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NATIONAL SECURITY AGENCY
FORT GEORGE G. MEADE, MARYLAND

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MAY 1979

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# Project HELIPAD:
An Epitaph (U)

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During the Vietnam conflict USAF pilots
(U) downed 137 enemy aircraft, an interesting
statistic for military air history buffs.
Far more significant to the USAF was
another, related statistic: 67 USAF aircraft
lost to enemy fighters. That was too many.

(U) It was believed that a major cause for
this relatively large loss of USAF aircraft
was the pilots' lack of combat experience
against enemy aircraft. In those days, the
first time a USAF pilot saw a MIG was in
actual combat, a wartime classroom with a
pass-fail grading system.

(U) USAF officials decided that it was
essential to give young pilots experience
in air-to-air tactics against MIGs, or at
least MIG-like aircraft, before going into
combat. They developed the Dissimilar Aerial
Combat Tactics (DACT) Program, designed to
train aircrews against types of aircraft
whose performance characteristics resembled
those of enemy fighters. In June 1973, to
provide this training, the Tactical Air
Command established the 64th Fighter Weapons
Squadron at Nellis AFB, Nevada. The squad-
ron was composed of pilots specially skilled
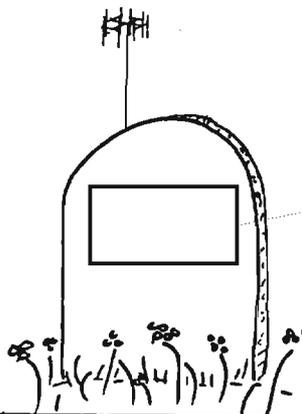
as "aggressors," these pilots even took on
the trappings of a Soviet fighter unit, flying
Soviet flags, wearing Soviet insignia, and
decorating their offices and ready rooms
with Russian wall posters, manuals, photo-
graphs and model aircraft. Their own fighters
carried Soviet markings...

(U) That's the beginning of the story.
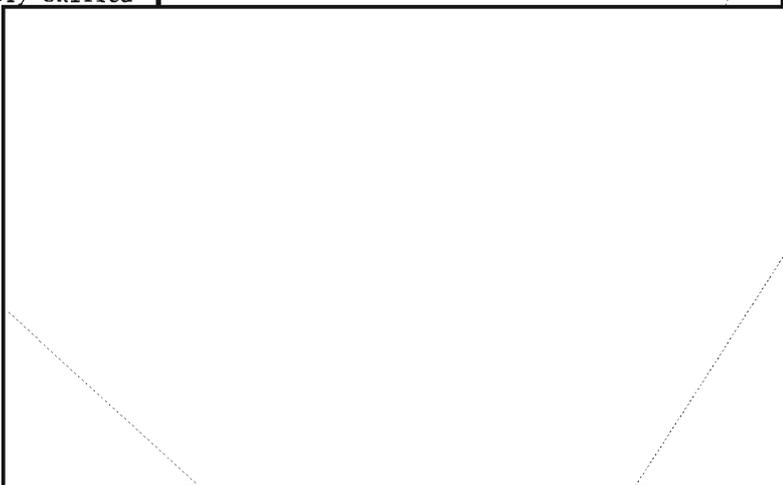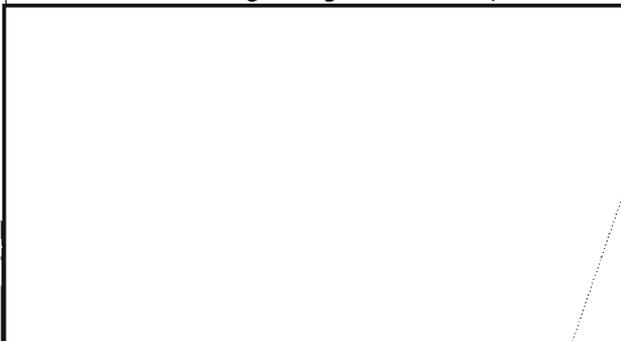
in Soviet air combat tactics, at least to
the extent that these tactics were known.
Initially these pilots flew the T38 TALON
(and later the F5E TIGER II) to simulate the
Soviet MIG-21 FISHBED and MIG-23 FLOGGER
fighters. Their mission was to train other
USAF fighter pilots how to fight and win
against Soviet aircraft and tactics. Known

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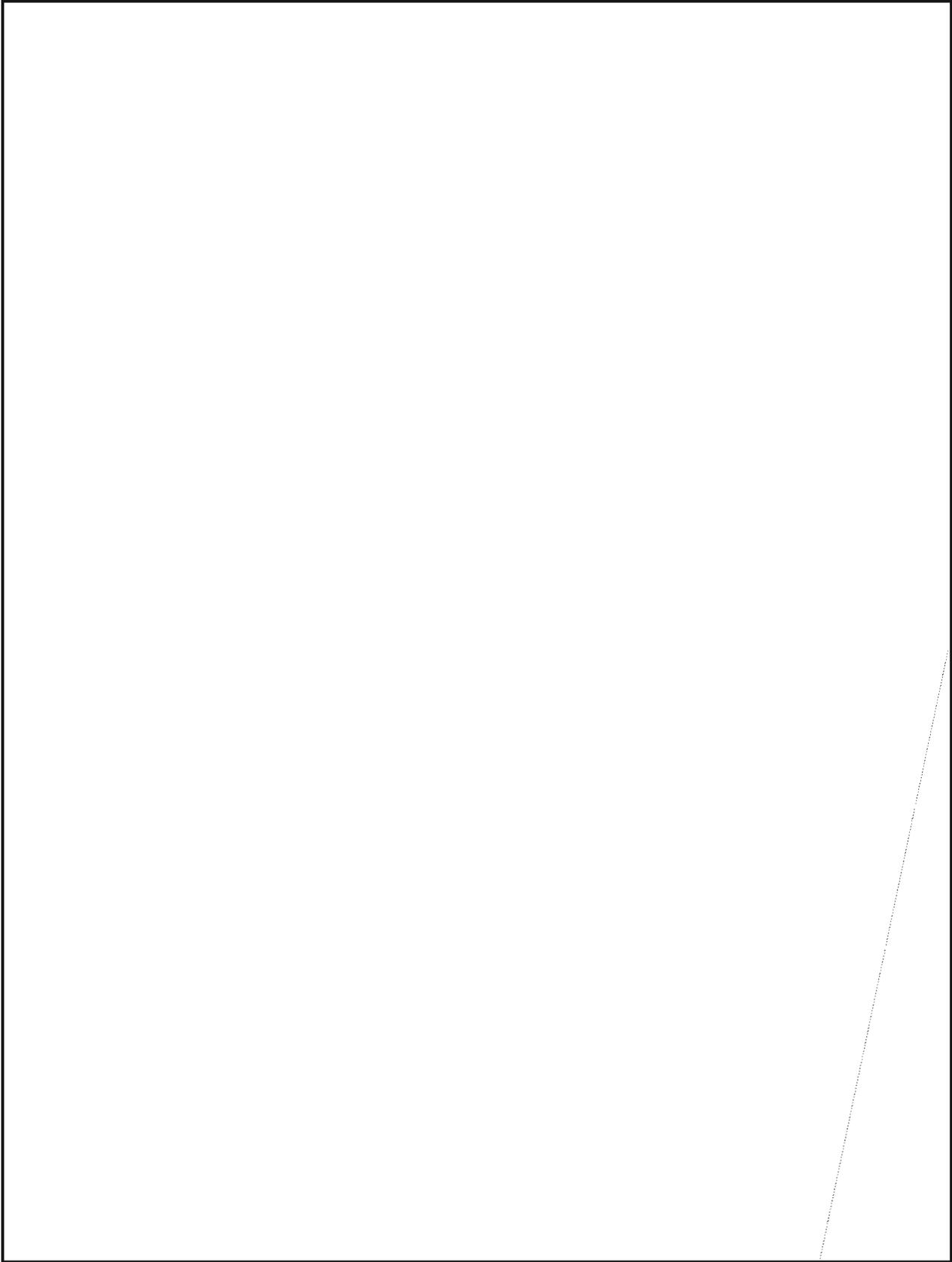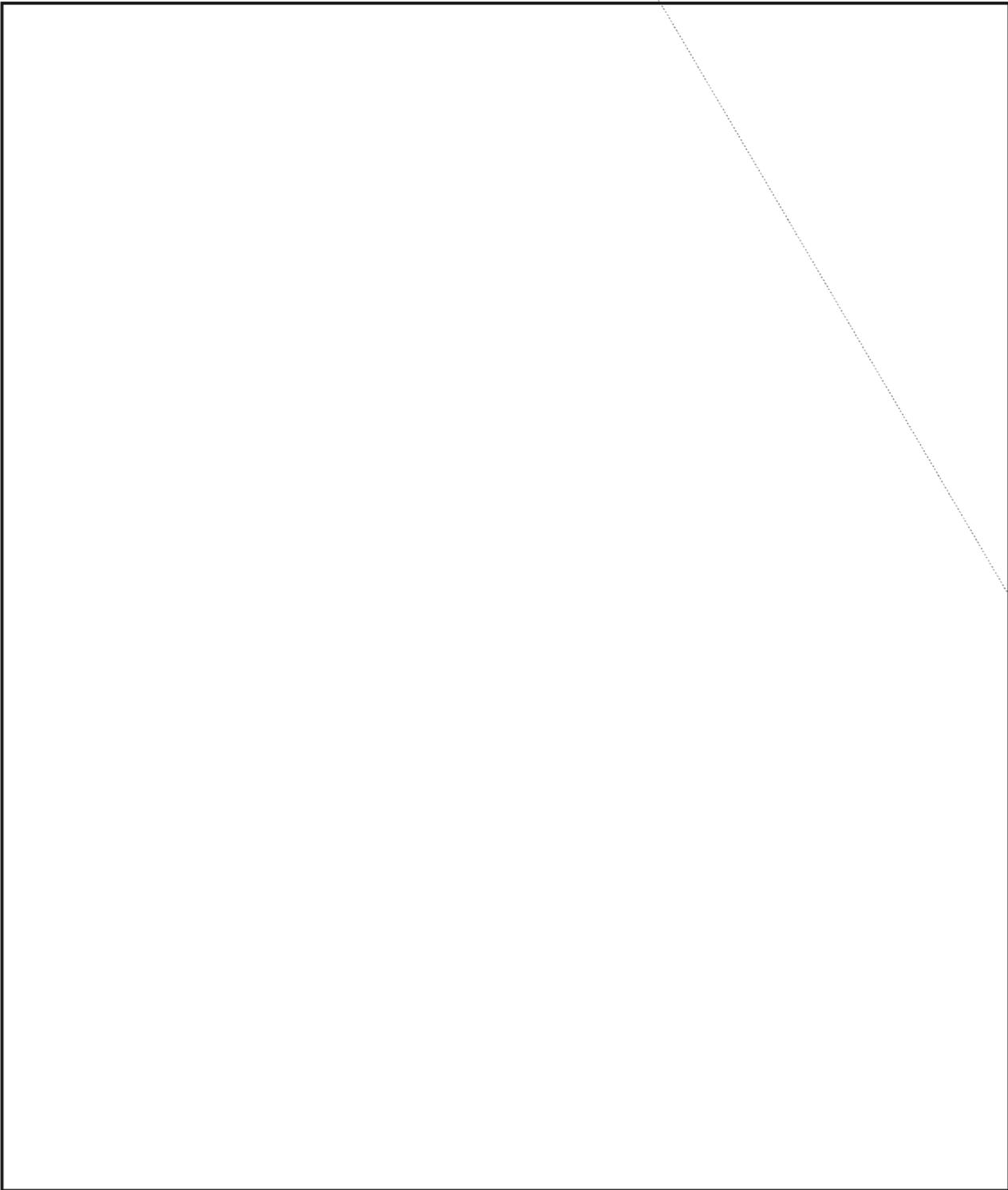
PROFICIENCY CERTIFICATION FOR MILITARY LINGUISTS (U)

(U) The Language Proficiency Test certificate program for military linguists is now under way. The first certificate has been sent to [REDACTED] for passing the Spanish LPT. [REDACTED]

(U) Other certificates are being printed and will be presented in the near future. If you are interested in getting more information on how to receive a certificate for your linguistic abilities, contact CAPT [REDACTED] USAF, M36, phone 5578s or 688-6565.

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SECRET SPOKE

Transcription Trio (U)

I. Where Do Good Transcribers Come From? (U)
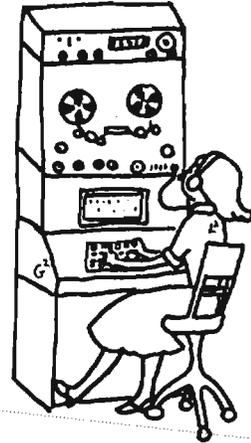
In the following article, the first of our authors, [   ] answers the above question by saying "They don't." Good transcribers are the result of a lengthy period of classroom and on-the-job training right here on the premises.

The Russian voice transcription effort at NSA has been undergoing a gradual, but far-reaching, evolution over the last five

(C) As stated previously, the Agency's transcribers are not the product of a common language background. Some have received strictly military language training, some have college degrees in Russian, and still others with either high school diplomas or college degrees have received their Russian training here at the Agency. Each of these training methods has its own unique strengths and weaknesses; in order to compensate for some of these weaknesses, the NCS provides
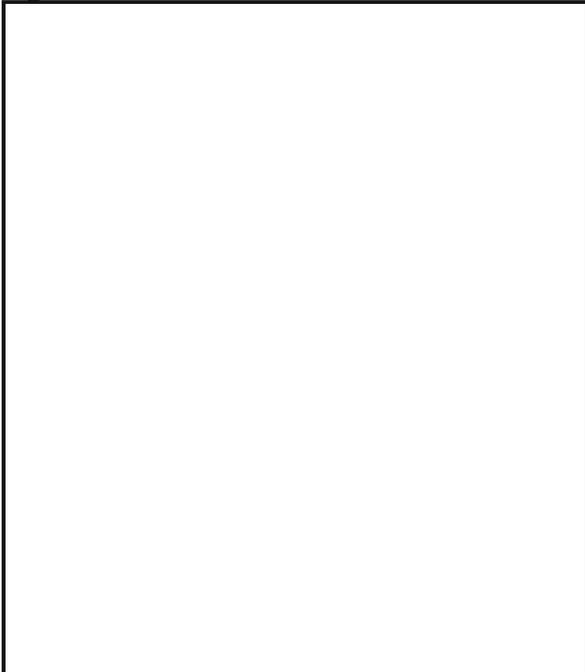
a plethora of courses.

(U) The courses offered by the NCS are designed to address the transcriber's specific language problems. Courses are offered in the fields of grammar, syntax, linguistics, phonetics, translation, conversation, and area studies. These courses are intended to fill in the gaps in an individual's language background, and to allow him the opportunity to improve his skills on a continuing basis. By taking these courses, the transcriber is able to update and refresh his knowledge; the Agency, by sponsoring these courses during the work day, indicates its support for this on-going process.

(C) Many transcribers also improve their skills by taking advantage of the Agency's After-Hours Study Program. This has proven especially beneficial to the military-trained transcribers who are able to obtain college degrees through this program and increase their understanding of the Russian language, and of the Soviet Union as a whole.

(U) The Agency also provides numerous opportunities for those individuals interested in making transcription a career. The first step for most is the Agency's professionalization program. To be certified as a linguist, an individual must demonstrate a high level of competence in both translation and transcription. Serious career linguists also have the opportunity to attend the two-year intensive language course taught by the Department of the Army in Garmisch, West Germany.

(U) A recent, exciting development for some transcribers has been the decision to allow a small number of career transcribers to progress beyond the Grade 12 level without the normally attendant managerial responsibilities. This step was taken in response to the critical need to retain senior transcribers in transcription billets; these individuals will thereby be able to devote their full time and talent to that which they can do best—transcription.

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Too often in the past, the Agency has invested
money and years of training to produce a
highly competent linguist only to put that
person in a managerial job where his talents
cannot be utilized fully.
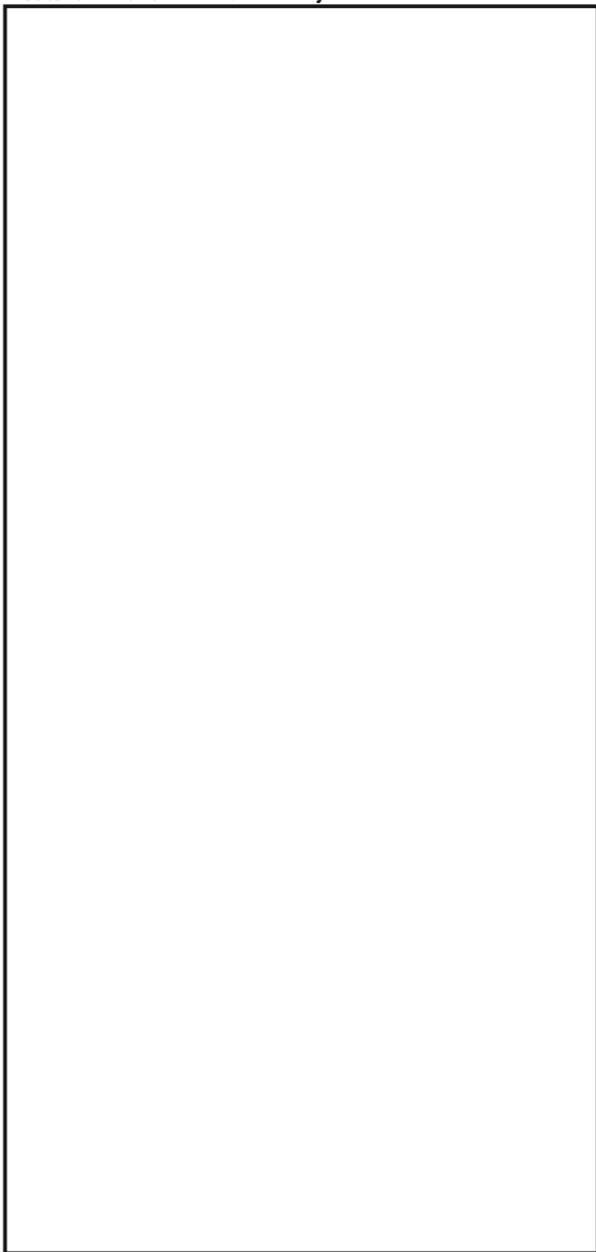
you'll be lost trying do do it
in Russian)

•sufficient understanding of the
Soviet society to comprehend the
personality and habits of the
person speaking
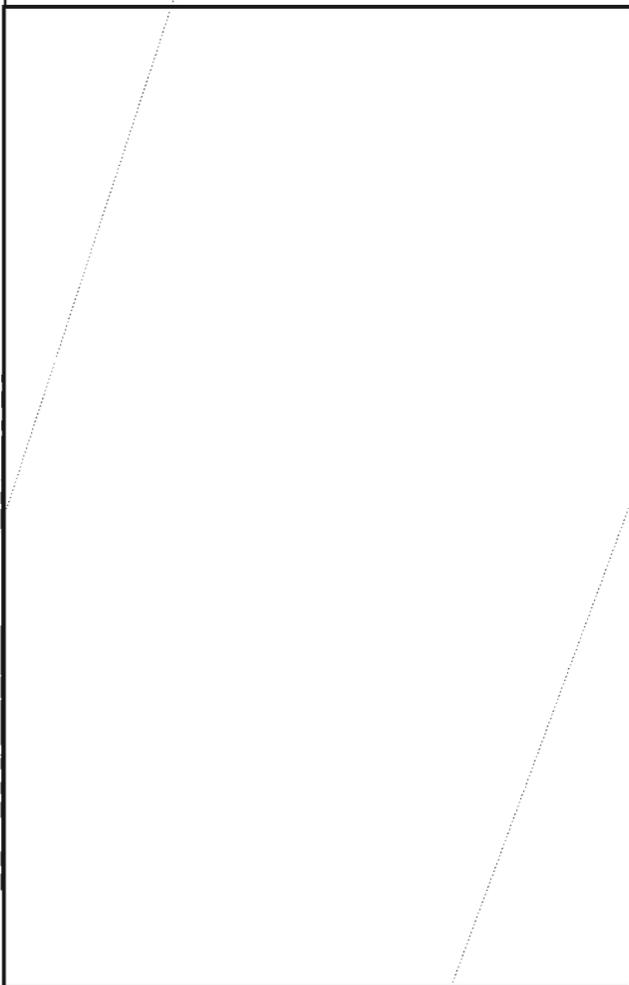
(U)   It becomes obvious, therefore, that if a
transcriber is to produce a finished tran-
script, he must gain at least a fundamental
knowledge of the subject under discussion.
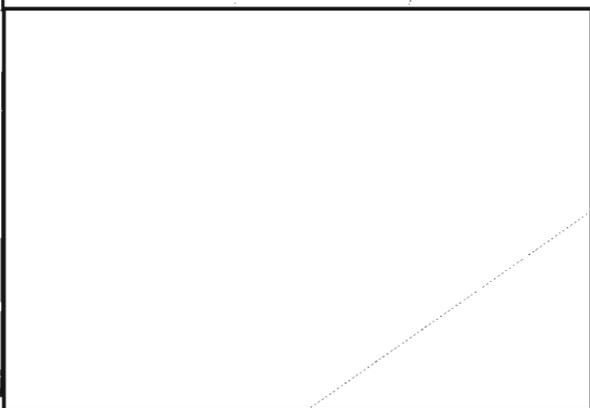
(C)   There are two main areas of knowledge
which every transcriber must learn, regard-
less of his proficiency in the Russian lan-
guage itself. The first such area could be
termed *target knowledge*. Target knowledge
is comprised of three quite different parts:

•vocabulary
•general understanding of the sub-
ject involved (if you don't under-
stand the concepts in English,

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in the analyst's understanding of what is
actually taking place.

(U)   Still another essential factor in the
training of any transcriber is his ability
to use the multitudinous transcriber working
aids. A transcriber's working aids might be
compared to a physician's medical reference
books: regardless of the individual's innate
intelligence, his ability to handle a given
set of circumstances would be severely ham-
pered, if not made impossible, by their ab-
sence.

(U)   The extent of the resources available
to a transcriber is such as to bewilder the
trainee. Over a period of years many tran-
scribers gradually accumulate a considerable
number of their own personal reference mate-
rials. These working aids may take on any
number of forms from printed dictionaries to
computer files.

(C-CCO) Let us first look at those basic refer-
ence books which are widely distributed to in-
coming transcribers.

   •A standard Russian-English dictionary,
    obviously the first item
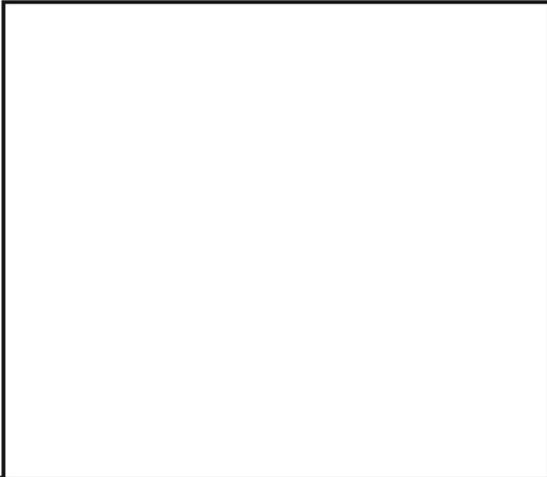
(C-CCO) In addition to these basics, there are
other working aids which enable the tran-
scriber to do his work; most of these are
specifically related to the subject matter
of the material being transcribed in his area.
These may include the following.
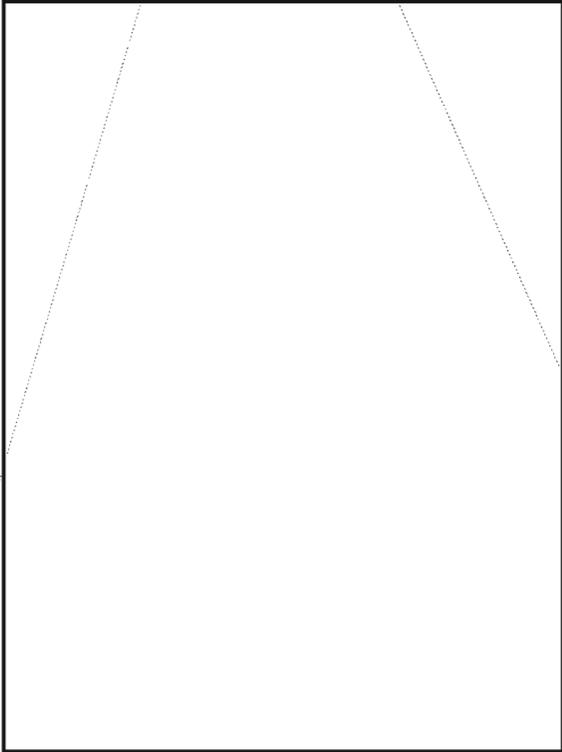
(U)   It cannot be stressed enough that these
resource materials are essential to the pro-
duction of a finished transcript; all of them,
many of which originate within NSA, are worth-
less in the hands of an amateur, but invalu-
able to the experienced and knowledgeable
transcriber.

II. "Run This Through Your Transcription Machine" (U)

It is sometimes assumed by non-linguists that transcribers are
(C) sort of like parrots. They simply repeat, in written form, what
someone has said. Thus, while a transcriber needs to know the
language of what he scribes, he certainly doesn't need to *think*,
just repeat. This is, of course, a very narrow view of the tran-
scriber's task at NSA, and while you might laugh and say, "I know
there's more to it than that," it is quite surprising to find the
number of people who feel that transcribers are like machines. An
inside joke among transcribers is the remark attributed to a non-
transcriber who once asked one of the transcription offices to
"run this tape through your transcription machine."

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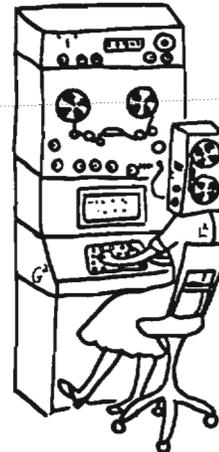
(U)   If only it was that simple!

(U)   Thus, as can be seen, a transcriber is by no means a simple parrot or machine. The job he is asked to do is not only quite complex, but requires skill and dedication to enable him to stick with a job even when the going gets rough.

(U)   I hope that this article has provided an insight into what it is that Agency scribes do and dispels the myth that voice processing is a simple matter of "running this through the transcription machine."

III. Transcriber-Analyst Relations (U)

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Doris Miller, Retired

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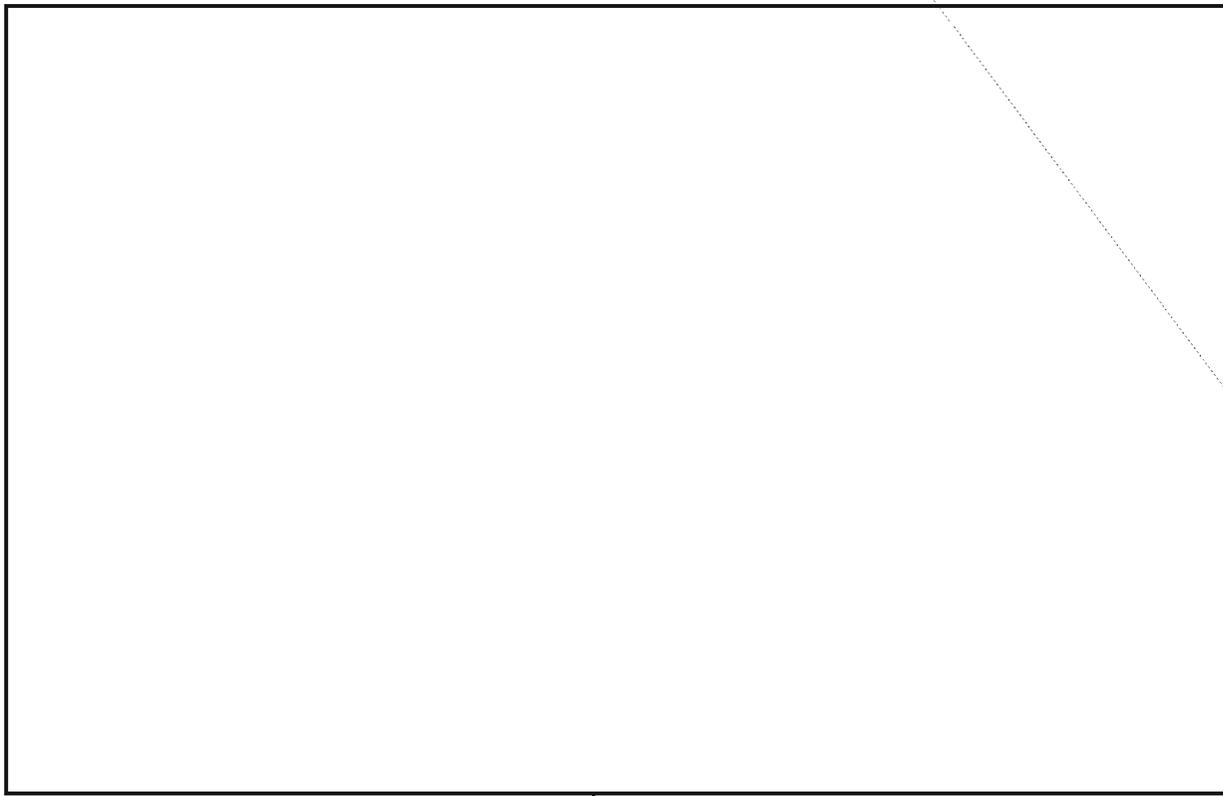
THE COMPUTER AND INFORMATION SCIENCES INSTITUTE (U)

THE USER -- IT'S ABOUT TIME! (U)

(U) Mark your calendar today for May 21-25, because you'll
not want to miss the 1979 CISI Spring Conference. The
Computer and Information Sciences Institute is sponsoring
an exciting and informative Computer Conference, with this
year's emphasis on YOU, the computer user. The speakers,
who represent some of NSA's most knowledgeable profes-
sionals in a variety of career fields, will be talking
on topics and issues that are extremely important and
topical to NSA's computer user community.

(U) With intriguing titles such as "I Want My Program
to Talk to Me" and "Wanted: A French Chef for Analytic
Programming," and state-of-the-art subjects such as
RASTER graphics at NSA, Human/Machine Interfaces, User
Computer Security, and Intelligent Terminal Applications,
this year's sessions promise to be the best ever.

(U) Schedules for each session will be posted the week before the conference. CISI is
anticipating a large turnout for the sessions and especially wants you to be a part
of this SUPER EVENT!

(U) The general topics for the five sessions are

Monday, 21 May	The User Himself
Tuesday, 22 May	Applications
Wednesday, 23 May	Computer Security
Thursday, 24 May	Acquisition, Methodology, and Standards
Friday, 25 May	Tools

(U) All sessions will be held in the Friedman Auditorium, from 0900 to 1130.

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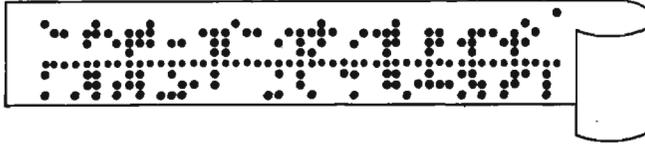
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COMINT CHANNELS

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FM DIRNSA

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INFO NAVINTSUPCEN

NFOIO

NISC

ACNIC

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+V11-0050-79

COMNAVINTCOM FOR NAVY SIRVES REP; NFOIO FOR OOL AND ACNIC; NISC FOR

5212; NIC FOR 311

REQUEST FOR INFORMATION

A. NSA/V11-044-79, 222153Z JAN 79

B. COMNAVINTCOM, 051501Z JAN 79

C. NFOIO, APP-0002-79, 041646Z JAN 79

D. NAVINTSUPCEN, 292103Z DEC 78

SIRE 6676

REF ALFA RESPONDS TO REF DELTA AS VALIDATED BY REF BRAVO.

REVW 24 JAN 09.

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ROBERT ENNIS/CH V111/48525

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DTG 24195Z JAN AB147

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Emitter Identification Techniques

[   ] W2

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This article is classified
SECRET-HVCCO in its entirety

The term "emitter identification" denotes the association of a signal with a specific source or platform. The identification process usually involves matching parameters of the signal with those from known emitters and producing a list of candidates. Related information (such as that obtained from [   ] can serve either to restrict the number of known emitters used in the matching process or to further refine the list of possibilities produced by the matching algorithm.

For over a year R51 has been investigating mathematical/statistical techniques for addressing aspects 2 and 3.

The R51 effort has focused on ways to evaluate an emitter identification technique.

Evaluation of such a technique is interpreted here to mean:

- evaluation of the choice of features
- evaluation of the performance of a decision rule on vectors of features.

The issues addressed are the following:

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- usefulness of the features (How well do the features separate the known emitters?)

- adequacy of the library for training (How many transmissions of each emitter are necessary for the given set of features?)

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- complexity of the decision rule (Is the decision rule sufficiently sophisticated to separate the emitters in the chosen feature space?)

- estimation of the error rate of the decision rule (What is the expected percentage of misclassifications in new data?)

- incorporation of no-decision options into the decision rule (an "open" library versus a "closed" one)

There are many types of decision rule that may be chosen for use in emitter identification. Among those studied by R51 are the

following:

- minimum distance (or maximal correlation)
- k-nearest neighbor (weighted or un-weighted)
- discriminant functions (linear or quadratic)
- Bayes' rules

The parameters of a decision rule are estimated using a learning set consisting of transmissions from known emitters. The finite sample performance of the decision rule on a prescribed set of features can be evaluated on a test set (a different set of transmissions from the same known emitters) in terms of:

- error rate (percentage of misclassifications)
- confusion matrices (correct class membership versus that produced by the decision rule)
- expected position of the correct identification in a list of candidates
- probability level associated with the correct identification versus that of an incorrect one

From test set performance one can infer decision rule performance on unknown data and decide whether or not the given features and decision rule are adequate for the purpose intended.[1]

Some R51 work has been done on library maintenance. The inclusion of erroneously classified emitters into the library can distort the set of reference patterns. Peri-

In summary, R51 research

has made available a plethora of techniques and computer programs that can be used by those involved in emitter identification work. All software runs are on the R5 CDC 6600, but most of it is in Fortran and should be readily available to other computers. Questions about these techniques and/or the software should be addressed to ____ Chief, R51, 8518s, or ____ Chief, R513, 8525s.

1. Details about these algorithms and methods can be found in the following R51 publications:

   "Cluster Analysis: Introduction to Models and Methods," *NSA Technical Journal*, Vol. XXII, No. 2, Spring 1977

   "Introduction to Statistical Pattern Recognition," *NSA Technical Journal*, Vol. XXII, No. 3, Summer 1977

   "Some Thoughts on Coalitions Discriminant Analysis," R51/MATH/28/77, 20 July 1977

FOR THE PUZZLE FANS (U)

(U) Given below are the numbers of the squares which contain the *final* letters of each word of the NSA-Crostic on page 16. Simply thicken the lines at the right sides of these squares, and you're in business.

4	8	18	22	31	35	39	44	48	50	53
57	59	63	67	72	74	83	88	90	92	96
101	105	107	112	114	120	122	128	134	136	145
149	151	155	158	164	175	177	184	188	195	198
206	209	211	217	221	223	227	233	240	244	248
255	257	260	271	273	277	281				

SOLUTION TO NSA-CROSTIC NO. 24 (U)
(*CRYPTOLOG*, April 1979, by D.H.W.)

____ "[The] Bucky Balance," *CRYPTOLOG*, July 1978

(U) "The best way to [identify] a Project Starter or a Project Finisher is to [analyze] the person's working habits closely. The Project Starter is interrupt-driven... He operates on a last-in-first-out basis... The Project Finisher functions as a first-in-first-out queue... Every task that enters his queue comes in at the lowest priority."

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J. GURIN, R51

More Than Words Can Say

As a part-time jazz musician, I can vouch for the fact that there seems to be no way of writing down the improvisations of some of our jazz greats, even after listening to their recordings again and again. One can capture on paper the notes they play without too much difficulty, but not *how* they play those notes. The same problem plagues the classical musician as he attempts to play compositions of the masters. How loud is *forte?* How fast should *presto* be? How much emotion in *con amore* and how much and how quickly should one slow down for *ritard?* The instructions left by composers serve only as very imprecise guides.

Although many claims have been made for this system or that one, none has succeeded in recording the dance so that the choreography of a Fokine or an Ailey may be transmitted other than by example. There just doesn't seem to be any way to notate choreography successfully, and even the motion picture, which once was looked upon as the answer to the problem, has shown fatal weaknesses as a complete record.

Writing systems for spoken language also present only approximate representations of what is said. I'll never forget how impressed I was when, for the first time, I heard Mark Antony's lines "Friends, Romans, countrymen, lend me your ears" spoken by a fine Shakespearean actor. It sounded very different from the dull recitation in my high school English classes. The words were there in the book we read in school, but something had to be supplied by the actor. It is possible, or course, to indicate how a sentence should be read by using italics for stressed words, or by underlining those words. Thus we may distinguish "Don't ever do that again" from "Don't ever do *that* again."

But this device only tells us that the underlined word should be emphasized; it doesn't tell us how, or how much. Some sentences remain ambiguous until spoken aloud, as in the case of "Jane left directions for George to follow," which can have two distinct meanings.

There are a number of terms that are used to describe those features that distinguish completely meaningful speech from the simple recitation of strings of words. *Prosody* and *intonation* are two of the common ones, while the fancy word *suprasegmentals* simply describes features which extend beyond segments of words such as *phonemes*. The easiest way to describe any of these is in terms of what it is not. It is what is left when you take away traditional grammar, vocabulary, and rules for pronunciation of segments of speech. In other words, you are left with pitch, loudness and duration.

The nature of our concern here directs us to the perception rather than the generation of these features. For us there is no sound in the forest when a tree falls—if there is no one there to hear it. And by introducing this notion of human perception we bring in the factor which complicates everything. If it weren't for the perception mechanism and its special qualities, it would be a simple matter to equate pitch, loudness, and duration with frequency, intensity and time, which are easy to measure and manipulate. In fact, it may seem obvious now that there is no one-to-one relation between frequency/pitch, intensity/loudness and length/duration, but this is a relatively recent discovery. It was Galileo who first established pitch as a function of frequency, and it was not until the 1930s that it was shown to be a function of intensity as well, and possibly of other factors.

In some ways, perhaps, duration is the easiest to understand. Its principal ingredient is time. But in examining the question of the shortest durations of sound that a human listener is capable of noticing, investigators have determined that intensity plays a part. Increasing the intensity, up to a certain level, tends to improve the listener's capacity to discriminate between duration differences.

Loudness presents another concept that, on the face of it, seems simple enough, but can be shown to be more complex when one realizes that perception of loudness involves some tricks played by the mind. A simple ex-

periment displays this dramatically. Assemble several radio receivers in one room, tune them all to the same station, then mark their volume controls at the settings that make them all sound equally loud *when played separately.* Listen to one radio by itself, then turn another one on to the mark on the volume control. The two together will be louder than one alone, of course. Now do the same with a third: the loudness will increase, but not as much as before. Adding each of the remaining radios will continue to add to the loudness, but each time the increment will be smaller.

Consider another dramatic illustration of the relationship of the intensity (power) of sound and the loudness of that sound as perceived by the ear and brain. Under the proper conditions, the intensity of the sound of a full orchestra in a fortissimo passage may be about 20 *million* times as great as that of a solo violin in a soft passage. But of course it does not sound 20 million times as loud!

When one considers the relationship between intensity and loudness, it is clear that one can scarcely be simply proportional to the other. It seems that there is a law which is more or less true for all sensations—pressure, sight, hearing, etc.—that the intensity of the sensation is proportional not to the stimulus but to the logarithm of the stimulus. This means that every time the stimulus is multiplied by the same factor, the sensation goes up one step. In other words:

Stimulus	Sensation
goes from 10 to 100	increases one step
goes from 100 to 1000	increases one step
goes from 1000 to 10000	increases one step
	etc.

Before you relax too much on the subject of loudness, let me add the following. Our perception of loudness is also influenced by frequency. For example, for two tones not far removed in frequency, doubling the power by adding these tones results in approximately double the loudness. But doubling the power by adding the same tone to itself may not double its loudness at all. In fact, we may have to increase the intensity of a tone as much as *eightfold* in order to double its loudness. This holds true for all except very faint tones, where doubling the power more than doubles loudness!

Of the prosodic features of speech, the one which seems to attract the most attention is pitch. Here again we run into problems of perception. And just to demonstrate that sometimes old friends may fail you, permit

me to quote a definition from the Merriam-Webster dictionary which is not quite correct. According to that usually reliable source, pitch is "that property of a musical tone which is determined by the frequency of the sound waves which strike the ear. The larger the number of vibrations per second the higher the pitch." Close, but definitely no cigar. Frequency may well be the most important element in determining pitch, but it is by no means the only one.

For example, judging the pitch of a single-frequency sound depends to some extent on the loudness level of the sound. A large increase in loudness may drop the apparent frequency by a readily perceptible amount. Because of this apparent lowering of pitch, a vigorous trumpet player will often accuse his gentler colleagues of playing sharp, because his own notes are so loud in his ears. The orchestra's conductor has to mediate this quarrel, and must try to arrange things to satisfy the audience, which hears all the instruments at a lower level of loudness, where the effect is negligible. In a series of experiments, it was found that with increases in intensity there were pitch decreases for all frequencies up to 2000 vibrations per second, after which there were very slight pitch *increases* as intensity increased.

Some of these strange goings-on may be explained in part by the fact that the ear is not equally sensitive to all frequencies. Of two sounds of equal intensity but of different frequency, one may be subjectively louder than the other if it falls into a frequency range at which the ear is more sensitive.

Another illustration of the relationship between pitch and frequency is this: if a musical tone is composed of a series of harmonic frequencies, with which frequency is the pitch to be associated? Surprisingly enough, it may not be the one with the most energy, nor the lowest frequency. As a matter of fact, if a given musical sound were composed of frequencies at 200, 300, 400 and 500 Hz, then one would hear the pitch at 100 Hz. Or, if the component frequencies were at 400, 600, 800 and 1000 Hz, one would judge the pitch to be that of a 200 Hz tone. If you wish to continue the game, add to the last batch tones at 500, 700 and 900 Hz and the perceived pitch will drop an octave to 100 Hz. In other words, when a tone consists of several frequencies differing by a constant amount, the perceived pitch may be that of a tone whose frequency is equal to the common difference, as shown below. So in these cases one hears pitches with frequencies that aren't there!

Frequency (in Hz)	Complex Tones		
	A	B	C
1000		XXX	XXX
900			XXX
800		XXX	XXX
700			XXX
600		XXX	XXX
500	XXX		XXX
400	XXX	XXX	XXX
300	XXX		
200		!!!	
100	!!!		!!!

Actual frequency: XXX
Apparent frequency: !!!

In tonal languages like Chinese, pitch is a vital element in the lexical sense. That is to say, individual words contain a pitch pattern which distinguishes them from other words. Speakers of non-tonal languages find it difficult to hear these tones, but not because they have no experience in handling pitch. The English intonation system is fully as complicated as any tonal system used in Southeast Asia or Africa. Furthermore, English speakers easily learn to sing songs employing a dozen or more intervals, whereas a tone language of just a few contrastive levels may seem extraordinarily difficult to them. Perhaps the explanation for this lies in the fact that speech intonation, such as is employed in a non-tonal language, like songs, merely add *extra* shades of meaning to lexical meanings. Tonal languages, in contrast to this, employ pitch as an intrinsic part of each word.

The use of pitch differences to convey linguistic information appears to be universal, and many languages share the same or similar practices. In nearly all languages a falling pitch signifies the completion of a grammatical unit such as a normal sentence. On the other hand, an incomplete utterance, one deliberately left hanging in mid-air and clearly signifying that there was more to the thought than had been uttered, has a rising intonation.

Granted that in speech the pitch pattern conveys information about the speaker, his emotional and physical state, his cultural and regional background, etc., my principal concern here is with pitch that distinguishes the meanings of utterances. The other day I heard a joke that I did not understand because the teller failed to use the right pitch pattern for the pun, which was the point of the story. The joke was about a clone who had become very foul-mouthed and was pushed out of a window on the 17th story of a building. The punch line was:

"He made an obscene clone fall."

As the story was told, the pitch pattern for the punch line was like the one in "He made an absurd man call," while it should have been like the one in "He made an obscene phone call."

Let's face it, the human mind simply isn't up to perceiving speech sounds exactly as they are produced. The ear itself is physiologically incapable of responding to changes which are too rapid or too minute. The subjective record of how sounds are perceived may be expected to differ considerably from an instrumental analysis of the same group of sounds. Modern theories of perception postulate an active, decision-emitting listener who busily constructs a perceptual model of his world by selectively abstracting information from the stimuli surrounding him. Any attempt on our part to process speech by machine must take into account this propensity on the part of the human mind. The words that are used in speech communication are of primary importance, of course, but often the real message is contained in how they are said. Somehow we must discover how to simulate human perception in an area which is difficult to describe with precision, and is even more resistant to understanding.

NSA-Crostic No. 25

By D.H.W.

For the benefit of readers who complain that these puzzles are too easy, this one is given in diagramless form. Readers who do not feel this way may find relief on page 12.

DEFINITIONS

A. How to express the most well-known line of the "Rubaiyat" in telegraphese

B. Sweet dish

C. "_____ even by God..." Browning's *Paracelsus* (5 wds)

D. Humphrey Bogart's only line in his Broadway debut—really! (2 wds)

E. Having virtually unlimited authority

F. Civil _____

G. Why, explained the circus owner to the departing human cannonball, a replacement was going to be difficult to locate (8 wds)

H. Openings

I. Summer outdoors machinery

J. Low-priority telegram (2 wds)

K. Archie Bunker's daughter's telegram explaining that her Sunday arrival would be delayed 24 hours because of a bus breakdown (4 wds)

L. Try

M. "_____, and we'll tell you what you are afraid of." Robert Benchley (4 wds)

N. 7:52 (3 wds)

O. Princess of Monaco's roadster

P. A people of Asia Minor (2nd millenium B.C.)

Q. Caesar considered this to be nothing

R. Powerless; ineffectual; lacking vigor

WORDS

A. 78 132 161 103 141 264 119 31 205 176 253 239 18

B. 233 203 54 227 48 122 105

C. 85 249 139 191 171 82 196 159 30 180 265 280 72 6 17 135 229 286

D. 209 271 142 101 80 5 16 194 246 279 254 53

E. 59 215 43 231 168 107 224 160 204 68

F. 128 150 133 61 64 244

G. 9 270 206 240 172 250 29 32 162 185 62 71 120 84 283 76 248 131 184 41 99 50 37 157 138 198 3 220 125 193 214 67 230

H. 287 47 144 181 149 28 165 14 212

I. 174 42 210 86 202 259 100 129 189 115

J. 25 276 195 242 60 10 8 218 36 83 140

K. 44 251 23 97 217 267 182 235 167 12 116 137 288 20 201 243 127 77 111 130 192 222 65

L. 148 45 35 39 7 118 51

M. 252 234 27 11 117 257 46 187 213 285 266 69 232 173 183 81 92

N. 166 268 236 275 13 143 24 164 75 199 134 55

O. 170 1 21 263 145 79 88 255 15 34 26 190

P. 52 113 272 274 91 90 211 74

Q. 258 226 219 153 237

R. 238 163 57 49 158 179 98 58

S. Seatless leather trousers

$$\overline{87}\ \overline{225}\ \overline{200}\ \overline{262}\ \overline{114}$$

T. One who bears witness

$$\overline{261}\ \overline{221}\ \overline{223}\ \overline{4}\ \overline{277}\ \overline{146}\ \overline{175}\ \overline{178}$$

U. Fictional land of little people

$$\overline{95}\ \overline{216}\ \overline{154}\ \overline{22}\ \overline{73}\ \overline{228}\ \overline{284}\ \overline{151}$$

V. Planet

$$\overline{282}\ \overline{208}\ \overline{247}\ \overline{256}\ \overline{241}\ \overline{108}\ \overline{186}$$

W. Elevator man

$$\overline{121}\ \overline{102}\ \overline{89}\ \overline{63}$$

X. Highest in position, place or rank

$$\overline{124}\ \overline{66}\ \overline{38}\ \overline{56}\ \overline{110}\ \overline{40}\ \overline{273}\ \overline{19}\ \overline{281}$$

Y. Latin-American dance (var.)

$$\overline{112}\ \overline{147}\ \overline{197}\ \overline{188}\ \overline{207}\ \overline{269}$$

Z. "North by _____"

$$\overline{2}\ \overline{136}\ \overline{109}\ \overline{245}\ \overline{33}\ \overline{152}\ \overline{94}\ \overline{278}\ \overline{260}$$

a. Rooflike cover over a window

$$\overline{104}\ \overline{93}\ \overline{106}\ \overline{70}\ \overline{156}\ \overline{126}$$

b. Flat, even, smooth

$$\overline{96}\ \overline{177}\ \overline{123}\ \overline{169}\ \overline{155}$$

1 O	2 Z	3 G	4 T	5 D	6 C	7 L	8 J	9 G	10 J	11 M	12 K	13 N	14 H	15 O	16 D	17 C
18 A	19 X	20 K	21 O	22 U	23 K	24 N	25 J	26 O	27 M	28 H	29 G	30 C	31 A	32 G	33 Z	34 O
35 L	36 J	37 G	38 X	39 L	40 X	41 G	42 I	43 E	44 K	45 L	46 M	47 H	48 B	49 R	50 G	51 L
52 P	53 D	54 B	55 N	56 X	57 R	58 R	59 E	60 J	61 F	62 G	63 W	64 F	65 K	66 X	67 G	68 E
69 M	70 a	71 G	72 C	73 U	74 P	75 N	76 G	77 K	78 A	79 O	80 D	81 M	82 C	83 J	84 G	85 C
86 I	87 S	88 O	89 W	90 P	91 P	92 M	93 a	94 Z	95 U	96 b	97 K	98 R	99 G	100 I	101 D	102 W
103 A	104 a	105 B	106 a	107 E	108 V	109 Z	110 X	111 K	112 Y	113 P	114 L	115 I	116 K	117 M	118 L	119 A
120 G	121 W	122 B	123 b	124 X	125 G	126 a	127 K	128 F	129 I	130 K	131 G	132 A	133 F	134 N	135 C	136 Z
137 K	138 G	139 C	140 J	141 A	142 D	143 N	144 H	145 O	146 T	147 Y	148 L	149 H	150 F	151 U	152 Z	153 Q
154 U	155 b	156 a	157 G	158 R	159 C	160 E	161 A	162 G	163 R	164 N	165 H	166 N	167 K	168 E	169 b	170 O
171 C	172 G	173 M	174 I	175 T	176 A	177 b	178 T	179 R	180 C	181 H	182 K	183 M	184 G	185 G	186 V	187 M
188 Y	189 I	190 O	191 C	192 K	193 G	194 D	195 J	196 C	197 Y	198 G	199 N	200 S	201 K	202 I	203 B	204 E
205 A	206 G	207 Y	208 V	209 D	210 I	211 P	212 H	213 M	214 G	215 E	216 U	217 K	218 J	219 Q	220 G	221 T
222 K	223 T	224 E	225 S	226 Q	227 B	228 U	229 C	230 G	231 E	232 M	233 B	234 M	235 K	236 N	237 Q	238 R
239 A	240 G	241 V	242 J	243 K	244 F	245 Z	246 D	247 V	248 G	249 C	250 G	251 K	252 M	253 A	254 D	255 O
256 V	257 M	258 Q	259 I	260 Z	261 T	262 S	263 O	264 A	265 C	266 M	267 K	268 N	269 Y	270 G	271 D	272 P
273 X	274 P	275 N	276 J	277 T	278 Z	279 D	280 C	281 X	282 V	283 G	284 U	285 M	286 C	287 H	288 K	dhw

more

Fairbanks on English

Two different garage mechanics have assured us that the starter on the car is suffering from a defect in the "cellunoid." After due inquiry we incline to the belief that the word is the offspring of "celluloid" and "solenoid." With the advent of plastics, "celluloid" must be disappearing rapidly from the popular vocabulary and it is pleasant to think that it leaves one descendant, however illegitimate. If the object in question were a solenoid made out of celluloid—but the engineers tell me this is improbable—we should have a case of a "portmanteau" word generated, as it were, spontaneously, whereas most such words are deliberate acts of creation. Lewis Carroll, who christened them, exploited the idea more fully than anyone else—except of course, James Joyce—and the preface to *The Hunting of the Snark* is recommended reading for those who plan to embark with *Ulysses.* But the whole point of Carroll's inventions, such as "frumious" for "fuming-furious," is that they are self-conscious. In only one case—"chortle," presumably from "snort" and "chuckle"—has the creature sneaked through the barrier of literature, and moved into the outside world where *Jabberwocky* is no longer a part of the scenery.

The same may be said of like inventions of humbler origin. "Aggranoying," of obvious parentage, enjoyed a somewhat dreary vogue in England shortly after the death of the Great White Queen, being used chiefly in discourses addressed to the very young. It was in a class with "thusly," which was likewise intended to be recognized as an amusing blunder. But we cannot remember that "irregardless" (by "irrespective" out of "regardless") was ever a humorous invention, although Webster *("Erron. or humorous, U.S.")* gives it the benefit of the doubt. In our editorial capacity, alas, we meet with both "thusly" and "irregardless," employed totally without humorous intent. The word "insinuendo," offered by a friend of ours, seems to us full of charm and deserving of an appreciative audience, yet the thought of having it pass into the "irregardless" group acts as a serious deterrent. Better perhaps to strangle it at birth.

What chiefly daunts the editor, however, in that endless, hopeless, rearguard action against neologism to which all his kind are dedicated, is not the hybrid word but the hybrid construction.

"Termed incorrect," for instance, and "described as incorrect" meet each other in some ninth circle of the popular mind, and "termed as incorrect" emerges. "He said he was going" and "He stated that he was going" give "He stated he was going" or even "Goodbye, he stated." "I convinced him that he should go" and "I persuaded him to go" produce "I convinced him to go." "I saw him going downstairs" and "I was told of his going upstairs" combine in "I was told of him going downstairs." "Other than" and "different from" beget "different than." "Much alike" and "very different" yield "much different." "As regards" and "in regard to" create "in regards to." "Equals" and "is equal to" give rise to "equals to." And so on, from here to Mesopotamy. The general principle, that if two words are equivalent in any respect they must be equivalent in all respects, moves on remorselessly, and the world has grown grey at its breath.

In such moods we try to take comfort in the historic approach. Dean Swift felt with perfect justice that "mob," a slang abbreviation of a stale classicism, *mobile vulgus,* was the sort of word that no one with any sense of style would permit himself to use; but the earth continued in its orbit, the equinoxes no doubt precessed, and "mob" became one of our better monosyllables. The whole English language, if it comes to that, is an undignified sloughing off of fine old Germanic terminations, made possible by the adoption of a monotonous, standard word order in place of the ancient freedoms. And even before that, if good little Indo-Europeans had listened more carefully to the (starred) forms used by their mothers there would have been no vulgar sound-shift, and we should all be talking a pure and original tongue. If good little apes...but by now we have had all the comfort we can take at one time.
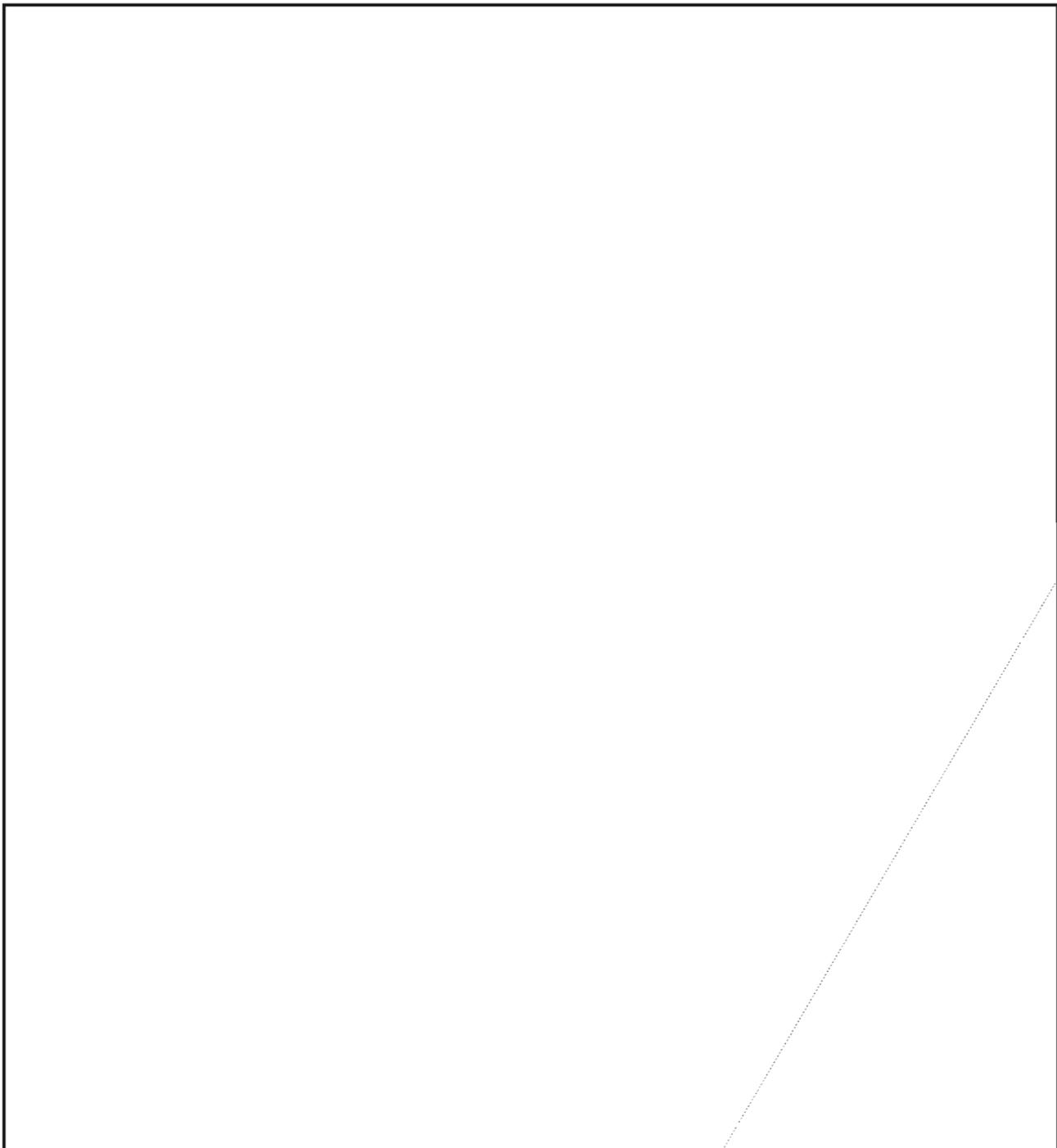
T123

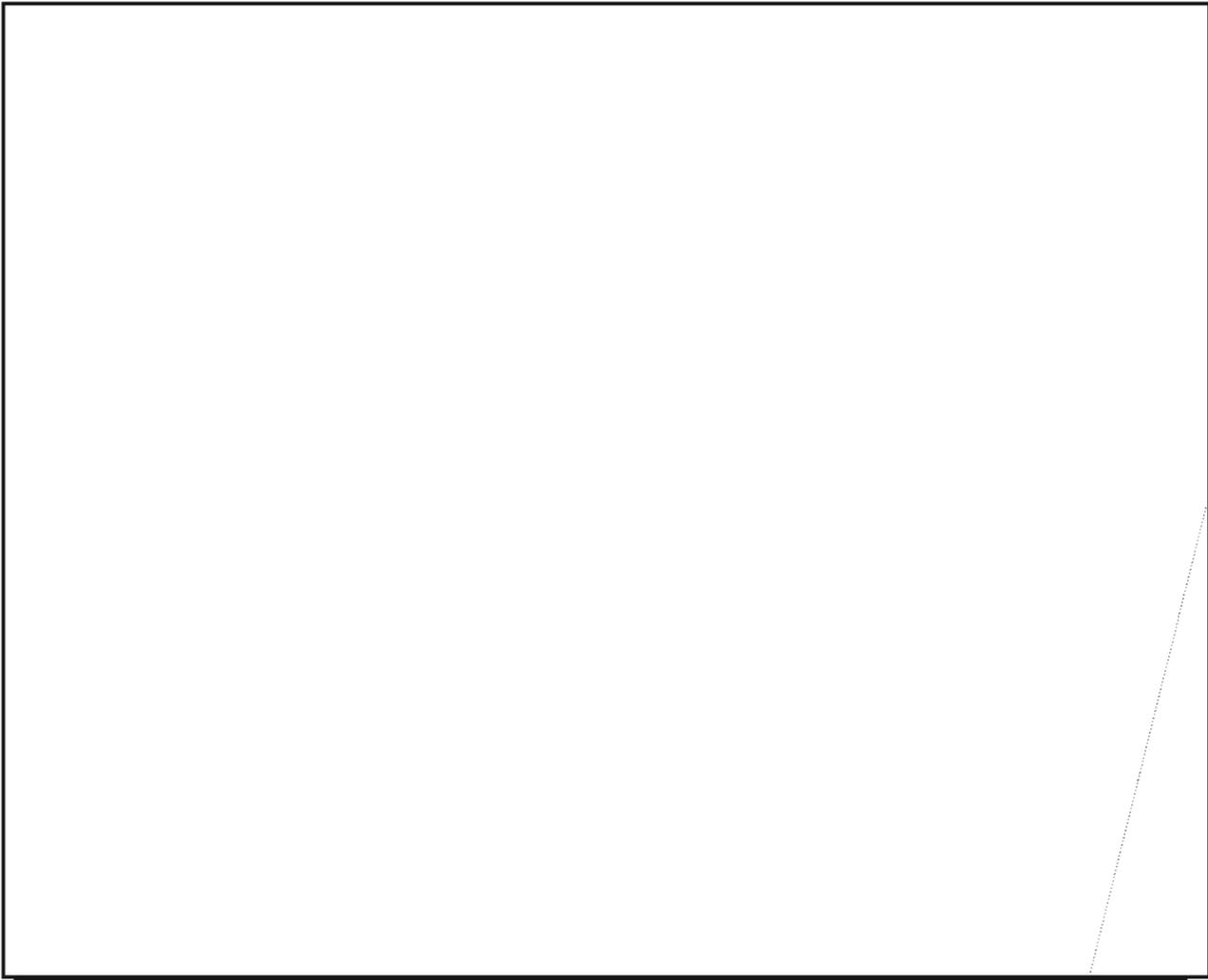P.L. 86-36

CHAPENKO, SHAPENKO --
What Difference Does It Make? (U)

ЧАПЕНКО?
ШАПЕНКО??

EO 1.4.(c)
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News of the Communications Analysis Association (U)

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LINGUITRIVIA (U)

(U) In a recent issue of *Russkaya Rech'* [Russian Speech], the author of an article on the orthographies of the various languages of the Soviet Union states that 60 of the 66 written languages of the USSR have writing systems based on the Russian alphabet. He does not identify the remaining six.

(U) Five of them come to mind immediately: Armenian, Georgian, and the languages of the three Baltic republics—Estonian, Lithuanian and Latvian. But what is that sixth one?

(U) Does any reader know the answer? If you do, please let CRYPTOLOG know.

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EO 1.4.(c)
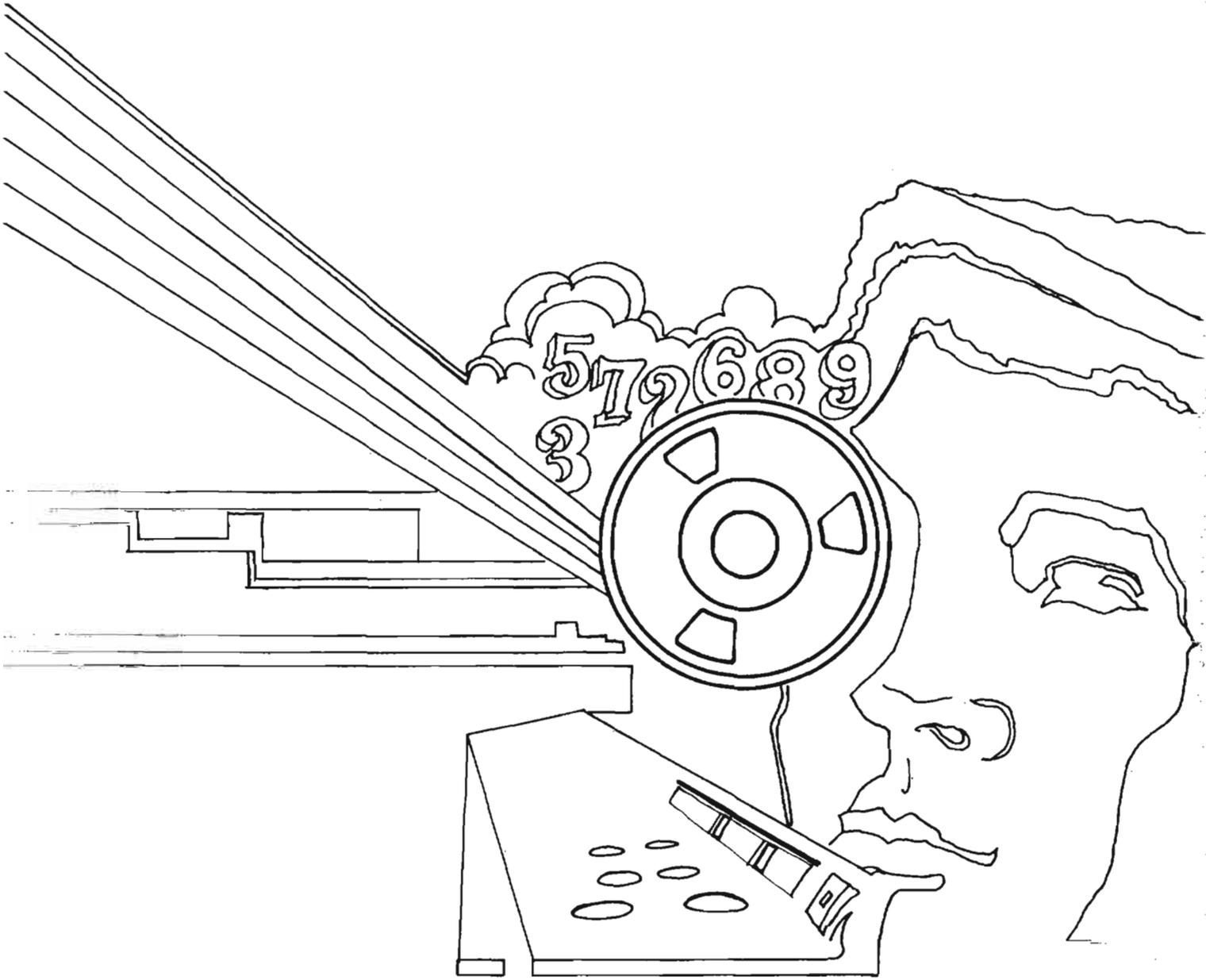P.L. 86-36

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