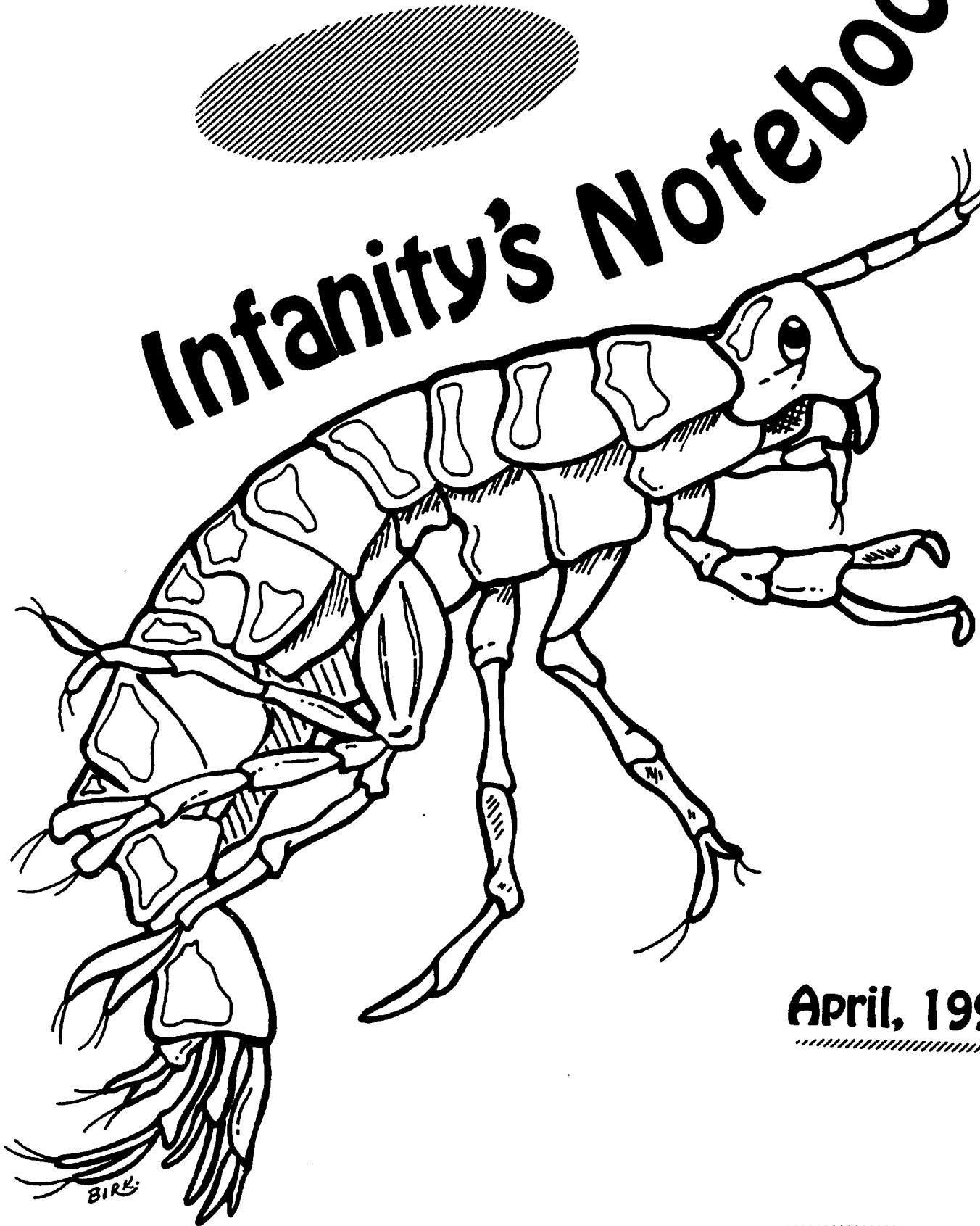


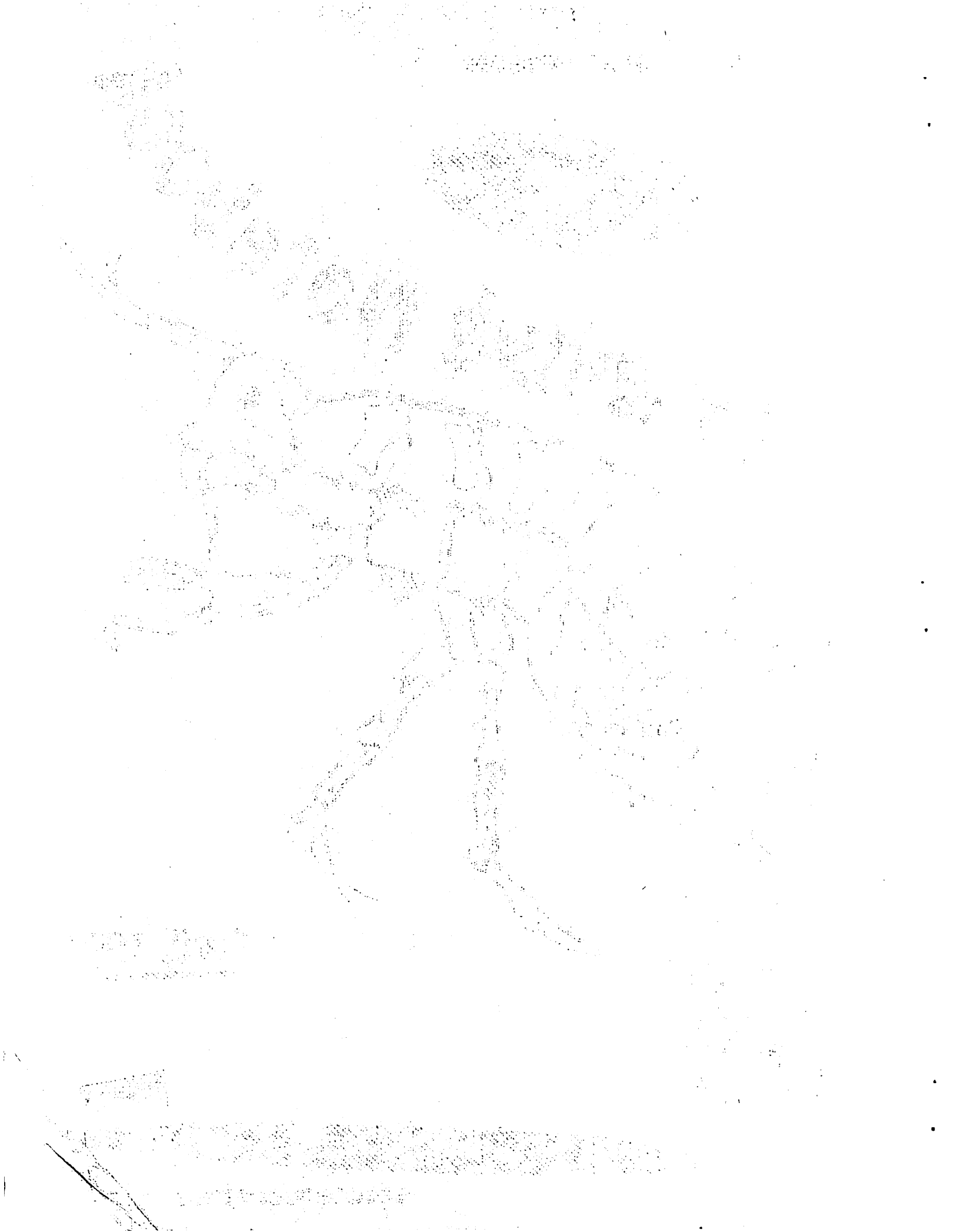


Infaninity's Notebook



April, 1994





DECimations

Hello browsing went the string low
 sweetie pine apple. Dump truck sack now ledger
 demand notice water melon collie flower child.
 Hoodwink at it. See bit partnership. Wreck less
 bravery bop. Landsend in sight lines out back
 wards. Possibility house of the august moon
 shine bright in the morning sunday school dase.

Fandom bell tolls for nomad manticore
 memories. He come easy goat heard round the
 whirl win someone if by land. The fish hook
 worm holds cloth headless horse. Shoe horn of
 plentiful marks the spot luck piece mill stone cold
 welcome. Homing pidgeon hole in wonder
 where's the beef about of flu over the cuckoo
 clock working party.

Thanks a million dollar bill of good will
 of the wisper. Send dig yourself outcome when I
 call of the wild west show place in the sun.
 Down the up starecase closed to the public image
 in a mirror. Reflexible supports of call to dinner
 bell the cat of nine tales from the white hart.

Ye Ed

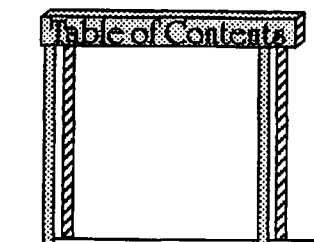
Published gallantly by Ed I. Tor at \$2.00
 per square yard. One year subscription for \$600.
 Address all co-respondents to Occupant, 2001
 Grinning Drivel, Bom Bay, Flatland 124C41.

Originalsin 1984 by Ed. I. Tor..

All contraband not covered to some
 semblence of decency are expected to look out
 for themselves; I've got my own problems. All
 rights to artwork and other material revert to their
 natural state.

The opinions, comments, views, and
 reviews expressed anywhere at any time are those
 of the authors and artists and not necessarily
 those of anybody else.

Inanity's Notbook



DECimations - Babelings	i
Mimeo to a Phoenix by A. B. Dick	0
The Long and Short of It by S. Morse	0
Phans for Phun and Profits by B. N. Elf	0
The Way We Were by L. Chaney	0
Fellowship of the Ring by C. Clay	0
The Two Towers by Eiffel & Pisa	0
Return of the King by E. Presley	0
Notworthy	-i
LOC's Nest	-i

You can fool most of the people most of
 the time - which says nothing at all about
 fans. (P. T. Lincoln)

Notworthy

CONtemplation

Filk guests of honor will be new group AIRHEADS, who have just released their hour-long silent tape, *Zero Part Harmony*.

o o o o o o o o o

ParaCon

The Palm Bay in '98 Worldon Committee has promised to prohibit filking in public, i. e., more than one entity within earshot. The win of their bid is expected to be a foregone conclusion. However, an injunction has been requested, barring the Con from banning filking among consenting adults.

o o o o o o o o o

NFFF

The National Filk Fan Foundation had its first meeting February 29, 1994. Dan D. Lyon accepted his election as the organ's first president with a few well chosen notes, promising a guitar in every garage and a filk of tully at every con.

o o o o o o o o o

Blazing Banshee Charts and Musings new release

Circle of Filks (tape)

Contents: *Planned Embargo, Velveeta, Sire of the Fly, The Best of Sanborn Coffee's Brew, Chip of Bone, Rue It Poor Elf, Gene Sieves, All of the Silkie's Are Filking, The Whirl Inside the System, Hoka Kyrie, Bar Whores, Naughts Are Strange Factors, Merry Omerta, and Ion Mattress.*

Loc's Nest

To Whom It May Return,

Thanks for the article on the *Quantum Electrodynamics of Toner*. My copier never felt better.

Yhos,
X. Rox.

Dear Editor,

Your index of thirteenth fandom fanzines is incomplete. You left out *Murphy's Law* by M. Brown, *Monkey's Paw* by K. Kong, and *Broken Mirror* by D. Ganger.

Best,
Phanny

Dear Mr. Cochran,

G. Well's monograph in your July issue was most helpful. I am citing it in my dissertation, *Empirical Chronomorphism of Entrophic Hysteresis*. Please extend my gratitude to the author.

Yours sincerely,
T. Traveler

Ye Ed,

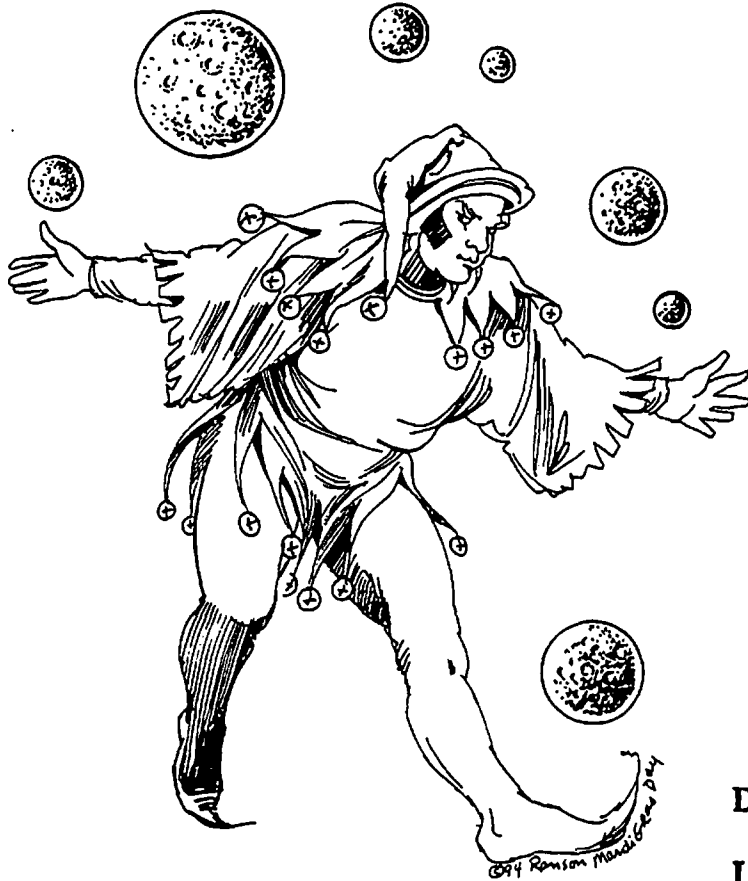
The fourth issue was the best yet. How did you ever get Fish, Mar, and Smith to write *Threes, Rev. 3.3*, doing alternating bars? The music, scansion, and rhyme were impeccable.

Regards,
MM

o o o o o o o o o

YAGTB

- _ Nobody else would have it
- _ You wanted to be ignored
- _ ego demanded it!



Infanity's Notebook

Note 3

April, 1994

Table of Contents

DECLarations - translations from the Yeddish	2
Living Dead Picnic by Doug Wu	4
Learning a New Art Form by Fran Mullen	5
The Civilization Game by Donald E. Cochran	6
Puzzle Piece Answer	15
Noteworthy	15

Published quarterly by Donald E. Cochran at \$2.00 per copy. One year subscription (four issues) for \$6.00. Address all correspondence to Donald E. Cochran, 1001 Glenham Drive NE, Palm Bay, FL 32905. (CompuServe: 70541,2754).

Copyright©1994 by Donald E. Cochran.

All contributions not covered by prior copyright are copyrighted as part of *Infanity's Notebook* note 3, April, 1994. All rights to artwork and other material revert to the contributors upon publication of this issue.

The opinions, comments, views, and reviews expressed in *Infanity's Notebook* are those of the authors and artists and not necessarily those of the editor and publisher.

Art

- Sheryl Birkhead - cover, i, 2
- Peggy Ranson - 1, 3, 4, 15, 16
- DEC - 5

DEC
larations

A bundle of my sincerest thanks to the contributors to this issue, most especially Peggy Ranson, whose fine drawings are appearing for the first time.

If you like my fanzine, let me hear from you. If you don't care for some or all of it, tell me about it. I would appreciate any and all feedback, especially suggestions for improvement. Hint: the best way to get what you want included is to send a contribution.

If anybody would care to write an article on *Connections 2* as a follow-up to my article "The Civilization Game", I would very much like to publish it. I know its being shown on The Learning Channel, but the local cable company doesn't include that one.

Now that Star Trek TNG is leaving the air, it's too bad that at least someone in the television industry won't take this chance to try a different format. There are dozens of universes already created by science fiction and fantasy authors which could act as starting points. Norton's Solar Queen would be one which would permit many interesting story lines. Then there's Bradley's Darkover and Norton's Witch World. Another interesting idea would be a cross-time/alternate universe series based on Piper's Paratime Police stories or Laumer's novels. Vance, who is a master creator of weird and colorful cultures, has created two worlds that would make dandy settings for sf adventure series. One is his 'Big World' planet, home for all the fanatics, crackpots, and misfits of Earth

who could scrounge the necessary to emigrate and set up a colony. A series with connected episodes building toward a definite finish could be based on Vance's "Planet of Adventure" novels about a spaceman who crashes on a world containing humans, but which is also inhabited by four non-human species.

Speaking of Vance, I've always thought that his novel *The Blue World* is tailor-made for turning into a movie. The situation involves the human descendants of a colony ship which crashed on a world covered by water. The plot depicts the struggle between the humans, who live on giant floating sea plants, and the kraken, a squid-like sea monster several dozen feet across, which has become the object of a religious cult. There are many creature movies like *Jaws* which rely mostly on shock, but an intelligent director and a competent cast could come up with a well-done movie, especially if the script writer could be prevailed upon not to 'go Hollywood'.

Does anybody out there want to write an article on the Sci-Fi Channel? I haven't watched it, but from the show listing, I don't think I've missed much. I wouldn't mind taking a nostalgic look at some of the series I saw when my family first got a TV like *Science Fiction Theater* and *Captain Video*.

Can anything be done about the proliferation of gigantic novels and endless sequels? I saw a book in a store two or three weeks ago that busts all previous bounds. It was about 800 pages long and the cover proclaimed it to be only the first volume.

I've been thinking about the way that filking was run at Magicon compared to Nolacon

and NorEastCon, the last two worldcons that I went to. I enjoyed the filking and hearing filkers like Larry Warner live for the first time. The one-shot concerts were a feature that I had never been to before. I especially loved the one on Monday for songs written at the con. The afternoon half-hour concerts were more extensive than ever before. I didn't go to quite a few interesting programs so I could hear filkers that I couldn't bear to miss. The rendezvous get-together that I went to was excellent also.

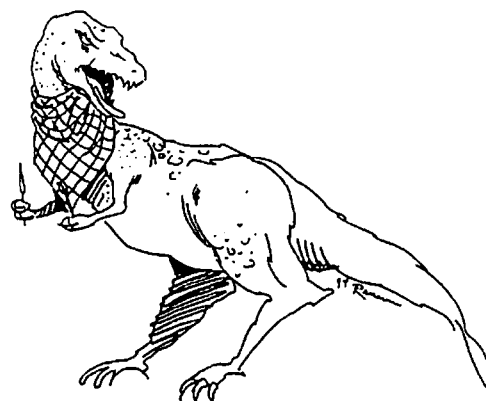
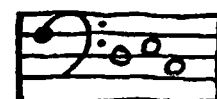
In fact, the filking was generally better done than at any previous worldcon that I attended - except for the nighttime sessions that are the essence of filking. At both New Orleans and Boston there were multiple circles or chaotic sets or whatever which were well attended by both audiences and the better known filkers. I didn't try to perform myself, but I'm certainly glad I was there. The circles in Orlando were fewer, smaller, and shorter. In fact, because of the Dave Clement rendezvous, Sunday night there were none at all. The only area going full blast most of the time was the smoking-permitted room where Leslie kept things going.

Let me dream. Given plenipotentiary powers, I would decree that separate rooms be set aside for bardic circles, mastered sessions, chaos, and audience participation. Each room would have a name filker who likes the style and who has agreed in advance to keep things going as long as voice and vigor allow. There are enough talented filkers so that different ones could be found for each night or even have two or more split up the duty. Afternoon concerts would be limited to four or five half-hour sets a day. That's 20 to 25 over the con, which should be enough for almost anybody. Rendezvous and one-shot concerts would be held during the late afternoon and evening, perhaps six to eight altogether. And during the day a filk lounge would be set up with exhibits, songbooks and tapes for sale, a friendly filker to answer

questions and maybe demonstrate a song, and perhaps some refreshments.

There's a book called *The Great Dying* (Harcourt Brace Jovanovich, 1986/Ballantine Books, 1988), that I recommend. Kenneth J. Hsu wrote it about the theory that a giant meteor impact 65 million years ago caused the extinction of the dinosaurs. I've been meaning to find a later book on the subject, though I did see several of the TV shows that appeared all over the public stations and the Discovery network last year. One of the more interesting alternatives mentioned was that they migrated themselves to death, i. e., diseases became totally pandemic. A bit improbable unless dinosaurs had remarkably poor immune systems.

Fare well,



Living Dead Picnic

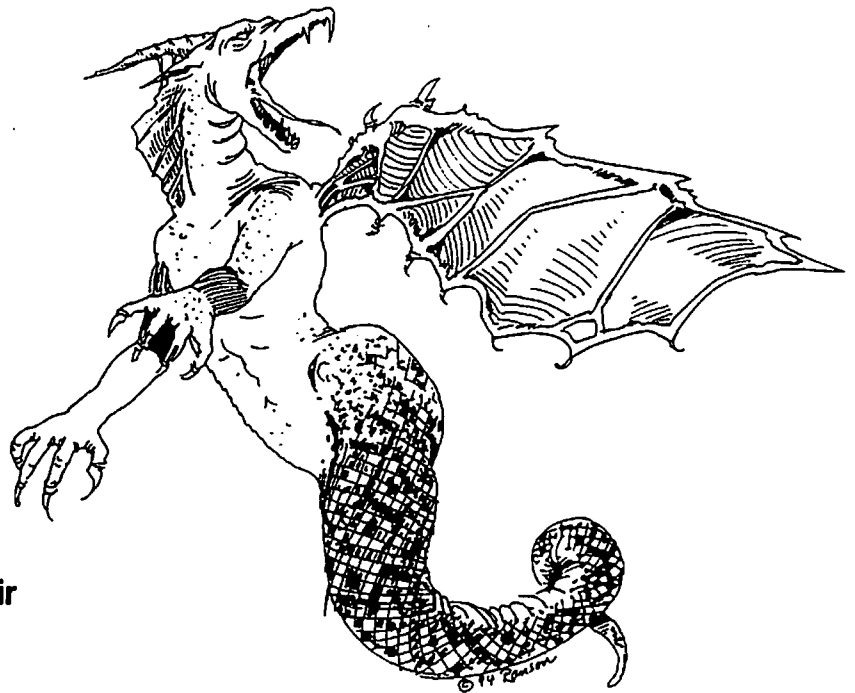
by Doug Wu

(Sung to *Teddy Bears' Picnic*)

If you go out for a drive today,
you'll wish that you hadn't gone.
If you go out to go visit Dad at your local
Forest Lawn,
That guy who's creeping up from behind,
just might have more than fun on his mind.
Tonight's the night the living dead have their
picnic!

If you go out for a drive today,
your engine is sure to stall.
You might not get out alive today,
you'd better not go at all!
You'll hide inside a creepy old shack,
while dead come 'round in search of a
snack,
Tonight's the night the living dead have their
picnic!

Nasty, crawly, living dead...they're anxious to
be fed,
and not much inclined to dine alone.
Others trapped with you inside,
just want to cry, or hide, or bitch and moan.
Dead folk on the shutters pound,
while others stand around and stare into
empty space.
How come they make that awful groaning
sound?
They're trying to say "I LOVE this place!"



If you go out for a drive, you'd best have
plenty of gas today,
You might get clumsy while topping off, and
end up a steak flambe'.
The dead reserved a table at eight, and they
won't take a number and wait,
They're on the loose, and need no excuse...
They stink of rot, and slaver a lot...
Their eyes aflame with hunger insane...
Their only need, to grapple and feed.
Tonight's the night the living dead have their
picnic!

LEARNING A NEW ART FORM

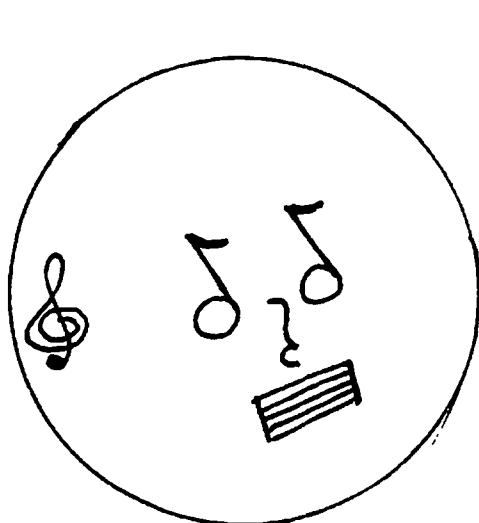
by Fran Mullen

Back when I was first dating my future ex-husband (I stole that line from Jurassic Park), he discovered I played guitar (albeit rather roughly) and sang. Observing that my musical knowledge was sadly lacking, he dragged me away from the splendid parties of OKon, to a building set off way back in the parking lot (they isolated the filkers away from the rest of the con - a quarantine, you might say). Inside was a huge circle of people sitting on chairs and on the floor, singing strange words to music that was familiar. And some of them sang melodies I'd never heard. Don't ask me who was there. I knew a few of them, but had no idea they also sang (well - some folk would call it that). We didn't stay all night, but that was enough to whet my appetite.

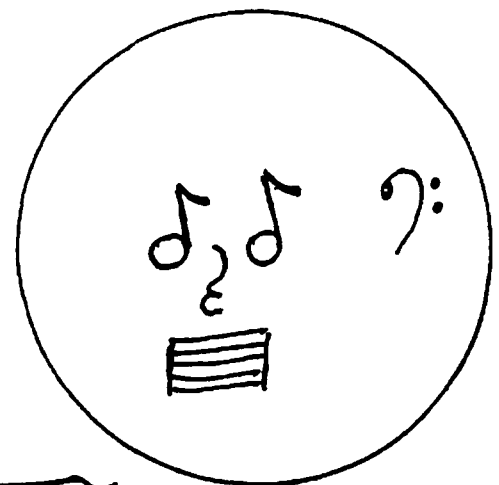
Somehow, I acquired a Westerfilk - very likely from Margaret Middleton, in the Dealers

Room. Chuck encouraged me to play his favorites, and I got half-way decent on a couple of tunes. Then came RockKon. I drove up there from Tulsa with my guitar and vowed to show off my new songs. Alas, Bob Asprin was there. I arrived at the filk rather drunk (for courage), listened to Bob carry on about how filk songs shouldn't have more than two chords, and how everything should be memorized, then tried reeeceally hard to disappear into the carpet. Didn't work. My turn came up, I sang my song out of my filk book, and felt I did a horrible job. It was embarrassing (actually it wasn't that bad, but you know how it is when you're trying out something new). It's a miracle he got me to sing again. It took years before I was totally comfortable singing without a crowd singing around me.

Well, that's how I got into filk. While I lived in Tulsa, I filked with the likes of Margaret Middleton, Randy Farran, Dennis Drew, Robin Bailey, Misty Lackey, C.J. Cherryh, Diana Gallagher, Marty Burke, Diane Crockett, Mark Wallace, and Mark Simmons. We watched the sun come up more than once and staggered off to breakfast. Can't seem to do that anymore. But I sure have some good memories.



Where have all the flowers gone?



Ramblin' rose!

The Civilization Game

by Donald E. Cochran

Why is our modern industrialized world the way it is? And not some different way, with different technology, doing different things to us? Well, that's what the rest of this series is going to look at. You saw just now that the plow and irrigation kicked us all off, and that an invention acts rather like a trigger, because once it's there, it changes the way things are, and that change stimulates production of another invention, which in turn causes change - and so on. Why those inventions happened, between 6000 years ago and now, where they happened, and when they happened is a fascinating blend of accident, genius, craftsmanship, geography, religion, war, money, ambition. Above all, at some point, everybody is involved in the business of change, not just the so-called great men. Given what they knew at the time and a moderate amount of what's up here, I hope to show you that you or I could have done just what they did, or come close to it. Because at no time did an invention come out of thin air into somebody's head, like [a light bulb]. You just have to put a number of bits and pieces that were already there together in the right way.

That is how, at the conclusion of the first *Connections* program, James Burke explained the reason for the series. I want to examine in this article, not so much the techniques he used to create effects and keep the viewers' interest, but the questions he raised, the answers he expressed or implied, the impressions he left, and the simplifications he made.

I include several long quotations because I wish to give the tone as far as it is possible when transcribing speech to paper and I do not want to remove ideas from their context. I have tried to punctuate the quotations to retain the pacing of the speech.

For each individual program, I first summarize it and then comment on it. Finally I comment on the series.

THE TRIGGER EFFECT

James Burke began by picturing the effect on the Northeastern United States of the action of a single relay - the massive power blackout of November 9, 1965. He asked what people would do if the blackout were everywhere and permanent. How many city dwellers would find a farm to go to and be able to survive when they arrived there? Would there be a plow and draft animals and would the refugees know how to use them?

The plow was the tool - developed by the the four civilizations in Northern India, Syria, Egypt, and Central America - which generated the surplus food to support craftsmen and rulers. Focusing on Egypt, Burke said that the food surplus, especially grain, and the annual floods stimulated pottery for storage, surveying to determine where fields were, and writing to keep track of it all. As the population grew, irrigation and the need to predict floods led to organization, architecture, and metalworking for improved tools and weapons. He ended the description of the rise of Egyptian technology with the following statement:

The Plow and other technology due to it tied man forever to the things we invent so that tomorrow will be better.

Before concluding the episode with the presentation of his goals for the series as quoted at the beginning of this article, Burke compared the development of technology by ancient Egypt with the acquisition of modern technology by oil-rich Arab countries. Then he said:

To see how, increasingly the only way we in the advanced industrial nations with our bewildering technology network can survive is by selling bewilderment and dependence upon technology to the rest of the world. Or is it not

bewilderment and dependence, but a healthier, wealthier, better way of living than the old way? And yet, whether or not you dress up technology to look local, the technology network is the same. And as it spreads, will it spread the ability to use machines as we do, without understanding them?

Burke described the great Northeastern blackout of 1965 as catastrophic. But was it actually. *The World Almanac*, *The Information Please Almanac*, and *The Universal Almanac* all mention the event (devoting two lines to it), but do not include a death toll or property damage or enter it in their lists of disasters. The power went off but the generating and distributing network was not damaged. Individual sections began to come back on within hours and restoration was complete in a few days. Natural disasters have been much more destructive and the effects have lasted much longer. After hurricane Andrew, the power company needed many months to restore service to South Florida.

The suggestion that the industrial and technological base created by Western civilization is fragile proves to be false when examined. The complexity of the highly industrialized countries makes them more resilient than the emerging nations. Major disasters such as hurricanes, the earthquakes that hit San Francisco and Los Angeles, the Mississippi floods, and the blizzards that dumped huge amounts of snow on the Northeastern United States caused great damage and killed scores, perhaps hundreds, of people, but at no time threatened the system itself. The network of warning systems, transportation, distribution, insurance, and government assistance cushioned the effects and greatly reduced the number of deaths. The multiyear drought which struck the Midwest several years ago threatened the livelihood of many farmers and put some out of business. The price of food increased somewhat, but no one starved or even went hungry. In many undeveloped nations of the world, a single bad crop year means hunger, malnutrition, and even starvation.

Aside from nuclear war or a major climatic change such as an ice age, disasters are not long enough and wide-spread enough to overwhelm the industrial base created by Western civilization. The failure of one part does not propagate as Burke postulated, but is compensated for.

The only possible cause, that I can imagine, which would produce a comprehensive failure of the industrial system would be the occurrence of an enormous electromagnetic pulse, many times that produced by the largest H-bomb ever detonated by man. Such a pulse could damage the electrical generating and distribution network, destroy many computers, cripple the transportation system by damaging the microprocessors and electrical systems in vehicles, and wipe out much of the communication system by devastating telephone lines and switches and destroying radio components. Many people would die, large numbers of people would have to be evacuated from the cities, riots and looters would cause enormous damage, and years would pass before restoration of basic services to the entire country could take place. However, if the military and police retained their discipline and at least part of the manufacturing plants remained intact, the knowledge and skills would remain and recovery would eventually take place.

The statement that the advanced nations survive by selling their technology to more backward ones grabs the stick by the wrong end. Almost all the developing nations are eager to acquire as many new types of products and manufacturing facilities as they can afford (though many are reluctant to allow the intrusion of cultural and political ideas). These present opportunities to the industries of the United States, Japan, and others, but are not necessary to their continued economic well-being. By the nature of modern commerce, most trade takes place between the advanced countries; they have more money to spend.

DEATH IN THE MORNING

Burke begins this program - called "The Road from Alexandria" in the companion book - by explaining that the way to guess about the future is to see how things happened in the past and that following the trail of development from one event to the next is like a detective story.

This trail begins in the Eastern Mediterranean about 2500 years ago, where the discovery and use of touchstones encouraged coinage, which increased trade and political unity. Alexander built the trading center Alexandria, which became the home of the greatest library and school in the world. The astronomical thesis of Ptolomy from the library found its way, with the help of the Islamic conquests, to Europe. With the lanteen sail, the square sail, the sternpost rudder, and the compass, the astronomical knowledge made possible the sixteenth century voyages of discovery, backed to bypass the Turkish empire in the Middle East. The variation in the compass around the world led to scientific investigations of the problem and a book by Walter Gilbert, which was read by Otto Guericke. His experiments with static electricity led to increased interest in lightning and weather, which resulted in the setting up of weather stations. At one of these in Scotland, C. T. R. Wilson observed a sun glory. To research the phenomena, he invented a cloud chamber. It's use by Rutherford and others to observe nuclear reactions stimulated nuclear research and the development of the atomic bomb. The program ended with the Enola Gay and the following words:

Today the nuclear bomb is like a Sword of Damocles hanging over us. Will it fall again?

Burke stated that the existance of atomic weapons affected every man, woman, and child on Earth. Today the threat of all-out nuclear war is much diminished, but had it occurred, everybody would have been affected. However, many people never noticed the threat.

DISTANT VOICES

This look into the past begins with Hastings, won by Norman calvary in large part because of their use of stirrups. Stirrups, an improved plow, and the horse collar caused a food surplus and increased trade. Prosperity led to fewer longbowmen necessitating its replacement by firearms and increased use of gunpowder. As cannons became more expensive, the inadequacies of the money supply became more evident. The silver strike which remedied the situation resulted in the need for pumps to remove water from the mines. Torricelli investigated the problem and his discoveries about air pressure led to Perier inventing the barometer. Picard, a French astronomer, noticed a glow, due to static electricity, in the tube of his barometer. Investigation led to Oersted's discovery of current-induced magnetic fields, to the electromagnet, and - by way of an electromagnetically vibrated tuning fork and the phonograph - to the telephone.

It's ironic that this program should have begun with war. The bomb in the suitcase and the stirrup, remember? And end with the means of preventing war through the use of telecommunications, perhaps to bring the people of the world closer together into one community. And finally perhaps to discover that we are part of an infinitely larger community on the day when a transmitter-receiver like this one in Arecibo, Puerto Rico makes contact with the galactic civilizations that are almost certainly out there in space. Meanwhile, as we wait for the great encounter, at a more down-to-Earth, what will the capacity that telecommunications provides of organizing people do to us?

The effects of world-wide communications can only be guessed at. The people of the world will almost certainly grow more alike. Perhaps English will become a universal second language. Or a new artificial language may succeed where Esperanto and others failed. Stronger or more adaptable ideas will supplant weaker ones. Organization will continue to be

formed reaching across national and cultural boundaries. For at least a generation, the cross-fertilization of ideas from different cultures and from the release of research previously hidden in secret laboratories will continue to accelerate the pace of scientific and technological discoveries.

FAITH IN NUMBERS

Burke demonstrated the global positioning satellite system as an example of the modern network of communication and organization. He then made an analogy to the Christian organization which was all that was left in Western Europe after Rome collapsed. The cam provided the power for the Medieval industrial revolution. With the introduction of the Chinese loom and spinning wheel and the use of management skills developed by the Cistercian monks, increased wool production led to extra money which led to more wide-spread commerce and the Champagne trade fairs. At this point colder winters caused famine and susceptibility to plague. The survivors had more goods and more money to spend on such things as linen garments that provided wornout cloth which could be made into linen paper. Cheap paper, the high cost of copyists, and metallurgy led to movable-type printing. The new availability of books resulted in the spread of knowledge to people other than the well-to-do and the clergy, dissemination over a much larger area, standardization, and specialization. Translations of Greek classics including Hero stimulated water and mechanical automata. The fashion for patterned silk caused the adaptation of mechanical organ techniques which eventually resulted in the Jacquard loom. Hollerith used the card pattern idea from the loom to build mechanical counters and sorters for the 1890 census. An adaptation of his punched card became one of the most important input devices for the computer.

Most of the ancestors of the computer brought people pleasure. What will it bring us?

The computer is the third stage in man's ability to handle knowledge. Writing was the first and printing was the second. We are just at the beginning of the process. We cannot predict, anymore than Gutenberg could have, what the eventual result will be. Developments in user interfaces, computer "smart" assistants, enormous data bases, correlating artificial librarians, hypertext, multimedia, and virtual reality are just starting to be felt.

THE WHEEL OF FORTUNE

Continuing from the previous show, Burke speculated about the information computers have on a person for a bank account or credit or for voting or buying a house or police record. Does the use of statistical data give predictive ability and a degree of controlling-power?

The story this time begins with the development of astrology by priest-astronomers, eventually used to direct the cure of Al Mansur by Jirjis Bukhtu Yishu from Jundi Shupur monestary. Arabic copies of the monestary's Greek manuscripts were brought to the libraries in Spain. Christian monks used the information to build water clocks to sound the alarm for prayers. After the invention of the verge and foliot and the pendulum, clocks became accurate enough for astronomical instruments. However, accurate clocks for shipboard navigation required the development of better spring steel. Better steel and screw-driven lathes led to precision machinery, which, with the assembly line and standardization, brought about the American factory system. The system of time and motion study developed by Frank Gilbreth and his wife taught workers how to use the machinery more efficiently.

This place America is a democracy of common possessions, and the rest of the industrial world is rapidly going that way too. But there's a price: the way our lives have to

become an extension of the production line. We work together, we holiday together, we get in the same traffic jams together, we wear the same clothes, we live in the same house, we drive the same car, we have the same ambitions. That's the price for watching the clock.

And ironically, we're back with the question they were asking at the beginning of the program: "What happens to individuality?" Oh, sure, officially it's there. My car is a different color from yours. I watch a different television program from you. But empty your pockets and see what you get. Pen, watch, checkbook, some money, credit cards, keys, driving license, comb, some money, lighter - the paraphernalia of people's private lives. And yet, is there one object here that thousands of other people don't own? All of it made by machines, not one object uniquely, individually me. And if I'm not here, where am I?

Contrary to Burke's pronouncement, we do not holiday together, wear the same clothes, live in the same house, drive the same car, or have the same ambitions. Vacationers go fishing or skiing, camp out or travel to foreign shores, take a cruise or a drive through the Blue Ridge Parkway, visit relatives or stay at home. The types and styles of clothes available are enormous; so seldom do people wear similar clothes (except where uniforms or special clothing is required), it is noticed and remarked on. People live in every imaginable type of home, from one-room apartments and house trailers through condominiums to houses in any of a hundred architectural styles. A look at the parking lot of any moderately large business will not disclose many duplicate automobiles; there are bicycles, motorcycles, trucks and vans, sedans, coupes, and sport cars from a dozen different companies. Look about to see how the motives of the people you know vary. This person wants recognition, that one works for the money, a third loves the job, another sees it as a way to make a living so he can do what he wants the rest of the time, etc. In any event individuality is not determined by possessions, but by thoughts and actions.

THUNDER IN THE SKIES

This show, renamed "Fuel to the Flame" in the book, begins with a question about the reliance on the same limited energy source.

But what'll happen to us if it runs out?
How will we manage if the cold comes again, as it did once before?

The coming of the little ice age in the thirteenth century was met by the development of the chimney and the use of knitting and buttons for clothes. The growth of indoor life resulted in the increased use of glass and the cutting down of the forests to fire the furnaces to make it. With the change from wood to coke, a huge metals industry grew up around Bristol. The need to drain mines in the area spurred the development of the steam engine, culminating with Watt's addition of a separate condensing cylinder, which also had perfectly fitting pistons due to Wilkinson's steel and his precision boring of cast cannons. Joseph Priestly, Wilkinson's brother-in-law and the inventor of soda water, investigated gases and sent a letter to Alessandro Volta, who made a spark pistol for exploding gases. A second line came from the separation of gasoline from petroleum discovered by Drake in Pennsylvania in 1850. Combining these with the Otto engine and the venturi carburetor (developed from the scent spray bottle), the internal combustion automobile engine appeared. The light weight of the new engine made powered flight possible.

The current dependence on petroleum will probably end whenever fusion power becomes available. If it cannot be made economically feasible, oil will become more expensive as it becomes scarcer and alternative energy sources will become attractive and take over. There will be adjustments to be made and the Arabs certainly won't like it, but the transitions will not cause much more of a problem than that which occurred when OPEC pushed up the prices several years ago.

THE LONG CHAIN

Burke describes the Boeing 747 as analogous to the Dutch *fluyt*, which made Holland the richest trading nation in Europe. To counter, the English began financing trade ventures with loans backed by mortgaged land. Lloyd's, formed to provide insurance, rated ships' hulls. To avoid hull problems from tropical worms, the owners coated the hulls with pitch. When the English were deprived of the main source of pitch by the loss of the American colonies, a minor peer named Cochrane tried to make pitch from coal. He failed when the ship builders began coating hulls with copper. William Perkins, trying to make quinine artificially, accidentally created the first aniline dye from coal tar. The Germans developed an entire spectrum of colors and other products, creating the major chemical industry in the world. German needs for artificial fertilizers and explosives involved, among other things, experiments with acetylene. When properly combined with HCl and mercury, it forms vinyl chloride. Polyvinyl chloride (PVC) was the first plastic.

Nylon opened the door to our modern world, a world full of substitute materials without which we cannot survive, a world which, because of those substitute materials, changes every day, a world of plastic. Because of plastics, that rate of change accelerates every year. It's fun, but can we keep it up?

Identifying plastics as the reason for today's increasing pace confuses the symptom with the cause. Indeed, the changing shapes of products and packaging is only a superficial manifestation of the innovations in computers, communications, and other technologies which may change the very way we live.

EAT, DRINK, AND BE MERRY

Burke's introduction likened plastic credit cards to the credit extended when banks first opened about 600 years ago.

This [credit card] is you, coded into that magnetic tape. See. In there is the world's newest virtue - creditworthiness. Are you a good risk or not? And what people need to know about you before you can become a coded signal on that stripe makes this much more than a substitute for money. It's a judgement on you.

The calvary of Charles of Burgandy, who used credit from the banks of his day to finance his losing wars, was defeated by the Swiss pikes. The pikes in turn were defeated by the first firearms. With each increase in the efficiency of firearms, the size of the armies became larger until those of Napoleon's era were hundreds of thousands strong. A Frenchman invented bottled food to ease the incredible supply problem. Canned food and refrigeration followed. Refrigeration and the Dewar thermal flask made the liquification and storage of gases possible. And the availability of liquid oxygen and hydrogen led to rockets like Saturn V.

If the credit card requires a judgement on whether or not you are worthy of credit, that's not something which started in the modern world. Loans, as pointed out in the program, are nothing new, and usury is condemned in the Bible. Furthermore, the acceptance of the credit card by merchants is much like the acceptance of a check, a practice that is hundreds of years old.

COUNTDOWN

This program, called "Lighting the Way" in the book, starts by describing MIRVed nukes as having a similar effect on society as the cannonball, both seeming to be unstoppable when introduced. The rise of cannon led to gunnery math like triangulation. Its use allowed for the surveying of newly-confiscated land when Henry VIII closed the Catholic monestaries and then to mapmaking. The decision in 1820 to map Ireland required a beacon bright enough to allow triangulation between Ireland and Scotland. Limelight did the job but required too much gas to power lighthouses. But arlight powered by dynamos

could. Edison combined the arclight, celluloid, and the zoopraxiscope to invent the kinetoscope, which evolved into the motion picture. With the addition of the selenium-read sound track, talkies appeared. Which led, not long afterwards, to television.

Television tells us everyday that we live in a world that we don't understand. And yet in the main, it does little to explain that world. It tells us of new products that make the products we have either old-fashioned or obsolete. Above all, if today we are aware of how fast the world around us is changing, it's because television acts as a relentless reminder of that fact.

Planned obsolescence, the reason you buy a new model because they don't make last year's any more, affects the way we get our information, too. I mean, take a look at the newspapers and the TV programs of twenty years ago and you can see how much more slick, more brief is today's treatment of the world we see. Communication technology has made it possible for us to see very much more, but we still only have the same amount of time to see it in. But does that fact accelerate change, the fact that we can be more quickly saturated by an idea, or a product, or an event? Does the cycle that goes interest in something, involvement in it, tiring of it, and rejecting it and looking for something else get shorter every decade? That shouldn't surprise you. Over ninety percent of the technologists and scientists and advertisers and salesmen that have ever lived are alive now. And they've all got a job to do, haven't they?

I said it was ironic that we should be here because that overwhelming rate of change has come directly from the work of Edison and men like him. Edison invented inventing, here at the world's first industrial laboratory. And he laid down precise rules for it. Is there a market for the invention? Get financial backing before you start. Publicize the whole thing in advance so that when it comes up the consumers are ready to pay for it. And plow every penny you make back into making more inventions. ... So, if you believe that science and technology have given us the highest standard of living in history or that they have trapped us inside a machine we can't escape from, we live in a situation we inherited

as a result ... of a long complex series of events through history. At no time in the past could anybody have known that what they were doing then could end up like this now. So, the next and last program looks at whether or not we want to go on into the future like that. And, if not like that, like what?

And I hope to show that you can only know where you're going if you know where you have been.

Is the role of television to explain the world? No. Its role is twofold: first to provide the information that its viewers want, as determined by what type of programs they watch; second, to act as one of the branches of the free press necessary to our liberties. Anything else is elitist, wishful thinking, or serving of special agendas. Those who wish to understand their world have other resources such as specialty magazines, books, and teachers, whether formal or informal. Given the situation, its remarkable how much information the public wants and how well television has responded. The proliferation of channels has made possible CSPAN, Discovery, public affairs channels, and others just coming into being. In addition, the number of slightly more in-depth news programs has greatly increased over twenty or thirty years ago.

Burke does not make a distinction between product changes due to technical developments and those just to promote sales. Fashion and car style changes are mostly to persuade people to buy just for the sake of change. The switch from the record to the CD and the increase in capabilities of personal computers are due to real innovation. The latter is inevitable.

YESTERDAY, TOMORROW, AND YOU

The final program, titled "Inventing the Future" in the book, opens with a view of a B52, because it uses all the end products whose development had been covered previously: telephone, computer, jet engine, plastic, rockets, television, atomic bomb, and the production line.

Burke states that, unlike the way history is taught in school, things don't happen in straight lines. Inventions and technological developments occur because of religion, warfare, accident, environment, research, the use of an idea from one area in another area, and discovering one thing while looking for another.

He asks how the increasing rate of change should be dealt with and presents four alternatives. Stop, scrap advanced technology, and go rural. Allow research selectively. Stop research and share current technology. Continue as at present. He gives reasons why the first three ideas won't work and asks how we might react to the fourth alternative. One way is to do nothing. Another is to react violently. He concludes the series by suggesting a third path.

So, in the end, have we learned anything from this look at why the world turned out the way it did that's of any use to us in our future? Something, I think. That the key to why things change is the key to everything: how easy is it for knowledge to spread? And that, in the past, the people who made change happen were the people who had that knowledge, whether they were craftsmen or kings. Today the people who make things change, the people who have that knowledge, are the scientists and the technologists who are the true driving force of humanity. And before you say, "What about the Beethovens and the Michelangelos?" let me suggest something with which you may disagree violently: that, at best, the products of human emotion - art, philosophy, politics, music, literature - are interpretations of the world. They tell you more about the guy who's talking than about the world he's talking about. Second hand views of the world, made third hand by your interpretations of them. Things like that [book of art] as opposed to this [microphotograph]. Know what it is? It's a bunch of amino acids, the stuff that goes to build up a worm or a geranium or you. This [art] is easier to take, isn't it? Understandable. Got people in it. This, scientific knowledge, is hard to take because it removes the reassuring crutches of opinion, ideology, and leaves only what is demonstrably true about the world. And the

reason why so many people may be thinking about throwing away those crutches is because, thanks to science and technology, they have begun to know that they don't know so much. And that if they are to have more say in what happens to their lives, more freedom to develop their abilities to the full, they have to be helped toward that knowledge that they know exists and that they don't possess. And by helped toward that knowledge, I don't mean to give everybody a computer and say, "Help yourself." Where would you even start? No, I mean, try to find ways to translate the knowledge, to teach us to ask the right question. We are on the edge of a revolution in computer technology that is going to make that more possible than ever before. Or, if that's not done, to cause an explosion of knowledge that will leave those of us who don't have access to it as powerless as if we were deaf, dumb, and blind. And I don't think most people want that. So what do we do about it? I don't know. But maybe a good start would be to recognize within yourself the ability to understand anything. Because that ability is there as long as it's explained clearly enough. And then go and ask for explanations. And, if you're thinking right now, "What do I ask for?" ask yourself if there's anything in your life that you want changed. That's where to start.

One of the reasons given by Burke to explain why the restriction of research to selected areas would not work is that, because so many discoveries are made while looking for something else, we may not make some discovery which will help solve a problem in an area where we are doing research. The obverse is also true. Discoveries made doing approved research will, unless suppressed, cause changes not anticipated by the research sponsors.

Even more important, who decides what research is needed/relevant/safe? And how will unwanted/unacceptable/dangerous research be discouraged or even prevented? If 'dangerous' research is suppressed, what is there to prevent 'useless' research from being discarded, and finally the prohibition of politically incorrect research.

The most reasonable method of equipping people to handle the ever-changing world of modern science and technology is through education, beginning early. The natural course is to provide children with a sound thorough grounding in fundamental science and how the more pervasive examples of technology work. (It would be nice if some way could be found to teach them to think!) Coupled with computer tutor programs for individual study, this would permit a large percentage of the population to evaluate technical ideas and at least have a good feel for which expert to believe.

However, many issues can only be resolved by the application of the detailed knowledge available only to an expert with experience in the field. Or several fields. Take the question of reactor safety. A reliable and definitive answer requires the coordination of the fields of nuclear physics, reactor engineering, civil and mechanical engineering, reliability and fault analysis, material science, sensor technology, the tolerance of components for radiation, electrical and computer engineering, human physiology, and probably others that I don't know about. No layman, no matter how well read, can possibly know whether the decisions made are correct. Indeed, no one individual can know all the relevant specialties. A good team headed by an even better coordinator is needed.

In the statement from the first program that I quoted to begin this article, Burke speaks of "so-called great men", states that most people could make the discoveries given the situation and the knowledge, and that all that is required is

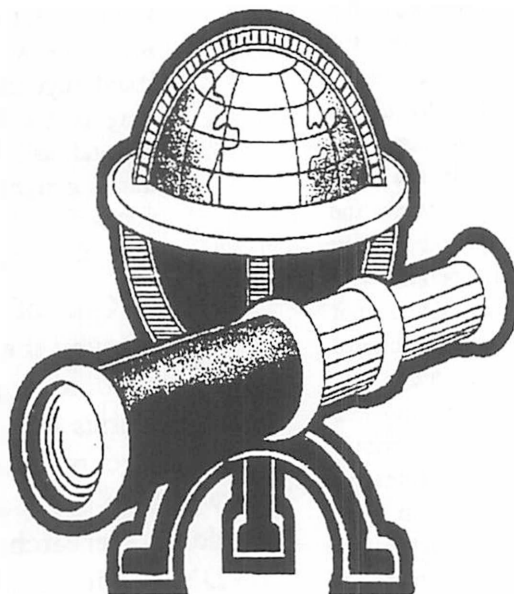
putting together the "bits and pieces". All this grossly underestimates the abilities of the creative mind. The ordinary person does original work rarely and with great effort. Men like Edison, Carl Friedrich Gauss, and Richard Feynman conceive ideas frequently and with hardly any effort, though the development of the idea may require considerable time and thought.

Looking at the series as a whole, some of the connections seem tenuous. In fact, some links have no cause and effect relationship at all. To cite one instance, the facts - given in "Thunder in the Skies" - that Wilkinson's work boring cannons which led to precision pistons for Watt's steam engine and that his brother-in-law

Priestly investigated gases is an amusing anecdote but is otherwise a coincidence. However, the occasional lapse is seldom noticed. The writing and the photography flow together from one point to the next in a concatenation of ideas that is always interesting and sometimes fascinating.

In *Orphan Star* by Alan Dean Foster, Flinx elected himself tutor to teach the Ujurrians, a race with incredible potential but ignorant, the game of civilization. While rereading the book, I wondered how civilization should be defined. Toynbee

describes civilization as "a state of society in which there is a minority of the population, however small, that is free from the task, not merely of producing food, but of engaging in any other of the economic activities ... that have to be carried on to keep the society going on the material plane...." Civilization also usually decreases the fraction of time that the individual has to devote to obtaining the basics of food,



For several falls after she brought the oldtimers forward, Lessa was content to fly with the Queens' Wing and flame thread from the sky with flamethrowers. Soon she noticed, however, that the streams of fire were of shorter range than those that firestone-eating dragons could produce and so the queens had to get closer, too close for her liking. The liquid the throwers used was so light that the streams of fire broke up too soon. She asked Fandarel to see if he could improve it's 'efficiency'. After several weeks, Fandarel asked her to come to the smithhall for a demonstration. He told her he had mixed the fire liquid with a type of tree resin that turned it into a heavy but fluid jelly that would be the bane of the spores. He told Lessa, "Golds must win where bane gels sear the thread!"

You are getting this because:

- You contributed
- ✓ Please contribute
- You sent me your 'zine
- You sent money
- You wrote
- Sample
- Review copy
- ✓ You might be interested
- Editorial whim
- ? This may be it unless I hear from you

