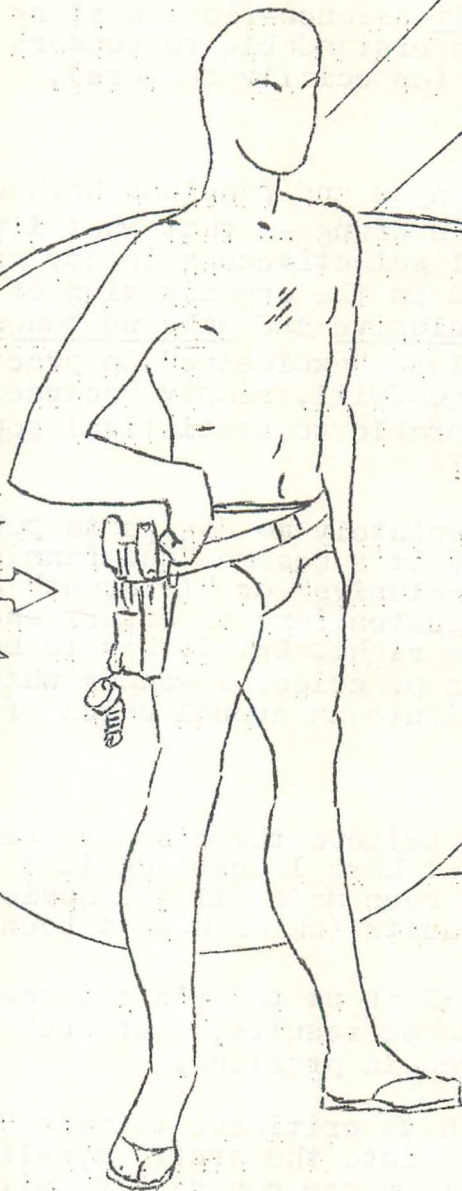


# G2

May '64

Man's most powerful  
weapons: pipe, wire-  
cutting & smallnosed  
pliers, adjustable  
wrench, screwdrivers  
& electrician's tape



Maximum apparel, starship: The main conditions of shipboard living, on a months'-long interstellar cruise, are (1) canned atmosphere and (2) radiant warmth. The first, canned atmosphere, means easiest-to-control conditions of humidity, oxy-content and air circulation; the second, radiant heating/cooling, means comfortable summer-warmth as well as day/night brightsun-to-twilight illumination throughout the ship. As discovered in the circumglobal cruise of the U.S.S. TRITON, these perfectly controlled conditions become preferable to Earth's natural conditions (see Signet D1837(50¢) SUBMARINE! by Capt. Edward L. Beach (one of Rickover's bhoys)). To fully enjoy such physical comfort, minimum clothing becomes too desirable to be either outlawed or deplored. Indeed, for purposes of morale, it's best encouraged. Even nudism shouldn't be outlawed...if not encourageable, causing unnecessary strain amongst us due to "taboos" we'd brought along from Earth. And, too, a shipload of humans do get a ship dirty for each other, just as cities get dirtier than farm country (while a virgin forest is absolutely clean -- for humans, not for the animal life inhabiting it). Wearing shorts and sandals would keep the ship cleaner!



N

\* The science in science-fiction is only as important as what the fiction does with it.

O

\* The fiction in science-fiction is only as good as the temper, keen edge, and balance of its blade.

□

\* A merely well-written science-fiction story is like a cake made with rotten eggs covered with beautiful frosting.

S

\* A merely authentic science-fiction story is like a beautiful antique pistol loaded with wet gunpowder.

E

\* An adult science-fiction story has an adolescent plot understandable to readers with juvenile mentality (especially editors).

○ ○ ○ ○ ○

I have accused the apas and fanclubs both of being "exclusive" and have been shown that I'm wrong -- that what I've labelled "exclusiveness" is only a natural selectiveness in any group of like interests .... but if I were involved in the organization of any apa or fanclub, it would darned well be exclusive and make no bones about it. And I'd bet it would end up being less "exclusive" in practice than most groups boasting of tolerance and goodwill, simply because these are small social groups in no way comparable to statistical population groups. Or have I lost everyone there?

However, I have absolutely no desire to publish a fanzine devoted to such jazz, even if it's become "the fannish thing to do" .... any wrongness of either "exclusive" or "tolerant" policies cannot be settled by arguments over pretensions to either one. In practice, either can be wrong or both can be right, but it has to be proved in practice, not merely in intent. (In practice, I wonder what an apa would be like where members had to contribute an annual batch of material written by at least 5 other fans?)

And furthermore, I believe there's more enjoyable use to be made of a fanzine than this. But here I must add that I enjoy raising hell about something (which has been made all too obvious) in ways that can achieve some productive results (which hasn't been obvious enough, here).

I enjoy raising hell about today's science-fiction -- especially in ways that can achieve those results. But such intentions aren't sufficient; they must be proved in practice.

So it wasn't enough to criticize today's "galactic" stories as mere fakery --- I had to dig into the stuff, myself, and show what they don't have, the omissions they are covering up with their fakery. By publishing such findings, making them available (and seeing that a few copies of it go in certain directions) I may very well contribute something more than mere hell-raising. Where these findings turn up something useful, it's very likely to get used.

To me, this is criticism. I don't always expect to achieve it, but it's a lot of fun to try. I would not apologize for times I get unjustifiably critical. Nor would I apologize for what Luck Coulson calls my "cute" style of writing, which I much prefer to the over-pretentious style of critics more interested in being recknowned than in being critical.

Generally speaking, this is nothing new -- science fiction has been criticized before, more harshly, more unjustifiably, more didactically than I may ever be. And fanzines have been devoted to it, before. I have a copy of the 4th and last issue of the Journal of Science Fiction coedited by Ed Wood and Chuck Freudenthal ten years ago, wherein Ed had compiled some criticisms made by others, even before that time:

"...paranoid phantasies converted into trivial fiction for the titillation of tired, dull, or weak minds."

Bernard DeVoto  
Harper's, Sept. 1939



"...dull as ditch-water because there is no possible way for the hero to lose out."

Phil Stone  
Saturday Review of  
Literature 1/18/41

"I greatly prefer piracy on the Spanish Main to piracy in the asteroid belt, and I'd just as soon have my drifting poets drift through the South Seas as through the solar system...I hope that the trend will be away from cosmic happenings with galactic scope. I am tired of the whole human race or perhaps universal civilization being threatened, exterminated, or saved. I am tired of ships which travel faster than light and never get to any place that is as interesting as home."

John R. Pierce  
Newsweek  
August 4, 1952

In that same issue was an article, "The Case For Modern Science Fiction" by some editor calling himself "Anonymous" in which his most telling point was that "The people of today are primarily interested in .... the people of today." He carefully did not mention that he needn't have been a science-fiction editor to preach that doctrine or that, just as stf was pulp-grade fiction when published in pulp magazines, it was now a mere "poor relation" in the new trend of "mainstream" publishing all about the "people of today" with their common, everyday problems of sadistic brutality, sex perversion and dope addiction. The Zvilnik Era had begun. It didn't begin in, or belong to, science fiction.

My apologies to Ed for not asking permission to reprint just that one line from the article; looking it over, now, it was too tempting. Ed did give me permission to publish the rest, including this last bit from the editorial column of that last issue:

"Order of the Day---

"With unshakable confidence in the eventual triumph of the science fiction rationale in all cultural media, with the belief that science fiction is more than a subliterature and can be an art form of the highest importance, we announce with regret that the battle to accomplish this by means of the Journal of Science Fiction is over. The fight is to be carried on in other ways and by different means. Our failure has been complete. Make no mistake about it. But we have neither dishonored nor degraded our hobby. To all those who have helped or who have wanted to help JSF, many, many thanks."

In criticizing science fiction, neither my ideals nor my ambitions will ever aim as high as that. I've become too aware of not only the shortcomings of various stf editors and publishers but of the people who hire them, the people we never hear about who own the publishing outfits. The latter group was really responsible for pulp stf (and we were lucky to have even that much) and are largely responsible for the modern trend in stf. The editors decide what will sell only if they aren't being told something else sells better in other kinds of magazines or books and they had better start publishing some of that.

And then, writers begin to see they had better start writing some of that.

And nobody amounts to much in the publishing business if they market only one brand of cheese. Commercialism must outweigh even the public's approval -- which is too fickle to support any business, for very long. The public even likes to be told what it wants.

But this kind of criticism seldom achieves any worthwhile result. It can't help writers prove the editors are wrong. It can't help editors prove the publishers are wrong. It doesn't help the readers to prove anyone is wrong.



FANZINES OTHERS SHOW ME...\*

Joe Gibson considers Dreen a good start for a whopping purge; "After Walter comes all the other Cheats, Frauds & \$10 Welshers, says Little Joe, until nobody's left but fanzans. Gibson even wants to get rid of Ted White because White crusades for sex perversion."

"Name Withheld"  
from Minac #14

\*Any misquoting here should not be ascribed to Gordon Eklund;  
I thank it all up myself.

I have seen this done before (with the finest of intentions) and done extremely well (with very skillful writing) but I've never gotten all that much enjoyment out of reading it. I could never enjoy any futile attempts I could make to write it.

I would rather criticize the common usage of "faster-than-light" travel by showing you what Einsteinian "near-lightspeed" travel would be like. To do this, I can't just sit at my typewriter and carp at the stories written by better writers than I'll ever be. I've got to dig out facts and think them over and do a piece of work, here.

But dammit, this way it's really fun! It makes this fanzine a rather slipshod publication (I just don't bother much) and oftentimes you may denote a notable lack of responsible editing (I always have "more important" things to do) so we have a rather ugly-looking little gunboat here, instead of the trim and seaworthy craft a really good 'zine can be.

But with all that, it occurs to me that some of you might like to toss in an occasional "piece of work" here, too.

One of the things I've been able to prove (to my own satisfaction, at least) is that this gunboat floats. It's not going to founder and sink -- (no, not even with its "unfannish" subscription-only policy) -- at any time in the foreseeable future.

My "starship series" has two more issues to run: (June) the trip back to the Earth of more than 1,000 years in the future; and (July) what happens after we get there. For the August ish, Robbie and I are going to scout out the Hotel Leamington and environs prior to the Pacificon II. Nothing's planned after that issue; in fact, it'll be a relief to get off this "series" kick and take things as they come, again.

Not that there aren't a few more things I'd like to dig into....

But does anyone else want to sign on, here? This is simply to announce that I'll welcome your material anytime from now on. The only thing I must draw the line on is fan artwork: I simply can't half do a good job with yours, much less my own -- it's more worktime than I can put into this fanzine to get your artwork on stencil or multi-master and if you do it, it suffers in the mail.

I hope, too, that none of you are offended in sensing that I'm not exactly screaming for material, here, but rather that it's more to your advantage, knowing I'm not about to fold up shop for lack of any, just about when you've begun shaping something up.

\* \* \*



# OUTWORLD

---

At first thought, it might seem that nothing either new or very different could be said about "Earthtype" planets. It's been such a completely accepted assumption in so many science-fiction stories as to be almost axiomatic: we must find Earthtype worlds to have interstellar colonization, civilization, empire or what-have-you.

It never occurred to James Elish's characters in his star-roving "Okie Cities" to build Earthtype planets-to-order, much less to terraform unearthly worlds. (They always had a hard time finding even odd job employment.) But this argument doesn't mean natural Earthtype worlds don't exist and wouldn't be preferable wherever they're found.

So what about them? They've been considered the common "out-worlds" in science fiction for so long, now, what could possibly be said about them that's new?

The answer is: too much! In fact, this one commonly-used item of today's science fiction clearly reveals how far stf is falling short of its true potential. But you're certainly aware, by now, that we're conducting no more than a preliminary survey -- that I have never pretended that this was an exhaustive study of science fiction's current shortcomings. So rather than present a whole tribe of "new" Earthtype worlds (which would require a considerable amount of work) I'll give one deliberately exaggerated example.

The "Outworld" we discover in the Pleiades Cluster is about the same size as Earth, with about the same ratio of land/ocean surface area, in about the same orbit around a distinctly Sol-type sun. It's even about the same age as Earth, give or take a few million years (we've had an Earthtype world or two in stf that still teemed with giant reptiles).

But it has three fair-sized moons.....

It isn't tilted on its axis, so the Northern and Southern Hemispheres have no winter or summer seasons.....

When this world cooled, the lighter materials didn't form a hard scumlike scab in one clot, under the gravitational pull of just one moon. And that one, big scab didn't tear asunder on the hardening core-mantle beneath it, to be pulled apart by just one moon until the pieces "grounded" as separate continents with giant blocks scattered between them to become undersea mountain ranges (as we have in the Atlantic) and a continual one-moon pull creating a ring of volcanic stress and upheaval around the opposite sea-area (as we have around the Pacific).

Instead, it had several small scabs which grounded gently on the cooling, hardening core-mantle to form numerous small continents surrounded by gentle seas which show noticable tides only when the three moons are in conjunction. Maybe once every dozen years.

And consequently....

This world became cooler and dryer at a slow, gradual rate. Its Paleozoic Era did not end with any sudden, planet-wide upheaval of its crust, no great mountain-building period that altered conditions drastically and wiped out thousands of Cambrian, Silurian, Devonian and Carboniferous species of life.

Its Mesozoic Era was neither so much cooler and drying-up that any giant species of reptiles evolved; the smaller land-masses and narrower sea-passages, the continued survival of many competing species, didn't permit the development of any giant species. But there were dinosaurs. But then, this era didn't end with any great upheavals, either -- the climate gradually became cooler, drier, until the Cenozoic Era began, the Age of Mammals.

And then, this world never had an Ice Age. (Anyone know a good reason why every Earthtype planet should?)



So in its swampy, humid tropic zone (the same climate year-round, remember--no seasons) we still find species of Carboniferous plants. We find dinosaurs there, and mixing with mammalian species in the Temperate Zones. Only in the Pleistocene forests and plains of the Polar Regions do we find almost totally familiar species -- and there's even an occasional invader from the Wamlands there. Nature loves to experiment.

I think this is a good planet for postulating that no intelligent species comparable to Man would appear. Conditions just aren't rugged enough to evolve something that awful!

But now, you see, this much can be speculated without even half trying -- yet here's a bigger hunk of real world than you'll find in most professional science fiction. Take it as is, a pioneer world, or postulate what it could be like, colonized and civilized by Man --and turn a good story-character loose in it.

And if you just altered a few of those conditions for other Earthtype worlds.....!

There's just one other aspect: micro-biology, call it. Bugs and squiggly things that can spell disease, especially. It's a familiar theme in science fiction -- some native bug on an Earthtype world wipes out the human colony. It's also another familiar theme that's never been fully thought-out and developed.

There is probably a definite number of general classes of disease that nature could cook up on any Earthtype world which would harm human colonists. And there is probably a definite number of concoctions that would protect such colonists from any and/or all such diseases, any of which they could prepare and use as needed. Their real problem (which has never been considered in science fiction, to my knowledge) would be developing a natural immunity to any such disease, so they wouldn't have to keep taking the blamed antidote for generations. Planned parenthood, anyone? Or if they wipe out that native disease, does that upset the whole planet's native ecology?

But even such minor aspects as hunting for such a disease on a new world have been skimmed over. The way I'd insist we look for it on our "Outworld" is not just to touch down in some likely clearing and take samples -- especially not on a world with no intelligent species comparable to Man. Intelligent species are the only kind that roam over an entire planet, thus they're the only kind of carriers who'd spread the disease everywhere. Here, the blamed bug may be on only one continent -- or worse yet, waiting for us in some isolated, little valley! And I'd just bet the thing was there somewhere.

There might even be two or more kinds in different places!

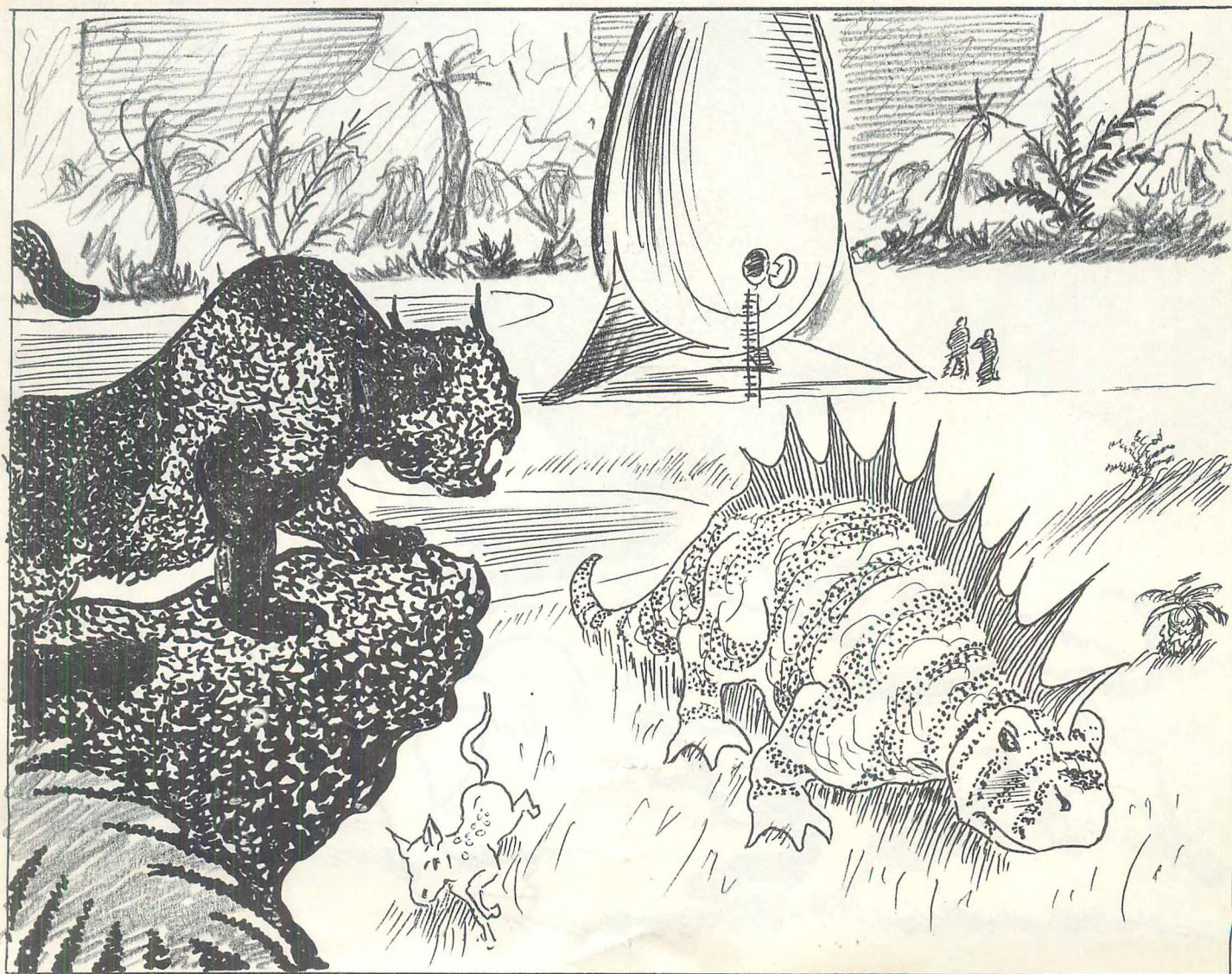
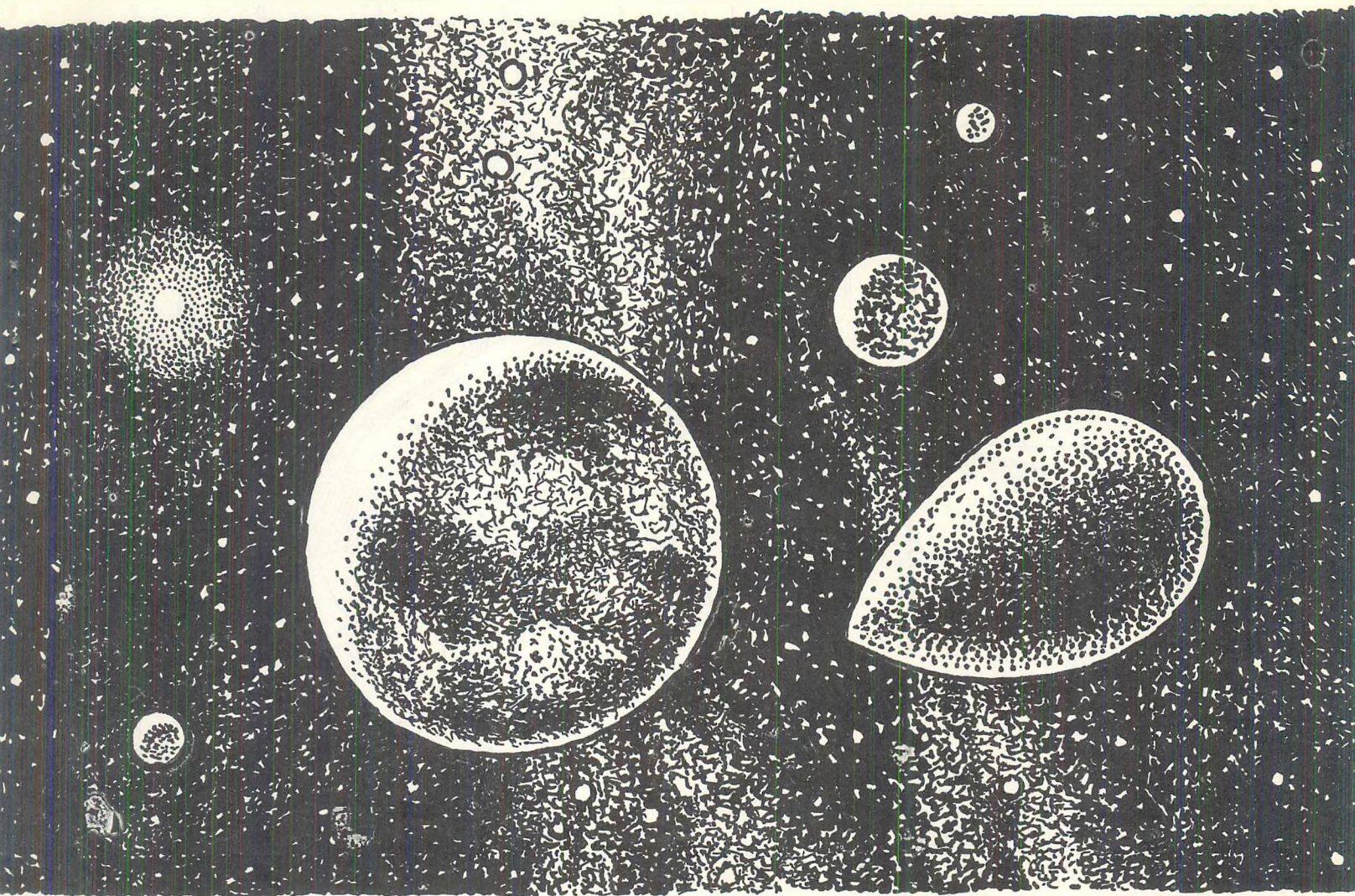
We'd need to make a sealed-suit survey of this Earthtype world like we'd make on no other mudball. And we're no colonists; we aren't even equipped to be a colonial survey ship. Once we find this world's got Yngvi, we'd better clear out!

And now I've mentioned it, by George, that's another thing! Yes sir, just suppose some of you do bring back a little monkey-bat creature from one of the smaller continents, say, and Ol' Doc Barrett finds sure enough, it's got that bug -- just a little something like bubonic plague maybe, with some peculiar side-effects.

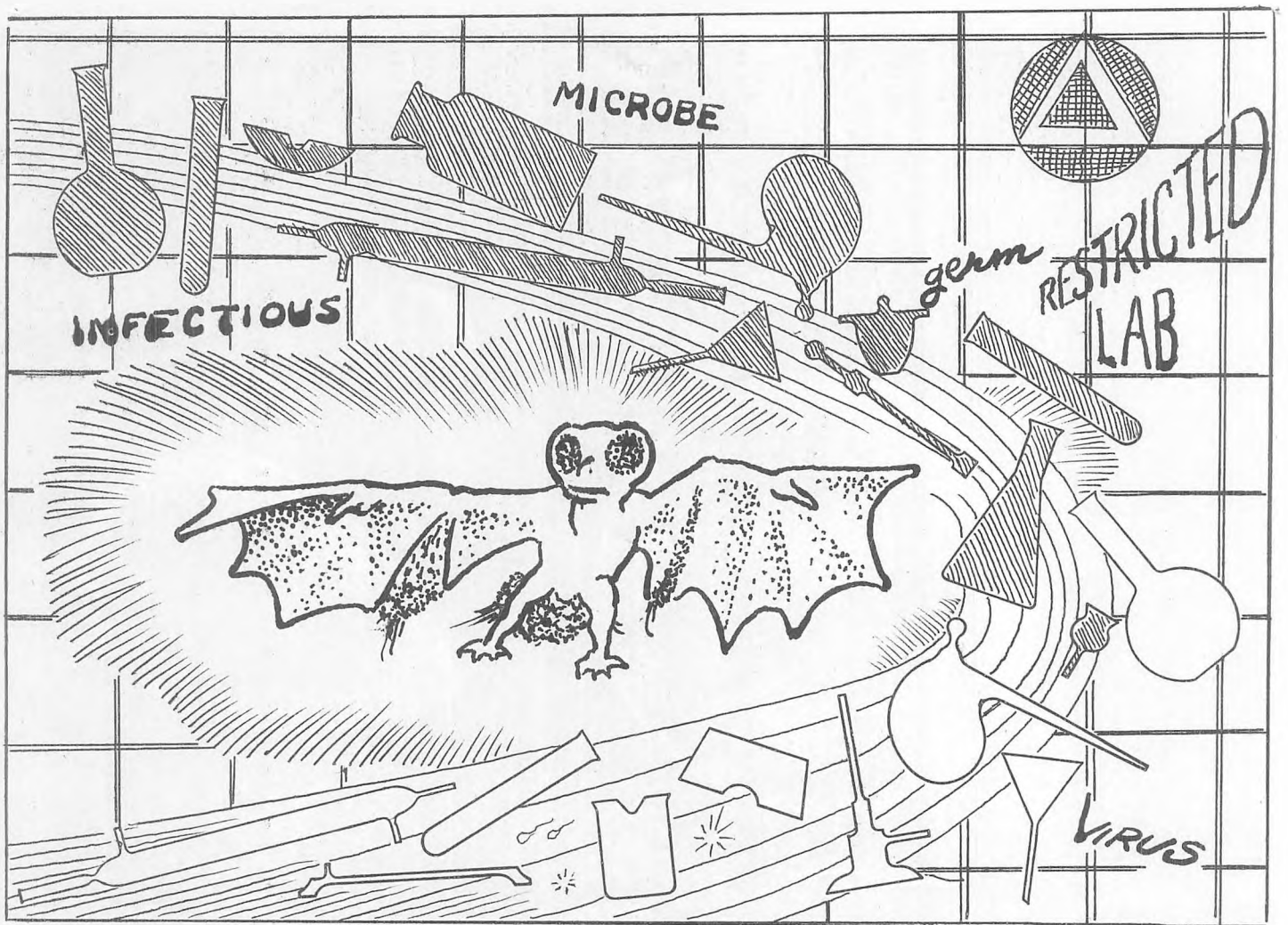
Gentlemen, you no doubt realize that this ship of ours is just a wee bit lacking in firepower. Suppose we'd found this world not only inhabited by intelligent species, but highly civilized -- and highly dubious about having us running around loose? That batch of small arms you gun-crank brought along wouldn't do much more than this ol' .45 cannon I got here. In short, we're helpless.

Now, I don't hold much with Skylark Smith's notions of interstellar weaponry, either. Blasting a whole planet to smithereens just to spite some crawly species inhabiting the thin crust of its surface has always seemed wasteful to me. Be simpler just to throw a goodsized planetoid into collision orbit with it, blow up the planetoid, and have the cloud of dust & rock rain down to turn its atmosphere and seas into











a bath of scourging fire. But even for this, you need a spare drive-unit big enough to shove a planetoid around and a nuclear charge big enough to pulverize it. We've got no makings for such planetoid bombs.

But you'll note, in both cases, we're talking about a one-shot affair. Now, there's a simpler and cheaper way: Yngvi bugs! Bacteriological warfare has its drawbacks like any other kind, sure, but look -- plague is like fire, anybody can put it out just so long as it doesn't get too good a start on 'em. It's a problem of your logistics and supply versus the enemy's, just like any bombing mission.

Plant a disease on a technically-developed world and they'll quickly find its antidote, sure they will. But how fast can they produce, distribute and inoculate their population with that antidote?

Suppose we start breeding thousands of cultures of this disease in our ship's labs, and seal 'em in warheads of tiny, simple rocket missiles? Suppose we completely blanket the entire enemy world with plague in one, big splash? The bigger plague spots get, the faster they spread -- just like fire. Oh, there'd be survivors -- but there wouldn't be any fully-equipped technical world spoiling for a fight.

Gentlemen, we'd have our Bomb!

I haven't read any science fiction dealing with interstellar ships having this kind of teeth, either. But there it is.

The day we'll know Invaders From Outer Space want to take over This Planet Earth is the morning we all wake up in screaming convulsions and festering sores.

It's the simplest, cheapest way.

And someday, no doubt we'll just have to learn that we can't afford to let any invaders get that close. In fact, this is one thing that's sort of had me worried about our own return to Earth. We might not be expected. It could be deucedly awkward.

Anyone have any ideas?

...Now, there is one other small aspect to this Outworld affair, tho it might be said to concern ourselves particularly, rather than science fiction per se. Despite all logic being against it, we might consider the possibility that some of our people are going to want to jump ship.

My answer to this possibility is quite simple: everyone who goes down exploring gets a detailed map of the world with a certain harbor on a particular shoreline clearly indicated. In that harbor, we'll drop a yawl-rigged, glass-hulled trimaran provisioned with suchlike useful items as stone, wood and leather-working tools, books on the cleaning and dressing-out of wild game, tanning leather, fermenting of grain spirits and suchlike.

Let them as has to, git.

But we will leave no spacefaring liftboats behind, even if we have to go down and, with a bit of persuasion, recover one. (Remember, we've already lost one in the polar storms of that planet back in the Hyades Cluster.)

So here's an Earthtype world that's easily different without having to be aswarm with six-legged beasties. Personally, I wouldn't care to sail those seas teeming not only with sharks surviving from its Devonian Period, as on Earth, but twenty-legged trilobites and cone-shelled nautiliads (both carnivorous) as well as a small version of an Elassmosaurus, a match for any shark on this world even if its neck isn't twenty-five feet long! And of course, some you wouldn't find outside tropic waters, while the polar seas have nothing the size of a whale. Some might like it here.

I never cared much even for the oceans of Earth.

And this ends our visit to the Pleiades Cluster. Maybe I'll come back and give it a closer look, someday -- I've a bit more data...





...This is being cut on stencil late in April. The next page of LOX or the page after that may not be typed until maybe 3 weeks from now -- but this page here is getting typed early. In fact, this is just after last month's #2 was mailed. And I have this letter ....

MISHA McQUOWN, 129 $\frac{1}{2}$  N. Franklin Blvd., Tallahassee 32301

As you may have realized, I occasionally do a bit of proselytizing among the more promising mundane, in the hopes of finding people who might be of interest, and be interested in, fandom. I got you one subscriber, to date.

There are others, though, who follow your dictum of living their own personal lives quietly apart from the rat-race, without controversy and fanfare.

When I was at the Russian school at Syracuse, I met a real Beat named Mike Foster. I had been having a running war with Jon Ross, one of the boys in the next room, because he had been reading 'The Holy Barbarians,' a treatise on the Beats, and a highly laudatory one. I had condemned the whole thing, attacked it, castigated it, and, I thought, quite thoroughly leveled it to the ground. Or below. Enter Mike Foster, recently of Japan. He of the Oriental ways and true understanding of Zen. The Beat. Ross insisted I meet him. So, I did. After several evenings of discussion, he said to me,

"You know, you're one of the few really true Beats I've met in the States."

When I got back on my chair, I asked him to explain what he meant.

"Well, it's your attitude; you think Beat; you live it, inside, where it counts."

I suppose this could be said of many in fandom. They live it, where it, to them, counts. Now, I'm not fool enough to advertise some of my activities to the general public; I know too well the mind that almost dwells therein, and I've seen friends less cautious torn to shreds emotionally by the hate that comes to those who deviate from the public norm. ((+Some individuals seem to have no real defense against it, either; had you noticed?+))

However, there are those who go to the other extreme of showing no enthusiasm over anything. I can't do this; I flip over planes, especially puddle-jumpers like the stuff Joe, Robby, and Betty K play with ((+Does a Rockford Fly-In mean anything to you?+)); I like James Bond stories, women, booze (sometimes) ballet, s-f, and sundry other things, and I'll talk about them with enthusiasm - to some people; I won't even mention them to others. This may seem cowardly, even dishonest, but it's partly a matter of courtesy, partly a matter of self-protection. Why stick out your chin? ((+If you wanted to be historically accurate, now, you've just given a fairly good description of chivalry..+))

I enjoyed the space series to date; I'm learning a lot. Keep it up.

+ So am I. But d'you see, you write a very difficult letter for me  
+ to insert my remarks into without destroying your context complete-  
+ ly. I'll just have to start from the top and work down, making my  
+ comments here. So, first I always detect a certain disadvantage in  
+ the use of the word "mundane" -- which was probably brought into  
+ fandom by the "beat" faction, but undoubtedly originated in the  
+ jargon of drug addicts -- because it simply doesn't have the conno-  
+ tations to fit fandom. You may not recall it (in fact, you may  
+ not have ever heard about it) but when s-f fans believed in space  
+ travel, the most renowned scientists were flatly denying that it  
+ was at all possible or had even a remote chance of ever being con-  
+ sidered necessary. Today, you might conceive those early fans as  
+ being something like Flying Saucer addicts -- and you couldn't be  
+ more wrong. The word "mundane" just doesn't convey enough to des-  
+ cribe the gulf between fans and the general public. Early fans had  
+ a very active, sometimes violent hatred of the public. We now have  
+ space travel, but nothing whatever's been changed about people.



+ Today's "beatnik" noise sounds even more mundane to me than any of  
 + the social customs and taboos they claim to resist -- while the "new"  
 + reforms they claim to champion are centuries old, needing far better  
 + champions than they'll ever be. One suspects a bit of pretentious-  
 + ness in them.

+ I've noticed how young guys entering fandom from that collegiate  
 + scene have to "unlearn" a few things before they can really enjoy  
 + themselves here. As an oldtime fan, I can't help feeling that we  
 + had fandom long before that "beat" crowd ever came along, and we'll  
 + have fandom long after they're gone&forgotten.

+ The gulf between fans and the general public is a bigger bone than  
 + that. For us, the public isn't merely "mundane" or even anything  
 + so simple as "reactionary" -- the public hates change. It yearns  
 + for status quo. For us, most beat-type "anarchists" and political  
 + "revolutionaries" belong to that same public; they merely want to  
 + have a status quo that's all their way. Well, things have to change  
 + or we'd never get anywhere ... and getting somewhere, anywhere, and  
 + guessing where that will be -- that's the real fun of the game! It  
 + was the curse of the ancient Chinese philosopher: May you live in  
 + interesting times! Get out on a public platform and say that's what  
 + you want, that's good for us, and watch the mob howl for your blood.  
 + And start running, faaan!

+ As it is right now, you're the only one who has so much as a hunch  
 + that there'll be a civilization built on some other worlds than this  
 + (perhaps with, and in spite of, atomic wars) tho maybe you couldn't  
 + say why...yet. Today's public, with their Cold War anxieties, may  
 + not blast you for being stupidly inane to even consider such fantasy  
 + as that -- but there's still something about you they hate and fear.  
 + Things like you were once burned at the stake. The public hasn't  
 + really changed much, even from those times.

+ It holds true with regard to fantasy, too. Fantasy teaches a state  
 + of mind, a catlike curiosity without the scientific trappings of  
 + today -- it's much older. And today's science-fiction was born in  
 + fantasy. Fantasy is the ultimate in witchcraft. Science-fiction  
 + is alchemy carried to its foulest extremes of heresy.

+ If you're a fan, you don't belong here on this Earth. There's not  
 + much chance of many other worlds existing that you'd "belong" on,  
 + either. And dammittall, that's healthy -- it simply means you're  
 + living the full life of a wolfishly terrible human being! One world  
 + never was big enough to hold you....

+ And never will be.

+ These comments have been applied to "the literature" before, espe-  
 + cially when it was good; but it was seldom applied to the fans in  
 + this context, to underline their conflict with society rather than  
 + any "sense of wonder" symptoms of their attitude. Today's "litera-  
 + ture" can't even pretend to be so far-reaching (or worth reading)  
 + so the reprints sell very well...but the fans' attitude hasn't been  
 + changed, nor their conflict with society. Fandom has shown its  
 + ability to survive worse periods than this, has retained its basic  
 + character through noisier periods than this.

+ But you just don't go bragging around what a witch-doctor and al-  
 + chemist you are to the general public. Some fans live as they like  
 + very quietly.

+ Actually, this can have some rather amusing aspects for fans as  
 + individuals -- but it also creates some rather special problems for  
 + fandom as a group.

JIM CAUGHRAN, 414 Lawrence, Ann Arbor, Mich.:

So, Gibson, a challenge:

Given object A moving past object B at speed an appreciable



fraction of light-speed. According to what I know about relativity, clocks on object A move slower than clocks on B. Now, put co-ordinates based at A in effect. Object B is moving past at velocity an appreciable fraction of light, so clocks at B must be moving slower than those at A. Huh?

+ You're one guy who could learn a lot more about relativity by looking up Bronowski's article on that clock paradox in the Feb. '63 issue of SCIENTIFIC AMERICAN. You know, of course, that the speed of light remains constant coming from any source, regardless of the Earth's motion either toward or away from that source -- the only change caused by the Doppler effect is in the wavelength of that light, from UV to infra-red. That was the findings of the Michelson-Morley experiment in 1887 which got Einstein going. The Encyclopedia Americana sums up Einstein's conclusions (Vol. 2, p. 465) by saying that he "postulated mathematically that the motion of any celestial body cannot be measured absolutely but only relatively, with respect to the motion of another celestial body, and that the velocity of light is constant with respect to any source in the universe." Seems you have the first postulate down pat; but that second postulate means light will reach you at lightspeed either from a star hurtling toward you at any sublight velocity or hurtling away from you at any such velocity -- its speed will not be added to or subtracted from the speed of its light reaching toward you. It's a celestial body's relation to this constant lightspeed that determines how fast or slow its clocks run; but do you know of any clock on Earth that measures time by comparing the Solar System's velocity of 13 miles per second toward the constellation Hercules with the speed of light? Such a clock wouldn't have much meaningful relation to days, months, seasons or celestial navigation -- all of which relate the Earth's motion to other celestial bodies. And that's no absolute measurement since, for all we know, the whole blasted Universe may be galloping off somewhere with us in it; all the Doppler effect tells us is that our bit of the Universe seems to be expanding uniformly in all directions away from us....de Lawd do wanna make it rough fo' us! But for ghod's sake, go dig up that Bronowski article, devour it, then come away to think awhile. I had a ball.

COLIN FREEMAN, address elsewhere this issue:

I dunno about typewriters and aeroplanes, but I do know some fans who have torque in their heads. ((+It's those propellor beanies. Quick pass the word, we've simply got to stop wearing the things!+)) I agree that fans enjoy a greater degree of personal freedom, and even that they are more understanding of other peoples' morals, ethics and ways of life, but I haven't noticed that they are always all that tolerant. ((+With all the former aspects accepted, doesn't it logically follow that some rather special definition of "tolerance" must be used?+)) Maybe your idea of a Utopian society includes feuds, lawsuits and suchlike. They are rather fun to observe. ((+Colin, my idea of Heaven is that it must be boring as Hell.+))

I don't want to escape society. I haven't enough sense to run away. I'm one of the stupid ones who want to stay behind and knock some sense into society's silly head.

+ Hah! Care to back that with a small wager? Perhaps you noticed in "Noise" lastish that I was explaining how this starship is falling apart around us and we're going to need a new ship when we get back to Earth. Now, I don't want to tell people what they ought to've been saying in their LOCs, but ... if at all possible, by whatever means once we've returned to Earth, why shouldn't we bargain for a bit more? Rather than just a new starship, why not, say, a hundred new starships?

+ I've always thought there being 500 of us together in this one leaky tub was more due to circumstance and economies than to choice! And haven't I been teaching you lads how to bally about the dashed star-clusters by yourselves? Need I boot you out the blinkin' airlock?

+ And well, now, Master Freeman??? Mind having a bit of a starboat tucked about the hospital grounds there, somewhere?



- + (Now that I look at it, I don't like the term "starboat" so much ...
- + "spaceboat" is a fine, old stf term well-suited to a landing craft,
- + while a "starship" denotes some monster-sized orbiting craft you'd
- + never set down on a planet ... at least, to my way of thinking.)
- + Had you thought that those who prefer to "escape" society, to leave
- + it behind, are offering a far more effective, results-getting criti-
- + cism than those who would stay behind to quarrel with it?
- + Overall, your letters of comment in past months have been a joy to
- + receive -- you bring up exactly the points of disagreement, in just
- + the right way, to carry matters ahead in discussion around here. I
- + wonder if you'd be tempted to work up some sort of regular/irregular
- + column for g2?

RICK SNEARY, 2962 Santa Ana St., South Gate:

Happy Cinco de mayo. I has taken me a few days to recover from my cold, and the shock of actually recieveing a letter from you. I don't know whether I should mention it to others with pride, to show how importen I am, or keep it secret, in hopes that I might get another one in another 18 months. I gress I'll keep it secret untell I find a chance to get some real mileage out of dropping it into a conversation.. When some one is telling about having lunch with Heinlein and Campbell, I'll mention that I once got a letter from the Gibson's.

- + Fact is, during the past month I've written letters to Luck Coulson
- + and George Scithers and twice to Betty Kujawa and this goddam stuff
- + has - got - to - stop! I'm all used up now for years.

Now to g2.. Regarding your views about life on your Spaceship, and the request for opinions on how it would be. Well, I haven't said anything, and I suspect others haven't for the same reasons. Mainly because it is your world. You have called all the shots, and swept supposed objectioners into life-boats and empty space. It doesn't do much to make one feel you mean it when you say you will listen to others.. Too, a normal society would be almost impossable as a result of the dictatorship of a ships captain. You also spelled out that the ship would have a non-monetary simi-communistic company. When you add to this 500 people, most of who are fans, you have to many "X" factors to try and guess.

- + Times like this, I am simply appalled at everybody except me and,
- + possibly, Robbie. Of course I'm brutally unfair and biased with all
- + this! Every one of you needs that to overcome, to keep you trim and
- + sharp. And you need that, too. Gads, Rick, take a good look at
- + this "dictatorial" and "non-monetary" situation!
- + Your knowledge of military regimentation and "dictatorship" may end
- + with the sex/sadism of war novels and Heinlein's parade of by-the-
- + numbers green troops as "veterans" ... but my experience has left me
- + an entirely different concept. Not only were my Service Records lost
- + in Europe, but any orders assigning me to any Army unit as well --
- + so for nearly a year after V-E Day, and months after I should've been
- + sent home, I "joined" any outfit I pleased, had my own jeep, lived
- + at a Red Cross club with 4 American girls, travelled where I pleased
- + when I pleased ... and every time those horrified Constabulary kids
- + hauled me in and confiscated my .45, some Major or Colonel with a
- + chestful of ribbons would come bail me out. Tsk. It was shameful.
- + My opinion of fandom is that it's never discovered its own talents.

My own opinion is that it wouldn't work. I don't think that many fans picked up at random, could get along for very long. Not because of the hot heads or miss-fits that plague us now.. No, the good guy fans would be just as much trouble. Take our good buddy Len Moffatt. As regular a worker for old Con. Can Co. as they could ask. Dresses right, and when he thinks his boss is a ass, he keeps this information to him self. But put him in with a bunch of fans and what happens? He figgures he is as good as any one else. He will argue others opinions (as well as listen to others, argue about his), and debate desisions. The result would not be anarchy, but something worse, chaos.



+ "Pears like yore deescribing one o' them thar emigrant waggin-trains  
 + as got wiped out. The ones that got through had wagonmasters and  
 + "lieutenants" well-organized, disciplined mostly by full knowledge  
 + of the need for it, and ready to deal with your "chaos" without too  
 + much trouble. This wasn't true of sailing ships -- but there, more  
 + than half the crew was expected to be dead from scurvy before the  
 + trip was over, a condition we had best avoid in interstellar travel.  
 + I would rather think a trip like ours, in a ship like Ol' Indebuggable  
 + with 500 faaans, could develop at least 100 starship commanders with  
 + half a chance of surviving...if we just get 'em their own ships.

+ I've been around fans in bunches.. The Tower boys, Slan Shack,  
 Fan Hilton, and LASFS. Get the same fans together week after week and  
 they will argue about anything.. Some one is eather goofing off, or  
 trying to run things.. Your idea of socal responcebilitly (the "your"  
 here is not ment as "you" but as persons in general) comes out not being  
 the same as some one else... so they don't cut you hair or patch the  
 hole in the hot water tank, while they argue with you their rights to be  
 different. Setting up a "code" would make the writing of the US Consti-  
 tution and all the LASFS ones, seem like the work of a moment.

+ ...And be totally a waste of time! If the troops aren't complaining,  
 + they aren't happy -- it's when they're quiet you have to worry -- and  
 + I've been relieved to get these complaints in LoCs about 500 fans in  
 + one starship; how impossible it is, what I can't do about it. I'd  
 + be a fool to do anything about it. And thru it all, as you say, it  
 + has been strictly my show. Don't you see I've had the thing organ-  
 + ized, I've kept you busy month after month? My lieutenants have be-  
 + haved with admirable discipline, too (tho it may be a shock for them  
 + to realize it!) ... look at 'em, this month! Colin Freeman, Jim  
 + Caughran, Roy Tackett, Rick Sneary -- and Mr. Poul Anderson there,  
 + speaking up for our "dirty pro" officers at wardroom councils. With  
 + gentlemen like you aboard, this trip's bound to be a success..

To answer your question to Don Fitch. (Admitting that fans are  
 generally guilty of doing what they condemn others for.) It seemed to me  
 that very few responsible fans attacked your policy, and were easier to  
 ignor. Beside they were specific charges aimed at you...who hardly  
 looks like he needs any help.. On the other hand your remarks were di-  
 rected at apa-fandom in general. Nearly everyone could feel the barb in  
 their own side.

+ And of course, I would notice any swipes taken specifically at me more  
 + than anyone else would have reason to ... but it seems amusing that I  
 + needed nobody defending me, while the apas apparently do if they're  
 + criticized, poor li'l fellers. That's an unfair remark, I know -- it  
 + was just as you say, each fan felt his own interests were criticized.  
 + But that's why I prefer answering with unfair remarks; I enjoy fight-  
 + ing the whole pack of you rather than one of you at a time. No' fun.

I do not agree with your and Willis's idea of a horizontal divis-  
 ion of Fandom. This tends to establish a "them" and "us" sort of thank-  
 ing, which should be avoided.--It may already exist, but it should be  
 combated, not fostered. I have long held for a virtical division, based  
 on degree of activity. I did an article on it for Shaggy, but... You  
 start at the bottom as a reader, saver, and then a collector. These  
 have no interest in other fans, other than as a sorse for more material.  
 They might go to conventions or even read fanzines, in the hope of get-  
 ting stuff, but they have no interest in fandom. -- Next there is the  
 pasi-fan and the fringe-fan. The first is aware of fandom, but not  
 enough to do much about it. He will go to conventions and conferences,  
 but never think of doing anything active. The fringe-fan feels the  
 same way, but is motavated to some activity through direct contact with  
 active fans. Thus as a friend or wife, they are carried to meetings,  
 and even do fannish work -- but left on their own fall back into their  
 inactivity. --- The next step up is the "fan". With him fandom is his  
main hobby, and devotes time to writing, reading, going to clubs, and  
 enjoying himself.. He is the middle ground, majority that carries all  
 the rest. For above him is the acti-fan....that limited number of in-  
 dividuals who devote all their spare time to fandom, fans, and related  
 activity. These are not always BNF.. Most neo-fans are acti-fans too.  
 --- Nor are BNF always acti-fans.



+ And some Big-Name Fans are dirty pros....I have no argument with any  
 + Sercon-type "vertical division" of fandom (Bob Bloch also postulated  
 + one, y'know) except that it usually contributes nothing more than a  
 + squabble over definition of terms. I don't really care how you  
 + slice it. I've been trying to point out that the divided fan-groups  
 + cause trouble wherever you find one that ignores the others and will  
 + presume to "speak for fandom" in promoting its own interests. It's  
 + this self-centered "in-groupish" attitude I object to; fandom could  
 + be divided into groups of differing interests/activities without it,  
 + I think, but I could be wrong.

+ It took me some unusual fanspondence with Buck Coulson (I'm finding  
 + that I can't understand what he writes any better than he's said he  
 + could understand my writing) to realize he's wondering why I brought  
 + up the Cleveland/Detroit bids in this club fans vs. fanzine fans dis-  
 + cussion. What's done there will be pretty much on a fanclub level;  
 + but even the fanzine fans involved in it should feel reluctant to  
 + put the business into print -- because the fans they'd reach with a  
 + fanzine care nothing for club-fan interests, won't meet them halfway  
 + or show any respect for them. It would just be asking for trouble.  
 + And it's no fault of theirs. It's a fault in fandom.

+ When someone like Phil Rogers is considered likable enough to be nom-  
 + inated for TAFF, I would like to know more about the guy -- hear at  
 + least something about what he's doing, where he's been, much as we  
 + hear about fanzine fans. But he isn't a fanzine fan. So we don't.  
 + If we did while he's a TAFF candidate, I'm afraid the cries of "fav-  
 + oritism" and "cheap sideshow political nonsense" would come from all  
 + sides -- and worse yet, in many cases, they'd probably be right. It  
 + isn't any fault in the way TAFF's set up that causes this. It's a  
 + fault in fandom.

+ This wasn't so much of a problem when fandom was small ... but now,  
 + it's always odd to me to hear some speaker at a convention addressing  
 + fans as if they were "all one big, happy family" when it's so plain  
 + that many of the attendees will never have any desire to know each  
 + other. "Your interests aren't my interests, so You Don't Belong."

I found the Star-ship material in April, the most interesting yet.  
 When you move into the realm of understanding relationships you touch  
 something I'm a little better at. Yes, I believe I followed you every  
 step of the way, and I think you did a better job of it than the Good  
 Doctor Ike. I have one question though. It seems to me you are saying  
 that gravity pull/effect, travels at the same speed as light. ((+Yep.+))  
 I find this interesting, as I never knew that a speed for the effect  
 was known. It seems to me that it would be very hard to prove.. ((+See  
 Roy Tackett's comments and my answers.+))

By the way, did you see the March 20th issue of LIFE? ((+On the  
 newsstands; didn't buy it 'cause we got better pics at home.+)) It was  
 all about the War in the Air, WW1 style, with lots of action paintings  
 and photos.. Also a simi-spotters guide to the different types. It's  
 comment on the Sppwith F.1 Cambl was "Briton's Camel, though a top  
 fighter, was tough to fly and killed many novice pilots." It also shows  
 a Camel being dropped from under a dirigible, just like the X-15.. --  
 Frankly, I've seen pictures of gliders that looked safer to go up in.

+ Any modern glider would be -- they don't allow guys to build gliders  
 + out of balsa wood and library paste, these days. But have you seen  
 + anything on the EAA activities? Been some rather interesting experi-  
 + mental planes built by that bunch, lately...and so many old planes  
 + are being rebuilt (sometimes in better condition than they ever were,  
 + even when new) that some very colorful "fly-ins" are being held.

+ Did you know the famous old DC-3 "workhorse" was never certified as  
 + a safe passenger-carrying airliner? She was redlined at 3-g's stress  
 + if I recomember perzactly...

-----  
 "I wonder if we'll ever have a Mauser maser?" --Buck Coulson.  
 -----



I am now retyping a stencil becauz I botched one up and looking back over  
 + this stuff I see I left out something Colin Freeman asked and Ron  
 ++ Dennett won't half answer most of the time, or won't answer most  
 +++ half of the time, becauz he doesn't know half the answers,, that's  
 ++ why ... Colin can find a Leinster tower shown in operation the way  
 + Will Jenkins thinks it ought to operate on the cover of the August  
 + '63 issue of ANALOG....and I think there are better ways to use 'em.

J. A. McCALLUM, Apt. 105, 155 Dorval Ave., DORVAL, Quebec, Canada:

I would like to get hold of some copies of g2 and Buck Coulson says that the only way to do so is to subscribe. That suits me fine as I am not likely to be sending many LoCs or what not but am quite anxious to see your publication. ... and would like you to send some back issues if you have any on hand. At least back to the beginning of the Ridge Stars series and any others you have prior to that quite acceptable too.

+ I'm having trouble with this typewriter, this month. New type of  
 + stencils. The Ridge Star series began 10 months ago, as of this  
 + issue; it has only 2 more months to go. Once it's over, I'll see  
 + how many full sets of it I can assemble...no more than 3 or 4, the  
 + way my file copies tend to disappear. Should I offer 'em for sale  
 + at collectors' prices? Or hold 'em 10 years and then offer 'em?  
 + But McCallum means business -- he sent a \$1 sub; the back issues he'd  
 + be missing are from Vol 2 #12 to Vol 3 #6.... this series doesn't  
 + seem to have lost the interest of fans who were at all interested to  
 + begin with, so perhaps some of you would enjoy letting John McCallum  
 + in on it. I just don't have many copies left.

ROY TICKETT, 915 Green Valley Road NW, Albuquerque 87107:

It's been a while, I admit, since I last sent something your way but you know how it is...((+And I'm not about to waste special space for you to tell about it unless you got a special way.+))...Did I mention your astronomical plates. ((+I still got my own teeth.+)) I enjoy them. I've not said too much about all your speculation since I presume you are more up on the subject than I. ((+Fooled you, eh?+)) I do have a listing of various stars and their relationship to Earth. Let's see, listed in the star, constellation, Right Ascension, declination, visual magnitude, color index, spectral classification, parallax, absolute magnitude, distance in lightyears, proper motion, radial velocity, and some miscellaneous information such as alpha CVn A is listed as a silicon-europium star. Honto. Comes from a Canadian almanac or somesuch.

+ If that includes the 40 suns within 16.5 lightyears of Sol, it's a  
 + damned sight better than any reference works I've seen yet. How big  
 + is your list? In tackling this subject, you realize how much extra-  
 + neous data I carved off to get the pertinent material I wanted; and  
 + then I tried to put that into the simplest terms possible. To me,  
 + this is good s-f technique; if you can't say it for nontechnical  
 + readers, why bother with stf -- technical writers get better rates,  
 + says I; and you know, don't you, I do have the curve Poul mentions  
 + later along here, but it belongs in an article about stars' structure.  
 + I haven't found a good reference on the variety in densities yet; I  
 + doubt the fast rotation of hotter stars is the whole thing there...

Well, sir, as I said, I've remained relatively quiet on the subject since I assume you're more up on astronomy than I, however, now you come to the subject of time and I want to tell you right now that this is a subject that I know absolutely nothing about.

"For science has found that the music goes round and comes back out again."

Reminds me of a discussion I had years ago with Russ Chavumet. Back when I was a young ((+Howzat?+)) neo-type fan. (Now I'm an old neo-type fan) I held that time was strictly subjective; that in a place (such as Pellucidar was originally described as being) where there was no direct method of measuring the passage of time it could be a variable--that what would be an hour for me might be a full day for you. ((+What I said for Caughran double-in-spades for yourself; you don't need Pellucidar, Roy! How's it feel here to be a mere science-fiction fan like the rest of us?+))

But to get back to that quote up there, it is no end amusing to find that we are still speculating on the same subjects we were speculating on 25 years



ago. Shows that not too much progress has been made, doesn't it.

+ Yeh -- I'm still waiting for science to catch up with them Things To  
 + Come which ain't yet. The one thing you forgot to mention about the  
 + oldtime arguments was that inevitable climax: "Define your terms!"  
 + But I heard just the other day some youngster name of Ron Ellik was  
 + using it. We should destroy all old fanzines every 20 years. But  
 + seriously, I wonder at your astronomy kick. There's one aspect I  
 + couldn't tackle in this series -- the physical structure of stars,  
 + the variety there is, the known facts, the current theories and the  
 + recent discoveries that don't fit the theories ... you realize this  
 + would be as big a job as charting our local star-cluster and finding  
 + it looks more like a corkscrew than a ridge of stars? I would appre-  
 + ciate some assistance, no end. In fact, I would be delighted to pub-  
 + lish an article by somebody else about it.

+ Poul Anderson recommends Hoyle's reference work -- possibly it was  
 + his last book -- since, aside from his theories, he is a good astro-  
 + nomer. And I couldn't use the article until after next September.

If you don't mind I'm going to challenge one of your statements. I'll do it even if you do mind so it doesn't make any difference any-  
 way. ((+You'd never get named as one of this ship's officers if you didn't. The primary requirement of absolutely peffect discipline is for the crew to know when (and how) to discipline the Captain...hmm?+)) Where do you get your information on the nature of gravity? You declare that if Bigstar ceased to exist the loss of its gravitational pull would not be felt at Hotstar until 10 years later. ((+And you flipped, thinking about Hotstar having a gravitational pull for 10 years from a point in space where nothing is...fiendish, isn't it?!+)) Ja? Und zo you are going along with the concept that nothing can exceed the speed of light. Yes. I'll tentatively grant that. (Big of me, isn't it?) But how can you make a flat statement that this also applies to gravity which--so far as anyone knows--is not electromagnetic in nature? Last I heard, which was a couple of years ago, I admit, was that the only thing known for sure about gravity was that it pulled apples off of trees or somesuch. Come now, explain.

+ Okay. I will not only explain my flat statement (in my own inimi-  
 + cable way) but tell why you heard what you did. This will take a  
 + few li'l drawings, again -- have you realized they do much the same  
 + thing as math formulæ? -- but there will also be references given  
 + and some even quoted. Are you ready?

+ Well, I'm not. Wait'll I get Robbie to refill my glass, here. And  
 + let's wind up your letter before going into galloping goshwows.

This clod of an observer on Hotstar proves that they aren't very advanced. Fact is I doubt that his technology would enable him to see this spacecraft charging off from Bigstar at all. His instruments don't record any time interval smaller than a millionth of a minute, eh? Pardon me, while I go count microseconds on my o'scope.

+ And you damned well couldn't detect that spacecraft. Think, Roy; why  
 + did I do it? I specifically stated that it was hypothetical class-  
 + room stuff, and let's keep it simple. I was writing for fans who  
 + couldn't care if it were a millionth of a minute or a microsecond  
 + since, to them, either one means simply an awful short time. I used  
 + that to show guys like you that I wasn't writing for you, that I was  
 + trying to do something these other fans could understand just as well  
 + as you could. ... Now, on your level, buddy, d'you realize a ship at  
 + near-lightspeed velocity is practically boring thru solid mass? Did  
 + you see why I gave our ship an electromagnetic-field "scoop" to whip  
 + that interstellar matter around behind the ship, to expel it? And  
 + have you heard about recent studies on shielding for space stations  
 + against solar flare emissions -- that on paper at least, 5 tons of  
 + electromagnets promise better shielding than 5 tons of lead???

+ Off the record and all like that -- a very casual look at the field  
 + right now will show you why I'd rather be an editor with the go-ahead  
 + to buy stories on all this kinda stuff, than a writer trying to sell  
 + stories about it. Such thots are what prompted "Noise" out of me,  
 + this month, or don't you get the connection?



Okay, I'm ready; are you ready?

Matter of Some Gravity: Last month, in discussing Einstein's Relativity (I think I mentioned the word "relativity" exactly once in that whole article) I said that if Digstar ceased to exist, the loss of its gravitational pull wouldn't be felt at Hotstar (10 lightyears away) until 10 years later. In doing this, I had forgotten that the rest of you haven't done any of the research on this thing that I've done. Consequently, it was a surprise to me to find that it's a surprise to you that gravity reaches across space at the speed of light.

This is generally accepted as being true -- though it's impossible to prove with absolute certainty -- and there are several reasons why it's accepted. But you won't find those reasons in most reference works on astronomy or celestial mechanics. You won't even find any mention of it. There's a good reason for that, too.

However, in the March 1961 issue of my favorite science-fiction magazine, SCIENTIFIC AMERICAN, there's an article called "Gravity" by one of my favorite science-fiction writers, George Gamow. On page 100 under the subtitle "Gravity Waves" you will find:

"...It is natural to expect that an oscillating mass should give rise to gravitational waves just as an oscillating electric charge produces electromagnetic waves. In a famous article published in 1918 Einstein indeed obtained solutions of his basic equation of general relativity that represent such gravitational disturbances propagating through space with the velocity of light."

There it is, a mere reference to it as if everyone knew it. You'll find such slip-of-the-tongue mention of it elsewhere, too, but not often. This article goes on to say that such gravitational waves are too weak to detect by any known means -- "For example, the earth, in its orbital motion around the sun, should emit about .001 watt, which would result in its falling a millionth of a centimeter toward the sun in a billion years!"

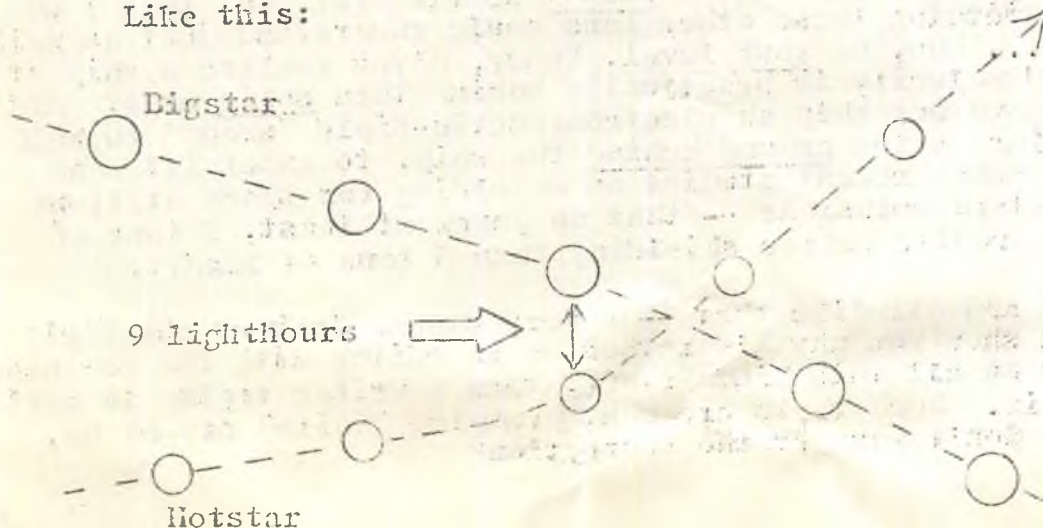
Well, we aren't worried about gravitational waves here, except that they'd be an effect of gravitation. So's its pull. So how fast do those effects get across space?

Newton's principle of motion doesn't seem to say anything about time interval or speed of effect. It just says "two bodies of matter attract each other with a force proportional to the product of their masses and inversely proportional to the square of the distance between them." Nor do I want to prove here that it does say anything about time or speed. I would just leave you guys this little note: the luminosity of a star is also proportional to its mass (see Poul Anderson's LoC here) and, of course, obeys the same Inverse Square Law.

Straighten up your eyeballs, there!

The best way to show that gravity must work with the speed of light is to show what would happen if it didn't. Let's use Digstar and Hotstar again, only this time we'll have the two stars pass so close to each other that their mutual attraction pulls each star out of its path.

Like this:





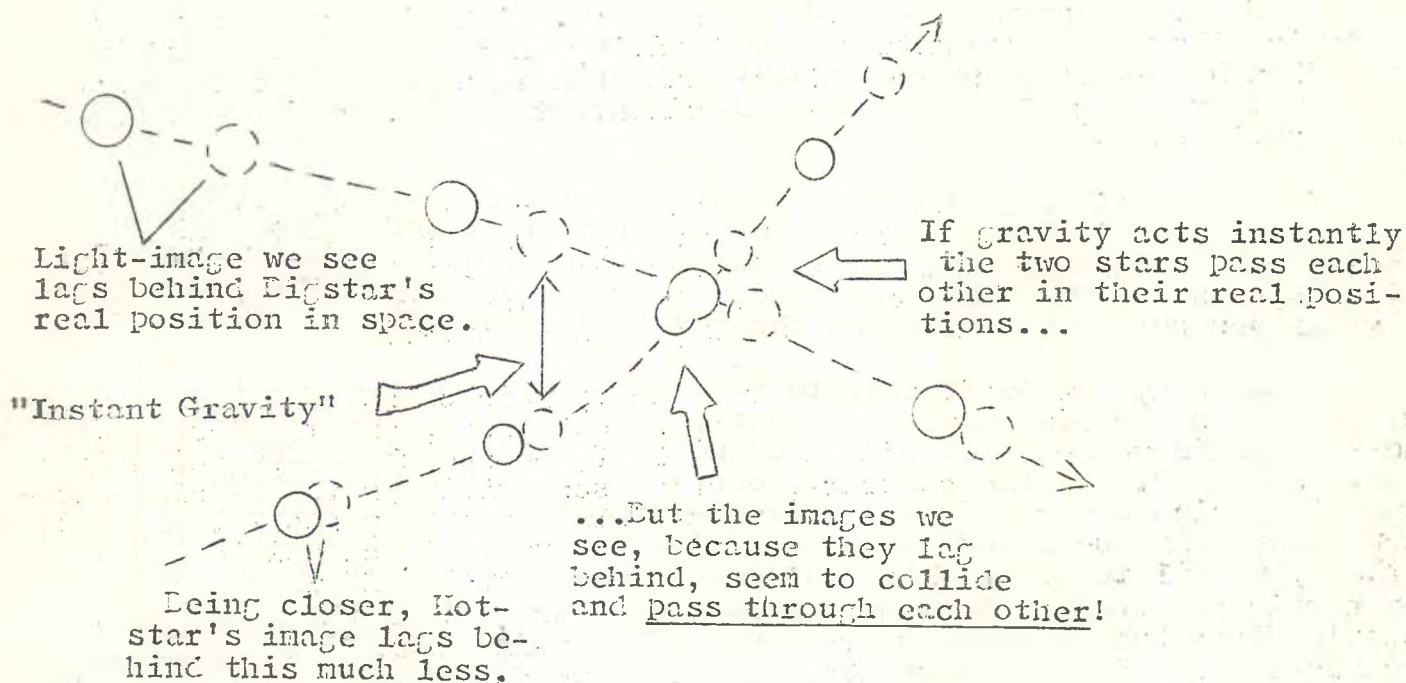
Now, if we're watching this from our starship 10 lightyears off, the light from both stars will reach us in 10 years -- plus or minus the distances between the two stars. So let's say their closest approach to each other is 9 lighthours (something like between Earth and Pluto, if I remember keerect). Let's put the closest star, Hotstar, at exactly 10 lightyears from our starship at that moment, and the farthest, Digstar, at 10 lightyears plus 9 lighthours.

So it'll take 9 hours longer for Digstar's light to reach us.

Now, if the gravitational pull also takes 9 hours to cross the space between these two stars, their movements will coincide exactly with the light-images we receive in our telescopes.

But suppose the gravitational pull worked instantly between the two stars!??

Here's what we'd see:



So if gravity were instantaneous, you can perceive what a problem it would have posed for early astronomers. Even though Newton's principle did explain the motions of celestial bodies, what the astronomers would have seen in their telescopes wouldn't agree with it at all! They'd see stars affected by gravitational pull where the force wasn't inversely proportional to the square of the distance. They'd even have observations of two stars exerting a pull that's less than the product of their masses, then more than that!

But this doesn't happen. Visual observations coincide precisely with what the motions of celestial bodies out there should be, according to their mass and distance.

Visual observations are wholly dependent on the speed of light.

And this gives a perfectly sound reason for the whole thing not being mentioned in almost any reference book: it's never been a problem.

But does gravity act at exactly the speed of light? We can't tell, far as I've been able to find out. For instance, it takes something like 2 seconds for light to travel from Luna to Earth -- so is there a two-second lag in the gravitational interactions of the two bodies? Can't tell ... their motions vary too much, responding too often to too many other gravitational forces interplaying within the Solar System.

So perhaps all you can say is that it seems very likely to be true.

If it is, then gravitational pull is like a warping of space, taking 10 years to spread out for a radius of 10 lightyears from its



+ source. And if that source were removed somehow, it would take another ten years for that "spacewarp" to disappear from the sector.  
 + So that's why Einstein thought space must be curved, or bent, in the presence of any gravitational field, and any light coming through that field would also be bent. And the whole Universe must be one gigantic mass of such interacting fields, galaxies upon galaxies of it. But then, he wondered which way it curved.....

POUL ANDERSON, 3 Las Palomas, Orinda:

I don't want to get tedious about this, but it is necessary to correct you on one point. ((+Go ahead -- I've just got tedious myself, here.+))) I did not claim that the mass and luminosity of stars have a 1:1 relationship. All I said was that there is a relationship, pretty well demonstrated for normal main-sequence stars. It is in fact a rather steep curve. A star  $\frac{1}{2}$  the mass of Sol is only about  $1/18$  as luminous, while a star of twice Sol's mass is about 11 times as luminous, and so on. Drop around someday and I'll show you the curve. It has been explained theoretically, too.

To avoid another long-winded lecture, I'll simply go on record as saying that your exposition of relativity ain't the way I heard it. Fun, though. ((+It does seem almost like something else when we don't begin with the Michelson-Moreley experiment, then go striding off into the equations...+))

Which brings up the main point. We agree that the purpose of science fiction is fun. But why do you think that scientific authenticity must interfere with this? In some cases, notably Hal Clement's stories, most of the fun comes precisely from the careful detail work. ((+Then you sure don't like 'em the way I like 'em.+)))

So okay, we don't want to read heavy science stuff all the time, we want swashbuckling adventure, hairy speculations, and the rest. Why not? There's no conflict with the ideal of keeping the known scientific facts straight. On the contrary, current scientific professional literature is a rich source of imaginative speculation all by itself. ((+But how about being so intent on speculating on straight scientific facts that you fail to do anything noteworthy with it?+)) If we go beyond even this and wonder about hyperspace, time travel, or what have you, that's fine; but it needn't prevent us from using elementary physics, chemistry and biology correctly. In other words, science fiction speculation should be an addition to or an extension of science, not a contradiction to it. (All right, all right, sometimes it even has to be a contradiction; you may have to assume, for instance, that the laws of thermodynamics don't always apply. But if so, the writer should know what he's saying, not contradict out of sheer ignorance.)

+ That was excellent and highly pertinent criticism when the Ray Palmer type of "science" fiction ruled the field, 25 years ago. It sounds slightly prehistoric now, even tho it's as true as ever. But I enjoy Hal Clement's careful detail work only because of what he does with it...and sometimes, when he doesn't do too well, I don't enjoy it.

At the risk of boasting, let me give you a personal example. In a story currently under construction, a spaceship has to lie doggo near an enemy planet without drifting into view or expending energy that could be detected. Well, the planet has a moon; and for any such system, there is a point directly behind the moon where you can park yourself in orbit and stay put relative to both planet and satellite. It was a bit of a job finding just where that point was in the given system; involved solving a cubic equation; but I had to satisfy myself that the point was close enough for the moon's bulk to hide the ship. (And that involved some trigonometry.) Now none of these equations get into the story. The distance is simply mentioned, along with the fact that this is a stable point, and we proceed with the narrative. But the foundation is there, and any reader who's interested can reconstruct my assumptions from data given. The reader not so inclined can relax and -- I hope -- enjoy the space opera.

+ My argument with authenticity is where it gains obsessive predominance over speculation. Look what you have here: the soundest possible basis for one of the wildest "goshwow" tales of interstellar derring-do I've seen in a couple-three eras. Now, just speculate a bit: the ship comes limping out of space, battle-damaged and needing repairs that'll require materials ... but the only place it can reach is this.



+ enemy planet which such a good-sized moon to hide behind. And the  
 + materials/parts needed for repairs on the planet itself if they can  
 + get 'em ... knowing full well that if the enemy gets the slightest  
 + suspicion their disabled ship is anywhere nearby, that one stable dot  
 + behind the moon where ship and materials won't go floating in all  
 + directions, that exact point where they're lying doggo, is precisely  
 + the first place the enemy would look for them. (I'll leave you to  
 + explain why the enemy has no lookout on that moon, in any case.)  
 +  
 + Do something like this with your authentic science, and I'll be as  
 + concerned as your story-characters about that stable point near an  
 + Earth-Moon system close enough for the Moon to hide a ship. I'll  
 + be interested even tho I can't figure out how authentic it is. But  
 + just being authentic for the sake of Science couldn't get me the  
 + least bit interested, even if I could figure it out. Why bother?  
 + Is the desire for authenticity so overriding that you must forego the  
 + fight to admire the beauty of your weapons? Is the fury and motion  
 + of that approaching express train so awe-inspiring that you can't  
 + see the heroine bound to the track?

One could find many better examples from the classics of science fiction. METHUSELAN'S CHILDREN, for instance; there's solid ballistics in that scene where the people are being pursued from Earth. ((+I must have skimmed over that.+)) The Lensman stories may be pseudoscience, but it's carefully worked-out pseudoscience which does not contradict but rather supplements known laws of nature. And so on and so on.

Even the reader with no scientific training benefits from this. The imaginary situation gains depth, solidity, and believability in the same way that a historical novel does when written by someone who really knows the period he's dealing with. In the latter case, we don't usually want long disquisitions on customs, mores, beliefs, law and what-not; we want the story to keep moving; but if it moves within the framework of c., m., b., l., & w. appropriate to the era, we can get a feeling of really having been there ourselves. Same with science fiction.

+ You've just had a very readable and entertaining short novel in  
 + GALAXY, all about some guy terraforming the Moon who gets to shack up  
 + a few days with some broad on Earth. In it, you had some character-  
 + ization that tempts me to find out exactly what your private defini-  
 + tion of a "clan" is, someday. And in it, too, you had some perfectly  
 + "Goshwow" technical concepts that became nothing more than a most  
 + unusual dinner conversation -- and the menu was confusing, besides.  
 + I'd rather you write a typically horrible booklengther such as wins  
 + Hugos (though such isn't likely to win next year, against THE WAN-  
 + DERER) than do that! Sure it oughta be authentic; that's always nice  
 + to start with.

+ I feel whatever's authentic also needs something done with it, his-  
 + torical novels not excepted. FANNY HILL was suppressed for 214 years  
 + says the jacket-blurb; maybe now it can be ignored for another 500.  
 + But Pepys, now, or Boswell is entirely some other Londontown. That's  
 + the most recent comparison that comes to mind. But we've both been  
 + long-winded enough, now, to welcome others having their say....

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European Agent: Colin Freeman, Ward 3, Scotton Banks Hospital, Ripley Road, Knaresborough, Yorks., England.

(✓) Your sub expires with Vol 3 No 9.

( ) Your sub expired last issue.

( ) This is a sample copy.

ATOM's got it, certainly -- and solid credit to his individual backers that such a good man should have it, this year.



PUBLIC NOTICES: Add to items/wants  
for J...McCaillum  
(see LOK) would also like Knowables  
#1, 2, 3, 4 and 6. // We did contax  
for a bit for the Pacificon II pro-  
gram (see below) some months back..  
mainly for small fry attendees, tho  
most adults won't have seen it and  
it is interesting ethnically....!

PRIVATE NOTES: DettyK - can you see  
any pc from me that  
shrieks "dnq!" for chrissake? Sam-  
it's sick, alright. What's your  
ETA? Will have your shots ready.  
Peggy - the new Zettel abode is on  
the edge of a deep forest; beware  
that path marked "Grandma's house".  
Earl & all - Ed Wood will be here -  
here, man - if you're early.

MORE PUBLIC NOTICES: Or anyway, a  
reminder to  
science/fantasy fans regardless -

The Pacificon II (the 22nd World  
Science Fiction Convention) will be  
held Sept. 4, 5, 6 & 7, 1964, at  
the Leanington Hotel in Oakland,  
California. Membership for non-  
attendees (you get the reports) is  
\$1 for overseas, \$2 for USA; and an  
additional \$1 if you attend. The  
address is:

Pacificon II  
P.O. Box 261  
Fairmont Station  
El Cerrito, California

Last time I checked, which was the  
May 24th Sunday, they already had  
460 memberships for sure. We'll be  
there before, during and after the  
con probably. Selling g2? iNo.

LESS PRIVATE NOTES: We now have  
blue stencils  
and I'm curious to see how this  
turns out. Current mimeo produc-  
tion is known as the Norm Metcalf  
method which we have found to be  
most satisfactory and fervently  
hope he always will. We'll need a  
staff masthead if this keeps up,  
not to mention a ToC! Too much.  
Pay no heed to rumors of nuclear  
tests being resumed in Nevada early  
this August. We'll be there. So  
will the Kujawas. (I didn't really  
leave New Mexico because they bombed  
the place -- it was all those people  
attracted by the noise!) Nextish  
hasn't really been planned at all;  
I just know it's going to take a lot  
of artwork -- for me; that is work.  
Dark plots are afoot, tho. Now, is  
this any way to run a starship?  
Maybe if everybody writes ToCs I  
will junk the whole thing and pub  
an all-letter issue. No, that's  
the coward's way out. Maybe I will  
publish all of Bob Brown's postcards  
from Ports of Call extending all the  
way from Bremerhaven to Bangkok.

He's still Sparks on the S.S. Aloha  
State, and a guy who does like this  
Earth's oceans, I guess,



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