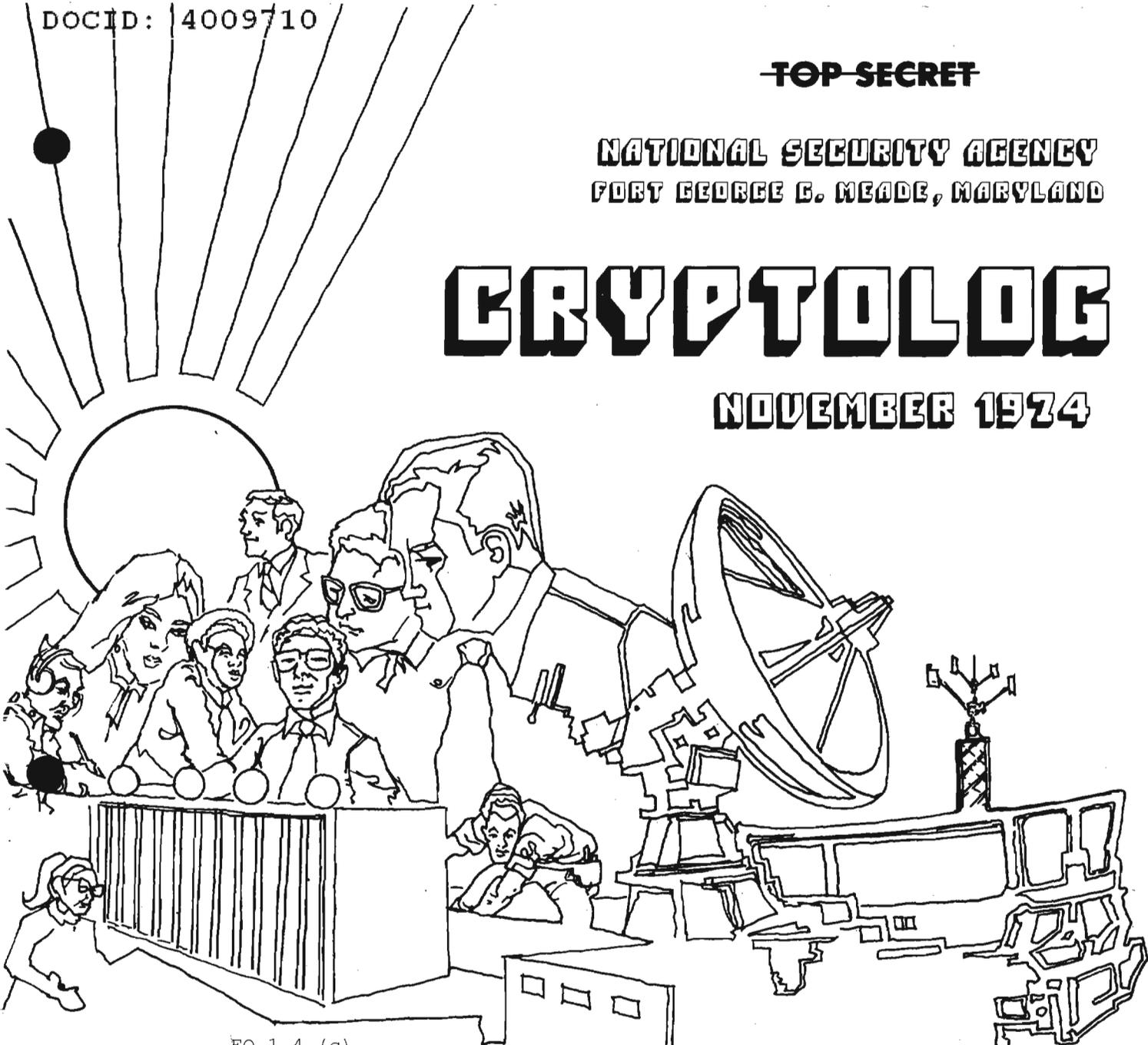


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NATIONAL SECURITY AGENCY
FORT GEORGE G. MEADE, MARYLAND

CRYPTOLOG

NOVEMBER 1974



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DATA AND DEFINITIONS:



CALLING THINGS
BY THEIR
RIGHTFUL NAMES

by P13D

P.L. 86-36

IF NAMES ARE NOT CORRECT, LANGUAGE IS NOT IN ACCORDANCE WITH THE TRUTH OF THINGS.

IF LANGUAGE IS NOT IN ACCORDANCE WITH THE TRUTH OF THINGS, AFFAIRS CANNOT BE CARRIED ON TO SUCCESS.

(Analects of Confucius, Book 13, Chapter 3)

(As the scene opens, we see May at her desk with papers scattered all around her. She has two documents directly in front of her which she appears to be comparing, underlining entries with a pencil. Enter Jack, just as she throws down the pencil and groans.)

Jack: Hi, May! What's the matter, the boss giving you a hard time?

May: No, but unless I get this mess cleared up he may be doing that pretty soon! I've just got to get the question of this definition straightened out. He says I have to use the right one.

Jack: What definition? What are you doing?

May: It's a definition of "bearing" for this draft paper I'm writing on the new DF system. I've looked at the definitions in two general desk dictionaries, at the one here in USSID 412, Annex B, and at this one for the Data Element "Bearing" in USSID 414, Annex A. (Angrily) None of them are the same...see? The one from 414 is more detailed and has recording instructions and further explanation. But the one in 412 has a lot of cross-references to other terms. I don't know which one is more accurate or which I should use in this paper.

Jack: You got me! Can't the offices that issued those documents tell you which to use?

May: Would you believe it? The same office put out both of them! The NSA Data Standards office issued both USSIDs and they are both supposed to be standards: 412, Annex B, for target-location terms and 414 for standard data features. I just don't get it! Why have they got two? Which one is the right one?

(Curtain descends on a fuming May and a perplexed Jack.)

May and Jack aren't the only ones confused. Our widely scattered spies tell us that, unfortunately, many people are having the same problem. They see two programs, run by the same office, putting out information on SIGINT terminology and on data standards and they have a lot of questions about them.

Why do we need definitions both for data standards and for terms, and why are they almost always different?

Which is really right?

How are the definitions derived?

Once established, are they "set in concrete," with no chance for change?

This article attempts to answer these questions and to clear up some of the confusion.

When glossary definitions and data standard descriptions differ, we cannot answer the question "Which is right?" unless we know "Right for what purpose?"

Generally speaking, the standard glossary definitions are intended to show the currently accepted meanings for terms within specified contexts; their purpose is to provide for the writer, particularly of instructional or directive documents, a guide as to what he can expect his readers to understand if he uses a particular word in a particular context, and for the reader of such documents, a guide as to what the writer presumably meant. The glossary, in other words, interprets existing terminology.

The data standard definitions have a much narrower purpose: the identification of specific categories and sub-categories of data to be entered into manual or machine files. (These definitions in most cases could more accurately be called descriptions, since they describe and identify the data.)

Each for its intended purpose is the standard definition, and the right one.

How are the definitions derived?

The Panel working on a glossary starts with existing terms, each of which has one or more meanings. For each term it must then determine several things: is the term in current use or is it obsolete? Does it relate to other terms? How will their definitions affect each other? Is it used in several disciplines, and if so do the meanings differ in these different contexts? Do they vary even in the same context? Are there any slang expressions or jargon equivalents to the term, whose use should be deprecated? Are all the possible meanings of the term now available to the Panel for review, and if not, where can they be found?

When you consider that at least these questions must be answered for every term that goes into a glossary, it becomes obvious why glossary making is slow work.

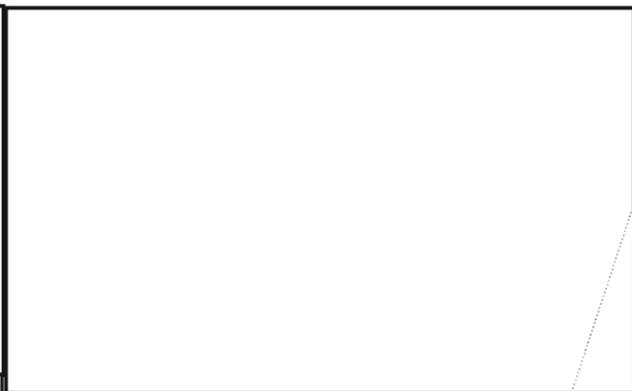
But the function of a glossary, at least, is generally well understood.

Now we turn to a data standard--a much less familiar idea. What is a data standard, in fact? One definition is: "A homogeneous set of authorized representations." This is probably more easily understood by watching the development of a typical case.

Here is a typical glossary entry, which by no particular coincidence happens to be for the term bearing:

1. In DF, an indication of the direction from which a target's signal is received, expressed by the angle in degrees between a preestablished direction, usually true north, and the line from the observer to the target. Synonymous with line bearing, line of bearing, line of position, target bearing. Contrast with azimuth.
2. See accuracy study bearing, average bearing, check bearing, late bearing, mean bearing, reciprocal bearing, relative bearing, search bearing, snap bearing, true bearing, usable bearing, wild bearing.

As you can see, the definition (as given in para. 1) is for the concept of what a bearing is. It does not include the method of measuring a bearing, the maximum value it may have, or how it is recorded--these are not really germane to the definition. Under "Synonymous with..." it deprecates (discourages the use of) other terms considered less appropriate for formal use in official documents. Under "Contrast with..." it cites a term of related but contrasting meaning, which the glossary user may consult for further information. Paragraph 2 of the entry cites the more specialized terms for which bearing is the basic or generic term.



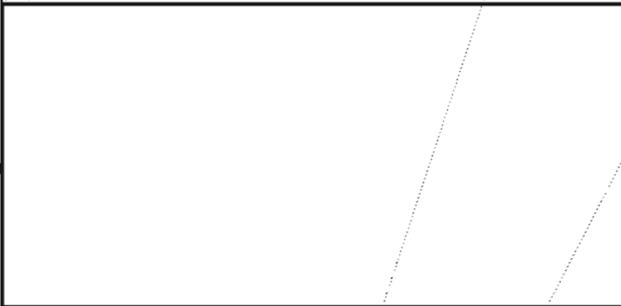
How will this be handled?

The NSA data standardization program is an extension of federal, DOD and intelligence community (IC) standards and uses these standards so far as practicable. (The criterion of applicability to our work makes it possible to eliminate rather quickly such interesting DOD standards as "Salary Scale for Physicians in Leprosariums" or "Bassinet Counts.") Those that are needed to satisfy unique cryptologic requirements are developed under the NSA program, but not by the Data Standards Center alone. Any user or originator of a file or data base can (and frequently does) suggest that a particular type of data needs to be standardized. In addition, a system of Senior Data Representatives, appointed as are the Senior Terminology Representatives, exists (among other reasons) to collect and funnel such suggestions and comments to the Center for consideration.

Once such a proposal is made, it is subjected to review and analysis by the Data Standards Center, the Senior Data Representatives (and their subordinate reps within their own organizations), and subject matter experts, as appropriate. Many questions have to be answered: Do the data under discussion really require standardization? Do they occur widely, say in several files or data bases? Will the files in which they appear ever need to be merged? Do the data belong to only one category of information, or can they be broken down into several categories? What kind of coding system, if any, would be best for this data: all numeric? all alphabetic? mixed? mnemonic codes? arbitrary groups of characters? Does an already existing DOD or federal program data standard answer the needs of NSA/CSS? In some cases it may take several days or even weeks to collect the necessary answers, just to decide whether or not a standard is needed for a particular kind of data.



As we have shown above, the order of approach in the development of a standard is diametrically opposite to that used in the preparation of glossaries. The first step toward creating a data standard is to identify a unique category of information (a Data Element) and then to describe it in terms sufficiently broad to cover all appropriate applications for its specific delimited sub-categories (which are called Data Items).



Now that we have had a glimpse of both standardization processes, let's return to the term that was bothering May.

You have seen the glossary definition of bearing; here is the one given for the data standard:

DATA ELEMENT

Name: Bearing

Definition: The horizontal angle measured clockwise in degrees and tenths of degrees, from 000.0 degrees through 359.9 degrees from a specific reference point (such as true or magnetic north) to a second point.

Code: BRNG

DATA ITEMS

Recording Directions:

1. Bearings are recorded as four digits, left to right, for degrees and tenths of degrees. The decimal point between the third and fourth digits is assumed. When

equipment limitations do not permit the recording to tenths of a degree, the fourth digit will be zero.

2. When half-degree interpretations are reported, the fourth digit will be a five.

3. If the value of the bearing is less than 100 degrees, then the first, and possibly the second and third, digit will be zero.

FURTHER EXPLANATION

1. The terms "bearing" and "azimuth" are used here interchangeably, although, in navigation, bearing customarily applies to terrestrial objects and azimuth applies to the direction of a point on the celestial sphere from a point on the earth.

2. In direction finding, a recorded bearing or azimuth is assumed to be with respect to true north unless otherwise indicated.

3. When a bearing or azimuth is reckoned from magnetic north, a comments field should indicate the bearing or azimuth as being magnetic. The date of its applicability should also be given.

As you can see, this is a definition or description of a category of data ("The horizontal angle...") which can be recorded in a file. It must include the method of measuring the bearing and its maximum size, to make certain that any data referred to as a bearing will have been measured in the same way and to the same limits. Separate "Recording Directions" are needed to ensure the uniformity of bearing entries as to number, type, and position of digits. The "Further Explanation" differentiates between the meanings of bearing and azimuth (shown by "Contrast with" entries in the glossary definition).

notes that bearings are recorded with respect to true north unless otherwise especially indicated (information given in the glossary definition), and comments on noting bearings taken on magnetic north. Because of the uses to which the information will be put, the definitions in the glossary and the data standard are and of necessity must be different.

As explained at the beginning of the article, each for its intended purpose is the standard definition, and the right one. But even that last statement must be qualified, for language and types of data change, and what was the "right" definition for either in 1964 may not be correct in 1974. Under the system of continuous monitoring and review used by the NDSC in both the Data Standards and SIGINT Terminology programs, changes or additions to established data standards or glossaries can always be proposed, and, if valid, incorporated into the existing directives. No document in either series is considered to be absolutely finished or "set in concrete," with no possibility of change.

I hope that this brief discussion has been of help in understanding the differences in approach and results obtained in the two programs. The NSA Data Standards Center does not make arbitrary decisions on the meaning of terms or the classification of data; rather, as in the ancient Chinese teaching, it tries to help in determining the "correct names" for both concepts and data, as a first step in assuring that "affairs be carried on to success."

(UNCLASSIFIED)

ASSORTED EDITORIAL NOTES

Sorry about that Table of Contents mix-up; we trust that by now you have all received copies of the October Table of Contents and have duly taped it to the October issue. While you are at it you might like to correct the course number on page 14 ("News from the School") from CA-105 to CA-015, and the Maryland Area Code on page 6 (the little telephone puzzle) from 310 to 301!

The article on foreign--especially English--loan words in Russian (page 12 of this issue) may pose some problems to readers not familiar with the Agency system of transliteration. It would take too long to explain it all here, but the main thing to remember is that "j" represents the sound of "y": so that "plejboj" is to be pronounced "playboy" and not "pledgebodge."

This month's Golden Oldie ("A Medal for Horatius") appeared anonymously and mysteriously on our desk in the form of a battered "burn" copy, and we assumed it was of local origin. However, the Art Editor has a friend who thinks it originally appeared in Yank, and that the author may have been William Hazlett Upson. Now he tells us! Well, it's a good story, and we hope Mr. Upson will forgive us if he is indeed the author. If you do have any local items--any sparks from the Agency grindstone--tucked away in your files, let us see them.

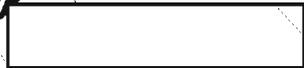
The last installment of the article on the intern program will appear in the December issue. We have had a lot of comment--mostly pro but some con--on this series, and as soon as it is complete we would be happy to have your reactions (written, please) and will want to publish some of them. Address: CRYPTOLOG, P1.

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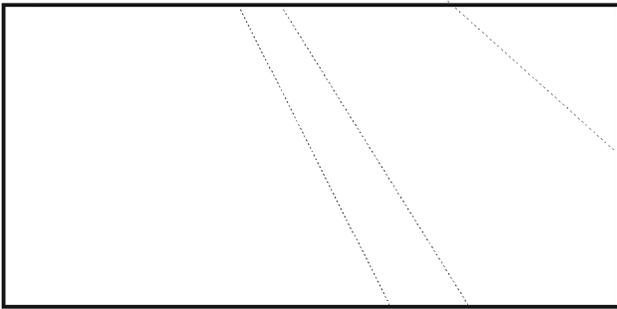
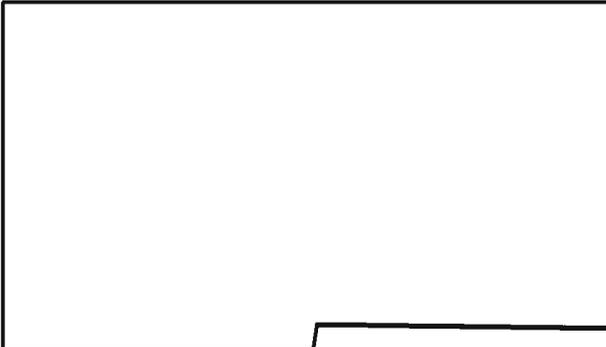


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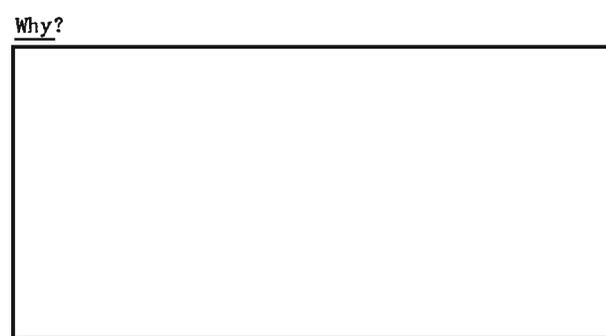
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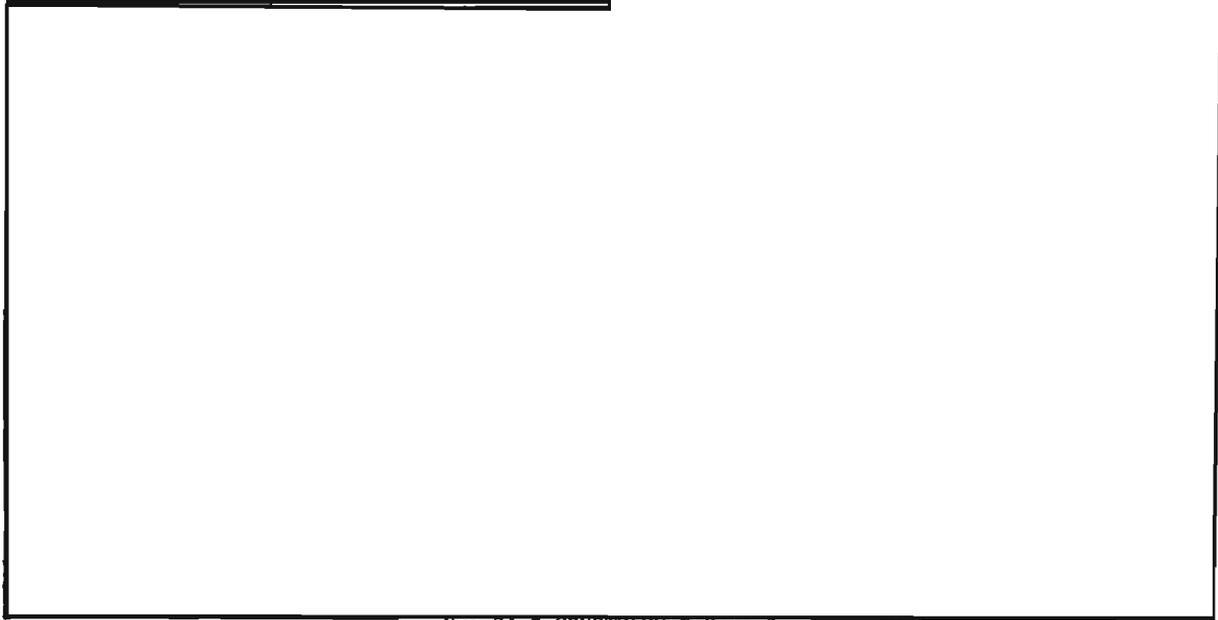
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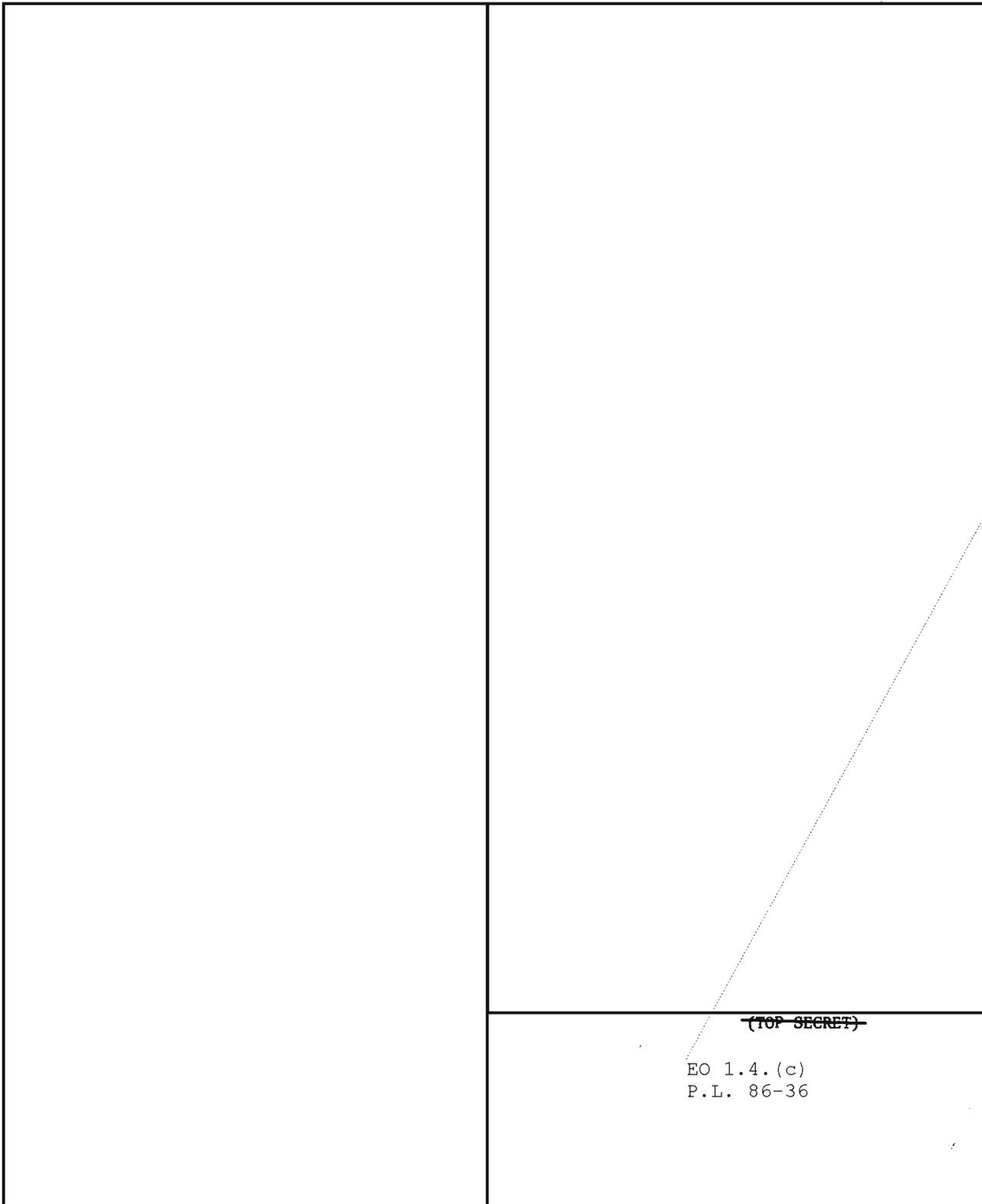


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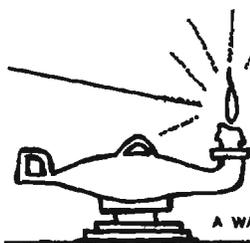
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A WALK THROUGH THE '75 CURRICULUM

NEW TRENDS IN THE TEACHING OF CRYPTANALYSIS

BY

E13

A major project currently under way in the Cryptanalysis Department of the National Cryptologic School will change the way cryptanalysts of the future learn their trade. Three of the basic cryptanalysis courses will no longer be taught traditionally from the platform in a classroom. They are being redeveloped and written, over a 3-year period, as self-paced instruction courses to be presented in the NSA Learning Centers at Fort Meade (Room 2W165) and FANX II (Room A2A16B). The three courses affected are: CA-011, Survey of Manual Cryptosystems, CA-100, General Cryptanalysis, and CA-120, Survey of Machine Cryptosystems.

As each of the new, self-paced courses is completed, it will be made available in the NSA Learning Centers. Students will do their studying in the Centers, working when they feel like working, and proceeding at their own pace. Some parts of these courses make use of multi-media equipment--TV, slide projectors, and audiotapes. All courses will be available in written form, but often the student will be able to choose his own medium. The instructor's role will be to give individual assistance upon request.

The project to self-pace these courses is halfway into its second year. One course, CA-105, Introduction to Cryptography and Exploitation of Manual Cryptosystems, has already been completed and will be offered soon in the Fort Meade Learning Center. A second course, CA-107, Exploitation of Manual Cryptosystems, is being written now and is scheduled for July 1975 completion. The final two courses, CA-121 and CA-122 (Hagelin and Wired Wheels) will be written between July 1975 and July 1976.

Along with self-pacing the basic courses, the entire cryptanalysis curriculum has been reorganized to show exactly what type of student and job each course is designed to satisfy. There are three levels, distinguished by the first digit of the course designator:

The 000 level consists of Background Courses designed for students who do not do any cryptanalysis in their jobs.

The 100 level consists of Basic Courses designed for students who perform cryptanalysis as all or part of their jobs.

Courses at the 200 level or above are Advanced Courses designed for students whose job is cryptanalysis.

The newly-developed self-paced courses are in the 100 level Basic Courses.

Background

One of the oldest cryptanalysis courses listed in the current NCS Catalog is CA-011, Survey of Manual Cryptosystems. Until about 1966, this course was taken by everyone who wanted to learn about cryptanalysis--aspiring cryptanalysts, linguists, traffic analysts, reporters, and engineers--a most heterogeneous group. It was a 3-week full-time course covering cryptography and simple analysis of manual cryptosystems.

When CA-100, General Cryptanalysis, was written in 1966, all of CA-011 was incorporated into it and a considerable amount of new material (analysis and theory) was added.

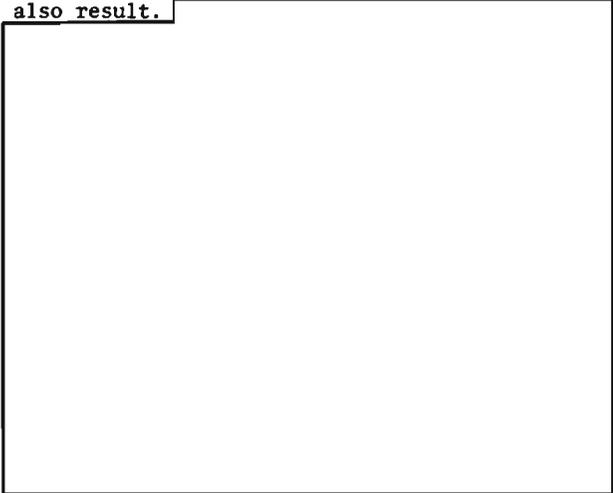
In addition to the problems with course content, there were teaching problems as well. The annual heavy student loads for these popular, basic courses consumed a disproportionate amount of instructor time. Typically 71 per cent of the cryptanalysis instructors spent most or all of their time on these 3 courses. This left no time--or energy--to do research and to develop new courses, especially some urgently needed to train the analysts who need multiple disciplines to work on today's complex problems.

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Self-paced Courses

The decision to self-pace some of the basic CA courses was made in order to deal with such problems. It provides the opportunity to make many improvements: to modernize the contents of the courses and to arrange them in a sequence designed to build up knowledges and skills progressively. Self-paced courses insure that everyone gets the same basic information: a boon to teachers of advanced courses, who must often reteach what should have been learned in a prerequisite course, but was not. They also mean an end to the wildly heterogeneous classes which are so frustrating to students and teachers alike.

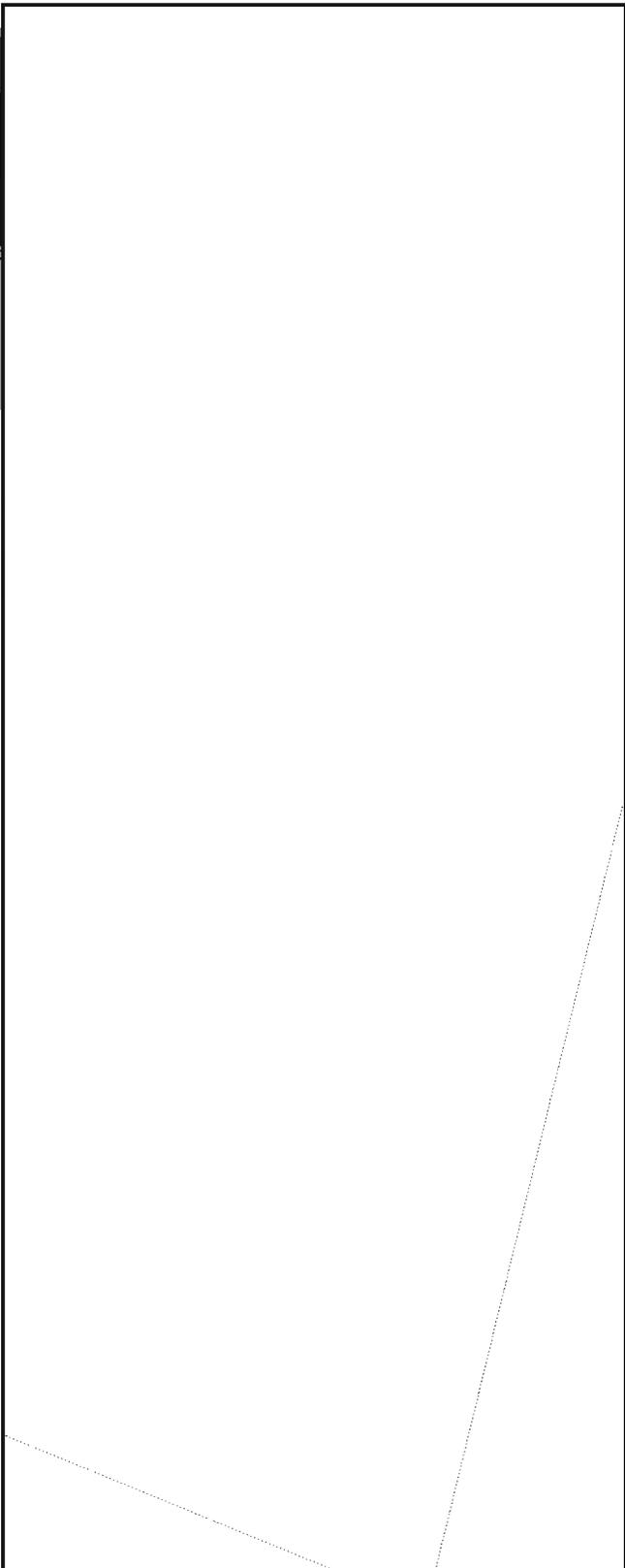
Important revisions in course content will also result.



These are just a few of the changes brought about by the self-pacing project.

Basic Courses

The courses being redeveloped as self-paced courses are among the basic ones--those taken by anyone who performs cryptanalysis as all or part of his job. The first three listed replace CA-011 and CA-100 and must be taken in sequence. They are prerequisites for all other basic and all advanced courses. Equivalency exams will be available eventually for all these courses. A student who passes an equivalency exam is given credit for the course with a grade of P (Pass). Equivalency exams may be taken only once.



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As the three-year project for writing some self-paced cryptanalysis courses progresses (estimated completion by 1 July 1976), course development will begin to be concentrated on specialized and advanced courses. Two specialized courses at the basic level are already being planned and writing on one of them will begin soon: a course in cryptanalytic documentation including record keeping and report writing. Another course, to teach APL programming with simple CA applications, is also planned.

The Cryptanalysis Department of NCS (E13) welcomes questions about any of these courses or suggestions for new ones. Readers may call 8025 or visit the Department in Room A2A32B, FANX II.

~~(TOP SECRET UMBRA)~~**Note:**

For a more detailed explanation of the self-paced method, see

"Self-Paced Instruction: The Future is Now!"
by Richard Atkinson, in the August '74 issue.

~~TOP SECRET UMBRA~~

REFLECTIONS ON A TRANSLATORS' CONFERENCE

P.L. 86-36

From 4 to 10 August 1974 I was privileged to attend a workshop and seminar of the American Translators Association (ATA), held on a wooded campus in the beautiful area of Monterey, California. It took little acclimatization for me to realize that I was in an environment away from government. Not that I was able to forget my governmental origins and loyalties. Quite the contrary! At almost every turn I was keenly aware that here was a group of like-minded persons, united in a common profession, yet guided and controlled, somewhat mysteriously, by almost totally disparate professional purposes. There were free-lance translators, translators of religious and liturgical literature (from the Mormon Church, the Church of God, and the Wycliffe Society), professors and teachers, and computer-oriented linguists (especially the Mormons).

We federal employees were a small minority --only two of us--and undoubtedly very much on the sidelines as far as the conference's ability to understand and help us was concerned. The more we all communicated with each other, the more I developed a strong sense of my own mission. For my part, I was highly motivated to receive something of value from the proceedings, something that would have meaning for the job back home. After all, this wasn't exactly a vacation for me; the Agency had given me a week of administrative leave and \$120 tuition, for which I obviously owed something to somebody.

Of the various workshops that were offered, I enrolled in the one in German, the language in which I hold a Master's degree, but for which, by some strange anomaly, the Government has never seen fit to use me. The novelty and special value of this particular workshop, in contrast to the others (in Spanish and French), was its emphasis upon translation speed. Strange, but in my school days a generation ago there had been little thought in our classroom recitations of trying to beat the clock. And as far as assignments on my job are concerned, the only translation speed requirements ever placed upon me were in terms of the quantity of material desired (quotas) or of having a product reach the user before a specified deadline (timeliness). Any unusual success which may have been achieved in this respect was primarily the result of devotion to duty and to a far lesser degree to a capability to perform at some high speed level.

No one would want to suggest that the primary emphasis in translation should be placed upon quantity and speed rather than quality; on the other hand, my attendance at the German workshop jolted me into the belief that perhaps much more could be done for the Agency's translators to improve their skill in speed translation. In this workshop I was witness to some phenomenal performances, and we were given some useful tips on how this skill could be developed and vastly improved with practice. It might be of interest in this connection that certain job advertisements I have seen recently for federal translators call for "an ability to perform fast, accurate written translations of scientific and technical material."

My primary aim in attending the conference had been to deepen my knowledge about the theory of translation--to acquire basic linguistic principles which would aid the translator in his task. This kind of orientation is essential, not only for practicing translators but even more especially for linguists who are called upon to guide, evaluate, and assist the translation process on the broader working levels. The conference did not disappoint me in this respect.

Professor Etilvia Arjona of the Spanish workshop, perhaps the main theoretician of the staff, distributed a handout entitled "Analysis of the Translation Text." The main thesis of this paper was: "The first task which a translator should undertake is that of carrying out a semantic and stylistic analysis of the source-language text in order to ascertain the message which the author presents. In order to do this, a complete reading of the text should be carried out." This was a valuable piece of advice, I thought. A translator will frequently plunge into the beginning of a text, without taking the time to make a preliminary survey of certain fundamental facts about the form and content of the text as a whole. Translation is not merely the finding of a word in one language with a meaning which is like that of a word of another language. It also involves recognizing the constructions, the idioms, the style of speech, etc., peculiar to the source language, in order that a smooth transition can be made into the kind of verbal expression which will have the same impact as the original. Professor Arjona elaborated on three levels of preliminary linguistic analysis: message and content, syntax, and lexicon.

About half of the time of the conference was allotted to a seminar consisting of speeches and group discussions on translation. Vernon Lynn Tyler, Associate Director of the Language Research Center of Brigham Young University, acquainted us with the computer-assisted translation activities of BYU. These relate especially to the goals of "intercultural communication," a new and developing field, and include research on making possible the translation of significant materials, both standard and "fugitive" (non-published or little known) not as yet accessible to the majority of potential users. Multilingual translation is, therefore, one of BYU's major concerns. One of Mr. Tyler's suggestions in connection with his computer work is: "Why not put a dictionary on a mini-calculator?" In theory, he said, there is no reason why it can't be done. Ideally such a dictionary should feature certain flexibilities: for example, the ability to serve different types of textual material by representing various vocabularies accessible through grids. According to Mr. Tyler the gadget, if developed, might even turn out to be a best seller.

Dr. Esther Matteson of Wycliffe Bible Translators addressed the conference on the pitfall of overtranslating terms through substituting the specific for the generic (e.g., "dime" for "coin") and undertranslating through substituting the generic for the specific ("coin" for "dime"). She treated the problem from the standpoint of Harold C. Conklin's notion of "an inclusive and exclusive hierarchy" of terminology (also called "folk taxonomy"), an orderly classification of the generic and specific levels. The whole subject has great significance, not only for translation, but also for lexicography in its handling of various folk taxonomies. In the case of folk botany, for example, Conklin in his article on "Lexicographical Treatment of Folk Taxonomies" maintains that "a local system of plant classification cannot be described accurately by attempting to obtain only vernacular 'equivalents' for botanically recognized species. Translation labels (glosses) are frequently necessary, but they should be considered neither as definitions nor as exact equivalents." He foresees the time when bilingual dictionaries will have far more sophisticated systems, perhaps through coding, for marking entries as to their status as lexical units.

Many of the speeches of the seminar focused on the subject of the professional status of the translator and fair remuneration for his services. According to ATA's code of ethical practices and professional rights, it is the duty of every translator "to seek or accept no work on terms that are humiliating to him or to the profession." Because many of the translators at the conference, especially the free-lancers and the professors, were obviously sensitive to this problem, a number of interesting facts about the rewards of being a translator came to light.

Many professional translators are unhappy about the fact that price, and not quality, frequently seems to be the criterion used to assess a scientific translation. Federal agencies often award large translation contracts to the lowest bidders (as low a rate as \$13.24 per thousand words was cited) and not necessarily to the best qualified translators. Consequently, well-qualified professional translators tend to seek other types of employment, and only such persons as have no idea whatsoever either of science or translation offer themselves to do a job. This exercise of a false economy results in the production of poor-quality translations which are difficult and time-consuming for professional users to read and try to comprehend. Andrew Habberton, in his speech entitled "Translation for Industry," reported that a free-lance translator must translate between 2500 and 3000 words per day at \$20 per thousand words in order to make even a modest living (about \$15,000 per year).

In conclusion, one particular point deserves emphasis. Translators are increasingly taking notice of the progress made in linguistic science, and scientific linguists are increasingly applying themselves to translation as a worthwhile subject of investigation. Such a viable unity of theory and practice has not always existed but is essential for the advancement of the field of translation. The professional stimulation provided by a conference such as I attended is the kind of experience that every translator needs from time to time in order to contribute effectively to the vast amount of work which remains to be done.

(UNCLASSIFIED)

Purity OF THE RUSSIAN LANGUAGE



by

SLAVOPHILES vs. WESTERNIZERS

There is a war going on in the Soviet Union. It is a cold war which has been in progress for a couple of centuries. The war is the culmination of the tide of western terminological "varvarizm" which has been creeping into the Russian language since the time of Peter the Great whose "praktika" it was to borrow Dutch and German technological terminology. The war against the "infiltratsiya" of western "terminy" into the Russian language finds the defenders of the purity of the Russian language taking up sides against the westernizers, who advocate the adoption of certain western terminology. Much to the chagrin of the slavophiles, the westernizers are gaining substantially. It is highly unlikely, however, that



Эскалация

the word count of western borrowings in Russian will exceed the number of words of purely Slavic origin, but the "situatsiya" is nevertheless alarming to many linguists. The "praktika" of "infiltratsiya" and "eskalatsiya" of western "terminy" in the Russian language has created an "absurdnaya situatsiya." It is the "realizatsiya" of this "problema" with which this "artikul" is concerned.

The roots of western "varvarizm" in the Russian language can be traced back to Peter the Great and Empress Catherine the Great. Czar Peter borrowed Dutch naval technology and other Dutch modernisms. During Catherine's reign, both French and German gained considerable usage among the upper circles of society. The 19th century saw an influx of borrowings which found usage in art, society, "literatura," and other areas of "kul'tura." It was at this time that Russian ballerinas were doing "piruety" during "lejtmotivy," much to the delight of the "diletanty." Borrowings from the west also penetrated military life in the 19th century. In the "divizii" and "brigady" of the "armiya" there were



Пирует

ranks such as "marshal," "general," and "lejttenant." The "kombatanty" of a "diviziya" would likely participate in a "rejtd."

Today, an agent which is largely responsible for the proliferation of this practice is the Soviet press. The "korrespondent" of the "byuro" of many a "gazeta" and "zhurnal" is likely to be called to a "press-konferentsiya" or "brifing" given by the "sekreter" of the State "Departament," Kissinger, relating to Soviet-American "detant" or to a "provokatsiya" or "konfrontatsiya" in the Middle East. It might be "protokol" for the "press-korrespondent" attending the "miting" to write up a "memorandum" so as to later put out a "pressreliz." Of course the coverage of the "press-konferentsiya" would probably be another example of American "propaganda" or "agitatsiya." The Soviet "mass-media" might also "informirovat" the "publika" on the "vizit" of a foreign "delegat" or on the "provizii" of a new pact or "ekonomicheskij plan."



Секретарь

Nikolaj T. Fedorenko, editor of the magazine Inostrannaya literatura (Foreign Literature), has allied himself with the Slavophile purists. Fedorenko not only fears that the "wholesale and indiscreet" borrowings from English and other foreign languages will allow "weeds of barbarism to grow in the rich soil of the Russian tongue," but that Soviet "intelektualy" might assume a pro-Western snobbishness. The purists lament that this practice implies a poverty in the Russian language. The problem must be given serious attention by the scientific "instituty" in the USSR, according to Fedorenko and his cohorts, in order to curb the uncontrolled borrowing of western terms. Fedorenko and other purists of the Russian language are distraught at the intrusion of latinized borrowings which appear in dictionaries such as Novye slova i znacheniya (New Words and Meanings) compiled by Butarova, Kotelova, et al. This particular work includes such fingernail screechers as "diskomfort," "kaza-nova," "pamflet," "bestseller," and many, many others.

The purists have yielded the right-of-way to scientific and technical terminology on the grounds that science has its own international language. A "kandidat" of "fizika" might develop a certain "apparat" in a "laboratoriya" and become a "dizajner" of an "atomnyj reaktor." A chemistry "ekspert" in the "laboratoriya" is likely to be found employing a certain "metod" or "fenomen"



Аппарат



in which he might "transformirovat" a "khimicheskij kompaund" into an "aspirin" or some type of "immunizatsiya." Space technology understandably hosts many western terms such as "orbita," "raketa," "indikator," "illyuminator," and many others. Around the house one might find an "elektricheskij mikser," a "ventilyator," "teflon" pans, "lampy," "orlon" clothing, and "televizory." A few examples of the many scientific and technical terms in Russian which are phonetically similar

in English are: "traktor," "operator," "kibernetika," "matematika," "akkumulyator" (storage battery) "ajsberg," "korroziya," and "mikroskop."

In the world of "ekonomika," the Soviets have begun to strengthen their "import-eksport biznes." While buying on "kredit" they know that a "byudzhet" and a "balans" must be observed in order to avoid a financial "krizis."

The "eskalatsiya" of borrowing appears to run in periods during which the influx of western terminology is greater than at other times. Prior to the 1960's, borrowing of westernisms was relatively moderate. The increased technological advances of the sixties were, to a great extent, the major source of the more recent borrowings. The rapprochement between the United States and the Soviet Union in the late 1950's is also responsible for many



Дзюдо

of the borrowings of western influence, particularly in sports and the arts. From the numerous US-USSR athletic competitions of the last 15 years came words like "fotofinish," "dzyudo," "ping-pong," "olimpiets," "batterflyaist," "boks," "resling match," and "volejbol." Soviet sports fans enjoy going to the "stadion" to watch a "chempionat" of

"futbol" (soccer). A goalie in soccer is called a "stopper" in Russian. Although there is no "bejsbol" or "sorfling" in the Soviet Union, "khokkej," "tennis" and "basketbol" are quite popular. At a "basketbol" game in a "sportivny kompleks" fans watch their favorite team "dribbling" and "pressing." An interesting new sports term in the Russian language is "polufinalist" (semi-finalist) -- "polu" (the Russian prefix meaning "half") and the word "finalist" from English.



Хоккей

The late Nikita Sergeevich Khrushchev also did his thing for the westernizers' cause. After Nikita made the Russians (and the world) aware of Disneyland in California, "Uolt Diznej" became a common name among Soviet children. Moreover Nikita's love for the American hot dog was so great that he decided to take the idea back to the Soviet Union. There is an apocryphal story that the Russians erroneously



Хот Дог

rendered the name of the new food as "goryachaya sobaka," which literally means "an excited bitch." As would be expected, the furtive glances, red-faced snickering, and outright laughing forced the venders to change the name to "khot dog."

In a Soviet "restoran" (affectionately called a "Pectopah" by American tourists who read the Cyrillic ПЕЦТОПАХ as Latin letters). one can dine on "sup" or "bul'yon," "salat," "kotleta," "bifshteks," and "makaroni." Before receiving the "chek," the diner might have dessert and a cup of "kofe" with "krem" and a "lump" of "tsukor." Other popular foods are "jogurt," "koka-kola," "pepsi-kola," and "chipsy" (British-style french fries).



МОТОЦИКЛ

In going to a "kheppening" (something less "isteblishment"), Soviet youths might take a "mototsikl" or "sportivnyj avtomobil," or if necessary, an "avtobus," "trollejbus," or "taksi." For fun on the "uikend," Soviet youths go to the "kinoteatr" to see a "vestern," or to a "shou" or "myuzikl." Another "kheppening" place for the Soviet young-at-heart is the "klub," "kafe," or "bar" where, from a "barmen" or a "barmensha," one can get a "koktejl," "dzhin end tonik," or "viski end uoter" and listen to a "bitgruppa" play "pop-muzyka," "dzhaz," or "rok-n-roll." The "kalipso," "val's," "cha-cha-cha," and "samba" are not popular among Soviet youths since the "tvist," "shejk" (shake), "bugi-vugi,"

and "khali-gali" (hully-gully) are the latest thing. The Soviet "plejboj" might wear "dzhinsy" pants, a "kov-bojka" or "gollivudka" (Hollywood) shirt, a "zhaket," or a "blejzer." A "modnaya gerl" might wear a "mokher "sviter," a "pulover" or a "miniskyort," and splash on a dash or two of "odekolon." The "mini-yubka"--"yubka" from Russian for "skirt"--is part of



THE APOSTROPHE: SOME THOUGHT'S

The apostrophe -its no wonder its a problem. For one thing, theres three things that can cause the problem - actually, theres four really. One is the apostrophe itself. Another is plurals', and a third is possessive's. The fourth is esses (the plural of the letter s, that is, which we will spell "esses" to avoid apostrophe's).

Essentially, the problem is that the apostrophe is used for too many functions'. One is to show the plural of an abbreviation. For example, if you saw MSTs without an apostrophe you would think it meant Military Sea Transportation Service, but it might really mean Maryland State Trooper's. Another use is for possessive's, which will be discussed under esses, and still another is for contraction's, which may or may not involve esses.

Thus we can see that the difficulty with the apostrophe is it's ambiguity. The logical solution to this would be to have two marks of punctuation, one for possessive's and the other for uses' of the apostrophe. A better solution would be to do away with it altogether; after all, German doesnt use it for it's possessives. These suggestions, however, are impractical, since the GPO Style Manual has only recently been reissued, and it would be very expensive to republish it to incorporate this improvement in English punctuation, and in any case style manuals and grammarians are excessively conservative.

Now, as for esses. Basically, there are altogether too many of them in the English language. According to L.D. Callimaho's frequency count data, there are more esses than anything else except es, ts, as, ns, and is. And a high proportion of the time esses come at the end of a word, where a high proportion of apostrophe's are also to be found, which adds to the confusion. The reason for this is that they are the sign for the plural, for the possessive (as noted above), and for the third person singular (which is another problem with which this article will not deal with).

Since every analyst/reporter has to manipulate apostrophes', it is appropriate for CRYPTOLOG, which is intended for analyst's edification, to offer guidance on this matter in the interest of better style in our product. The editor's sincerely hope that this discussion has been helpful.

(Proofreader, please be extra careful about correct punctuation in this article.)



"Modnye diski" can be purchased at a "rekord magazin."³ American "khippi," "bitniki," and "khuligany" smoke "sigarety" and "marikhuana," go to see the "striptiz shou" or "seks-fil'm" and speak their own form of "sleng."

Literary criticism also bears the marks of western linguistic influence, much to Mr. Fedorenko's displeasure. In reference to the phrase "metodologicheskaya konseptsiya esteticheskogo progressa" (the methodological conception of esthetic progress) Fedorenko cries out, "Do we require a Russian translation of this?" Distraught by such tongue-twisting horrors, Fedorenko pointed out that in the 1950's a special glossary of literary terms consisting of 450 words of foreign influence had to be compiled for high school students.⁴

As is alarmingly evident, the permutations in modern Russian slang and scientific and technical terminology are endless. The language is becoming drenched with western influences, and the future only appears to be bleak for Fedorenko and his followers. The Slavophiles, in their plight, suggest as an alternative, the promotion of work of the Russian Language Institute and increased influence of the magazine Russkaya rech' ("Russian Speech").

Who will win the struggle ???

"Onli tajm uil tel."



FOOTNOTES

- 1 A Ukrainian word but used frequently in Russian.
- 2 The word "bittlz" assumes paradigmatic changes: БИТЛЗОВ, etc.
- 3 "Magazin" from French for "shop, store."
- 4 Smith, Hedrick; "Russian Deplores Linguistic 'Barbarism,'" The New York Times, 20 February 1974.

A LONG HARD LOOK AT THE



Intern Program

PART THREE: MOTIVATION AND MORALE

I recently saw a company ad headed: "Professionalism: More than an Education, More than Experience, More than Training, It's a State of Mind." The intern program has concentrated on education, experience, and training, but has not really attempted to develop a professional "state of mind" in the interns. This is not an objective that can be easily achieved, but the factors needed to produce it would probably be the same factors needed to produce a highly motivated work force with good morale anywhere, namely: interest in the field, a sense that your contribution is a necessary one, some recognition by others, and a reasonable expectation of personal advancement.

As I mentioned under Recruitment, since prospective employees can be told little about the Agency's work, the burden is on the Agency to do more to identify potential employees who not only have an aptitude for the type of analytical work done here but are likely to have an interest in that work.

No selection system is going to be totally accurate, however, so it is also important for the Agency and the new employees to view the first several years on the job as a trial period, during which both Agency and employee can judge if they will make a good team.

In the recent past the Agency's attitude, particularly where college hires were concerned, was to treat this not as a trial period but as a time during which recruits should be wooed and won and persuaded to pledge their fealty. This wooing, in the case of the early interns, took the form of two promotions in three years, the possibility of an overseas tour, and a wide variety of courses paid for by the Agency. While such benefits as these may lower the attrition rate, I think the goal is achieved in an unhealthy way.

The "front loading" of benefits is likely to keep people here not because they are sincerely interested in an Agency career but simply because they cannot afford to resign. To use two hypothetical interns as examples: Pete Pine and Mike Miller are both 28, have worked at the Agency for 7 years, and have now decided that

this is not the career they were meant for. However, Pete and Susie, his unliberated college sweetheart who was a philosophy major and is now a housewife, have two children, healthy car and mortgage payments, and have grown to love their BankAmericard. Their life style is based on Pete's GG-11 salary, so Pete has reluctantly accepted the fact that he will be at the Agency for the next 23 years. Mike and Eleanor, on the other hand, in spite of similar family and financial obligations, agreed that they could cope with a salary cut, so Mike began looking for another job. He quickly discovered that seven virtually blank years on a resume form, at a very respectable salary, do not do much to arouse the interest of prospective employers. He also discovered that people are a little reluctant to hire someone who would be taking a salary cut to work for them, especially if, even with that cut, he would still be making more than they usually pay a new employee. As a result, Pete and Mike's car pool will probably stay intact for the next 23 years, and they will perform their duties in an acceptable if not an exceptional manner.

There is a tendency to think that if an employee who has talked about resigning can be persuaded to stay the employer has scored a victory. In reality he may have suffered a defeat, because he has simply managed to retain a body but not a mind.

Assuming, however, that the employee is interested, he still needs to feel that his contribution is a necessary one. Unfortunately it has seemed to me and many of my intern contemporaries that relatively few Agency employees have this feeling of making a needed contribution. It should be recognized that interns do not limit their observations to analytical techniques, and that as they tour the Agency they are exposed to more of the bad--as well as the good--than the average Agency employee. For example, if a new hire comes in and spends three years in an office where several people are blatantly unemployed, he may think his office is exceptional. But if he becomes an intern and observes that most of the offices he tours have such employees, he begins to realize that

a certain percentage of the work force is being carried on the efforts of co-workers, and is suffering no ill effects from it. (Some of these people simply coexist with the group; in some cases they work on studies which no one ever expects them to complete; in other cases even their co-workers do not know what they do.)

He also notices that people in higher grades--GG-13 and above--seem to be engaged in a continuous game of Musical Chairs, and those left standing when the music stops will probably be assigned to a staff position with vaguely defined duties, or given responsibility for a low priority problem, or made deputy to someone who operates very effectively without a deputy. To see capable people shuffled in and out of positions of responsibility seemingly just because there are more people than jobs has a very damaging effect on young employees. The lesson it teaches is that even if you do attain a grade level that suggests a position of considerable responsibility, you may have to be satisfied to alternate such assignments with periods of standing on the sidelines. The under-utilization of employees at this grade level cannot help damaging morale, decreasing effectiveness, and encouraging a patronage system.

What I am saying, in short, is that interns are often placed in an atmosphere of boredom and defeatism. Even worse, their own OJT assignments may foster the same attitude in them.

It is rare for a supervisor to decline an offer of an intern; he will usually accept one even if he has little work for him. Eventually, experience teaches the intern that mentioning a shortage of work is likely to result in a special project--seemingly devised simply to keep him out of mischief--or in a clerical assignment. As a result, while highly motivated interns may look for their own special projects, which can result in a product of value for both the intern and the area to which he is assigned, the less highly motivated are likely to redirect their energy and imagination into other channels. One intern deliberately prolonged an assignment where she was only employed for a few hours a day and began taking the additional courses she needed for admission to medical school, using most of the work day for studying. With a little help from NSA, she is now a doctor. Some become "professional students" here at the Agency. One intern graduate accepted what was essentially a full-time logging job because she was moonlighting and wanted to conserve her energy for her second job. A current intern spends a portion of his working day running down leads for new clients for his many enterprises, delivering orders and displaying wares. (I am amazed, by the way, at the number of Agency employees who hold second jobs, and am convinced that some stay here simply because of the contacts the Agency supplies for their products and services.)

There is a variety of things the Agency can do to instill in each employee a feeling that he is being relied on to make a meaningful contribution, and thus replace the atmosphere of defeatism with one of enthusiasm.

The first step is for managers to recognize that the Agency as a whole is not understaffed but overstaffed. Didn't the recent utilization surveys give some hint of this? I suspect that NSA is not too different from other government agencies and large corporations in this respect, but I do think that the existence of the condition and its negative effect on morale should be recognized.

Another step is to make sure that new workers know how what they are doing fits in with the Agency's mission, and to make them feel that they are being relied on. During the two years I was on one job I used only 8 hours of sick leave, partly because of a sense of urgency that pervaded that area and partly because I realized that no one would do my work if I wasn't there. Then I was assigned to an area whose operation, as it was being directed, seemed divorced from the rest of the Agency. The managers did not seem interested in what they could be doing to produce a better product but merely in bookkeeping procedures to account for the number of papers processed one month as compared with another month. My use of sick leave increased. It was not that I was consciously abusing the sick leave system, but I did probably subconsciously welcome a reason to stay home, so if I woke up with even the hint of an ailment, I'd think, "Well, if I stay home today I can nip this in the bud..."

(It might be beneficial for M to study organizations that have high totals of sick leave usage. Managers should also be alert to the records of individual employees--not only to possible sick leave abuses but also to changes in the pattern of use, which may indicate that a person is becoming disenchanted by, or, conversely, suddenly interested in, his assignment.)

The third and fourth factors are, or should be, related: recognition by others, and an expectation of personal advancement.

The need for recognition and approval is a basic one. Agency managers have several means of giving such recognition to employees: performance appraisals, in-grade raises, and promotions. Ideally, these management tools are used to discriminate between the varying levels of performance found in Agency employees.

Performance appraisals: I will not digress into a long discussion of the current system because a new system, apparently designed to curtail the inflation the old system suffered from, will be introduced in 1975. The only comment I will make concerning the new system

is that supervisors should be given considerable guidance on the philosophy behind the system, the need for realistic and candid appraisals, and the need to keep the employee informed as he goes, so that a candid appraisal does not come as a sudden shock.

In-grade raises: Whatever the philosophy behind the in-grade system may be, in practice virtually everyone receives an in-grade on the day he is legally eligible for it, regardless of his performance. In fact, once past Step 3, receiving an in-grade has a negative connotation for most employees: while it means more money, it also means that still another year (or more, depending on the step) has gone by without a promotion.

A remedy for the lack of significance now attached to in-grades might be to establish a scale for them. If an employee were rated "outstanding," he would receive an in-grade in 8 to 12 months, if "strong," in 13--19 months, "proficient," 20--26 months, "adequate," 27--36 months, and "deficient," no in-grade. This would be especially helpful in time of scarce promotions. It would also provide an incentive for ill-fitted employees to resign, and generally help to separate the wheat from the chaff.

In this way in-grades would be treated much like raises in private industry. I have discussed this with a friend who received almost identical salary offers from NSA and a large company five years ago. He chose private industry, and in those 5 years has received raises, bonuses, and promotions. Because he is a programmer with a math background, he probably would have advanced just as rapidly at NSA, but there is a big difference between his morale and that of many Agency employees. He knows that every increase in his salary represents a vote of confidence from his employers, and that his salary is considerably higher than that of the people who began work with him but whose work is not as highly regarded; whereas an Agency employee who is a Grade 9, Step 5 or an 11, Step 4 knows that everyone who was promoted on the same day that he was has received the same increases --cost-of-living and in-grade--whether his work was considered outstanding or barely adequate.

Promotion: When promotion is the only means of discriminating among levels of performance it can become an obsession, and when promotions are scarce, morale is likely to plunge.

What adds to the problem is the fluctuation in standards that accompanies the fluctuation in funds. When I was a new hire, it seemed that no one of any merit ever reached a Step 4 below the grade of 12; a Step 5 obviously had serious problems. Then suddenly a drought hits and the reverse is true: being able to leap tall buildings in a single bound doesn't even count. Standards should be consistent. When money is tight you

may have more people who meet the standards than you can promote, but when money is free, standards shouldn't be lowered just so money will not be lost. If they are lowered, and mediocre employees promoted, then in austere times these people will have a very damaging effect on the morale of their co-workers, and are likely to pose problems for their superiors.

One measure that would ease the promotion situation somewhat and would help in other ways as well would be to use Grades 6, 8 and 10 for the analytical career field. I am told they are not so used because they are associated with clerical positions. While there may be a tradition for such an association, I think management could correct that, and the benefits of using those grades would be considerable: it would serve as a means to further differentiate the abilities of employees (some people's performance would warrant promotion no higher than GG-9, some no higher than 10, etc.); it would help to lower the average grade; it would increase the number of promotions possible in the 5-to-11 grade bracket with the same amount of money; it would make it easier for clerical employees with an aptitude for analytical work to cross over into one of those fields; and conversely, it would encourage people with an interest in clerical work to stay in that field and not be tempted to switch to an analytical field simply by the prospect of skipping grades through promotion.

A question of great interest to intern graduates (among others) is: While there are Agency guidelines for promotions, are there any Agency standards for the manner in which those guidelines are interpreted into office promotion systems? Some offices have a point system for promotions, while others seem to prefer a "supervisor, defend-your-man-against-my-man" system. Some areas appear to value cryptologic experience over education while the reverse is true in others. Some emphasize certification status for all employees in Grades 7 and above while others appear to look for loopholes which will permit promotion of uncertified people. Some require a minimum time in that organization while others seem to bring people in with the intention of promoting them. (In two cases that really hurt morale, employees were promoted because their supervisors were unhappy with their performance! The supervisors had concluded that the employees would not request a release until they had been promoted, and apparently felt that the promotions were a small price to pay for getting rid of them.)

It would be helpful for employees to have an idea of what is emphasized when candidates are reviewed for promotion, and I feel certain there would be less grumbling and fewer hard feelings if such standards were publicized.

(Next issue: What Happens to the Graduates?)



GUIDESMANSHIP

by

or How to Write Technical Manuals Without Actually Giving Anything Away

Originally published in C-LINERS as "The Care and Feeding of Technical Manuals"

The effective technical manual presents an accurate history of the development of an equipment and procedure to be passed on to others. In the compilation of such a document the writer must consider the employees who have spent long laborious hours in developing the data. He must use care that it is not too easily understood and absorbed by persons outside this circle. It must be developed so that only those few who have worked on the project from its inception are able to comprehend its full significance and receive its benefits.

Imagine the embarrassment of one of the indoctrinated if a novice could read a manual and understand its full significance in a minimum of time: the novice would then be in a position to lord it over an old-timer who had spent years in acquiring the same information! Or the irreparable harm done to the reputation of an experienced technician if a young upstart were to get his eager hands on a well-written document; he might learn the equipment well enough to completely humiliate the man with experience! One or two such manuals left lying around unguarded might even fall into the wrong hands and be used as a refresher to someone who has been "out of touch" for some time.

There are several ways to prevent this from happening. The first and most effective is to publish as late as possible. A manual which is received well after delivery of the principal equipment, for instance, will probably be useless to the unintended reader. For by that time he will have learned by experience, the hard way.

But suppose a late manual, because of long-term use of the equipment, should fall into the hands of an undeserving young upstart anyway; the writer should have prepared for this emergency. The second, and most difficult, way of safeguarding the data is in the method of writing, and the truly effective manual, therefore, is written abstrusely so that only the "few" can understand. It was Linton who said, "It takes considerable practice to use language in grammatically complete units and yet say nothing at all. Unless we are very careful, some idea, even if a very faint one, will creep in." Linton was right, of course, but the good technical writer is prepared "even if a very faint one" does creep in.

The choice of words is important. The careful writer never uses words like "use" and "workable"; he will say "utilize" and "feasible." He will also inject mean-nothing words like "essentially" and "basically." Even if the

unintended reader begins to see light through these gimmicks, the writer has a few more tricks up his sleeve.

He knows, for instance, that verbs are dangerous--that an active verb carelessly placed in front of its direct object lays bare the true meaning of the sentence. The writer who says, "The power transistor heats the assembly" has committed a cardinal breach of shrewd practice; if only he had thought to say, "The assembly is heated by the power transistor." The unintended reader would never be quite certain if the assembly was lying by the transistor when heated or if the transistor supplied heat to the assembly.

A careless technical writer once requested a user's review before publication. This was intolerable, as several suggestions from the future user almost destroyed the occult nature of the writing.

If all normal precautions fail, there is still hope. The careful writer "goes the last mile" in the organization of his document. By placing perfectly accurate data next to unrelated data, he throws the unintended reader into confusion. Even more confusing are the many nonstandard abbreviations he uses; he really chuckles as he includes CCG, CGS, and G.M. & C. Surely the unintended reader will be slowed down in looking these up (and by the way, the writer should be careful not to include a glossary of abbreviations used). Some writers actually identify their choicest nonstandard abbreviation on page 2 and then use it again on page 208, knowing the reader will not remember either its meaning or where he first saw it; if this doesn't cause him to throw up both his hands and the data in utter despair, nothing will.

Now concerning storage, the important data or manual is safest when stored with miscellaneous papers in the bottom left-hand drawer of the writer's desk; it is even safer if no one knows of its existence. The experienced author knows that one slip of his pencil could send the document flying into the technical library where it would receive an accession number and be readily available to literally hundreds of undeserving readers.

It frightens one to think of the countless ways an unintended reader could get his grubby little hands on the most coveted data. The best writers, therefore, will close all loopholes. These writer alone will survive; they and their publications will go down in the pages of history, famous for obscurity.

(UNCLASSIFIED)

A ANSWER TO LAST MONTH'S OCTOBER OVERLAP

KEY: THREE SHIPS TO A NEW WORLD

MESSAGE TEXTS:

EVERY SHIP THAT COMES TO AMERICA GOT ITS CHART FROM COLUMBUS.

FROST AND FRAUD HAVE DIRTY ENDS.

COLUMBUS DISCOVERED NO ISLE OR KEY SO LONELY AS HIMSELF.

SOMEBODY SHOWED HIM THE SUNSET AND HE SET SAIL FOR IT
AND DISCOVERED AMERICA AND THEY PUT HIM IN JAIL FOR IT
AND THE FETTERS GAVE HIM WELTS
AND THEY NAMED AMERICA AFTER SOMEBODY ELSE.

HE THAT HATH A GOOD HARVEST MAY BE CONTENT WITH SOME THISTLES.

WITCHES STEAL YOUNG CHILDREN OUT OF THEIR CRADLES, MINISTERIO
DAEMONUM, AND PUT DEFORMED IN THEIR ROOMS WHICH WE CALL CHANGELINGS.



*Pilgrim: Too bad they
don't have Thanksgiving
back in England.*

*Indian: They will some day.
But they'll celebrate it
on the 4th of July.*

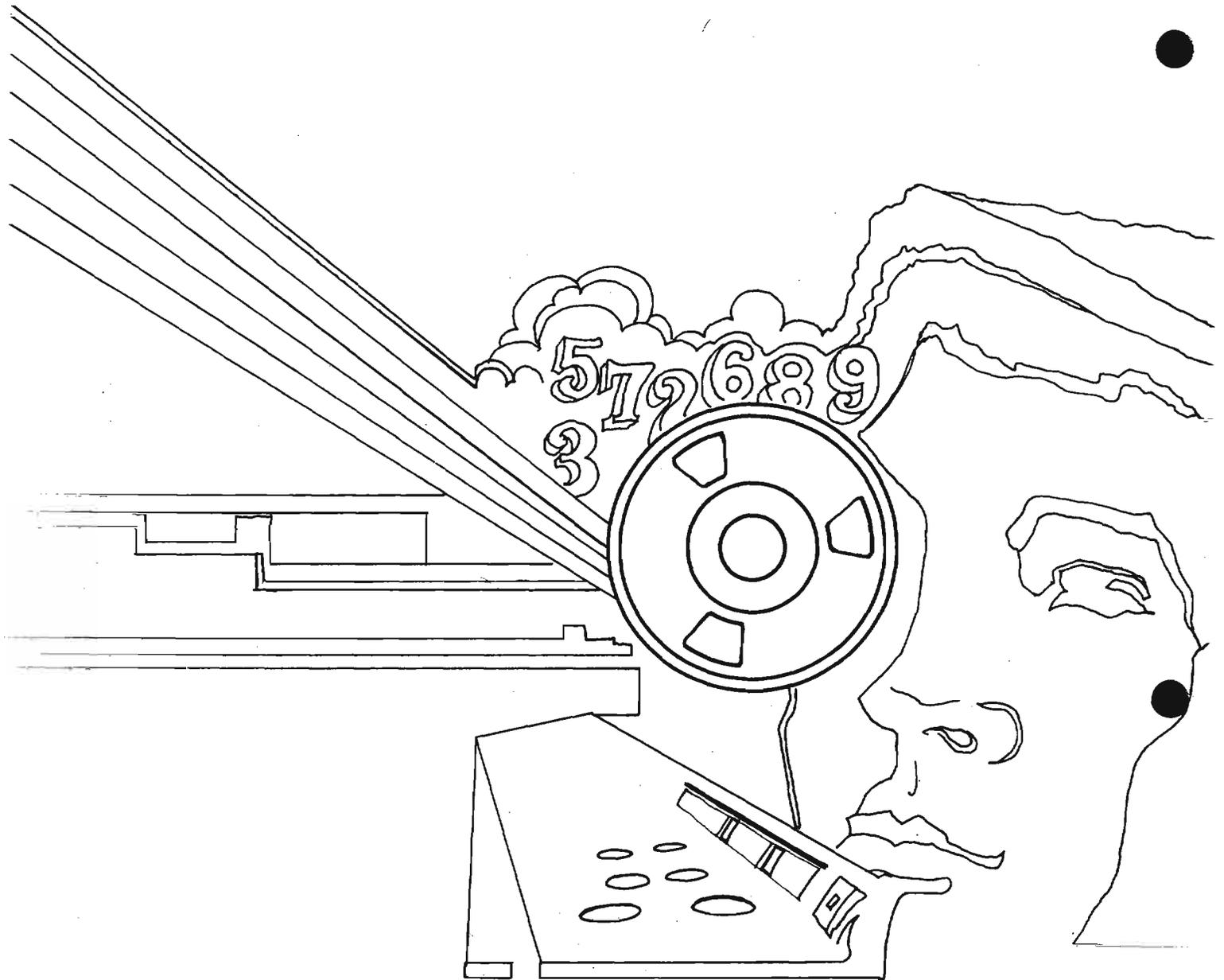
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Note: A number of people have asked for copies of the first issue, but we had no extras of that issue. If your office has extras, please send them to us and we will honor the requests so far as possible. We do have some extras of the second and third issues, if you want to fill in holes in your file.

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