Rhodomagnetic Digest

BEING THE

PROCEEDINGS

OF

THE ELVES', GNOMES' AND LITTLE MEN'S SCIENCE-FICTION CHOWDER AND MARCHING SOCIETY

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CONTENTS

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Volume II Number 3

CONTENTS

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EDITORIAL

By Don Fabun

If someone were to cut me down like a tree and count the rings, he would discover that I have attained the age of 31 (give or take a dry winter or a cold summer). This makes me old enough to pay taxes, overdraw my bank account, and, in general, conduct myself as a mature, if harassed, citizen. However, since this is only year 5 of the Atomic Age, I am considered barely at nursery school age as far as that brave new era is concerned.

Like any five year old, it is time that I begin my schooling. Actually, it began last week when I was treated to a movie entitled "How to Beat the A-Bomb." The movie was in color and sound, shown through a 16 mm. projector, and was, in all respects, an excellent job. No judge of the soundness of the distances from "Ground Zero" involved, I assume they were accurate. The film was prepared by the "Committee on Atomic Implications" at U.S.C., and quite possibly one of the implications the committee would know best is the distance from Ground Zero. But the circumstances surrounding the showing of the film were interesting, and I consider myself a sound judge of interesting circumstances.

In the first place, the film came to us through the New York office of the firm that employs me. It was airmailed from New York to San Francisco, not because the two cities share the dubious distinction of being A-1 Atomic targets, but because, at one place in the film, one of the products our company handles is shown as an ingredient in a first aid kit. Thanks to the perfection of modern photography, it was possible to read the brand name on the package quite clearly. And it was this --rather than "How to Beat the A-Bomb" that we were herded together to see. For those who are curious, I can say right now that the picture of the package was bright and clear and all together

a dandy piece of advertising. What was however, of particular interest to me was that the showing was to a select group. This group consisted solely of executives of one rank or another, ten or fifteen people. This left some 70 or 80 people unaccounted for in our firm---the same people that are quite likely to be unaccounted for when, and if, the horrors of the film become a reality.

Now the point of this is simply that firm, which is fairly representative of the business population at large, is still unaware that we face a survival situation in which the front office will suffer the same pangs as shipping department. To the extent that a common danger, to be faced and shared in common, is unrealized---to that extent our program for survival has failed.

This is all a part with the general feeling, prevalent in the narrow plane in which I work, that talking about atomic warfare is not quite nice. One doesn't bring it up at lunch, nor at cocktail parties, nor ever in mixed company. One of the reasons for this of course, is that people are scared, and they have almost no information.

For instance, in this fifth year of the atomic age, I---nor anyone else of my acquaintance---do not have access to any sort of instructions of what to do in case of an atomic attack. There are pamphlets available all right---but only to physicists, generals, mayors and other people who are generally pretty sure to survive anyway. But in five years the government printing office hasn't managed to strike off enough copies to let the citizenry at large have one.

There have been meetings on something called "civil defense" in our town, but the same survival group---military officers, police chiefs, fire chiefs and the mayor seem to be the only ones invited. The meetings are closed and whether they have come to a decision about anything, five will get you ten that they know damn well where the mayor, fire chief, police chief and other factotums will hide when it happens.

But in five years they haven't figured out anything for the guy down the block.

There is, so they say, going to be a block warden system, but not for some time yet, because "it has to be organized." Even at the atomic age of five we can sit down and map out a block warden system in an evening's work. England has had one organized for a number of years now, not only organized but trained. Unless our blocks are somehow different from English blocks, it's difficult to see why we can't try adapting the English plan.

In short, our danger is not atomic weapons in the hands of the enemy so much as it is red tape, high brass, and the feeling that if we don't talk about a thing, maybe it will just go away.

DIANETICS AND THE NOLACON

Along with our Christmas mail we received a postcard from Harry Moore announcing that the *Ninth World Science Fiction Convention*, the *Nolacon*, will be held the Labor Day weekend in New Orleans. The card is mainly for the

purpose of soliciting the dollar memberships on the committee which make the conventions possible.

Mention is made of the authors who plan to be there, and also of those who will probably be there. Little else is mentioned of the program with the exception of one paragraph, but that paragraph, but that paragraph is disheartening.

That paragraph reads:

> The NOSFS takes back seat to no one outside the Hubbard Foundation in Dianetics experience. We shall have a practical session. (9 of our NOSFS members are now erasing!)

I don't plan to go into the question, here, of whether Dianetics is just another fad, or whether it is really the new hope of mankind. The question that does arise, is whether Dianetics is science fiction or not. I think that the Dianetics followers, more so than the detractors, will insist that it is not fiction, and on this basis alone it should not merit more than an occasional mention in fan gatherings.

To start with the last statement, I care not one whit how many members of any organization are "erasing". The Little Men have a fairly large membership, yet so far as I know there are less than five persons who are seriously pursuing Dianetics. This, it seems to me, is as it should be, for Dianetics is NOT science fiction. It is possible that the whole membership, with the exception of myself, is well on the way to being cleared, but, since it is not a subject generally discussed at meetings, no one can say, with any authority, how many Little Men are clears or pre-clears.

The Norwescon, it is true, had a session devoted to Dianetics, but there was still a lot of comment that it was out of place. Several of us excused it at the time because it was a new school of thought, and assumed it would soon drift away from fan circles. This, apparently, is not the case, and it appears that we are to be plagued with it from now on.

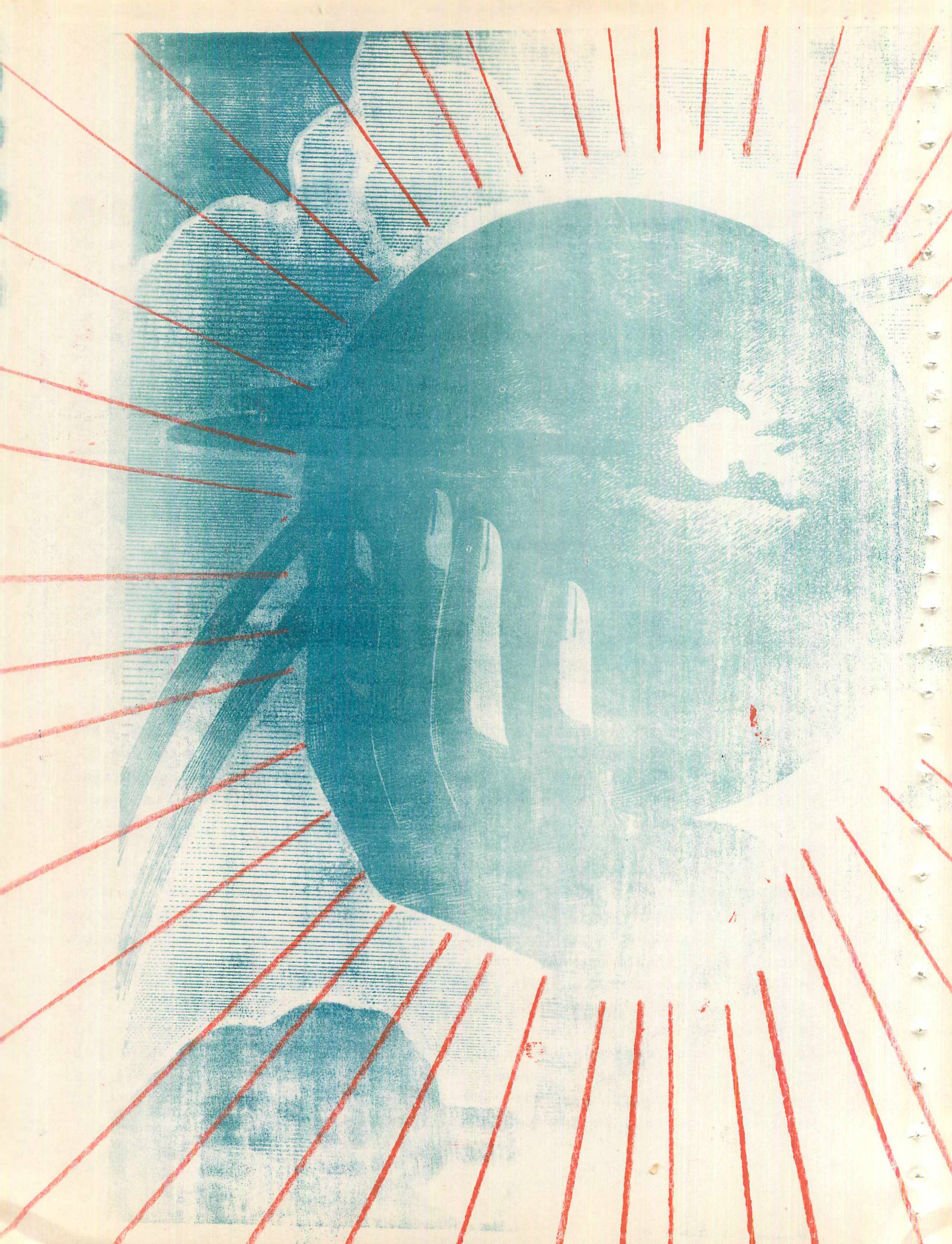
John Campbell in the November ASF, in *Brass Tacks*, states that that magazine is not the place for Dianetics reports. By the same token, a science fiction convention is not the place for Dianetics enthusiasts to gather and compare notes. If the auditors, clears, and pre-clears want to have an annual gathering, there is nothing to stop them, but, PLEASE, can't we keep the science fiction conventions for science fiction fans?

START OF A TREND?

The latest *Science Fiction News Letter* contains a listing of the science fiction and fantasy magazines published during 1950, together with the number of times each appeared. There were 29 magazines published.

On another page was a bit about one magazine being discontinued, and two other projected ones being abandoned.

The science fiction market is rapidly reaching the saturation point, if it is not already there. I believe that there is no field in magazine publishing in which there are more than a dozen magazines put out, with the (continued on page 33)

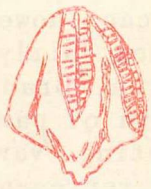


how long is the past?

by P. Ray Terit

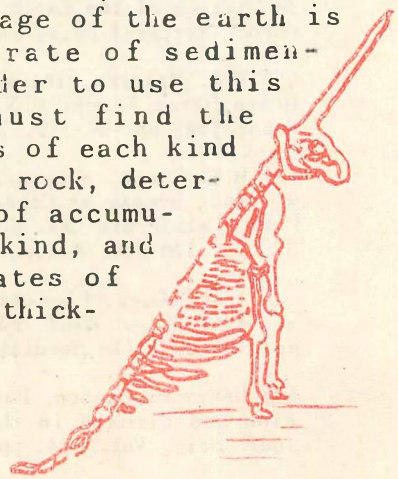
One of the favorite "gimmicks" of science fiction writers is temporal projection. Although most science fiction heroes are subjected to the tortures of future time, some are whisked into the past by *Dei ex machinae* of the author's imagination. Unfortunately for science fiction veracity, it is not possible as yet to set an accurate date for most of the events that occurred in the geologic past. Although there are many ways of measuring geologic time, the results are often so discrepant that a time traveler sent back 100 million years might equally expect to arrive in time to witness the birth of the earth; to see the earth as it was in Cretaceous time---populated by huge dinosaurs and other reptiles; to see the moon torn from the globe; or to observe nearly any other prehistoric event.

Because the years of our earth are not well known, a relative time scale has been devised which splits geologic time into several "eras" which are in turn subdivided into "periods". The antiquity of the periods is not well known, but their chronology is fairly well established. All of the periods are not the same length in years, nor are all the eras divided into the same number of periods, because it was thought by the originators of the time scale that the eras and periods were "natural" divisions, separated by mountain-making movements affecting large areas, perhaps entire continents.

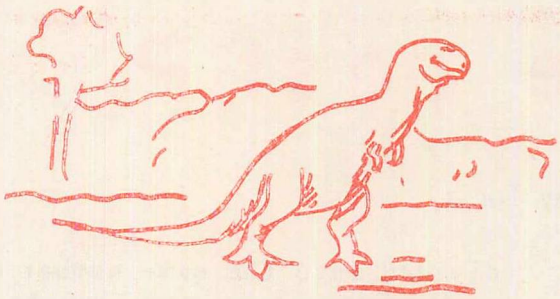


Nearly 100 methods of dating the events of earth's history have been proposed but most of them can be used only under special geologic conditions. Some were widely accepted at one time, but were later replaced by newer and more precise methods. At present, age determinations based on the decay of radioactive elements in rocks are considered the most accurate.

The oldest of the many methods for determining the age of the earth is based on the rate of sedimentation. In order to use this system, one must find the total thickness of each kind of sedimentary rock, determine the rate of accumulation of each kind, and multiply the rates of each times the thick-



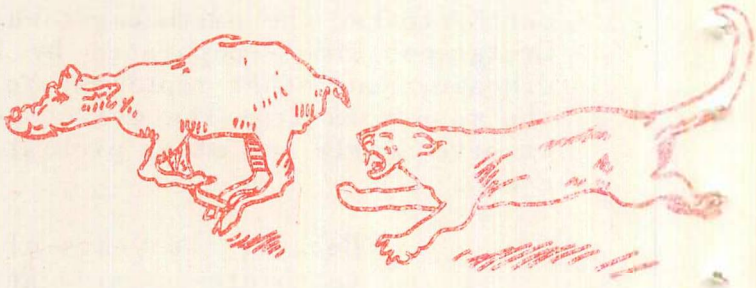
nesses[1]. This type of calculation resulted in estimates varying from 3 million years to more than 1500 million years as the earth's age. Because we are not certain that the rate of accumulation we can now observe is the mean for geologic time, nor that all of geologic time is represented by



sedimentary rock, nor that the oldest rock in the world is a sediment, this method is now considered an unsatisfactory means of determining the total age of the earth.

The study of sediments can, however, provide accurate dates for fairly recent events. For example, Bradley[2] has determined the length of part of the Eocene epoch by counting "varves" ---dark and light bands representing winter and summer deposits---in the ancient Green River Lake, Wyoming. It is probable that a combination of sedimentary and other methods, such as tree ring counts[3] or pollen profiles[4] may give us a clear chronology of our present era.

Another early method of dating the earth, now generally discredited, is the "sodium accumulation" method. This method consists of a simple division of the total amount of sodium in the ocean by the amount carried into the ocean by streams and rivers each year. Geologists who have calculated by this method gave 100 million (100×10^6) years as the age of the earth. However this figure cannot be considered a true value for the age of the earth because this method at best measured the age of the ocean, and there is no general agreement among geologists as to when the ocean was formed. This method probably cannot even measure accurately the age of the ocean, as we do not know if the "original" ocean had an intrinsic salt content, or if so, how great; we do not know if the present rate of sodium accumulation is the mean for geologic time, because the size and height of land masses, the composition of eroded rocks, the size of the ocean, and the rate of erosion by streams have fluctuated greatly in the geologic past. We do know that if we use other ions in sea water, such as magnesium or potassium, we arrive at an entirely different oceanic age[5].



(1) Charles Schuchert, Geochronology, or the age of the earth on the basis of sediments and life in Physics of the Earth, Vol. IV The Age of the Earth. *National Research Council Bull.* 80 (1931)

(2) W.H. Bradley, The Varves and Climate of the Green River Epoch: *U.S. Geologic Survey Prof. Paper 158*, pp. 87-110, 2 figs., 4 pls. (1929)

(1) R.G. Finch, A tree-ring calendar for dating volcanic events at Cinder Cone, Lassen National Park, California: *Am. Jour. Sci.*, 5th Ser., Vol. 33, pp. 140-146, 4 figs., 1 table (1937)

E.H.DeGeer, Planetary chronology by varves and tree rings: *Geol. Fören. Förhandl.*, Vol. 64, pp. 185-204. (In Swedish)

(4) Henry P. Hansen, Postglacial forest succession and climate in the Oregon Cascades: *Am. Jour. Sci.*, Vol. 244, pp. 710-734, 7 figs. (1946)

(5) Alfred Knopf, Age of the ocean, in Physics of the Earth, Vol. IV, The Age of the Earth. *National Research Council Bull.* 80 (1931)

Edward J. Conway, Mean losses of Na, Ca, etc. in one weathering cycle and potassium removal from the ocean: *Am. Jour. Sci.*, Vol. 243, pp. 583-605, 3 figs. (1945)

The most accurate methods of measuring the age of the earth employ radioactive decay. There are a number of elements which disintegrate naturally into other elements; some of these elements and their ultimate products are shown in the accompanying table. The uranium to lead, uranium to helium, and thorium to lead series are the most frequently used, inasmuch as many of the others are too poorly known as yet to be of value in earth chronology.

Chart of Radioactive Changes

Disintegrating atom	Products	Disintegration constant (λ)
U^{238}	$8He^4 + Pb^{206}$	4.82×10^{-18}
AcU^{235}	$7He^4 + Pb^{207}$	3.1×10^{-17}
Th^{232}	$6He^4 + Pb^{208}$	1.58×10^{-18}
K^{40}	$e^- + Ca^{40}$	1.4×10^{-17}
Rb^{87}	$e^- + Sr^{87}$	3×10^{-19}
Sm^{148}	$He^4 + Nd^{144}$	2.5×10^{-19}
Nd^{144} ?	$e^- + Il^{144}$?	10^{-19}
Lu^{176}	$e^- + Hf^{176}$	3×10^{-19}

Superscripts indicate nuclear masses; e^- stands for electron given off as β ray. T = half-life = $\frac{0.693}{\lambda}$

Table 1

Each of the elements breaks down at a definite rate which is constant in any natural environment. This rate is expressed as the "half-life" of the element, which is the time required for half of a mass of radioactive material to disintegrate. Such decay results in a release of energy and the production of stable end products. Obviously, to be of use in dating an ancient rock or mineral, the disintegrating element must have a long half-life, otherwise it is lost before the rock has attained an appreciable age. A ratio may be set up between quantity of the end-product and the quantity of the parent element, which, when multiplied by a constant derived from the half-life, will give the age of the rock containing the radioactive material.

The measurement of the end products---lead and helium---have been the two most popular methods. Recently, the rubidium to strontium disintegration has been used, and results correlate well with those obtained by the lead and helium methods. The use of helium in dating of the earth's history was first suggested by Rutherford in 1905, and since then many helium age determinations have been made; some of them are shown in the accompanying chart, together with dates determined by the lead and sedimentary methods. The age determinations made using the helium method are apt to be unreliable, because helium may have been present originally, or may have been lost during the subsequent life of the rock, or during the laboratory analysis.

The chief difficulty with the lead method is that it requires considerable laboratory work in analyzing for uranium, thorium and lead and determining the atomic weight of the lead in the sample. The rock sample to be analyzed should be chosen with care. It must be fresh, unaltered rock, and the radioactive content must be great enough to offset small analytical errors. In general, only rocks of igneous origin can be used for radioactive determinations.

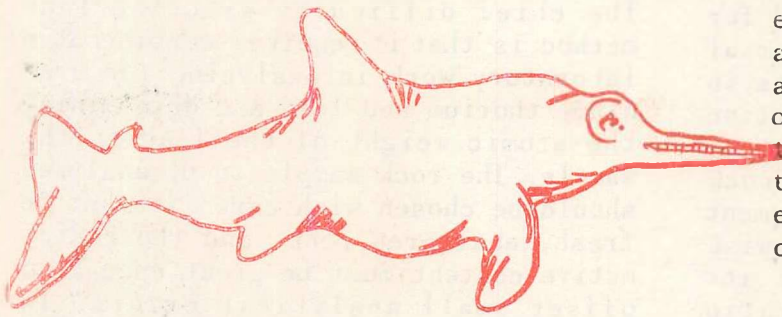
The rubidium-strontium series is less widely known; only about 30 determinations have been reported[6]. Although

(6) Louis Aherns, Measuring geologic time by the strontium method: *Geol. Soc. America, Bull.* Vol. 60, pp. 217-266, 2pls., 10 figs. (1949)

strontium is less likely to be lost during the lifetime of the mineral, due to a tight ionic bond, radioactive rubidium and consequently radioactive strontium are rare components of rocks.

Another radioactive element that shows promise of being useful is an isotope of carbon having the atomic weight 14. Although this element has a very short half-life (5720 ± 47 years), it is abundant in living matter, and can be used to date events more recent than 25,000 years ago with considerable accuracy. C^{14} is formed by the bombardment of the nitrogen of the air by cosmic rays. This C^{14} combines with oxygen to form $C^{14}O_2$; thus all living matter contains an equilibrium amount due to respiration or absorption. Upon death and entombment of living matter, the C^{14} decays without renewal, as the cosmic rays are unable to reach the organic remains. Knowing the disintegration rate and the ratio of C^{14} to C^{13} and C^{12} in the sample, the age can be determined.

The oldest rock that has been analyzed is from the Huron claim in Manitoba. By the use of the lead, helium and



strontium methods, its age has been found to be about 2000 x 10^6 years. It does not represent a piece of the original crust of the earth. The rock is a pegmatite, younger than the granite which it cuts; the granite is known to be younger than some other very ancient rocks which it replaces. These older rocks, the Rice Lake Series, are composed of lavas, sediments, and pebbles of older granites. Holmes[7], taking into account the age of the pegmatite and its geologic environment,

has made calculations from which he concludes that the age of the earth is about 3350 x 10^6 years. This is in fairly close agreement with Bauer's estimate of 3400 x 10^6 years[9], based on the production of helium in iron meteorites, and with the astronomer Shapley's[9] estimate of 3000 x 10^6 years as the age of certain elements of the universe (the earth, the other planets, the meteorites, the galaxies, the double stars, and possibly clusters of stars). Shapley considers the expansion of the galaxies to be the limiting factor in the age of the universe.

The radioactive elements of many rocks from all parts of the world and all eras in geologic history have been analyzed. The results of these analyses and age determinations made by many other means have given us a rudimentary idea of the magnitude of geologic time and the antiquity of geologic events. Perhaps soon we will know with certainty how long the past has been.

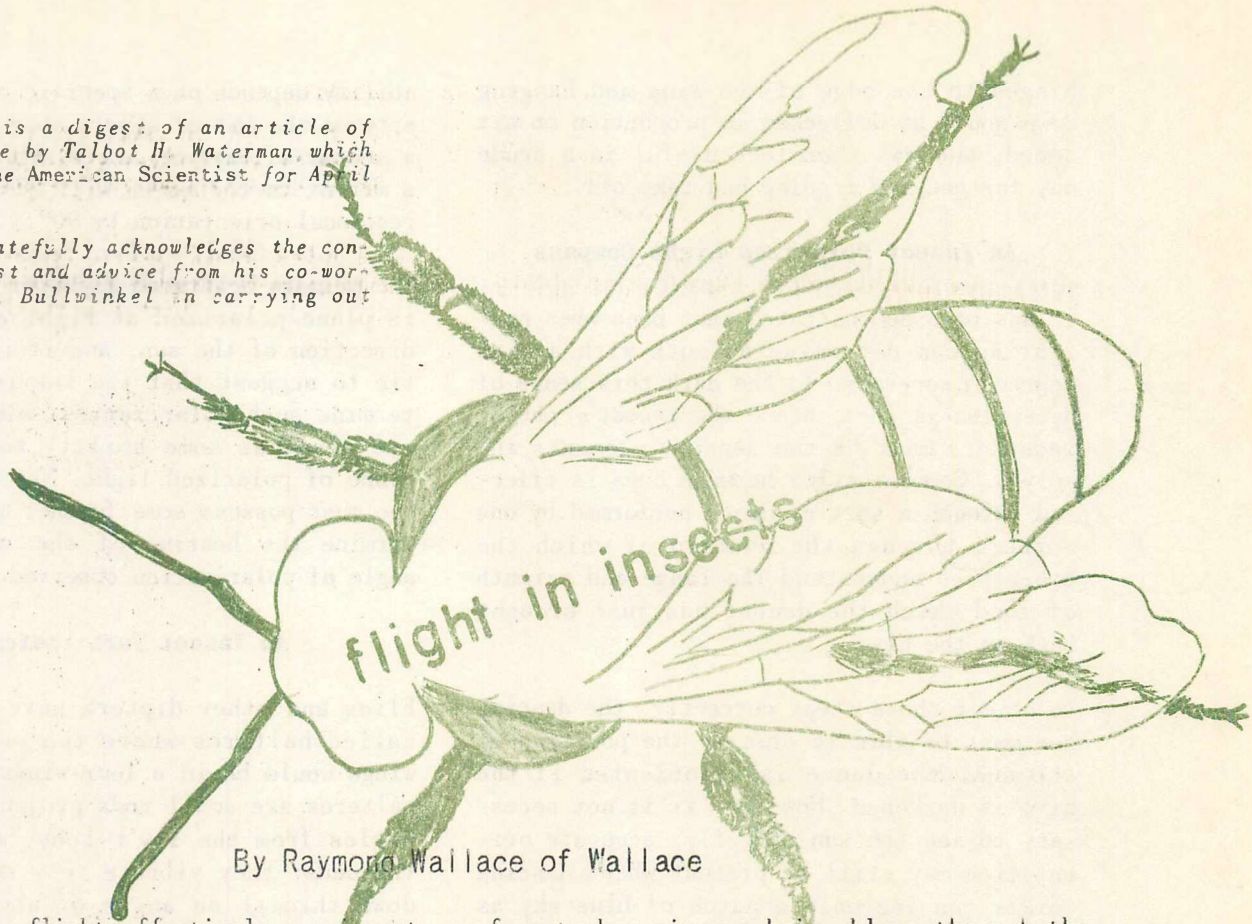
(7) Arthur Holmes, An estimate of the age of the earth: *Nature*, Vol. 157, p. 680 (1946), and Vol. 159, p. 127 (1947)

(9) Carl August Bauer, Production of helium in meteorites by cosmic radiation: *Phys. Rev.*, Vol. 72, p. 354 (1947)

(9) Harlow Shapley, On the astronomical dating of the earth's crust: *Am. Jour. Sci.*, Vol. 243A pp. 508-522 (1945)

This article is a digest of an article of the same title by Talbot H. Waterman which appeared in the American Scientist for April 1950.

The author gratefully acknowledges the continued interest and advice from his co-worker Edward P. Bullwinkel in carrying out this digest.



flight in insects

By Raymond Wallace of Wallace

To control its flight effectively, an insect must continuously receive information of its orientation in space with reference to the six degrees of freedom in which it may move. Thus, it may move in space forward or backward, up or down, or sideways; it has therefore three axes of translational movement. Moreover it may turn about any of these three axes; these three degrees of rotational movement bring the total to six.

The basic flight instruments in standard airplane practice are seven: compass, altimeter, bank indicator, clock, air speed indicator, rate of climb meter, and turn indicator, of which the first three are position indicators, and the last four are rate indicators. Many of the aircraft flight instruments involve physical phenomena which are readily detectable by various animals. There will be described herein some insect instruments for indicating air speed, direction, and turn.

An ingenious wind tunnel was devised in which a fly could be suspended by attaching a minute lump of wax to his back. It was then observed that flight behavior of the insect when mounted in the tunnel was different when air was being blown through the tunnel than when the fly was in still air. First, the amplitude of wing beat decreased as airflow past the fly was increased in the tunnel. Second, the path followed by the wing tips changed from an ellipse to a figure eight. Third, in an air current the animal's leg muscles maintained a tonic contraction which held the legs in flight position, an action roughly comparable to the retraction of an airplane's landing gear.

When the flies were anaesthetized, only the difference in wing beat amplitude occured; hence this was a passive phenomenon for which aerodynamic factors must have been largely responsible. Since the other two effects were blocked during anaesthesia, some reflex activities must have been involved in their control. Some remarkably neat experimental techniques with an extremely fine jet of air finally demonstrated that movement of the third joint of the antenna by air pressure, and that alone, was responsible for the reflex responses.

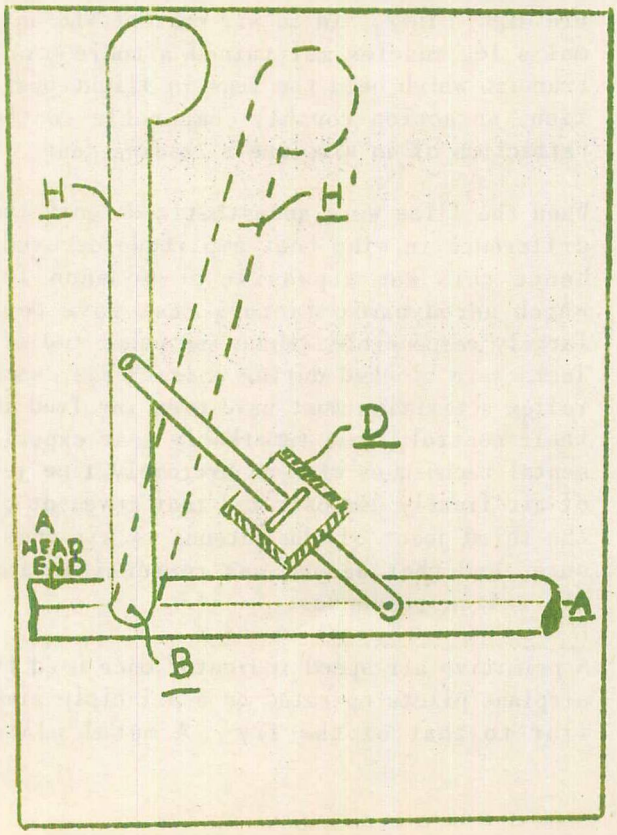
A primitive air speed indicator once used by airplane pilots operated on a principle similar to that of the fly. A metal plate

hinged to the edge of the wing and hanging down would be deflected in proportion to air speed, and was therefore useful in a crude way for gauging landing and take-off.

An Insect Polarized Light Compass

It has been demonstrated that bees when navigating can determine azimuth with a high degree of accuracy. In the dark this sense of direction is lost, hence the insect's photoreceptors must be the sensory elements involved. Communication between bees is effected through a sort of dance performed by one worker, through the pattern of which the other bees understand the range and azimuth of food which the dancer has just brought back to the hive.

To orient these steps correctly, the dancing bee must be able to observe the position of the sun; the dance is disoriented if the hive is darkened. However, it is not necessary to see the sun directly; accurate orientation may still be present when a dancing worker can see only a patch of blue sky as small as a ten-degree circle. That this ability depends on a specific physical property of the bit of sky is shown by a mirror; a sector of eastern sky visible to a bee in a mirror to the north will displace his directional orientation by 90°.



The primary scattered light of the clear sky is plane-polarized at right angles to the direction of the sun, and it is not fantastic to suggest that the bee is able to determine such polarization, since the human eye also has some ability to analyze the plane of polarized light. Nevertheless, the bee must possess some further ability to determine the bearing of the sun from the angle of polarization observed.

An Insect Turn Indicator

Flies and other diptera have small organs called halteres where the second pair of wings would be in a four-winged insect. The halteres are small rods projecting at right angles from the fly's body, with knobs on the ends; they vibrate very rapidly up and down through an angle of about 180°, and thus produce a gyroscopic action. The halteres are critical for the maintenance of the insect's aerodynamic stability. For this function they may be considered as analogous to the turn indicator of an airplane in which the precession of a gyroscope is used to signal the direction and rate of turn. Note that in both cases the gyroscopic mechanism is useful not for its property of stability but for its specific reaction to angular displacement of its plane of rotation or oscillation.

The halteres vibrate with the same frequency as the wings and their oscillation is 180° out of phase with the wing beat. The torque for yaw is distinct from all others because of its frequency; pitch and roll establish forces different from primary torque and that for yaw, but similar to each other. The latter two could be discriminated if a phase comparison of the torques on the two halteres were made, since these would be in phase for pitch, but 180° out of phase for roll. However, as flight is nearly normal with one halter removed, this attribute of the system is apparently not utilized by the insect.

the "gadget" story in science fiction

By Leland Sapiro

In my last lecture I traced the evolution of the "gadget" science fiction story occuring during what I called the Period of Rationalization (1926-1932) and cited representative examples of this type of didactic literature from the more significant writers of that time. Today I should like to discuss another example of the "gadget" story, taken this time from the works of John W. Campbell Jr., its leading proponent in the field of the physical sciences.

Piracy Preferred, written during the author's student days at the Massachusetts Institute of Technology, was his second published story and is essentially an attempt "to predict the future on the basis of known facts, culled largely from present-day science laboratories."[1] For this reason, *Piracy Preferred,* like the majority of Campbell's works, demands of the reader a fair degree of patience, intelligence, and scientific background. I shall assume the student--who presumably has satisfied the prerequisites for this course--to possess each of these in ample measure. In what follows, I shall put special emphasis on Campbell's utilization of "scientific method"--which I define as the collection of data, the construction of a plausible hypothesis therefrom, and the subsequent deduction of hitherto unobserved phenomena--rather than on any fictional aspects of the story. Those wishing further details on the latter should consult the text, where *Piracy Preferred* is reprinted in its entirety.

Campbell wastes no time in a lengthy build-up of suspense. The initial scene occurs at the San Francisco airport where the Transcontinental Express has arrived, "freighted with a cargo of dead." The plane itself, guided by its automatic navigation apparatus, has landed safely but every one of the three thousand persons comprising its passengers and crew is unconscious with no detectable sign of respiration or heartbeat. A valuable shipment of negotiable securities, the obvious motivation for this mass execution, has disappeared. Further investigation discloses an envelope, placed on the mail clerk's desk, which contains the following message:

> To the Officials of the San Francisco Airport:
>
> This plane should land safely. If it doesn't, it is your fault, not mine, for the instruments that it carries should permit it. The passengers are NOT dead! They have been put in a temporary state of suspended animation. Any doctor can readily revive them by the injection of

7 c.c. of deci-normal potassium iodide solution for every 1000 pounds of weight. *Do not use higher concentrations.* Lower concentrations will act more slowly.

You will find that any tendency toward Leprosy or Cancer will have been destroyed. It will kill any existing cancer and cure it in about one week. I have not experimented with Leprosy beyond knowing that it is cured very quickly.

This is an outside job. Don't bother the people in the car.

The gas used cannot be stopped by any material I know of. You can try it with any mask--but don't use the C-32L. It will react with the gas to produce a permanent suspension of animation. I would advise that you try it on an animal to convince yourselves.

I have left stock in my new company to replace the bonds I have taken. Piracy Incorporated is incorporated under my own laws.

The Pirate

Beneath the envelope is found a package containing a number of stock certificates listed as "Piracy Preferred," the stock of the new corporation "Piracy Incorporated."

CALLS IN "TROUBLE SHOOTERS"

Despite the government's offer of amnesty on condition that he surrender himself and furnish details of his miraculous gas, the Pirate continues his work without interruption. On a succeeding trip, for example, guards equipped with gas masks and operating remote control machine-guns are stationed aboard in hermetically-sealed steel tanks, but the theft is repeated and, incredibly, the guards are found to be as thoroughly gassed as anyone else. In another note, the Pirate emphasizes that since his gas will penetrate any material, all such precautions are useless.

At this point we are introduced to Richard Arcot, experimental physicist, and William Morey, mathematician, who have been requested by Arthur Morey Sr., president of Transcontinental Airlines, to stop the activities of this twenty-second century bandit. The ensuing conversation is highly instructive.

UNIVERSAL SOLVENT PROBLEM

After remarking that carbon monoxide will seep through a solid plate of red-hot steel, Arcot conjectures that perhaps the Pirate has discovered a gas with sleep-producing properties which "at the same time is able to penetrate to an even greater extent than carbon monoxide. It's just an amplification of known properties."

This leads directly into the first question which our scientific detectives are forced to consider and which has undoubted been anticipated by the student, namely, a modified version of the famous "universal solvent" problem. If the Pirate has manufactured a gas capable of penetrating *any* substance, what sort of container does he keep it in?

Morey suggests that perhaps the Pirate does not store it at all: if the gas is composed of two separate constituents, neither of which by itself has any special penetrating powers, then it could be manufactured on the spot simply by allowing these constituents to react. "It might well be simple enough to store them separately", and after the Pirate's plane passes the airliner, "the airstream blowing past him would carry the gas behind him, so permitting him to lay a stream of it in front of the big plane."

This is tentatively accepted as the correct solution. But there now arises another, more difficult problem. Granted that the gas when once synthesized has the properties just stated, how is it possible to obtain a sample for analysis?

Campbell's solution to this problem typifies the ingenuity displayed throughout the "Ar-

cot, Morey and Wade' series. While appearing perfectly obvious once pointed out, it is far from self-evident.

A clue is furnished by the kinetic theory of gases. According to this theory, a gas, instead of being a continuous medium, is composed of innumerable discrete particles called molecules, moving at random in all directions and constantly being knocked to-and-fro by inter-molecular collisions. Let us enclose a quantity of gas in a container and follow the history of one specific molecule.

BIOGRAPHY OF ONE MOLECULE

Our molecule may travel on undisturbed in a straight line for a short while until it collides with another molecule, after which its speed and direction of motion are altered. After being buffeted about in several million such collisions it may be fortunate enough to arrive at the boundary. Here two possibilities are open to it. First, it may bump into one of the molecules comprising the containing wall and so be bounced back in the general direction from which it originally came; or, secondly, it may be lucky enough to travel between these molecules without suffering any collisions at all, in which case it will eventually find itself outside the vessel. And if enough of its fellow gas molecules can duplicate this escape, we say that the gas has "leaked through" the walls of the container.

This is precisely the behavior of the gas discovered by the Pirate. Its structure enables the individual molecules of which it is composed to pass between the molecules of any material which we attempt to use as a barrier.

But the situation is not quite so simple as this, for we have failed to consider the molecules in the air surrounding the container and bombarding it from every side. It is entirely possible that our fugitive gas molecule, once having escaped from the containing vessel, will collide with some of the air molecules going in the opposite direction and be knocked back into the box.

How often can this be expected to occur? The question is a purely statistical one. If there are, for example, one million molecules inside the container and only one thousand air molecules outside, we feel confident that *some* of them will escape safely through the barrier without being forced to re-enter by an impinging air molecule. On the other hand, if there are only ten gas molecules inside, it is fairly certain that any one of them, having once escaped, will be bombarded by so many air molecules that it will be forced back in again.

This is analogous to a mass-escape from the county prison-farm: if 500 prisoners simultaneously jump over the fence and only 10 guards are on duty, we are perfectly safe in betting that at least half a dozen will escape. If, however, we reverse these figures and imagine 10 prisoners under the surveillance of 500 guards, the probability of even a single prisoner escaping is quite small.

To summarize the results of the foregoing discussion: a gas can leak through the walls of a porous container if the number of molecules inside exceeds that on the outside.

We are now able to understand Arcot's pro-

posed solution just enclose the gas in an ordinary stoppered bottle which has been pumped out to a very good vacuum. The Pirate's gas molecules will of course have no trouble in arriving within the bottle, since according to their point of view all containers are perfectly porous. But once this happens they will be so outnumbered by the air molecules striking the container from every direction that they will be trapped inside.

WAITING FOR THE "INVALID SPECIAL"

In Arcot's own words, "I hope to take this (bottle) into some gas-filled region, where the gas will be able to leak in, but the air won't. When it comes to going out again, the gas will have to fight air pressure and will probably stay in."

In order to collect a sample of this gas and at the same time obtain some pictures of the Pirate at work, Arcot and Morey, equipped with evacuated sample bottles and a movie camera to be turned on at the first sign of drowsiness, book passage on the next available plane, which chances to be the "Invalid Special", carrying a group of cancer victims making the trip for the express purpose of being "robbed." While waiting for the take-off, they engage in a friendly conversation with the ship's chief engineer; this situation furnishes Campbell with an opportunity to devote several pages to an interesting scientific discussion.

After explaining the feedback mechanisms and automatic navigation apparatus used in the giant airliner the engineer entertains his visitors with an account of the ship's coal engines:

> They burn powdered coal, by the compression ignition method . . . The fuel is burned with about 39% efficiency, as compared with the old di-phenyl-oxide vapour turbines which developed about 10% at best.

He then points out how the United States, after having used up the last of its natural supply of petroleum around 2060, solved its dilemma by the simple expedient of growing its own oil:

> Furthermore, the staple crop is castor oil beans. This is the source of our lubricating oil. Some man dug the secret out of some century-and-a-half-old book, for in the days of the development of the automobile it was found that the petroleum was not good enough at that time to use in the expensive racers, and they used castor oil, which did not trouble them by dissolving the gasoline.

The transcontinental flight occurs as scheduled with the Pirate dutifully arriving to put the passengers to sleep and remove their cash. But the films, when later developed, do not prove to be very enlightening:

> They were looking at the . . . image of the mail-room aboard the air-liner . . . they saw the door of the mail-room open a bit, and then, to their intense surprise, it remained open for a few seconds, yet no one entered . . . Then suddenly appeared in the air a bit of flame. It hung in the air above the safe for an instant, described a strangely complicated set of curves, then, as it hung for an instant in mid-air, it became a great flame . . . the pictures seemed to show a flame slowly descending till it touched the metal again. Again the metal glowed, then, as suddenly as the extinguishing of a light, the safe was gone!

APPLIES INDUCTIVE LOGIC

Forced to the conclusion that the Pirate has mastered the secret of invisibility, Arcot now furnishes us with an excellent example of the inductive method as applied to practical problems.[2] A few words concerning the Pirate himself:

> The whole thing looks to me to be the work of a madman. He is not violently insane; probably just has one particular obsession . . . And his careful instruc-

tions as to how to revive the people! He is insane in one branch only.

Next Arcot attempts to reconstruct the Pirate's method of operation:

> (The Pirate's plane) could hang above the ship, then dive down upon it as it passed beneath. He has a very simple system of anchoring the thing . . . He has a powerful electro-magnet and just turns that on when he lands . . .
>
> He anchors his ship, then, leaving it invisible, he goes to the air lock and enters. He wears a high-altitude suit, and on his back he has a portable invisibility set and the fuel for his torch. The gas has already put everyone to sleep, so he goes into the ship . . . and melts open the safe.
>
> (He) has simply made use of a principle known for some time . . . It was found back in the early days of radio . . . that very short wavelengths effected peculiar changes in metals. It was shown that the plates of tubes working on very short waves became nearly transparent.

The invisibility device, Arcot continues, is simply

> a machine which impresses very high frequencies on the body it is connected with. This puts the molecules in vibration at a frequency approaching that of light and when the light impinges upon it, it can pass through readily.

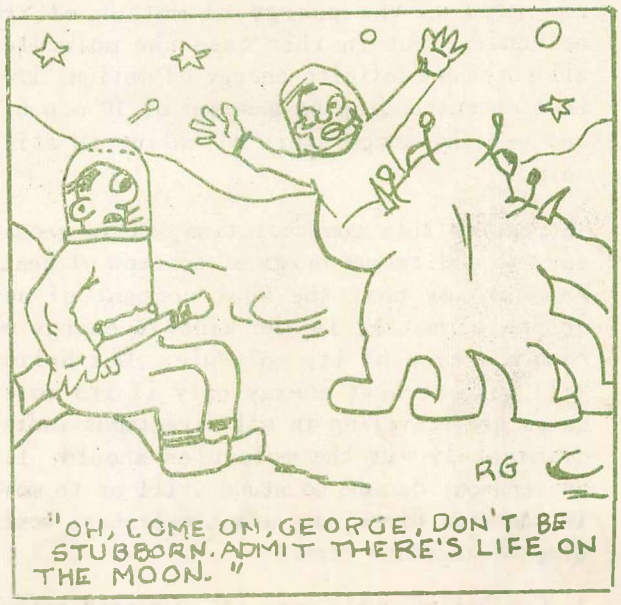
Without dogmatizing on the possibility or impossibility of such a device, we may make one positive statement: a *completely* invisible man would also be totally blind. In order to understand why this is so, let us examine briefly the physiology involved in "seeing" an object.

Assume that a bundle of light waves, after being reflected[3] from the surface of some object, has been admitted into the eye of an observer. After arriving at the inner surface which is covered with a film of nerve fibers constituting the retina, it causes these fibers to transmit a series of electric impulses[4] to the brain where the process of "seeing" the object occurs. If, however, the observer is invisible, so that the retina of his eye is just as transparent as the rest of his body, the wave-bundle, instead of being stopped at the retina and forming an image thereon, would travel through it uninterrupted and thus not produce any exitation of the optic nerve. Hence the unseen observer would himself be unseeing.

With the diagnosis completed, punitive measures are decided upon: an airship containing several innovations[5] is to be built for the specific purpose of catching the Pirate. I shall not discuss the first few of these, the "directional radio disturbance locator" and the "invisibility disruptor," except to state that the first is designed to locate accurately the Pirate's ship and the second to neutralize the Pirate's invisibility machine once his ship has been detected by the former.

However, there is one invention, Arcot's Molecular Motion Machine, which is of considerably more importance and requires a somewhat detailed explanation.

To gain an understanding of this device, we must return to the kinetic theory. In addition to hypothesizing the molecular structure of matter, this theory makes a second



"OH, COME ON, GEORGE, DON'T BE STUBBORN. ADMIT THERE'S LIFE ON THE MOON."

assumption, namely, that the heat of any substance arises from the energy of motion of the molecules composing it: the greater the average speed of these molecules, the higher the temperature.

Again we enclose a quantity of gas, e.g. helium, in a container, only this time let us extend our imagination one step further and suppose all of these molecules to be perfectly stationary. According to the criterion just adopted, our gas must also be totally devoid of heat. We say that it is at the *absolute zero* of temperature, i.e. the temperature of no heat-motion.

A MOST INGENIOUS PARADOX

Now suppose that the Pirate, under the impression that the box contains some negotiable securities, picks up the container and runs away. If he moves with a velocity of 10 m.p.h., then, obviously, each gas molecule inside the box must also be trabeling 10 m.p.h. But we have no more reason to believe that this will raise the temperature of the gas than we have to expect that our soup can be kept warm by running with the soup bowl around the dinner table.

This causes a problem to arise. We have just stated that the heat of a substance could be regarded as the energy of motion of its molecules, but in this case the molecules all possess a definite energy of motion, i.e. that corresponding to a speed of 10 m.p.h., and yet the temperature of helium is still zero.

To resolve this contradiction, it is necessary to modify our original concept of heat. We must say that the heat content of any volume of matter is the kinetic energy of *random* motion of its molecules. Our helium will possess heat energy only if its molecules are traveling in all directions indiscriminately; if the molecules should, for any reason, decide to stand still or to move in the same direction, its temperature would drop to absolute zero.

As Campbell himself puts it: "Ordered velocity in a line is not heat, otherwise we would all be boiling with our heat of motion as the Earth swings in it orbit."

We thus see that if all the molecules in a gas could be forced to move simultaneously in the same direction, two things would occur:

(1) The temperature of the gas would drop to absolute zero;

(2) The system comprising the gas-plus-container would travel in the same direction as that of the individual molecules. (This is the converse of our previous statement that if the container moves with a certain speed all the molecules inside also assume this velocity.)

We can now understand the Molecular Motion Machine which Arcot has invented to propel his new airship and which he assures us will antiquate all types of airplanes.

Helium is enclosed in a copper container and then placed under the influence of a "peculiar oscillatory, electrostatic (!) field which influences the molecules, so that their motion ceases to be random, but becomes concentrated in one direction."

CONCENTRATED MOLECULAR MOTION

Since the container has been rigidly attached to the ship, this process "would start the car moving a bit, but the energy is soon exhausted, and the car is moving slowly, but the molecules of the gas are no longer moving---and motionless molecules have a very definite physical significance---they mean a temperature of absolute zero."

At once the gas "absorbs heat from the air, and the molecules have a new 'polarized' motion . . . which is again expended in moving the car---and more heat is absorbed. The process repeats itself with inconceivable rapidity, and inside of an immeasurably short time, the machine is moving, and gaining speed . . ."[6]

I shall present here only a brief resume of what transpires next, using where possible Campbell's own words.

The aforementioned airship is secretly constructed, and on the appointed day a Transcontinental Express, carrying "bait" in the form of a highly publicized shipment of cash, takes off for San Francisco, followed at a discreet distance by Arcot's plane. The latter's crew has been augmented by a third member, John Fuller, aeronautical engineer. Near Chicago, contact is established:

INVISIBILITY DISRUPTOR AT WORK

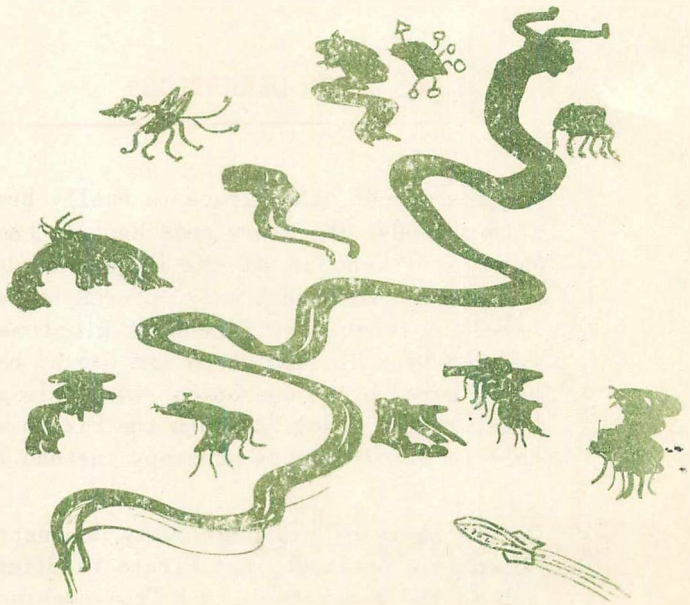
> "This looks familiar, Dick," said Morey; "I think it was about here that we took our little nap in the 'Flying Wheel Chair' . . . LOOK! It *is* about here! Get ready for action, Fuller. You're taking the machine gun, I'll work the invisibility disruptor, and Arcot will run the ship. Let's go!"

There ensues a brief struggle in the electromagnetic spectrum between the radiant energy emitted by the Pirate's invisibility machine and that of the counter-apparatus aboard Arcot's ship.

> Now however there was a rapidly solidifying cloud before them . . . Suddenly there was a circle of blue light about the shadow form, and a moment later the ionized air relapsed into normal condition . . .
>
> At once Morey shut off his apparatus, convinced . . . that the Pirate's apparatus had been blown out . . . He glanced up to look at the Pirate as he finished his job. He cried out in astonishment as Arcot called to him, "Morey---look at him go!"
>
> Morey was too late to see him go. Already the plane . . . had shot up and to their left, at a rate of climb that seemed unbelievable . . . The . . . acceleration carried it out of their range of vision in an instant . . . for already he was many miles away, a long trail of flaming gas marking his swift flight. There was a terrific wrench as Arcot threw on all the power he dared . . . following the Pirate at lightning speed. He increased the acceleration further as the men grew accustomed to the force that weighed them down . . . quickly now they were overhauling him . . .
>
> . . . Just out of sighting range for the machine gun now . . . but, she was faltering!

The Pirate has reached the stratosphere where his rockets can still support him, but where Arcot's ship, dependent on atmospheric heat for its propulsion, is not quite able to follow. Unfortunately this does not allow him to escape:

> There was a low buzz, repeated twice. Instantly Morey turned the dials of the radio receiving set . . . In a moment a voice came in---low, but distinct.
>
> "---am the Pirate---help if you can . . . Am in an orbit and can't get out. Fuel reserve gage stuck, and used all my rockets. No more power. Can not slow down and fall. I am running out of compressed air and the generator for this set is going---will take animagion suspending gas---will you be able to reach me before entering night?"



The pirate has attained sufficient tangential velocity to establish an orbit about the Earth and has thus become an artificial satellite, but in so doing he has also exhausted his limited fuel supply. Realizing that unless help is received he will be marooned in space and fated to circle the Earth, a la Jameson, for perhaps millions of years, he has been forced to request aid from his pursuers cruising some distance below.

The Pirate's message is acknowledged and a descent made to the San Francisco Airport where an electromagnet is hurriedly installed on Arcot's plane. Then, a second trip into the stratosphere:

> At last the tiny silver dot had grown till it took on the form of the plane it was. They were drawing up to it now, slowly, but steadily. At last the little machine was directly beneath them . . .
>
> There was a snap, as the temporary switch was closed, and the current surged into the big magnet on the keel. At once they felt the ship jump a little under the impulse of the magnet's pull on the smaller machine. In a moment the little plane had drifted up to the now idle magnet, touched it and was about to bounce off, when Morey again snapped the switch shut and the two machines were locked firmly together!

WHAT - NO DIANETICS?

In this manner, the Pirate is finally brought into custody. The story ends happily enough: Morey's diagnosis of the Pirate as being "insane in one branch only" proves to be entirely correct, his streak of kleptomania, induced by a blood clot on the brain, easily being cured by an operation. (Had this story been written today, perhaps the Pirate would have received dianetic therapy instead.)

On the basis of his previously demonstrated scientific aptitude, the Pirate is offered a job in the laboratories of Transcontinental Airlines where he becomes Arcot's co-worker. It is Wade, the Pirate himself, who completes the team of Arcot, Morey, and Wade whose adventures we shall discuss in a succeeding lecture.

FOOTNOTES

1 John W. Campbell, *Who Goes There?* (Shasta, 1948) p.

2 For a more complete treatment of the inductive and deductive methods in the construction of scientific theories, the student is referred to Hans Reichenbach's *Elements of Symbolic Logic* (Macmillan 1947) or to the author's brochure, *The Cthulhu Mythology as a Model of Inductive Inference* (Lux Transcriptions, 2.50 cr.)

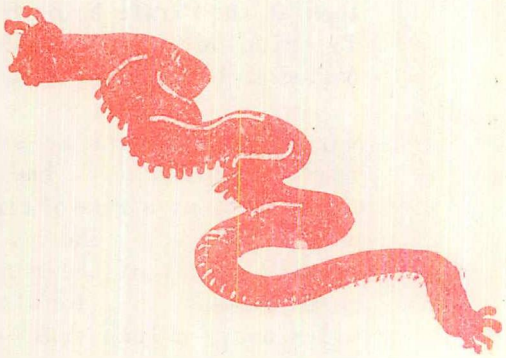
3 Unless we are looking directly at a light source such as an incandescent bulb or the sun, all light entering our eye has first been *reflected* by some material body. Thus the Pirate, in order to be invisible, must become either a perfect transmitter of light, i.e. perfectly transparent, or its opposite, a perfect absorber of light. In the latter case, we could still ascertain his location by noting his silhouette.

4 In some textbooks it is stated that the optic image itself is transmitted along the optic nerve to the brain. This is incorrect: the neural impulse traveling along a given nerve fiber is not identical with the stimulus responsible for this impulse. The well-known phenomenon of "seeing stars," for example, is not produced by any stellar configuration whose image is 'transmitted' along the optic nerve.

5 It is left as an exercise for the student to determine how such a ship may be made gas-proof.

6 Question: Is or is not Newton's Third Law of Motion (action and reaction are equal and opposite) involved here? Elaborate.

Rd



the journal of the B. I. S.

By Don Fabun

It is traditional in American publishing that of all dull and unrewarding jobs there are, that of "exchange editor" is the duliest and unrewardingest. On large magazines and in the big publishing houses, it is the sort of job that is given to the boss's third cousin, "the one with the hair", in the hopes that in a moment of despair he may "accidentally" fall out the window.

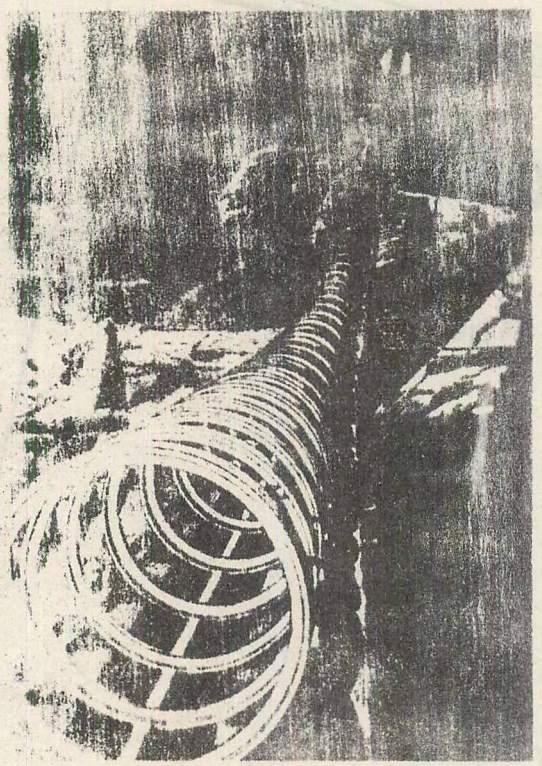
But every once in awhile, the exchange desk suddenly comes up with a sparkling gem. The sparkle on the gem very largely derives from a sudden discovery that there is a big hole in the issue, nobody to fill it, and who wants to read a publication with blank pages? So what is needed is "exchange."

Much this sort of thing---the diamond in the rough discovery---came to the **Digest's** exchange desk this month--and it couldn't have happened to a better exchange desk. It is the September issue of the *Journal of the British Interplanetary Society* (Vol. 9, No. 5) and an excellent issue in all respects.

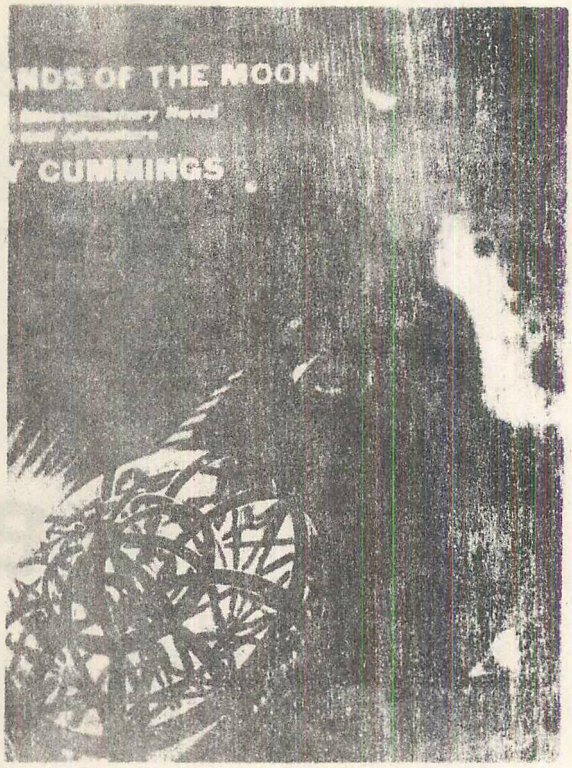
As most readers already know, the British Interplanetary Society was founded in 1933 "to promote the development of interplanetary exploration and communication by the study of rocket engineering, astronomy, electronics and other associated sciences." Its program is designed "not only to assist the spread of technical knowledge, but also to bring home to the lay public the limitless possibilities of rocket propulsion, and in particular the ultimate implications to human society of the crossing of space."

In the seventeen years of its existence the Society has gathered to itself eminent scientists and laymen from all over the world. Two well known members whose books and illustrations have done much to popularize the idea of space travel are Willy Ley and Chesley Bonestell.

The *Journal* is published every two months and mailed to members and fellows of the Society. Usually the material contained in it is fairly abstruse



Wonder Quarterly, Winter, 1930.



"Brigands of the Moon"] [Astounding Stories, Ma

for the non-mathematical, non-engineering reader, but the September issue has three general features of interest to science fiction readers.

The feature article of the issue is a paper read to the British Interplanetary Society on April 1, 1950, by Arthur C. Clarke, B.Sc., entitled "Space-Travel in Fact and Fiction." The writer draws heavily upon J. O. Bailey's *Pilgrims Through Space and Time* and Marjorie Nicolson's *Voyages to the Moon* but has added considerable material of his own from "the fading memories of a youth which, in retrospect, seems to have been largely misspent in the pursuit and avid consumption of American science fiction magazines."

His memory is not nearly as faded as he would have us think. His paper, therefore, is an excellent short summary, factually sound, and presented with quiet humor, of the development of the classical space-travel theme in science fiction and fantasy.

There is little point in summarizing his remarks here, since very much the same sort of material is contained in the Nicolson book, but he offers a number of things that may be of particular interest to the **Digest** readers.

One of these things of interest is an idea, quite strange (it seems to me) for a fellow of the B.I.S. to hold:

> Before the age of science, there was good reason to employ paraphysical means of conveyance, because they seemed as plausible as any other in times when an air-borne broomstick would have excited far less surprise than a balloon drifting across the sky. On the other hand, when a modern writer uses such methods it must not be imagined that he is too lazy to think of anything better; he may have very good

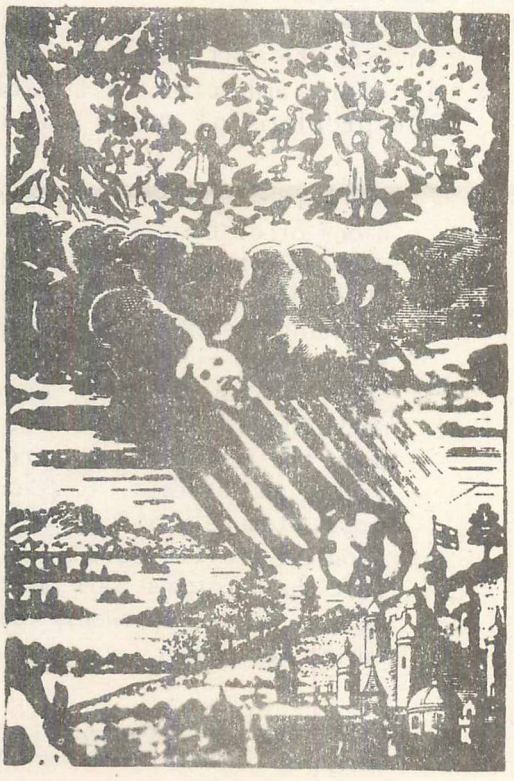
reasons for his choice. There is, indeed, little alternative if one wants to write a story of cosmic scope, yet assumes that the speed of light can never be exceeded. Some of the more thoughtful of recent authors (such as Jack Williamson in his novel -*And Searching Mind*- 1948) have suggested that in the long run purely mechanical solutions to the problems of space flight will be superseded by paraphysical ones. How far one is prepared to grant this possibility depends on one's assessment of Dr. Rhine's latest work. It will certainly be an irony of fate if the giant spaceships of the next millenia belong to the childhood of the universe...

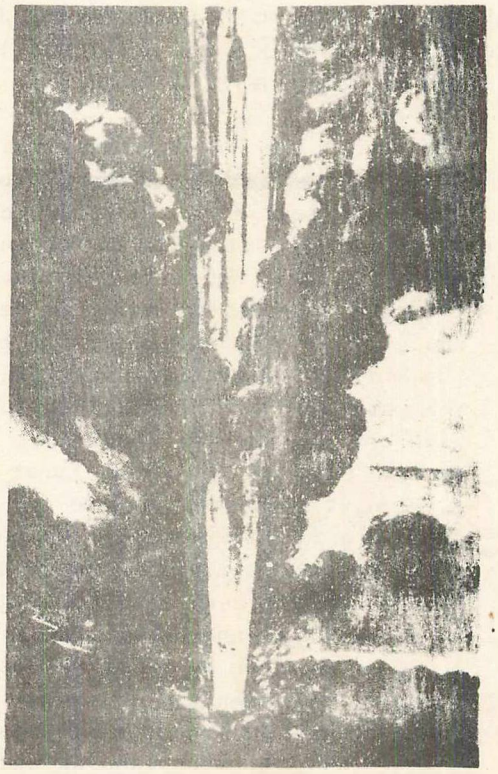
Well, there's one to kick around on the typewriter.

The other item of particular interest is that one of the European classics, Kurt Lasswitz' *Auf Zwei Planeten* (1897) has been reprinted in German with illustrations, and Willy Ley is now at work on an English language edition of it.

Auf Zwei Planeten anticipated Wells' *First Men in the Moon* (1901) by four years, and includes such un-19th Century ideas as anti-gravity, explosive propulsive systems ("repulsors" - the word later used by the *Verein für Raumschiffart* - Society for Space Travel - to describe its own early rockets) and space stations. All of the details were worked out with great care by Lasswitz, who was a professor of mathematics at Jena. The work is ranked by Clarke as the most important of all interplanetary romances, and news of its coming availability should excite collectors and readers alike.

Also included in the Interplanetary





Journal are reviews of *Destination Moon* and *Expedition Moon*, as seen by an English eye. The reviewer for *Destination Moon* was A.V. Cleaver, a member of the Society, who was invited to a preview showing of the picture in the best tradition of Yankee promotion. The film was first released generally in London on September 25, and to "key provincial cities" on October 22. (Imagine the Chamber of Commerce consternation if, in America, we announced a showing in "provincial cities!")

The Technical Director of the British Interplanetary Society is quoted by the reviewer as saying that *Destination Moon* "is quite the best fictional film of any scientific theme that, to our knowledge, has ever been made!"

The reviewer for the *Journal* goes on to describe the film, his text illustrated with "stills" from the picture. Since, as the reviewer himself points out, "it is unlikely that any audience will approach it in the same technically critical spirit as the members of the British Interplanetary Society," it is all the more interesting to find just what the B.I.S. *did* find to criticize in *Destination Moon*.

> "We think (the *Journal* says) that it would be inadvisable for anyone to inspect the nozzle of a nuclear rocket after firing---it would be too radioactively 'hot'. We doubt very much if even the combined resources of American industry will ever be able to build the world's first spaceship within a year or so of the decision to proceed with the project. We should not like to take part ourselves in a Lunar trip started at such short notice and with one untrained crew-member---nor in one carrying such small propellant reserves that it became necessary to 'lighten ship' after the unexpectedly high consumption entailed in a bad landing. We doubt whether even the perfection of a nuclear power unit will make possible a Lunar flight, with landing and return, in a single step ship.
>
> "Probably not *all* the stars visible from the Moon would be of the first magnitude and---above all---we should have preferred a little less emphasis on the 'He who controls the Moon controls the Earth' theme (true as it may one day appear.)"

To counteract any impression I may have given here that the English did *not* like the film, I hasten to add that the criticism of the Interplanetary Society of the film bears only a small portion of the review, which was otherwise highly laudatory, and it was selected for reprint here largely because it enables Little Men who saw the film to check their own criticism against those of the Society.

Finally, there is the *Journal*'s review of *Expedition Moon*, which the B.I.S. had been led (by the Pacific Rocket Society) to expect as a "grade B minus stinkeroo", to use an old English expression. "The Society went to see the show at the Rialto Cinema, expecting very little---and found exactly that!" However, the B.I.S. discovered some important things of considerable interest to people whose lifelong ambition is to solve some of the problems of space conquest.

> "We were . . . not a little amused by, among other things, a deafening downpour of cottage-loaf sized meteorites which almost solved the problems confronting our five lapless space explorers as they drifted between Earth and Moon, passing the time variously with mathematical calculations, speculation upon the amatory influence of moonlight, and attempts to play a mouth-organ strangely affected by a suspension of gravitational forces which left the heroine's hair and most other objects in the spaceship quite undisturbed throughout . . .
>
> "But they got going again (after running out of fuel due to an 'unforeseeable error in the mixture') and, on

recovering, discovered that they'd reached, not the Moon, but Mars. 'It's absolutely unbelievable!' murmured the heroine, after noting a slight stubble on the men's chins. Which expressed our sentiments exactly when we saw a V-2 (representing the space ship!) landing complete with the tops of full launching equipment already waiting for it on the surface of Mars!"

"At that time we also enjoyed the part where the 'first' step separated and the rocket lost its tail, though the effect was somewhat marred by the fact that it apparently grew another in later sequences, much as does a crab or lobster. A very useful accomplishment, this---space ship designers, please note. . ."

And the *Journal* goes on to roast *Expedition Moon* with a heat quite American in its intensity, ending up with an adjuration that members of the British Interplanetary Society make every effort to keep the public from confusing *Expedition Moon* with *Destination Moon*.

Little Men who are interested in intelligent discussions of space flight and allied subjects, will find it very rewarding to subscribe to the *Journal of the British Interplanetary Society*, 157 Friary Road, London SE 15, England. One pound ($2.80) for a one year subscription, plus application fee of five shillings ($.70).

RH

IN MEMORIAM

olaf stapledon

"Odd John" "Darkness and the Light" "A Man Divided" "Star Maker" "Last and First Men" "Death into Life" "Sirius" "Old Man in a New World" "The Flames" "Last Men in London"

By Fred Brown

W. Olaf Stapledon, British philosopher and writer, recently passed away at the age of 64 years.

To the fantasy enthusiast this curt announcement in the daily press came as a staggering shock. Although Stapledon took no personal interest in fandom, his name was revered by collectors everywhere as one of the masters in their favourite field of fiction. As he had maintained on many occasions, sociology and philosophy were his main interests in life and in his fiction he was only concerned with fantastic imaginings in so far as they seemed to have a more or less philosophical bearing on the subject. (At least two of his books, *A Modern Theory of Ethics* and *Waking World*, are serious contributions to the field of philosophy.)

Despite his expressed indifference to the cult of the fantastic, the startling originality and imaginative grandeur of his stories caused a sensation in the literary world. *Last and First Men*, published in 1930, depicted the rise and fall of successive civilisations during future epochs, with world disasters, dark ages, the rise of new species, invasion from other worlds, the development of interplanetary travel, the creation of the "Great Brains", time travel, flying men, and the final evacuation of Earth by the human race. Not content with these tremendous concepts, the author then described the evolution of mankind into strange and fantastic species on Venus and Neptune, where solar man finally faced extinction.

A sequel, *Last Men in London*, appeared in 1932, and dealt with the impact of a member of the last human species on present-day man. Stapledon's hatred of war is revealed in pungent sentences from the lips of the last man.

ODD JOHN, published in October, 1935, and hailed by the London EVENING STANDARD as the book of the month, was the biography of a superman who gained contact with other supernormal humans by telepathy. Founding an island colony, the heterogeneous collection of individuals formulated their own philosophy and way of life only to be attacked by the forces of that most conventional creature, the average man.

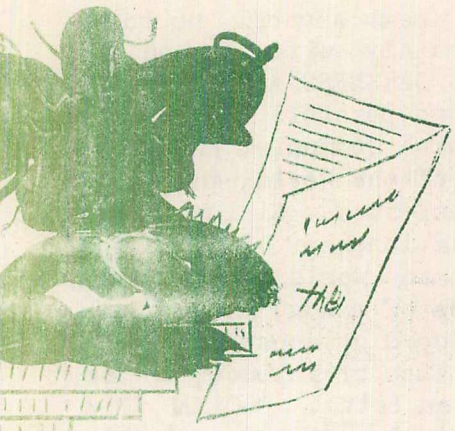
Perhaps to show that a period of two billion years, with the Solar System as a setting and the progress of homo sapiens from the cradle to the grave, was still a small thing when compared with the immensity of the Cosmos, Stapledon presented, in 1937, his saga of a galactic exploration, STAR MAKER. In this rival to LAST AND FIRST MEN, the author started with the simple theme of two spirits in sympathetic communion setting out on a voyage of discovery. As the exploration continues, other minds combine with the two, and with each one comes a greater power of understanding and a longer reach in Space-Time. Flying men, centaurs, Nautiloids, Symbiotics and Plant-Men; world states, interplanetary, galactic and supra-galactic communities are described and judged as the minds fly through space. The developing story shows the desparate struggle between a Utopian Society of Worlds, and another order of intelligence; of the belated emergence of a cosmical mind; and of the strange relations between this spatio-temporal cosmos of ours and its ungodly creator.

From the point of view of imaginative scope, Stapledon reached the highest pinnacle with the writing of STAR MAKER. In his next several books he was concerned mainly with man and his difficulties. DARKNESS AND THE LIGHT (1942) traces two possible futures for mankind, one with Communist Russia as the dark ruler of the World, the other with Russia defeated. Sirius (1944) shows the relationship between the animal and human worlds, as seen through the eyes of a dog, whose brain has been developed by a psychologist, with the assistance of science, to that of a normal human being. OLD MAN IN A NEW WORLD (1944), describes an elderly man's difficulties in adjusting himself to a changing environment.

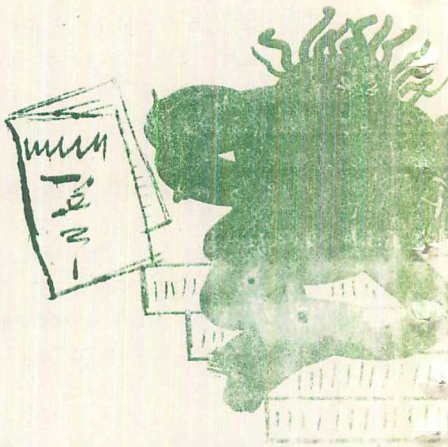
Stapledon once again returns to philosophy with his DEATH INTO LIFE (1946), a study of the soul at the end of its tether, with the Sun flaring into a nova and engulfing all the man-colonised planets of the Solar System. In THE FLAMES (1947), he introduces intelligent flame creatures who reveal man's obtuseness and pettiness. Finally in his last book, A MAN DIVIDED (1950), the personality of a schizophrenic is examined with various delvings into the older wisdom, telepathy and psychic powers.

To those who had met him, Stapledon was a veritable 'Peter Pan'. Slender and youthful looking, with fair hair and a fresh complexion, he never at any time in his late life appeared to be much over 40 years of age. A lover of the open air, he enjoyed hiking and swimming. During his holidays from his post as public lecturer at Liverpool University, Stapledon and his wife were often to be seen leaving their home at West Kirby, Cheshire, and

(continued on p. 30)



book reviews



BY DON FABUN

Secret
Michael Amrine
Houghton Mifflin Co

Since 1945, many thinking people have asked how it was possible for the men of science in this country, presumably men of high integrity, to have sold themselves and humanity down the river by fashioning an atomic weapon and delivering it into the hands of politicians.

This novel, written with almost biographical fidelity, deals with that problem through the character of a radiation physicist who is, through no fault of his own, led down the long degrading path from the Pentagon, through the Manhattan Project, Hiroshima, and the inevitable congressional investigation.

It is a theme of high tragedy, although its true grandeur and significance seem to just elude Amrine. Despite that, it is a story that needs telling, and it is well told. There are prose passages of surpassing beauty, and the subject is handled with sympathy and understanding.

The Dark Other
Stanley G. Weinbaum
Fantasy Publishing Co.

I get paid for reading books and therefore read this one. It's the only reason I can think of for anybody going past the first three pages.

If you're curious, the book tells about a young man with an embryo-like tumour in his brain which makes him act funny until it is removed.

Conan: The Conqueror
Robert E. Howard
Gnome Press

When the fictional history of Earth is at last compiled, the historian must leave a special section for the Hyborean age, which flourished shortly after Atlantis went down for the third time.

It is the mythic Hyborean Age that is the setting for the derring-do of Konan "whose peasant's sandals shook the jewelled thrones of mighty kingdoms." Written in a florid, rhetorical style, slightly reminiscent of Marlowe's

mighty line, Konan is a series of fights, flights, wooings and escapes against an inimical world full of magic and monsters and bronzed knights.

Konan is one of a series of books which Gnome press has planned about the Hyborean Age; each book fitted together from a number of short stories and novelettes written over a period of years by Howard. The fitting together seems quite successful, and if Konan is any criterion, the whole series should be a very entertaining one.

The House that Stood Still
A. E. van Vogt
Greenberg

A special prize should be awarded to anyone who can sit down and draw up an intelligent outline of the plot of this typical van Vogt effort. Woven together with all the precision of a plateful of spaghetti, the book contains many of the standard van Vogt gimmicks: telepathy, mind power, immortality, supermen, and all the rest.

As nearly as can be made out, it is the story of a house, built at the direction of a stranded robot. The house, in addition to a fine view, running water, and all the conveniences, also confers the dubious gift of immortality on its inhabitants. For reasons that escape me, these immortals have not, in two thousand years, found any way to get title to the property and are therefore in a pickle, slightly complicated by the fact they must also stop an atomic war in or by the Russians. A small town attorney and estate agent straightens everything out except the plot, which remains as murky as ever down to the very last line.

The Island of Captain Sparrow
S. Fowler Wright
Grosset & Dunlap

This might be called the Pitcairn island Robinson Crusoe theme in fantasy and a superb example of it, too. Assume that a colony has been abandoned on an out-of-the-way island in the Pacific, that the colony interbreeds to degeneracy, and that to this island comes a man with all the weaknesses and sophistication of a Twentieth Century dilettante. How would he fare? This question is the one Wright examines, and he makes the answers both interesting and believable.

Should point out that the jacket looks like it was painted by a nine-year old child delinquent and is no sample at all of the excellence of the story inside.

Shadows of Ecstasy
Charles Williams

Certainly this is one of the strangest novels to be conceived by a modern Western mind. It deals with the transmutation of energy through spiritual power; the conquest of death through ectasy.

These two ideas, so strange to us, so far removed from our world of graphs and symbols, are made real and compelling by the rolling beauty of Williams' prose; the unashamed usage of half-forgotten emotions and ideas.

It is Williams' thesis that man can transcend the limitations of time and space through the wilfull attainment of ectasy: religious, sexual or aesthetic; sustained day by day through the turning inward and focussing of all our mundane and spiritual experience. He assumes that such a concept---the conquest of death---could rise first in the tribes of Africa. He then traces the impact of this unWestern idea when it is brought forcibly to the attention of European man.

If you are not completely sold out to slide rules and log tables, you will find this book an unforgettable but troubling experience.

PARDON US FOR BREAKING IN LIKE THIS

BUT, WE NEED YOUR HELP!

Anyone who has troubled to take a look at this issue can see for himself that there is plenty that needs to be done. Frankly, the art work stinks and the straight line plates leave much to be desired. But when you consider that the whole shebang is the product of the work from just two people - and both of them working part time - it isn t hard to see why it looks the way it does - nor why it is so late.

Just the same, we believe in this publication. We think it can look pretty good. But it simply can't be done -- and done on time - with only two people working.

So - if you can type, if you can read, or even, God bless you - if you can draw or write or do a half-way good job of lettering - please help. If you are willing to put in just three hours each month, it will make all the difference.

Also we need articles - anything of interest to people who like science fiction or fantasy. Tell us about your favorite author, or why you like science fiction, or good themes people are overlooking. Or just write us nasty letters. We'll print 'em. But we do need copy - and help.

Just see Gladys at the Garden Library, she'll show you what needs to be done - if you can type, or read, or just look pretty, for one evening a month.

Thanks.

LETTERS

24 Kensington Avenue,
Jersey City 4, New Jersey.

Dear Moore

Can't say I'm pleased with the August issue of [illegible]; it merely aroused my curiosity to the extent of buying one more issue. Perhaps only one more.

If this is the very best fandom can offer, I certainly have no desire to see the rest of the fanzines. [illegible] is good, could be very much better, and obviously needs a hard lambasting for its faults.

Begin with the lay-out. The editorial *Declaration* had a yellow design slapped on---yellow, of all colors! A magazine with an art editor who has no knowledge of color effect is bad enough; you haven't even an art editor. Nor do I know whom to blame for smearing those crude title blurbs and designs across the pages, breaking the columns and disrupting their trend of thought. The editors of *Flair* know how to handle this. You do not. Your magazine lay-out is, frankly, amateurish.

Then, there's the writing itself. Sneary terms it "too formal." It isn't snobbish; it isn't good enough to be snobbish. You're trying to be intellectual. You fall short, I believe, for the simple reason that you're leaning over backward to keep from saying anything the reader would consider harsh. The result is that you say very little, tho you say it quite well.

When you *do* come out with something you apparently think worth the effort, it turns out to be a condemnation of *Rocketship X-M*. The reasons you stated for such condemnation have far greater repercussions on the whole stf field than the accord with which a mere grade B movie is received. But rather than tackle the dragon, you prefer to joust with windmills. You grab *X-M* as the sublime example; why not roll up your sleeves and wade into the whole mess of crud now being peddled? The real threat, here, which you did not mention at all, is that this thoughtless purely selfish practice of editors, publishers, et al., is going to destroy the popularity which stf has recently acquired.

In short, you pull your punches.

Finally, whoever was responsible for holding that preview to the Norwescon until now---and publishing it at this late date---should be carried out when the moon goes down and quietly buried. Quite obviously, he's dead.

Sincerely,
Joe Gibson.

127 Shephard Avenue,
Newark 8, New Jersey.

Dear Sir:

The current, October, 1950 issue of the *Science Fiction News Letter*, awoke me to the pointed realization, that I had never bothered to subscribe to the **Rhodomagnetic Digest** despite the fact that I had the first two issues and enjoyed them.

I am enclosing a postal money order to the amount of $2.00. I know you started off on a monthly basis. I don't know if you maintained it. I would appreciate it if you would send me any back issues you have on hand with the exception of the first two. If this uses up more than the two dollars, I will send you the addition plus another years subscription.

Judging by your good start, if you continued to improve steadily, your journal must be today, as you stated, one of the very best in the field.

Best wishes,
Sam Moskowitz.

31 N. Aberdeen Street,
Chicago 7, Illinois.

Dear Editor:

It's needless for me to say your exceptional *little magazine* has already attained a reputation for critical and intelligent opinion. But I must take issue with Editor Moore on his *On the Newsstands*. In the September 1950 issue (issued in November!), Mr. Moore makes some rather harsh statements on *Amazing Stories*. Certainly I cannot approve of the present policy of Ziff-Davis in aiming at the lowest caliber of reader. Yet, Ziff-Davis has a science fiction magazine (I use the term loosely.) coming out every month which has been and still is an asset to them. To them, as also movies, radio, television, etc., they are selling a product to make money. Not to please the literary critic nor to attain the dubious reputation of putting out a *fine* or *coterie* magazine. That they have succeeded is evident in their circulation figures.

Now to change and become a direct competitor of say *ASF* or *Galaxy* is asking a lot. With the entire pulp field in a state of flux, the intense competition of pocket sized books, comic books, girlie magazines, not to say the increased cost of paper, higher rates to writers, it becomes something in the nature of a joke to ask them or those who emulate them to experiment.

There are levels of criticism Mr. Moore, and perhaps it will be possible to judge *Amazing*

at its own level rather than contrasting it against the olympic peaks of *ASF* or *Galaxy*.

Criticism is needed at all times. Now with the science fiction and fantasy field booming as never before, it is *vitally* necessary to have awareness of what is happening. *All* the magazines should be analyzed and evaluated. However the coins of a few hundred intelligent readers are nothing compared with the thousands upon thousands of *stupid* (that's the only word for it) people that buy and *approve* of blatant covers, bad writing (good hackwork can be good entertainment) and . . . . the list is too long.

I'm another who cannot join in the overwhelming acclaim for Mr. Ray Bradbury. He has talent, perhaps even a great talent, but it remains to see if his present fame shall last.

Kawara Noon

In Memoriam (cont. from p. 27)

setting forth in shorts to explore the neighbouring countryside. Educated at Oxford and Liverpool Universities, Stapledon wrote some fifteen books, including several non-fiction titles: *New Hope for Britain*, *Saints and Revolutionaries*, *Philosophy and Living* and *Beyond the 'Isms'*.

In a recent poll among well-known collectors, authors and editors, *Last and First Men* gained the distinction of being voted second place among the seventeen most desirable fantasy titles (see *A Basic Science Fiction Library*, The ARKHAM SAMPLER, Winter, 1949), while *Sirius* and *Star Maker* were also 'placed'.

We can honestly say, therefore, that Stapledon's popularity is undiminished and that though his pen is now still, his books will live on among lovers of fantasy writing.

EDITORIAL (cont. from p.5)

exception of the love and romance types. Westerns, mysteries, adventure and flying at one time enjoyed about the same popularity science fiction is now enjoying, and then gradually collapsed. The folding of *Worlds Beyond* could well be the signal for the vast majority of the magazines to go likewise.

The love and romance magazines and the true police cases seem to survive through thick and thin, and apparently some of the science fiction editors are figuring that if they can't last as straight science fiction magazines, then by putting a great deal of love and sex in their publications they can survive. I can see no other reason for the large number of stories being published now which have crude, and at times disgusting, sexual plots and action.

These same editors are the ones who also give their readers a large dose of coarse, vicious brutality.

It is small wonder that the general public looks askance at fandom. The odds are against a person going into a newsstand and picking up one of the few magazines that try to print stories that are well written and will appeal to an intelligent reader. Are most fans such lecherous sadists that these blots are going to stay around, since things are not too tough financially, seemingly, for most of them? Or will we have to wait for another full-scale war, with its accompanying rationing of paper and printing ink, before we get the housecleaning that science fiction is badly in need of?

Ed

a little plain speaking

By Marion Z. Bradley

It seems to me that the myth of science fiction and literature has gone about far enough. It was all very well to defend scientific fiction, and to quarrel in a friendly way with the authors and editors about the accuracy or lack of accuracy of the science embodied in the stories. It was very well to ask for well-written and better stories... but the myth has gone about far enough and it is time to look at the facts.

Of recent years there has been a tendency to criticize certain magazines for their policies. The burden has fallen mostly on the Ziff-Davis twins and the Thrilling twins ... upon the erstwhile Ray Palmer and upon Sam Merwin.

The fans make such remarks as "insulting the intelligence of fandom" . . . . "foisting such trash upon an unsuspecting public" and they call upon fandom to protest. They accuse Merwin et al. of printing "anything he can get" or "anything that will sell."

Well, why shouldn't he?

It seems that the critical readers overlook one point. The science fiction magazines are in business, *not* to improve the quality of scientific knowledge, *not* to promote the grand and Glorious Cause of Science Fiction, *but* . . . and it seems so obvious that it is inane to write it . . . . to publish a magazine which will sell. If a magazine sells, that means that people enjoy it. If people enjoy it, it is a *good magazine regardless of what the fans think of its literary quality.*

Fandom is actually a very small minority of science fiction readership, and regardless of what the articulate minority may say, the inert and inarticulate majority, the huge bulk of readers who make up the hundred thousand or so buyers of *Startling* and *Amazing* and the like *will and must* continue to regulate the policy -- even the covers of the magazine. This is as it should be. The voice of the minority, even the literate minority, has no right to sit in judgment of the majority, even if that majority be illiterate. It is the majority of readers who keep the magazines in business. They will buy only what they honestly enjoy.

It is all very well to say that the taste of the masses is execrable, that they must perforce be educated to the level where they can enjoy the "intelligent" story which pleases the fan. It is all very well to censure the authors for being "hacks." But, after all, the most hack-ish writers are the ones who are best liked by the great masses. Compare the sales records, if you wish, of Stapledon's literate, thoughtful *Odd John* and Edgar Rice Burrough's *Carson of Venus* . . . a piece of sheer hack tripe. Burroughs himself admitted that he wrote for the masses to enjoy. And they certainly have enjoyed it.

The main purpose of the magazine writer is, quite aside from making money (in itself a worthy aim for writing) to give enjoyment to the greatest possible number of people. It's a question of whether the writer writes for himself or for others. The pulp magazine hack writes stories which are enjoyed by millions. . . . honestly, if not intelligently, enjoyed. The so-called "literate" science fiction writer writes . . . and his story goes over the heads of the masses. Maybe five hundred people enjoy it.

I would rather be Edmond Hamilton with three dozen Captain Future stories to my credit, than Robert Heinlein with his grandiose concepts of future history, or Wilmar Shiras with her carefully literate sociological theses. I'm not criticizing Mr. Heinlein or Miss Shiras, but I am administering a sharp rap across the pinkies to the fan who tries to tell a pulp editor that *his*, the editor's, writers are hacks, and suggests replacing them with those who have made a success in the slicks. The editor knows what his readers enjoy. The occasional editor who tries to run a magazine along lines which please the more serious and literate fan is doomed from the start to failure. . . which is why I predict that *Galaxy* must ultimately fail *if* it depends on a pulp audience. *Galaxy* is a fan's paradise. . . but it's neither a fish nor a fowl. It's not highbrow enough to get the "slick" market, and it's way over the head of the average reader of *Super Science* and *Amazing*.

What we fans want to realize is that we are here on sufferance. We should be humbly thankful for two or three intelligent stories per issue. . . and not complain about the average grade of the rest. Joe Doakes must have liked them. . . *Startling*, despite its "immature tone" (to quote the Serious Constructive Fan) has been growing for three years and *Amazing*, which prints about the poorest "literature" in any field, is getting bigger all the time.

So let's stop blathering about the Bergey covers, the hack stories and the lousy science, and either shut up or get out. If you want literature, you can always read *The Atlantic Monthly*. And let's stop bothering the editors with what we think is literature. He has to, should, must and will print what the largest majority sincerely like. . . and what the readers *like*, that is the real literature of the people. Maybe we think it's trash . . . but thirty million readers can't be wrong. Or, if they are, you won't get them to admit it.

Rd

in my opinion...

by j. lloyd eaton

For more information on this feature, see Vol. I, No. 2 or No. 6 of the **Digest**
The stories are rated as follows:

*** Good to excellent
** Fair to good
x When included in the rating, may be considered as an additional * by those who enjoy cerebral stimuli with their reading. It may also serve as a warning to those who want an evening of light reading.
* A fantastic but not good "good" escape reading; for collectors or students only. Read at your own peril!
- Not fantastics, masqueraders--religious, economic, etc. Treatises thinly disguised as fantasy with little story value, or too poorly written, even for the collector!
() Not fantastics, possibly marginal, rated as escape reading.
s Short story collections. Total number of stories given, with each fantastic listed and described as above.
C Not in the *Checklist*.

Blackwood, Algernon

s The Wolves of God and Other Fey Stories (with Wilfred Wilson)
Dutton, N.Y., '21 - Shorts (15)

** The Wolves of God. - Wendigo-like.
* Chinese Magic. - Fantasy.
*** Running Wolf. - Spirit.
*** First Hate. - Memory?
*** The Tarn of Sacrifice. - Old Gods?

** The Valley of the Beasts - Indian God.
** The Call. - Death.
** Egyptian Sorcery.
*** The Decoy. - Ghost, horror.
*** The Man Who Found Out. - The horror of it.
*** The Empty Sleeve. - Sorcery?
** Wireless Confusion. - Queer.
** Confession. - Re-enactment.

s Tongues of Fire and Other Sketches. *Jenkins; Lon.; '24* - Shorts (21)
*** Tongues of Fire. - "Doom."
** The Little Beggar. - Ghost of "Might have been."
*** The Pikestaffe Case. - Sci-fict. supernatural.
* Lost!
** The Man Who Was Mulligan. - Supernatural. Science.
* The Spell of Egypt.
* A Man of Earth.
* S.O.S.!
** Nephele. - Reincarnation.

s Shocks. *Dutton; N.Y.; '36* - Shorts (15)
* Elsewhere and Otherwise.
*** Dr. Feldman. - Ghost, horror.
** A Threefold Cord. - Ghost.
*** Chemical. - Ghost, horror.
* Shocks.
* Hands of Death.
* The Colonel's Ring.
* Revenge.
* Adventure of Miss De Fontenoy.

s The Doll and One Other. *Arkham; Sauk City; '46* - Shorts (2)
*** The Doll.
*** The Trod.

(Collections of selected stories from above.)

s Ancient Sorceries. *Collins; Lon.; N.D.* - Shorts (6). One story from each of six of his collections. 5 good.

s The Dance of Death and Other Tales. *Jenkins; Lon.; '27* - Shorts (6). From six of his collections. 2 good.

s Full Circle. *Matthews & Marrot; Lon.; '29; no.135 signed* - 1 fantasy.

s Strange Stories. *Heinemann; Lon.; '29* - Shorts (26). A representative collection from 8 of his books. 18 good.

s The Willows and Other Queer Tales. *Collins; Lon. & Glasgow; N.D.* - Nicely illustrated by Sidney Stanley. - Shorts (11). 9 good.

(Novels)

* The Centaur. *Macmillan; Lon.; '11* - The Living Earth Soul.
* The Fruit Stoners. *Dutton; N.Y.; '35* - Fantasy.
- The Garden of Survival. *Dutton; N.Y.; '18* - Mysticism.
* Jambo, A Fantasy. *Macmillan; N.Y.; '09* - Frightened child's delirium.
** Julius Le Vallon. *Dutton; N.Y.; '16* - Mysticism, fantastic.
- A Prisoner in Fairyland. *Macmillan; N.Y.; '13* - "Pretty" fantasy.
x The Promise of Air. *Dutton; N.Y.; '38* - Serious fantasy.
* The Wave: An Egyptian Aftermath. *Dutton; N.Y.; '16* - Fantasy, reincarnation, love & souls.

Blackwood, Algernon and **Rearn, Violet**
** Karma. A Reincarnation Play. *Dutton; N.Y.; '18.*

Blair, Hamish
** 1957. *Blackwood & Sons; Edinburgh & Lon.; '30* - Another Indian mutiny.

Blake, Nicholas
C(**) The Smiler with the Knife. *Harper; N.Y.; '39* - Counter espionage.

Blake, Stacey
** Beyond the Blue. *Books; Lon.; N.D.* - Interplanetary. Weak on space flight. Fast, like Burroughs.

Blakeborough, R.
*s The Hand of Glory. *Richards; Lon.; '24* - Legends; several fantastic.

Blanchard, Charles Elton
* A New Day Dawns. *Medical Success; Youngstown; '32* - Utopias via collectivism and getting rid of the male sex.

Blatchford, Robert
x** The Sorcery Shop. *Clarion; Lon.; '07* - A fantasy of a socialist Utopia, well done.

Blavatsky, H.P.
s Nightmare Tales. *Theosophical; Lon.; N.D.* - Shorts (5) all fantastics. Can recommend only one.
*** The Ensouled Violin. - Supernatural horror.

Blayre, Christopher
s The Strange Papers of Dr. Blayre. *Allan; Lon.; '32* - Shorts (12)
* The Purple Sapphire.
- The House on the Way to Hell.
** Aalila. - Sci-fict. Space.
** The Mirror that Remembered. - Sci-fict. Time.
- Purpura Lapillus.
** Mano Pangea. - Sci-fict. Glory Hand.
** The Thing That Smelt. - "Others".
- The Blue Cockroach.
** The Man Who Killed the Jew. - Medical; humor.
** The Demon. - Possession.
* The Book.
** The Cosmic Dust. - Sci-fict.
s The Purple Sapphire. *Allan; Lon.; '21* - Shorts (8). Nos. 1, 3, 5, 7, 8, 10, 11 & 12 of the above, plus "The Cheetah Girl." *The publishers regret that they are unable to print this Manuscript.*

Bleunard, A.
** Babylon Electrified. *Gebbie; Phil.; 1889* - Sci-fict. Pretty much a travelogue.

Bliss, D.P.
The Devil in Scotland - Anthology - to be reviewed under anthologies.

Bloch, Chayim

** The Golem. *Vernay; Vienna; '25* - Religious fantasy.

Bloch, Regina Miriam

C- The Swine Gods and Other Visions. *Richmond; Lon.; N.D.* - Poetic allegories.

Bloch, Robert

s The Opener of the Way. *Arkham; Sauk City; 1945* - Shorts (21)

*** The Cloak. - Horror, vampire.
*** Beetles. - Horror, curse.
- The Fiddler's Fee.
*** The Mannikin.
*** The Strange Flight of Richard Clayton. - Horror, sci-fict.
*** Yours Truly, Jack the Ripper. - Horror.
- The Seal of the Satyr.
*** The Dark Demon. - Horror, "Others."
** The Faceless God. - Horror, "old ones."
* House of the Hatchet.
*** The Opener of the Way. - Horror, "old ones."
*** Return to the Sabbath. - Horror, "old lore."
*** The Mandarin's Canaries. - Horror.
*** Waxworks. - Horror.
* The Feast in the Abbey.
** Slave of the Flames.
** The Shambler from the Stars.
*** Mother of Serpents. - Curse, obeah.
* The Secret of Sebek.
*** The Eyes of the Mummy. - Curse, Egypt.
*** One Way to Mars. - Fantasy, abn. Psych.

s Sea Kissed and Others. *Utopian; Lon.; N.D.* - *wraps* - Shorts (4)

*** Sea Kissed (with Henry Kuttner). - Horror, possession.
Lady in Wax. - See "Waxworks" above.
Beetles. - See above
*** The Totem Pole. - Horror, curse.

Blodgett, Mabel Fuller

C** At the Queen's Mercy. - *Samson, Wolfe; Bos.,N.Y.,Lon.; 1897* - Lost race, fairly good.

Bloom, Ursala

C* The Judge of Jerusalem. *Harrap; Lon.; '26* - Social revolution in England and Pontius Pilate's debt.

Bloomer, J. M.

* D'Mars Affinity. *Ogilvie; N.Y.; '03* - Sociology and occult too poorly written to read.

Bloomfield, Paul

C* Imaginary Worlds. *Hamilton; Lon.; '32* - An essay on 14 standard Utopias; non-fiction.

(This list will be continued in the next issue with Trevor Blore.)