



Science-Fiction Fanzine

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מועדון הקריאה

לכבוד יום המגבת החל במאי, יוקדש מועדון הקריאה הקרוב לספר "מדריך הטרמפיסט לגלקסיה" מאת דאגלאס אדאמס. מועדון הקריאה בתל אביב יתקיים ביום רביעי, 25.5, בשעה 19:30 בבית הקפה "קפה קפה" ברחוב אבן גבירול 38 (המקום כשר). מנחה המפגש: איתמר אולפינר. לצורך היערכות למספר המשתתפים, מומלץ להירשם מראש באמצעות הדואל, כמו כן רצוי להביא למפגש עותק של הספר ומגבת. בזכות ההינע האי-הסתברותי ייערך מפגש המועדון ביום המגבת הבינלאומי, שבו אנו מציינים עשר שנים ושבעיים למותו הפתאומי של המחבר. הכניסה חופשית ואינה כרוכה בתשלום, בחברות באגודה, או בהגעה למפגשים נוספים. פרטים על מפגשי המועדון הנוספים שיעסקו בספר זה התפרסמו באתר האגודה. המעוניינים להנחות מועדוני קריאה בכל רחבי הארץ מוזמנים לפנות בדוא"ל למרכזת הפרויקט, ליאת שחר (liat42@gmail.com).

More Society information is available (in Hebrew) at the Society's site: <http://www.sf-f.org.il>

Book Review by Aharon Sheer

The Hercules Text by Jack McDevitt (1986), 307 pages.

As readers know, I like Jack McDevitt, and this is a fascinating, provocative book. It has two serious problems. 1) It was written before the breakup of the Soviet Union, but assumes that the Cold War has continued for decades after 1986, with tension between the U.S. and the Soviet Union getting steadily worse. 2) The basic idea of the book has, I think, a basic flaw.

The book was written about the same time as Carl Sagan's book *Contact*, and is based on the same idea. A message has been received from a distant star. Like the SETI project (Search for ExtraTerrestrial Intelligence), the U.S. has a sophisticated system of optical and X-ray receivers (SKYNET) looking for exceptional signals from space.

"Two twenty-four-meter telescopes overlook the west wall of the Champollion Crater at thirty-seven degrees north latitude on the far side of the

moon.... The Champollion reflectors are the heart of SKYNET. Functioning in tandem with an Earth-orbiting array of eight 2.4 meter Space telescopes, they are fully capable of reaching to the edge of the observable universe....

"SKYNET also included a system of radio and X-ray telescopes and, for enhancement, a bank of computers whose capabilities were believed to be second only to those of the National Security Agency." [p. 31]

The U.S. could not build something like SKYNET even today, twenty years after McDevitt wrote his book, nor could any other country. And probably never will.

SKYNET has found a signal from space, emanating from a group of stars a million and a half light-years away, in

the Hercules constellation. In this group is a pulsar, and it seems that the pulsar is being turned on and off. This could not happen naturally. Not only that, the group of stars is in the middle of nowhere – between galaxies, in an area where there are no other stars. Not likely by chance. And not only that, the group includes a class G star with no metal lines in its spectrogram, which is impossible according to theories of how class G stars are formed. The conclusion is that the whole group of stars has been manufactured by some alien technology vastly more advanced than Earth's.

Ed Gambini is the chief physicist of the Hercules project.

“Ed, how the hell could anybody make a sun?”

“There's no physical law that precludes it. Obviously, or nature wouldn't be able to do it. All that's required is energy, and a lot of gas. Out where they are, there's a hell of a lot of free hydrogen and helium. All they'd have to do is get it together somewhere, and gravity would take care of the rest.” [p. 50]

They get a message encoded in groups of 16 binary bits. How do they know that? First 16 zeros are sent. Then 16 ones. Then 16 zeros. Etc. After that the messages start getting more complicated. Months are spent decoding. It appears that the aliens sent (a million and a half years ago) a set of textbooks. Basic mathematics, basic physics, basic chemistry, later on even basic biology. Over a hundred books. Cosmology. Philosophy. Even the aliens' own biology (like Earth's, also based on DNA).

The U.S. government holds a press conference and tells the world about the first dataset, which includes such things as pictures of various geometric figures, shown on TV, and which is the basic introduction to the whole text. And the

U.S. says that additional information from the text will be released as it is translated.

But the U.S. President and the security services begin getting frightened. The contents of the remaining messages (textbooks?) must be kept secret from the world. What if it includes how to build powerful new weapons that the Soviet Union could use to destroy the U.S.?

Quint Rosenbloom represents the President of the U.S. He says,

“... we don't know what might be in there. Maybe the makings for some homebrew plague, or weather control, or God knows what.”

“That's ridiculous.”

“Is it? When we know that, you can release the goddam thing. But not until then. You'll be interested in knowing, by the way, that the Russians have launched a crash program to put up a SKYNET of their own.”

“It'll take them years,” said Gambini.

“Yeah.” Rosenbloom rubbed his hands together. ‘Meantime, we have Hercules to ourselves.’” [p. 88]

While scientific custom would suggest that these messages should each be studied by scientists all over the world, to maximize the ability to learn from them, military security dictates otherwise.

Still, progress is made.

“Some of the symbols are directive in nature – that is, they perform the functions that correlatives or conjunctions would in a grammatical system. Others have a substantive reference, and we're beginning to get some of those. For example, we've isolated terms meaning magnetism, system, gravity, termination, and a few more. Other terms *should* translate,

because they're embedded in familiar mathematical equations or formulas, but they don't.'

"'Concepts,' offered Harry, 'for which we have no equivalent'" [p. 119]

One of the scientists called in is a psychologist. Can she understand the alien psychology? How do the aliens think?

"'It's clumsy, Harry. It's *so* clumsy that I hesitate to call it a language.'

"'Clumsy?'

"'Awkward. Comparative degrees, for example, are expressed by numeric values, both positive and negative. It's as if you talked about *good* on a scale of one to ten, without ever introducing *better* or *best*.'

"'That seems reasonably precise.'

"'Oh, it's precise. My God, is it precise. Adjectives are the same way. Nothing, for example, is ever dark. They establish a quantification standard for illumination and then give you a benchmark on the standard. It's maddening. But what really fascinates me is that if you translate it into English, freely substituting general terms, you get some very striking poetry. Except that it isn't poetry, I don't think, but I don't know what else to call it.'" [p. 155-156]

"She wrote again on the envelope:

Having passed through the force that drives the world flower,

I know the pulse of the galaxies.

"'I'm sorry,' said Harry, frowning. 'I'm lost.'

"'It's out of context,' she said. 'But the "world flower" is, I

believe, evolution; and the mechanism that drives it is death!...

"'The material I have is filled with things like that, suggesting a very casual acquaintance with mortality. There are also references to a designer. God.'

"'We got a world filled with Presbyterians?' Harry said.

"'Funny.' She closed her eyes and began to quote the Hercules Text:

I have touched the living chain,

Have known the storm within the proton.

I speak with the dead.

Almost, I know the Designer." [p. 178-179]

Fortunately (or otherwise) the Soviets do not have their own SKYNET, and cannot receive the messages themselves. They are terrified of what the U.S. might learn that could be used against them. They demand being given the whole Hercules text, or they will start a nuclear war.

McDevitt, who was raised as a Catholic, deals with how various churches will respond to the knowledge that there are (or were) intelligent beings on other stars. He talks not only about the Catholic Church but also about an evangelical church leader and his attitude to the discovery. McDevitt's discussions of religious response to the existence of alternative creations are interesting.

Catholic Cardinal Jespersion meets with some of his people.

"'Dupre, who had seen the [TV] program [about the Hercules Text], was indignant. 'Communication with the dead! It's absurd! I keep hoping,' he continued, 'that the press will one day develop a sense of responsibility. They've put the most sensational reading on all this that they can. But the transcripts

released by Goddard don't justify any such interpretation.'

"I'm damned if I can see what all the fuss is about,' Cox said. 'These things happened a million years ago. But if there's a possibility that people will be misled by these stories, then we have a responsibility to act.'

"Dupre's heavy eyebrows came together. 'I can't see that anyone will take any of this seriously unless we take it seriously. Will the Vatican issue a statement?' he asked.

"In due time. They don't want to look as if they're being stampeded.' Jesperson allowed himself a smile. 'They must have got his Holyness up in the middle of the night.'...

"The whole thing is ridiculous,' said March, a man utterly secure in his black cassock. 'People talking to the dead. God wouldn't allow any such thing.'

"Dupre was drawing small circles on a notepad. 'I suspect we would be wise,' he said without looking up, 'to avoid declaring what God will or will not allow.'...

"Jesperson listened until the arguments began to repeat themselves. Then he intervened. 'I'd be less than honest with you,' he said, 'if I did not confess a certain amount of anxiety over this business....'

"It strikes me as an odd paradox that the princes of the Church have traditionally resisted scientific advance. We, who should always have been in the forefront of the search for truth, have historically dragged our feet. Let's not get caught at it again.... We are as interested as anyone else in new revelations of the majesty of God's work.'" [p. 194-195]

One of the messages tells how to build a defensive system that can prevent an incoming guided missile from reaching its objective, and even prevent its atomic warhead from exploding. The U.S. begins manufacturing this purely defensive device, but that is a threat to the Soviet Union, because the U.S. would be able to defend itself from Soviet attack, but could freely attack the Soviet Union which would be defenseless.

One of the engineers puts together a device based on a description in a message. He has no idea what the device can do. He provides power, and it kills him by creating a Maxwell's Demon – on one side enormous heat, on the other side freezing cold. He is burned to death. And he put this together using some standard spare parts found in any lab?

Even the biology is a threat. The aliens have the possibility of immortality. They use it to keep themselves healthy all their lives, but then deliberately die after about 150 of our years. They have voluntarily accepted mortality as an alternative to the disastrous consequences of immortality. But if the ability to live forever were to be given to people on Earth, wouldn't it result in selected people living forever, while all the rest continue to die?

Among the researchers there are very mixed feelings about these messages. Some say they should be destroyed forever. Others say that they should be shared with the whole world, and the world must learn to limit the evil consequences. How can such knowledge be rejected? Perhaps save some of it, like the conquering of disease and genetic deficits? And destroy the texts about the physics ability to turn the whole Earth into a black hole?

Certainly McDevitt presents an exciting moral dilemma, and the reader

can come up with his or her thoughts about what should be done.

But what bothers me is McDevitt's assumption that once we have the textbooks, we can start using the technology. Let's take a current example today. Iran knows how to build an atomic bomb. The textbooks are available. Just build it! So why doesn't every country in the world have atomic weapons? To build them takes a complex and sophisticated infrastructure. Even with the infrastructure it takes years to develop all of what is needed to make these weapons. Reading a textbook is not enough. Look how many years Iran has been working to develop a nuclear weapon.

I imagine a comparison. Suppose we were to transfer to ancient Greece all the knowledge needed to build a modern desktop computer. All the physics and chemistry and mathematics. How long would it take the Greeks to build their first computer? I would guess, many decades, perhaps hundreds of years. Just decoding the message will not do it. The Greeks didn't even know about many of the chemical elements. If they need some special metal, where can they get it? In what rocks is the metal found? (The alien textbook would not know that.) If they find the rock, how would they get the metal out? How would they refine it to the purity needed? They would have to develop the whole field of metallurgy needed.

To spread the new scientific knowledge, to involve as many Greeks as possible in this development, the Greeks would have to educate the population. Yet they didn't even have the printing press. Textbooks were

written by hand, and much was memorized by heart. I'm making this comparison because I think the difference in technological abilities between us today and an alien technology that can build stars is probably similar to the difference between us today and the ancient Greeks. To utilize the Hercules Text, an enormous infrastructure will be needed. Having the textbooks is a long way from being able to do the experiments. It could take generations before many of the ideas in the text could actually be carried out. Starting from Greek technology, how long would it take to build a transistor? An integrated circuit? A hard disk? I remember when I learned about electricity in college, we used an ohmmeter and a voltmeter. So we started with equipment which already used the physics we were supposed to be learning. The ancient Greeks, to study electricity, would not have an ohmmeter and a voltmeter to use. They would have to start from the beginning, and recapitulate the whole development of electricity, but perhaps could do it faster than it was done in Europe in the last three hundred years.

Letting the Hercules Text freely circulate all over the world would be a tremendous boost to Earth technology, but I find it hard to believe that dangerous weapons would be developed even in a lifetime. We can make small incremental steps forward, one at a time, but jumping leaps forward would not be possible. So the basic threat in McDevitt's novel is a straw man.

I enjoyed the book, he has some good characters, it's great fun to read, and very thought-provoking indeed.

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