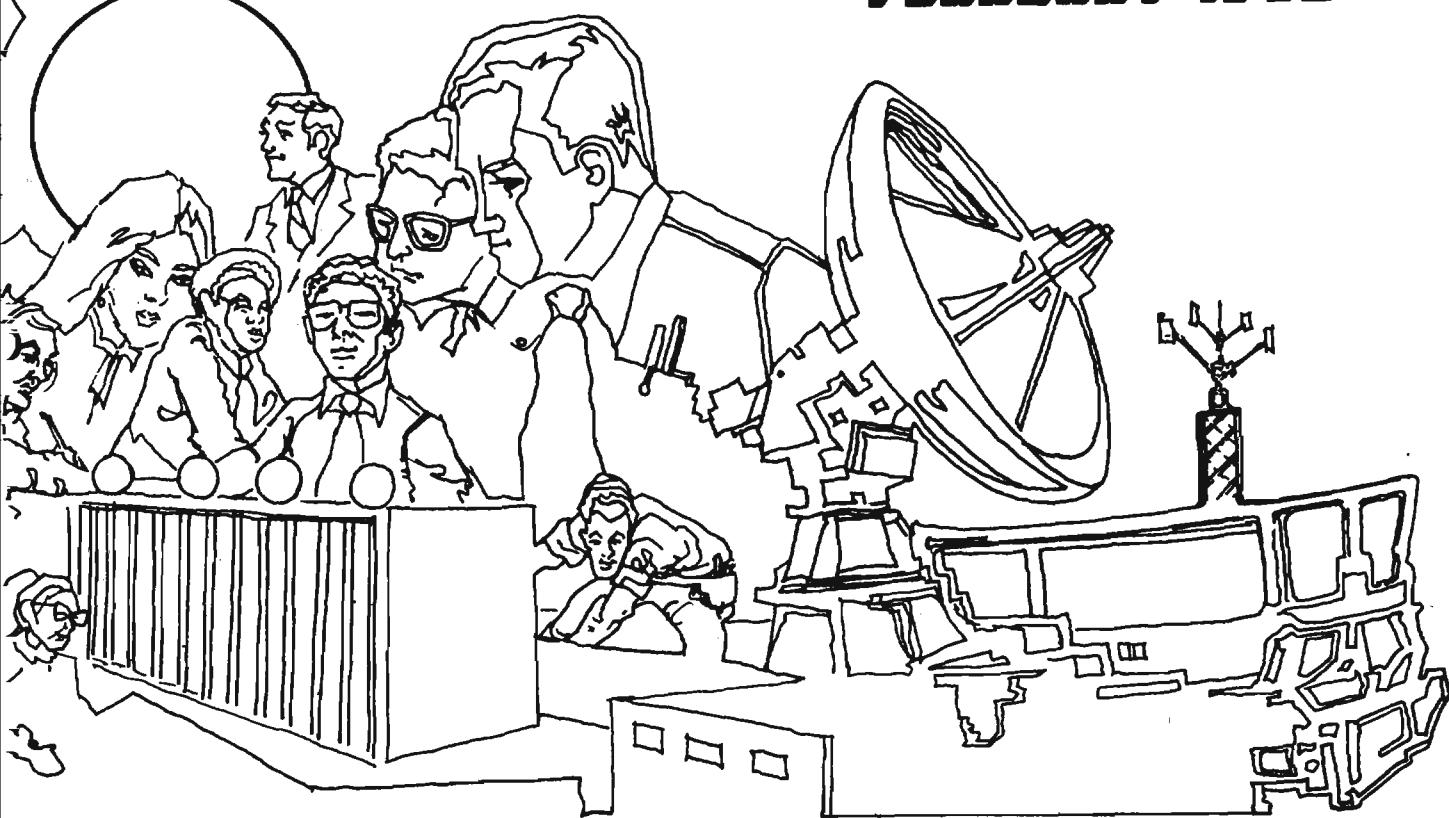


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NATIONAL SECURITY AGENCY  
FORT GEORGE G. MEADE, MARYLAND

# CRYPTOLOG

FEBRUARY 1926



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# THE [REDACTED] SYSTEM

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*The following article on the [REDACTED] System originally appeared in the August 1975 issue of NSA/CSS Field Information Letter, the Editor of which has given his kind permission for reprinting it in slightly revised form.*

## Introduction

Many articles published in CRYPTOLOG deal with collection. Some articles are oriented toward analysis, such as "COMINT Analysis of [REDACTED] (September 1974). Others, such as "UNNA: [REDACTED]" (January 1975), deal with one type of collection system. In today's world of ever-increasing technology, the field of satellite communications and the intelligence produced by that medium continue to expand.

## Background of the [REDACTED] System

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ing and message processing, equipment-control information, and tasking priority data.

Tasking software

The data base consists of three files. These files contain TEXTA-type information, processing parameters for both signal process-

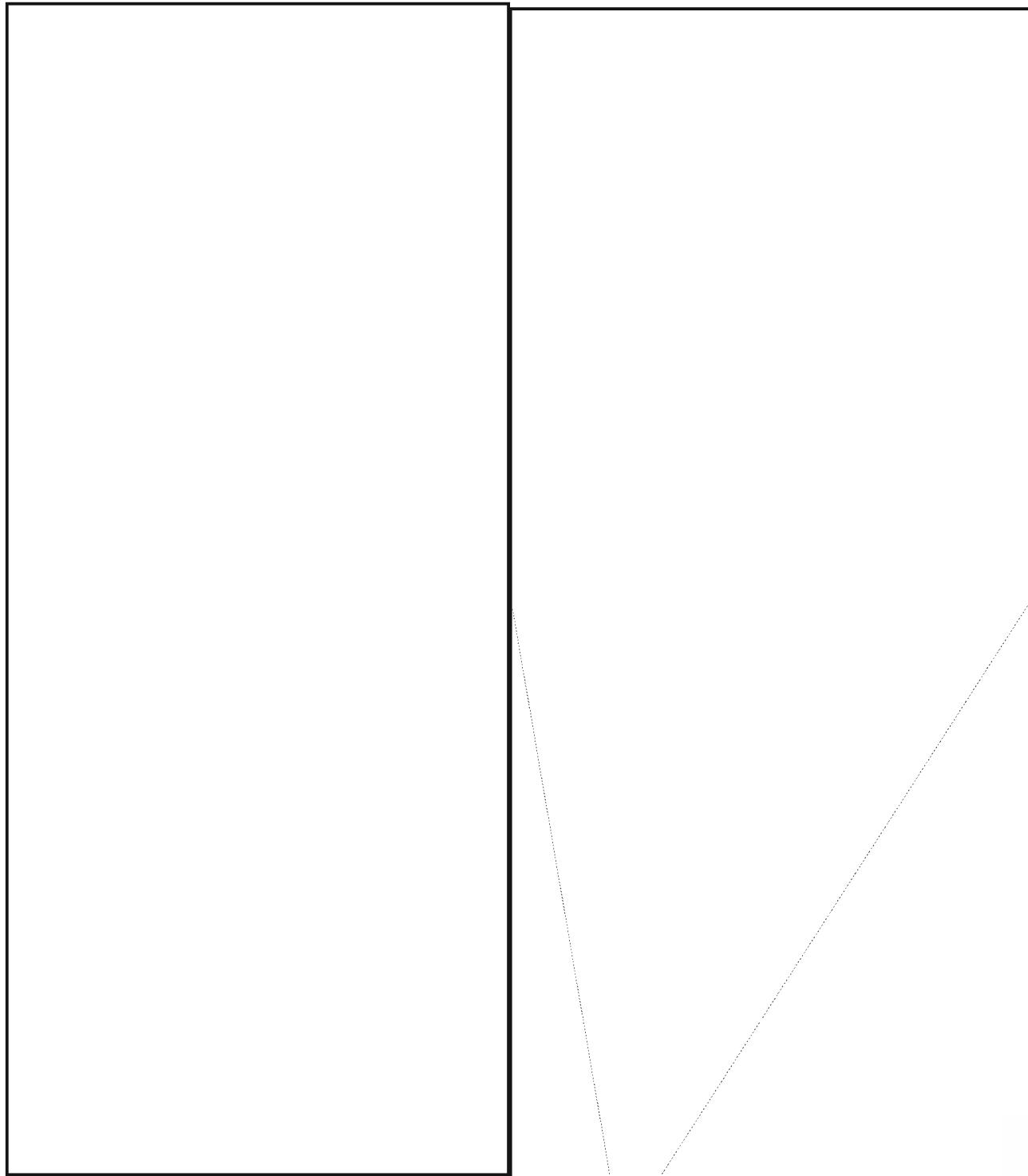
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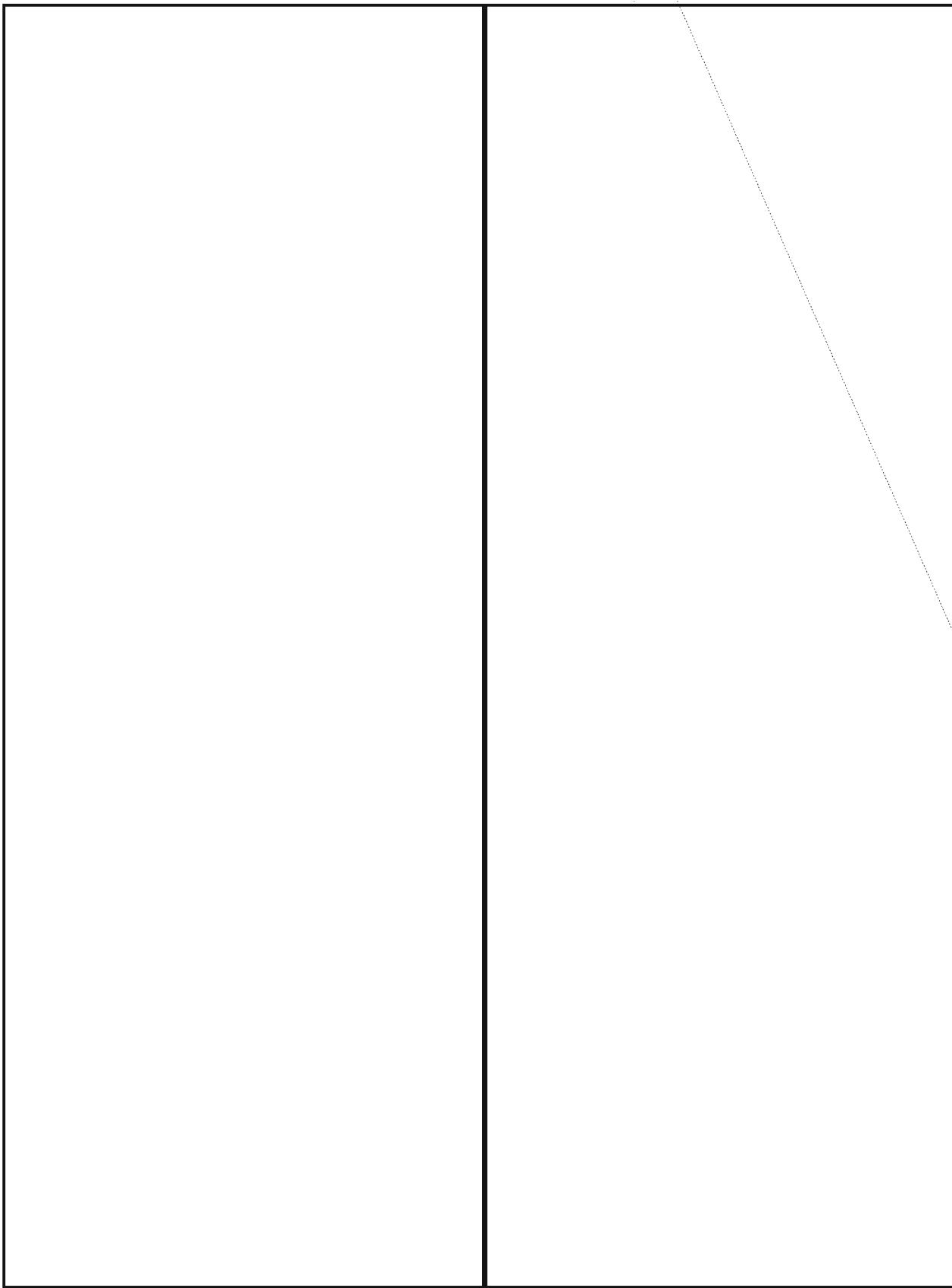
# WHAT IS CIPHER TEXT?



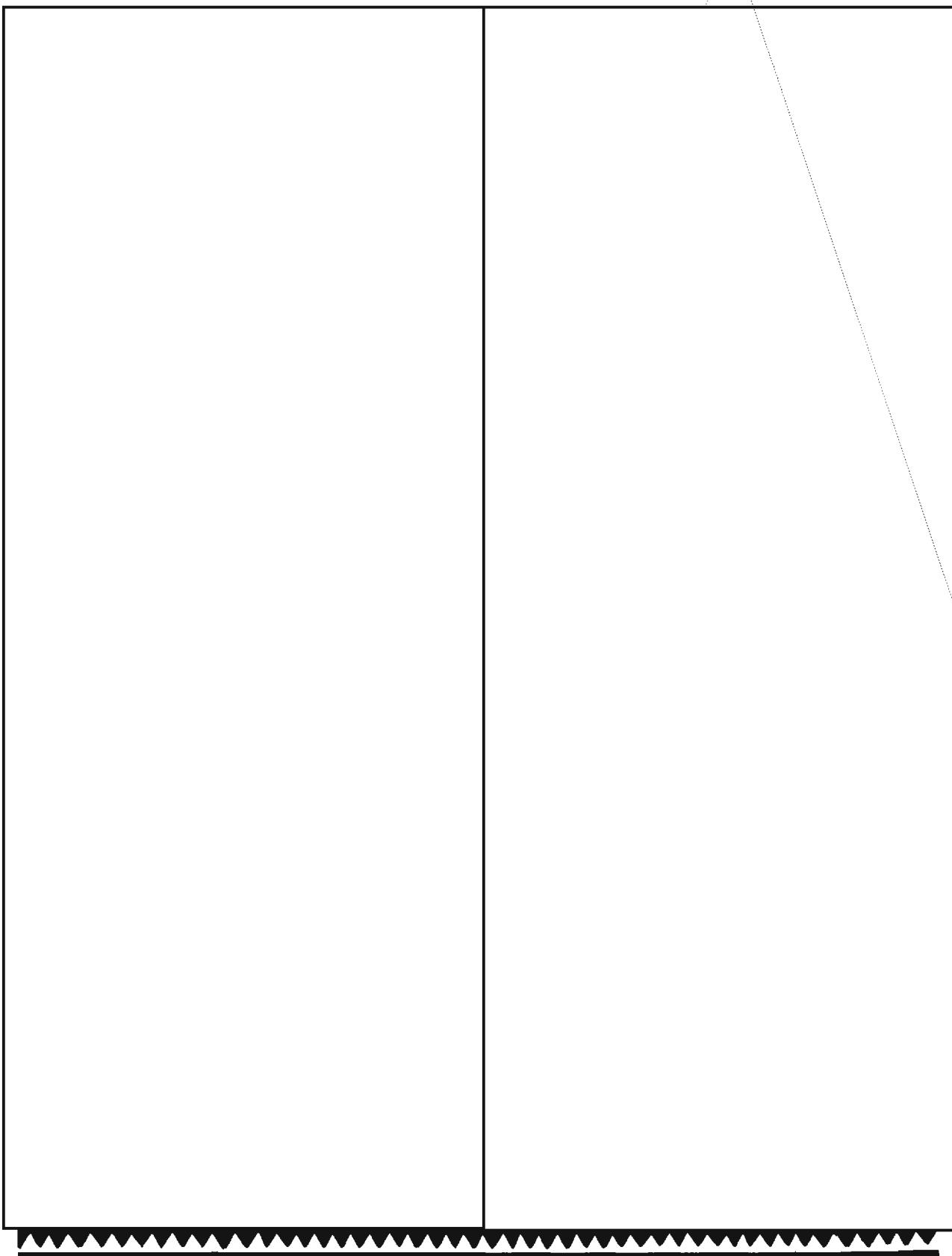
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# HOW DO WE KNOW IT'S TRUE?

## VERA R. Filby, E12

It was the last day of our first one-week course designed to acquaint DIA analysts with SIGINT and improve their understanding of it. All week long we instructors and our guest speakers, experts from all over the Agency, had been providing these mostly middle-level all-source analysts with a broad view of the whole SIGINT process from collection through processing to reporting and dissemination, thus offering them an opportunity for insight seldom afforded our own middle-level analysts. It was a question-and-answer period following the last lecture on reporting, and one student, probably in his thirties and typical of the class, stood up and said, "Yes, but if it's SIGINT, how do we know it's true?" The question was so unexpected that none of the nonplussed instructors can now remember what kind of answer was offered. The SIGINT people in the room just didn't know what to make of it. After all, to us in the business there is no such question: if it's SIGINT, then it is true, by definition. SIGINT is "the enemy speaking," to repeat the familiar phrase.

These DIA classes, which have been given almost every month since August 1974, were organized in response to a recommendation from Dr. Hall, Assistant Secretary of Defense for Intelligence, to provide training for improved exploitation of SIGINT. This recommendation was a result of the Intelligence Community Staff

[redacted] which provided evidence that the intelligence community failed to use the SIGINT information available and published in SIGINT reports. In reading the staff study, Dr. Hall concluded that production analysts "need to be cross-trained thoroughly in the use of SIGINT source material, so that they can understand its capabilities and become familiar with the methods of SIGINT analysis, and with the modes and highly specialized terminology of SIGINT reporting."

After that first class, with the "how do we know it's true" challenge from one of its members after we had been pouring out the SIGINT story all week, we continued to get echoes in later classes of the attitude implicit in the question. It must have been the end of the third class before it finally began to seep through to our awareness that some of those readers out there, those "users" of our product, have a perception of SIGINT reality quite different from our own. We began to realize that for at least some of them the world is bathed in an ether infused with false signals emitted just to deceive and mislead, and they seem to have a vision of a cryptologic community immersed in that miasma and vulnerable to its poisons. Once we began to appreciate this perception, we regarded it with

a mixture of surprise, amusement, annoyance, and impatience.

[redacted] But we felt uneasily that we were not reaching all of the students, not convincing them, not instilling in them the quality of understanding that the course was intended to provide.

On 21 October in the Friedman Auditorium, [redacted] spoke on "SIGINT in Vietnam: Lessons Unlearned" for the CAA. His message brought it home to us that this attitude on the part of some of our users is more than an occasional aberration to be allowed for, ignorance to be alleviated, or, among some in high places, arrogance to be swallowed and endured. It can be lethal. And Tom gave specifics. Among them, the SIGINT evidence of Tet was not believed; it was dismissed as "deception." The SIGINT evidence of the final collapse of Saigon was not believed; it was "deception."

Then maybe it is time for us in the crypto-logic community to do something about it. As a start, let us who manage and present the course "SIGINT Exploitation for User Analysts" use the pages of CRYPTOLOG to propose some kind of symposium or conference to bring together all we know about radio deception since the end of World War II. It would not concern so much electronic deception, the techniques of electronic warfare, since that is quite well studied and documented, but would survey all we know about radio deception. Of those who should be invited to participate, we can think immediately of [redacted] who knows the Vietnam story; of

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[redacted] ; [redacted] who has studied the subject intensively and as a member of NFOIO has provided the lecture for the DIA course. Who should sponsor such a conference? We are asking the question; we don't know the answer.

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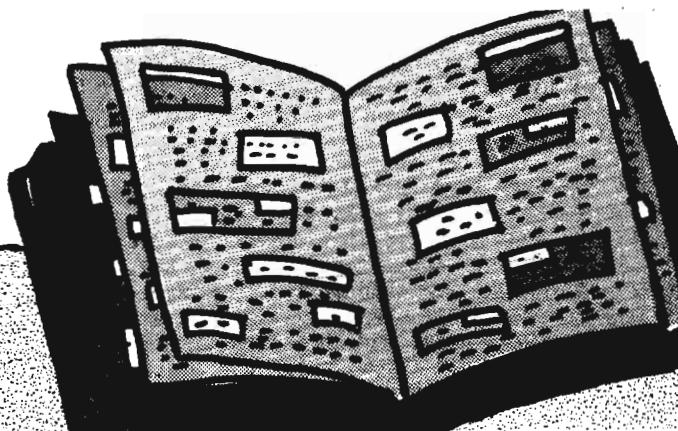
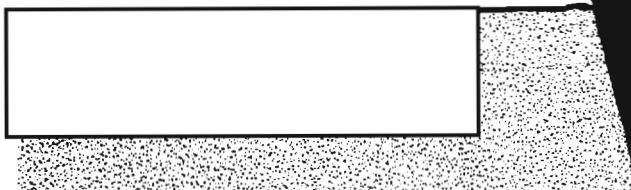
But we do know that a thorough and definitive study of radio deception would be of immense value for two complementary groups of people -- the SIGINT analysts and the users they serve. For the analysts:

[redacted] And for the users, the basis for the confidence we have been assuming all these years they had; the answer to their question, "How do we know it's true?"

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## EXPLETIVES DELETED: GLOSSING OVER A GLOSSARY



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*Editor's note:* The truly professional linguist needs every conceivable specialized dictionary he can get, including dictionaries of "nonstandard" language such as occupational jargon, slang, and even obscenity<sup>1</sup>. The nonlinguist can easily understand the need for a glossary of the words used, say, by a Russian steel worker, but all he has to find is a single English obscenity in a slang glossary (not to mention an entire book devoted to obscenity) and he is convinced that the linguist is a professional, all right -- a professional Dirty Old Man. In the article that follows, a valuable aid containing several "nasty words" is reviewed by [redacted]

[redacted] in a manner that does not alter the linguist's DOM image: there's nothing in it to offend anybody's Aunt Hattie. So read and enjoy!

The article is a slightly revised version of a talk that [redacted] presented to the CLA's Special Interest Group on Lexicography (SIGLEX). CRYPTOLOG readers who are interested in the problems of compiling foreign-language glossaries, dictionaries, etc. are invited to attend the Group's regularly-held meetings. For further information, call [redacted] SIGLEX Chairman, 5642s.

\* \* \* \* \*

*Soviet Prison Camp Speech: A Survivor's Glossary.* Meyer Galler and Harlan E. Marquess. University of Wisconsin Press, 1972. 216 pp.

### Introduction

I'll adhere to the title of this article and refrain from citing any of the obscenities, vulgarities, and curses contained in the book being reviewed. Like the lady who had to jump up onto the bureau and lean out of the window

<sup>1</sup> See: A. J. Salemme, "Beyond Webster and All That: Dictionaries of Unconventional Language," *Studies in Intelligence* [CIA], Vol. 13, No. 2, 1969.

before she could see something to phone the police about, the reader will have to refer to the book himself before seeing anything that offends him. I shall limit myself to the following topics:

- Galler's background and his reasons for writing the book,
- the origin of Soviet prison camp speech,
- the characteristics of Soviet prison camp speech (with examples), and
- the attitudes and prominent features of the daily life of Soviet prisoners, as indicated in their speech.

### Galler's background

In 1964 Meyer Galler got the idea of compiling a glossary of Soviet labor camp and prison camp jargon which would be based on his own experiences in Stalin's camps and prisons. The idea came to him while he was reading the reminiscences of other former prisoners, when he realized that such a glossary would be of value to historians, social scientists, students of the Russian language, and the general reader, particularly in the West. Although there had been several occurrences of that jargon in various publications, including Solzhenitsyn's *One Day in the Life of Ivan Denisovich*, no extensive glossary had been published before Galler's book appeared.

Galler was born in Bialystok, Poland, at a time when Poland was part of the tsarist empire. His native language was Russian, which he spoke at home, as well as in elementary school until Russian was supplanted by Polish following the establishment of the independent Polish state after World War I. During World War II, from August 1941 until May 1942, he worked in the Kazakh SSR. One day he was asked to report to the Special Section [NKVD] of the organization where he was working. There he was invited by two NKVD agents to visit the Alma-Ata NKVD office "to clarify certain matters." He was arrested and placed in solitary confinement in Alma-Ata for the 6 months of his investigation. At the end of the investigation, and after exhaustive interrogations, he signed a statement of all charges against him and was

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then transferred to a common cell to await trial. In 1943 he was sentenced without trial to 10 years of corrective labor camps on the basis of his alleged "counterrevolutionary activities" (that is, on the basis of his racial and geographic background).

He was soon transferred to a camp near Tashkent, capital of Uzbek SSR, where he dug construction foundations. Then he was transferred to the Aktyubinsk labor camp in Kazakh SSR, where he variously worked in the housing area for "free" employees, in a brickmaking camp, in an agricultural area, and in a penalty lime camp, as well as in the main compound. Later he was reassigned to the old Karaganda camps, or KARLAG, which Solzhenitsyn called "a kingdom larger than France" and which Galler reached by circuitous railroad routes. He was released exactly on the tenth anniversary of his arrest. In 1958 he was permitted to leave the Soviet Union.

#### Origins of Soviet Prison Camp Speech

Soviet prison and labor camp speech is a sub-standard variety of Russian, but it is essentially Russian and a distinctive Russian idiom at that. It contains legal and administrative jargon, borrowings from non-Russian Soviet minority languages, criminal argot, obscenities, and, frequently, elements of uneducated peasant speech. Literature containing prison camp speech typically circulates in *samizdat* ("underground press," usually typewritten) editions. *Samizdat* literature often finds its way to the West, where it is first published in translation, but Solzhenitsyn's *samizdat* novel was published in the USSR before its English translation was published as *One Day in the Life of Ivan Denisovich*.

Prison camp speech first began to appear in print soon after the Russian revolution. Early examples of it can be found in the 1920's in the accounts of prisoners who had been released or who had managed to escape and subsequently found their way to the West. The 1930's, particularly the time of the purges (1934-1937), yielded a rather large number of works by former prisoners, some of which are only now being published. Nearly all contain some prison camp speech.

Another group of reminiscences deals with World War II and the postwar period. Many of these accounts were written by Poles who were deported to camps in 1939-1940 and released in 1941-1942 to join the Polish units being formed in the USSR to fight the Nazis. Solzhenitsyn most notably represents the postwar period, not only with *Ivan Denisovich* but also his later works (*The Cancer Ward*, *The First Circle*, *GULAG Archipelago*), as well as his play *The Love-Girl and the Innocent*, all of which contain prison camp speech. Another author whose work contains this speech is Anatolij Marchenko, whose book *Moi Pokazaniya* (My Testimony), published in 1969, deals with the post-Stalin penal system.

The number of speakers in the USSR who understand and use prison camp speech is presumably quite large, since vast numbers of persons have had firsthand exposure to it and millions more have been closely associated with someone who has. At any rate, Soviet prison camp speech has been and remains remarkably homogeneous. The bulk of its vocabulary has remained quite constant despite the inevitable changes over the years. And that vocabulary seems to be understood everywhere in the Soviet Union.

#### Characteristics of Soviet Prison Camp Speech

I mentioned earlier that prison camp speech is not a special language different from Russian, nor even a special regional or social dialect of Russian, but rather a special vocabulary which can be readily incorporated into the speech of any user of Russian. A prisoner arrives in camp with his linguistic habits already formed and these habits are unlikely to change significantly. A college-trained person continues to use a spoken variety of standard Russian, and an uneducated farm worker, for example, continues to use his village dialect. Both persons, however, can easily incorporate into their speech the special vocabulary used in labor camps and prisons.

Since the language we are discussing is overwhelmingly standard Russian, from the standpoint of phonology, morphology, and syntax, it is the lexicon that we must examine in order to find the characteristics of prison camp speech. The authors of the book being reviewed divide their glossary (or lexicon) into five main groups:

- proverbs and sayings,
- abbreviations,
- argot used by the "criminal element" (that is, the nonpolitical prisoners),
- obscenities, and
- various items that do not fit within the first four categories.

#### Proverbs and Sayings

Prison camp speech, like Russian speech in general, is rich in proverbs, maxims, and similar sayings. Since these sayings frequently refer to such basic concerns as hunger, beatings, and dealings with the established higher authorities, and since it is precisely these concerns that preoccupy the prisoners, they are very popular in labor camps and prisons. Proverbs also provide a picture of the morality and the personal code followed by the prisoners. Although the morality developed under extremely hard conditions leaves something to be desired, we can sympathize with the prisoner who knows that:

*Ne ukradésh', ne prozhivésh'.*

If you don't steal, you won't make it.

Of course it's too bad that his "making it" contributes to his fellow prisoners' not "making it," but. . .

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Similarly:

*Kto kogo smozhet, tot togo i gloszhet.*  
He who can, will swallow you.

*Privyknes'; a ne privyknes', podokhnesh'.*  
You'll get used to it; if you don't get used to it, you've had it.

*Podokhni ty segodnya, a ya zavtra.*  
Croak today if you want to, but I'll wait till tomorrow.

Galler has recorded approximately 50 proverbs and sayings of which about a dozen are well-known old ones not restricted to use by prisoners, and about 10 more that seem clearly to be modeled on, or inspired by, older proverbs. Most of the remainder have been originated among the prisoners. The well-known old proverbs and sayings are, in most instances, extremely apt for describing the conditions the prisoners find themselves in. For example:

(In response to a guard's question during search, "What have you got in your pocket?")  
*V odnom karmane vosh' na arkane, v drugom blokha na tsepi.*

In one pocket a louse on a leash, in the other a flea on a chain.

*Ehto tol'ko tsvetochki, a yagodki vpered.*  
These are only the little flowers; the berries lie ahead. (Meaning, "The worst is yet to come.")

*Byla by sheya, a yarmo najdetsya.*

If you have a neck, they'll find a yoke for it. (Frequent ironic reply to new arrivals asking about what kind of work they'll be assigned to.)

*Vek zhivi, durakom pomr'esh'.*

Though you live to be 100, you'll die a fool. (In camps this common expression implies that even the most astute camp inmates cannot rely on their experience.)

To describe the great physical and mental resistance of female prisoners to the rigors of camp life, prisoners use the expression:

*shivuchaya, kak koshka*  
having nine lives (literally, "living like a cat")

The futility of judicial appeals to Moscow is conveyed in the expression:

*Moskva slesam ne verit.*

Moscow does not believe tears. (This is also an example of a proverb which had lost its original significance and fallen into disuse when the capital of the country was moved to St. Petersburg. In the Soviet period, with the return of the capital to Moscow, and when the reversal of a sentence became almost unheard of, the proverb was "revived" and became quite popular once more.)

The eclipse -- at least the official eclipse -- of a formerly popular proverb because of the

changed historical and social conditions following the Revolution is noted in the expression:

*Zakon, chto dyehlo: kuda povernul, tuda i vyshlo.*

The law is like a wagon tongue; it goes wherever you direct it. (The official eclipse stems from the fact that, unlike the situation in the tsarist times, laws are supposed no longer to be administered capriciously. The political prisoner knows better, however, and the proverb is thriving in labor camps and prisons with the addition of the adjective *Sovetskiy*, "Soviet," before *zakon*, "law.")

*Durak rabotu lyubit, i rabota duraka lyubit.*

A fool likes work and work likes a fool. (This camp proverb is an expanded version of *Rabota durakov lyubit*, "Work likes fools." The implication of the camp version is that work must be avoided in order to survive.)

*Ne padaj dukhom, a bryukhom.*

Don't lose your spirit, but your belly.

(A possible precedent for this camp proverb, which is used by camp veterans to advise newcomers to keep their courage up and to be prepared to tighten their belts, may stem from *Postis' dukhom, a ne bryukhom!*, "Keep the fast in spirit, and not in the belly!"

*Voda mel'nitsy lomaet.*

Water wears down mills. (This proverb is quite similar to *Voda kamen' tochit*, "Water wears away stone." The prison camp proverb refers to the harmful effect on the human organism of consuming large quantities of watery soup without any caloric value.)

Many prison camp proverbs appear to follow a standard formula for proverb making. This formula can be represented as:

*Byl by A, a B budet, or*

*Byl by A, a B najdetsya.*

If there is A, B will be found. (A and B represent nouns. Gender and number of the verbs may change, depending on which nouns occupy the A and B positions.)

One proverb of this type was already mentioned:

*Byla by sheya, a yarmo najdetsya.*

If you have a neck, they'll find a yoke for it.

Proverbs formed by the same pattern include:

*Byl by chelovek, a delo najdetsya.*

If we get the man, we can find a charge to pin on him. (This proverb may also have been inspired by *Byla by spina, najdetsya i vina*, "If we get the

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man (literally, 'the person's back'), we'll find out what he's guilty of.")

*Byla by kost'*, a *shkura narastet'*.

If the bone is left, the hide will grow back. (This expression is used by inmates to cheer each other up. It was popular during the war and postwar years, when malnutrition was common in the camps.)

Two proverbs which apparently have no counterparts in standard Russian and which are thought to be of recent prison camp origin are:

*Chem dobru propadat', luchshe pust' puzo lopnet.*

Rather than waste the good, it is better to let the belly burst. (Implication is that, under camp conditions, everything has to be utilized, even if the results might be harmful.)

*Prokuror medved'*, a *khozyain cherpak*.

The prosecutor is a bear, but the ladle is your master. (The proverb describes the contrast between the prosecutor or other duly constituted authority, on the one hand, and the necessity of adapting oneself to unwritten camp rules, on the other. Survival in camps means an unceasing struggle for the ladle, that is, enough to eat.)

#### Abbreviations

Approximately 10 percent of Galler's glossary consists of various abbreviations. These abbreviations are formed in the same manner as abbreviations in standard Russian, and fall into the following categories:

- abbreviations formed from the initial letters of the words represented,
- abbreviations formed from the initial syllables of the words represented,
- abbreviations formed from a mixture of initial letters and syllables,
- abbreviated words consisting of an abbreviated adjective prefixed to an inflectable noun, and
- other abbreviated words formed anomalously.

In most instances these abbreviations are pronounced letter by letter, with the stress falling on the last letter. Such abbreviations are usually not inflected, but they usually retain the gender of the abbreviated words (that is, an abbreviation referring to a woman will require the use of a verb with a feminine ending). Examples:

*ZhVN* (*zhena vraga naroda*), pronounced "she-ve-en"

wife of an enemy of the people

*KVCh* (*kul'turno-vospitatel'naya chast'*), pronounced "ka-ve-che"

culture and education unit. (Despite the feminine gender of *chast'*, this abbreviation is usually considered neuter, as in

*KVCh privezlo* [rather than *privезла*] *kinokartinu*, "The KVCh brought in a movie.")

If the initial-letter abbreviation happens to contain a medial vowel that makes the abbreviation pronounceable as a word, the abbreviation is usually inflected and otherwise treated as a masculine singular noun, even if the principal word in the abbreviation is not masculine singular. Examples:

*BUR* (*barak usilennogo rezhma*), pronounced "bur"

strict discipline barracks

*SLON* (*severnye lagerya osobogo naznacheniya*), pronounced "slon"

Special-Purpose Northern Camps

*VTeK* (*vneocherednaya trudovaya komissiya*), pronounced "vtek" (vowel e is inserted to make abbreviation pronounceable as a word) special commission to determine working ability

*Z/K* (*zaklyuchennyj*), pronounced "ze-ka" prisoner. (This is the official form of reference and address, both in written statements and in spoken announcements, e. g., *Grazhdane Z/K!*, "Prisoners!" The unofficial abbreviation used among the prisoners themselves is *zehk*, inflected as an ordinary masculine noun.)

#### Initial-syllable abbreviations

Abbreviations of this type are pronounceable as words and usually inflect as ordinary masculine nouns. Examples:

*nachkar* (*nachal'nik karaula*) chief of camp guards

*seksot* (*sekretnyj sotrudnik*) collaborator. (Literally, "secret co-worker")

#### Mixed (letter-and-syllable) abbreviations

Such abbreviations which end in a consonant usually inflect as a singular masculine noun. Examples:

*GULAG* (*Glavnoe upravlenie lagerej*) Chief Directorate of Camps

*SMERSH* (*Smert' shpionam!*)

Death to spies! (SMERSH was a subsection of the Special Division (1942-1946), an organ of the secret police attached to the Soviet armed forces. SMERSH was in charge of interrogating ex-POWs to determine whether or not they were German spies.)

Such abbreviations which end in a vowel may or may not inflect, depending on stress. Examples:

*vokhra* (*voenizirovannyj okhrana*) camp garrison. (E. g., *komandir vokhry*, "commander of the camp garrison.")

*vridlo* (*vremennyy ispolnyayushchij dolahnostej loshadi*) human tractive power, literally "acting

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horse" (Abbreviation *vrid* is standard officialese for "acting," as in "Acting Chief".)

*shizo* (*shtrafnoj izolyator*)

special solitary confinement (solitary confinement cell, under the jurisdiction of a special commandant, which is maintained for prisoners being interrogated for crimes committed in camp)

#### Abbreviated words with abbreviated adjective as prefix

Abbreviated words of this type retain the gender and inflection of the basic noun to which the abbreviated adjective is prefixed. Examples:

*sanchast'* (*sanitarnaya chast'*)

medical unit (In camp life, the central medical office for a camp district, serving 5 or 6 camp sections.)

*nadzorsluzhba* (*nadzornaya sluzhba*)

supervisory service (the camp's supervisory staff)

*guzhrabsila* (*guzehevaya rabochaya sila*)

tractive force (generic technical term for all kinds of available tractive power -- mechanical, draft animals, and human)

#### Other types of abbreviated words

Other types of abbreviated words formed anomalously include:

*garantijka* (*garantijnaya pajka*)

guaranteed ration (450-550 grams of bread, not dependent on work quotas, which is given to invalids and certain employees such as office workers and orderlies)

*vyshka* (*vysshaya mera nakazaniya*)

death sentence (derived from officialese "highest measure of punishment")

*vagonzak* (*vagon dlya zaklyuchennykh*)

(also called *stolypinskij vagon*, "Stolypin car")

prisoners' car (a railroad car for transporting prisoners. Alternate name is derived from name of prerevolutionary Minister of the Interior, Petr Arkad'evich Stolypin, Car is designed to accomodate 8 prisoners, but usually carries 25-28.)

*ChSIRovka* (derived from official abbreviation *ChSIR* = *chlen sem'i izmennika Rodine*)

female member of a traitor's family

#### Criminal argot

Soviet prison camp authorities and the prison inmates themselves divide the prisoners into two categories: criminals proper (the "criminal element"), and political prisoners. The vast majority of the prisoner population consists of political prisoners. These, together with the nonprofessional criminals, are regarded as outsiders by the smaller,

tightly organized professional criminal group. The hardened, professional criminals are called *urki* (singular *urka*), or *blatnye* (singular *blatnoj*). The professional criminals are covered by the criminal code and have the rights of criminals. Among themselves they have their own code and customs and, because they are trusted by the Soviet authorities more than the political prisoners, they usually have power and privileges far out of proportion to their limited numbers. Criminals are customarily given the easiest jobs in camp, are assigned to positions of authority over the political prisoners, and they make use of their advantageous position to terrorize and generally victimize the political prisoners, whom they call *frajera* ("pigeons," "dopes").

Since political prisoners were, from the beginning, confined together with the criminals, the special jargon of the criminal soon became the common property of both categories of prisoners. In its earliest form, prison camp speech consisted almost entirely of the criminals' prerevolutionary jargon. But new words and expressions, devised to reflect new conditions in the camps and in Soviet free life, were gradually added to this initial stock of words until eventually they came to outnumber the criminal component.

In prerevolutionary Russian, the criminals' own designation for their argot was *blatnaya muzyka* ("thieves' cant"); more recently it is *fenza*, presumably from an earlier *afenza* or *ofenza* ("peddler") and *afenskaya* or *ofenskaya rech'* ("peddlers' speech"). The expression *botat' po-fene* ("to speak in criminal argot") is also used. Galler's glossary contains more than 100 items that can be positively identified as being of criminal argot origin.

#### Obscenities

Obscenities, vulgarities, and curses constitute a prominent feature of prison camp speech, but they are probably used no more widely there than among soldiers, students, and workers -- male and female -- and in other groups. But the grim life of prisoners encourages the use of obscenities and abusive speech and is the only form of rebellion to camp conditions which is open to the prisoners. Foul, abusive speech is used equally by camp authorities and sometimes deliberately so by interrogators as one device for breaking the spirit of the prisoner and forcing him to confess to his "crimes." The constant use of abusive speech by overseers and guards seems to be part of a deliberate design to vilify and dehumanize the victims.

This is the part of the glossary I think it is appropriate to gloss over before a mixed readership, but the glossary contains a wide assortment of expletives fully defined and explained with samples of their use. According to the authors of the glossary, none of the obscenities contained in it originated in Soviet camps and prisons, and none of them deal exclusively with

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aspects of camp and prison life: most of them can only be regarded as standard Russian obscenities.

Residue

The largest portion of the glossary is made up of forms which are neither proverbs and sayings, nor abbreviations, nor criminal argot, nor obscenities. Most of the items in this residual category consist of entirely new formations for persons, events, institutions, or procedures relating to Soviet camp and prison life. As one might expect, these words are derived primarily from new combinations of Slavic roots and affixes, as well as from changing the meanings of old words. One example of such word formation is the prisoner's word *dokhodyaga* ("a goner"), which is derived from the standard Russian word *dokhodit'* ("to reach, to go as far as, to be exhausted") and the suffix *-yaga* which designates a person.

Grim humor

It becomes clear to the reader of Galler's glossary that no matter how grim and hopeless the prisoner's condition, his sense of humor does not normally fail him. Communist slogans are often a target of the prisoners' wit, although tampering with slogans is dangerous and even in camp a prisoner could be given an additional sentence for that and other infractions.

The following examples are based on the phonetic similarity between the slogan and the parody:

*Sotsialisticheskaya bditel'nost'*  
Socialist vigilance  
*Sotsialisticheskaya bzditel'nost'*  
Socialist flatulence<sup>2</sup>

*Bytie' opredelyaet soznanie.*  
Being determines consciousness.  
*Bitie' opredelyaet soznanie.*  
Beating determines consciousness.

A kind of ironic encouragement to newcomers to camp may be found in the fact that the soon-to-be-lost belly is referred to as *sotsnakoplenie* ("socialist accumulation"). And, finally, the prisoners' attitude and perhaps their whole philosophy might be summed up in the following refrain:

*Pod"em budet, ne budi. Razvod budet, ne budi. Obed budet, dva raza budi.*  
When reveille comes, don't wake me. When time to work comes, don't wake me. When it's dinner time, wake me twice!

<sup>2</sup>Aunt Hattie, don't look this up!

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**THE [REDACTED] SYSTEM**

(Continued from page 2)

Summary~~(SECRET HVCCO)~~Solution to NSA-crostic No. 2

(CRYPTOLOG, January 1976)

M(ary) R(oberta) Irwin, "(The) Importance of Reading English":

"Every bit of extra knowledge we can acquire may, on some unforeseen occasion, when time is of the essence, save a call to the Central Information Center, a search through reference books, or the use of a stilted phrase because the exactly right word refuses to come to mind."

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**沒有問題！**

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CLASSIFICATION CORRECTION NOTICE:

In the December 1975 issue of CRYPTOLOG, please change the classification of the article "Graphic Analysis of Linear Recursive Sequences," pp. 6-8, from UNCLASSIFIED to:

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## THE PREBENDARY & THE PROPHET, or: How to Score Probabilistic Predictions

REED DAWSON, P12

In that old classic of combinatorics "Choice and Chance," the Prebendary (W. A. Whitworth) cautions the reader against gambling, even on fair bets. If a man has a thousand pounds in total fortune, he does not flip a coin for £1000 because the unpleasantness of ruin could scarcely be balanced by the pleasure of a second £1000. Nor would he be wise to hazard any lesser amount continually, for he would, with probability one, go broke eventually. Verily, saith the Prebendary, "the winning of an even wager increases a man's property in less ratio than that in which the losing of the wager decreases it."

The Prebendary evaluates a fortune by its logarithm. Losing half one's fortune balances against doubling the fortune, so he would not risk more than half his fortune on a flip to double it. More generally, he regards a wager as prudent only if the expected increase in the logarithm of his fortune is at least zero. If he doubles his fortune, its logarithm increases by  $\log 2$ ; if he halves his fortune, its logarithm decreases by  $\log 2$ . Therefore he can make a double-or-halve bet provided he has at least an even chance of winning. He would not flip a coin for a pound because, whatever his fortune  $f$ , his expected log fortune after the flip would be

$$\frac{1}{2} \log (f+1) + \frac{1}{2} \log (f-1) =$$

$$\log \sqrt{(f+1)(f-1)} = \log \sqrt{f^2-1},$$

which is less than  $\log f$ .

But hark! There's the good Prebendary himself, sloshing his way across Foggy Bottom and reflecting on the folly of the denizens, who are inveterate speculators upon the next day's weather. "Fact is," the Prebendary is saying to himself, "it rains an average of every other day here, but none of these chaps has any inkling which. The Verger is no mean prophet with his barometer and charts, but no gambler either. Why don't I use his predictions? Just how good are they?"

"Hmm. If the Verger calls for rain (or shine) with some probability  $p$  greater than one-half, how much of my fortune might I wager -- at even odds with the local yokels -- on rain (or shine)? If I wager  $x$  pounds, then, assuming  $p$ , my expected log fortune on the morrow will be

$$E = p \log (f+x) + q \log (f-x), \text{ where } q = 1-p.$$

And, if my calculus fails not, I maximize  $E$  by choosing  $x = (p-q)f$ . Then if I win,  $\log f$  increases to

$\log [f+(p-q)f] = \log 2pf = \log f + \log 2p$ , whilst if I lose, my log fortune dwindles to  $\log f + \log 2q$ , where  $2q$  is less than unity. Therefore the value of the Verger's prophecy is in proportion to the logarithm of double the probability he assigned to what actually happened. I'll wager conservatively and keep tabs on the prophet by scoring him  $\log 2p$  when he's right and  $\log 2q$  when he's wrong."

The moral is that a sequence of predictions on a recurrent two-valued outcome can be scored by averaging  $\log 2x_i$ , where  $x_i$  is the probability assigned to the occurring outcome. One could, for example, score Louis Allen's probability of rain the following day against the mean daily average probability, or against a Markov model where the transition probabilities between rain and shine are estimated from past records.

If the base of the logarithms is 2 (or the scores are  $\log 2x_i/\log 2$  to any base), perfect information, as when  $p = 1$  and the predicted event happens, scores unity. If the prophet says  $p = 1$  (or 0) and comes a cropper, he scores minus infinity and should be relegated to a brokerage house or campaign committee.

The application is to all fields of prophecy and forecasting, including scoring intelligence assessors who say there's probability  $p$  that the Arabs will up the price of oil,  $q$  that the Syrians will attack, and  $z$  that World War III will start in Angola. If several prophets assign divers probabilities to the same events, it becomes possible to say which prophet is best, and whether the best is any good.

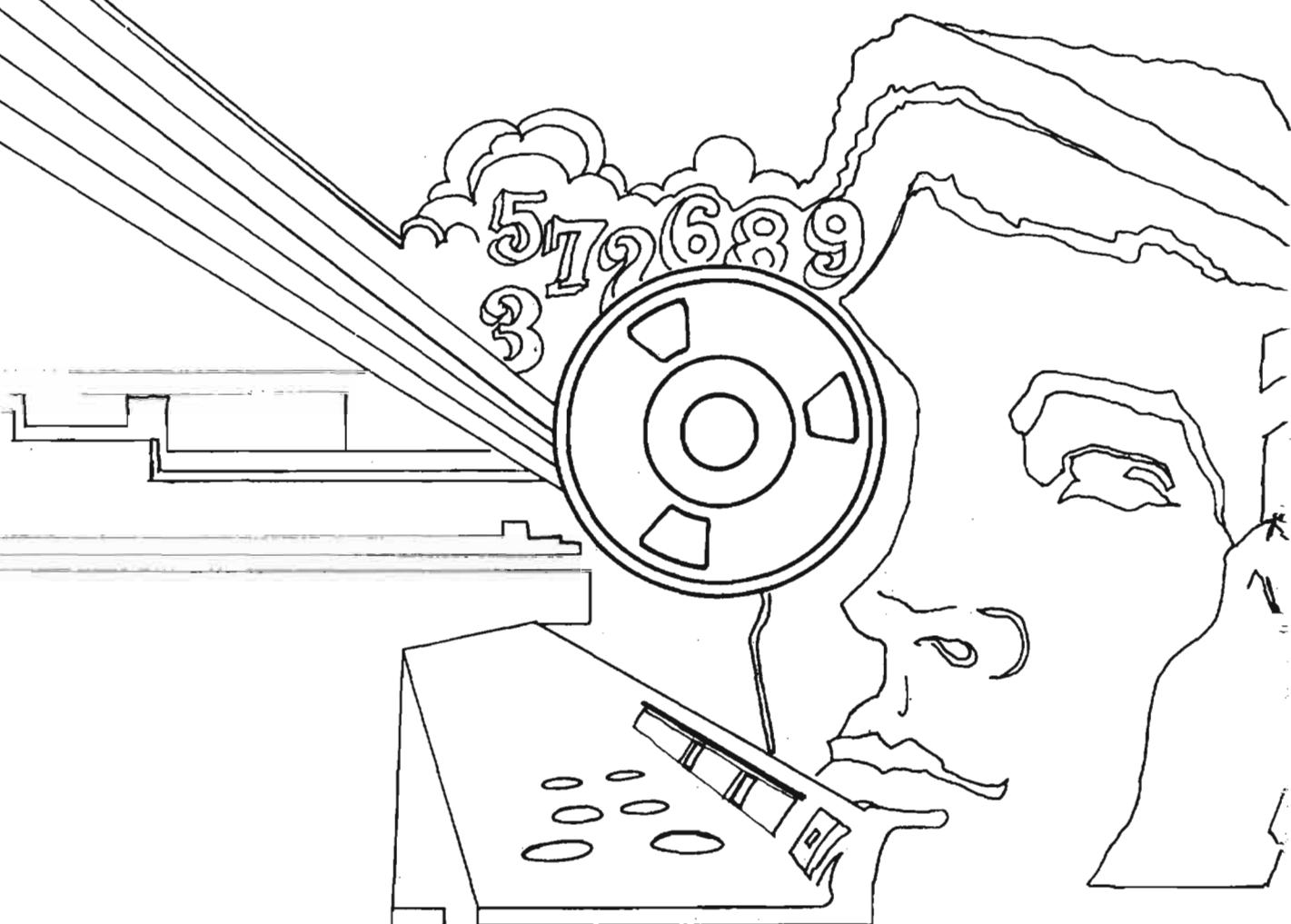
For an economic illustration, suppose the price of gold rises or sinks daily as indicated by the arrows in the chart below, and that prophets A and B assign the prior probabilities of rise given.

Day:	1	2	3	4	5	6	7	8
Prophet A:	.5	.7	.8	.3	.1	.6	.4	1
Prophet B:	.3	.7	.9	0	.4	.4	.2	.9
Price:	↓	↑	↑	↓	↓	↑	↓	↑
A's score:	0	.49	.68	.49	.85	.26	.26	1
B's score:	.49	.49	.85	1	.26	-.32	.68	.85

The average scores are .50 for A and .54 for B. Both are supplying what might be called half-information, but B is the better by an average of 0.04 over this meager sample.

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