *l'amour* leaves 'em just that 10 watts less energetic! So I suppose science is logical, in a way . . .

2) Most people are familiar with the electronic concept of "tuning," whereby a radio is "tuned" to the frequency of the broadcasting station which one desires to receive. However, in electrical power engineering, this *identical* concept is labeled by the quite fantastic moniker of "power factor correction." It would never do to have the public think that power engineering was merely a branch of electronics. Dear me, no. So stringently is this entirely artificial technical double-talk adhered to that when the author asked a cracker-jack power engineering lecturer, "When you 'power factor correct' a factory, are you not really just tuning it to the 60 cy/sec of the power plant?" said hotshot had to ponder long and deeply before replying, "Yes, I suppose so"! All very scientific and logical, isn't it?

3) The factor I^2t (i.e., current, squared, multiplied by time) is very basic to electrical engineering, since it devolves directly from Newton's Second Law of Motion. However, no electrical engineering textbook will ever tell you that, nor will any other kind of textbook. The electrical shock or impulse which will blow a fuse or prove lethal to a person depends on I^2t , but this is never mentioned in any electrical engineering textbook. Presumably the "profs" don't want to simplify things too much, in case they unemploy themselves? All very scientific and logical (in a way), I suppose.

4) Science has propagandized even scientists to an unthinking belief that gravity varies as the inverse square of distance. Actually that's true only in the case of a sphere or point. For a cylinder (for instance), gravity varies merely as the inverse (not squared) of radial distance. One doesn't even have to prove it either. One glance at Ampere's Law applied to an electric wire (which is available in any high school textbook) proves it for us. Yet pontifical science has oafishly concealed from us this valuable insight on the nature of gravitation. Just another example of the logic of science, of course.

5) One could go on citing similar examples of the logic of science practically indefinitely, but let's consider another aspect of it. One doesn't have to look at the edifice of science very closely to discover that it's full of holes. Far from consisting of "a formula for everything, and everything in its place," science consists of numerous meticulously formulated corners, interspersed with blanks which one could drive a truck through; viz:

a. It is only during the three decades since WW II that a large known blank was filled in the electromagnetic spectrum by radar.

b. Gravity, Time, and Death are three enormous known blanks in the edifice of science, about which practically nothing is being done.

c. If you ask a man of science how to calculate the bend of a ray of light passing through a prism he will say, "That's a formula called Snell's Law of Refraction." But if you ask him: "If light of a 'green' frequency passes into gas of a known density how much will the light ray be bent?", he probably won't know the formula, or even if there is one!

d. Similarly, if you ask a man of science how to calculate the sound loss through a wall, he'll say "That's the Transmission Loss formula. Depends on the sound going in and the sound that comes out." But if you say "I'm not interested in what goes in and what comes out. I want to know what happens inside the wall. How does the wall's thickness and density and elasticity and area affect the

sound?”, then once again you’ll probably find yourself spending several days plowing through textbooks, hoping to find some sort of formula.

e. If you present a man of science with a question like, “The waves on the sea depend on gravity, do they not — I mean, if the waves weren’t made of water, and gravity wasn’t the same as it is, how would this affect the waves? Would they be shorter and choppy or taller and less frequent, or what?”, the savant would probably think of the Wave Equation formula and say he wasn’t sure. If you insisted you must know the correct answer because you wanted to write a science fiction story about seamen on another planet, then your savant would really have to reponder his Wave Equation to decide whether it only applied to Earth conditions or was universally applicable.

f. If the situation regarding “b” above is irrational, the situation in respect of non-medical drugs is irrationality squared. Apparently it’s moral to take a drug only when one is ill. Why not a drug to make one live longer, be more intelligent, or have greater aptitude for mathematics? What’s wrong with a drug to increase one’s mental concentration, or sight and hearing? Why not a drug to make one never need sleep, or be honest and truthful? An entire field, at least as large as the existing medical or chemical fields, is almost completely neglected by so-called science.

Again, I stress that these are merely a very few examples of the literally *thousands* of instances where science draws a blank. If you want the appropriate formula, you have to either build it yourself or find something similar and re-tailor it to your tastes/requirements.

Rather a far cry from the public’s picture of Scientific Authority, I would imagine.

The foregoing ramshackle edifice of science constitutes the bizarre background against which the historical development of the UFO saga actually occurred and is still taking place. Consequently it is hardly surprising that the initial reaction of so-called scientists was one of total disbelief. “Why, we’ll have to re-tailor all our formulae to suit a different viewpoint” (c., d., e., and [3] above) was the underlying qualm. With the illogic which is innately unseparable from the term “human,” these same scientists who were selling their government on the possibility of space flight were simultaneously telling those same governments that space flight was impossible when they saw UFOs *doing* it.

After a couple of decades of slandering reputable witnesses and generally discrediting themselves and science, some of these so-called scientists actually became sufficiently scientific to admit that UFOs were possible — *maybe*. But, they cautioned that “any reports of occupants inside these UFOs are too ridiculous to be credible.”

In short, these so-called conservative scientists who’d been steadfastly maintaining that UFOs were *impossible* suddenly became out and out radicals declaring that not only are UFOs possible (maybe), but they actually build and fly *themselves* without the assistance of any occupants! One doesn’t have to be chronically inconsistent to

be a government-approved scientist, but it sure helps.

I am not really concerned, however, with the mental aberrations of those whom the Establishment generally tags as “good management material” except to point out that they are drastically warped — mentally, spiritually, and morally. I am more concerned with this concept of occupants. Is it ridiculous or not? Obviously not: *something* builds UFOs. They do not build themselves. Therefore it’s not impossible that said “something” would also be tempted to take a ride in them.

I am also aware of the fact that a lot of controversy over UFO occupants stems from the fact that such occupants are reputed to be of small stature — veritable mini-men, in fact. One immediately thinks of Africa’s pygmies; also circus midgets. It quickly becomes apparent that the concept of mini-men is *not* ridiculous. But I guess even scientists don’t mind making themselves ridiculous if their governments pay them enough to do so.

Nevertheless, your author senses that this “mini-men” concept is worthy of further investigation. For one thing, such stories are out of character. *So far* out of character, in fact, that one begins to suspect there may be truth to them.

For instance: here we have this seemingly illiterate plowboy who is visited by a super spaceship and out steps this spaceman armed with a super ray gun. It follows that this spaceman will also be a *superman*. (Like something from Texas, say? Without the horns on maybe, but 7 feet tall and weighing maybe 300 lbs.; that slaps one on the back and offers one a swig of 5-star homebrew. *That* kind of a super spaceman.) But no. This is a *mini-man*, all of 29” tall. And our plowboy didn’t even try to catch him and put him in a milk can. Quite obviously this alleged “tall story” is way out of character, no?

Then there’s the UFO itself. That’s way out of character too. If we search science fiction way back to the Flash Gordon and Buck Rodgers comic strips, we find that spaceships may be shaped like balls, cylinders, dumbbells, rockets, or arrowheads, and even cones or pyramids, occasionally; but *never* discs. There may have been the (very) odd circular flying-wing shape, but so seldom that one would have to be a science fiction superfan to know of it. But the humped disc or “saucer” shape? *Never!*

Space travel has traditionally been thought of as a matter of rockets, and the humped disc or saucer shape makes no sense unless one thinks of propulsion by a flat (electro-magnetic) coil. Yet suddenly everyone is imagining saucer-shaped spaceships. Obviously they didn’t get the notion from science fiction. Suddenly every “man on the street” is imagining a single shape which a host of science fiction writers couldn’t manage to dream up during the past half-century. Obviously, then, it’s not imagination. The saucers exist.

So let us ponder this mini-men concept and see where it leads us. When one thinks of a reduced-size man, one realizes this is essentially a small *scale* man. Here science should be on well-trodden ground because the use of scale models (of aircraft, dams, ships, riverbeds, etc.) is a familiar scientific method of simulating (i.e. predicting) the performance of the real thing. Moreover, most people

Froude's STEAMSHIP PERFORMANCE Formula:-

$$P = KV^7$$

Differentiating; $dP = 7KV^6 dV$

& Dividing; $\left(\frac{dP}{P}\right) = \frac{7KV^6 dV}{KV^7} = 7\left(\frac{dV}{V}\right)$

where $\left\{ \begin{array}{l} P = \text{Engine Horsepower} \\ V = \text{Ship's Speed} \\ K = \text{Constant (depends on} \\ \quad \text{Ship's size \& shape)} \end{array} \right.$

ie Fractional (or %) change in Power = 7 TIMES the Fractional (or %) change in Speed!

The SHORT CIRCUIT Formula:-

where $\left\{ \begin{array}{l} I = \text{normal Current} \\ Z = \text{normal Impedance} \\ "s" = \text{"short-circuit" values} \\ \quad \text{of Current \& Impedance} \end{array} \right.$

$$\left(\frac{I_s}{I}\right) = \frac{1}{\left(\frac{Z_s}{Z}\right)}$$

ie "Current Ratio" =

INVERSE "Impedance Ratio"

have heard of the flight simulators used to train airline pilots or the use of computer simulation methods to model (i.e., simulate) the "flow" of work and materials through a factory, etc.

The scientific formula used to "scale up" (or "scale down" if desired) from a model to the real thing is called the "Law of Dynamical Similarity" or "Principle of Similitude." Far from being abstruse, this is a very workaday formula. For instance, when an electrician does short-circuit calculations he is really just applying the "Principle of Similitude/Electrodynamical — Similarity" to "scale up" the current in accordance with the "scaling down" of impedance which occurs when parts of a circuit have become "by-passed" (i.e., shorted out!).

Similarly, the hydrodynamicist knows the horsepower of a steamship varies as the "7th power" of the speed (V). This tells the steamship designer that any fractional (or %) change in horsepower must be 7 times any fractional (or %) change in speed he wants! In other words if he wants a mere 10% "scale-up" in speed, he's going to need 70% more horsepower! It is small wonder that the speed of merchant ships has stayed around 15 to 25 mph for the past century.

It would be hard to imagine more simple formulae than the short circuit formula or the steamship performance formula, yet they provide very firm answers to very basic questions and show the value, scope, and authority of the "Law of Dynamical Similarity."

Let's consider an even simpler example of the "Law of Dynamical Similarity" in action — an example with which everyone is familiar. If you tell a photographer you want a double-size "blow-up" of your photo, it will cost you 4 times as much, not double (see fig. 1). That's because when you ask for double size you are unconsciously thinking of the photo's edge-length, whereas the photographer knows he's actually selling you area of film. (He should know, as he has to buy it by the square foot.) Area depends on length x itself, and in the above case $2^2 = 4$ times the area (fig. 1). Similarly, if you wanted a half-sized gold trophy, then it should cost you one eighth as much, because (as most people know) volume depends on length cubed; and so for a half-sized statuette, $(\frac{1}{2})^3 = \frac{1}{8}$ (fig. 2). Now, although most people have no difficulty in understanding this in terms of a square or a cube (in which all lengths are equal), how many people realize that this is true for *all other shapes* also? It is very easy to prove that "volume varies as length, cubed" for any solid shape; say a brick (fig. 3). A brick is a good choice because any irregular shape (e.g., the human body) can be thought of as divided into millions of tiny bricks! A similar approach can be used to prove that "area varies as length, squared" even when such area is irregular in shape. Incidentally, this allows a far simpler proof of "Pythagoras's Theorem" than one ever finds in a high school textbook (fig. 4), once again showing the merits of using the "Law of Dynamical Similarity" rather than some other less basic approach. How many people realize that "Pythagoras" is true for *any similar AREAS* (e.g., circles) — not just "squares?"

Now this fact that Area (fig. 1) and Volume (fig. 2) vary respectively as the "square" and "cube" of corresponding linear dimensions isn't just of academic concern. It's a vital problem of "scaling" confronted by every designer who tries to build a bigger statue, building, rocket, aircraft, etc. As evident from fig. 2, a "double-sized" building will actually have 8 (i.e., 2^3) times the volume. The pressure of "stress" on the base will therefore be $8/4$ (i.e., 2) times the former value of 1/1.

This is known to architects and engineers as the Square/Cube Law, although that is a rather unfortunate name for it. (Actually there are many different square/cube laws. The "Power formula" for an hydraulic turbine and Kepler's "3rd Law of Planetary Motion" are just another two square/cube laws, which have nothing whatever to do with what architects call the Square/Cube Law!)

Photo "Blow-Up"
is ("Doubled"!)

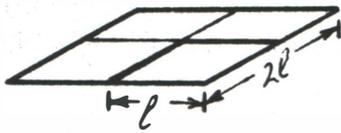


FIGURE 1

Building
"Blow-Up"
(is "Doubled"!)

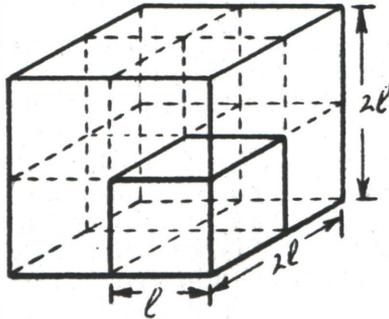


FIGURE 2

Height = $h l$
 Breadth = $b l$
 Thickness = $t l$
 "Shape Ratio"
 = $h : b : t$
 (for Brick!)

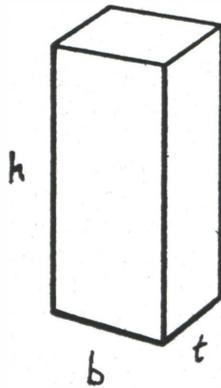
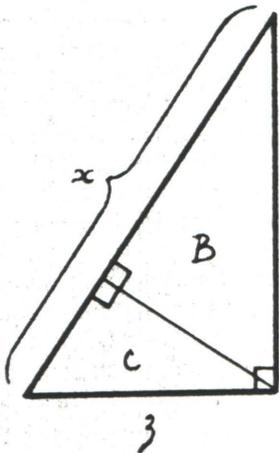


FIGURE 3

Let "l" be the unit of length (eg 1 meter or 1ft, etc)
 Then "Volume" = $(h l) \times (b l) \times (t l)$
 $= (h b t) [l^3]$
 $= (\text{"Shape Factor"}) \times [\text{LENGTH}]^3$

* It is notable that some large birds cheat the "Law of Dynamical Similarity" by having hollow bones!

"PYTHAGORAS' PROOF"; Similarly, "Area" = ("Shape Factor") \times [length]²



All 3 triangles SIMILAR (so have same "Shape Factor")
 call their "Shape Factor" = k
 $\therefore \Delta A = \Delta B + \Delta C$
 \therefore becomes $k x^2 = k y^2 + k z^2$
 or, $x^2 = y^2 + z^2$
 which is "Pythagoras's Theorem", PROVED!

(BIG $\Delta = A$) $\leftarrow A =$ entire Δ , above

FIGURE 4

the original half-sized building. Note how the “scale” is being distorted by becoming 2.828 instead of 2 in some places. Of course, one could cheat the “Law of Dynamical Similarity” by using stronger materials (steel pillars instead of concrete, for example). “You can’t beat the Square/Cube Law,” sigh the architects, resignedly; “You can only cheat it occasionally.”

I have come to realize that this is just another fallacious platitude of Establishment Science, however. The so-called Square/Cube Law could be beaten very simply — if one had an anti-gravity generator. You would simply install your anti-gravity generator in your double-sized building and set the gravity control to $\frac{1}{2}$; your 8 times weight would then be halved (to a value of only 4 times) and would rest on a base area of 4 times (as aforementioned), so that the foundations would be stressed by $(\frac{1}{2} \times 8)/4$ (i.e. 1/1), the same as your half-sized original building. Similarly, if you built a triple-sized building, you’d set your gravity control device to $\frac{1}{3}$, and your tripled building would be stressed to the same level as its one-third-sized original.*

For instance, going to the moon is equivalent to reducing our gravity by $\frac{1}{6}$ (so we’re told). Hence, we could build a structure 6 times the height of the Empire State Building on the moon. Holographically, (i.e. photographically in all 3 dimensions), it would be a replica of the present Empire State Building in that every linear dimension (including windows, wall thicknesses, etc.) would be enlarged 6 times; and the various materials would be unchanged in type. It would also be found to have *exactly the same stress level at its base and elsewhere as the present Empire State Building*, which (as already proved) won’t collapse when subjected to this level of stress.

Your author is not aware of anyone else having realized this *exact* relationship between gravity and the so-called “Square/Cube Law”. Certainly if some other genius has realized it, he hasn’t condescended to publish the formula with the same enthusiasm. The famed science fiction author Isaac Asimov, for example, in an extensive discussion of the so-called Square/Cube Law¹ fails to point out how the Square/Cube Law would be affected by variable gravity.

Similarly, the highly reputed science fiction author A. C. Clarke, in his masterly textbook² on rockets and the effect of gravity on their “velocity of escape,” etc., doesn’t mention anything suggesting a relationship between gravity variation and the Square/Cube Law. Earlier treatises dealing extensively with the “Law of Dynamical Similarity”³ fail to discuss gravity variations at all.

The literature of science fiction does contain a groping realization that gravity *should* have some effect on structures, but the notions on the subject are so hazy that it is difficult to separate science content from fiction.

One science fiction school takes the view that things on low-gravity planets will grow tall and stalky, because “gravity is too weak to hold them down.” Such stories usually have our spaceman wandering under giant spindly mushrooms while being observed by giant grasshoppers and similar spindly insects. Another SF school

seems to contradict this view. They feel that a small planet (e.g. the Moon) has a small gravity and should therefore produce small inhabitants to match.

On the other hand, there seems to be a general consensus that inhabitants of high-gravity planets should be gorilla-muscled supermen quite capable of hauling their carcass around in the colossal gravity of their home planet (e.g. Jupiter). A minor variation on this theme has high-gravity inhabitants described as low-slung and lizard-like, dragged down onto all fours by their planet’s gravity, and living in squat massive structures built to withstand gravity. If there are any other schools of thought on the effects of gravity, they are so rare that certainly SF authors have not felt them convincing enough to be worth adopting wholesale and habitually.

In short, the science fiction field doesn’t appear to have developed any consistent opinion regarding the effects of low-gravity and high-gravity environments. Wherever the subject may be touched upon there is much evidence of contradictory confusion. Outside the science fiction field, of course, the subject is never even considered.

Thus, science fiction doesn’t seem able to offer us any clear leads on the subject; and we are therefore forced to rely on our own investigative resources. We have already discovered that as we build taller buildings, gravity must be reduced in inverse proportion (by our hypothetical device, which by lowering the gravity makes possible taller buildings). We can therefore suspect that if we venture in the *opposite direction* (to only higher-gravity planets), we will have to reduce the height of all structures proportionally to the increased gravity. Let us check this supposition; but in this instance let us study how the increased gravity would affect a *human* rather than a building. As we begin to suspect that increased gravity will compel smaller buildings, we also begin to realize we’ll need to find smaller personnel to utilize such mini-buildings.

“How would such mini-personnel be affected by gravity which is greater than normal?” seems the key question; so let’s try to answer it — scientifically and incontrovertibly.

Just as buildings consist of concrete and steel, the human body consists of flesh and bone. These are the building materials of the human body, and we’re stuck with them. Just like concrete and steel, flesh and bone will withstand only a certain degree or level of pressure or stress, beyond which they will crush, buckle, rupture or collapse.* Doctors are continually cautioning us that even a little bit of extra weight overstresses our system and is liable to cause anything from varicose veins and hemorrhoids to heart trouble, etc.

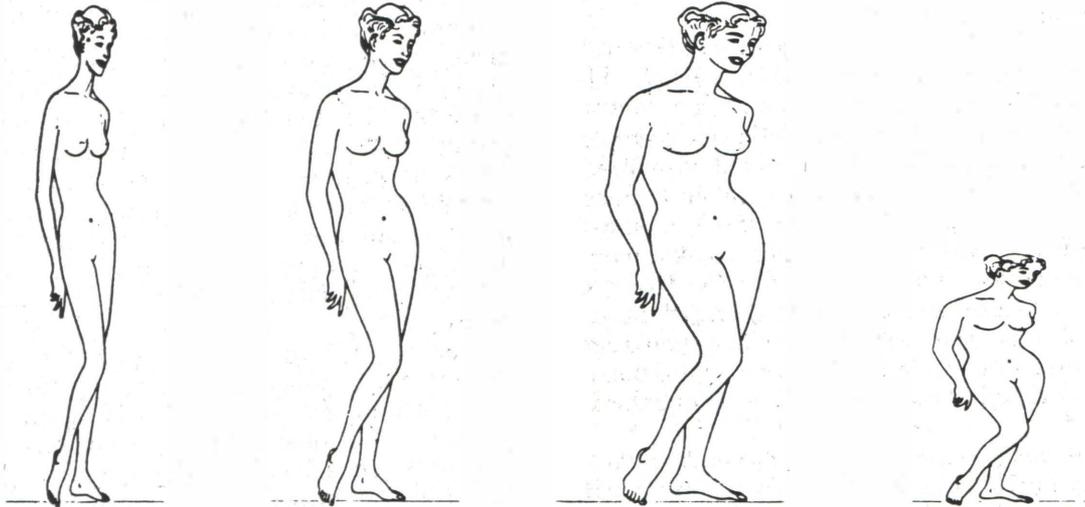
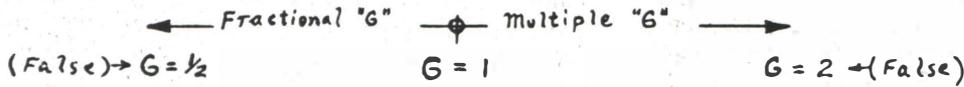
So there’s nothing special about the human body. It doesn’t have some sort of “diplomatic immunity” to the “Law of Dynamical Similarity;” neither does any other animal’s structure.⁴

Nature has evolved the normal Earth-human size and shape to be capable of supporting its own weight fairly comfortably, while temporarily bearing an overstress of maybe 100% (as when lifting or jumping). Beyond such

* An Establishment scientist will chortle, “But we don’t have antigravity, you silly fellow,” and smugly pat himself on the back. True! But what does that have to do with the mathematical validity? A too-typical case of the fraudulent conversion of an issue by such “managerial” cacklers.

* If you don’t believe it, try lifting something equal to your own weight or greater. Try carrying 300 lbs. of lead shot quilted into your jacket all day!

The "SCIENCE-FICTION" VIEW:



STALKY	NORMAL	HEAVY-DUTY CUTIE	DROOPY
Cross-Section; $\frac{1}{2}$	1	2	$\left. \begin{array}{l} 1 \\ \frac{1}{2} \\ \frac{1}{2} \\ 1 = \frac{1}{2} \times 2 \\ 2 = \frac{1}{2} \\ \frac{1}{2} = \frac{1}{2} \times 2 \times \frac{1}{2} \\ \frac{1}{8} = 1 \times (\frac{1}{2})^3 \\ 4 \\ 1 \end{array} \right\} \text{PLANET } G=2$
Frontal-Area; $\frac{1}{2}$	1	2	
Surface-Area; $\frac{1}{2}$	1	2	
Volume & Weight; $\frac{1}{2}$	1	2	
Shear Stress; $\frac{1}{\sqrt{2}}$	1	$\sqrt{2}$	
Bending Moment; $\frac{1}{2}$	1	2	
"I" of Section; $\frac{1}{\sqrt{2}}$	1	$\sqrt{2}$	
M/I Ratio; $\frac{1}{\sqrt{2}}$	1	$\sqrt{2}$	
Stress Level; 1	1	1	
		1 } at leg or wrist	

$G = 1$ FIGURE 5

limits there's not much leeway, and we must resort to various crutches such as "G-suits" and "acceleration-couches".

Let's start out, as does science fiction literature, by supposing that a woman travels from earth (where $G=1$) to a planet having twice the gravity ($G=2$), as in fig. 5. On earth, her cross-sectional stress was "Earth-Weight"/Area, whereas on the 2G planet her cross-sectional stress becomes (2 x "Earth-Weight")/Area. In short, her stress has doubled; and to restore it to the former value which she found comfortable on earth, she would need to double her cross-sectional area (of legs, waist, etc.) as well. (This seems to be where science fiction gets its "gorilla-bulky Hi-G dweller" notions from.) Science fiction seems to feel that such a thickening of the legs and waist* would eventually occur if a person remained long enough on a 2G planet (or if he was born there). Certainly it is notable that girls operating elevators tend to develop thicker legs after a while, due to the

* by 41.4%, because $1.414 = \sqrt{2}$, and $\sqrt{2}$ squared would give you doubled area.

"over-G" effect of ascending elevators.* All of which is in perfect accord with "The Law of Dynamical Similarity," insofar as it goes. However, science fiction (most unscientifically) overlooks the fact that, if leg and waist cross-sections were doubled (in an attempt to restore stress to an "Earth-normal" value), this would also double the volume and thus "up" the weight, and still leave us with a doubled stress while on the 2G planet. Hence, the "heavy-duty cutie" in fig. 5 is strictly an "Earth creature," and not especially adapted to 2G living as science fiction would have us believe. Similarly, the stalky figure in fig. 5 is an Earth creature and not peculiarly adapted in $\frac{1}{2}$ -G living, as shown by the fact that such slim figures are very reminiscent of certain African races (e.g. Watusi). An alternative science fiction "Hi-G" theme is the squat and muscular figure shown at $\frac{1}{2}$ -normal height in fig. 5, having the same width as an "Earth-normal" figure, (Note that this could be regarded as a normal-sized figure scaled to $\frac{1}{2}$ size, then doubled in width). I suppose this could be

* Most girls don't stay on the job very long in order to avoid becoming such a "heavy-duty cutie."

called the “droopy” version; because, although this figure would have “same-weight” on “same-cross-section” (under 2G) as a normal-sized figure on earth, a glance at the tabulated data shows that no one would marry her for her “Bending-Moment Withstand-Capability” under 2G! Also, why this latent assumption that a person’s height will remain the same when he goes to another planet? Or that if born on said other planet he would grow to the same height as on earth? If science fiction feels a person would develop thicker legs on a “Hi-G” planet, is it not at least equally logical to assume his *other* dimensions (e.g., height) would somehow vary also? As previously mentioned, science fiction seems confused on these matters. They started out (perfectly correctly) with a comparison of 2 persons of equal height on different planets. Somehow they got stuck with that “equal height” concept and never carried their deductions any further. The reason appears to be *anthropomorphic* (i.e., unconscious prejudice in favor of human height and shape).*

Since science fiction hasn’t been able to “make up its mind” on gravity/human consequences, and there is no other type of literature which deigns to even *mention* the subject (apparently), we are left with no other alternative than the “Law of Dynamical Similarity”, which we know to be reliable and always applicable.

Let’s reconsider a person on Earth (where $G = 1$). As previously mentioned, his “Cross-sectional” stress is equal to weight/area (of cross-section). Just as with a building, his weight depends on his volume (or height [h] cubed). His cross-sectional area depends on his leg radius (r) squared. Hence his stress (or weight/area ratio) on earth depends on h^3/r^2 . The so-called “Square/Cube” law of architecture again!

Now let’s see what happens when this person moves to a planet where gravity is “G” times Earth’s gravity. Let’s call the planet “Planet G,” for convenience. Everything remains the same except that his weight is now “G” times its former (i.e., Earth) value.

His stress on Planet G thus depends on $G(h^3/r^2)$. Now it’s been shown (fig. 3) that any given shape has its own definitive “shape ratio” of dimensions (namely h:b:t), the product of which constitutes its “shape factor.”

In the case of the human form discussed above, such “shape ratio” is h:r:r. In other words, as long as we’re stuck with the human form, we have a constant ratio of h/r. So the stress formula for our man on Planet G can be rewritten as $Gh(h/r)^2$; where the ratio $(h/r)^2$ is known to be constant.

Our man on Planet G is really stressed dependent only on Gxh!

Now this is *exactly* the same conclusion as we came to when discussing buildings. As the height “h” is increased, Gravity “G” must be decreased (somehow!) to avoid exceeding the safe stress level. Moreover, “h” actually means *any* corresponding dimension (not only height), since all dimensions pertaining to a particular shape are interconnected by some such “shape ratio” as h:r:r or h:b:t, above.

* Let’s face up to the fact that people respect a taller man, but don’t give a damn about a smaller man. An American “prof” once collected statistics showing that the salaries of company presidents who were 6’2” were consistently higher than those for 6’ presidents who, in turn, were paid more than 5’8” presidents. (That’s why they’re called “management material” — they buy ‘em by the yard!) Just further proof that logic is alien to the human race.

In fact, we can see (fig. 3) that what we’ve called Gxh here is really G(h/l) where l is the unit of length (e.g. feet, meter, mile, etc.). Accordingly, what this constant stress equation Gxl is basically telling us is that the unit of length (l) must be made to shrink as G increases, and vice-versa. In other words, the unit of length must be re-scaled, as one might suspect from the fact that the “Law of Dynamical Similarity” deals with matters of scale. Hence a tape measure for use on (say) Jupiter (where $G=2.65$) would have each “Jupiter foot” marked off at $12/2.65 = 4.54$ earth inches long. Plans, etc., made on Earth wouldn’t need redesigning. Just read them as “Jupiter inches” instead of Earth inches. (Note that such lengths do not have to be straight lines; e.g., for a 3G planet, a 39” waist must become a 13” waist, etc.)

In fact, if a mirror-surfaced UFO ever drops off a little man all of 2.6 inches tall, you’ve got to realize that he’s probably quite a big man somewhere (e.g., 6 Solar feet back on the Sun, where $G=28$, for instance!).

Let’s just re-check this extraordinary discovery/realization by use of our constant-stress formula $G(h^3/r^2)$, which applies to Planet G. We have reached the conclusion that a man transferred to Planet G must have all his linear dimensions reduced to “1/Gth” of their normal (i.e. Earth) values in order to feel at home (by becoming overstressed) there. His height must thus become h/G and his leg radius r/G; and (according to our reasoning) he then feels just as comfortable as he did back on earth. Does he? Let’s insert his new measurements into our constant-stress formula and see:

$$\text{Stress (on Planet G)} = G(h/G)^3/(r/G)^2$$

Amazingly, all the “G’s” cancel out and we’re left with:

$$\text{Stress} = h^3/r^2 \text{ for our } 1/G\text{th-sized} \\ \text{“mini-man” on Planet G.}$$

But this value h^3/r^2 is the stress level of a normal (i.e., Earth-sized) man on Earth (as already mentioned). So our 1/G sized man *will* feel comfortable on Planet G. (Fig. 5a tabulates the situation.)

Our conclusion is thus PROVED and INESCAPABLE: viz., “In order to be *functionally-viable*, a man (or any other *structure*) must become *proportionally reduced in all 3 dimensions* (i.e. “holographically”) INVERSELY SOLELY as the G-value of the planet on which he lands.”* Let’s call it:

“Whamond’s INVERSE SOLELY Law of Gravitation”
(c.f. — “Newton’s INVERSE SQUARE
Law of Gravitation!”)

It is interesting to note that if we scale down the normal human’s 6’ height by the G value of Jupiter, we get 72/2.65 or 27.25”. Now 27” just happens (!) to be a frequently reported height of the mini-men who occupy UFOs. Is *this* just more coincidence?

* So in future science TV epics: when Cap’n Quirk of the United States Starship *Private Enterprise* steps into the matter transmitter to get himself “faxblipped” over to Planet G for hologrammatic reconstitution thereon, he’ll have to ensure that his ship’s matter transmitter incorporates a scaling circuit, whose control knob would be reset (from 1 to 1/2.65, in the case of Jupiter) to “scale his blip” so he’d feel at home on arrival there. Of course his mini-bulldozers, etc. have been already built 1/2.65th the normal size and “faxblipped” to him now *without* said reset. Mini-dinosaurs, mini-blondes and other specimens could be similarly brought aboard the ship in expanded condition, in order to best conserve weight and space. In fact there’s the intriguing possibility that you could *size up* your souvenir mini-blonde occasionally, (while still keeping her “cut down to size” most of the time) to save even more in terms of rations and argument. (I’m certain science fiction authors could make something of this free inspiration!)

By "Square-Cube Law", Stress $\propto \frac{Wt}{Area} \propto \frac{Vol}{Area}$ on Earth
 Thus on Planet "G"; Stress $\propto \frac{G \times Wt}{Area} \propto \frac{G \times Vol}{Area} \propto \frac{G(l)^3}{l^2} \propto G \cdot l$
 Hence; stress will be CONSTANT only IF; $l \propto \frac{1}{G}$!!!

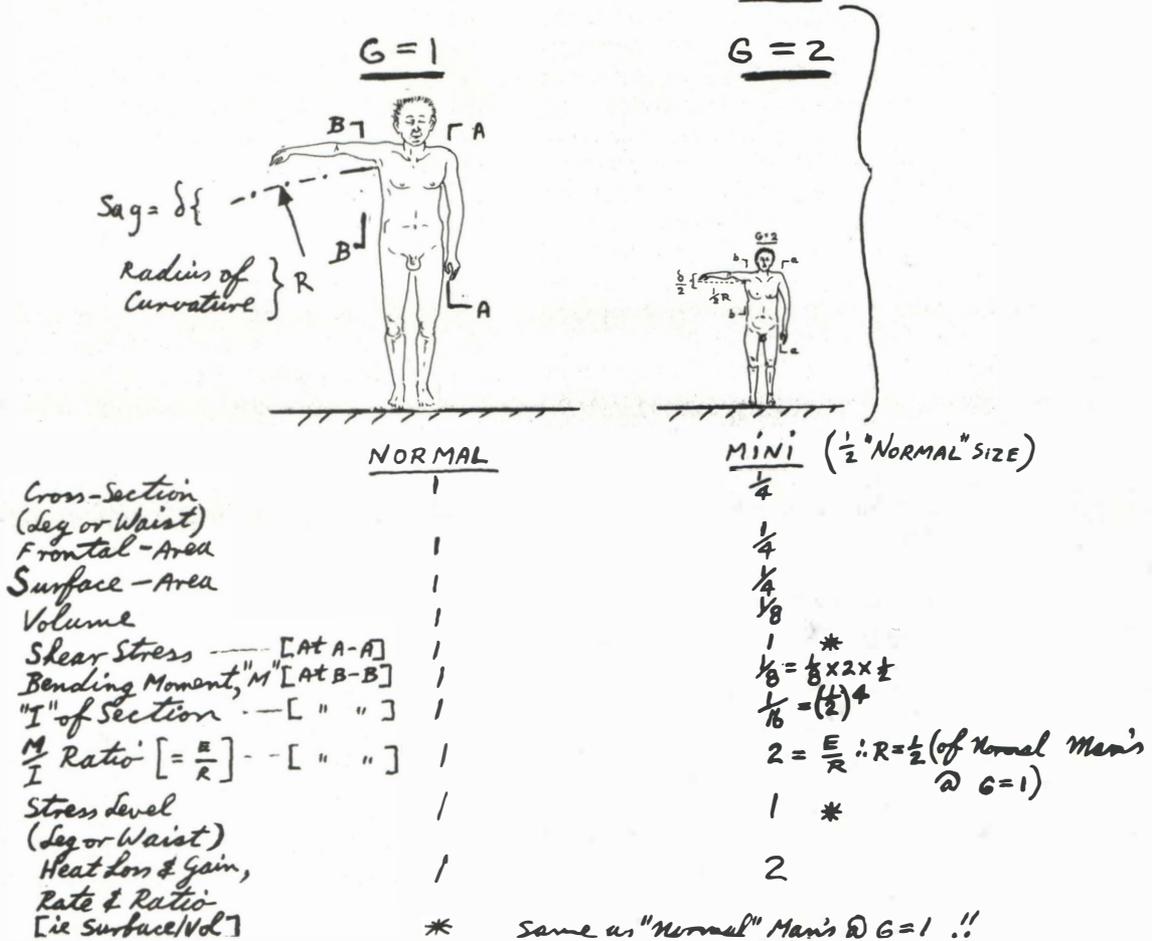


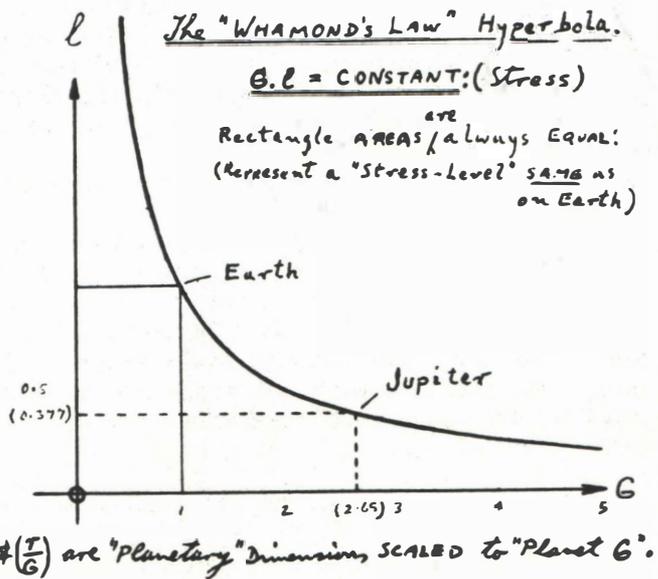
FIGURE 5a

WHAMOND'S "INVERSE SOLELY" Law of Gravitation:

$G \cdot l = \text{CONSTANT (Stress)}$
 $\left(\frac{l}{r}\right)^3 = G \cdot \left(\frac{l}{G}\right)^3 = \text{Stress}$
 $\left(\frac{l}{r}\right)^2 = \left(\frac{l}{G}\right)^2$ } "The WHAMOND Equations"

WHERE {
 l = "Planetary" Height } (Dimension of)
 r = "Planetary" Cross-sect. } (any SOLID Body)
 y = "Planetary" Gravitational Acceleration
 g' = Gravitational Acc. on another Planet, G.
 G = RELATIVE Gravitational Acc. = $\frac{g'}{g}$

NOTE: $g = 32' / \text{sec}^2$, for EARTH, (Usually the "Planetary" Datum, i.e. G=1)



In one such case near the Spanish village of Villares del Saz⁵ the UFO's mini-men occupants were said to be about 65 cm tall. That's 25.6" (interesting also because it's smaller than usual). This is compatible with a normal 6' man scaled to someplace where $G = 72/25.6 = 2.8$; although if we take our normal man's height at 5'8" (instead of 6'), then our 25.6" mini-man is compatible with a native planet where $G = 68/25.6 = 2.6$ (the same as Jupiter!). We must also realize that human height ranges (from Pygmy to Watusi) over 100%. So mini-men may vary similarly.

Moreover, we have already mentioned that a normal man can lift about his own weight, thus overstressing his frame by about 100%, temporarily. Similarly, a mini-man on his own Planet G could temporarily overstress his frame 100%, and that would be represented by his lifting a weight (a concrete block, say) having each of its linear dimensions reduced to "1/Gth" of those of comparably shaped concrete blocks which our normal man could just lift on Earth.

For instance, if a normal man could just lift a 12" x 15" x 20" concrete block on Earth, then his 1/Gth-sized mini-counterpart (on Jupiter, say, where $G = 2.6$) could just lift a concrete block measuring approximately 4.6" x 5.8" x 7.7" (i.e., $12/2.6 \times 15/2.6 \times 20/2.6$).

So it seems that a mini-man (on Planet G) would live in a mini-city, use mini-I-beams, mini-tools, and mini-culinary utensils. He'd operate mini-bulldozers, mini-cranes and mini-aircraft (saucers?) and hunt the mini-dinosaur! (Provided G exceeded earth's value of $G = 1$, of course.)

Quite a different reality from the regular diet of bulky, gorilla-musclcd supermen which science fiction has been feeding us on High-Gravity Planets!*

NON-STRUCTURAL REALMS AND POSSIBILITIES

Whereas all of the foregoing is in perfect accord with the "Law of Dynamical Similarity," it seems that people can't really take the idea of mini-men seriously, whether they are from UFOs or elsewhere. One encounters statements like: "1/2-sized man's brain is not big enough to maintain intelligence at human level."⁶ There's something wrong with such statements. What about Pygmies, circus midgets, children? Many Orientals are almost half the height of a 6' person. The "Law of Dynamical Similarity" says their head volumes (or brain capacities?) will vary as the cubes of their respective heights. That's $3/4^3$ or $27/64 = 0.422$.

So our 4'6" Oriental has only 42.2% of the "brains" of a 6-footer, apparently? This doesn't seem to be any handicap to Orientals such as those currently designing transistor circuitry and pulling off shrewd business deals involving 6-footers. Moreover, can one really believe a 3' tall child has only 12.5% (i.e., 1/8) the brains of its 6' parents (especially after having met some of those parents!)?

* Maybe you find it incredible that our mini-man (on Jupiter) could not lift a normal (i.e., Earth-size) concrete block measuring 12" x 15" x 20"? Well, how would you like to try lifting a concrete block measuring 27% x 3'4" x 4'5" (i.e., $G = 2.6$ times the size normal on your native planet), as you seem to expect them to be able to do? They, probably wouldn't try lifting something 18 times (i.e., G^3) their own weight any more than you would!

Obviously then, in such non-structural realms as brainpower, nature has found some way to cheat the "Law of Dynamical Similarity." Despite the fact that we don't know how, the above-cited instances indicate that Nature is somehow able to cheat the "Law of Dynamical Similarity" in this crucial matter of providing a too drastic scaling of brainpower.

One obvious possibility is that Nature does not scale faithfully. For instance, a 1/2-sized man may perhaps have a 3/4-sized head, along with a few stronger neck muscles to support it. (In this connection it is notable that some UFO mini-crew are reported to have heads "proportionally larger" than their bodies).⁷ It would be interesting to learn whether any anthropologist has accumulated comparative data on the head sizes of both small men and large men in order to evaluate whether the head/body ratio is the same. Considerable and significant variations could easily pass unnoticed, however. The cube root of 2 = 1.26, which is about 5/4. A double-volume head thus has linear dimensions only 26% greater than the original. Regarded in reverse, a half-volume head will have linear dimensions reduced from 1.26 (about 5/4) to 1 (i.e., 4/4). This 1/5 reduction isn't very much (10% from each side of the face, for instance). It's hardly noticeable visually and the linear dimensions which the human eye notices most often (as already mentioned in relation to the photographic blow-up; fig. 1). Such a 20% reduction would hardly attract much notice yet it is already hiding a halved brain!*

Another possibility is the clue always being bandied about by psychologists and similar Establishment types: "We only use a small fraction of our brains," they say. (One can believe it, judging by the results!) Perhaps that's how Nature is cheating the "Law of Dynamical Similarity" as regards brainpower? Maybe Nature (somehow) causes smaller persons to use their brains more effectively/efficiently? Maybe smaller persons don't need as much brainpower for governing their movements and can thus devote more brainpower to matching large persons in business deals, etc.? The missile industry is well aware that more circuitry (not less) can be packed into mini-spaces if such circuitry were to be micro-miniaturized, for instance.**

It would be most interesting to learn whether anyone has ever done any actual research on these aspects of brainpower.

Insofar as crewing a UFO is concerned: just how much brains does this require anyhow? Most of our own aviation is push-button. Even the test equipment is programmed to sequence through an entire manual of tests.† A UFO crew could/should be even more automated.

Experiments have even been done to utilize a cat's brain as the guidance system in a missile.‡

* If you doubt that the human eye judges by linear dimensions, try moving to a new home. You'll find the amount of "stuff" you thought you had is just about cubed!!!

** Let's try to phrase this ill-defined concept of brainpower in a more thought provoking way, viz.: "To what physical height would a genius like Einstein or Sir Isaac Newton have to be reduced for his brain power (capacity, not volume) to decrease until it was merely the same as the man-in-the-street's mental level? Would Sir Isaac find himself reduced to only the physical height of a 3-transistor black box perhaps?" Now there's a question the "Square/Cube Law" can't answer!

† About the only brainwork required of military personnel nowadays is "If it moves, shoot". Let's face it, such guys rate maybe a "3 transistor black box!"

‡ About a "3-transistor black box" requirement, as already surmised!

Despite occasional miniaturization experiments such as the animal brain guidance systems (Project Bird-brain?) aforementioned, the Military has traditionally shown no interest in the potentialities of mini-men. Another fact reinforcing my conviction that this *direct* connection between gravity and 3-dimensional size has not been fully explored, except in an occasional, hazy, obscure and non-fundamental manner.

During WW II, for instance, there was the occasional deliberate attempt to select smaller pilots for certain aircraft (e.g., the Bell Airacobra). Such undersize pilots were sought out because certain aircraft had cockpits which were small and crowded; however, it had nothing to do with respect for gravity. Intensive research was done on G-suits for fighter pilots; but nothing whatsoever was done to outwit gravity by the alternative possibility of ... *using the smallest possible pilots!*

Post-WWII witnessed a spate of interest in rockets and space travel. Pioneering masterpieces⁸ were dug up and dusted off; and much public discussion of escape velocity and mass ratios ensued, even in the newspapers. In only one article was there the logical suggestion: "Why not use *smaller* rocket pilots? Say a 50 lb. man instead of a 200 pounder?" Notice that suggestion was phrased in terms of weight, not height. There was no evident realization of the innate relationship between gravity and height that I am trying to suggest, merely a vague attempt at weight-saving.

Of course this sensible "smaller astronaut" suggestion was never adopted. Anthropomorphism again! Imagine a TV newscast: "Here comes our 3' hero — America's first man on Mars!" Let's face it, a 3' hero is in the same category as a 3' company president or a "woman driver" — somehow unconvincing in concept and just never going to be taken seriously by the public, irrespective of achievements, statistics, or data.

Nevertheless, *Whamond's Law* unerringly pinpoints the general and fundamental issue that *gravity* and *linear* dimensions have an innate and clear-cut *inverse* relationship *solely* to one another. (Not to be confused with the *Inverse square* Gravitation Law of my colleague, Newton!) Throughout this article the author has not bothered to make a careful distinction between gravity, weight, and density. That's because there *isn't* any distinction. Particularly between gravity and weight. A half-density material is the same as a full-density material in a half-G field.

THE BENDING MOMENT

Suppose we apply *Whamond's Law* in a few other instances in order to see if it is really as clear-cut and fundamental as we believe it to be. One of the *essential* but hidden ingredients of a society/civilization (along with sanitation, transport, communications, etc.) is the concept of *bending moment*. It is present in everything from housing to bridges and shipping, though the public remains virtually unaware of its existence and indispensibility. When you see the cartoon of the farmer and his sway-back cow, such animals are victims of excessive "bending moment."⁹

It seems wise therefore to investigate how a *vital* quality like bending moment would be influenced by the

scaling necessitated by arrival on Planet G. If you try to bend a beam, you're imposing a bending moment on it. Usually, such bending moment is imposed by the beam's own weight (or to be more accurate, by gravity). This natural bending moment is resisted by the beam's cross-section, which elastically opposes such attempts to distort it by bending (fig. 6). If we take the simplest possibility (anything from a crane-boom or diving board to the neck of a giraffe or dinosaur,¹⁰ we have a cantilever, with one end rigidly installed. The bending moment formula is $M/I = E/R$, (with M representing the bending moment being applied, R the radius of bend produced by M , E the strength of the beam *material*, and I the rigidity of opposition to bending inherent in the beam's cross-sectional shape).

This bending moment formula can be simplified depending on the situation being analysed (in this case, a cantilever), and when the "Law of Dynamical Similarity" is used (fig. 6) to scale this bending moment situation to a 1/Gth size beam on Planet G, it is *proved* that a bending radius of R/G will *inevitably* result.

In short, the bending moment formula has afforded *independent proof* that the forces within a 1/Gth-scaled mini-beam will interact such as to produce a 1/Gth bend-radius when on Planet G!

Such holographic type reduction in scale of the entire beam (including holographic reduction of its bending radius of curvature), is exactly as predicted by "Whamond's Law." *Without* the complication of bending-moment formulas!

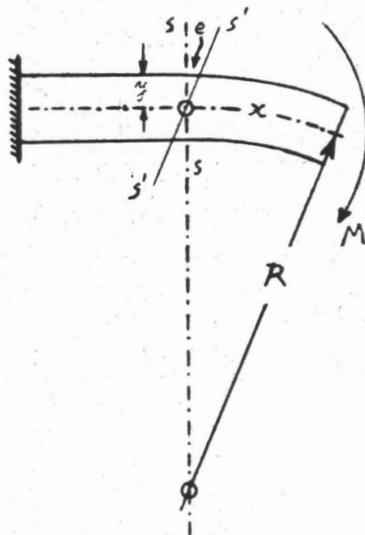
It's instructive to look at a few more work-a-day formulas. For instance, a gun's range scales to 1/Gth on Planet G (fig. 6a). So does the "Angle-of-Bank" Triangle (that's the diagram used to calculate the "tilt" of turns on railways, roads, and auto racetracks) (fig. 6b). That's because "Whamond's Law" says a mini-train on Planet G must go around a mini-curve scaled to 1/Gth the radius of curvature normal on Earth for the same speed, v . This means the centrifugal force is increased G times (to compensate for gravity being increased G times). Since the horizontal (i.e., centrifugal) force is thus increased G times and so in the vertical (i.e., gravity) force, the entire "Angle of Bank" Triangle-of-Forces merely becomes G times the size of the normal (i.e., Earth) Triangle. It thus *scales*.

Now here we noted that the forces on Planet G are amplified G times (not 1/G). This is *not* a violation of "Whamond's Law," since *that* only deals with *linear dimensions*, not forces. The Bank-Triangle will still be 1/Gth of the normal (i.e., Earth) Triangle, as regards *size* (fig. 6b).

Another thing to note is that if we take a normal pendulum (the poor man's watch) from Earth to Planet G, then when we shorten its length to 1/Gth (to obey "Whamond's Law") it will beat in seconds which are only 1/Gth of Earth seconds. In short, it runs G times as fast (fig. 6c).

I have not as yet had an opportunity to consider the full implication of this amplification of *Forces* and *Time* by the G factor. (Perhaps these are destined to become a future article on "Whamond's 2nd Law"?!). One could, however, guess that the G -amplified forces are a direct

The "BENDING MOMENT" Formula:



BEAM
 By Proportion:
 "Strain" = $\frac{\text{arc } \theta}{\text{ARC } x} = \frac{\gamma}{R}$
 "Stress" = $E \times \text{Strain} = E \left(\frac{\gamma}{R} \right)$
 $\therefore S = \frac{\gamma}{R} \cdot E$

SECTION
 $S = \text{"Stress"}$
 $= \frac{f}{a}$



Resisting Moment = Sum of Moments in Section
 $= f_1 y_1 + f_2 y_2 + \dots = \sum f y$
 $f = S \cdot a$ (ie Force = Stress \times Area)
 \therefore Resisting Moment = $\sum f y = \sum (S \cdot a) y = \sum \left(\frac{\gamma}{R} \cdot E \right) a y$
 $= \frac{E}{R} \sum a y^2 = \frac{E}{R} A K^2 = \frac{E}{R} \cdot I$

& since this Resisting Moment = the Applied Bending Moment (ie, M)
 we have $M = \frac{E}{R} \cdot I$; or $\frac{M}{I} = \frac{E}{R}$

Usually M is caused by the force of GRAVITY (tending to "Droop" the free end down).

In that case $M = (A \times \rho) \frac{x^2}{2}$; & so $\frac{M}{I} = \frac{E}{R}$ becomes $\frac{A \left(\frac{1}{2} \rho x^2 \right)}{A K^2} = \frac{E}{R}$, where $\rho = \text{Density}$
 ie $\frac{\rho}{2} \left(\frac{x}{K} \right)^2 = \frac{E}{R}$; or $R = \frac{2E}{\rho} \left(\frac{x}{K} \right)^2$ — (on Earth)

Now let's see what happens if we "miniaturize" & take our mini-Beam, mini-Dinosaur, or mini-giraffe over to "Planet G". We have; - $R_G = \frac{2E}{\rho_G} \left(\frac{x_G}{K_G} \right)^2$

Will R_G "SCALE" to $1/G$ th its Earth ("normal") size? (ie, will $R_G = \frac{R}{G}$)?
 $R_G = \frac{2E}{\rho_G} \left(\frac{1}{G} \frac{x}{K} \right)^2 = \frac{1}{G} \left[\frac{2E}{\rho} \left(\frac{x}{K} \right)^2 \right] = \frac{1}{G} \cdot R$

So even the "Degree of Bending" (ie, Curvature/Deflection) will "SCALE" holographically !!!

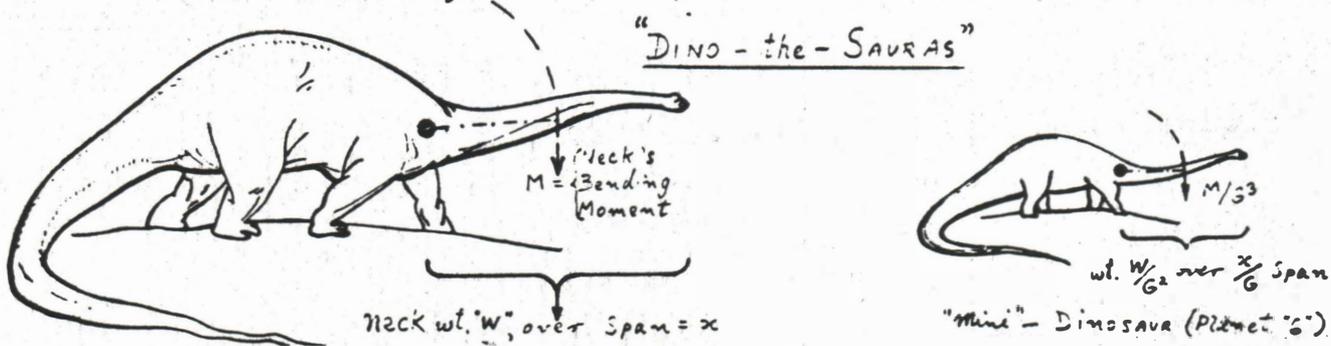
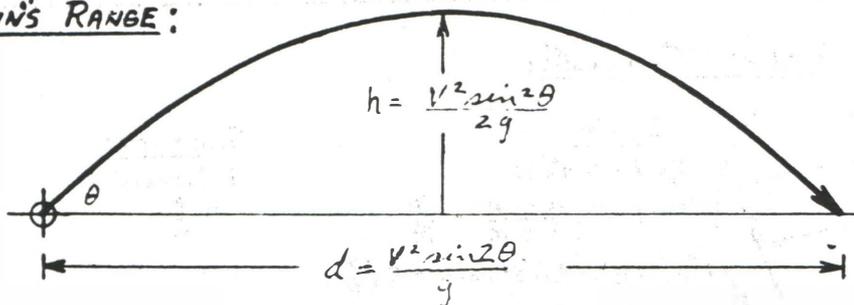


FIGURE 6

result of the shorter (i.e., 1/Gth) seconds. Whatever the broad implications may turn out to be, one suspects that this is another instance (besides being capable of out-witting gravity) of the basic superiority of mini-men. (It

seems likely that, when starting up a piece of machinery — whether spinning up a mini-flywheel, or swivelling a mini-tank turret, they could always "beat us to the draw!")

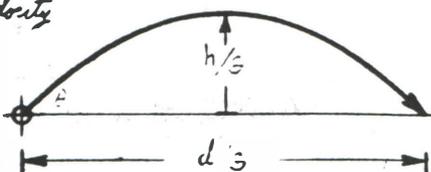
GUN'S RANGE:



"Mini"-Artillery ("Planet G")!

N.B. $V =$ muzzle Velocity

$$G = \frac{g'}{g}$$

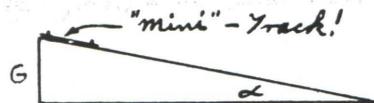
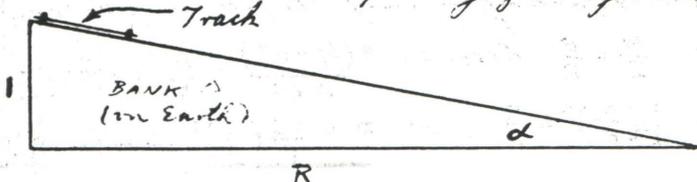


g becomes g' ($= Gg$) on Planet G.

FIGURE 6a

ANGLE OF "BANK":

"Bank-gradient" Triangles (or Force-Triangles)
(With corresponding "Gravity" & "Turn-Radius" Values shown)



$R/G =$ "Scaled" turn-radius.

BANK'S "gradient" = $\tan \alpha = \frac{v^2}{Rg}$ (on Earth)

$\tan \alpha = \frac{v^2}{(R/G)Gg}$ (on "Planet G")

$= \frac{v^2}{Rg}$ same as on Earth! (for same speed)

where $\left\{ \begin{array}{l} v = \text{Vehicle speed around/along Turn} \\ R = \text{Turn radius} \\ \alpha = \text{Angle of Bank} \end{array} \right\}$ on Earth

Tilt or "gradient" of BANK = "Turn"; whether on Earth or "Planet G", this = $\frac{v^2}{Rg}$!

Hence the "Bank Triangles" are SIMILAR & "SCALE" Photographically!

FIGURE 6b

Simple PENDULUM; (The "Poor-Man's Watch"!)

$T = 2\pi \sqrt{\frac{l}{g}}$ where $\left\{ \begin{array}{l} T = \text{Period (seconds)} \\ g = 32.2 \text{ ft/sec}^2 \text{ (on Earth)} \\ l = \text{length of Pendulum} \end{array} \right.$

So, $T = 2\pi \sqrt{\frac{l}{32.2}}$; from which $l \approx 0.8''$ (25cm)

Thus a pendulum 25cm long should "beat seconds" on Earth. (Much cheaper than a Stop watch!)



So, $T_G = 2\pi \sqrt{\frac{l/G}{Gg}} = \frac{2\pi}{G} \sqrt{\frac{l}{g}} = \frac{1}{G} \cdot T$, on Planet "G"

Hence, although "Period" is a Time-interval (NOT a length) it seems to "scale" as $\frac{1}{G}$ also!

FIGURE 6c

MORE NON-STRUCTURAL REALM POSSIBILITIES

Although the "Law of Dynamical Similarity" and "Whamond's Law" (which, like the Square/Cube Law, is predictable from it) are undoubtedly correct, it is in the *non-structural* region (such "medical aspects," for example) that there seems to be no information available at all, concerning mini-men (i.e., those aforementioned questions regarding brainpower vs. cranial capacity). Then on the other hand, maybe a human wouldn't reduce much at all under G. Maybe he'd just cheat the "Law of Dynamical Similarity" by *dying*. Possibly something entirely different happens, such as adopting the habit of lying around doing as little as possible so that G doesn't get much chance to work on him. Until several generations have lived under Hi-G conditions, we probably won't have much information on the subject. All NASA experiments seem to be on the effects of Lo-G (i.e., orbital). Hi-G experiments have been done in centrifuges, but mostly related to G-suits, I understand. I have heard it stated that "a centrifuge can never really eliminate the Earth's gravity field enough to test Hi-G properly." This does not really ring true. The 5:12:13 triangle is Pythagorean (i.e., right-angled). (see fig. 7.) If we scale it to 1/5th size, we get a 1:2.4:2.6 triangle. If we make this the basis of a centrifuge, with the "1" vertical (to represent Earth's gravity), and spin it up to 2.4G horizontally, then we've developed a resultant 2.60 field (on the tilt, similar to fig. 6b). We would have a narrow conical track on which $G=2.6$, and there would be no interference from Earth's gravity. At Jupiter's $G=2.6$, we could grow plants and raise chickens, etc., on said conical track and get some idea of what they'd look like if native-born on Jupiter. Although I would assume that someone has had the inspiration to build a conical centrifuge, I doubt they've tried raising mini-men on it. Or anything else. A discarded orbiting rocket hull, spun up to 2.60, is a more feasible centrifuge for Hi-G experiments. Today's trend is in the opposite direction, because everyone is entranced with the thought of "freedom from gravity," whether by space stations or some future anti-gravity device.

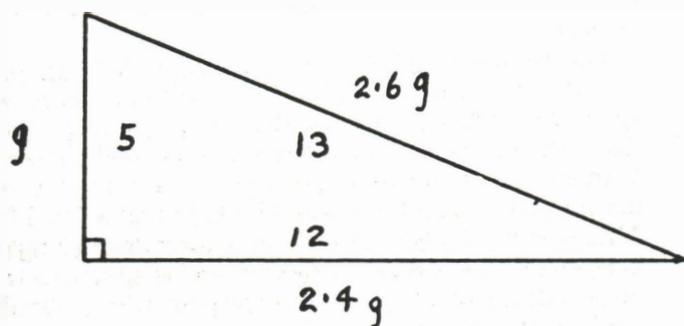
Although the innate and fundamental INVERSE relationship between LINEAR dimensions and gravity (i.e., "Whamond's Law") never seems to have been clearly formulated (certainly not by science fiction writers, anyhow), such is *not* the case with other aspects of miniaturization. For instance, it has long been realized that the surface area of a body depends on its length *squared* (same as for cross-sectional area). Thus a $\frac{1}{2}$ -sized body has $\frac{1}{4}$ (i.e., $\frac{1}{2}$ squared) the *surface area*, but only $\frac{1}{8}$ (i.e., $\frac{1}{2}$ cubed) the *volume* of the original full-size body.

Now a body's cooling rate capability = area/volume = $\frac{1}{4}/\frac{1}{8} = 2$ (for a half-sized body). So a half-sized body will lose (or gain) heat twice as fast as its full-sized counterpart. The public is generally aware that babies, as compared to adults, are more sensitive to heat and cold, develop fevers faster, etc. Just another example of the "Law of Dynamical Similarity" in that babies are about $\frac{1}{3}$ the length of an adult and so could be expected to cool off 3 times as rapidly.

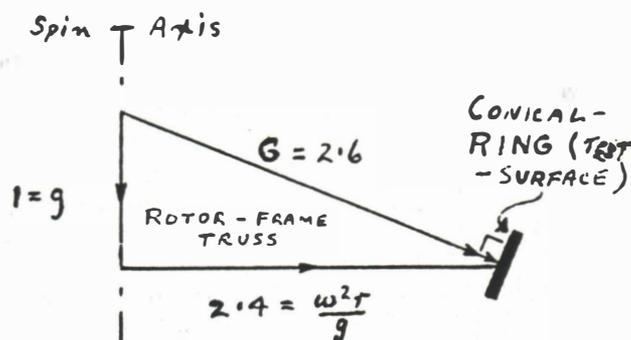
At the opposite end of the scale we read puzzling tales (in any hunter's magazine) about people shooting elephants and by the time they return with some native helpers 3 hours later, the carcass has become too decomposed to merit skinning (or whatever!). Something rotting in only 3 hours is decidedly puzzling — until you consider the "Law of Dynamical Similarity": i.e., if an elephant (or other big game) is about 3 times the length of a man, then it will cool only $\frac{1}{3}$ as fast. In fact, in African heat, it probably won't cool at all, merely "jiffy-cook" itself once the body's circulation is stopped.

An intermediate region between the relatively familiar cooling rate law and the utterly unfamiliar gravity/length law (i.e., "Whamond's Law") is the Aerodynamic "Drag/Frontal-Area Law." Newton investigated this problem in regard to projectiles and found that the drag on an area facing into an airstream depends on *area times velocity squared* (see fig. 8). It follows that if said area is the frontal area of a falling body, then the drag builds up until it eventually equals the body's weight. There is then no net force left to keep accelerating the body, and so it reaches a steady speed called the "Terminal Velocity" (V_t). For a human (with parachute unopened) V_t is between 120 and 140 mph, depending

"G" by CENTRIFUGE:



The "5:12:13" Triangle



The "1:2.4:2.6" Centrifuge

FIGURE 7

"TERMINAL-VELOCITY" IMPLICATIONS:

Newton's Aerodynamic - "Drag" Formula:-

For an Area facing "head-on" into an Airstream,

"Drag" Force, $F = AV^2 \times \text{a CONSTANT}$

For a Falling - Body, the weight is opposed by such "Drag", until eventually $mg = cAV_T^2$ (ie $V_T^2 = \frac{mg}{cA}$)

This "equality" condition (when "Drag" becomes enough to "cancel" weight) occurs when V reaches its "maximum" value = V_T .

For a normal-sized person, falling through Earth's Air, this "Terminal-Velocity", $V_T = 125$ to 135 mph (say, 130 mph), NB. $60 \text{ mph} = 88 \text{ /sec}$

NEGLECTING AIR: $V^2 = 2gh$

$h_{130} = \frac{V^2}{2g} = \left(\frac{130}{60} \times 88\right)^2 / 64.4$ (for normal man with $V_T = 130 \text{ mph}$)
 = $570'$ (ie, 130 mph would be reached after a $570'$ fall!)

$h_{90} = \frac{V^2}{2g} = \left(\frac{90}{60} \times 88\right)^2 / 64.4$ (for "mini-man" with $V_T = 90 \text{ mph}$)
 = $270'$ (ie, 90 mph would be reached after a $270'$ fall!)

$h_{65} = \frac{V^2}{2g} = \left(\frac{65}{60} \times 88\right)^2 / 64.4$ (for "mini-man" with $V_T = 65 \text{ mph}$)
 = $140'$ (ie, 65 mph would be reached after a $140'$ fall!)

So our "Doubled-Frontage" mini-man has halved Terminal Velocity (65/130) & cut his "Equivalent Fall Distance" to 1/4 (ie $\frac{140}{570}$), compared to a normal-sized Human. Quite an Achievement

NOTE: Since $\text{Power} = \frac{\text{FORCE} \times \text{Distance}}{\text{Time}} = \text{FORCE} \times \frac{\text{Distance}}{\text{Time}} = \text{Force} \times \text{Speed}$

We get; $\text{Power} = cAV^2 \times V = cAV^3$ by assuming Newton's "Drag" is the above "FORCE". This happens to be the formula for the Power developed by an Hydraulic Turbine or Windmill! Usually A is replaced by "Diameter, Squared"; so that Power becomes, just another KIND of "Square - Cube" Law!

Air - Resistance = $c_1 V^2$



Where $\begin{cases} A = \text{Frontal Area} \\ V = \text{Terminal Velocity (of normal Human)} \\ v = \text{Terminal Velocity (of } 1/2\text{-sized "Mini-man")} \\ m = \text{Mass of Body} \\ h = \text{Height (fallen) from (neglecting air)} \end{cases}$
IN AIR: $V^2 = \frac{mg}{cA}$

Comparing man & "mini-man"; $\left(\frac{V}{v}\right)^2 = \frac{mg/AC}{\frac{1}{8}mg/\frac{1}{4}Ac} = 2$

∴ for 1/2-Sized "Mini-man", $v = \frac{V}{\sqrt{2}} = \frac{130}{\sqrt{2}} \approx 90 \text{ mph}$

If said "mini-man" could DOUBLE his "effective" Frontal-Area:

Then $\left(\frac{V}{v}\right)^2 = \frac{mg/AC}{\frac{1}{2}mg/2 \cdot \frac{1}{4}Ac} = 4$, ∴ $v = \frac{130}{2} \approx 65 \text{ mph}$

FIGURE 8

on the size, weight, and type of clothing. Unfortunately, such speeds are a bit too excessive to expect to survive without a parachute. If the speed could be cut to half, however, one could have some hope of an occasional survival.

After observing how the cooling rate law affects a mini-man, it should occur to us to wonder how "Newton's Drag Formula" would treat a 1/2-sized human.

Comparing Newton's formula for a 1/2-sized mini-man and his normal-sized counterpart, the "Law of Dynamical Similarity" scales our mini-man's terminal velocity to $1/\sqrt{2}$ of normal (fig. 8). That's about 70%, or 90 mph. The result, about a 30% reduction in terminal velocity, isn't quite enough to facilitate survival.

Nevertheless, I have always been fascinated by the fact that the human terminal velocity is so close to survival velocities. What if our 1/2-sized mini-man could somehow double his effective frontal area (by the using of some sort of "Batman's cape" device (strapped to wrists and ankles) or similar "Rogollo-Wing" artifice)?

The "Law of Dynamical Similarity" shows (fig. 8) that this would cut our mini-man's velocity to maybe 65 mph; namely, a 50% reduction in terminal velocity compared to a normal (and unequipped) man. Such a "drag-doubling" artifice would bring our mini-man to the brink of survivability.

The formula for a fall (without air drag) is $V^2 = 2gh$ (fig. 8) and can be used in space or for short falls where the speed isn't high enough to produce much air drag. Using this formula, we find that a 50% reduction in the normal terminal velocity (of about 130 mph) is the speed (i.e., 65 mph) which would be attained by falling off a 140' cliff. This is about the limit of what an expert diver plunging into water could expect to survive; and is about the terminal velocity of a 1/2-sized man equipped with artificially doubled frontal area.

One may ask "Why all this talk about artificially doubled frontal area, using capes and wings? Why not just get doubled drag from a mini-parachute?" We realize, of course, that a mini-parachute would do the trick,

but we were rather wondering whether our mini-man couldn't somehow employ some simple *steerable* equipment which a normal man could not use. We've been reading all these tales about mini-men stepping out of UFOs and "floating" towards people. Of course, these reports are not usually very *scientific* and thus it is seldom made clear whether the UFO is sitting on the ground or hovering. There's never any information on the exact speed at which "floating" becomes "jumping", either; so in the absence of a few such *crucial* bits of data about all we can conclude is that the mini-men could *almost* survive a prolonged fall and *definitely* have it easier in *all* respects compared to a falling normal man. (We could go on to point out, as well, that their $\frac{1}{8}/\frac{1}{4}$ ratio means a halved "pressure pulse" (and therefore shock) when they do hit the ground.)

Therefore, if mini-men *do* use some sort of anti-gravity or electrostatic "hover"-device, it wouldn't have to be very powerful to give considerable maneuverability. Looked at from another viewpoint: a compact device, even if not yet perfected to any great efficiency, would still give even half-sized mini-men considerable airborne mobility. This *may* account for the alleged "floating", or a *partially* sustained/controlled "jump".

An even simpler and more easily *proven* explanation is that if mini-men are Hi-G dwellers (as everything seems to suggest), then they are merely over-muscled for Earth; in fact, they would be in exactly the same sort of situation as our astronauts on the Moon — overmuscled, and able to take *long* floating leaps and jumps. So it would be best not to try to wrestle a UFO mini-man into a milk can in order to prove that he exists. His strength/weight ratio may give you an unpleasant surprise (it could become possible to find yourself woven into some kind of Mobius Band, for example). A South American claims he tried to stab a UFO mini-man¹¹, but found the mini-man "way too strong" for him.

Some skeptic will no doubt ask, "If all that's so, then how come Pygmies don't do floating leaps like that?" Well, *presumably* they're like astronauts who have stayed on the moon too long. Their muscles atrophy to a Moon-normal (i.e., $G = 1/G$) state until they can't take floating leaps any more. (I say "presumably" because I can't find any definite information, much as I'd like to. No one seems to have done previous investigation into such "medical" aspects.)

Another "medical" aspect treated by a complete dearth of information is the question: "Why do Orientals tend to be so small?" Is it caused by heredity, or tropical heat? Is it diet or just food scarcity? Extra sunlight, or the angle at which earth's magnetic field intercepts them, perhaps? Or could it be due to different gravity and air pressure caused by a 13 mile (i.e., 21 Km) *radial* bulge (compared to polar regions); or *what*?"

Any scientifically-minded person will conclude there's some *reason* for such relative smallness. And if said *reason* can be discovered, then we have a way of making mini-men. It could very well turn out that increased G in itself will *not* produce mini-men. This would not invalidate "Whamond's Law" in the slightest, of course; it would only stimulate a search for a means other than gravity which would be capable of producing mini-men. Suppose we discover that the smallness of Orientals is

merely a question of *diet*. (In other words, a hidden *drug*.) Or that the smallness is due to *heredity*. (In other words, merely a *genetic engineering* problem.) We are now in a position to produce mini-men of any desired quantity, in "Brave New World"¹² fashion. A brilliant solution to the overpopulation problem: 4 men in the space of 1.*

I think anyone can begin to see the merits of a mini-man Society by now; because if you can grasp the picture *now* anyone able to build a UFO probably got the message *long* ago. And if Hi-G didn't shrink them automatically, they probably did the necessary research and found a drug or forcefield that *would*. They probably shed their primitive anthropomorphic impulses by realizing that if *everyone* was small, then *nobody* would look down on a midget. How "possible" does all *that* sound?

After WWII some Swedish "Prof" found he could grow *giant* hares (i.e., jackrabbits) by feeding them a drug extracted from the common *Lily-of-the-Valley* flower. He said that if the drug were to be used on humans they would grow about 9' tall (Texans, take note!). And *something* is making Orientals tend to grow short. Nutritional research doesn't seem interested in exactly *what* makes people grow tall or short. Once again, it's with the "medical" aspects that we draw a total *blank* in terms of information.

Anyone who has read Aldous Huxley's prophetic masterpiece¹³ realizes a UFO *just could* be captured by a normal-sized "E-3" (i.e., an "Epsilon-Triple-Minus") and crewed by a bunch of *mini*-"*G.I.'s*" (i.e., "Gamma-Ones") who came along to open the cans and do the "regulation" 10-million-mile "*waxjab!*" Certain UFO sighting reports¹⁴ tend to suggest such a Watusi-Pygmy setup. It's remarkable how Huxley's 1932 prediction of a "Bokanovskification-Process" has been even surpassed by "Cloning" possibilities. Another point to realize is this: even if you have *the* perfect "anti-gravity" power plant such as the "Plantier Drive Unit" envisioned by Lt. Planter of the French Air Force,¹⁵ and therefore couldn't care less about gravity and "Whamond's Law," etc., that *does not* mean that miniaturization isn't still attractive. One can nevertheless still envy our 1/2-sized mini-man who is able to voyage 8 times further on the same tonnage of rations and yet still have the luxury of 4 times the "on-board" crew quarters, even if us heavies had the additional "Plantier-Drive Unit" too.

Moreover, such 1/G-sized mini-men could travel to the nearest star in $1/\sqrt{G}$ th of the time it would take us, because they could travel under "G" times the acceleration which we could tolerate! (Provided they didn't encounter "Relativistic-Effects," of course.) Most SF stories use "Cryogenic Suspended Animation" for such star-trips — further proof that they aren't aware of the possibilities of "scaled miniaturization to combat gravitation."

Such space-saving attributes of miniaturization have long been realized by the Military, even though the gravity-outwitting features (i.e., "Whamond's Law") of miniaturization have only been dimly/dumbly (?) groped at to date.

* Developers would just *drool* over those 1/4-sized "lots". Mortgage brokers would swoon at the chance to sell you a house (for the same \$50,000) containing only 12.5% (i.e., 1/8) the materials (without violating Federal statutes, either).

All that, and gravitational immunity too! No bar to using Hi-G planets as colonies for your overpopulation. Any arguments and you could always confidently *out-fly*, *out-fight*, and generally *out-G* those Lo-G heavies (that's us).

The author finds it rather puzzling that when he submitted his theme for an article on "Little Green Men and the Law of Dynamical Similarity" to a trio of science fiction authors/editors, he was told the idea was "old hat" — and "not evidence" of UFOs. I have, however, spent at least the last 30 years reading all varieties of technical/mathematical/science fiction articles, and have found *no* evidence that the idea is either "old hat" or *explicitly* presented in *any* publication. I therefore hope that this article has been rewritten and expanded sufficiently that it won't be misunderstood as "old hat." I am, after having spent 7 years' experience in the patents field, in a position to assure readers that, in terms of scientific data, *never was so LITTLE known about so MUCH by so MANY educated persons!*

Let's face it:

- 1) Science fiction doesn't say Jupiter has Lo-G because it *knows* the opposite is true. Similarly, science fiction would populate Hi-G planets with little people *where* there any general/widespread understanding that this was *the* answer.
- 2) Texts discuss "old hat" ideas (like the Square/Cube Law) to extremes but yet don't breathe a word of suspicion that the "Law of Dynamical Similarity" would predict "holographic" (i.e., *linear*) scaling of 3-dimensional objects that could outwit Planetary G. As a matter of fact, it is tacitly assumed that $G = 1$ throughout such texts.
- 3) If "Whamond's Law" is such "old hat," then what about the past 20 years of UFO Mags? The greatest degree of technical insight on the mini-man concept is (you've guessed it) "Ye Olde Square/Cube Law" applied to cranial capacity.¹⁷ This is about the *sole* insight to date, too.
- 4) In all, during 2 decades of UFO Mags there have been *many* technical discussions of UFOs (Lt. Plantier's being about the *best*), but the number of technical discussions on mini-UFOs has been *zero*; they have either been taken for granted or laughed off. But no MD (for example) has written an article showing that "their liver and kidneys would be too small for their metabolic-rate (or *somesuch* — such as Asimov mentions¹⁸). Those who *don't* think mini-UFO-nauts are ridiculous would surely have gone beyond "Ye Olde Square/Cube Law" and pounced on "Whamond's Law" as "an *extraordinary* confirmation that *little UFO-nauts are NOT ridiculous* (if it was all *that* obviously "old hat!")."
- 5) If you try to tell the *workaday* engineer that "length and gravity should be in inverse proportion," he'll say something like: "Look, Bud! Weight is gravity. Weight is volume. That's length, *cubed*. So gravity varies as length *cubed*. Got it? Now beat it — I got work to do." (Obviously, "Management material!") In short, he hasn't listened and understood that *stress* is the key, couldn't care less, and would rather keep doing things the hard way because "Management" *understands* that. *The* typical UFO derider. Am I really expected to believe that "Whamond's Law" is "old hat" to such people?

CONCLUSIONS

It may be noticed that your author has avoided discussions of Lo-G situations. There are four reasons for this:

- 1) Most of it is readily inferable as the reverse of the Hi-G situation.
- 2) No discernible advantages appear for larger humans (sorry, Texas!)
- 3) Most UFO sighting reports mention mini-men.
- 4) Normal-sized humans represent about the maximum size limit anyhow: as G becomes less than 1, the so-called "mean-free path" velocity of the oxygen molecule soon approaches the "velocity of escape" for a planet. Thus any planet with G much below 1 would start losing its atmosphere and soon end up like Mars or the Moon (i.e., "uninhabitable"). A well-known fact. . . . besides lesser accomplishments. For instance, our galaxy is known to have a "poached-egg" shape. That means more mass is concentrated centrally, which science assumes means Hi-G. So our UFO-mini-men's height could imply that they originate nearer the Galactic Center than we do.*

Throughout the text, your author has *tried* to make *very* clear (in each instance) whether he is discussing:

- a. Normal man on Earth
- b. Normal man on Planet G
- c. Mini-man on Planet G
- d. Mini-man on Earth

—because he believes that failure to keep firmly in mind just *who* is planet-hopping to *where* is largely responsible for science fiction's failure to clarify these matters of gravity as I have done. On the other hand, it may be felt that I have occasionally been lax as to whether I was speaking of UFO mini-men, our own mini-men (pygmies, midgets, etc.), or *hypothetical* mini-men. That's because there really isn't any difference: A mini-man is a mini-man, irrespective of source or costume. The guy who said, "You seen one Foreigner, you seen 'em all," said more than he knew. (Dead Right! Seeing is believing.)

And every time you see a child, you're seeing a viable and functional mini-man. But you're not a scientist, so you never realized that. The Establishment had you "conned," right? Happens to the best of us.

Just a concluding word on Jupiter. Although its G value has been used as an example, there is no intention to imply that that's where UFOs originate. Author has as yet *no* fixed opinion as to where they originate (although they obviously are spaceships in that they appear to have definite spacefaring capabilities).

Does this article *prove* that UFOs exist? *No*; and it isn't really trying to. The author is satisfied in his own mind that UFOs *do* exist, however, and that Lt. Plantier probably has the correct technical answer. That's because Lt. Plantier uses the same technique as I; he takes the SCIENTIFIC/LOGICAL approach that, "If such and such was sighted, *what* would be the *implications*?" He doesn't rush out and call the sighter a liar or ridiculous nut. A person of Lt. Plantier's caliber just

* Sort of like emissaries from "Galactic Headquarters" to "Galactic Headquarters," we might surmise. I have often wondered whether Government's famed "Project OZMA" (search for OUTA-space intelligence) wasn't really just a "cover" for a super-secret scheme to "bug" the Little Green Men's communications. CIA:codenamed "Project Greenbugger," maybe?

doesn't go "jackassing-around" like that. He has the correct attitude, and so naturally produces the correct conclusions.

It is often said that "where there's a *will*, there's a *way*," but in the case of Nature it's more often "where there's a *way*, there's a *will* (to utilize it). I have tried to *prove* that there is a "way" (holographic 3-D miniaturization) for Nature to outwit Hi-G, and a tried and true *working model* (the human body) of this available to Nature. *Why*, therefore, should Nature bother to come up with some of the bizarre Hi-G creations suggested by science fiction instead? Surely Nature has not abandoned "The Principle of Least Action" without my being informed of it? Though She can "spring" surprises.¹⁹

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² Clarke, Arthur C., *Interplanetary Flight* (London: Temple Press Ltd.).
³ Thompson, D'Arey W., *On Growth and Form* (New York: Cambridge University Press), pp. 22-54. Mewman, James R., *The World of Mathematics* (New York: Simon and Schuster, Inc.), pp. 952-956.
⁴ Thompson, *On Growth and Form*, pp. 22-54. Asimov, *The Solar System and Back*, p. 137.
⁵ Bowen, Charles, *The Humanoids* (London: Future Pubs. Ltd.), p. 79.
⁶ Asimov, *The Solar System and Back*, p. 149.
⁷ *Ibid.*, pp. 246-247, 252.
⁸ Clarke, *Interplanetary Flight*.
⁹ Thompson, *On Growth and Form*, pp. 972-989, 1006.

Finally, there is the question of the term "humanoid." The author's understanding is that this term means "human-shaped." However, the term has so often been used to describe *small* human-shaped creatures that it probably now carries an implicit diminutive connotation, which is an unfortunate ambiguity in respect of the dictionary meaning. To avoid confusion, therefore, I have ignored the term "humanoid" and used instead the term *mini-men* to denote "small, human-shaped, beings."

Those who have ordered a *minute* (jiffy) steak, and who after about an *hour* have been served a *minute* (tiny) steak, may have some appreciation of my concern for semantics.



- ¹⁰ *Ibid.*, pp. 967-972.
¹¹ Bowen, *The Humanoids*, p. 93.
¹² Huxley, Aldous, *Brave New World* (Middlesex, England: Penguin Books Ltd.). Fiction.
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A FEW SMALL STEPS ON THE EARTH: A TINY LEAP FOR MANKIND?

— by Fred H. Bost —

A little man "not much bigger than a Coke bottle" was reportedly sighted on two occasions last October in the area of Dunn, North Carolina, and doubters are hard-pressed to explain away the footprints found at the scene of the sightings.

As managing editor of *The Daily Record* in Dunn, I paid little attention to a tip that an 8-year-old boy had spotted a little man in a cornfield; but two days later, after hearing reports that footprints were drawing curious residents to the scene, I decided to investigate.

At the cornfield I found a half dozen curious persons studying two sets of tracks, separated by about 150 yards. The first set, I was told, marked the spot where the boy had seen the little man on Tuesday, October 12, 1976. The second set was found two days later by an adult who was helping the boy search for further signs of the little visitor.

The tracks were definitely those of little boots; cleat marks were easily discernible. I failed to count the number in the first set, but there were 14 in the second set,

which was clearer than the first. Individual prints were $2\frac{1}{4}$ -inches long and about 1 inch wide at the broadest point. As I started photographing them, my mind automatically cataloged them as prints made by a doll's boots.

The boy who found the prints was named Tonnie Barefoot, a third grade student at the Mary Stewart Elementary School. I phoned his mother, Mrs. Roland Barefoot, who told me of Tonnie's encounter with the little man.

It was her habit, she said, to pick Tonnie up from school and to take him to the field near their home where he would play among the dried cornstalks while she picked peas from the family garden.

It was close to 5 p.m., she said, when he came running up to her excitedly and begged her to "come look," that he had just seen a little man "not much bigger than a Coke bottle."

Mrs. Barefoot said she paid little attention to her son and sent him back to play. Again he came back to her, this time to tell her that he had found the little man's footprints.

When she still wouldn't pay attention to him, and when the rest of the family ridiculed him at home, he began crying. The next morning Mrs. Barefoot was forced to promise to look at the footprints in order to get Tonnie to stop crying. After school was out that Wednesday afternoon, she saw the footprints.

"I know my son Tonnie. He's telling the truth," Mrs. Barefoot said.

Her husband agreed, and told of plans to hunt for the little man.

That afternoon, with the family's permission, I interviewed Tonnie at his school with the aid of the school principal, Mrs. Jennie Brooks. The session could probably better be described as a "mild interrogation."

Tonnie said he was playing with his toy shovel in the dirt when he looked up and saw the little man watching him with an open mouth. The little fellow wore black boots, blue trousers and blue top made of "shiny stuff," a black "German-type hat" with something that looked like crossed rifles on it, and "the prettiest little white tie you ever saw."

The boy said that the little man seemed to have been reaching for something in a back pocket, but instead froze for a moment, then let out a little squeal like a mouse and ran—disappearing among the cornstalks.

"Was it fast?" I asked.

"Faster'n me," he replied.

From a picture Tonnie drew for me, we discovered that the little man also had a mustache.

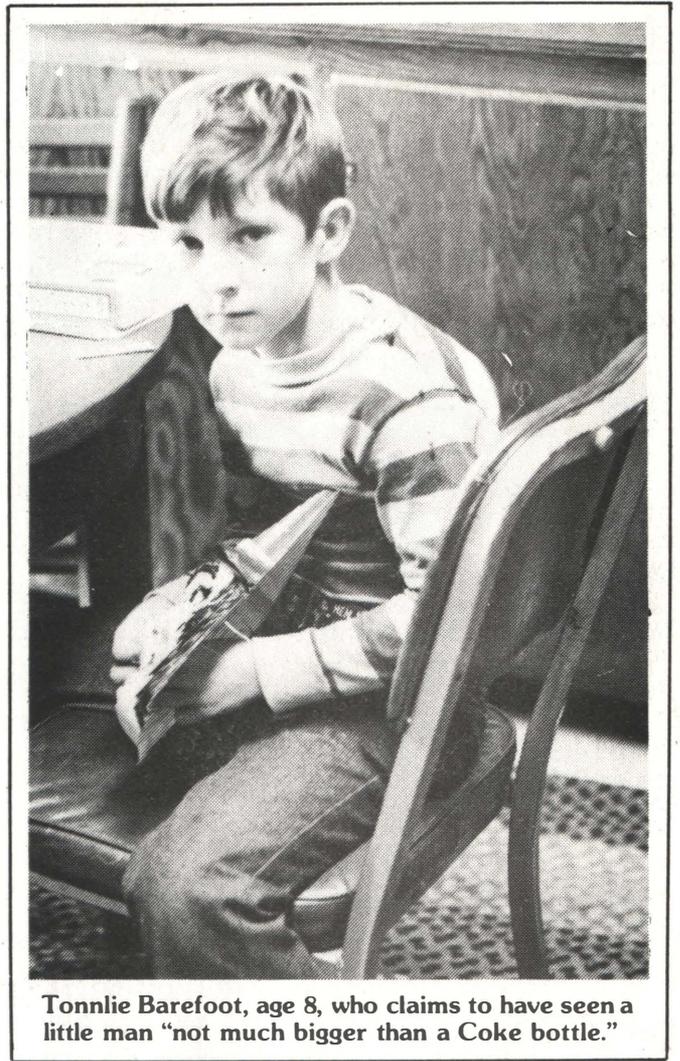
Principal Brooks helped me try to tactfully find a hole in Tonnie's story, but the child came across as sincere and honest about what he thinks he saw.

The only doll that Tonnie owned was a G.I. Joe doll, which has a foot too small to have made the prints in the field.

I started checking toy stores for a doll that would fit the pattern.

In the meantime, other media had picked up the story. Most of the major newspapers in the area ran it. Tonnie was interviewed by the news section of WRAL-TV in Raleigh.

The city of Dunn only boasts about 10,000 residents.



Tonnie Barefoot, age 8, who claims to have seen a little man "not much bigger than a Coke bottle."

It's a small place nestled in the northeast section of a little tobacco county called Harnett. Dunn sits astride Interstate-95, and the city's only apparent claim to fame is being halfway between New York and the Florida beaches that vacationing New Yorkers use the highway to reach.

But this story had the little city buzzing.

This was the climate in town when the second sighting of a little man was made.

Our police monitor radio on Monday morning, October 25, picked up a call from the dispatcher to a patrolman to investigate a claim of a second sighting. I was tied up on another matter and did not reach the address until after the patrolman had departed.

Shirley Ann McCrimmon, 20, of 809 East Harnett Street told me her story at about 11:30 a.m. She said she was coming home from an all-night party just before day-break. She left her front door open to give her some light until she could find the switch inside. As she turned on the light, she heard a noise outside—something like a small animal moving around. When she looked out, a small man was staring back at her.

She was frightened but also curious, so she watched the little man for several minutes in the growing light. When nothing happened, she grew bolder and moved. At that, the little man shined a tiny, "very bright yellow light"

across her eyes. She screamed, and the little man zipped away, she said.

Miss McCrimmon said that as the little creature disappeared around the west side of her house toward the back, the dogs in the rear yard next door started barking.

Her immediate recollection of it, she said, was that the little man was wearing some kind of thin garment. After she thought about it, though, she said he might have been naked. If so, his skin was light brown, she said.

Miss McCrimmon is herself a black woman.

She insisted the little man wore no hat, but he *did* wear boots.

Her immediate reaction to the scare was to run in the opposite direction of the little man, to her mother's house next door. She woke her mother, Mrs. Eula May McCrimmon, but her mother swore she must be drunk.

She then went to the house of Mrs. Corinne Smith (another neighbor and the owner of the dogs which had barked). Here she was told that if she really did see something to keep it quiet or the "police would throw her in the looney bin."

She accepted that advice for as long as she could, she said, then she went to her aunt's house down the street and called the police.

She pointed to an inverted plastic container which she said covered a footprint that she had just shown to the investigating officer. Her baby son, trying to be helpful, dragged the container across the ground. Whatever print had been there was obliterated.

Searching on my own, however, I discovered a second print in the hard-packed dirt of the driveway. It was not as distinct as those in the cornfield—no cleat marks could be distinguished—but it had the same dimensions.

Later, Officer George Robinson indicated that the mark he had examined had *definitely* resembled a footprint.

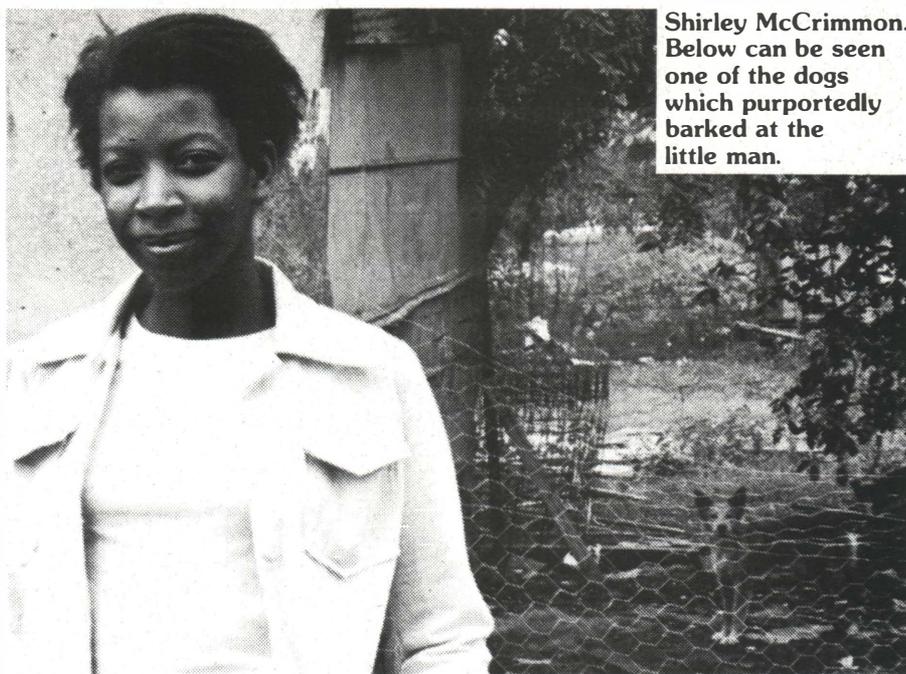
The strange part about the footprints were that they led nowhere in any of the locations where they were found. The ground was soft in both areas of the cornfield, yet in both cases the footprints ended abruptly.

The ground was hard where the footprints were found at the McCrimmon home; yet around the back where the little man was said to have disappeared, there was a garden area with soft earth—but here no footprints could be found.

Since then, I have looked at dolls in stores whenever the opportunity arose, trying to find a doll's boot that would fit the dimensions of the footprints. My search has been unsuccessful.

Miss McCrimmon is distrustful of attempting hypnotic regression for "reliving" the experience, but she is willing to take a polygraph test. To date, this has not been arranged.

Roland Barefoot desires not to have his son undergo



Shirley McCrimmon.
Below can be seen one of the dogs which purportedly barked at the little man.

either a polygraph test or hypnotic regression for fear the experience might make the boy nervous.

So the mystery remains. Is it conceivable that a boy who has barely reached the age of reason could have perpetrated a colorful hoax—so colorful that it was picked up and repeated by a 20-year-old woman two weeks later?

If so, why didn't the woman use the same description of the little man? Why didn't she put the footprints where they could be more easily found?

If it is a hoax by a third party, the footprints can be explained—but how can we explain the way that the two witnesses "saw" the little man?

On the other hand, if it is not a hoax, why did the footprints just disappear? Why did they not continue?

Could the appearance of the little man "not much bigger than a Coke bottle" be linked somehow to the "strange orange light which appeared in the sky" the night before Tonnie Barefoot's sighting of the little man? Miss Debbie Godwin of Dunn joked about "seeing her first UFO" that Tuesday morning. No one else, however, reported seeing that strange light in the sky.

Or perhaps the appearance of the little man is somehow connected to an incident which reportedly occurred in Cleveland, Ohio, earlier last year.

After reading our stories on Dunn's little man, a woman came into the office to purchase copies of each of the respective issues to send to friends in Cleveland because, she said, "our friends will enjoy reading about it."

It seems the last letter which the woman had received from her Ohio friends contained an offhand remark about a woman in the neighborhood who had suddenly started talking strangely, insisting to everyone that she had seen "a very small, very little man."

Is it possible it could have been a little man "not much bigger than a Coke bottle?"





Above: Footprint which the author examined at the home of Shirley McCrimmon.
Below: The original set of footprints found by Tonnie Barefoot.



THE RELATIVITY RACKET

by Dr. Silvano Lorenzoni

It is striking how for over half a century a theory of dubious and shadowy conception which, if not obviously wrong, is at least totally useless and unnecessary, has been accepted without the slightest critical sense of moral honesty as *gospel* by the majority of members of the so-called "serious" scientific community. We mean the "Theory of Relativity," attributed to the late A. Einstein, which has become a veritable straightjacket for certain branches of scientific thought, especially those involved with communications over astronomical distances.

It has become commonplace to hear of "Relativistic Physics" in contexts where, from the point of view of both scientific rigor *and* historical honesty, the discipline *should* be spoken of as "Lorentzian Physics" or, better yet, "Physics of High Speeds." I shall attempt to explain why.

At non-specialist level the abstruse nature of the matter makes exposition difficult, especially if one tries to combine simplicity of presentation with rigor. Very succinctly, however, the point can be made thus: the results of the new classical Michelson-Morley experiment (1886) could be mathematicized in terms of the "Lorentz contraction" (after the Dutch physicist Hendrik Lorentz, who did the interpretative work), whereby an object moving with a speed v contracts in the direction of the movement by a factor of $\sqrt{1-v^2/c^2}$, c being the speed of light in *vacuo*. This phenomenon acquires importance only at very high speeds — thus "Physics of High Speeds."

Once this is clear, the next statement will be understood easily enough. Every time we are told that one or more of the results from experimental Physics (high energy or elementary particle Physics, cosmic rays, Astrophysics, etc.) is a further corroboration of the Theory of Relativity, we are told a plain *lie*. What all those results corroborate is *not* Relativity, but Lorentz's contraction. Relativity — a theory systematized and publicized (but not originated) by Einstein in 1905 — is nothing more than one of many ways that can be followed in attempting to deduce Lorentz's contraction from different (not necessarily *simpler*) postulates.

This last point may be worth expanding. One valid possibility could simply be that of accepting Lorentz's contraction as one more natural law in the same way as one accepts gravitation, inertia, electromagnetic forces, or the laws of thermodynamics, discovered experimentally by Michelson and Morley and put into mathematical form by Lorentz. This would constitute the phenomenological approach adopted originally by Lorentz himself. On the other hand, standard and quite legitimate scientific practice would be to see if we can deduce a new physical *fact* — in this case Lorentz's contraction — from other already known laws or from merely simplifying postulates. The "simplifying postulates," however, should indeed be simplifying and, more importantly, should not produce "side effects" by implying phenomena and/or

consequences that do not occur and/or lead to contradictions.

Two early attempts in this direction will be mentioned briefly here, for the sake of completeness. Lorentz himself originally attempted an explanation in terms of the elasticity of the electron, but later abandoned the attempt — not because it was formally incorrect, but because it rested on too many unverifiable assumptions about the elastic parameters of the particle. It is interesting to note the fact that the famous "mass-energy relationship," $E = mc^2$, (which, once the Lorentz contraction is taken as given, becomes one of its more important consequences) can be deduced in a *totally independent fashion* by simply applying the laws of classical thermodynamics to electromagnetic propagation, as proven as far back as 1890 by the Viennese physicist Hasenöhr, whose works are now practically forgotten. We cannot draw the conclusion that all of the "Physics of High Speeds" are simply a chapter of classical thermodynamics, but to the best of my knowledge, this possibility is not being investigated currently anywhere.

Instead, "Relativity" is in fashion — in spite of the fact that an increasing number of top-notch scientists (among them Palacios in Spain and Dingle in England) are declaring themselves *against it*, and I suspect that its "fashionability" does not obey strictly scientific reasons. It is a theory which appeals to certain types of mentality and to certain *tendencies*, because it introduces, with its arbitrary postulate of the "equivalence of all inertial systems in relative motion," the *pathos* of inevitable incertitude. It does this even in what ideally should be the stronghold of clear-headed thought (exclusive of all *pathos*); i.e., positive science, and in particular, *Physics*. It then props up everything with the equally arbitrary postulate of the "invariance of the velocity of light in vacuum" to reach, through mathematical tricks, Lorentz's contraction, which was already known from the start and certainly didn't need any "justification" — especially of the above pseudo-metaphysical quality. It is by no means surprising that such a warped construction should have produced the sort of "side effects" mentioned earlier, which have been exhaustively listed for example by Dr. G. Burniston-Brown (see references).

It may be mentioned here that Relativity implies that the Maxwell-Lorentz's laws of electromagnetism remain unchanged while the mechanical equations of Galileo-Newton need readjustment. Around 1920 an almost unknown Swiss physicist named Ritz, starting from postulates that *a priori* are just as valid or invalid as Einstein's, proposed an alternative theory whereby mechanical laws did not vary; the laws of electromagnetism were revised instead, thus reaching again Lorentz's contraction — the necessary goal of all theories of "Physics of High Speeds." Ritz's theory, however, was never given serious consideration in any of the academic/scientific circles. One might justifiably wonder why.

In closing, a final historical note may be appropriate. The Theory of Relativity — quite apart of whatever judg-

ment may be passed upon it — is not a creation of A. Einstein. It was suggested about 1899 by the French mathematician Henri Poincaré, who proposed it strictly as a hypothesis without entering into any details; then Max Planck toyed with it mathematically for a short time. The Father of Modern Physics soon abandoned it, however, to devote himself to the studies that led eventually to his formulation of the Quantum Theory. What Einstein did was to collect, systematize, and expand the already existing work and then to publicize it (without quoting sources) under his own name, with unprecedented success. (The reason for that success is a subject better not approached here, although I am currently writing a separate work on it.) It should be noted that the Nobel Prize, in an attempt to maintain at least a *show* of seriousness, was handed to Einstein *not* for his relativistic kabbalas, but for his work of a very different kind done in the field of solutions and colloids.

We may conclude that if there is truth to the statement that a person's work reflects the kind of a man he is (I

maintain, however, that this is only *partially* true), then in the case of Einstein, the man, and of Relativity, the work, we are faced with a corroboration of that truth to a high degree.



REFERENCES

1) A good presentation of Relativity and of Physics of High Speeds in general may be found in Herbert Dingle's *The Special Theory of Relativity* (Methuen, 1961), where Ritz's work is mentioned.

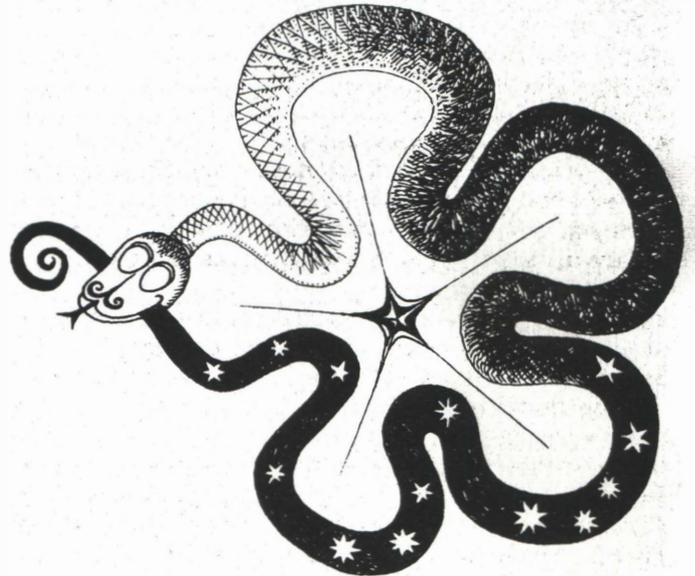
2) Hasenöhr's original paper is practically impossible to find now; his argumentations, however, are reproduced in Max Born's *Modern Physics* (Blackie, 1962).

3) An excellent critical study of Relativity's "side effects" may be found in G. Burniston-Brown's paper, "What is Wrong with Relativity?" published in the *Bulletin of the Institute of Physics* (London) of March, 1967; p. 71.

THE INVISIBLE STAR

by Carlos Miguel Allende

Let us plot the course of scientific progress from the days when the ancient Sumerians landed in their spaceships from another star's planets and brought to this earth the seeds of our present-day civilization. Follow it from that well known cradle of civilization, the Tigris-Euphrates valley, through Ptolemaic times in Egypt (when the concept of Worlds were further advanced than the Sumerians had given us to realize) onward, to the time of Euclid and Euclidian geometry, to Galilean times, and on up through the ages and centuries to Copernicus and Isaac Newton, and that greatest giant of them all, the man who laid the foundations for Einsteinian progress, Carl F. Gauss, who proved all of Euclid's premises and propositions; finally, after many centuries, scientific progress enabled the mathematics of algebra to become more advanced (by Newton), calculus to be invented, Einstein to have the mathematical tool by which he built the relativity theory and even two (repeat *two*) unified field theories. Science today stands on the shoulders of these great men. Each time, we have advanced the concept of Worlds, we have broadened our worlds, and our appreciation of what is a world. We have gone from Ptolemaic times when the sun circled around the Earth to present times when we know now that the Earth circles around the sun in a year's passing, to times when we have landed upon the surface of Mars to see the face of Mars and to dispel forever the fear of invasion from the little green men and the monsters inhabiting that barren lifeless planet which we feared so terribly down through the



centuries ("Mars, the god of war!" we said). The fear is gone gentlemen, and the time has come for us to advance a concept of Worlds and Universe. It is a time for greater and larger — ever larger — concepts of World, of Universe.

Einstein in his relativity theory said that light was of a constant speed. It is: and yet as many things down through history *are and are not* in Science, light is both a wave *and* a particle. The world is *both* flat and round. Obviously. Many things are this way in Science, but light is proven by Einstein's own experiments with the sun and a star to be affected in its velocity by the very force-fields, the magnetosphere, surrounding our sun and all the planets within the sun's magnetosphere.

Strong words. "Ridiculously absurd," and "Preposterous!" you say. But let us take a *different* view of that experiment. Let us think again from another viewpoint — the viewpoint of a force-field physicist, not a man who dabbles in physics enough to know force-fields as merely



Drawing by B. Wilkie

nothing more than dynamics. Let us consider an actual physics, a physics encompassing the microcosm and the macrocosm and everything in between, as well as *theory*, which is yet to be proven.

We are at a time today when not only are we speaking and thinking and planning and hoping — hoping to go not merely to the nearby planets in nearby *outer* space, but to go into far *deep* space to other stars. We think in terms, not of the speed of light but of going *faster* than the speed of light. Classical physicists and academicians of today will say this is an impossibility; yet we are confronted by the discovery of the Soyuz/Apollo mission of 1975 which found an invisible star radiating in the 390 angstrom region of the ultraviolet. This is impossible. Let us face the simple fact: even though that star is in a sense “at rest” within the galaxy (technically you might regard it as being at rest for it is certainly in a fixed position), were that star traveling at the speed of light or greater it would of necessity have to pass through; a) *its own force-field*; it would be forced back through its material matter, its mass; b) *the galactic force-field* would also be forced back through its own mass; and c) *the universal force-field* (and the universe *has* a force-field) would also be forced back through its own mass. Were the star ex-

ceeding the speed of light, this would produce that so-called astrophysical limbo known as *absolute camouflage*. Simultaneously, were you to accompany that star at a very near, or *visible* distance, you would discover suddenly that it would become not visible, but *invisible*. Why? Because also along with the three aforementioned force-fields being forced through their own mass, there would also be the universal blue light verging on the ultraviolet, which is a necessary adjunct to absolute camouflage, or invisibility as you commonly call it.

What am I trying to say? I am saying that this star is in a fixed position and it is *not* traveling at the speed of light or *surpassing* the speed of light, yet it is *invisible*. Were it to pass the speed of light, the relativity theory says that it must achieve infinite mass. Well, it has *not* done so. Being that it has not achieved infinite mass and has become invisible at such a velocity, will it nevertheless appear as *though* it were traveling at the speed of light? It *should* in its present state achieve *infinite mass*. If you know your force-field dynamics at the microcosmic and the macrocosmic levels, simple logic will inform you of this. No, this star has *not* achieved infinite mass, yet it *should* have achieved infinite mass. Well, then obviously there is something preventing the state of infinite mass from

occurring; obviously only a *part* of Einstein's relativity theory is true.

Is this relativity theory, like many other theories, related only to Earth and the Earth's things? Is it good only within a limited sphere of activity as Euclidian geometry was good only for the Mediterranean world, as the Ptolemaic system was good only for the Egyptian world, or as Copernican astronomy was good only for nearby planets? This was all we knew of astronomy in those days. Newtonian discoveries advanced the concept even further than Copernicus had gone; Einsteinian theories even further advanced our widening appreciations of the concept of Worlds and of Universe. Still, all of these had their limitations as well as their broadenings of our appreciations, of our expandings of our understandings.

We come to the point now where we must say yes or no about Einsteinian relativity theory, and we are forced by logic to conclude that, since a state of infinite mass has not been achieved in this invisible star (when it really logically *should* according to Einsteinian theory), *there must be compensations preventing this*, compensations which Einsteinian relativity theory does not indicate.

We are therefore forced to conclude that the relativity theory is good *within the magnetosphere* of our solar system, and it applies and it is true; and upon the shoulders of this giant we must step forward into another more advanced (and characterized by a higher level of mathematics, physics, etc.) concept of Worlds and of Universe.

What, then, is the next step? The next *step* is to *step* outside of our own solar system's magnetosphere and to ask ourselves, "What is the speed of light *outside* of this magnetosphere? Why are there compensations in that invisible star? What is it that these compensations do to light?" These are the questions that must be answered.

What do those compensations do to affect the velocity of light? As we ask this question let us ramble through the various phenomena that affect light. And the type of phenomenon that I am discussing is force-field physics. Let us begin, gentlemen.

—*The pulsar*, in astrophysics that phenomenon which gives off brief flashes of intense light (*and no light*), showing the intense high velocity (*and null, or no, velocity*), of light.

—*The black hole*, that peculiar phenomenon in which light speed has been reduced to no velocity (a null velocity); there is no speed to the light yet *that light is inside there*, according to science.

—*The quasar*, a bright interstellar object that has burst free of the force-field bonds that once chained light inside of it so that it now shines brighter than ten million suns, incredible as that may seem. This quasar, free at last, gives forth more light than we can believe.

Is it asking too much to believe that we can go from *no velocity* in the black hole, to *total velocity* in the quasar, to the limited and *modified velocity* of the solar and planetary magnetosphere (to say nothing of all the items pertaining to magnetic and gravitic attractions here on our own planet)?

Force-field activity was indicated even in the testing machinery used by Michelson and Morley (as well as by others who later imitated that famous experiment). It becomes obvious to any atomic or force-field physicist

that these material objects have indeed (literally and actually) *their own force-field activities* which intrinsically and inherently affect the speed of light. You be the judge. Are we to ignore the north-to-south and the south-to-north planetary flow of magnetism, our own planetary gravity, our own planetary magnetosphere, and our own solar magnetosphere? Are we to ignore these? Are we to say they are of no account?

Surely we could not affect any particles of light: and yet, gentlemen, we are faced with those particles; and those particles, though larger (much larger) than the neutrino (the smallest of all particles) *are particles* and as such they *are affected* by force-field activity. Just as the neutrino itself is also, to however an infinitesimally small degree, affected by force-field activity. You say this is impossible, that the neutrino is *not* affected by force-field activity, but then sirs, are you a force-field physicist? If not then how can you say what you do not *know* about, and I do. Think a little more about the neutrino — from whence it originates, and to where it goes. How does it travel? Does it travel out trillions of miles and return, or does it speed in one single direction only? Shall we advance our concept of Worlds, of Universe, in the direction of a neutrino and its curvature of space (a slow, infinitesimally slow, almost unnoticeable motion)? Or shall we insist adamantly, blindly, stubbornly, proudly, sure in our knowledge: the neutrino goes in only one direction! Who is to judge, when none of us — or certainly none of you — really know.

Gentlemen, I ask you to consider not only the null (or no) velocity of light, but also the extraordinary volume of light. Consider also the force-field emanations obviously inherent in the Michelson-Morley experiment (obviously inherent, too, in that pond of mercury that they used). What conclusion can we draw other than these apparatus, these metals, these forces, these "things" *do affect* the speed of light, as proven by the star and sun experiments when observed, as we are here attempting to do, from a different perspective and for a different purpose.

Within our own solar system the speed of light is constant; outside of it it is variable. Considering the intense pressure of light coming out from a quasar, I suggest that you may even find that the speed of light may supercede and exceed itself — perhaps even more than five times the speed that we today, in our limited concept and understanding of light velocity, can yet bring ourselves to understand and appreciate. If this statement is too radical for you, make the test over again. Make the test over again that Einstein made with the star and the sun. Do other tests. Remember, science has found a way to artificially remove, for experimental purposes, almost all of gravity's effect; and now Bell Systems, I believe it is, has even created a room in which there is no magnetic flow, no force-field activity. Combine these two, and within such a room make your Michelson-Morley experiments. If there is an effect, then calculate the difference between the speed of light there and that which exists outside such a room. Under these scientifically controlled conditions I am sure you will find the speed of light to be variable.



FLUIDICE: TIME AS A FUNCTION OF PRANA

by E. Macer-Story

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In the following article I attempt to explain the nature of *pranic energy exchange*, which can be seen to operate by time, where time is considered as a variable within the symbology of certain energy systems.

Obviously, none of the models available explains my concept of the time-dependent pranic energy, or this concept would already be included within the systems. Understand then that I am attempting to represent concepts which are not available within the current terminology.

These same concepts are also not readily available within any mystical or figurative system in existence, since in those descriptions (within mystical systems) time is treated as a mystery to be experienced and not as an energy exchange or natural property of *perception*.

Actually, time seems to be a lot like sound, perceptible in terms of the structures affected, and seen as a dynamic motion rather than as a substance. *It is evident that there is no substance to time.* There are basically two kinds of time: gravitational or "large time," and vibrational or "small time." Small time can be counted by measuring rhythmic changes in the pulsing of a molecule, or by observing electromagnetic frequency. Since the pulsing of a molecule is a natural structural alteration, this is much like planetary and solar rotation and should be considered as a sort of small gravitational time, in that it involves a natural, structural movement.

I will be dealing with electromagnetic time only, as it is in the area of electromagnetic action that the pranic transfer occurs. As far back as mankind can remember, psychics have associated "electrical" and "force" feeling with the state of mind we call meditation or trance.

Recent research on the brain has shown that actually there are different electrical states of the brain and nervous system. This "brain wave" idea is now popularly accepted and forms the basis of many medical and mental-conditioning techniques now in use.

Common sense dictates that in the case of thoughts or dreams, which occur to people from beyond the realm of the five senses (as documented by parapsychologists all over the world), these thoughts and dreams must nevertheless register within that same nervous system as ordinary perceptions, or else they could not be brought to consciousness at all. Our vocabulary of expression is coded within the nervous system, and so impressions arriving from beyond the nervous system must be translated into the available vocabulary before they can be expressed.

This duality presents a problem. If the esp information does not enter through the usual senses, from where does it come? How, if it is arriving independently of our usual time/space restrictions, does it manage to register within the nervous system at all?

Since esp information quite evidently does register within the nervous system, then there must be some process of registry within this electro-chemical system which involves the use of another sort of communication energy, which is not subject to the same time/space restrictions as within the electro-magnetic spectrum.

Of particular importance to the operation of this other sort of energy, or *pranic energy*, as it will be called in this article, is the acoustical nature of time. By "acoustical" I mean time as changing the structure of spacial relationships and cannot be perceived as being separate from the relationships which it affects.

Control, or understanding, of time itself would then involve control or understanding of some fundamental change in arrangement, rather than any understanding of the flux of a force analogous to the electro-magnetic spectrum. This fundamental change in arrangement can, however, be indicated as it occurs in an intersection with the electromagnetic spectrum. since it actually does intersect with the electric energies. Remember, as I said initially, that the diagrams which I am presenting are not literally representative of events within the electro-magnetic area, as we have learned to discuss it practically, within our present culture.

Obviously, I have studied electrical terminology as symbology, and also the geometry of molecular representations as symbology. In using a combination of these symbologies, I am attempting to present a reasonable model of a transaction.

There is no actual "membrane" or "box wall" between fluidice and the electromagnetic energies. Fluidice is the structure of time's action, over against the structure of the electro-magnetic flux. These two structures do not mix or interact except by the catalytic energy of prana, which is an understanding, comprehending both structures. This inter-dimensional energy can also be envisioned as *heat* applied to fluidice. As fluidice contracts and expands, it changes the structure of the electromagnetic pulse, which can be seen in the following diagrams:

Initially (fig. 1), we will use the standard orthogonal representation of the electromagnetic vectors.

At the instant the E/B vectors are orthogonal, there is a shared time "compartment." Both E and B are frequency dependent and must share time/space. If they did not share time at the instant of measurement, they could not be functionally linked; and experiment has shown the electric and magnetic fields to be functionally linked in a way represented by orthogonal vectors.

We now have a shared time compartment (fig. 2) at the intersection of the electric and magnetic field directions. Please do not confuse this time compartment with a particle of any sort which might be in an electromagnetic field. I am using the symbology differently, representing an area of time/space by a square compartment F (for Fluidice).

This compartment has no actual solid existence, but can be visualized as a point group lattice which is flexible under stress, yet retains the common E/B boundary (fig. 3).

Upon the occasion of pranic action (prana now seen as analogous to heat) this fluidice compartment can stretch and bend, but it still retains the original approximate four point identity (fig. 4). A flux in Fluidice changes field orientation — warping, but not destroying, shared time.

Remember that this is a geometric representation of an abstract concept. Like numbers, prana can also be understood as a sort of organizational comprehension, which in this case exists independently of the fluidice compartment.

As this fluidice compartment is altered, information not available through action in the electromagnetic spectrum is registered electromagnetically in the nervous system, or in other electro-magnetic phenomena exterior to the nervous system, such as the behavior of the sun, or any anomalous ionic behavior.

In these instances, prana is active only on fluidice and not directly on the electromagnetic spectrum. It is as if fluidice were the liquid in but one compartment of time's ice cube machine, while other expansible units which are extended into the electromagnetic spectrum remain empty.

Thus, electromagnetic relationships are subject to slight changes of shape under direct prana, although no significant change of informational form or content is registered *without* fluidice.

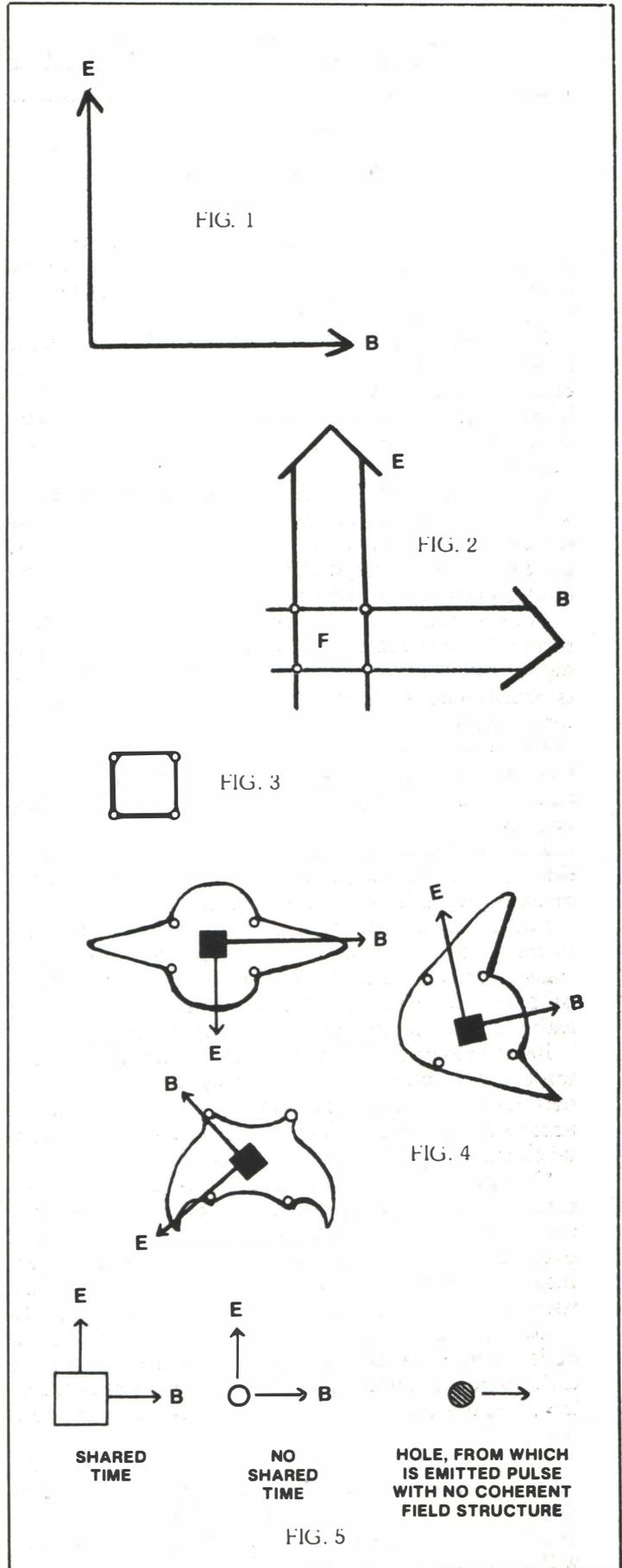
Prana is an integrative energy which acts on fluidice as a point group relationship, changing shared time. Death of the body is the dis-integration of the electro-magnetic organization by the withdrawal of the pranic operator from the shared time conjunction called fluidice, which is not the prana itself, but is affected in structure by prana.

What, then, is prana? Prana is an energy generated by living beings. Thought is time/space-independent due to pranic action within the living, electrochemical mechanism of the body. Action of fluidice is also a reasonable explanation for the "explosive" behavior of stars which seem to be generating energy from "nowhere." Particle transit-time anomalies in solar plasma might be accounted for by an investigation into the fluidice concept.

It is an ancient occult teaching that the sun and other stars are living beings. Is it possible that this is literally true if we do regard the organizational activity of prana as the energy of life? Then, in the absence of time-based activity, the living electrical star would disappear within the electro-magnetic spectrum, leaving only dis-integrative pulsing (fig. 5).

NOTE

If you are unfamiliar with the knowledge and systems upon which I have drawn in examining this theory concerning fluidice, consult elementary paperbacks on *matrix theory*, *group theory* (mathematical, not socio-logical), *electrical field structure* and *solar plasma*.



EXTANT DINOSAURS: A DISTINCT POSSIBILITY



by Dr. Silvano Lorenzoni

"Monsterology" should be included among the top unorthodox scientific quests of Man, along with ufology, the search for the abominable snowman, etc. The Académie de France, for example, has an official resident expert on Monstrosities. When "monsters" are mentioned, there is a tendency to think immediately of reptilian, amphibian, or maybe fish-like beings with a "dragon" aura about them; both the sea-serpent and the Loch Ness monster obviously fall into this category. In the Author's opinion, not enough attention has been given of late to the possibility of the survival of actual *dinosaurs*: a group of species characterized by a vast variety of form and habitat whose latest known fossils date back to the end of the Cretaceous — 60 to 70 million years ago. Even Heuvelmans (1955) dedicates little attention to them, preferring less well identifiable "water monsters."

A serious examination of the "dinosaur survival problem" appears therefore to have been forgotten — and for no good reason. Confusion should not be tolerated; a dinosaur is by no means a monstrosity — no more so than the anaconda or coelacanth, and wholly unlike a minotaur or a satyr.

Serious consideration of the problem of the possible survival of dinosaurs is made all the more important by the fact that, in spite of all efforts in that direction, no good reason has been given for their *sudden* and *worldwide* disappearance at the end of the Cretaceous (any standard textbook on the subject will make this sufficiently clear; see references). Of the many reasons adduced, none is satisfactory. We shall list and easily demolish a few of the "explanations" that have been offered:

1) *A series of cataclysms of seismic and/or volcanic type.* There is no geological evidence for this at the end of the Cretaceous, most certainly not on a worldwide scale. In any case, it is difficult to see how there could

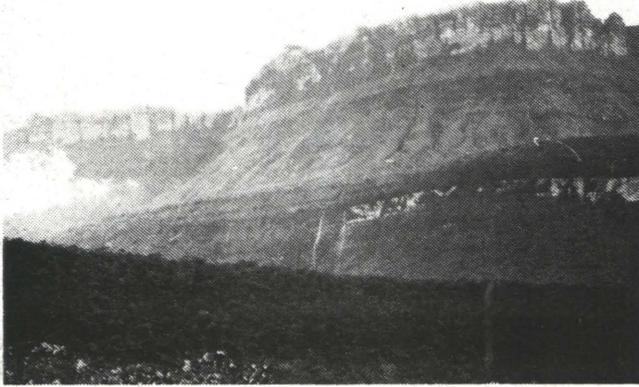
have been such a devastating effect on dinosaur *only*. The recent severe earthquake in the forest of Darién (Colombia) had no effect whatsoever on the local fauna.

2) *A drought.* While it is most unlikely that all parts of the world may have experienced a drought simultaneously (how then do we account for the survival of freshwater fauna?), there is evidence in the Kalahari (Southern Africa) and in the Gobi (Central Asia), deserts that the dinosaurs had adapted to life under desert conditions.

3) *A sudden decrease in the earth's temperature.* This might at first appear to be a more weighty argument, especially if (as someone has suggested) dinosaurs were warm-blooded and *not* cold-blooded as are modern reptiles; but it does not explain why dinosaurs should have also disappeared *in the tropics*.

Finally, and in my opinion the *ultimate* objection to all the above theories: How do we account for the simultaneous disappearance of *marine* dinosaurs? They were shielded from extreme temperature variations as well as from earthquakes. And they most certainly did not suffer from any droughts.

We are faced, therefore, with the bare (if unaccountable) fact that dinosaurs did indeed become extinct, at least in the readily accessible and so far well-explored areas of the earth; and they disappeared in a very sudden and catastrophic fashion — for no known reason. It is this last point that should make us wary of pronouncing final word on the subject by denying the possibility of the dinosaur's possible survival in some out-of-the-way, secluded spot. Especially when one remembers that dinosaurs were indeed a very vast group including both herbivorous and insectivorous species, some not much larger or more conspicuous than a modern lizard. We must not



The Auyantepuy from the south. Notice the 600 m vertical walls.



Landscape of the Auyantepuy looking south from a vantage point roughly at its middle. This is the area where the three "plesiosaur-like things" have been reported.

forget the significance of the coelacanth, a species that "should not exist" but that *does*.

The above imply that it is indeed reasonable to explore the possibility of searching out any Cretaceous survivors that may exist. The next question is this: Where would we look?

The answer lies in a well known ecological fact: all archaic species, animal or vegetable, are at a distinct disadvantage in relation to recent, more dynamic species; and when they come into contact, archaic species would tend to be crowded out or exterminated. We must therefore restrict our search for them to environments that are somehow sheltered, preferably by *physical barriers*. And we must relegate to *second place* such environments as deserts, ocean bottoms, caves, etc., which, being unattractive for "normal" species (including dinosaurs), are more likely to attract hyperspecialized species.

This immediately localizes the situation: there is no more suitable place than the flat-topped, vertical-sided mountains of the Guayana Massif of northern South America (similar formations exist in South Africa, especially along the Drakensberg, but their small size and extreme aridity make them unlikely regional prospects; also, the area is fairly well known [having been visited repeatedly — I have been there many times myself] and can be considered to be to a large extent "explored," unlike the Guayana Massif). In fact, as a colleague of mine (a globally known biologist recently retired from a university chair) has told me, *if dinosaurs are not extinct, their last representatives MUST be in the Guyanese plateaux*.

The plateaux are characterized by extreme isolation, with surrounding vertical descents of as much as 100 metres, in some cases characterized by long, continuous cracks that seriously impeded attempts at ascension. Heavy annual precipitation produces a high vegetation-density of plants that, while made up largely of specialized species, grow as tall as the rocky nature of ground will permit, forming veritable galleries of forest along riverbanks.

Many of the plateaux are extensive. The largest is the Auyantepuy (where Angel Falls, the world's highest

waterfall [1,000 metres] originates), which has 800 square kilometres of upper surface and an average height on the order of 2,000 metres above sea level. The Chimantá (unexplored) and Roraima are not much smaller; the highest (and most unexplored) of them, the Marahuaca, while not very large in upper surface area, is over 3,000 metres in height. A good overall description of these mountains is given by Mayr and Phelps (1971).

This relatively unexplored plateaux-area is fairly familiar to me, as I have led three expeditions to the Auyantepuy. During the last expedition we penetrated untrodden territory (a description of this expedition will appear soon [see references]). From personal experience (I am also an amateur entomologist, with special interest in odonata) I can affirm that, entomologically and biologically, the *tepuyes* (flat-topped mountains) do have endemic archaic flora and fauna — an encouraging factor in our search.

Moreover, there is one witness who asserts that he has seen three "plesiosaur-like things," about 50 cm. long (with 25 cm. necks) swimming in a river atop the Auyantepuy. While this witness can scarcely be called a scientist (he is an adventurer that roams the area digging for diamonds) his statement remains to be one more fascinating piece of information in a jigsaw puzzle that is already taking on a recognizable shape.



REFERENCES

- 1) Bernard Heuvelmans: "Sur la piste des bêtes ignorées" (Plon, Paris, 1955).
- 2) On dinosaurs in general, the Author has consulted: Piero Leonardi, "L'evoluzione dei viventi," (Morcelliana, Brescia, 1950). At non-specialist level an excellent book is P. Cox's "Gli animali preistorici," (Mondadori, Verona, 1970).
- 3) E. Mayr and W. Phelps: "Origen de la avifauna de las altiplanicies del sur de Venezuela," *Boletín de la Sociedad Venezolana de Ciencias Naturales*, Caracas, 1971.
- 4) The Author's expeditions to the Auyantepuy will be described in: Enrique Lorenzoni & Silvano Lorenzoni, "Relacion de una expedición al Auyantepuy," *Natura* (Apartado 8150, Caracas 101, Venezuela), March 1977.

DINOSAUR GRAFFITI—HAVA SUPAI STYLE

by John Guerrasio

There has been an ongoing debate in these pages as to whether or not the Doheny Expedition actually found rock carvings of a dinosaur and other prehistoric animals in the Hava Supai Canyon of Arizona. It has been suggested that the claims for this amazing find are the result of imaginative revisionism of the kind found in such works as Col. James Churchwards' *The Lost Continent of Mu*. Hopefully, the illustrations and verbiage presented here will confuse matters further.

The original report of the Doheny Expedition written by Dr. Samuel Hubbard, the expedition leader, was included in *Strange Prehistoric Animals and Their Stories* by A. Hyatt Verrill. In the account of his find, Dr. Hubbard says, "Cut into the solid stone in the gorge of the Hava Supai River in Arizona are carvings of dinosaur (fig. 1) and imperial elephant (fig. 2). The expedition of which I was the head found, measured, photographed, and made casts of these rock-intaglios. The carvings are cut to depths of one-eighth to one-quarter of an inch in the red sandstone walls of Hava Supai Canyon, where the river has cut its channel about twenty feet deeper through its solid stone bed since the day some prehistoric carver did his work. The walls on which the petroglyphs are cut and the place where the primitive artist stood, are now inaccessible except with ladders or ropes, and all are twenty feet or more above the bed of the stream.

"The locations of the carvings, which extend for some miles along the gorge, are near the present Hava Supai Indian agency, but these Indians know nothing about, and have no legends of, these carvings or their makers.

"All the carvings are made in an interesting and peculiar manner. In the sandstone of this region, there is a trace of iron. Through the alchemy of the ages, gas has seeped out and formed a thick black coating, hard as the rock itself, known as 'desert varnish.' The prehistoric artist with his flint or obsidian chisel, cut through this varnish into the red stone, and then deep into the latter, so that the petroglyphs are in clear, red outline against the black background of iron oxide. None of the carvings are artificially colored. The artist (or artists) apparently was content with the black and red carvings.

"Measurements of the dinosaur carving are of interest also. It is 11.2 inches in height; 7 inches in greatest width; the leg is 3.8 inches long; the body is 3 inches wide; neck to top of curve is 3.5 inches; tail 9.1 inches, and the neck total 5.1 inches. Taken all in all, the proportions are good. The huge reptile, which stood some fifteen feet high by seventy to eighty feet long, is depicted in the attitude in which man would be most likely to see it — reared on its hind legs, balanced with the long tail, either feeding or in fighting position, possibly defending itself against a party of men.

"The carving of the imperial elephant evidently is intended to represent a female elephant, because it shows no tusks. The man being attacked by the animal is shown standing in a pool or river, the water being

indicated by a wavy line carved across the bottom of the pictograph, striking the human figure a little below the knees. The man in this primitive 'action picture' is unarmed, but the artist had begun to cut something, possibly a spear, in the hand away from the elephant. There is no means of saying what he intended to carve, nor will we ever know why he left his interesting masterpiece unfinished."

The Doheny Expedition also made some interesting finds in Utah. "On the Colorado River, or one of its tributaries, in Utah, has been found a clear and large carving of a woolly rhinoceros (fig. 3), an animal which has been known for some years, but which never before has been established as existing in the Americas. The Utah carving proves not only that it did exist, but that man saw it. Quite probably it was the most powerful and most terrible of all the prehistoric monsters that ever roamed this globe; and that man was familiar with the woolly rhinoceros also helps to shove back still further the date at which human beings appeared here."

One of our members, Bob Shatkin, has recently informed us of a more recent reference to Verrill's "woolly rhinoceros." In a book entitled *Rock Art of the American Indian* (Thos. Crowell, Apollo Editions, New York, 1967), the author, Campbell Grant, writes of the same carved "woolly rhinoceros" character, which he says is locally known as a "mastadon." He writes: "In southeastern Utah, there are a vast number of pecked designs; often a single rock surface will be covered with motifs in a completely disorganized manner — mountain sheep, animal tracks, curvilinear meanders, etc. ... Near Moab (Utah; R.S.) in association with mountain sheep, there is a pecked rendering of what is locally known as the 'mastodon' and widely believed to be a life portrait of that extinct beast. It's a three-toed trunked animal but the brightness of the design and its lack of patina, together with the fact that the adjoining mountain sheep and accompanying initials have some patina and so are older, brand it as a hoax. The last mastodons died out about 6,000 years ago."

We have included (fig. 4) another example of a woolly rhinoceros for comparison (drawn on the side of a cave at Font-de-Gaume in the Dordogne). Figure 5 depicts the type of woolly rhinoceros probably seen by prehistoric cave artists.

As to the "chicken or egg" debate of Hubbard or Churchward first, it should be noted that the Doheny Expedition took place in 1924 and in the 1926 edition of *The Lost Continent of Mu* Churchward gives picture credit to Hubbard. (Note the lower left-hand corner of figure 6.) It is not the purpose of this article to resolve the Hava Supai question but rather to add more material to the discussion. And, of course, any further information will be gladly received and passed along.



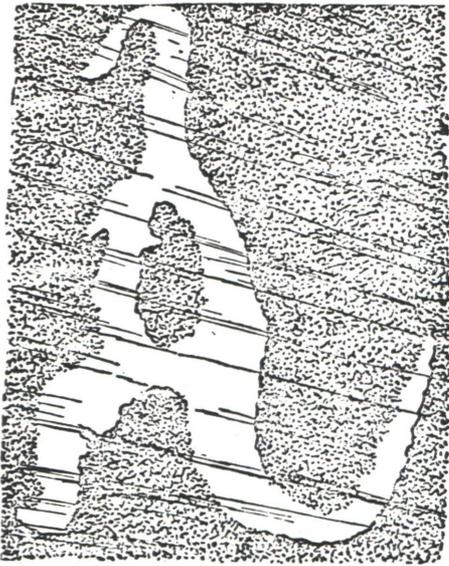


FIG. 1

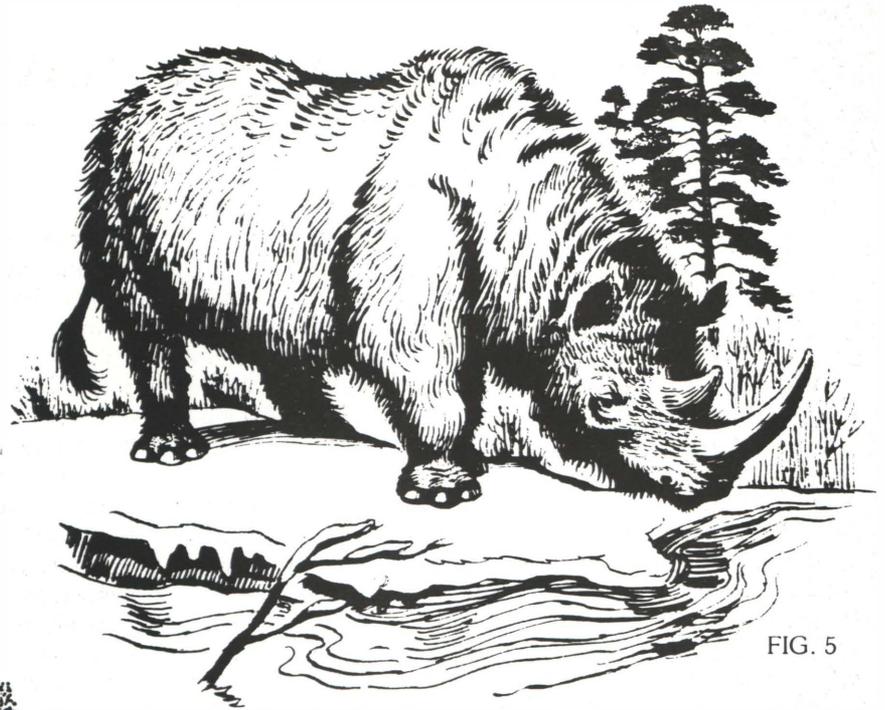


FIG. 5

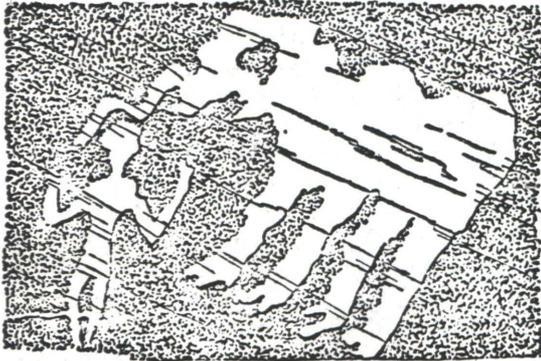


FIG. 2

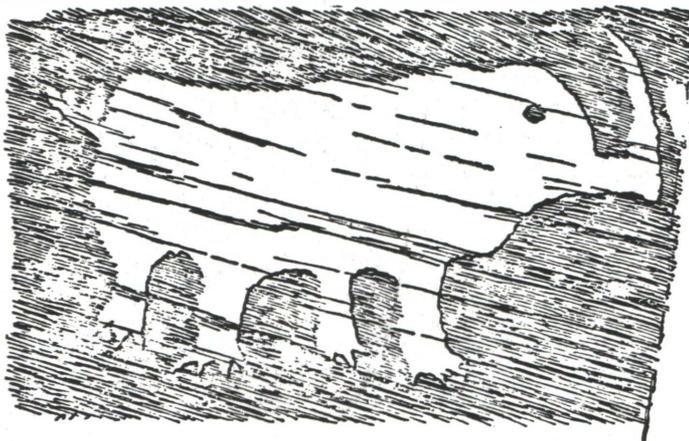


FIG. 3

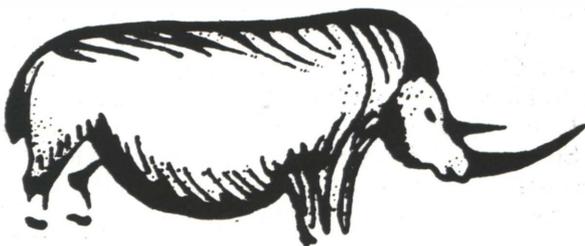


FIG. 4

ILLUSTRATION CREDITS

Figures 1, 2, and 3 are reprints from *Strange Prehistoric Animals and Their Stories* by A. Hyatt Verrill with the permission of Farrar, Straus and Giroux, Inc.

Figure 4 is reprinted from *On the Track of Unknown Animals* by Bernard Heuvelmans, translated by Richard Barnett, illustrated by Monique Watteau (abridged edition: New York, 1965), with the permission of Farrar, Straus, and Giroux, Inc.

Figure 5 is reprinted from *The Age of Great Mammals* by Daniel Cohen with the permission of Dodd, Mead and Company, publisher.

Figure 6 is reprinted from *The Lost Continent of Mu* by Col. James Churchward with the permission of David McKay Co. Inc., publisher.



Courtesy of Samuel Hubbard

FIG. 6

SYMPOSIUM

Comments and Opinions

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* * *

SANDERSON'S BOOKS

We are pleased to announce that we have, over the past few years, collected together a few extra copies of some of Ivan T. Sanderson's books. These have been donated by various members. As a non-profit organization we feel we should not sell these volumes. We can, however, offer them to members who will contribute to our fund-raising campaign. Contributions of fifty dollars or more will receive a complimentary copy of one (their choice) of Ivan's books, along with a receipt and a letter of thanks from our president.

* * *

Judie Wyler, one of our members from Connecticut, would like to contact other members in her area. Interested members write: Judie Wyler, c/o SITU. Mail will be forwarded.

* * *

RENEWALS

SITU is steadily expanding. Since almost all of our funding comes from membership support, it is important that we continue to ask our members to renew. If you should happen to get a renewal notice in the mail after you have sent in your renewal, please do not bother to notify us. If you should *continue* to get renewal notices, however, please *do* let us know and we will attend to the matter.

* * *

SITU member Patrick Macey tells us that researchers can contact him (7401 Mason Avenue, Canoga Park, CA 91306) concerning Bigfoot and related phenomena. SITU members in the Los Angeles and southern California area are invited to stop by and visit, discuss research, and become better acquainted with his facilities.

We regret to inform our members that, due to a mistake on the part of our printer, a number of issues of the winter *Pursuit* (Vol. 10, No. 1) were damaged in printing. Some of these copies were inadvertently mailed out. Members who received poor copies please send them in to us and we will replace them.

* * *

Charles Berlitz has informed SITU that he is available for lectures. Please contact our headquarters for more details.

* * *

SITU member David Mace tells us that he will be in the Loch Ness area for the first two weeks in July. While there, he would be pleased to meet with and assist any members who are currently conducting research or investigations there, or who may be planning to be there during his visit. Interested members may write directly to: David Mace, 13 Peverels Way, Weedon Road, Northampton, England. And speaking of water "monsters," the Bierman-Zarzynski Expedition has produced a preliminary report of their findings concerning the Lake Champlain Sea Serpent. The report, which should be available shortly, will be made available for the cost of handling and postage only. Interested members write SITU for more information.

* * *

We would like to correct a "typo" which appeared in the last issue of *Pursuit* (Vol. 10, No. 1). On page 24, we stated that a 300 mile radius is well within logistical feasibility for the range of a Huey helicopter. Or for a "jolly green giant," as they were called in Viet Nam. We did not mean to imply that these helicopters are one and the same. The jolly green giant helicopter is *not* a Huey, although both helicopters are capable of carrying good-size loads (dead cows, for example). The jolly green giant, a much larger craft with two main rotors, is used to transport *very* large loads. Our thanks to Bob Durant for pointing out the error.

BOOK REVIEW

The Doomed Unsinkable Ship edited by William H. Tantum IV, 7 C's Press, Inc., publishers, P.O. Box 57, Riverside, CT 06878. 152 pages, \$8.

William H. Tantum IV, Vice President of the Titanic Historical Society, Inc., in the forward of *The Doomed Unsinkable Ship* asks "was the sinking of the Titanic foretold?" Morgan Robertson's 1898 novel, *The Wreck of the Titan*, is presented in its entirety. Remarkable similarities are discussed between events in Robertson's story about the fictitious *Titan* and the sinking of the real R.M.S. *Titanic* in 1914. Of particular interest are nineteen paranormal experiences reviewed and analyzed by Dr. Ian Stevenson.

—Bob Warth

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