

## **The Image of Translation in Science Fiction & Astronomy**

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*Abstract. The concept of translation is examined in a body of writings that include science fiction along with works by astronomers interested in communication with extraterrestrial intelligent beings. Most science fiction writers avoid the issue by invoking telepathy, machine translation or a pancosmic lingua franca. The astronomers, and the science fiction writers who do consider the issue, seem (with very few exceptions) to believe that the conditions for translatability are met: universal physical, logical and mathematical constants provide the necessary common background for understanding. Either the constants can serve as keys to language decipherment and translation, or else pictures or formal languages based on the constants can be used to communicate with aliens. This article focuses on the few writers who are sceptical about such claims, and on a number of serious gaps in the view of language on which these claims are based.*

It is sometimes suggested that translation studies in its broadest sense is about communicating with the Other. But *some* Others are more *other* than other Others. Think of communicating with chimpanzees, for instance, or with a computer whose interface you are just learning. Then, leaving the real for the imaginary, consider communication with extraterrestrial intelligent beings. One of the founding figures of translation studies, Georges Mounin, thought that the mental exercise of asking whether and how we could communicate with extraterrestrial beings would be one of the best ways of inquiring into the basic conditions that make any communication possible (1970:117).

To investigate how such extraterrestrial communication, and in particular its translational aspects, has been perceived outside the field of translation studies, I gathered the following two-part corpus of writings:

- Part I: science fiction novels and short stories in which either the meaning of a signal from space has to be determined, or else humans discover inscriptions on a deserted planet;<sup>1</sup> stories of direct encounters with aliens generally avoid the translation issue (see section 1 below).
- Part II: books and articles by astronomers and other scientists, engineers and

mathematicians who, starting in the late 1950s, became interested in communication with extraterrestrial intelligence and discussed how to read incoming signals or compose a message to send to the stars.

The two groups of writings overlap in that several of the science fiction stories are by scientists. The listing in Appendix A is not exhaustive, but it is worth noting that after I had read half a dozen of the science fiction stories and two or three of the science books I found no further new ideas. My discussion of the corpus will be qualitative rather than quantitative: I will be picking out issues I found of interest and simply noting whether certain views seem to be held by a large or small number of writers.<sup>2</sup>

Even if the corpus does not reveal anything new about translation, it should indicate the extent to which some non-translators who have written about interlinguistic communication understand the subject or have informed themselves about it. I am assuming that the fictional works in the corpus reveal their writers' actual beliefs about communication and translation. Against this, one could argue that writers might invoke, say, a translating machine which they know to be implausible simply for the convenience of the plot. However, most of the translation-related ideas in the science fiction stories are the same ideas found in the non-fictional science writings. Also, in the many cases where the stories reflect a good knowledge of the natural sciences, it is reasonable to assume that they reflect the authors' beliefs (whether well informed or misinformed) about issues in the social and human sciences as well.

My conclusions are no doubt influenced by the fact that the corpus originates almost entirely in the English-speaking world. As will be seen, the views of the Russian astronomers (Shklovskij 1963, Soviet CETI Report 1974, Panovkin in Sagan 1973) are somewhat different from those of the Americans, and the one science fiction novel originally written in another language (Lem 1968) is strikingly different from the English-language novels.

## **1. Avoiding the translation problem in science fiction**

I want to begin by leaving the corpus aside for the moment to consider English-language science fiction as a whole. One might expect that since humans and aliens so often come into contact in science fiction, translation would be a frequent theme. Not so. Usually the translation problem is either passed over in silence or dispensed with in one of three ways that reflect received ideas: telepathy, lingua franca and machine translation.

In the case of **telepathy**, language itself is supposedly bypassed. This solution reflects the view that language is a pure externality, rather like a telephone line - a sequence of sounds or letters serving to transfer universal concepts from one brain to another. Writers who invoke telepathy forget that even if there does exist a universal 'language of thought' that operates below the level of consciousness, and even if thought could be projected through space, we

can only become aware of thought in some particular language or other semi-otic system. So if the receiver of a telepathic message does not know the language of the sender, translation work has to be performed at some point in the transmission process.

Consider the treatment of telepathy in H. G. Wells's 1923 novel *Men Like Gods*, as described by Walter Meyers (1980:131). When a group of time travellers is addressed telepathically by their host in the future, each hears something different: one says the host has described himself as a 'molecular chemist', another hears it as a 'materialist', a third as 'someone who weighs things'. The host explains:

When I think to you, the thought, so far as it finds corresponding ideas and suitable words in your mind, is reflected in your mind ... and naturally enough in your own language and your own habitual phrases.

It seems that for Wells, thought projection includes automatic translation (and the well known problem of adapting translations to their readers is solved automatically as well!). In the absence of such automatic translation, telepathy would surely be as described by Justin Leiber (1978:19), who writes that if "Josef, a native of Borneo who speaks only XYZ" were able to read your mind, he would simply become aware of English words. Presumably, if Josef tried to project his thoughts into your mind, you would just become aware of XYZ words entering your head.

Leiber also mentions one of the very few science fiction writers who recognizes the problems with telepathy. In Hal Clement's 1950 novel *Needle*, the alien is a symbiont who enters the body of a human host, but Clement avoids invoking telepathy when the alien tries to communicate with the human. Instead, the alien learns English from the host's conversations and readings, and then communicates by projecting written English sentences onto the retina of the host's eye.

In some science fiction novels, translation is never needed because there is a common second language learned by everyone in the universe: a **lingua franca**. If I need to discuss interplanetary trade with Xyrtil, from Vega, there is no problem because both of us speak fluent Pancosmic! This solution to the communication problem is a projection of the widespread belief that very soon everyone - or at least well-educated people - will be using English or Esperanto, and that 400 years of failed attempts by Europeans to find a lingua franca to replace Latin will finally come to an end. Indeed, most English-language science fiction writers appear to believe that the curse of Babel itself is a temporary aberration, for it has not been visited on most of the planets they imagine. On Mars, everyone's mother-tongue is usually Martian!

One difficulty with projecting the notion of a lingua franca onto the cosmic scale is what we might call the 'Chomsky problem'. According to the American linguist Noam Chomsky, the structure of human languages is a consequence

of the particular way in which our brains have evolved. Thus there may well not be a linguistic system that is learnable by all intelligent beings, given differences in the structure or functioning of mental organs. In the 1984 novel *Native Tongue* by linguist Suzette Elgin, the action revolves around precisely this possibility. Families of translators on a future Earth are part of a hated ruling elite which controls interplanetary trade. The men run the translation business and the women do the translating. Each new-born female child is placed with an alien in order to become a native speaker of its language, but if the language is not learnable by the human brain, the infant is driven insane.

In the third solution, **machine translation**, the technological wand is waved and a translating machine is conjured up. The MT option reflects the view that communication problems - like all problems - have a technological solution. In a discussion of scientific plausibility as the criterion distinguishing science fiction from fantasy, Meyers (1980:118-30) points out that there are two categories of translating device in science fiction: plausible ones which translate a known alien language into a human language, and implausible "magic decoders" which can somehow translate an unknown alien language.

There are many science fiction stories in which a machine manages to learn an unknown language and then translate a message in it. These are not included in the corpus because the topic has already been ably surveyed by Meyers. Authors of such stories tend to confuse translation with cryptology, a topic to which I return in section 3. Consider these passages from Frederick Fichman's 1990 novel *SETI*:

The central processing unit of the Compaq and Sam's META [Mega-channel ExtraTerrestrial Analyzer] black box were talking to each other, running through endless combinations of *deciphering codes and languages* .... Sam's META box - the priceless *translator* that allowed Sam to *detect and decipher the signal and the messages* he had been receiving. (my emphasis; pp. 50-51, 120)

Fichman was apparently thinking of the META (Multichannel ExtraTerrestrial Array) project that is being conducted by a group of astronomers to detect incoming intelligent signals (Drake 1992:220). There is of course a vast difference between, on the one hand, detecting a physical signal whose form indicates that it has an intelligent rather than a natural source and, on the other hand, determining the meaning of the message borne by the signal. Confusing form analysis with translation was the great mistake of the engineers who originally worked on machine translation in the late 1940s. One of them, Warren Weaver (1955:18), famously described the problem of Russian-to-English translation as one of imagining that an English text has been encoded in Russian; it was then just a matter of replacing Russian forms with English forms.

An interesting example of progress in recognizing the difficulties of MT is found in the two technical manuals that have been published in connection

with the television series *Star Trek*. In the manual published for the original series (Joseph 1975: Technical Order 03:02:04), only the external appearance (height, colour) of the Universal Translator is discussed, as if the machine's software were unproblematic. But in the manual published for the second series, there is a complex flow chart which, while unfortunately referring to translation from an unknown language, nevertheless indicates the components of the machine's programme and is clearly influenced by the literature on machine translation (Sternbach and Okuda 1991:101).

## 2. The translatability of interstellar messages and extraterrestrial inscriptions

Turning now to the corpus of science and science fiction writings, of the many questions we might ask about inscriptions found on other planets, or about interstellar messages to or from aliens, I shall consider the following:

- The semiotic-type problem: leaving aside cases where the message takes the physical form of an inscription on another planet or on an interplanetary probe, a key question about any binary-coded radio signal from the stars is its semiotic type. Is the sequence of zeroes and ones to be taken as representing a text in a natural or invented language, a set of mathematical theorems, still or moving pictures, or perhaps a computer programme?
- The language-decipherment (language learning) problem: if the semiotic type is a text in a natural language, and the language is learnable by the receivers of the message, can at least some of the vocabulary and syntax be determined?
- The translation problem: if the language is at least partly determinable, can the intention of the message's senders be discovered?

To determine what the senders mean if their message is taken to be a text in some language, we must learn that language, at least in part. To do this, and to interpret the intent of the message, there must be some common ground of understanding. Most of the science and science fiction writers are optimistic that this requirement can be met. A few, however, see problems, and it is no surprise that one such is the noted Polish writer Stanislaw Lem, for a central theme of his work is the inscrutability of others' intentions. In his 1968 novel *Głos pana* (translated into English in 1983 under the title *His Master's Voice*), a message is received from space, and the entire novel revolves around fruitless attempts to determine its meaning. The narrator, a member of the team assigned to decipher the message, writes in his diary:

The view of many notwithstanding, the conceptual convergence of all languages of Earth's culture, however varied they may be, is striking. The telegram GRANDMOTHER DEAD FUNERAL WEDNESDAY can be translated into any language you like .... The

reason is that everyone has a mother, who has a mother; that everyone must die; that the ritualization of the disposing of a corpse is a cultural constant; as is, also, the principle of reckoning time. But beings that are unisexual would not know the distinction between mother and father, and those dividing like amoebas would be unable to form the idea even of a unisexual parent. The meanings of “grandmother” thus could not be conveyed. Beings that do not die (amoebas, dividing, do not die) would be unacquainted with the notion of death and of funerals. They would therefore have to learn about human anatomy, physiology, evolution, history and customs before they could begin the translation of this telegram that is so clear to us. (Lem 1968:74-5)

Lem thus nicely expresses a basic point in translation theory, namely that translation is impossible in the absence of common extralinguistic points of reference.

Almost all the science writers in Part II of the corpus beg the question raised by Lem: they specify that the senders must be ‘humanoid’. Their optimism is further based on the assumption that the message will be addressed to a scientific civilization, so that scientific and mathematical content - which they take to be universal - can be used as a common ground of understanding. Thus in *Intelligent Life in the Universe*, the Soviet astrophysicist Iosef Shklovskij and the American astronomer Carl Sagan write:

We wish to emphasize that a linguistic system based upon these fundamentals [physical, astronomical and chemical constants] would be far easier to decipher than many of the written languages of ancient civilizations which have been deciphered by archaeologists. (Shklovskij 1963:430)

C. L. Devito and R. T. Oehrle (a mathematician and a linguist, respectively) have recently set out a proposal for just such a ‘language’ based on the fundamental facts of science (1990:561-68). But before any of the scientists began work on their extraterrestrial communication projects, this same notion appeared in science fiction. In one story where humans have found inscriptions on a deserted planet, a character comments that what they have determined to be the Periodic Table of Elements is “better than a bilingual” and claims that “Physical science expresses universal facts; necessarily it is a universal language. Heretofore archaeologists have dealt only with pre-scientific cultures” (Piper 1957:187). A bilingual is a source-text/translation pair found in a single document, like the famous Rosetta stone; one text is in a known and the other in an unknown language, the former providing a key to the latter. Piper’s story is titled ‘Omnilingual’, implying that the Table of Elements could serve as a key to the decipherment of languages anywhere in the universe.

In the science writings - especially those of the American astronomers - appeals to such scientific universals offer an instant solution to the problem of understanding alien messages. The breezy conclusion reached by Billingham

and Oliver (1971:65) is typical: “There does not seem to be any great difficulty associated with the semantics problem”. Instead, the really difficult problem is seen to be that of just making physical contact with the aliens, that is, detecting a signal whose form indicates that it has an intelligent source. The American astronomers actually call their subject ‘*search* for extraterrestrial intelligence’ (SETI), whereas the Russians call the field ‘*communication* with extraterrestrial intelligence’ (CETI in English).

Not all the scientists share this optimistic view. In an untypical passage from Part II of the corpus, B. I. Panovkin, a Russian speaker at an international conference on communication with extraterrestrial intelligence, says:

Very often in the CETI literature we hear it said that while an isolated symbol system cannot be understood, may not a situation develop in which simple contexts arise, associated with certain basic physical objects which are common to our system and to other extraterrestrial systems? Is it not possible to ... take advantage of the identical real object known to all and in this way decipher the meaning of a certain set of symbols ...?

... Such a solution would be possible only if the real objects implied were the direct contents of our scientific knowledge. But this is not so ... the immediate contents of our knowledge is not the material properties or relationships that exist in the material world ... but their reflection in our minds by means of ideal images which are the direct product of our practice .... Practical activity is what brings us into contact with the material world and this enables us to build up scientific theories .... All this brings me to the conclusion that in order to understand the set of symbols used by another civilization, there must be ... a close identity of the historical background of the two societies. (Panovkin, in Sagan 1973:319-20).

The general failure of our English-speaking writers to attend to this problem of “identity of historical background” will be further considered in section 5.

Perhaps one motivation for invoking presumed universals is that the writers believe that using them will help the receivers recognize the ‘intent’ of the senders: the receivers will assume the senders intend to talk about something both parties share. This prompts the question: do any of our writers in fact distinguish the issue of determining the intent of a text from the issue of learning the language in which it is written? In general, the answer is no. Aside from Panovkin, who says that “pure structure or code gives us no clue as to the real meaning of what is being communicated” (ibid:318), Lem is the only one who points out that we could figure out part of the language in which a cosmic message is written and still not understand the intent, so that the text would in fact be untranslatable:

Every sentence in a book means something, even when pulled out of

context; but within that context it mingles with the meanings of other sentences, of those that precede it and of those that follow. From such permeating, accretion and focal fusion emerges finally the idea, frozen in time, that is the work. In the stellar code what mattered was not so much the meaning of the elements, of the “pseudo sentences”, as their *purpose*, which I was unable to divine. (Lem 1968:128-9)

Lem further points out that part of what is intended in any message is left implicit by its senders, and that the receivers have to draw on extratextual understanding to determine intent:

I felt that the code was overly laconic .... But the laconicism of the code was not an objective property of the code; it depended, rather, on the degree of knowledge of the receiver .... *However much we detail a transmitted description, it will always be unnecessarily precise for some and fragmentary for others.* The difficulty we were encountering only showed that the Sender was addressing parties more advanced than mankind. (ibid:84; my emphasis)

The extraterrestrial sender’s habits regarding what is left implicit and what is made explicit might of course be quite unlike any human style of writing.

Departing from the corpus for a moment, it is worth noting that episode 102 of *Star Trek: The Next Generation*, entitled *Darmok*, also demonstrates a clear appreciation of the difference between knowing a language and understanding a message in it. Humans arrive at a planet where the inhabitants are speaking a language which the Universal Translator converts into English sentences, but the point of what they are saying is utterly obscure. During the initial encounter, one of them keeps replying “Shaka when the walls fell”, but this has no obvious relevance to what the humans had been saying. In the end, the humans determine that it means ‘I don’t understand’. On this planet, the inhabitants speak in literary allusions. It is as if, instead of saying “I just don’t know what to do”, one said “Hamlet returning to Elsinore”.

### **3. Solutions to the decipherment/translation problem**

Since most of our writers confuse translation (how to render the intention of a text) with language decipherment (how to determine the signification of the units of the language in which the text is written), the discussion of solutions proposed in the corpus has to cover both. The term ‘translation’ also has to be understood broadly, since two of the solutions proposed involve methods of communication other than natural language.

#### *Solution A: Cryptology*

Some of the science fiction writers treat decipherment/translation as a problem in cryptology and invoke mathematical and statistical analyses:

What you're saying is that the computers to *solve the transmission* may be available but we can't use them .... The work of establishing the language of the transmissions was proceeding slowly and with moderate success. That it was proceeding at all ... was a tribute to Cord Majesky and his *team of mathematicians*. (McDevitt 1986:96, 148; my emphasis)

The same idea appears in a programmatic Soviet astronomy article:

Within the present program a leading role should be assigned to logically formal deciphering techniques, comprising *algorithms that can be implemented only by computer* .... The decoding procedure ... may be broken down into several steps. (1) ... the alphabet of the elementary signals (messages) would be established. (2) Determination of type of text language organization: ... pictorial, ... linguistic, ... formalized .... (3) Disclosure of grammatical system of the language .... (4) Disclosure of the semantics of texts under investigation. (5) Development of methods for translating the decoded language into familiar languages. (Soviet CETI Report 1974:226; my emphasis)

The problem with cryptological techniques is that they can only identify recurring forms. If these forms are relatable to the recurring forms of an already known language, i.e. they are an encoded version of a text in that language, then the techniques will indirectly provide access to meaning. Thus in one science fiction novel (Hamilton 1960), the main character, a philologist, is able to relate the recurring forms of inscriptions found on the moon to Sumerian (the 'aliens' who wrote the inscriptions turn out to be humans who came here from another star system thousands of years ago). In another novel (Kube-MacDowell 1985), the alien senders of a message received on Earth have already managed to learn English and they use a simple code in which numbers correspond to English letters. But cryptological techniques can never by themselves associate forms with meanings; quite simply, meaning cannot be deduced from form. Indeed in several stories where the main character is a philologist, there is a scene in which s/he has to explain to some political or military bigwig the difference between deciphering a code and understanding a text in a natural language (Hamilton 1960:36; Delany 1966:7).

One problem worth mentioning in connection with cryptology is the often confusing use of the words *code* and *decipher* in the corpus. In the passage from Lem quoted earlier (1968:84), assuming *code* is a good translation of the Polish, it seems to just mean 'form whose meaning has to be determined' rather than 'encoded text': "I felt that the code was overly laconic .... But the laconicism of the code was not an objective property of the code; it depended, rather, on the degree of knowledge of the receiver". Certainly Lem's narrator has no faith in cryptological methods. On other occasions, *code* appears to refer to an unambiguous formalized 'language' of the type to be discussed as Solution C.

*Solution B: Archaeological methods*

Some of the writers are familiar with the methods used by archaeologists to decipher writings in ancient languages. The passage below makes it clear that identifying recurring forms in an inscription is not enough; it is necessary to make guesses about the signification of these forms by drawing on knowledge of extratextual reality. In this novel, humans have come to a deserted planet and found inscriptions written by intelligent crustacean-like beings who changed from male to female at the end of their lives:

Suppose I find there's a pattern which can be isolated ... make an assumption about it ... that it was a statement concerning an individual member of the species ... I'd look for a phrase of the structure "he is XYZ" which I could match up with another "they are XYZ". And then I'd cross-match all those with other phrases of the same general form. You see, I'm looking not for a translation, which would be ridiculous, but for a grammar .... Once we've got past the initial stage of analysis, it'll be *a bit like what Ventriss did with Linear B, ... look for structural differentiation that might correspond with the sex change of the natives*. It may not work; we may not come up with anything as simple as "he does XYZ" versus "she does XYZ" because the word units may be absolutely different for the active male phase and the sedentary female stage. As it were "he eats" might turn into "she devours". But the principle is the only one we have, so if a hunt for sexual indicators fails, we'll have to carry on ... (Brunner 1974:84-88; my emphasis)

In one important step in the decipherment of the Cretan script known as Linear B by Michael Ventriss and Alice Kober, variant endings on words were identified as masculine versus feminine inflections. This was possible because the texts in question were found in warehouses and it was reasonable to suppose that they were agricultural records concerning male and female livestock and herders (Chadwick 1967:44-46). This extralinguistic information provided a point of 'semantic entry' to the language.

Such archaeological work would of course be much more difficult on another planet. Having determined that a certain form meant 'water' (thanks to a captioned Table of Elements giving words for hydrogen and oxygen, followed by information about molecules), one might then guess that a sign frequently accompanying it meant 'drink', but that would be making large assumptions about alien physiology and diet.

*Solution C: Formal languages*

Now what if there is no archaeological evidence? How do our writers solve the problem of semantic entry when they are dealing with radio signals? There are two solutions: either invent a formal language grounded in mathematics, logic

or the physical constants of nature, or else use pictures (Solution D).

In 1960, the Dutch logician Hans Freudenthal published a book entitled *Lincos: Design of a Language for Cosmic Intercourse*. He claimed to show that, provided aliens have human-like thought, they could learn a self-teaching, logic-based language which they and we could then use to exchange actual messages. There is no space here to describe Lincos (short for lingua cosmica), but the general principle is illustrated in Carl Sagan's novel *Contact* (1985:236-67):

- ... they can communicate abstractions with numbers. First they count out the numbers for us, and then they introduce some new words. I'll indicate their words by letters:  
1A1B2Z      1A2B3Z      1A7B8Z
- What does a sequence like this tell you?
- A means plus and B means equals.
- Good. But we don't yet understand what Z means, right? Now along comes something like this: 1A2B4Y
- You see?
- Maybe. Give me another that ends in Y.
- 2000A4000B0Y
- Okay, I think I got it. Z means it's true and Y means it's false.

Such formal languages are derived from natural languages but have little in common with them since they are restricted in order to remove structural ambiguity, polysemy and synonymy, and to circumvent cultural bounds. I have already mentioned the related notion of a so-called language based on the physical constants of the universe, and it is worth noting that science fiction writer Raymond Gallun presented the basic principle of this approach as early as 1934 in his short story 'Old Faithful'.

Some of the science fiction writers and most of the scientists suggest that an invented language would be essential; they do not think the aliens would attempt to use natural language:

- We're beginning to get some sense of the structure of the language. But there's something very odd about it .... It's so clumsy that I hesitate to call it a language .... Comparative degrees, for example, are expressed by numerical 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 .... it is not a natural language; it's too mathematical.
- You think it's something they devised purely for the transmission?
- Probably. And if that's true, we'll lose a major source of information about them. There's a direct link between language and the character of its speakers. (McDevitt 1986:155-56)

McDevitt, like Freudenthal and others, seems to have an exaggerated conception of what could be conveyed in such a simplified language. In the passage

from which the quotation is taken, McDevitt begins (confusingly) by describing the alien message first as a code breakable by computers and then (in this quote) as being in a formal language. But he also describes it (ibid:157) as “reading like philosophy ... a series of expanded essays on the good, the true and the beautiful”, and one of the characters proposes the following “liberal translation” of an incoming message from the stars (ibid:178-79):

I speak with the generations of those whose bones are in the barrow.  
We are restless, they and I. Having passed through the force that  
drives the world flower, I know the pulse of the galaxies. I have  
touched the living chain. Have known the storm within the proton. I  
speak with the dead. Almost, I know the Designer.

One wonders how a non-cultural formal language could convey such ideas.

Lem too doubts that natural language could be used, but is equally sceptical about the use of mathematics (1968:82-83):

Language is an appeal to the joint identity of the nesting beings,  
their common denominator, their constant of similarity, and there-  
fore its influence must end immediately beyond the edge of that subtle  
structure. The Senders had to know this. It was expected that the  
content of the signal from the stars would be mathematics .... We were  
going to greet, across space, other civilisations - with Euclid’s geom-  
etry. The Senders chose another way, and I believed that they were  
right. With ethnic language they could not break free of their planet,  
because every language is pinned to a local foundation. Mathemat-  
ics, on the other hand, is a severance too complete .... With  
mathematics, one can say nothing about the world .... With math-  
ematics one may signal only that one Is.

Lem’s narrator considers other semiotic types. One possibility (also invoked in Hoyle and Elliot’s 1962 novel *A for Andromeda*) is that the signal is a recipe - not instructions in language but something like the punched paper rolls that run a player piano, or a computer program which, when run, would allow the receivers of the message to perform an action (build some technological wonder for instance). In this approach, the issue of meaning is avoided because the signal *has* no meaning; instead, it is itself a technological object. There are of course other possibilities Lem does not mention: perhaps the aliens believe music is the only true universal, or the only kind of message worth sending, and have therefore sent us a musical composition!

Lem’s book often reads not like a novel but more like a satirical essay on the astronomers’ search for extraterrestrial intelligence; in fact Freudenthal’s Lincos is one of his targets. Doubts about self-interpreting symbol systems like Lincos are also expressed by Panovkin, in line with his already mentioned views about the possible lack of a common background of practical activities to which linguistic or other signs can be related (Sagan 1973:318).

*Solution D: Pictures*

In both the science and science fiction writings, by far the favourite method of providing a mode of semantic entry to the message is to use pictures. The notion appears as early as Cecil White's 1927 short story 'Retreat to Mars'. In 1961, astronomer Frank Drake proposed that a message in binary code (using dots and dashes or two different frequencies) could be interpreted by extraterrestrials as a two-dimensional grid of pixels, each either full or empty (Shklovskij 1963:424). Drake's plan was to send such pictures alone rather than as aids to linguistic decipherment, but his method was later adapted by some of the science fiction writers, who added linguistic captions: Sagan and Drake (1975:86-87; Figures 1A and 1B); Gunn (1972:117; Figure 2A).

The picture approach raises a number of questions which will not be considered here. For instance, what if the aliens have no eyes, or their mental organs interpret imagery differently, or their pictorial conventions are radically different? Could they perhaps interpret a graphic as a three-dimensional object which they could feel? The issue under discussion in this article is not the physical nature of the signal, or the psychology of form recognition, but the more abstract question of how forms can be related to meanings.

Here are passages on the use of pictures with captions from novels by three astronomers. In the first two, humans are trying to teach aliens English; in the third, humans are trying to learn the aliens' language:

- I will *put my children's books into a computer file* for Abdul to put on the communication links. I'll start with the most elementary books first, then build up to the more adult ones.

- *But they all presume some sort of prior knowledge*, Cesar protested. Even your A-B-C books assumed the reader knows what an apple is.

- *They will work if we send all the art work with it*, Pierre said.

(Forward 1980:222; my emphasis)

- What d'you propose to do?

- *Use a television camera ....* We'll start by going through a whole list of words, *demonstrating various nouns and verbs*. This will be preliminary. Then we can transmit the contents of whole books by scanning the pages with the camera. It should be possible to deal with *the whole Encyclopaedia Britannica* in a few days. (Hoyle 1957:150-51; my emphasis)

- I could see how you could have a picture of a star and then write S T A R under it. But I don't see how you could do verbs or the past tense or conditionals.

- They do some of it with movies. *Movies are perfect for verbs*. (Sagan 1985:236; my emphasis)

Sagan is perhaps thinking of action verbs like *jump*. What about a verb like



*fail or displeas*? Even with *jump*, how could a movie explain counterfactual conditionals (*if I had jumped*)? And there are more general problems, affecting even concrete nouns and action verbs. First, how can the receivers know what aspect of the picture is referred to by the caption? H. Beam Piper, in his story ‘Omnilingual’, sets out this difficulty very clearly (1957:153; my emphasis):

- We’ve found captioned pictures, and what have they given us? A *caption is intended to explain the picture, not the picture to explain the caption*. Suppose some alien to our culture found a picture of a man with a white beard and mustache sawing a billet from a log. He would think the caption meant ‘Man Sawing Wood’. How would he know that it was really ‘Wilhelm II in Exile at Doorn’?

As a point of interest, it may be noted in passing that during the decipherment of Linear B, guesses about the meaning of animal and human pictograms *accompanying* the text did play a crucial role (Wallace 1984:201, 206), but the text was not functioning as a caption for the pictograms. The captions mentioned in the above passage from Piper also raise the interesting question, to be discussed more fully in the next section, of whether a picture can correspond to a sentence, as opposed to a single word - *man* in this case.

A second difficulty with using pictures to gain semantic entry to a language can be seen with those writers who invoke a child’s illustrated primer. In a recent book, Frank Drake writes: “We could communicate with extraterrestrials in much *the same way we teach our babies to speak - by showing them pictures and naming the items in those pictures*” (1992:164; my emphasis). Most human beings have of course learned their mother tongue without ever seeing a picture book; they have learned it while participating in activities during which they hear adults speaking, without any need for special language lessons. Some children may perhaps have learned a few spoken words and gained a partial understanding of their meanings by the method Drake describes, but no child has ever learned the syntactic, lexical and phonological structure of its mother tongue solely or even mainly through such a pointing exercise. The teaching role of picture books comes later, when a child already knows the spoken form and the meaning of the words used to denote the pictured objects, and is learning the written form given in the captions.

#### **4. Concepts of language underlying the solutions**

I have already mentioned a number of misguided concepts of language underlying the various solutions to the decipherment/translation problem, for example the view that meaning can be deduced from linguistic form or from pictures. In this section, I would like to focus on two outstanding shortcomings in the corpus: misconceptions about how the meanings of words other than concrete nouns can be determined and failure to appreciate the role of syntax.

#### 4.1. Concrete nouns as keys to decipherment

Let us suppose, for the sake of argument, that it *is* possible to teach aliens vocabulary for visible objects, motions, numbers, logical operations and scientific concepts. This still leaves a lot unaccounted for. How could we get beyond words like *sun, fall, three, not* and *gravity*? Many of the writers refer to the part of language that deals with concrete objects and logical operators as providing a ‘key’, a jumping-off point:

The [information-coding] bursts would first demonstrate their regularity and then begin the bootstrap process of explaining logic, math and physics in such a way that the message takers would have to understand that this must be what we were trying to explain and in this understanding have the *key to unpack our language*. (Leiber 1987:239; my emphasis)

There must be *something, somewhere, that will give us the meaning of a few words, and we’ll use them to pry meaning out of more words*, and so on .... There would be other tables - astronomical tables, tables in physics and mechanics, for instance - in which words and numbers were equivalent .... *new words would take on meaning from contexts in which the names of elements appeared*. (Piper 1957:148, 185-6; my emphasis)

The sender could gradually build up a considerable sophistication in his ability to convey mathematical theorems and relations. While this type of transmission is unlikely to result in the type of information most of us would desire (Where are you? what do you look like? Is there a God?), *it would form a good beginning*. (Deavours 1985:204; my emphasis)

*Would* it form a beginning, or would it not in fact be the end? None of the writers explain how this ‘key’ method would work. In James Gunn’s *The Listeners*, the characters have been able to determine, from a picture with captions, the words for various physical objects such as sun, wing and chest (1972:154; Figure 2B). Later, with no further explanation, the computer they are using gives the following translation of a newly received message; the slashes indicate “uncertainties in the exact meaning of certain words and phrases” (ibid:230):

People/civilized beings/intelligent creatures/brothers  
to whom it may concern  
Greetings from the people of Capella/the first satellite of God  
Who are dead/gone/destroyed  
We lived  
We worked  
We built

And we are gone.  
 Accept this, our legacy/remains  
 And our good wishes/kinship/admiration/brotherhood/love.

Now how was it possible to jump from concrete nouns like *sun* and *wing* to words like *admiration*, *God* and *wishes*? It is true that in real archaeological decipherments certain words provided the phonetic key to a language: in the case of both Ancient Egyptian and Linear B a key was provided by proper names, which have the virtue of being phonetically similar in different languages and not changing much over time. Such a key can eventually lead to a determination of all the phonetic values of an alphabetic or syllabic writing system. Meaning, however, works quite differently. If I tell you the Hungarian word for *hand*, that does not give you any sort of key. It will not help you discover the word for *finger* - unless by a great deal of good luck you find a Hungarian sentence meaning 'human hands have five ...' - and it will certainly not help you discover an abstract noun like *dexterity*. In the case of Ancient Egyptian, an accompanying Ancient Greek translation of a text on the Rosetta Stone furnished a source of meanings for unknown words. As for the texts written in Linear B, they turned out to be in an early form of Greek, so later Greek could be called on for clues to meaning. But with many ancient languages, Etruscan for example, meanings have been determined for only a small proportion of words despite decades of effort. At an archaeological site on another planet, needless to say, there will be no assistance from Greek.

The conclusion would seem to be that even if messages about physics or mathematics proved to be understandable, messages about other topics might remain forever obscure. Actually, the problem is even more serious than the previous discussion suggests; it lies not just with words like *admiration* but even with concrete nouns like *water*. The scientific meaning of *water* (dihydrogen oxide) might well be conveyable, but how would it be possible to make the transition from the scientific meaning to the everyday meanings, as exemplified in the 700-word entry in *Webster's Third International Dictionary*? In using expressions like *swim below water*, *in European waters*, *throw cold water on*, *living at the water's edge* and so on, speakers and writers do not intend to convey anything about molecular structure.

#### 4.2. *The absence of syntax*

The 'key' theory is unsatisfactory both in its initial premise, namely that a word like *water* gets its meaning from some sort of direct relationship to the physical world, and in its misunderstanding of the meaning relationships among words. But given this premise, some of the writers do at least realize that there is a problem about how the meanings of words other than concrete nouns will be determined. Not so with syntax, the real blind spot in the science and science fiction writings under consideration here. In the above passage from *The*

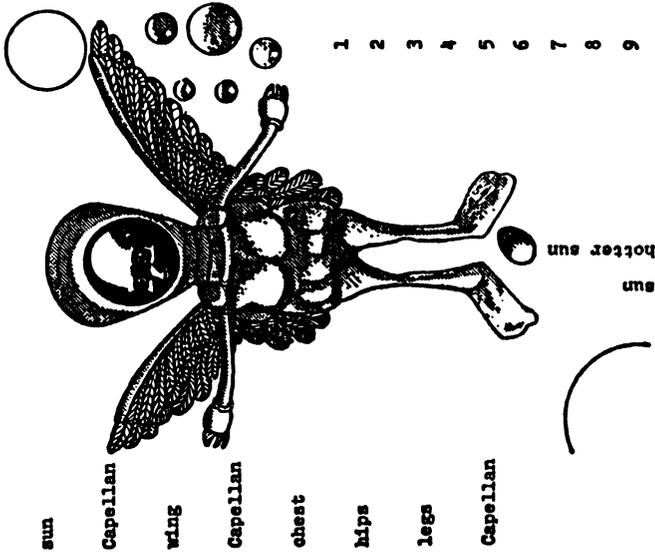


Figure 2B: Interpretation of picture in Figure 2A by characters in the novel. Nine groups of characters on the right of 2A are interpreted as numerals written in the binary number system. Eight groups of characters on the left and two on the bottom are interpreted as words of the extraterrestrials' language on the assumption that they are captions for parts of graphics that depict a bird-like being & various astronomical objects.

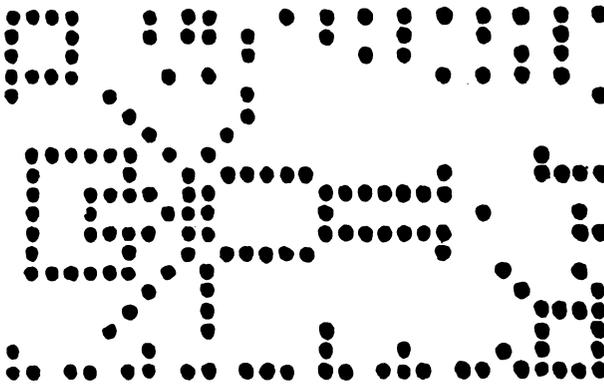


Figure 2A: Message received on Earth in James Gunn's 1972 novel 'The Listeners'. See captions of Figures 1A and 1B for explanation. Here dots are used instead of squares to fill in the pixels.

*Listeners*, how was it possible to determine that the form rendered as *dead* is the predicate of a relative clause modifying *people*, or that the forms translated *legacy* and *wishes* are the co-ordinate objects of *accept* in an imperative clause structure?

Written sentences are only superficially strings of words. In reality, they have to be seen as **wordings**: words contained in a complex hierarchical arrangement of constructions. It is this arrangement - the syntactic structure - which tells us how the meanings of the individual words are related to each other. The sequence *greetings - people - Capella - dead - live - work - build - go - accept - legacy - wishes* simply fails to convey any definite thought. Syntactic structure is central to the creation of meaning.

Occasionally the writings mention parts of speech, as in the quotations from Hoyle and Sagan discussed under Solution D (Pictures), and there are one or two unspecific references to 'grammar' or 'structure'. But in all the writings which assume the message to be linguistic rather than some other semiotic type, I found only one clear reference to the need to determine "syntactical constructions" (McDevitt 1986:185).

Lack of awareness of the crucial role of syntax comes out in attempts by the astronomers to send messages that consist entirely of pictures. Here the pictures are not simply providing external reference points allowing semantic entry to linguistic material; instead they are intended to convey meaning directly. Thus in a message that was actually transmitted into space in November 1974, there is a line devoted to the numbers 1 to 10, a line giving the atomic numbers of hydrogen, carbon, nitrogen, oxygen and phosphorus, several lines giving the chemical structure of DNA, a line picturing a human and a line picturing our solar system as a large circle with nine smaller ones, the third of which is displaced so that it is near the human figure (Sagan and Drake 1975:87; Figure 3).

In effect, this message was an attempt to convey a series of declarative sentences pictorially: 'this is our planet', 'this is what we look like', 'this is the substance from which we are made'. An alien receiver would have to determine that each horizontal line is a proposition, as well as how the elements on each line are related to other elements (the circle representing Earth is related both to the other circles on its line and to the human figure in the previous line). It seems to me this would be a truly daunting task, there being no pictorial equivalent to syntax. Tests to see whether other human scientists could carry out an 'intersemiotic translation' of such pictures into language have yielded disappointing results (Breuer 1982:128, 139).

## 5. Conclusions

What do we learn about translation from the science and science fiction writings in the corpus? Perhaps just one thing. The vast shared background that underlies the possibility of translating texts between languages of different human communities does come much more clearly into view when contrasted

with the impoverished common basis for interstellar translation. Even if we assume that an extraterrestrial species possesses a communication system that is processable by the human brain, translation at a distance (without benefit of direct contact) may not be possible between beings who do not share a common biological and ecological background. With too different a background, the problem might not be just one of language learning; rather the kinds of things we attend to and find important and meaningful could be so different that we might quite simply have nothing to say to each other, in language or indeed in any other semiotic system! At best, as Lem suggests in a passage already cited (1968:82-3), we might be able to let the aliens know that we too are aware that the square on the hypotenuse of a right triangle is equal to the sum of the squares on the other two sides.

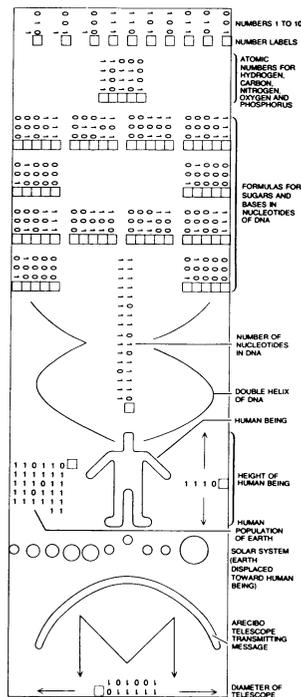


Figure 3

*Intended interpretation of the picture in Figure 1B. Numbers are in binary rather than Arabic forms.*

Lem's science fiction writings about failed communication with aliens are often taken as metaphors for the inability of human groups to understand each other. As literary interpretation, this is unproblematic. But if our interest is the scientific or philosophical issue of actual communication with aliens, then we cannot overlook the differences between the human/human and human/alien

cases. Thus the human/alien situation Lem describes in the ‘grandmother dead funeral Wednesday’ passage of *His Master’s Voice* (discussed in section 2) is quite different from the human/human situation described in a famous article, by the American philosopher Willard Quine, about how we can know whether two expressions have the same meaning. Quine (1959) was considering what he called **radical translation**. By this he meant the situation of a linguist trying to determine the meaning of expressions in the language of a newly contacted ‘native tribe’ so as to be able to construct a bilingual dictionary. Quine in fact talks about a ‘translation manual’ rather than a bilingual dictionary, and the situation he describes might more accurately be called radical language learning, but the difference can be overlooked for our present purposes. Quine’s linguist tries to correlate an utterance by the native with observations of the circumstances in which the utterance occurs in order to come up with English translations. But the situation Lem describes is far more radical. First, the alien translators have no direct contact with humans and can therefore make no observations of the circumstances under which ‘grandmother dead funeral Wednesday’ was uttered; they must find some other means of semantic entry. Second, the aliens cannot invoke any background assumptions about either the general structure of human language or, more importantly, about our bio-ecology.

The human/human versus human/alien distinction also has a bearing on the issue of the universality of science and the potential for communicating with aliens using mathematics, logic or physical constants. Thus philosopher Nicholas Rescher is not optimistic about the possibility of us learning advanced alien science (that favourite theme of Cold War science fiction). He suggests that jellyfish-like creatures swimming about in a soupy sea might develop a geometry very different from ours; mole-like creatures might never dream of developing optics; and coral-like aliens which exist only as communities rather than as individuals might see the whole of nature in sociological terms. So far so good. Unfortunately, Rescher then tries to make the notion of a conceptually different science clear through an Earthly parallel: he claims that “short of learning our science from the ground up, Aristotle could not have made anything of modern genetics nor Newton of quantum physics. ... Just as the technology of a more advanced civilization would be bound to strike us as magic, so its science would be bound to strike us as incomprehensible gibberish - until we had learned it ‘from the ground up’. They might (just barely) be able to *teach* it to us, but they could not *explain* it to us” by transposing it into our terms (1982:87-8).

Surely this is a poor analogy. The situation of Erwin Schrödinger returning to the 17th century in a time machine to explain quantum physics to Newton is *not* similar to that of an alien professor from Vega trying to teach us their science. Schrödinger and Newton have a shared bioecology, not to mention a shared history - Schrödinger would already be familiar with Newton’s outlook. The alien science, on the other hand, might not only be unexplainable in

our terms; it might not even be teachable 'from the ground up', because the aliens may have a different biology (different mental and sensing organs) or be differently situated ecologically. There may indeed be good reason to doubt the understandability of alien science, but the argument cannot be based on analogies with the human/human case. The difference is fundamental, not merely a matter of degree.<sup>3</sup>

In the corpus, the treatment of this problem of the background conditions for translation is disappointing. American astronomer Robert Forward begins his novel *Dragon's Egg* promisingly by imagining a species living on a neutron star whose members are flat amoeba-like creatures half a centimetre in diameter and half a millimetre high, with a lifespan of thirty minutes. But their history is remarkably similar to human history (there is even a Christ figure!), and at the end of the story they converse with humans as if they were the new neighbours who just moved in next door. Forward apparently believes that radical biological and ecological difference might have no effect on culture or cognition. The humans in the story easily recognize the culture, and so one of the pre-conditions for translation is realized without any thought as to what those conditions might be. This novel is typical of much science fiction in its restricted concept of otherness: physical and technical realities may differ but society and mind are universal.

While the corpus may tell us relatively little about translation, it tells us a lot about the writers' understanding of it, and of language, decipherment, communication and semiotics in general. Most of their ideas about translation stem directly from a certain conception of language. In this view, there is a basic vocabulary understood as labels for objects (or captions for pictures) and for universal scientific, mathematical and logical concepts. The objects and concepts provide the common basis required for translation. The words expressing them serve somehow as a key to the meaning of all other words, while links between words are provided either by universal logical connectors or in some other unstated way - perhaps by determining how things are connected to each other in the world outside language.

This view, focusing as it does on the use of language to refer to objects and to classify them, is very much in tune with natural scientists' preoccupation with entities in the world and their relationships to each other. It harks back to seventeenth-century universal language schemes that sought to develop a system of symbols with which a sort of direct transcription of the 'Book of Nature' could be made (Large 1985:11-42). This might well be a useful way of understanding the special use made of language by scientists, but it is wholly at odds with contemporary thinking on the everyday uses of language. Language is no longer seen as a list of labels for classes of objects, and concrete nouns like *water* are no exception: their meaning cannot be derived from natural objects as seen by physicists (a point which only Panovkin among the scientists in the corpus seems to appreciate).

Language is now seen as a system of principles that allow us to link sounds or letters to meanings through lexical-syntactic structures. It is perhaps not surprising that our writers ignore the role of syntactic structure. After all, most first-language education in the English-speaking world concerns vocabulary; people tend to think of a language as a list of words, as symbolized in that most familiar of objects, the dictionary. Grammar education tends to focus on correct usage, while classes in English composition deal with matters such as the rhetorical uses (rather than the syntactic nature) of certain sentence structures. Perhaps only those who study linguistics, or languages taught by the methods used for Greek and Latin, achieve a full awareness of the centrality of syntax.

While some of the writers lack basic knowledge about language, others try to avoid natural languages and appeal to pictures or formal languages. Unfortunately many seem to think that by this means they can somehow transcend not only language but semiotic systems generally, and achieve unmediated reference to things. Those writers who invoke pictures seem oblivious to the fact that pictures too are conventional representations (the pictograms used in building signage have proven not to be culture-neutral). Those writers who invoke formal languages have yet to prove that even a human being, let alone an alien, could learn a language like Lincos (Breuer 1982:123).

In summary, then, Mounin's challenge to consider communication with extraterrestrials stands largely unanswered by the scientists and science fiction writers in the corpus, because hardly any of them have a sufficient understanding of the linguistic and semiotic issues involved in interlingual communication. Their writings by and large reflect outdated received ideas; indeed, given the popularity of science fiction, the fiction writers doubtless help reinforce popular views on the issues. Only a few - mostly fiction writers such as Lem, who have been represented disproportionately in this article - show any real awareness of the enormous difficulties interstellar translation would pose. And there is little sign of progress over time or correlation with natural scientific knowledge: the best informed works are the science fiction stories written before 1975 by non-scientists. Perhaps, being writers rather than scientists, they have a better sense of what meaning is all about.<sup>4</sup>

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### Acknowledgements

Figures 1A, 1B and Figure 3 originally appeared in Sagan & Drake (1975); Figures 1A and 1B were later reproduced in Carl Sagan, F. D. Drake, Ann Druyan, Timothy Ferris, Jon Lomberg and Linda Salzman Sagan (1978) *Murmurs of Earth*, New York: Random House. All three figures are reproduced here with the kind permission of Carl Sagan. Figures 2A and 2B (the latter by Lance Williams) are reproduced with the kind permission of James Gunn.

**Notes**

1. I would like to thank the staff of the Toronto Public Library's Merrill Collection of Science Fiction, Speculation and Fantasy for their assistance in locating as many novels and stories on the topic as possible. An early version of the portions of this paper dealing with science fiction was presented to a meeting of the Canadian Association for Translation Studies, Ottawa, May 1993.
2. For a more quantitative discussion of the treatment of language issues in science fiction, see Krueger (1968).
3. For an interesting and amusing discussion of the effects of differing biology and ecology, see the descriptions of several imagined worlds in Jonas and Jonas (1976).
4. It is interesting to compare writings by scientists with writings by linguists and philosophers of language on the subject of communication with extraterrestrial intelligent beings. Sukhotin, a Russian mathematical linguist who contributed to a volume on the subject, concludes an eighty-page discussion of mathematical methods of message decoding with this remark: "Will we at all be in a position to comprehend the content of these messages? *Not all that is intelligible is comprehensible ...* While intelligibility is based on the ability to predict the inaccessible parts of the message, comprehension draws upon our ability to translate the message into the language of images corresponding to real situations" (1971:211; my emphasis). Sukhotin is clearly aware of the difference between determining that a signal's form indicates an intelligent source and determining the actual content of the message. Leiber, an American philosopher working in a linguistics department, thinks that at least limited communication, even with non-humanoid aliens, can be achieved with a science and logic-based language: "We share ... logical notions like negation, conjunction, implication, proof; basic scientific notions like electron, atom, force, electromagnetism, star, planet, organism. In the end, what we really need for translation is a shared scientific grasp of the basic character of the universe and of the logic and mathematics required in understanding it" (1978:20). Oehrle, a linguist, clearly agrees with his mathematician colleague Devito that a 'language' based on the physical constants of the universe could be used (Devito and Oehrle 1990). Tennant (1993), a philosopher/cognitive scientist speaking at a conference on communication with extraterrestrial intelligence, has some small hope that pictures might work but shares Lem's view that messages about mathematics would be pointless; he also finds Devito's science-based language naive and derides the math-and-science approach to message decoding in Sagan's novel *Contact*.

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## APPENDIX A: CORPUS

### PART I: SCIENCE FICTION NOVELS AND SHORT STORIES

- Brunner, John (1974) *Total Eclipse*, New York: Daw Books.
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## PART II: COMMUNICATION WITH EXTRATERRESTRIAL INTELLIGENCE

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The Recorders  
A science fiction story about a translator and climate change  
©Brian Mossop 2014

1.  
Toronto, August 2048

There was a flash of light and a swooshing sound. It might have been the end of a dream, of course. True, the cat seemed to be upset, but then perhaps she had just missed a mouse. Feline mood swings are among the many things in life which are, ultimately, undecipherable.

I jumped out of bed and rushed to the hallway. Nothing. Back to bed, it being only 6 am. But then suddenly: what was that pile of discs on the floor at the top of the stairs? I returned to the hallway. There were at least a hundred of them, and they had certainly not been there last night. I picked one up; it had no label.

It was one of those old-fashioned digital video discs. Happily we keep a small museum of old technology in our basement (well, a box of old techno-junk: an early Macintosh, a push-button telephone, even an ancient dial telephone). I brought up an old computer and plugged it in. Still worked!

I plopped in the top disc from the pile and waited. A picture appeared on the screen, in fact a moving picture. Some people in 18<sup>th</sup> century costumes were sitting around in a large hall chatting and eating. They were speaking French, but a rather old fashioned French.

Some sort of historical drama, the French Revolution perhaps. I watched for several minutes. Oddly, there did not seem to be anything much happening. No character stood to make a speech. No one rushed into the hall with a breathless announcement. Very undramatic for drama.

At the bottom of the screen, there was a long sequence of odd characters:

⌘⌘ ⌘ ⌘⌘w ⌘ b⌘⌘ ⌘ ⌘⌘⌘⌘⌘ ⌘ ⌘⌘⌘⌘⌘ ⌘ ⌘⌘⌘⌘⌘ ⌘ ⌘⌘⌘⌘⌘ ⌘ ⌘⌘⌘ ⌘ b⌘⌘ ⌘ ⌘⌘⌘⌘ ⌘ ⌘

The characters changed every once in a while, but not as frequently as subtitles.

I fast forwarded and stopped. Same people, but lunch was now over and someone was making a speech. The speaker droned on, and on and on, with little reaction from onlookers. As I said, no drah-ma.

What was he talking about? The confiscation of church lands. So it was indeed the French Revolution, and this was the National Constituent Assembly, in August of 1789. But so boring. This movie was marked for failure.

Perhaps this wasn't the movie itself, but some footage which would then be edited down? But why bother writing all these words? Fast forwarding 45 minutes, the same man was still speaking, on the same subject. Hmmm. What is going on?

Let's put in another disc. I selected one from half way down the pile. Another moving picture appeared. Another historical drama, this time men in togas. The Roman senate no doubt. Some worthy senator was speaking, or rather, once again, droning on and on. Hardly anyone was paying attention. The actor playing Worthy Senator was certainly speaking Latin very fluently. I could only recognize a word here and there because he was speaking quickly and without any of the hesitation of a learner. That must have taken some practice. At one point, he got quite worked up, and suddenly he uttered, or rather bellowed, a phrase I knew: Delenda est Carthago! Carthage must be wiped out! Marcus Porcius Cato, known to history as Cato the Elder, just before the third and final Carthaginian War of 149 to 146 BCE.

Having summoned up the Web and asked for pictures of Cato on the new 50<sup>th</sup> anniversary version of Google—so wonderful, Google50, don't you think?—I found several busts and death masks of the old warmonger. The director of the film had managed to find an actor who resembled the busts astonishingly well.

A third disc showed yet another historical scene. But this time I had no idea who these people were or what language they were speaking. Once again, the scene was a meeting: ten men wearing odd clothes sitting around a table, with one of them at the head who appeared to be the centre of attention. No doubt some sort of potentate.

Suddenly an odd idea formed in my mind about these historical dramas. I decided to put it to my friend Peter.

2.

Out the door and off to the rapid transit stop just a few steps away. In 15 seconds, one of the extremely frequent streetcars came along to whisk me off to the university. Those (if any) reading this many years from now should know that for the past 7 years we have been living under a Green dictatorship. There are no more private cars, so public transit is extremely efficient.

What happened? Well, the Greens came to power, then had trouble implementing their program of drastic measures to head off climate disaster. One day we woke up to the news of a military coup: no more Parliament, no more parties, no more corporate lobbyists, no more backroom boys. The way was open for the Greens, with military assistance, to act. Gas stations were off limits to everything except public service vehicles and delivery trucks, which had to fill up under the surveillance of heavily armed soldiers. Attempts by organized crime and a few enterprising soldiers to sell gas under the table came to an abrupt end when a few of them were caught red- or rather black-handed, and shot on the spot. Pollution from mines and factories also dropped quite suddenly after a few executives mysteriously disappeared, never to be heard from again.

3.

Peter was in his office sipping tea. (There's nothing like a nice cup of hot tea, he always says.) I met Peter several years ago at a bath, that delightful institution where gay men go for instant sex. After a few minutes of heavy breathing, we had a little get-to-know-you talk, and discovered that we were both students of linguistics. He was now a professor of that subject; I was now a translator.

Peter was interested in dead Indo-European languages of South and Central Asia—Sanskrit, Old Persian, Avestan—while my interest at the time was the Algonquian languages, which are spoken, as I'm sure you're wondering, by Aboriginal people across much of North Texas and North Louisiana. NorTex and NorLou cover the territory of the landmass formerly known as Canada. In 2040, Canada's extremely lazy business class decided to just sit back in their comfy-wumfy easy chairs and let the Yanks run the place. NorLou is a sort of Puerto Rico North, but with French instead of Spanish. The Commonwealth of North Texas is the rest of the Former Canada, its capital in Calgary. The reaction to the termination of Canada was confused, but, as it turned out, not very important because the annexation was quickly followed, in 2041, by the aforementioned Green coup. Little changed in everyday life since both Parliament and Congress had by this time become empty shells that no one took seriously.

4.

“Why are these people droning on and on?”, asked Peter.

“Exactly”, said I. “Do you recognize the language these ten guys sitting around the table are speaking?”

“They're speaking Avestan, fluently. Say, there's an interesting subjunctive...”

“Fascinating, I'm sure, but Peter, can anyone speak Avestan fluently?”

“No. It's the liturgical language of the Zoroastrian religion, which has a couple of hundred thousand adherents in Iran and India, and a fairly big community right here in Toronto. The old texts are still read aloud, but the last time anyone actually had a conversation in Avestan was 2800 years ago. By the way, I'm

quite sure the actor dressed in green and orange is supposed to be Zoroaster aka Zarathustra himself, and the others are supposed to be the first priests of the religion he started.”

“I thought Zoroaster was a mythical figure, with no known birth and death dates.”

“Apparently not, in the scriptwriter’s view.”

...

“Are you thinking what I’m thinking?”

“You mean that that we’re not looking at filmed dramas with actors? We’re looking at videos taken during the actual historical events? We’re listening to Cato the Elder and Zoroaster themselves?”

“No one will believe that.”

“The linguistic evidence proves it. No one can speak Avestan, or Latin, or 18<sup>th</sup> century French that fluently.”

“But...”

“When you have eliminated all which is impossible, then whatever remains, however improbable, must be the truth.”

“Thank you for that, Sherlock.”

“The cameras must have been installed by aliens thousands of years ago, and now they’ve delivered the fruits of their work to you.”

“Oh please, Peter. I’ll be called a kook, possibly carted off to an institution.”

“Perhaps you’ll be carted off by handsome, muscular orderlies.”

“Or not,” I sighed.

5.

“Wouldn’t someone have noticed the cameras?” I asked our friend Penelope after we hurried over to her office in the astronomy department.

“Not if they were really tiny and could float in the air.”

“How did the aliens know where to position the cameras so that they would record big historical events?”

“Maybe they installed thousands of cameras all over the planet. Now they’ve selected scenes they think will be of interest to us.”

“Or scenes which carry a certain message which they’re trying to convey to us.”

...

“What should we do now?”

“Wait until we wake up?”

...

“Let’s look for the cameras. Maybe they’re still shooting.”

“Maybe there’s an alien right here among us who runs around positioning the cameras.”

“That alien would be at least 3000 years old now.”

“Ok, a family of aliens that reproduces.”

“Wouldn’t they have been noticed?”

“Not if they’re really small”

“Or if they’re disguised to look like us.”

Penelope looked inquiringly at Peter. “That weird outfit you wore for Halloween, maybe it wasn’t a costume but the real you.”

“Trying to deflect attention from yourself, Pen? You’re the most other-worldly person I know.”

“You fags think all women are aliens.”

Peter and Penelope glared at each other for a moment. Then, having apparently both had the same thought, they turned and stared inquiringly at lil’ ole moi—obviously an alien agent, if not an actual alien.

“I don’t think this is getting us anywhere,” I muttered.

...

“How did the aliens get here?”

“Well, maybe they’re not that far away. Perhaps they’re small creatures who live in puddles of underground water on one of the moons of Saturn.”

“Too improbable. More likely, the cameras are remotely controlled.”

“From what distance? Even if the aliens are just, say, twenty light years away, it would take forty years to receive information about a camera’s location and deliver an instruction to move elsewhere.”

“It’s simpler to assume the cameras are self-positioning. They adopt positions randomly. Perhaps if they arrive at a position, and there are no humans present, they move on till they find us. Though that means they are able to recognize us.”

“Maybe there are many millions of cameras, so it doesn’t matter if most of them take pictures of trees or anthills for a year before moving on. Eventually, they get a lot of pictures of us.”

...

“So how do we go about finding the cameras?”

“Judging from what we’ve seen, we’d need to attend an important meeting.”

“Or ask one of the participants at a meeting to look for the cameras.”

“Ask who?”

“And what would they say when asked why they’re intently scanning the air? Oh, just looking for alien cameras?”

...

“Wouldn’t it be easier to just put what we have on a Web site, prompt certain individuals to visit that site, and then see what happens?”

6.

August 2048-August 2053

The Web worked its magic. Technological advances had made it very hard to control content and access. Such control might have been possible if there were a world government, but there wasn’t. We still had a set of oft-feuding states, with China as first among equals, followed by a second tier consisting of Euronora, India, Brazil (which now includes several former South American states) and the U.S. (now a falling star, though bigger than ever because of its new Former Canada appendage).

A few days after we posted the videos, everyone around the world, except for the usual die-hard skeptics and conspiracy theorists, had exhausted their supply of arguments to the effect that the scenes on the discs were just very clever dramatic renderings.

Some people turned their attention to hunting for historical scenes of special interest. The religious searched for their founding figures. Mohammed and Siddhartha Gautama were quickly located, so the Muslims and Buddhists were pleased. But no Jesus, which caused some consternation. Some said the aliens had simply made a quick selection of scenes, and that the absence of Jesus was just an accident. Others took no comfort from this argument; they thought the scenes must have been carefully selected. Christian conspiracy theorists had a very brief day in the sun, and were then ignored.

But what were the Recorders (as the aliens came to be called) trying to tell us by giving us these images? This question soon gave rise to a whole new academic discipline, complete with international conferences and journals. Schools of thought appeared, divided, rarely merged, waxed and waned.

A central issue in Recorder Studies was how the Recorders were able to pick out meetings which we consider to be of great historical importance. Given that they could not understand what was being said in the Roman Senate just before the Third Carthaginian War, or in France’s Constituent Assembly in 1789, how did they manage to select these sequences for the disks rather than routine gatherings that would be of no special interest to us?

One school of Recorder Studies, the Decoderists, thought that all would be revealed if the significance of the characters at the bottom of every scene could be determined. Naturally there were a great many contending views. Some thought the characters were subtitles in Recorderese, a language which could cram a great deal of information into a short space, hence the infrequency with which the characters changed. But others pointed out that the Recorders would have no way of understanding human speech, so the characters could not be translations. They must therefore be commentary by the Recorders on that particular scene, but—as yet other scholars pointed out—such commentary would be incomprehensible to us in the absence of a visiting Recorder from whom some human infants could learn Recorderese.

Some Decoderists noted that there were just twelve different symbols, if you left aside the recurring flag-on-a-pole. This suggested numbers, using a base-12 counting system like the Babylonians. The flags could be functioning like the parentheses in algebra. However, these theorists were at a loss to explain why algebraic formulas would appear on the screen. Their critics pointed out that the symbols could just as well be the notes of a twelve-tone scale: otherworldly music to accompany the action on screen. Several musicians tried associating each symbol with a pitch and executing the result on an instrument, but others pointed out that the Recorders no doubt had different aural organs from us, or perhaps could not hear at all: their 'music' was purely visual. A few thought the symbol sequences could be a bar code: if fed through an appropriate scanner, the symbols would cause something to happen. Unfortunately the Recorders had not provided a scanner programmed with the appropriate symbol-to-action matches.

The debate went on, and on and on. Anti-Decoderists said the symbols were nothing but time-and-place identifiers, of no particular interest. Or just decorations.

7.

August 2053

Five years to the day after the visitation to my hallway, a second pile of discs arrived, this time in the kitchen of a factory worker in Shanghai. China, after its extremely rapid and extremely polluting industrializing rush in the early years of the century, had found that an eco-dictatorship fitted it to a T. The reds had accordingly become green, in 2038.

The scenes on the new discs were not deliberative meetings but other kinds of gathering: demonstrations, religious assemblies, battles. Many of the scenes had no people speaking, but the lines of characters were nevertheless present at the bottom of the screen, apparently confirming the view of those who thought the characters were commentaries rather than translations.

8.

August 2054 – April 2056

A third set of discs arrived just one year later. This time the scenes on the discs all took place on what was obviously another planet. But it was meetings again, this time of bird-like beings. Sometimes the meetings took place 'on the wing', with the cameras presumably following.

It was hard to reconstruct the order of the bird people's history. Some scenes showed what seemed to be more primitive technology than others, but this did not help a great deal. The ordering problem did however give rise to a new school of thought about the Earth discs. Previously no one had made much of the fact that the scenes were not in the chronological order which our historians had established. What could this mean, asked the proponents of Order Theory? Inevitably they had plenty of answers, which soon filled the learned journals, but none of them really worked out. The order for Earth was not, for example, geographical. Some sought an order within each individual disc; others across the whole set. (I had wisely numbered them in the order in which I found them, though some Order Theorists claimed that I must have dropped one or two and put them back in the wrong order.)

Perhaps the order was random. Or perhaps the Recorders just had a completely different notion of how to put things in order. Maybe the scenes were ordered by the predominant colour of each scene, as it appeared to the visual organs of the Recorders.

But a more interesting question was: Who were the bird people? Were they the Recorders? Or other recordees? Penelope was part of a team of astronomers who examined the scenes which showed the night sky on Ornithon (the name given to Planet X in homage to the bird people). The planet turned out to be in the Milky Way. Indeed, its large orangey sun was just a hop, skip and a jump away from our own modest Sol—a mere 16 light years!

Should a message be sent off to the bird people? Public debate went on for several months, until one day the Brazilian government announced that it had sent off a selection of scenes from the Earth and Ornithon discs, with the idea that this would announce our presence to the bird people. A reply might arrive in just 32 years.

Academic debate about the discs continued for a while, but eventually petered out without resolving any of the questions that had been raised, though some expected a revival of interest if Ornithon replied.

9.

I was sitting with Peter and Penelope in our favourite café when Peter nudged me.

“Look discretely behind you. There’s someone sitting there with a shiny gizmo attached to her forehead.”

“Some new jewellery fad?” I speculated.

“I thought you homos were up on all the very latest things,” said Pen. “It’s a camera.”

“A camera?!”, exclaimed Peter and I in unison.

“She’s the artist formerly known as Rebekah. Now she calls herself Recordah. Her thing is imitating the Recorders. She walks around making a video of whatever’s in her visual field, then does artsy things with the results and posts them at her Web site.”

10.

Outside academe, the effects of the discs became ever more visible. People had started to behave differently when attending gatherings, just in case they were being monitored—not by the government but by the Recorders. More strikingly, a few people, taking their cue from artists like Recordah, went around wearing recording devices that captured everything they saw and heard. They didn’t do any artsy editing though—just posted the recordings on the Web.

At first, people recorded as a pastime, whenever the mood struck. Then a few people became addicted, or at least, that is how their friends described it. In their own view, they had become full-time Emulators, as they called themselves. They had sponsors who fed and housed them, and they ceased to function within the culture. They didn’t work, didn’t play, didn’t mate. They slept, ate and recorded. The idea caught on. Soon there were hundreds of Emulators, then thousands, then tens of thousands. When you went out, it was unusual not to encounter one. You could tell because the government required them to wear an identifying hat.

11.

April 2056

I was sipping tea in a restaurant with Peter and Penelope. We had coats and gloves on because the government had recently decreed that temperatures in all buildings except hospitals, daycares, elementary schools and homes occupied by people over 70 had to be kept at 17 Celsius or lower during the heating season. During the increasingly warmer summers, neighbourhood cooling centres were available for those who couldn’t take the heat. Private air conditioners had been outlawed. There was a temperature police, and rather dire penalties for violators. A few unfortunates, who had not taken the ban seriously, were found with the hoses which formerly connected their furnaces to the ac units stuffed down their throats. After that, compliance was 100%.

“The Party leaders must be getting worried about the discs,” observed Peter, referring to the ruling Green Party.

“Why would they?” said Pen. “None of their meetings are shown. The most recent meeting is the British cabinet just before the Boer War in 1898. And the second and third sets of discs don’t show any meetings on Earth.”

“But disc arrival month is just around the corner. A new set of discs could be with us very soon,” said I. “Discs that might provide a selection of closed-door Party meetings going right back to the weeks just before the coup.”

“Precisely,” intoned Peter.

“Hm”, murmured Pen. “I suppose they’ve made the odd Necessary Decision which they don’t want us to know about.”

“Or maybe a great many Necessary Decisions. Maybe the picture they paint in public of their actions over the years would prove to have only a tenuous connection to reality. And maybe they have Big Plans which they want to keep Hush Hush.”

“Ah yes. The Orwell problem,” I proclaimed.

“The Orwell problem, you say.”

“Haven’t you read *Nineteen Eighty-Four*? ‘Who controls the present controls the past; who controls the past controls the future.’ That was a principle of the Party that ruled Oceania in Orwell’s novel. They were able to control records of the past. The main character’s job is editing old newspapers to provide a picture of the past that conformed to the Party’s current views. Of course, it was fairly easy to rewrite history back then, because all news was in paper form, nothing electronic. You just replaced archived newspapers with edited versions.”

“And so?”

“And so...” An Emulator had taken a seat at the next table. Aside from his high purple top hat with its capital E emblem in bright pink, he was wearing a coat embroidered with some of the characters from the discs. All three of us turned and gave the thumbs-down signal which meant that we did not want our conversation recorded. The Emulator pressed a button on his recording device, which eliminated audio and blurred our lips on the video. Emulators had quickly learned that they had to follow certain basic rules or risk severe injury.

“And so,” I continued, “what if our own beloved Party can’t control the past by keeping secret certain of its actions and plans over the past 15 years? Without control of the past, it won’t control the future. After all, no regime can rely solely on force and fear. The Party needs a high degree of consent, which it has right now because it’s actually doing something about global warming. But if certain secrets are revealed on a fresh set of discs, that consent may cease to be forthcoming.”

“Interesting”, said Peter. “Ah, good old Orwell. Maybe we should send in an idea for a slogan to the Party’s online Suggestion Box—a green version of War is Peace, Freedom is Slavery, Ignorance is Strength.”

“No doubt you have something in mind.”

“How about Less is More, Old is New, ...”

“...Cold is Warm,” chimed in Penelope as she fastened up the top button of her coat.

“I don’t really think the Party approves of sarcasm. They’re all so tiresomely earnest. I don’t know

[*manuscript ends here*]

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*Journal of Destroying Age Studies*  
Volume 20 Year 966 AR

*The incomplete manuscript you have just read came into my hands almost one year ago, just after Volume 19 of the Journal was printed. At first I took it to be fiction (with an imaginary date), but now I am tending to side with those who think it a description of actual events that took place beginning in the year our Destroying Age ancestors knew as 2048. This issue of the journal contains articles representing both schools of thought.*

*As yet, we have not discovered any maps from that time, and consequently we do not know where Toronto, Canada, Rome or China were located, or whether they were real places, though they are referred to by the writer in a manner that suggests the readers would already be familiar with them.*

*References to green dictatorship confirm what we know from other sources, that people realized that drastic action was necessary to slow climate change.*

*If the manuscript does indeed describe actual events, then it would seem that our ancestors were in some sort of contact with beings from another world. We have no other mention of such contact.*

*Readers of this journal who are new to Destroying Age Studies may wonder how we are able to understand documents written in the very distant past. The year 2048 DA was somewhere between six and eight thousand years ago, before the long Age of Catastrophe that ended so recently with the rise of our present Age of Recovery. As you may know, we have no documents dated later than 2152 DA.*

*The language we speak today in this part of the world, the language in which this journal is written, is a descendant of the ancient language Jung-gwo-hwa, which was spoken in Jung-gwo, wherever that may have been. However, the narrative you have just read is a translation into our own language from an unrelated ancient language known to its speakers as Inlis. The text appearing opposite the translation is the original Inlis version.*

*Now, during the thousands of years of the Age of Catastrophe, most ancient documents were lost. However since religion was a source of guidance and hope during that terrible time, ancient religious texts were preserved and used by priests. The priests naturally passed on, from generation to generation, knowledge of the languages in which these texts were written. As a result, we have quite a good understanding of ancient Jung-gwo-hwa. The priests also preserved interlinear translations of religious texts both from and into other languages spoken in those times, including Inlis. It was thus possible, by applying our knowledge of ancient Jung-gwo-hwa to the translations into and out of Inlis, to arrive at a fairly good knowledge of that language, though uncertainties remain about the meaning of a number of words.*

*Soon after I sent out word of my discovery a little less than a year ago, I was astounded to receive, from two eminent Destroying Age scholars, two further manuscripts which are clearly related to the one you have just read. As readers will see, some passages are very similar to my own manuscript, but with variant Inlis wordings which are reflected in the translation.*

*These items are dated 1957 and 1997, and are thus from the early Destroying Age (1900-2200 DA).*

*Manuscript 2*

Wednesday, October 9, 1957

I'm sixteen today! And what a day. Awakened by Albert, who landed suddenly on my chest with an insistent meow. As my eyes opened, I thought I saw a flash of light from the hallway, and there was a kind of whooshing sound.

Stumbled into the hallway, with Albert following gingerly behind, and almost stepped on a silvery object in my path. Bent down and touched the top. A piece of the object detached itself. It was a thin metallic disc about 5 inches across. In fact, the object was a pile of such discs. I looked more closely, while Albert took a sniff and promptly lost interest. Both sides were shiny, but one side gave off shimmering rainbow light and I could see my reflection in it. What could it be?

Showed the discs to dad when he came home. He'd never seen anything like them. He'll take some to work tomorrow.

Thursday, October 10, 1957

The other engineers where dad works all got diverted from their regular tasks. They prodded and poked the discs, and put them under a high-power microscope. By the end of the day, they knew a few things. The discs are identical. They are made of a polycarbonate substance except for a very thin layer of aluminum on the mirror-like side. Oddly, that side has a single very long spiral groove with an irregular sequence of indentations in it. A decoration? No, because only visible under a microscope.

Friday, October 11, 1957

Dad's engineering department sent out word to the engineering society and the engineering department at the university.

Monday, October 14, 1957

Some engineer's brother, a journalist, brought over a photographer.

Tuesday, October 15, 1957

Article on the science page of the *Toronto Star*, with pictures of the discs, the engineers examining them, and of course the discoverers, me and Albert.

Saturday, October 19, 1957

Letters pouring in to the editor. One writer said the discs had gotten misplaced from secret government labs where dark plots were being hatched. Another said that they were pieces of Sputnik fallen to Earth (promptly denied by Soviet Embassy). Then someone wrote to say that the labs theory and the Sputnik theory were both partly right: an alien ship had landed and was being held in a secret location. Somehow, before they were captured, the aliens had managed to dump the discs outside my bedroom, thus signaling their presence.

[several pages missing here]

Tuesday, December 10, 1957

A scifi story about the discs has appeared in *If*. The action takes place in the year 2048, when there's been a military coup by a group called the 'greens', who want to stop people from using gas (are they running out?). In the story, a guy with a cat wakes up and finds a pile of discs. He has a computer, but it's not one of those huge things at dad's plant that takes up a whole room. It sits on his desk and it's attached to a small colour television screen. Somehow he inserts one of the discs in the computer, and a movie starts playing on the screen. At first it seems to be a drama from the days of the French Revolution. Another disc has a drama from Ancient Rome. But then it turns out that aliens had placed cameras on Earth and these were not dramatizations but live filmings of the actual events. The ending is quite clever.

Wednesday, December 11, 1957

What about these "baths" for instant sex with men? The author's imagination, or do they really exist? Must look into this. Also, how did a story with a central male character who has sex with guys get past the editor of *If*?

Thursday, December 12, 1957

An odd thing about the story: future technologies are mentioned but never explained, as if the reader is already familiar with them. "Digital video disc" and "push button telephone" are sort of understandable, but what is an "early Macintosh"? And then there's "the Web", which seems to be a method of instantly disseminating information around the world. But what is "Google"? Also, what is an "eco-dictatorship"? An economical dictatorship? None of my teachers knew. The science fiction specialist at the Toronto Public Library had read the story but she didn't know these words either.

Friday, December 13, 1957

Wrote a letter to *If* with my questions. Asked them to pass it on to the author.

*Upon reading manuscript 2, I concluded that it was an extract from an adolescent boy's diary narrating real events in the year 1957 DA. Manuscript 1 was the fiction referred to in the entry of December 10, and was also apparently written in 1957. Oddly though, it contains expressions not understood by the diary writer or adults he consulted.*

*One wonders what the "clever" ending of the story is (unfortunately, "clever" is one of those Inlis words of uncertain meaning). According to my correspondent, neither the story nor the discs are mentioned again, and the diary terminates a few days later, with the end of the year. Presumably the reply to the diarist's letter to the editor of the publication containing the story did not come until the following year, and we do not have his diary for 1958 DA.*

*Perhaps manuscript 3, I thought, would clarify the various puzzles of the first two.*

### *Manuscript 3*

Thursday, October 9, 1997

My 56th birthday. I was awakened by the cat as usual, but nothing else was usual today. There was a flash of light and a whooshing sound in the hallway. When I went out there, Ken was standing over something.

"What is it?"

"A pile of CDs. Did you leave them here for everyone to trip over?"

"It's happening again."

"What is?"

"Do you remember what I told you about the discs I found in the hallway on my 16th birthday?"

"Weird. Try putting one in the CD-player."

"I already tried that with the old discs. But maybe these are different.

...

"The player won't accept it."

"Let's ask your old boyfriend Sean. He's always going on and on about the latest electronics."

...

Predictably, Sean was intrigued. He led us into his electronics room, a jumble of cables, gadgets and whatnot.

"Maybe it's not a CD. There's something new out called a DVD."

"Would that mean digital video disc?"

"Since when are you into technology? When we were going out, you still had a dial phone."

"Uh, just something I overheard."

"Actually DVDs were mentioned in that scifi story, the one I told you about, remember", I whispered to Ken while Sean rummaged in a pile of boxes in the far corner.

"How is that possible? The story was written 40 years ago."

"Exactly."

"Here's my new DVD player. The disc, if you please," said Sean in a ceremonious voice, extending his hand with a grand gesture.

Sean popped the disc in. A movie appeared on the screen. An 18th century costume drama. Some people were sitting around in a big room, eating and conversing with each other. They were speaking French but

*Manuscript 3, which ends in mid-sentence at the bottom of a page, simply added to the confusion. The sequence of events seems impossible. In 1957 DA, aliens deliver some discs to an adolescent boy, but these discs cannot be read. In 1997 DA, this same individual, now middle-aged, receives another delivery of discs. This time the discs can be read, though only with the latest technology. They show what appear to be recordings of events in Earth history that took place long before moving pictures were invented. In 2048 DA, a different individual receives discs showing the same events, and this time the discs are readable with old-fashioned technology. This individual in 2048 writes up the story of how he received the discs, and the story somehow gets into a science fiction magazine back in 1957.*

*Journal of Destroying Age Studies  
Volume 21                      Year 967 AR*

*This issue of the journal is devoted entirely to the relationship among the three Destroying Age manuscripts I presented in Volume 20. My own view has changed since last year. I now think all three manuscripts are fiction, by a single author who made three separate attempts to write a story. Finding that the stories could not be combined, because of unresolvable temporal inconsistencies, and not being satisfied with any one of them, the author simply gave up or lost interest, and never completed his work.*

*What was in the writer's mind? What was he trying to say? Perhaps he was simply amusing himself. Or perhaps he believed that as he continued to write, and as the story unfolded, a theme would somehow emerge. But it didn't. Unlike the mood swings of the cat at the beginning of the first story, the significance is not indecipherable. Rather there is nothing to decipher, because there was no coherent thought behind the writer's work.*

*As will be seen in the contributions to this volume, other scholars do not agree. Some await further manuscript discoveries to confirm or disconfirm their views. Others, like the Decoderist scholars in the first manuscript, continue to seek keys to a definite meaning. But I believe they will fail. The author lived at a time when the certainties of his youth had given way to uncertainty and this was reflected in his failure to find a guiding theme that would give his story coherence. He searched but did not find.*

*The relationship among the stories in the three manuscripts is not important. The Recorders, whoever they were, are not important. What is important is the appearance of the Emulators at the end of the first manuscript. In my view, this was not an invention of the author. Such people did indeed begin to appear sometime in the 21st century DA. Emulators showed people what was happening, but did nothing themselves. They were living incarnations of inaction, paralysis, perhaps despair. The Green coup was simply wishful thinking on the author's part. It never happened. The Destroying Age continued. And then it was too late.*