

MAY
1976

Science Fiction is becoming popular because it deals with change and with the future, and more and more people are coming to realize that change is inevitable and the future is something we must live with. Other kinds of fiction which don't deal with change and the future are now largely meaningless and irrelevant.

Isaac Asimov

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INTRODUCTION

WHEN I HEARD THE LEARN'D ASTRONOMER

When I heard the learned astronomer,
When the proofs, the figures, were ranging in
columns before me,
When I was shown the charts and the diagrams,
To add, divide, and measure them,
When I sitting heard the astronomer where he
lectured with much applause in the lecture-room,
How soon unaccountable I became sick and tired,
Till rising and gliding out I wander'd off by
myself,
In the mystical moist night-air, and from time
to time,
Look'd up in perfect silence at the stars.

-Walt Whitman

EDITORIAL

Well, Gentle Reader, the Reticulum once again hits the newstands to take its place among the great literary masterpieces of our time.

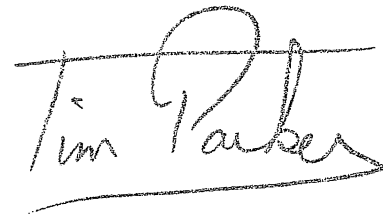
In this issue, we have several excellent novelettes by outstanding authors (we think so, and we ARE the editors). We also offer a science article and a guest editorial feature of interest to all students.

We sincerely hope you enjoy the Reticulum. We have put many months of effort into this, the eighth wonder of the world.

[We dedicate this issue to the late, great (maybe?) Kevin Atchison. May he rest in peace.]

A handwritten signature in cursive script that reads "Paul Keery". The signature is fluid and stylized, with a long, sweeping underline.

Paul Keery

A handwritten signature in cursive script that reads "Tim Parker". The signature is fluid and stylized, with a long, sweeping underline.

Tim Parker

TEST 310

"Oh, dear!" I muttered to myself, at the same time kicking the fifteen-inch Cassesgrain's pier mount. The pier was concrete, which of course didn't do my foot much good. But at least I knew better, even in my rage, than to kick something breakable. After all, it wasn't my observatory. Stan would take offense if, when he returned, his precious telescopes were strewn all over the floor in itty bitty places.

"Curses!" I muttered again, looking for something unbreakable to break. I have a really perfect character, though my temper does occasionally get out control.

At last, I calmed down to a slow simmer, and took another look at the offending photograph. No mistaking it, a little smudge of light spoiled an otherwise perfect exposure of the Hyades. I knew very well that there wasn't any nebulous object where the smudge was, but I checked in a star atlas anyway. There wasn't. Therefore, it was the camera's fault. Since it was Stan's camera, the most I could do was call it dirty names. Therefore, I did. But after a while, I began repeating myself, which was not a good thing at all. Therefore, I stopped.

By then, I was well on my way to recovering sanity. I took yet another look at the photograph. Despite my little bit of swearing, it couldn't be the camera's fault. Stan has a penchant for expensive and/or complicated astrocameras. If it was Stan's camera, it didn't leak light, period. It couldn't have been a fault in the film or developing process either. I picked up my first exposure of the Hyades, also blemished. Same blich, same place. There had to be some other explanation why, out there in Taurus, was an inexplicable, fuzzy blob of light where none should be. I began to get a glimmering of what it might be.

But first, where was it? I had to see the blob of light in a telescope to be reasonably sure what it was. The only problem was: a blob which shows up only on a fifteen-minute exposure using chilled film and an f/1.6 Schmidt camera shows up even more dimly in the eyepiece of a telescope. There was no question of turning a 'scope in the general direction and looking through the finder. With a sigh, I pulled out a ruler and Norton's Star Atlas and got to work measuring the smudge's position on the photograph.

It was faint. Even in the fifteen-inch, averted vision had to be used to really see it. Of course, by the time I had determined the blob's exact location the Hyades were only some twenty degrees above the horizon, which didn't help matters much. But it was there, and I knew what it was.

"Strike me down for a flat-footed salesman," I said aloud, "if that isn't a comet." Now, I have occasionally sold Fuller brushed when one or another of my get-rich-quick schemes has failed flat on its face, but flat feet I don't have.

So off I marched, double-time, to the phone. As I called the nearest observatory - correct of course - I kept hoping somebody else would have been untroubled enough to have discovered the comet before me.

They called it 1978a, which means it was the first comet discovered in the year 1978. In honor of me, its discoverer, they also called it Comet Augustus.

As I am too lazy to get any sort of real work, I am only semi-employed. That means my funds are strictly limited, so whenever I get a yen for astronomy, I descend upon my good friend Stan like a plague of locusts. He, poor fellow, takes it all quite stocially. At the moment, he was in Florida, enjoying an expensive winter vacation, leaving me in charge of several thousand dollars' worth of precision optical equipment. It was what might happen when he returned that worried me. Because, you see, Stan had a good case for getting 1978a called Comet Mayall, after himself.

After all, the photograph which first showed 1978a had been made with his film, his astrocamera, guided by his clock drive, while I sat in his house and drank his hot chocolate to thaw out from the subzero January night. To compound the offence, I developed the negative in his darkroom, using his hypo and fixative, and printed it on his photographic paper. It would be an interesting case. My only claim to fame was that I had pointed the astrograph in the right direction. I wondered what the IAU might make of it.

My fears were unjustified. Stan took everything in his stoic stride. Stan's a good egg. Someday, he might even hatch.

And that is how far I am directly involved with the strange story of 1978a. Predictions said that my namesake was to be a dim object, not even reaching naked-eye visibility. Still, for the purpose of carrying my name down the centuries, it was a lot better than some of the slightly-less-than-moral schemes that I have perpetrated. So, Comet Augustus, a dull object, hardly worth anyone's time.

Two things changed all that.

The first was Comet Augustus' orbit. It was nothing spectacular, really. Just the long, almost-parabolic ellipse that indicated origins in the comet halo. Upon further calculation, however, it was found that the comet would pass quite close to a Mariner spacecraft NASA had on its way to Venus and Mercury. The opportunity was too good to miss. The Mariner's attitude jets were fired, to bring it within a quarter-million miles of 1978a's nucleus.

The second incident came about two weeks later, a few days after the probe's closest approach to the nucleus. The Jet Propulsion Lab in Pasadena lost all contact with the Mariner spacecraft. It was never regained. The hopeless probe had been vapourized when Comet Augustus exploded.

They say that at the height of the explosion, the comet threw shadows in broad daylight. Astronomers have calculated that, at peak brilliance, 1978a exceeded magnitude -18. By how much it exceeded this figure, no one knows. Whatever its actual luminosity, Comet Augustus was doubtlessly the brightest comet ever seen.

That left one question. How could a comet explode virtually the same way as an advanced thermonuclear warhead does? For once, even Carl Sagan was stilled. Finally, it was announced that the comet was presumably a freak chunk of uranium, interlarded with ice. As it approached perihelion, the ice evaporated, and the uranium layers, now unsupported, collapsed inwards, forming a uranium core. The core approached critical mass. When critical mass was reached, the whole shebang exploded. No mention was made of the fact that the Mariner spacecraft hadn't detected any radiation originating in the comet. Even so, it was a rather transparent theory. Astronomers defended it to the last gasp, dredging up everything from Hertzsprung-Russell diagrams to radio recordings of 3C 273, from the spectrums of M-type supergiants to photographs of the Lagoon nebula, in its defence. The barrage didn't convince the public that the theory was correct,

but it did serve to muddy up the situation admirably. The more sensational of the tabloids had field days, examining books and reports that should have been left in the morgues where they likely came from. Even staid, conservative newspapers published ridiculous hypothesis. One of the seemingly more plausible was that some nation had decided to evade the Space Nuclear Test Ban Treaty. However, it was pointed out that this sort of thing would require a large launch body, and the consequentially spectacular launch would have been easily detected. Besides, the whole thing was ridiculous when one looked at it closely.

Half a year passed, and the mystery was still unsolved. Another three-and-a-half years, and it was forgotten.

But the story is not over yet. The scientists do know why Comet Augustus exploded. The public doesn't know that the scientists know, and great pains have been taken to keep it that way. The public isn't worried. The scientists are.

It is a little-known fact that over the next four years, seven more comets have exploded. None was as spectacular as 1978a; all but two remained below naked-eye visibility, even when exploding. Among the seven was the dull and obscure periodic comet Schwassmann-Wachmann 3. Its explosion was more worrisome than the other six together. The others were newly discovered, and it could be reasonably expected that each might have its own peculiar eccentricities. But scientists had known Schwassmann-Wachmann 3 since 1930, and had thought they had it down pat. It wasn't supposed to explode. Then again, neither were the others.

If you have visited the Hale-Palomar complex of observatories lately, you might have seen workmen blast chambers and passageways in the hard rock of Mount Palomar. If you happened to ask what was being built, you probably got a number of different answers, depending on who you asked. One astronomer might tell you that they're building a coelostat's sub-structure. Another might tell you about the neutrino detectors to be located in those subterranean caverns. And a third might tell you it isn't part of the Hale-Palomar observatories at all, and bemoan the fate of the poor astronomers, being literally undercut by those deceiving, conniving geophysicists.

Actually, the astronomers are building a bomb shelter.

Eight comets have exploded so far, including Comet Augustus. The scientists feel that Someone Out There doesn't like us, and is plotting to do away with Earth. So far, all the exploding comets have been dud shots, to get the range and test the hardware.

But as I write this, Halley's Comet is only four years away.

Ed Treijs
7/1/77 10:00 AM

A DEFINITION OF MAN

Neither a human appearance, existence in a house, nor an opinion identical to that of your neighbour will grant one the title of "man". No, a person must believe and represent much more than these three meaningless standards.

This noun "man" has a far greater meaning than what most words can express. It is a title that cannot be given, nor bought with the world's greatest treasures, or even acquired through the ignorance and arrogance of brute force. But above all, 'man' is a title that must be worked for and earned in the most very honest fashion possible. The greatest of all virtues are represented by the title 'man'.

Our world today is far from what the many idealists said it could be. Its struggle, anguish, yet respect and the ability to reason are a reflection of ourselves. A creature unlike all others, for we have developed the greatest universal creation of all possible. We call it - CIVILIZATION. It is still young, with many possible directions to go in, and we who created it point the direction and we always will. We the people are civilization; we are the ones who call ourselves 'man'. Yet 'man' is a name that must be earned. Those who have earned the title of 'man' have developed a strong moral code and a philosophy of life. It is this moral code that is the building block of civilization. Yet many moral codes have been developed and several have conflicted. This is the true test of those who claim the title of 'man'.

There will be those who will quickly devolve to the level of an animal, lose respect for their own moral code, perhaps even ignore it. What is worse, they will even drag others into a senseless, bloody and degrading conflict. These are the creatures of brute force. They have little respect for the master work of civilization and they have little hope of ever gaining the title of 'man'.

It is up to you to learn to respect the ideas and virtues of others, but you must never be frightened to express your own opinion. It is your own moral code that you live by and, like all others, it can undergo many corrections and changes. This can only be accomplished if you consider the ideas of others. In all honesty, you will see your own mistakes in those of other people. These mistakes may be what you hate the most about other people, because those mistakes are in you. But when you can respect yourself and others enough to say "This is what is wrong with me. I shall try and improve it," you have achieved the virtues and the title of 'man'.

A personal view by

K.P. Atchison

Does anyone else have 'a definition of man' which he or she wishes to express, or wish to argue with K.P. Atchison about his 'definition'? The Reticulum invites the comments and opinions of its readers.

THE WINDS OF TIME

Man has always wondered about his future. What if that future has already been?

It was ready. At last, the HOURGLASS was ready.

Bret Stradler stood back and looked at the gleaming machine. He had just finished making the final check of its controls. Everything was perfect.

It should be, he thought to himself. It's taken me years to build. The Hourglass herself looked, to the untrained eye, like two cups placed on top of one another. But the top cup had a portion cut out of it, and that portion was replaced by a plastic covering, much like an airplane cockpit. The machine had an air supply on board, plus food and water.

It also had room for one man. Bret Stradler.

As he looked at it, he remembered the problems he had faced in getting the money to build the machine. Many scientists were divided upon why it was built. Some said a time machine was useless - man knows about the past, but there is no need to learn about the future, for it hasn't happened yet, and would happen whether we knew about it or not. Others said such a machine could be used to clarify the past, although precautions would have to be taken to prevent someone from bringing back some insignificant little thing like a Beethoven symphony written in the author's own hand, or some of the riches of ancient empires. They also speculated about whether it was right that 20th Century man should use knowledge of the future today, and, if he should, wouldn't it be historically correct? Or could knowledge of the future cause man to change that future into something completely different.

Those were questions for philosophers - or madmen.

Stradler himself cared for none of this. He simply wanted to build a time machine. The President had finally consented to appropriate the money, because of the arguments for it, or maybe (like everyone else) he was so confused that he gave in from sheer desperation.

Brett Stradler didn't care about that either. The only thing he cared about was that he could now build his machine. He accepted the money gratefully, and fled to his laboratory before the President could change his mind.

He looked again at the machine. It looked like two cups, but the bottom cup was a support that contained the drive and air tanks. The top cup was larger; it contained the manned compartment with the food, water, and controls. It was mounted on a swivel that enabled it to turn a full 360° circle, so that the traveler could see all around him.

He patted the machine gently. It was ready. There was no reason not to use it. The government had objected to him, Brett Stradler, the inventor of the HOURGLASS, going anywhere in the machine. They wanted to send some trained pilot - Dave Newby, Brett remembered with disdain. He didn't stand for that. If something went wrong with the HOURGLASS, this Newby character would have no idea what was wrong, and even less of a chance to fix it. Stradler might at least have some idea what was wrong, and could maybe fix it.

Besides he had no intention of allowing another man to risk his life on Brett's machine. That was his privilege.

Bret would have liked a gala sendoff, with big bands, network television, and the like. But the Hourglass was top secret; they could not let other nations know it existed. Why, he didn't know. The President had laid that rule down.

He opened the hatch to the machine and clambered in. The cabin was the size of a station wagon. He pulled himself over to the thick, padded seat and sat down, automatically strapping himself in. He reached up and pulled the hatch door shut. Making sure it was tight, he pushed the button which sealed the hatch shut.

Bret turned his attention to the control panel in front of him. It was not really intricate, although it contained various readouts of the various systems aboard. The main control was a lever mounted beside his chair on a raised platform. Much like a gear shift in an old car, it controlled where you went (when, he corrected himself) and how "fast" one went. There was, of course, no "velocity" or "speed" as such; you were moving through time, not space. How "fast" you went meant how long you took to move through time, say (for example) one year a minute.

The lever worked very simply: push it forward, you go into the future; pull it back, you go into the past. How much you moved the lever determined how "fast" you went.

Stradler settled back in his seat and gripped the lever firmly. If this works, he thought, it'll revolutionize the tourist industry - they can set up tours through time.

THEN HE THREW THE LEVER FORWARD.

At first it seemed like nothing was happening. He was still sitting in the lab. He looked at the clock on the wall of the lab; it read 5.30. He had moved seven hours into the future.

He had moved the lever a quarter of the way forward. Throwing caution to the winds, he pushed it all the way forward.

A loud humming noise filled the HOURGLASS. Everything in front of him became a blur. He was frozen with terror, but, regaining control of himself, he prepared to stop the machine.

~~Stradler did not even have a chance to react as the machine began to move.~~
The HOURGLASS suddenly shook violently. Stradler fought to regain control of the time machine. The lever had stuck at the full forward position. Using both hands, he was able to pull the lever free, then gradually slowed the HOURGLASS. He did not know what would happen if the machine went suddenly from full "speed" to a full stop. He did not intend to try, either. At least, he was able to stop the machine.

He stepped into his lab.

Stradler did not know what he had expected, but after his trouble with the machine, he had expected to stop anywhere - anytime. He checked the date: January 31, 1975, on the chronometer on the wall of his lab. It also recorded the time: 10:05. Had he only moved another 4 hours and 35 minutes. He had left at 10:30 on the morning of January 31, had he only gone 11 hours and 35 minutes into the future?

He was disappointed. But then, he had no right to be! He had done what no one else had; he had a working time machine.

He got out of the machine after opening the hatch. He was hungry; he decided to go to the kitchen to get something to eat. If Dawn Morgan, his assistant, was there, he could explain where he had been all day.

He passed the toolroom. The light was on in there. She must be in there, he thought. He opened the door, and walked in.

Brett came face-to-face with . . . BRETT STRADLER.

"Who - who are you?" Brett stammered out.

His "double?" - looked as stunned as he was. "I might ask you the same question", he replied.

"I'm Brett Stradler - I think," Brett replied.

"I, too, am Brett Stradler" the "double" replied.

"That's impossible! The same person can't exist at the same time! One of us should disappear - or we shouldn't be able to see each other." Brett said.

"I agree. There is only one explanation - we are not the same person -"

"But we are the same! We look the same - talk the same way!"

"You didn't let me finish. We may look the same - but we aren't the same person, because we exist at different times," the "double" said.

"But this is 1975. Your calendar says so. You speak English. Everything is identical to me and my life. The lab is the same. How can we both exist?"

"It is not simple. The best I can suggest is that I am your future, and you're my past," said the "double" Brett/F

"then I have come into the future?" said Brett/P

"Yes".

"But everything is the same as my time - even down to the very day. Is history the same?"

"I would think so," said Brett/F. "Come."

He led Brett/P into a library. As Brett/P had more than half-expected, the books were the same as his own.

"I have all these books. I know what's in them. I guess history is the same," said Brett/P. "I wonder what the date is, reckoned from my time?"

"If your HOURGLASS is the same as mine, your date meter should tell you."

The two men walked back to the lab, where the machine was still sitting.

"Did you voyage in time too, Brett?" asked Brett/P.

"Yes," replied Brett/F. "I discovered what you did; an identical future civilization."

"Identical? Like yours - and mine?"

"I haven't been to your time - but I think so."

The two had reached Brett/P's machine. "The date meter -" began Brett/P
"is on the right top corner of the forward control panel, " finished Brett/F
"I built an HOURGLASS as well - remember?"

"Where is your machine, anyway?" asked Brett/P

Brett/F pointed. "Behind that curtain." Both Bretts had built an alcove to hide the machine from visitors, which had been curtained off. It did not surprise Brett/P that Brett/F had built one.

Brett/P got into the machine. He looked at the date meter. It read:
1001975.

It was incredible. He had come 1,000,000 years into the future. He got out of the machine.

"A million years have passed. But how could this happen?" Brett/P asked. He didn't expect an answer.

But Brett/F had one. "I have found the same thing. I think our civilizations destroy themselves when they reach a certain age. In your time, is there not fear of nuclear war breaking out at any minute?"

"Yes".

"As in my time. It seems there are possibilities of war in both times, and these final wars break out. Man destroys himself."

Then we repeat ourselves over and over again. We build the same civilisation - over and over again," said Brett/P

"At least three times; yours, mine and the future."

"Surely we can stop this insanity! Perhaps if the very first civilization learnt of this, they would take steps to stop it - and we could build a different future."

"Yes - that might work. You know, Brett, I thought my civilization was the first, and that I could have done that," said Brett/F. "It seems that the task falls to you. If you are successful, I - and my world - will never be; but it would save all those lives - save people from dying twice." Brett/F extended his hand. "Good luck."

It was an odd sensation, Brett/P felt, to be wished good luck by yourself.

He had some trouble getting home, but, by stopping and starting, had pulled to within 9 hours of his departure time - 7:30 p.m. That was close enough. He went to the toolroom, and sat for 2½ hours, thinking about what he had seen.

At 10:05, the door to the toolroom opened. Brett spun round in his seat.

HE SAW HIMSELF STANDING IN THE DOORWAY.

Paul A. Keady

P O I N T

and

C O U N T E R -

P O I N T

A year ago, after bringing out the first issue of The Reticulum (yes, we existed last year too), we asked Ed Treijs to write a guest editorial on whatever he chose to write about. He chose to discuss the English Department and its treatment of literature (especially SF). To be fair, we invited the English Department to reply. The Department rose to the challenge, and we thank Mr. F. Burgoyne for his reply. So, in the words of Shakespeare, "Lead on, MacDuff..."

ENGLISH AND OTHER CURIOSITIES

Guest Editorial by Ed Treijs

Every once in a while, I get this nightmare. I'M a substitute teacher in an English class, and I ask the question: What is the prime purpose of fiction? Answers flock: To be Meaningful, To give Deep Insights, To Allow One To See The World Better, To Provide Social Criticism/Satire, To Unlock One's Inner Self, To Provide a Consciousness-Raising Experience, To Provide an Experience, period.

As befitting the worst part of a nightmare, at this point I wake up.

Or let me put it another way. If there was one subject I could drop, here and now, it'd be English.

In the schools of Peel County (and elsewhere, I suspect,) the only subject that is compulsory, that one has to take, is English.

No wonder reading is rapidly becoming a lost art.

Going back to my original nightmare, I can just see some English teacher reading over my list, and sagely nodding his/her head and murmuring, "How true, how true."

NONSENSE!!!*****

The prime purpose of fiction, its ONLY raison d'etre, is to ENTERTAIN.

Yes, entertain. Everything else is secondary. All the other reasons listed above help, to be sure. A book that only entertains is going to be a shallow one compared to a book that goes deeper and further, providing it, too, is entertaining. An article that doesn't entertain is just that - an article. It can be crammed to the apostrophes with meaning, but it is useless as fiction.

A good novel, a good short story, must be fun to read. Now don't take the word 'fun' in its literal sense, or you'll exclude a lot of excellent fiction. Perhaps a better adjective is 'easy', though it, too, carries the wrong connotations. Let's put it this way; you enjoy reading a good piece of fiction, though the action might have been gruesome or unpleasant.

Around this point (right at the beginning) the English curriculum goes wrong. In English, we are to appreciate fiction. I really wish I had a stronger adjective than 'hogwash' to express myself. But I don't, at least not a publishable one, so here goes: HOGWASH!!!! Also, RUBBISH, TRASH, NONSENSE!!!

I regard myself as a fairly literate person. I read a lot, perhaps two hundred books a year. I've never appreciated a single book I've ever read, and I don't think I ever will.

Why, then, why, does the English Department persist in its foolish and futile attempts to make everyone appreciate? The only way someone will start reading a lot is by discovering that, by gosh, it's fun.

And look at the books we get to read. Demian. Pride and Prejudice. A Separate Peace. Lord of the Flies.

Now some of these books aren't terrible, by any means. What makes me mad is that they aren't particularly good, either.

The worst of the lot, by far, is Demian by Herman Hesse. It might help to examine it a bit.

The only reason we're reading it in the first place is because there was a Hesse revival among the counterculture in the late sixties. Ponder that for awhile. What does it say about the English curriculum?

One of the interesting things, I found, was watching the reaction of fellow students who had just received the book.

They read the back cover (normal enough). Then they started on the text. After the first few lines, worried and puzzled frowns began to appear on most faces. Almost no one got beyond the first page without first turning to the back cover and re-reading the blurb with varying expressions of befuddlement, incredulosity and disgust. Thereafter, a significant percentage continued to read - holding the book upside down. It made more sense that way.

This is the book that's going to help us in our search for self-understanding. This is the book which shows us the guiding light of self-awareness. This is the book whose high point is an impressionistic, orgiastic devouring of a burned oil painting. This is the book that is written in a turgid style as if the author had been in a fever, the book that has no plot to it whatsoever, jumbled, garbled, and a hundred-plus pages of trash.

And this, this is what we study in English. Utter garbage.

I come to another grievance. We are to find deep insights in a novel. So our teachers tell us. Ha! Worldly significance -- in a world totally created inside the author's head? Significance in the imagined conversation between two imagined characters in an imagined situation within an imaginary setting?

Come now!

I don't read for insights. I don't read for significance. For those, I read a newspaper. I read for fun. And as long as it stays that way, I'll be content. If an author has something fantastic and world-shaking to announce, let him shout it from the rooftops, let him put it in clear black-and-white prose in front of us -- not buried three symbolic layers deep in garbled sentences that never go anywhere.

Appreciation of fiction is work. It's no fun. How in heaven's name can anyone be expected to discover that reading's fun, when all one reads in English is rubbish of Demian's ilk?

I myself have two short stories in this issue. (You may rush to read them after finishing this editorial, if you wish). Both of them, you will enjoy, I hope, then forget about. I put no significant symbols or abstract insights in them whatsoever.

Now, I have no doubt if you look for such things hard enough, you'll certainly find them by the book-full (especially, I suspect, in "The Forgotten Project"). Let me make my position clear: I didn't put them there -- YOU did. If someone comes up to me and babbles about my marvellous birth-symbol in line such and such, and the fantastic death-image in the following paragraph, and asks me how I did it, I'm likely to slowly sidle away, hoping that the men in the white coats will show up before it's too late. Or, I might just blankly say, "Eh??"

For, in interpreting a story, especially a 'mainstream' one, all you see is your own face. The story is a mirror, and it reflects your own self. Which is useful (who has never used a mirror?), but definitely isn't fiction. It's plain empty, having nothing to say. Don't ask me what it is, but fiction it ain't.

That's why I like science fiction. There is little ambiguity in this field. Writer has interpretation X of the world, writer gives it to you, straight. You can agree or disagree, but there's no way you'll see your own face in a story. It's a much less self-, ego-centered style.

(an excellent analysis of the different styles or 'schools' of writing can be found in the book Science Fiction Today and Tomorrow (Penguin Books), written by James Gunn and entitled "Science Fiction and the Mainstream"). And besides, science fiction is entertaining. Some of the SF's more literary critics (notably Theodore DSturgeon) bemoan the fact that quite often a writer's serious attempts will not sell nearly as well as some of the lighter pieces. For serious, read 'literary'. The answer is quite simple: the literary stories are less entertaining. SF readers buy entertaining books that are fun to read above all others (witness the success of the Relief books, Lafayette O'Deary books, Stainless Steel Rat books - Larry Niven's work - the list could go on and on).

But anyway.

Another thing that irks me (though not quite as much) is the fact that we are pulling these significant insights and reading social satire from books that are fifty or a hundred years old (Daman, Pride and Prejudice, Dickens's works, Shakespeare). Now it is a changing world, and a lot has happened these past few years. Not to recognize that fact, and look upon hundred-year year old books as gospel truth is a bit ridiculous. This doesn't happen all the time, but it does happen enough to annoy me.

Another fault with the present English courses is that it seems geared to produce nothing but literary critics and mandarins. This happens to be one group of people the world can quite cheerfully do without. All the emphasis in English is on reading and appreciating. Creative writing is downplayed, and by creative writing I mean true creative writing - - i.e. fiction - - rather than just redigesting someone else's work - - as in book reviews - - or doing essays on this, that, and the other things. We seem to be creating a race of watchers, not doers. Now admittedly not everyone can write. But then, why does everyone have to take English? Take the Art Department. Here, one appreciates the work of the great masters - - but one also does original work, besides studying the mechanics of art - medi, perspective, etc. In English courses, only the gifted or somewhat gifted can hack the course - I know; I've tried, but then, you don't have to sign up for Art.

(1) ~~Why can't English be like this?~~ Instead of an extremely wide and far-reaching subject, one has exactly two choices - four or five real English. And that isn't really much choice anyway. (Grade Thirteen does sound a little better for choice.) My point is, why is everyone forced into the same, spectator, literary - critic mould? Surely something can be arranged - - I'd much rather take a course in the mechanics of writing, say, that sit around in class pretending to appreciate books that I feel are garbage.

It's difficult to appreciate garbage.

Again, one comes back to the choice of books. They should get Joe Avera: interested in reading - - but they do exactly the opposite. "This is crude", he says and goes off to watch television. Those of us who have discovered science fiction can count ourselves lucky, considering what's on TV these days.

It just happens that the only fiction whose sales aren't declining is SF. Dead sales are increasing. Mull that over.

For that matter, all fiction is a subsection of science fiction, since SF includes everything, everywhere, at all times. You can't beat that, can you? Rumour goes that a science fiction course was planned for Chingquary but cancelled for reasons unknown. I haven't the faintest idea if there's any truth in this. Anyone out there who can cast some light on the subject? Mr. Hubbard, perhaps? I feel that an SF course would be very valuable and well-received. The main genre read by teenagers seems to be science fiction (assuming they read at all, of course). Perhaps in such a course we can get away from the literary nonsense. (Then again, perhaps not. Lately there have been great lamentations in the SF field because high schools and colleges, which have lately discovered SF en masse, offer courses that are completely and utterly terrible and a waste of time. One SF writer relates the time he was a guest lecturer at a university. He had gotten into a discussion of plot in SF, "Oh" the teacher broke in, "you're talking about what we call a good story!" He sniffed in contempt. "We don't teach that here.")

And I quote the straight article!) Anyway, I'd like to see an SF course. Whether it would be much good or not remains to be seen. The least they could do is hire a teacher who knows more about science fiction than some of the students . . .

And if, if a science fiction course is being planned, the English Department should try consulting with some of the students, beginning with the editors of this magazine. They know more about science fiction than any English teacher in this school (I think!) Without resorting to self-aggrandizement, I can say that I have a fair knowledge on the subject myself.

This magazine itself is living proof that there is interest in SF at Chinguacousy. A course in SF would be quite welcome. How about it?

I've been skipping around from hither to yon all the way through this editorial, so in conclusion I'll take a look at "The Reticulum" itself.

With this guest editorial (I can just see the logo below the title - - 'The opinions expressed in this editorial are not necessarily those of the editors') I've been biting the hand that feeds the magazine, "The Reticulum" being published by the same English Department I made mincemeat of, or tried to, anyway.

In all fairness, I invite a Counterpoint guest editorial defending the English Department. Earlier on, I dwelled on the point that fiction inevitably carries the author's interpretation of things. This is even more so in an editorial. By no means take my word as gospel truth! Perhaps you agree (which means you're bright and nice and all that) or you disagree (tool of the Establishment!) Kidding aside, let's see the other point of view. The other side deserves to be heard - - should be heard. Of course, this isn't quite a trans-continental, mass marketed, magazine, and I suppose just telling me your reactions to my points would suffice. But please, if you object to my position so violently that you feel like coming up and punching me in the nose, don't. Work out your frustrations on a piece of paper (or a crowbar . . .). So, how about a Counterpoint? Any English teachers feel up to it? Hmm?

And that pretty well wraps up things, I guess. After my vicious and unprovoked (?) attack on the English Department, you can now go back to reading the nice gentle stories, full of gore, violence, and the nice things of life . . .

THE SCIENCE OF FICTION

IN RESPONSE TO MR. ED TRELIJS

by

Mr. F. Burgoyne, M.A.

Every once in a while, I get this nightmare. I'm a graduate of a secondary school in Ontario, and yet I'm unable to answer the question: What is the prime purpose of fiction? I have successfully completed four or five years of secondary education without ever understanding why I had to suffer through a course called "English" in each of those years. I consider the possible answers: "To discover deep insights, to allow one to see the world better, to provide social criticism/satire, to unlock one's inner self, to provide a consciousness-raising experience, to provide an experience, period." My thoughts obviously become incoherent; I am frustrated with these trite platitudes. I sink deeper and deeper into my subconscious, dreaming on and on, ever seeking the ultimate answer.

Suddenly, that answer appears. A huge and magnificent insight rises out of a pool of NOGWASH. Of course! The prime purpose of fiction, its only raison d'etre, is to ENTERTAIN!

It is at this point in my nightmare that I awaken in a cold and furious sweat. I rub the sleep from my eyes, and I begin to ponder the problem anew. What is the purpose of studying English? What is the science of fiction?

In the first place, "English" is the mother tongue of most Canadians. As that, English is the most practical subject of any taught in a Canadian school. For until a student understands the language used in teaching and learning, s/he is unable to study other school subjects such as History, Geography, Art, etc. Moreover, unless all of our students become fluent in English during the years of their education, they may never fully understand or be able to take part in any facet of our society. To participate in the cultural, political, and economic

affairs that surround us, we simply must be able to converse with one another in a common language. Even Mr. Treijs's "Joe Average"—who seems to enjoy spending all of his time watching television—must understand the language of television to pursue his favourite pastime. On this level, then, the purpose of studying English seems obvious. Until we are able to communicate with one another, we remain essentially illiterate, unable to speak, read, or even listen with any degree of certainty. We remain isolated from our fellow human beings and often rejected by society as a whole. Rather than enjoying all that life has to offer, we suffer in a world that is incomprehensible while life passes us by.

Despite its practical beginnings, however, English as a study of a language eventually becomes a study of literature. It is at this point that new problems seem to arise for my friend, Mr. Treijs, and for many other students as well. Is there a science of fiction explaining the purpose of reading literature? How does one learn to "appreciate" literature? These are difficult questions, and any answer I attempt here will likely be inadequate. For unlike physics, biology, and the "pure sciences," the science of fiction seems to have few laws, theories, or formulas that might be listed in a textbook somewhere. Nevertheless, it is important to understand that literature cannot be understood or "appreciated" as a pure science. Physics, for example, examines the objective world—the world outside us—by attempting to explain the physical laws that control that world. Literature, however, does not examine the objective world. Literature examines a world constructed for us by a writer, a world that a writer believes could possibly be real but which is not actually real. In this world of possibility, anything goes that is imaginable, but nothing really happens. If it did happen, it would no longer be purely imaginative; it would move into the world of action. And once "fiction" becomes merely a description of what happens in the real world, it is no longer fiction. It is history and belongs in history textbooks.

When a writer begins to tell a story, he begins to lie. Sometimes he makes his lie beautiful, sometimes sad, but in either case, he is always creating fictional models of characters, settings, or actions, and never real characters, settings, or actions. However, this does not mean that a writer's models are unreal. In fact, the first task of any serious writer is to distinguish between what is

imaginative and what is imaginary. For these, Mr. Treijs, are two completely different words, imaginary meaning unreal, and imaginative meaning a perception of what is real. Fiction must be written and understood as imaginative, and never as imaginary. The task of a writer concerned with literature is never to tell us what has happened (history), nor is it to tell us what never happens (the imaginary). The task of any serious writer of fiction is to tell us what he sees as always happening. And because this is the prime purpose of writing fiction, it is likewise the prime basis of how literature must be understood by any serious reader.

When a writer achieves an imaginative perspective of life, he writes what we call a "classic," an imaginative model of life we can study time and time again because it deals with what is always present in every man's real life. To this end, he writes mainly about our emotional lives. For unlike social conditions which constantly evolve and progress, human emotions never evolve or progress. For example, no one will understand love any more fully today than, let us say, Shakespeare did when he wrote his sonnets. No one will ever understand the agony of dying more fully than, say, Keats did as he wrote his odes. Or to use Mr. Treijs's examples, Demian, Pride and Prejudice, A Separate Peace, and Lord of the Flies are classics in the sense that each book deals with emotional problems and fears that not only seemed relevant at the time these books were published, but which will continue to be relevant for all time. To read literature as imaginative, then, we must examine the writer's perceptions of the emotional lives all people live. In a sense, we must become amateur psychiatrists capable of discovering the emotional conflicts that the writer portrays through his characters or persons. We must become an understanding observer of the writer's models, capable of explaining their emotional problems, capable of offering them possible solutions, and capable of, above all else, justifying to ourselves why we offer the solutions we do.

The only significance literature has, according to Mr. Treijs, is that it entertains. Significance, Mr. Treijs would have us believe is to be found only in newspapers. But newspapers are redundant the morning after they are published. Once read, they are thrown away. Surely, Mr. Treijs, what you believe to be significant in life would not be so short-lived. I would think, rather, that what is significant must grow out of the perpetual concerns of mankind. Love is significant, and in English we study many different imaginative perceptions of love. Fear is significant, and in English we study many different imaginative perceptions of fear. Honour, greed, hate, jealousy,

honesty, trust, etc. are significant, and in English we study many more imaginative perceptions of these as well. I suppose, Mr. Treijs, that what you "appreciate" or find to be significant in fiction depends on what you "appreciate" or hold to be significant in life. You say that you find nothing in fiction. You look into the "mirror" of literature (I use your metaphor), and see that it is empty. Do not blame the mirror, Mr. Treijs. Blame only yourself—for it is your likeness, your life, that the mirror reflects.

I am quickly becoming aware of the valuable space I am using up in this magazine. However, having introduced what I consider to be the science of fiction, I would also like to discuss very briefly the type of fiction to which this magazine is dedicated: Science Fiction.

Science fiction has recently attracted an extremely devoted following, seemingly ever since the Hesse revival ended and "Star Trek" hit the television wavelengths. But, of course, science fiction has existed for a century or two (probably ever since Swift's Gulliver's Travels) prior to today's overwhelming interest which has flooded drug store book racks with volumes and volumes of strange and fantastic adventures. In any case, science fiction has long been a subsection of all literature. (It is not, as Mr. Treijs assumes, the other way around.) Thus, because it is a part of all literature, science fiction is subject to the same laws in my science of fiction as is any other work of fiction. The science fiction writer must strive towards the imaginative and not the imaginary. This seems odd at first because so much science fiction deals with unimaginable beings and superhuman events. These worlds seem unreal. However, we must remember that while science fiction takes us out of the normal sphere of human activity, the science fiction writer never himself escapes the human perspective with which he was born.

Science fiction is imaginative to the extent that it deals with worlds that represent a contrast to the real world here on earth. That is, science fiction shows us how life "might be" either in another dimension of time or in extraterrestrial societies. Once again, when the science fiction writer begins to write, he begins to lie. He creates a world of possibilities no matter how impossible it may appear to be. If his world is idealized, it is a world towards which we mere earthlings may aspire and someday, perhaps, develop as our own. If his world is grotesque, it is a world we must learn to avoid developing as our own. In

either case, he is never merely portraying what is unreal. He is making an imaginative perception of what he believes may become real at some point in time or at some point in the universe. Moreover, the science fiction writer is always commenting on the emotional lives of human beings, again by way of contrast. For example, a story may show that other beings from another planet are superior to human beings because these strange new creatures haven't the emotional weakness that we share on Earth. They do not know the meaning of hate, ambition, lust, etc., whereas all earthlings seem to live by way of those emotions. In such a case, it is imperative to see that the writer's focus is always on, our own world. He is not creating a new race of magnificent beings so much as he is pointing to our own shortcomings.

Enough, I suppose, is enough! No one can doubt that science fiction is an important part of literature. As Kurt Vonnegut, Jr. suggests, it offers people a chance "to re-invent themselves and their universe." Whether an entire course devoted to studying science fiction is justifiable or not is still an open question in this school's English Department. At this point in time, budget and government regulations prevent establishing a course for next year. But let it be said for now that a course outline for studying science fiction has been drafted, and since I still have that outline in my files, be assured that we haven't forgotten you. A word of warning, however, must be offered to all my science fiction friends. Readers of science fiction tend to be rather egocentric and elitist, as Mr. Treijs's articles clearly demonstrates. Be advised, therefore, that science fiction, though unique, is not an especially extraordinary form of literature. Science fiction readers do not have any "special" knowledge because there is no such thing as "special" knowledge. So try to "come down to earth" a bit more, and be more tolerant of those who see no point in your crusade. If you would like to talk about science fiction, you are welcome to come and talk with me. But first, get away from the drug store book racks and look for more than just "fun" in what you read. Look for a "classic" instance of science fiction, bring along a cup of coffee, and we'll discover how little each of us knows.

Finally, I hope all the science fiction writers in Chinguacousy Secondary School will continue to write and write and write. For as Kilgore Trout (Vonnegut's great science fiction writer) tells us:

"I think you guys are going to have to come up with a lot of wonderful new lies, or people just aren't going to want to go on living."

Each generation of scientists repeated the same error: one generation considered impossible what its immediate predecessors had thought was impossible. Accumulators impossible. But generations were wrong. Each feat was not impossible, but impractical to a degree very close to impossible. It was not the foresight to realize that to achieve, sometimes, impractically small means to be a failure. Each development was similar, in that each required a tremendous (some said impossible) amount of steady work, just to evolve the basic concept. The Lorentz Accumulator was built within the structure of contemporary physics, while the star-drive created its own physics as it went along. Paradoxically, while Science advanced, even individually, together they were impossible.

The Lorentz Accumulator was the last major product of 'classical physics' (i.e. physics before the star-drive). It utilized almost every aspect of the old physics, including the Lorentz Transformation--hence the name. Classical physics said it ought to work, and it did. That was fine. But after the star-drive had wreaked its havoc, and physics had been decisively changed, it was found that, by the new rules, the Lorentz Accumulator oughtn't to work. It still did. Ergo, the star-drive wouldn't work, and all the theories, rules, constants, and measurements were false. But they weren't, and the first star-drive-equipped spaceship returned from a round trip to Altair in exactly two weeks and three days. It was a mutual impossibility, now: neither the star-drive nor the Lorentz Accumulator were possible. Learned authorities searched their souls, but no answers came. So, with singleminded precision they decided that the Lorentz Accumulator was the easiest of the two to ignore, and they carried the plan through with magnificent enthusiasm. Lorentz Accumulators still existed, of course, but that was outside the hallowed walls of Science. If the properties of Lorentz Accumulators hadn't been so spectacular, Learned Authorities wouldn't have lost sleep over them, having never heard of them. Still, it ought to be pointed out that they were lucky. If Lorentz Accumulators had been easier to make and use, there would have been no end to problems.

The recipe for making Lorentz Accumulators includes the following ingredients: silver by the ton (as electrical conductors), mercury by the gallon, a few thousand dollars worth of xenon, and fair amounts of osmium, tantalum, scandium, fluorine. (It was no small wonder that very few were built. Lorentz Accumulators were actually distant relatives of electrolytic capacitors, but in this case the term distant is perhaps an understatement. It is significant that electronics experts, known one for the first time, usually didn't have the faintest idea that that nightmare of bubbles, leads, knobs, and capacitors was actually a capacitor. Only one in twenty-seven finally decided that it was a capacitor, after all. Other guesses included coffee machine, transformer, and railroad engine. Appearance isn't the only difference. When an ordinary capacitor is hooked up to a suitable power source, the amount of power it takes in and stores slowly declines, and hits

zero when it is fully charged. When a Lorenz Accumulator is hooked up, however, the power it uses--and stores--never declines. Capacitors are designed for storing electrical energy; some are good at it, some are bad at it. The Lorenz Accumulator was the best. It could hold as much power as was pumped into it. It was, in effect, a capacitor with an infinite microfarad rating. There were many applications where one Lorenz Accumulator might have taken the place of many cranky, tempermental, and breakdown-prone high-rating electrolytic capacitors. Unfortunately--and this was predicted in its theory of operations--a Lorenz Accumulator has a fixed rate of charge, that is far too low to make use of its high capacity--a rate somewhere in the region of a hundred watts a minute. The independence of this figure from applied voltage was puzzling, and the exact rate was worked out to fifteen decimal places by several institutions. But it is enough to say that charged at maximum rate for a minute, the Accumulator could light up a hundred-watt light bulb for the same length of time, which was far too little. The Learned Authorities had washed their hands of the matter, and the electron-jockeys couldn't think of a way to use Lorenz Accumulators either, and so things remained--for a while.

Ironically, the star-drive was a major (albeit indirect) cause in the discovery of a method for the useful application of a Lorenz Accumulator. The star-drive was cheap and efficient. The Solar System was polluted, overcrowded, running out of mineral resources, and generally in a mess. Even the politicians saw what was about to happen, but they, and all the other Powers That Be, couldn't prevent it. The Solar System became virtually deserted. It may seem strange that people would want to go to worlds where gas masks have to be worn outside, to worlds where there are wild climates and weather, to worlds with dangerous indigneous life, and to a host of other seemingly inhospitable places. But it must be remembered that at that time, conditions in the Solar System were worse than those on even the most ill-suited planets beyond. On Earth, one lived underground in tiny cubicles. On the other planets of the Solar System and the various planetary satellites, it was worse. Only a few remained behind; the psychologically unfit, the genetically unfit, the cripples--and the few self-proclaimed smart ones who saw that if the largely machine-run and labour-independent civilization of the Solar System could actually keep the former hordes alive, why then the remaining meager millions could live in the lap of luxury! To a degree, they were right.

The civilization left in the Solar System was a strange one. For almost two hundred years people lived, enjoyed, and did nothing much else. But after two hundred and five years, a powerful, nameless leader arose. He saw that the world was decaying, and that the people had already exceeded all former records for decadence. So in the best traditions of bureaucracy, he set up the most colossal make-work program in human history. Its ultimate aim was to stop the end of time itself, at least for the Solar System. If nothing was done, in four-and-a-half billion years the Sun would expand into a red giant, killing the descendants of those who had remained behind. Therefore: Something must be done!

It is a measure of the age's decay, and the leader's power of oratory, that the proposal was accepted. Yet there was a certain inevitability of acceptance. Those who could imagine going to the stars, already had. Now, those who remained couldn't think of leav-

and the Solar System. This was coupled with the lunar relief of
energy that the war will go on. Thus, it was obvious to the
Solar System's remnant of humanity that their descendants would not
only survive, but do so on Earth.

The project, apart from its scale, was simplicity itself. With
the coming of the star-drive physics also had come new knowledge
of the nuclear processes that take place in stellar cores. It had
been found that, with the right application of the right power, a
star could be prevented from going red giant for a time. If enough
power existed, the red-giant phase could be deterred forever. True,
eventually hydrogen will run out, but the Sun can shine for ten
billion years without using up more than 10 percent of its hydrogen.
And after all the hydrogen is used up, a greater energy expenditure
every now and then could keep it steadily burning helium. In fact,
the Sun could be kept burning, unchanged (except for a slight de-
crease in angular diameter), for about two hundred billion years.
Then, the ultimate sources could be tapped, by allowing the Sun to
slowly collapse into a neutron star, which has more energy avail-
able to it from sheer angular momentum and gravitational power than
hydrogen fusion could ever have given it. The neutron star that
had once been the Sun would shine for such a length of time, that
it must be called indefinite.

Indeed, the end of time itself was to be stopped!

The energy required to keep the Sun shining almost forever is
not much on the astronomical scale, if applied properly. A couple
billion kilowatts for a few seconds was all that was required. A
capacitor was needed, and the Lorenz Accumulator came into its own.
Both star-travel and use of Lorenz Accumulators were once considered
impossible, on grounds of impracticality. Who wanted to spend years
in space, just to reach the nearest stars? The star-drive took care
of that. And who could wait for a Lorenz Accumulator to charge up
to a reasonably high figure? In ordinary applications it was far
too slow. But for the purpose of preventing the Sun from going red
giant, it was perfect. It had at least four and a half billion
years to charge itself.

The project went into effect. The last traces of half-a-dozen
rare metals were found and mined. Mundane, everyday materials were
produced--plastics for insulation, ceramics for fittings, steel for
the framework, chemicals for the electrolyte, complicated circuits
for controls. A huge installation began to form on Oberon, the
second-largest moon of Uranus. The complex included: the Lorenz
Accumulator, astronomical instruments which would detect any change
in the Sun, the gigantic broadcasters that would channel the energy
and apply it on the nineteen-AU distant Sun, banks of solar cells
for power, and, to coordinate all the operations, a great, self-
repairing, self-adjusting computer.

Two hundred years passed. The great complex grew, and grew,
until it covered forty thousand acres. At last, it was finished.
In the dim, greenish Uranus light the last weld had been produced,
the last silver contact molecularized into place. And the civil-
ization that had produced the greatest engineering feat of humanity
collapsed. The effort had been too great. It had not been a make-
work program, but an overwork program.

Beyond the Solar System, Homo Galactica makes new compacts with
alien races, and the Galactic Federation, already partially exist-
ing before humanity came, reaches its definitive style. As the
thousands of years pass, humanity splits apart, into new races, and
the new races themselves split. The Galactic Federation also splits,

into Leagues, Protectorates, Confederations, Associations, Clusters. Though there are many races, species, and orders, soon there is only one Kingdom: Kingdom Galactica. All are included: space-dwellers, chlorine breathers, sentient groupings of electrons, the multifaceted remains of humanity...

On Earth, the descendants of the collapsed civilization had degenerated into savages, beyond. They had devolved. They were no longer strictly warm-blooded; their temperatures could range from 80 degrees F in winter, to 99 degrees in hot summers. Some still retained their rudimentary embryonic gills after birth. Hair was replaced by scales.

Then came the New Ice Ages. The degenerate humans almost died off then, but not quite. Slowly, painfully, under the lash of the advancing glaciers, they re-evolved. But they were no longer human. They had slid down, and when they rose again, they rose to a different place; not higher than before, nor lower, but beyond, in a different direction, from humanity. With strange speed, they discovered the Galactic Federation, before it had split. They were accepted, but not recognized as of human stock. Earth had been forgotten by Homo Galactica. Titania is landed on, once, by a scientific expedition, but the huge installation on nearby Oberon is not noticed.

The Universe grows old. The splinters of the ancient Galactic Federation coalesce again. The new Federation moves to younger galaxies. At last, when even the youngest galaxy grows old, they leave this Universe for other, richer grounds. Again, the Federation splinters, perhaps forever, as different groups choose different cosmos. A steady inter-dimensional stream of trade flows between the Universes populated by Kingdom Galactica, but the old, home Universe is rarely visited. The complex on Oberon is never found; now has anyone ever looked for it.

In all the Universes, time passes. In the Universe that was the birthplace of humanity, it moves with perhaps a quicker pace than in most. And as the great clock that was the Galaxy turned, marking off two hundred and twenty million years with each revolution, the Lorenz Accumulator drank in power. As the number of revolutions climbed beyond one hundred, the Accumulator became the most powerful potential energy source in the entire aging Universe. It had nowhere near the amount of energy radiated by the smallest star in its lifespan, but what it did have it could give off in one powerful surge, and during that brief instant of time, it could put a supernova to shame.

The Galaxy passed through its two hundredth year since the Lorenz Accumulator's inception, and the Sun still shone bright and yellow. But sensitive instruments detected a slight increase in its luminosity, a slow shift in its spectrum, a slight structural change in its arching prominences, a small irregularity in its sunspot cycle, all foreshadowing the red giant phase. The giant computer, dormant for billions of years, became almost alive. Its instructions now were to find and protect all the human beings in the Solar System.

Bound by a program written by people four and a half billion years dead, it started a vast search over the entire System as far out as the comet halo, two light years distant. Probes were launched from buried silow, where machinery still worked, and would continue to work as long as an electron still had the energy to circle a proton.

The search lasted for eight thousand years. At its end, there

was one inarguable fact: No humans remained.

The computer searched for instructions--and found none. Its designers had not even considered the possibility that, four and a half billion years hence, there might not be any humans left to protect. To them, the possibility had been an impossibility. They had looked far ahead, all the way to the death of the Sun, but had not seen that, even as the Sun changes and evolves, so do races. They may change up or down, but change always occurs. Instead of preserving the human race, those long-dead builders had left the greatest possible monument to the perennial human belief that tomorrow will always be the same as today.

The computer had been left in the lurch. In every cycle it registered an unexplained systems error. Bound by its program, its design, its hardware, it could do nothing but search for the cause, which by the nature of things could never be found.

It was still cycling through its troubleshooting program, two hundred thousand years later, when something gave. Its processing section consisted of nothing but free electrons, unable to wear out, so it seems likely that some portion of its ancillary equipment, made of mere matter, malfunctioned. Somehow, a random flow of static closed the neutrino relay for the Lorenz Accumulator.

Over the ages, the giant capacitor had gathered some 7.0×10^{30} kilowatt-hours of energy, and now, in a matter of nanoseconds, four and a half billion years of stored energy discharged.

A wavefront of sheer energy raced out from the cloud of gases that had been Oberon. Uranus was vaporized, followed by Jupiter, three hours later, but the fates of the planets don't concern us here; rather, the effect of the sudden pulse of energy on the Sun.

The corona was ripped away, and the photosphere followed a billionth of a second later. The Sun's inner layers, no longer held down by pressure from above, blew open all the way down to the infant neutronium core.

The Solar System had begun as a cloud of gas; it returned to a cloud of gas. Matter from the nine planets mingled with that of the Sun and with each other, and a sphere of superhot plasma expanded at the speed of light outwards, towards infinity.

And for the first time in a million years, a supernova shone forth in the Galaxy.

- Lester Rainsford

There is very little science fiction poetry in existence on this planet. We at the Reticulum are very lucky to have unearthed such a poet, however. Her name is Sue Morley, and some of her poems follow:

I saw the effigy of Time.
It was tall, cold-like marble statues in a museum.
I was afraid to touch it,
For fear my hand would freeze.
The image was a covered void
It always moves, never the same.
And then the wind blew it away.

Dreams are for those
With eyes, but cannot see;
With ears, that cannot hear.

They dream of mountains and valleys,
Of rivers, lakes, streams,
Places unknown and yet always seen.

To consume a world.

We are!

We will leave-
To find another.

Others have!

They have come-
To use ours.

Should we stop them?

All these-
memories of a war,
Ruins that remain-
to remind.
What if:
In some world
Strange from ours
History changed.

These would be victory signs-
not defeat,
The Allies would have lost -
And the Germans won.

If I stood on the deck of a ship
On the deck of a ship
And a gust of wind blew by me-
I would grab it by its reins
And ride it.

Below me I would see
A sea of deep blue,
With dolphins and gentle whales.
Above me I would see
Airoplanes and
Birds with featherless tails.

And all around I would see
A world so lost for long.
I would wonder why
This, -my earth- was over born
Then, I realised.
It was because -God loved.

SCIENCE

Isaac Asimov is a distinguished author of science, science fiction, and almost every thing else. His works have appeared in many various publications under several pseudonyms, as well as his own name. It gives us great pleasure to be able to publish this hitherto unpublished science fact article by the great Isaac himself. The topic for this article is:

LIFE IN ANCIENT ROME: ROMAN TRANSPORTATION (OR, CLAUDIUS AMONG THE CLOUDS!)

The ancient Romans, two thousand years ago, performed a feat unmatched until modern twentieth-century Los Angeles. They made the ancient world's largest eight-lane parking lots. (This was where they'd leave their chariots while going to a drive-in toga emporium.)

The Roman system of transportation consisted of two elements: roads, and chariots. (The chariots went on the road, not the other way around.) Gibbon made a big deal of this. (Ed's note: Gibbon wrote "The Decline and Fall of the Roman Empire".)

The Roman chariot was a two-wheeled device. Except for the one built by Nero. It had three wheels. All on one side. (This really didn't matter much, since Nero went around in circles pretty well all the time anyway.)

The chariot would be powered by a horse. This horse generally went in front of the chariot. Unless it was a Volksechariot. In which case the

horse went in the back. And some didn't have a horse at all. Their drivers were obviously not equestrians, and consequently held much in contempt by all. (Thus the modern phrase "Get a horse!") There were of course, also special models, such as the ones used in chariot races, or the ones used by Rome's secret police to check out the public baths for security leaks.

The chariots, once developed, went through very little design changes. One enterprising company did try to build a wheelless model, (the so-called Bricklinius chariot). But the venture collapsed, as did most of the chariots. After that, improvements were restricted to purely cosmetic improvements, such as coon-skin antenna-hangers, three-tone horns, vinyl decor groups, and chrome plated cowcatchers.

Roman roads were a marvel of engineering. They had to be. They were eternally under construction. Going from one side of Rome to the other, one might be detoured clear out to Hither Spain. (Named so in a vain attempt to get it closer, i.e. to come hither.) It got so bad after a while that the detours had detours, and things were all going to pot. For instance, Christ was born in 7 BC, but by the time the calendars had been delivered, it was 1 AD. This was very annoying to all those who kept track of such things.

The Romans drove on three sides of the road: the left side, the right side, and the wrong side. It all had to do with the date (always remembering that the calendars were often as not five years out). From April to August, Romans drove on the left side of the road. From September through to March, on the right side. (This explains why the British, who drive on the left-hand side of the road exclusively, omit September through March on their calendars. Assuming the calendar isn't off by three years.) And then there was Bacchus day. Bacchus was the patron god of wine, good times, and Celsius thermometers. Everyone was so drunk on Bacchus day that they drove on the wrong side of the road whatever the date was, and regardless of what the traffic wardens said or did.

The Romans built great causeways out to the provinces so that the poor benighted provincials could have the aid of Roman goodwill, generosity, practicality, and Bessan. Every few weeks, the locals would go out and blow up a few roads. Like clockwork, the Romans would show up and repair them. The Romans really thought their subjects liked them. The regular

collapse of roads, bridges, and aqueducts were attributed to bad weather, migraine headaches, and Hannibal's elephants. (The calendars were so out of date that Hannibal managed to hang around for a couple hundred years. Or so the Romans thought.) In fact, things got so bad that after a while signs were posted on all the main causeways: Elephants Prohibited in Centre Lanes. The side lanes (complete with Right Lane Must Exit signs) would go off the edge of the cliff. This was deemed a good way to get rid of elephants. (The people living under the cliff didn't think it such a hot idea, though)

About the time of Nero (who reigned from 470 BC to 223 AD if you can believe the Roman calendars), the growing imperial traffic threatened to overwhelm the system of roads. Nero, upon hearing of the problem, came up with a perfect solution: Let them use helicopters!

This caused quite a problem in itself. (The only helicopter company in Rome had gone out of business the year before--if you can trust the calendars...) The fact was, Nero relied for most of his inspirations on a much wiser and abler head than his own. His Consul, the Horse. (Can't you just see the TV series?) Finally, by imperial decree, eight became ten, and then problem was solved to everyone's satisfaction. At least Nero thought so. And after all, he was the emperor. (During the time of the Romans, the magnetic north pole didn't coincide with the true north pole. It still doesn't today. Is there any significance in this?)

But the traffic jams were not the worst of the problem. That was at night, when Ben Hur and his buddies would trundle their buggies out on the main strip for a drag. Quite literally. The loser would be pulled through the streets of Pompeii by the victor. This was rather difficult, since in 79 AD, or 31 BC, or whenever, Pompeii had been buried by the eruption of nearby Mt. Vesuvius. It made it all the more fun though. And afterwards (if there was an afterwards!) the poor fellow would get tossed to the Christians. It was a fate worse than death: thirty hours of Cecil B. DeMille (and Charlton Heston too, of course).

And so things went downhill. (Have you ever seen a chariot roll uphill?) Traffic congestion got worse and worse, parking fees went up and up, and the Appian Way was renamed the Spadainian Way and was promptly cancelled, completed or not. Finally, sometime between then and now (according to

the calendar, anyway) along came a fellow who solved Rome's traffic problems once and for all. His name was Attila the Hun, and his proposal was ingeniously simple.

He sacked Rome.

No people; ergo no chariots; ergo no traffic jam.

The Minister for State, Beauty, Roads, Health, Welfare and Birdbaths (commonly know as the emperor) did protest rather violently (he sent a thrice-used Christmas card instead of a new one in December) but to no avail.

And so ends the saga of Rome. The Romans roamed far and wide, building new roads. Then they built more chariots than the roads could hold. There is a moral here.

Never buy a sundae at a Roman drive-in without telling them to chariot. Vanilla tastes terrible.

* * * * *

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This is the first attempt at fantasy by Arne Hanover, and we at the Reticulum are pleased to be able to present it. So without further ado...

THE VALLY AND THE AGE

The valley had been scoured out by a retreating glacier, fifteen thousand years before. Trees refused to grow in the rocky till moraine the ice had left behind; the valley became a moor. For thousands of years it continued, unmolested, undisturbed.

The Roman Empire was but an ephemeral touch on it. A military trail ran through its northern end for a few years, during the reign of Marcus Aurelius; with the accession of Commodus, the trail was abandoned. It rapidly grew over; in a few years no trace of it remained.

The valley was unaffected by the fall of the Empire; neither Charlemagne nor the coming and ebbing of the Dark Ages disturbed it.

Time rolled on; civilization grew. Finally, in the early eighteenth century, a crofter built his stone cottage in a slight hollow--exactly on the route the old Roman trail had followed, fifteen hundred years before.

The valley was under attack.

Came the late eighteenth century. Victorian engineers were building quickly, beginning to hit their stride; Britain was becoming fast enlaced and reinforced by railways. Individual strands multiplied, redoubled, increased, till they were no longer a collection of individual threads, but one vast tapestry.

Out of Birmingham, a branch line tentatively groped westward. With no real plan behind it, it still grew; presently, it encountered the valley.

To the Romans, the valley had been no obstacle. The trail ran down one side, and up the other. But a railway is a different thing. Given too great a grade, a locomotive will slow down, stop, and eventually start rolling backwards. A detour around the valley proved to be impracticable; so, to span it from one side to the other, a viaduct was built.

In essence, the viaduct was nothing but the most efficient Victorian method for supporting the railway tracks; the tracks themselves simply supported the trains that rolled on them, and the trains--

But the valley cared not.

The fourth span collapsed while under construction, killing three workers. Another span was built in its place; this one held, as did the others--twenty-three in all. Now, having bridged this impediment to its progress, the rail line forged on ahead, not looking back at the viaduct; the engineers that directed its growth looked only ahead. Behind then lay consolidated territory.

Of the twenty-two pillars, seventeen were placed directly athwart the old Roman trail. The cottage found itself directly between two of the tallest pillars; to the tremendous effect the viaduct had on it, it reciprocated in kind, and gave it its name: Glencottage Viaduct.

The cottage inhabitants learned to live with the railway that passed directly overhead; they became accustomed to the night trains that rumbled out of Birmingham during the line's heyday, and to the steam whistles as the freights approached the viaduct. On still nights, the valley would echo and re-echo with the locomotive's wails.

The valley, fifteen thousand years of existence behind it, was patient.

As time went by, the railways declined. Fewer and fewer trains roared over the viaduct.

The latest, and last, descendant of the crofter who had originally built the cottage grew old, and sold it to a young couple.

The valley was patient, but the Victorian engineers had built as well as the Roman ones; like Roman viaducts, Glencottage Viaduct might remain standing for thousands of years, long after railways were forgotten.

George tossed and turned in his bed. A profound sense of unease had settled on him. 3.20 AM, the clock said. What was the last time he'd looked--2.45? He'd been awake for over half-an-hour, with no indication that sleep was coming.

Quietly and carefully, so as not to disturb Margaret, he slid out of bed, and began making his way towards the door. For the first few steps, his feet were lulled by the woven carpet that lay by the bed. Then, as he moved deeper into the gloom that pervaded that end of the room, away from the wan square of illumination provided by the window, his feet came down on cold, smooth, varnished wood. Still quiet, he crept to the door, which was little more than a fuzzy white blob. By instinct, he found the doorknob and turned it. The door opened with a slight creaking noise. He moved into the cottage's other room, which was considerably cooler. Immediately to his left was the door to outside. Pulling the door to the bedroom shut behind him, he unlatched the entrance; a ain, with no aid from the gray blob of a window at the far end of the room. A quiet rustle of hinges; then he stepped over the sill, onto the slate threshold, and he was outside.

A late-rising, old crescent moon lay low over the valley walls, shining on the light mist that covered the land and rose, ghost-like, from the ground. Outlined by the wan yellow light, the viaduct's shadow made crazy patterns on the uneven, rocky ground. Perhaps it was the combination of mist and moonlight, that the sky was curiously devoid of stars. Only Jupiter, setting in the west, showed.

George realized that this was one of the surreal, preternatural hours when the old Celtic mysteries were still afoot, and the Druid midnight loomed. Even the viaduct, a dark mass directly above him, seemed to be part of that other world; a huge temple of massive, tall stone arches, black against a dark-blue sky that glowed by moon-cast light. As if, it had been there for millenia; a counterpart to Stonehenge, a part of that same, shadowy universe of demons and witches.

George stood still, revelling in this supernal hour that, somehow, touched a responsive chord in him. The mist, the moon, the Gothic

arches and their shadows on the moor--

From the west, the parade started. George became first aware of it as a single, brighter glow, in the corner of his eye. Intoxicated with the strange night, he slowly turned. Around him, the night remained unchanged, but when he looked back, the cottage and viaduct had vanished. He stood on a narrow path; along it, from his left, came a ghostly legionary, its substance thickened, pearly-glowing mist. George stood aside, and let the apparition pass. There came another, and still another; messengers all. Every one was in uniform, striding rapidly yet noiselessly towards some phantom encampment, outpost of Empire.

For a short time, nothing happened. Then, out of the east, came an entire squad of ephemeral Roman soldiers, fast-marching west. Marcus Aurelius had died; the garrison was moving. George watched as the troops marched past, and disappeared into the enshrouded distance.

The trail was gone; in its place, a stone cottage stood. It was real enough, but its inhabitants were mere inverse shadows, though they possessed a light and life of their own. There was a woman, who constantly moved in and out, sometimes carrying a glowing wooden pail, which she handled with extreme care. There was a man, who only infrequently appeared, striding out of the house and off down the valley, where his light was bleached and finally overpowered by the yellow moonlight. And there was a small ghost-child, constantly running about, in and out--until, suddenly, he was no longer in evidence, and lines of sorrow could be made out on the woman's face.

The man was somewhere inside; the woman picked up her pail and went in, likewise. For a brief moment, the valley was desolate again; then, the viaduct was back, black and brooding. This time, there were also three ghosts; they tumbled and fell from the fourth arch, soundlessly screaming. The impact was hidden by low, woody bushes, but George was convinced he felt a slight quiver through the soles of his bare feet.

A ghostly locomotive rolled over the viaduct, pulling a white mist train. No sound came from it, though the stone structure itself creaked and shivered ever so slightly.

With a start, George came back to his full senses. What had happened--? The moon was perceptibly higher; the incipient fog had thickened. What had the visions been? Just a nightmare, or--?

He became aware of Marg standing beside him.

"The spell of the Celts..." she whispered.

They looked at each other, wonderingly.

Ominous---the night had turned ominous. A supernatural doom was stalking a black, imperceptible shroud.

Without speaking, by common consent--or was it instinct?--they found their boots, which stood outside, right by the door. There was a creak from above, and a pebble fell inches from George's head. It was followed by another, and another; then, a chunk of masonry thudded to the ground...

The intervening time, like the far hills, was hidden by a fog. George and Marg found themselves standing on the valley's edge, looking down into it. To their left, the viaduct loomed; the moon cast their interminably-stretched shadows deep into the

valley.

The ground shuddered subliminally; the bushes that covered most of the valley floor stirred briefly in the windless night. The other world, the Britain of the Druids and Celts, was reasserting itself.

The viaduct stood, silhouetted against the cloudless, moon-lit sky. Perhaps only imagination--but wasn't it slowly crumbling? Could those barely-felt thuds be the impact of falling blocks? To the eye, nothing had changed; the viaduct held firm, powerful, arrogant, against the black-blue backdrop. But to the other senses--

There was a wild, soundless shriek, as if all the old spirits, regaining life, were calling to one another. And with this cry, the viaduct fell.

Slowly, majestically, its outline wavered, became shot through with cracks. One after another; singly, in pairs, or groups; the shattered arches crashed to the ground they had disdained for so long. The earth shook; dust billowed up and out, higher than the viaduct had ever been. The valley resounded with the deep bass crash.

Slowly, reluctantly, the tremors were damped out; sound, stilled. There came only the occasional rumble as the huge blocks settled. A line of tumbled, chaotic stones marked the place where the viaduct had once been. Only two arches remained standing amidst the ruins; the cottage, under one of these survivors, was undamaged.

There came again that soundless cry. The valley, lit in deep relief by the rising moon, was--smiling? The mist soundlessly rose, entwining itself around the ruins. Not a breeze moved the bewitched air. Time seemed slowed; the moon-cast shadows shortened and moved almost perceptibly.

The mood changed with the light; no longer was the valley smiling, but became an enchanted hollow, a thing of moon and mist, Druid and Celt. There was a shifting, a darkening. The valley became ominous; shadows, blacker and more surreal; bushes, sinister. /n--impending--air settled on the scene; the mist curled expectantly.

Another soundless call began--

Both turned and ran, not looking back.

When they returned, in the early morning when sunrise reasserted the domain of light, it was as if a warp had occurred in the Earth's surface. The valley's opposite sides had come together; of what had lain between, there was no sign.

The tropical jungle paused only momentarily at the edge of the alien heath. With the righteousness of plants in their own element, vines enshrouded the cottage, and the rainforest grew over the viaduct's wreck.

--Arne Hanover

SPACE 1999: A CRITICAL REVIEW

When this series was first announced, you had to be impressed. A new SF series sounded good, even if Martin Landau and Barbara Bain were the stars of the show (you can't have everything). It seemed that, at last, we would have a successor to Star Trek.

Unfortunately, the anticipation proved greater than the realization. The show's first episode turned off practically all SF fans, for one simple reason: it is NOT science fiction! And never can be. To understand why, you have to understand SF.

Science Fiction, of course, must be scientifically accurate. This show doesn't come close. The initial premise, that the moon could be blasted out of orbit and driven into interstellar space by a nuclear explosion, is crazy (unfortunately, I can't use language which allows a better description). First, an explosion should simply blow the moon into assorted pieces, not drive it anywhere. Second, even if the moon was driven out of orbit, its velocity would be 55 miles per second, far short of lightspeed (186,282 miles per second), which would mean that the moon would take 3400 years to travel one light-year.* It would only take the moon about 13,600 years to reach the nearest star (Proxima Centuri, 4 light-years away). Since this is somewhat more than one lifetime, it is obvious that anyone on the moon would be long dead before it went anywhere. Therefore, the concept of Space:1999 is totally and completely inaccurate.

The concept is also unbelievable. Believability is the second, and perhaps the most important factor, in good science fiction. The viewer must feel that he can believe what he has just seen. He must believe that Captain Kirk commands a starship, or that Cornelius is actually a chimpanzee (not just Roddy McDowell in makeup). It is an extension of the principle of English of "the willing suspension of disbelief," but on a much broader scale. In a play, one must only accept the passage of hours, days or years in the time it takes to go from one scene to the next. In SF one must accept not only that, but the background of the show as well, since the background is a creation of someone's mind, not something everyone is familiar with. If one can accept the background, one can accept the stories built on that background. The Space:1999 background is, as mentioned above, unbelievable. So the stories can't be accepted by the viewer.

Nether can the characters. They carry a show. If the viewer sees the characters as people he can accept as real people (in the sense that he could meet them on the street), they will make the viewer a believer in the show. If not, well...the show passes into fantasy.

This is important in SF television. Other TV shows' characters are (supposedly) real; SF television must make its characters believable. Star Trek did, Space:1999 hasn't.

The problem is partly due to the characters created by Gerry and

*These calculations come from the February Analog.

Sylvia Anderson, and partly due to the actors. The characters are stereotypes: the intrepid commander (John Koenig), brilliant scientist (Victor Bergman) and excellent doctor (Helena Russell). The minor characters are an unusual lot (aren't they all?). Even ITV admits this, and hopes to "develop the characters further" next season, especially the minor ones. Alliwell and good. Now, if they could only find some actors to play them...for that is another problem with this series. The actors, with two exceptions, can't act. Martin Landau is better as a man of action rather than a man of thought--all he has to do is run and hit people (aliens, or machines, or...). When Landau tries to say some of his lines, he comes across as just that--a man saying artificial lines. Philosophical meand rings (at the end of each show) seem inconsistent with the character. Koenig is happier (and better off) with simple lines, the simpler the better.

Landau, however, is far superior to Barbara Bain (so is everyone, for that matter). Miss Bain couldn't act in Mission: Impossible either, but the rest of the cast covered for her. In this show, she is a major character, but she simply cannot carry the role. Her acting would be fine if she were playing a robot, or a wall, for her delivery is a perfect monotone. It amazes the viewer how she can retain the same expression and tone of voice for sixty minutes.

The character isn't very interesting, either. She simply doesn't give the impression that she is a doctor. She takes unnecessary chances trying alien contraptions on herself; unfortunately, nothing happens to her when she does so. Doesn't ITV know better than to tantalize (torment?) the show's viewers by promising Miss Bain's destruction, and her attempts at using medical jargon borders on the ridiculous: she trips over her lines. All in all, Miss Bain is one of the major crosses the show has to bear.

Barry Morse plays Victor Bergman, the scientist, and he at least tries. He does project an image as a scientist, it isn't his fault the scientific lines he has to say are totally unscientific. When Landau and Bain are around him on the set, they appear slightly believable, and that is an accomplishment. It is unfortunate he is not used as often as he should be.

The minor characters are (in no order) Sandra Benes, Alan Carter, Paul Morrow, and Bob Mathias. They are a faceless lot, distinguished from each other only by the uniforms they wear.. The only interesting one among them is Sandra, who is in live with Alan, Paul, and a couple of others in the course of the series. This seems all right at first glance, but when she falls for three of them in the same show, the viewer is left to wonder what is going on up there. Sure, life gets boring on Alpha, Sandra, but this is Family Viewing Time, you know.

All in all, the series has few good points. The show is un-scientific: un-science, un-fiction (as Lester Del Rey has said), the characters are wooden, and the stories insane. One gets so tired of hearing that the moon has been destined to leave Earth

"since the beginning of time" and of seeing aliens attack Moonbase Alpha-without destroying it. There is also the dream show, where Keenig (and the viewers) dreams Alpha is destroyed, only to awaken and find that all is well. There is the show where Alpha wanders into a solar system where two planets are at war, and both proceed to use Alpha as a platform to shoot each other. Since Alpha was millions of miles from both planets, this is absolutely incredible, when one takes into account the fact that our own moon, 250,000 miles from earth, can't be used as such a missile platform. There's the show the show...but you get the picture. The plots of Space:1999, like everything else, are terrible.

The only good thing in this show is the special effects. These are brilliant, but the total incompetence of the rest of the show makes the effects terribly out of place.

Unfortunately the show is returning next season. They have hired the producer of Star Trek's third season, Fred Freiberger, who only ruined the show in its third season. Freiberger has stuck an alien in the show, Maya, who "has a computer mind, but is very playful and likes to turn herself into a tiger." That wouldn't be as bad as turning into another Barbara Bain, but does she have to turn herself into things. This isn't SF-this is fantasy (and terrible fantasy at that)!

On the whole, then, this is a terrible series, and is going downhill from there. There is a bright side, however.

Instead of watching Space:1999, how about the 83rd rerun of Star Trek's "The Trouble with Tribbles"?

- Paul Keery

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From the Editors:

We hope you have enjoyed this issue of the Reticulum, and that you will look for it again next year. We feel that all the work we put into this has been justified. We also wish to extend thanks to the English Department for their support and materials. We wish to thank the contributing authors, and hope to see them again soon. The Reticulum bids 'Good-bye'!

P. K.

T. P.