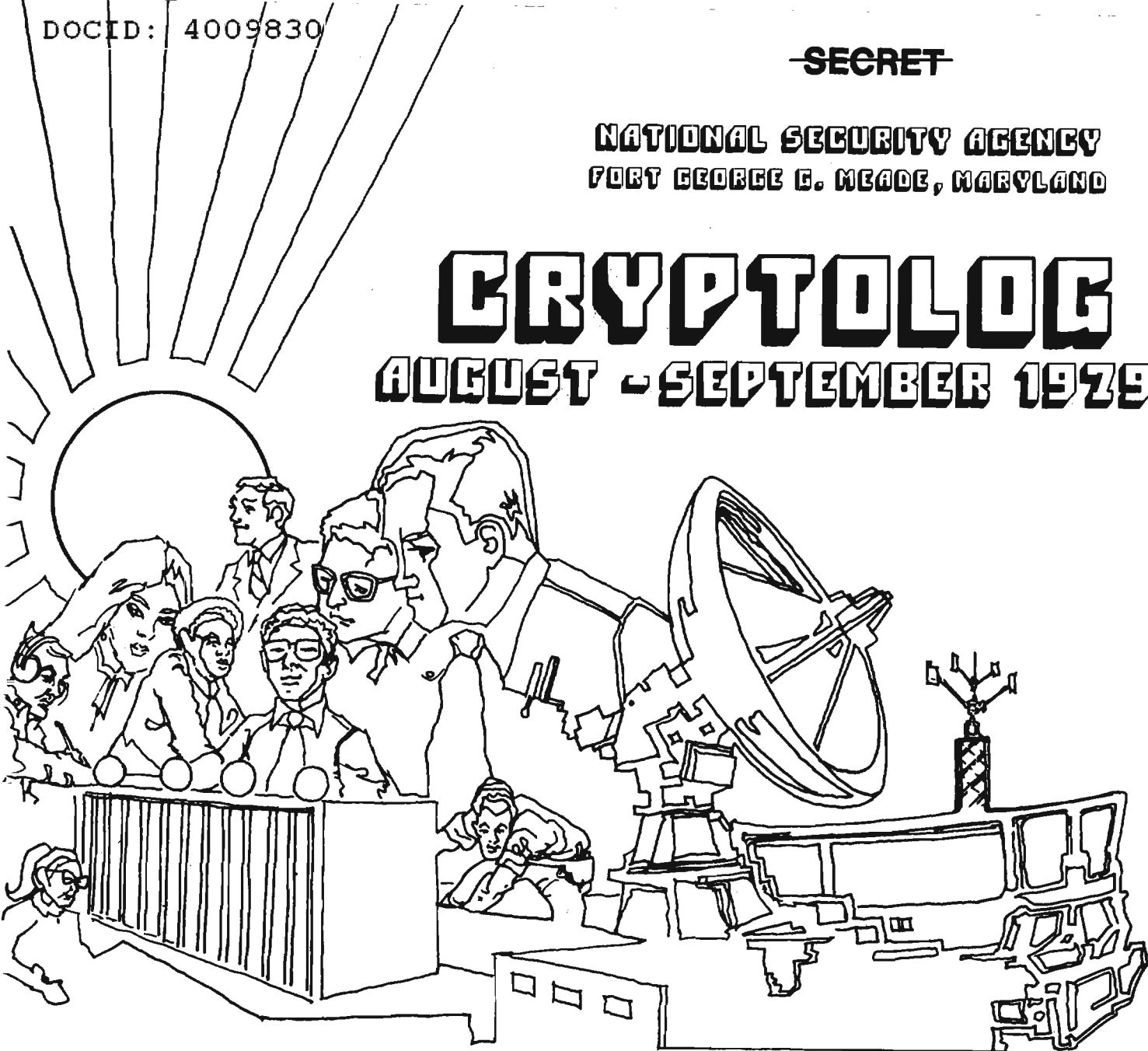


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NATIONAL SECURITY AGENCY
FORT GEORGE G. MEADE, MARYLAND

CRYPTOLOG

AUGUST - SEPTEMBER 1979



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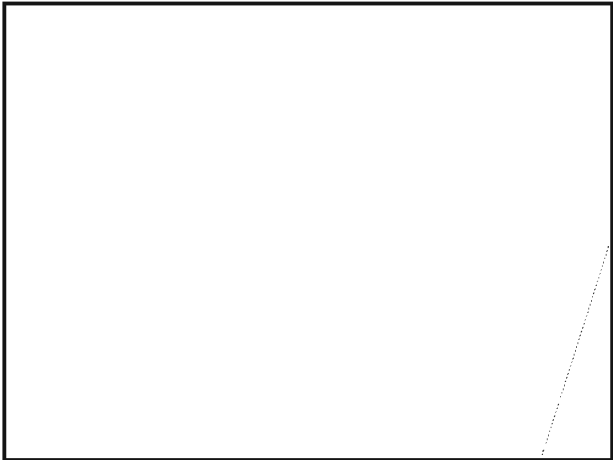
On Coming of Age at NSA: Confession of an Ex-Linguist (U)

By V2

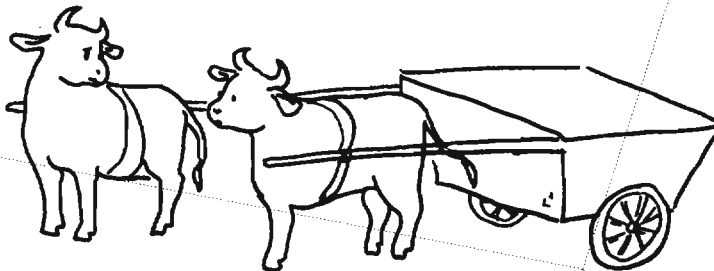
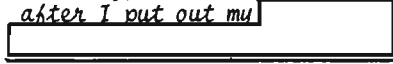
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Z^(U) Do you remember green traffic? Maybe some of you out there are still reading green traffic, but I doubt it. You see, green traffic was BC at NSA—BC, that's Before Computers. Back in BC, an analyst stood on his own two feet. There was no such excuse as "the dumb computer goofed up" or "garbage in, garbage out." You either cut it or you didn't.

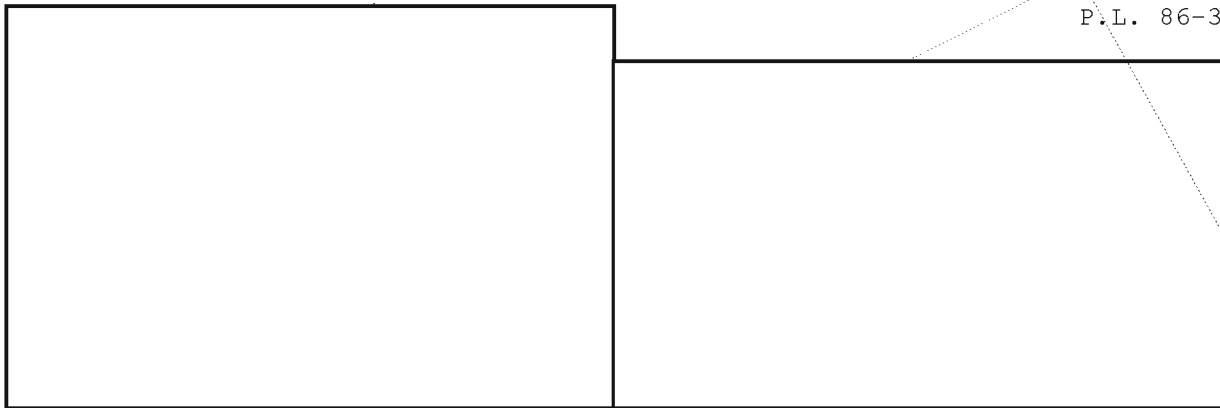
(U) I dont recall the exact day we went AD (AuDomashun), it's really not important. You computer historians have your version, I have mine. Anyway, I recently spent some time testifying in court, and I know you can say just about anything if you precede it with "to the best of my recollection..." So...



*...I was given a new job.
Actually, it was shortly
after I put out my*



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and paper tapes to be rewound (often they arrived from the field inside out). I especially loved paper tapes because it was a team sport. One guy would stand at the end of the hall waving off pedestrians; the other would grasp the lead end of the tape and throw the roll down the corridor. Getting paper tapes frontside out was very important, because if they weren't done right, your next day's computer traffic would read

(U) C Group sent a very nice fellow over and we had a fascinating chat about how fast computers could do things compared to people. It was easy to talk to programmers in those days because they had no mystical vocabulary of their own the way they do now. Agreement was reached that the messages would be keypunched, after which we would make a number of different sorts to see if any patterns fell out. We decided to make a sort on this group and on that group, and finally, to run a sort in reverse order. He didn't even need a Memo.

(U) One day my friend from C Group came by and announced that our programs were to be moved to a new computer system. (This was C) to be the first transistorized computer at NSA and would be a great improvement over the old vacuum tube ones which required several hours to come to a stable operating temperature when turned on Monday morning. Yup, that's right—the computers didn't work weekends. An instructor from the computer company was coming out to NSA to teach a two-week course in programming the machine. I begged my Chief to be allowed to enroll in the course. "Begged" sounds like a strong word, but back in those days college girls had a reputation for getting married and then you-know-what, which meant all that had been invested in them went down the drain. I promised him that even though I was married, I would never get you-know-what and quit, in exchange for which he sent me to school for two weeks.

(U) I had a bit of a problem in the course, not because I didn't understand the work, but because of a mild case of morning sickness—sorry about that, Chief. By the end of the two weeks I was really grooving on the language and could read a card, loop through a process, and print a line with the best of them.

(U) Over the next couple of weeks, I pored over the sorts. There was a lot there, but somehow I couldn't put it all together. Something was missing. The rerun sort had unfortunately not yielded anything, but, wait a minute, there was something after all. The backwards sort—I had been too ashamed to throw it away. I pulled it out and voila! I had it: the identity of the groups, the allocation scheme, and instant fame. Drunk with success, I asked to join the staff and devote my life to the computer. I was hooked.

(U) I returned from class ready to test out my new programming skill, and found to my dismay that it had largely been for naught. At NSA we didn't read a card, loop through a process, and print a line. We took the cards to a shop called "Peripheral," had the cards loaded to magnetic tape, carried the tapes to the computer, read tape, looped through the process, wrote back out to magnetic tape, and carried the tape back to "Peripheral" for printing. None of us had the faintest notion of how to write a program using magnetic tape as input and output! Moreover, assembly language (that we had learned) was not used, but rather an assembler compiler. You might think that this was

(U) Life as a junior ADP sponsor was terribly exciting. There were cards to be punched

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some kind of communications gap, but it wasn't. It was long-term strategy, because we got the outsiders to think we were doing one thing, when we were really doing something else. That's why the Commies fell so far behind in mag tape technology. To this day they are still reading a card and printing a line.

(u) In those days, writing and running programs was an absolute ball. The central part of the basement was one gigantic open room, with the sea of computers rocking and rolling as far as the eye could see. The C Group programmers were not hidden away in little groups all over the building the way they are now, but logically deployed in rooms adjacent to the "big room." If something ran amok, the computer operator would simply open the door to the programmers' room and fall in (the big room had a raised floor, the programmers' rooms didn't). This would catch the programmers' attention, and together the operator and the programmer would stroll to the machine to resolve the problem. "Resolving the problem" meant manually stepping the computer through the program instructions, one by one, until the error popped (can you believe it!), and then keying in the patch via the computer toggle switches.

(u) If you were the "dirty fingers" type like I was, you could even run the computer yourself, mounting the magnetic tapes and hitting the start key. The console lights would flash and the tape drives leap into motion. It was almost as much fun watching a mag tape fly off the drive as throwing paper tapes down the corridor. And was there ever any greater thrill than forgetting to put the carriage control tape on the high-speed line printer and watching a fountain of #12-4 hit the ceiling after the first page eject command.

(u) Automation was moving into high gear now, but the analysts themselves didn't really get hands-on into the action until the advent of ROB ROY. For those of you who have spend the past ten years wondering what the mnemonic RYE stands for, it can now be revealed that it isn't and it doesn't. RYE is what evolved after ROB ROY because the namer was not too swift in the bartending department. ROB ROY had the first remote user terminals ever; they were also probably the last terminals that plain old users could operate.

(u) I think there were five terminals in all, placed conveniently in the little key-punch rooms that had begun to spring up in the analytic areas since there was about ten times as much to be keypunched as Keypunch could handle. Anyway, the terminal looked like a metal desk; in fact, it was a metal desk. I point this out particularly since I

have recently been briefed on a mammoth-bucks R & D contract (not ours) to study man-machine relationships, one aspect of which is to design a user terminal that looks just like a desk. In one side drawer of the ROB ROY terminal was the paper tape reader (for input), in the opposite side drawer was the paper tape punch (for output). On top of the desk was mounted a big clunky console full of switches and lights, none of which had the least significance save for the GO light and the GO button. Actually, I didn't learn this by going to a class, but by observation, since my reason for being in the room was to keypunch. By now, I was probably the Agency's highest paid key-puncher.

(u) After staging your input tape into the reader, you would sit alertly with your eye on the GO light and your finger on the GO button. The terminals were serviced serially, so when it came your turn, the computer operator would switch on your GO light, and you would instantly hit your GO button to initiate the paper tape reader. If you didn't move swiftly, the computer operator would assume nobody was there and go on to the next terminal. Since each of the five terminals was free to run any length process, doping off by lighting a cigarette or something could cost you an hour's delay waiting for your next turn.

(u) One day there was a cigar smoker in there who naturally blew a couple of turns, and since I was sitting there keypunching not looking my grade, he told me to keep an eye on the console and shoot off his input when the light came on. I said sure, so he left. I was more or less bored with keypunching [redacted] so I rolled my chair over to devote my full attention to the GO light. After a bit, it flashed red. I hit the GO button, and the tape reader burst into action and then immediately burst into flames. Now, I knew C Group was resisting the open-shop concept, but I felt this was going too far. Reacting with calculated calm, I called the computer operator and told her I would be skipping my turn for now.

(u) This incident greatly enhanced my reputation for handling data processing crises, and it was inevitable that I would assume the position of senior data processing sponsor in my office—and so it came to pass. Sitting at my new desk in the staff area, I surveyed the room with pride—computer listings everywhere, spilling over the analysts' desks, spilling out of the formidable rows of cabinets which now doubled in number almost monthly, spilling into boxes destined for Fort Holabird to be preserved for all time, and not a sheet of green anywhere. What an accomplishment!

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(u) There was, however one blot in this otherwise perfect vista: the analysts' desk drawers. Even though I had supplied them with lists and sorts and lists, they stubbornly insisted on maintaining their own handwritten note files. They were backed into the trenches, but they were still fighting. The 3 x 5 cards, files on yellow telephone message pads, notes on envelope backs—this just had to go.

(u) We had recently gotten a new Chief, and he was very impressed with our advanced stage of automation, having just come over from The Other Group. About this same time, I met a really sharp fellow who was putting the finishing touches on a super program that would search through records and extract from them almost anything one could imagine. He called this process a retrieval language, and he was looking around the Agency for some data in complex format to test against. It occurred to me that all those little bits and pieces of information jotted down in the various analysts' desk files fit his needs to a T. I set about writing a description of a set of records such that each piece of information had its place. Companion to this would be an analyst log sheet; each analyst would have his very own personal booklet of log sheets to be filled in as information bits were uncovered in traffic. Old analysts would have the joy of completely filled up books. New analysts would know exactly what to look for, and could just fill in the sheets. Since all the data was done in a common format, once it was loaded into the computer, analysts could easily compare data to mutual advantage. It was perfect. Well, almost. As I am sure you know, linguists are a very independent bunch, and they said they certainly had enough to do without having to fill in reams of dokey log sheets. In the interest of security, mainly his own, the Chief tabled my proposal.

~~te~~ About this time, [redacted] made their annual royal visitation to our shop. I knew the script pretty well, having sat through previous iterations of the same meeting for years.

They: We want you to translate all the messages you get and just send them over to us. We'll do the analysis.

Chief: We can't translate all the messages, and besides, we have lots of very experienced people who are not only highly capable linguists, but superb analysts as well.

They: You know very well that you don't do analysis. We do analysis. You supply intelligence information (big emphasis on the word "information").

Chief: Most of the messages are worthless.

They: We produce intelligence (emphasis on "intelligence"), therefore, we decide what's worthless.

But then suddenly the unchanging annual dialogue took a new tack.

Chief: Well, just assume for the sake of discussion that we did translate all the messages and send them to you, what ever would you do with them?

They: Why, we would put them in our database, of course.

Long pause.

Chief: Your database?

They: Naturally, it's the latest thing.

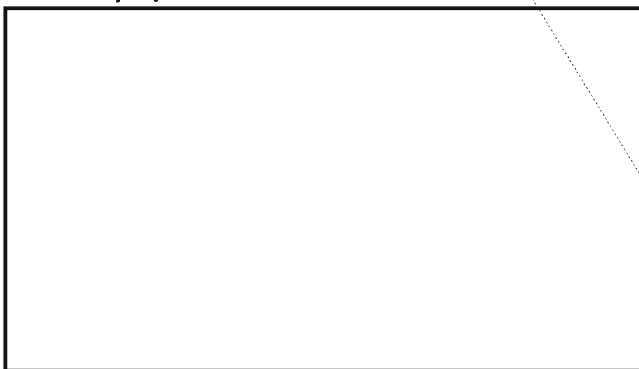
(u) The Chief gave me a long flinty glance. I had been dozing off the in back corner of the office, because my only function at the meeting was to add strength in numbers to Our Side. Suddenly, I felt fear. Smiling foxily, the Chief turned back to the conference table.

Chief: Well, you gentlemen will be pleased to know that we have had a database for some time, and my senior ADP officer will be glad to give you a rundown on it.

Now I could taste the fear, as he went on.

Perhaps she'd like a moment to go to her desk and get her briefing notes. ^{P.L. 86-36} _{FCIA 4. (c)}

Obviously my command to exit.



~~(c)~~ Well, that was many years ago. That project was born, flourished, and died a graceful death when the linguists at long last achieved the recognition in the community that they so well deserved. The age of comprehensive reports came in, and individual translations were deemphasized. I, myself, followed my own star, moving on to, as we say in performance appraisals, jobs of increasing complexity and responsibility in the data processing environment. I now have a whole roomful of computers all my own, but once in a while, on the

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way to work, I spot a license plate (like "7193"—one of the few STC groups I ever managed to memorize) which reminds me of what it was like in the old days and how it all got started.

(u) I'm actually so busy managing all my fantastic machinery, you might wonder how I ever found the time to write this tale. To be truthful, just the other day one of my systems took a "hard crash," followed shortly thereafter by the other one, then the disk drives went, and all the terminals died. Since this office is *totally* AD, I've had a little time on my hands. But don't worry. Maintenance assures me (they only work days) that everything will be back up in the time it takes to say IAHGNAHS.



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AN AUGUST BAUDY

E 54

Have patience a little longer, world! You will soon be able to know what the collectors are saying when they use their arcane language. A glossary is in the process of being written which will be the definitive word on what is meant by that term you have often heard, but have never really understood.

A glossary is being compiled by a committee of people in signals collection or associated with various aspects of it. At present, all but four of the participants on the Signals Collection Terminology Panel are professionalized collectors. The remainder are professionals in some other fields, such as Signals Conversion or Data Processing—fields which are closely akin to Collection and which share much of the terminology.

The SCTP is not the first such effort. It is the second in what will be a series of glossary-writing panels that are sponsored by PI and whose members are appointed by the Chiefs of the Agency's Key Components as part of an overall program for terminology standardization that is set out in USSID 412. The Traffic Analysis Terminology Panel has been in existence for several years, and the glossary which they have prepared is in the final pre-publication phases.

The SCTP is of more recent origin. We have been in existence for just over two years. At present, we have dealt with, to the satisfaction of a consensus of the panel, some 1500 terms. It is easy for us to understand the length of time it took the TA panel to produce their document because of our experiences. We have occasional moments of quiet despair when we wonder if we will ever finish the task we have taken on. In fact, we, the current members of the group, well may not. People get transferred overseas or to more demanding jobs and have to be released from panel responsibilities. New members have to be assigned to replace them. The author is a "second generation" member.

Two years ago the panel had a list of 2686 terms to consider. Of these, some 1200 were thrown out for one reason or another.

Quite often the reason for dropping a term from consideration is that it is quite adequately and precisely defined, even in the terms of signals collection, in a standard dictionary. An example of this is the word *acquire*. Webster says it means something like "to gain...by one's exertions." No matter how we looked at the word in the panel, it came out meaning what Webster says it means, so there is no need to include it in our glossary.

We have provided definitions for another three hundred terms, more or less. At present, as a result of some new terms having been introduced for our consideration, we have just under 2000 more words or phrases on which to deliberate.

There are two major factors which make the job both difficult and time-consuming. The first is the unfortunate fact of life that a word which started as a representation of some specific thing or action evolves over the years to encompass more and more variants until it becomes an imprecise and often erroneously applied term. Just as one example, the word *baud* will be cited. This inoffensive little word, used by collectors and other technical types for years and years, started out with just one meaning: a unit-per-second unit for expressing the speed of a telegraphic signal. The unit in question is the least element in a signal or a space of a length equal to that element (e.g., the Morse "dit" or an intra-character space). Just as *knots* refers to nautical miles per hour, so *baud* refers to the number of these elements per second.

The radio world, the electronics world, in order to honor Jean-Maurice-Emile Baudot, as it had honored Michael Faraday, Charles de Coulomb, James Joule (and let's certainly not overlook Samuel F. B. Morse), named this measuring unit for him.

It's quite simple, really. Instead of saying that the rate of transmission of a particular signal is equal to x number of the smallest element of the signal per second, one would merely say that the rate is x bauds, thus shortening a cumbersome phrase to one word.

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So much for the beginning. Where are we now? [redacted] one of our panel members, began to research all the currently used definitions in various documents available to the SIGINT community. He stopped when he had reached some fifteen to twenty definitions. Some approximated the original meaning of the word, but some were extremely far afield. In the interests of accurate reporting, I must confess that I argued long and vigorously that the word *baud* merely mean the shortest element of a signal, and that those other people were crazy and being difficult when they insisted on a definition which related to a time reference.

This one term accounted for the expenditure of hours of the panel's time. It may sound frivolous, but it is not. The term is in use, and will continue to be in use; therefore it must be defined. Each member of the panel *knew* what this old, familiar term means. Unfortunately, each one "knew" that it meant something a little different. We finally opted to put it in the glossary as an unpreferred term with cross-references to the preferred terms.*

The second factor is that we often find that a term we have previously been satisfied with has recently been redefined by an authority we cannot ignore. An example of this is the very word *collection*. By a definition provided by Executive Order 12036, the Foreign Intelligence Surveillance Act of 1978, and by USSID 18, collection is defined in terms on the order of "intercept copy taken for the purpose of deriving intelligence." Implicit in all the definitions is that what is intercepted is not "collected" unless and until some intelligence extraction process takes place. It is a subtle point, but for collectors, it must be defined. As a sidelight, it is not as important for other disciplines, such as Traffic Analysis. For TA purposes, "intercept" and "collection" could be used interchangeably without any loss of accuracy.

Why are we going to all this trouble? Why do we squander so many valuable manhours (or person-hours, anyway) on this slow and tedious work: Anywhere from ten to forty manhours per month may be used up in just the panel meetings alone. The reason is that this glossary we are working on will become

* In the Soviet Union, too, the baud (Бод) is defined as a unit of telegraphic speed: "...the number of basic impulses transmitted per second." (Bol'shaya Sovetskaya Entsiklopedia, 1970)

the standard. The glossaries will form parts of USSID 412. Our glossary and the TA glossary will ultimately be joined by glossaries for cryptanalytic and data processing terms. Other glossaries, on telecommunications and telemetry, for example, are also under development.

The intent we on the SCTP espouse—and we understand that the TA group approached the problem the same way—is not to dictate the usage of cryptologic terminology. Rather, we are trying to establish a standard. We are not trying to circumscribe the vocabulary, but we wish to present a method by which NSA's written word may be clearly understood. In dialogue, one may be vague. An individual word that conveys a subtly different shade of meaning to the hearer than it meant to the speaker can and usually will be cleared up in further conversation. If you will listen closely, you will probably observe that in most conversation, every point made is usually made several times over. In writing, however, the trend is to economy. In official and technical correspondence this is especially true. For this reason a reference is necessary so that we may be sure that the meaning perceived by the reader is the same as that intended by the writer.

At present the SCTP consists of seventeen people, representing all elements of DDO, as well as DDF, ADPR and the NCS. Russ Doig has had to depart for other duties and his contributions will be missed. Remaining under the chairmanship of [redacted]

[redacted] officially active, but will soon have to leave us. Other former members of the panel are

[redacted] Working very closely with us are members of the NSA Data Standards Center, our sponsoring element within P1, specifically, [redacted]

[redacted] who keep us on the track and provide administrative help without which we would not be able to survive.

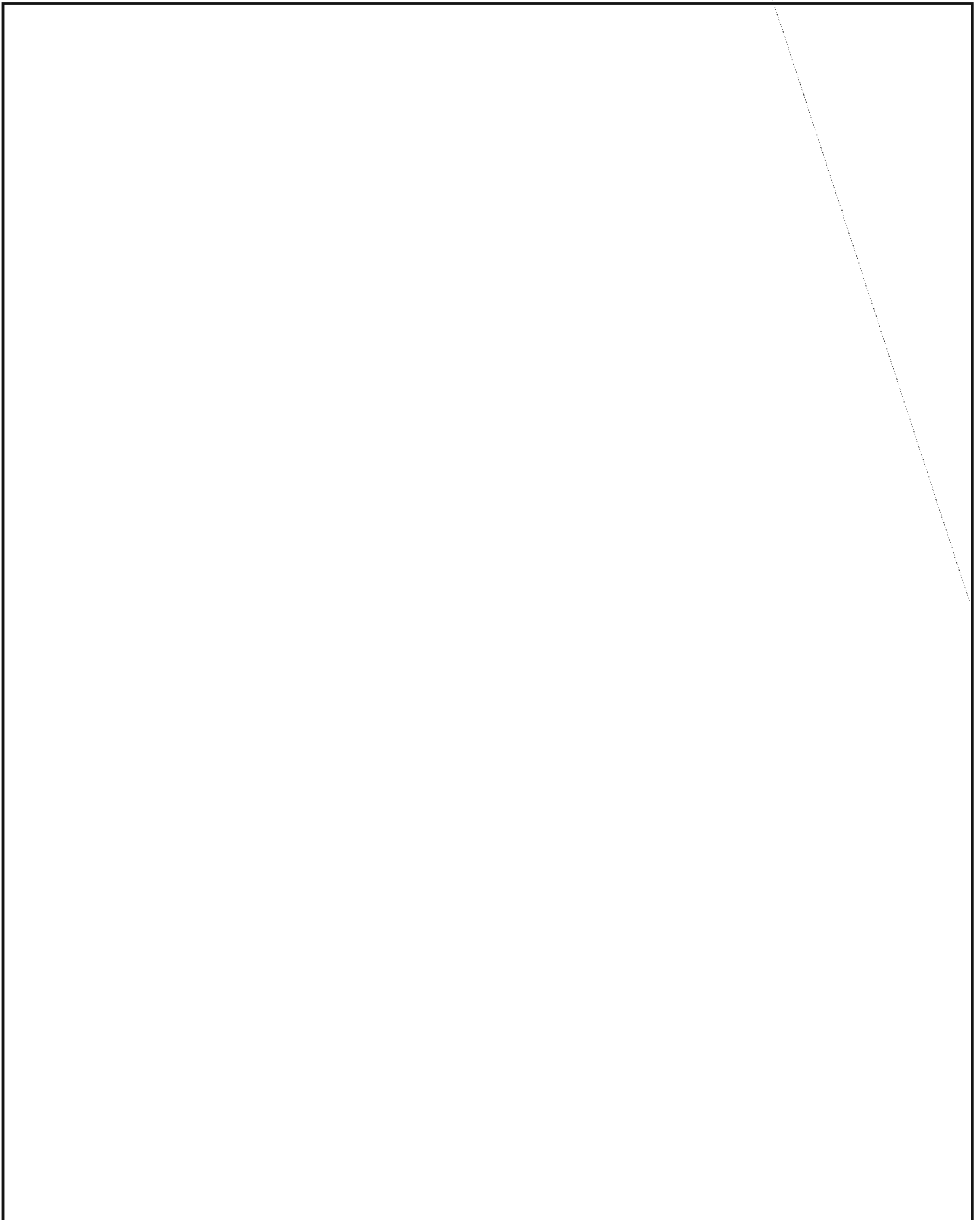
As stated above, we have lost some of our people and will soon lose some more. [redacted]

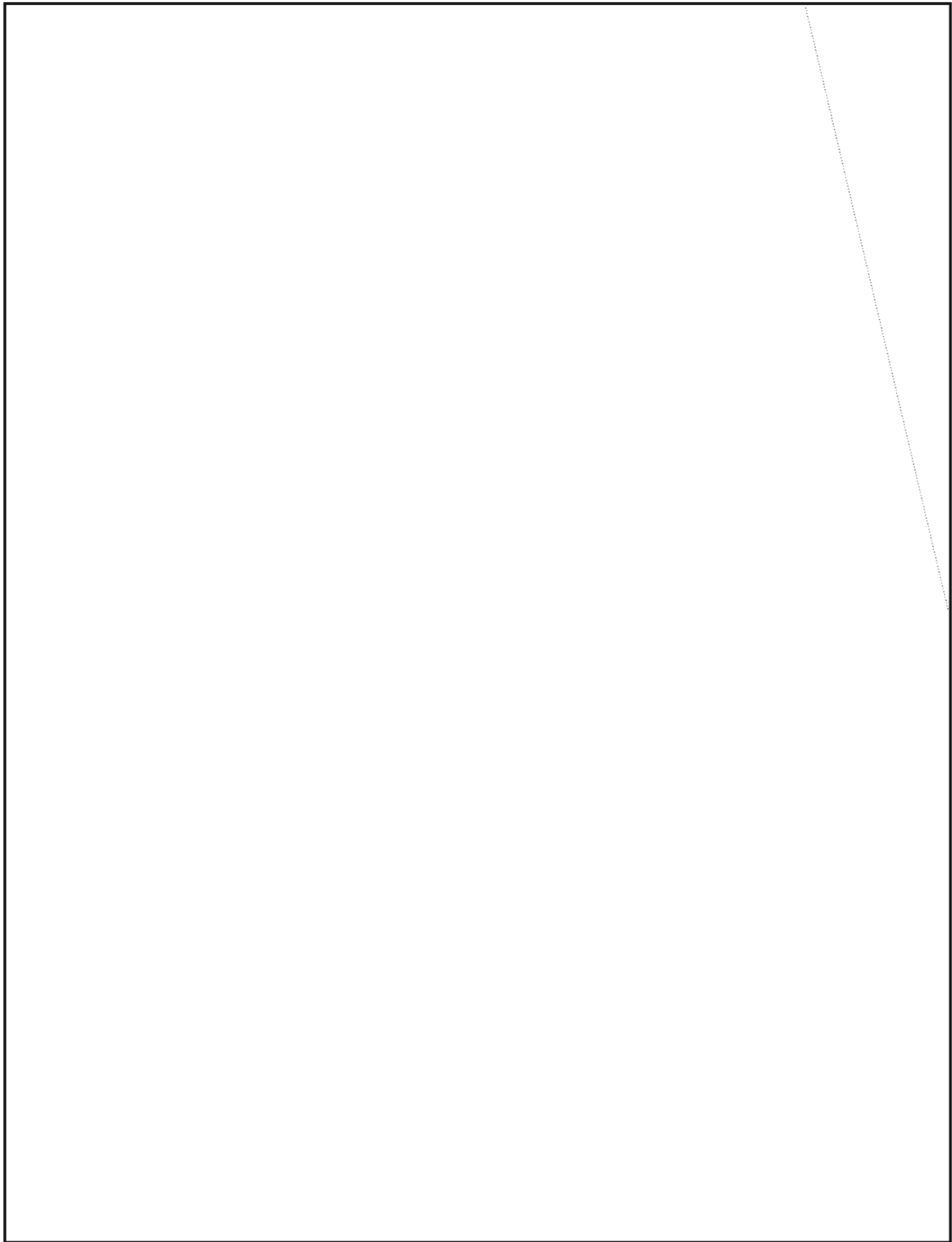
[redacted] is very interested in recruiting some replacements, particularly from B. R and T. If you would be interested in being a part of this august group, please advise your supervisor, who should then get in touch with the Data Standards Center on 8161s (FANX), which can then take care of the necessary paperwork.

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sydney fairbanks

Insufficient Normalcy of Methodry

From the NSA Technical
Journal of July 1959.
here is Dr. Fairbanks'
final comment on Agency
English.

The time has come, alas, to lay down the editorial pen.

As we pushed open the glass doors this morning, Big Brother saluted us with some remarks on "the end of a perfect day"; as we reached our desk he assured us that father would come to his babe in its nest (silver sails all out of the west), and to date he is still making noises like a noontide bee. This curious sample of the mores of a mechanized culture always used to affect us with sardonic glee. We wish Big Brother would stop talking about twilights. (But as a matter of fact we have long since joined the little band of negative thinkers who wish Big Brother would stop; period.)

Naturally we have hesitated over the best subject for a final fling. We had thought of describing the extraordinary things—reminiscent of a baby with a tube of library paste—that an amateur can do to a sentence with the word "such." But it seems more appropriate to end with a salute to a success of the enemy. We shall talk about one of the major triumphs of Memorandumry.

Most things in this world are accomplished by having tools and knowing how to use them. "Tool" has long since been replaced by "implementation" with a net gain of four syllables, but "way," "means" and "methods" are all regrettably brief. Some genius, however, has risen to the occasion, and it now becomes possible to write "the finalization of the operation may be accomplished by the employment of the appropriate implementation and methodology," ending with a fine approximation to the Ciceronian *esse videatur*, and using thirty-eight syllables to say, the reader will note, absolutely nothing.

Obviously "implementation" and "methodology" go together like bacon and eggs, and a guy should know when he's licked. Nevertheless, we raise a protest. "Methodology" is as inappropriate to mean nothing as "methodism" would be, because both have been pre-empted to mean something. We shall not enter into the horrors of religious controversy by defining "methodism," but "methodology" means, roughly, "the science of scientific method," and people give courses in it and write books about it. In such a crisis we have no wish to be merely destructive, yet it is hard to make a suggestion. "Methodry" perhaps, on the analogy of "toiletory" and "circuitry." "Insufficient normalcy of methodry" (meaning "this is too new a way of doing it") has surely some of the authentic Memorandian charm—and sentiment, for that matter. But the real devotee will demand a pentasyllable.

"Methodication"...?

It is enough. As usual the agony of composition has assuaged our thirst for publicity. Never mind what we said above. We look forward with ineffable rapture to watching from the bank while others toil upstream, to hearing the contributors fill the sea and air, like little birds, with their sweet jargoning, and not having to do a thing about it. In this mellowing twilight it even seems, now that we don't have to do it any more, as if it might have been worthwhile; but we are not seduced. Your galley, gentlemen. You can keep my oar.

And thank you for listening so patiently.

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Naturally we have hesitated over the best subject for a final fling. We had thought of describing the extraordinary things—reminiscent of a baby with a tube of library paste—that an amateur can do to a sentence with the word "such." But it seems more appropriate to end with a salute to a success of the enemy. We shall talk about one of the major triumphs of Memorandumry.

Most things in this world are accomplished by having tools and knowing how to use them. "Tool" has long since been replaced by "implementation" with a net gain of four syllables, but "way," "means" and "methods" are all regrettably brief. Some genius, however, has risen to the occasion, and it now becomes possible to write "the finalization of the operation may be accomplished by the employment of the appropriate implementation and methodology," ending with a fine approximation to the Ciceronian *esse videatur*, and using thirty-eight syllables to say, the reader will note, absolutely nothing.

Obviously "implementation" and "methodology" go together like bacon and eggs, and a guy should know when he's licked. Nevertheless, we raise a protest. "Methodology" is as inappropriate to mean nothing as "methodism" would be, because both have been pre-empted to mean something. We shall not enter into the horrors of religious controversy by defining "methodism," but "methodology" means, roughly, "the science of scientific method," and people give courses in it and write books about it. In such a crisis we have no wish to be merely destructive, yet it is hard to make a suggestion. "Methodry" perhaps, on the analogy of "toiletry" and "circuitry." "Insufficient normalcy of methodry" (meaning "this is too new a way of doing it") has surely some of the authentic Memorandian charm—and sentiment, for that matter. But the real devotee will demand a pentasyllable.

"Methodication"...?

It is enough. As usual the agony of composition has assuaged our thirst for publicity. Never mind what we said above. We look forward with ineffable rapture to watching from the bank while others toil upstream, to hearing the contributors fill the sea and air, like little birds, with their sweet jargonizing, and not having to do a thing about it. In this mellowing twilight it even seems, now that we don't have to do it any more, as if it might have been worthwhile; but we are not seduced. Your galley, gentlemen. You can keep my oar.

And thank you for listening so patiently.

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NSA Promotion Boards: How They Work

S14

Certainly one of the most popular items ever to appear in CRYPTOLOG, to judge by reader response, was [redacted] article, "Some Tips on Getting Promoted." It is based on an address which she gave before the WIN (Women in NSA) organization, which was later summarized in the WIN Newsletter. The article was originally printed in CRYPTOLOG of December 1978, and subsequently in the Field Information letter of May 1979. In addition, CRYPTOLOG has sent out over 300 reprints of the article to interested people.

Understandably, promotions are a subject of great importance to just about everybody. So when Virginia called a couple of months ago to ask if I wanted a follow-up article, my response was an immediate yes. So here it is—[redacted] observations on her tour as a member of one of the Agency's promotion boards. dhw

The present procedure for promoting to "critical grades"—13, 14 and 15—has been in existence for some years now. Even so, it seems not to be very well known in the Agency. This article aims to improve the general understanding of the process and

tries to remove some of the mystery—and even distrust—with which it is sometimes viewed.

I write this article on the basis of my experience as a member of the Grade 14 Promotion Board in 1978. It was my only experience serving on such a board and it was a good one. The job turned out to be interesting, challenging and difficult. Unexpectedly, it demanded a bone-wearying amount of work. But all told, it proved satisfying and rewarding. I ended my year's tour with a feeling that the process we use here, while not perfect, is a good one.

This article covers the following aspects of the Agency Promotion Boards

- * their composition and mission
- * their function and tools
- * the zero-base review process
- * the nomination process
- * management presentations
- * the selection process

Although my experience was limited to the Grade 14 Board, the process described is generally applicable to all three Boards.

NSA Promotion Boards and their Mission.

Three Agency-wide Boards are constituted each January to handle the selection of people to receive promotions to grades 13, 14 and 15. The nine members of each Board are chosen by the Deputy Director for Management (DDM),

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and recommended by him to the Director for approval. In making his selection the DDM discusses recommendations with the Key Component Chiefs. The selection includes at least one woman and one minority member. Board members are usually at least one grade higher than the promotion level of their respective Boards. The Board Chairmen are chosen on the basis of their position: the Director of Civilian Personnel (M3) chairs the 13 Board, A/DDM chairs the 14 Board, while DDM heads the 15 Board. Executive Secretaries for the Boards are appointed usually from within M, by the chairmen. The Boards are formally created with the publication in December of appropriate Personnel Assignment Orders, or "green sheet."¹

In 1978 the promotion process got underway when the Director convened all the newly appointed Board members in his conference room, and personally explained to us our mission, gave us guidance, and stressed the responsibility of the assignment he was entrusting to us. We learned that, as Agency Board members, we worked for him as his representatives, and not for our parent organizations. Our Board assignments were to take priority over our regular jobs, and we were expected to devote all the time and effort necessary to executing a very serious and important task. He asked that we give fair and equitable consideration to everyone, including women and minorities, who, because of their management. He pointed out the educational value of field assignments, and asked us to review field personnel with particular care because he is anxious to attract the best people to such assignments and to reward good performance. Finally he cautioned us not to overlook technical people who are essential to the fulfillment of the Agency's mission.¹

Board Functions and Tools. The Director's meeting with the new Board members was followed closely by the initial meetings of the individual Boards. Schedules and assignments for the first cycle are traditionally distributed at this meeting. The Grade 13 Board has four cycles per year (beginning in January, April, July and October), while the Grade 14 and 15 Boards meet for only two cycles annually (January and July). This is because the numbers of eligibles to be reviewed and promotions to be awarded by the Grade 13 Board is much greater than those handled by the other two Boards.

I had always assumed that Promotion Boards did all their work in meetings, so I

was surprised to find that, in fact, the bulk of my time was to be spent reading in the promotion files. These files are kept in special rooms belonging to DDM, one for each Board. We were given directions and keys to our new home. Here each of us had half a file cabinet drawer for storing folders and notes, along with access to banks of file cabinets containing drawer after drawer of promotion folders for all eligible Grade 13's². Work on promotions is carried out in these rooms rather than in the members' office spaces, so as to ensure confidentiality of the sensitive personal data handled, as well as to cut down on outside distractions.

We were provided with various useful tools, such as the following

* A computer listing of all eligible Grade 13's which runs to many thick volumes. It contains a one-page summary on each person, highlighting vital information such as name, organization, job title, COSC, age, EOD date, date of last promotion, list of all jobs at current grade, professional certifications, and last three performance appraisal ratings (both overall and attributes).

* A computer listing of performance appraisal ratings (overall and attributes) given by all supervisors to all their employees in critical grades. This listing helps Board members to spot the "easy" and "hard" raters and is used to normalize such ratings.

* Statistics showing each Key Component's theoretical fair share percentage of promotions based on the number of persons eligible.

* Statistical profiles on recent past promotions, by organization, COSC, average time-in-grade, and the like.

Zero-Base Review of All Eligibles.

After the initial get-together of our Board, individual members began work immediately on an examination of the records of all the eligibles. This requires a complete reading of the folders of every single eligible Grade 13 in the Agency! This is done to locate people who seem to be worthy of consideration for promotion, but who may have been overlooked by the Chiefs of Key Components when drawing up their nominations. Because the populations of eligible people are quite large, it is impossible for every member of a Board to read every file. So, the population is divided into alphabetically sequential subsets, and two Board members

¹ The criteria for promotion are published in NSA Regulation 11-10, Annex B, dated 7 January 1977.

² Eligibility for Grades 13 and 14 is 24 months in grade; for Grade 12 it is one year in grade.

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read all the files in any subset. Even so, this still amounts to hundreds of files for each reader! But this procedure ensures that, during any one calendar year, every single person's file is read by at least four people for Grades 13 and 14, and by at least eight people for Grade 12's.

As part of the review process, all Board members are also asked to examine the files of all minorities and women. The Equal Employment Opportunity Office (D8) provides special lists to identify these people since this information is not contained in any of the other data available to the Board.

Names of potential candidates which are found by this review process are provided to the Key Component Chiefs so that they can prepare to answer the Board's questions about them, as well as about the people on their own lists of nominees.

Nomination Process. The nomination process carried out in the Key Component organizations is probably more complex, careful and formal than many people may know. In most organizations it is a multi-tiered process, with names first being submitted at some lower level in the organization, and then travelling upward for review by various boards until reaching the board at the Key Component level. Here a final decision is made about how many names the Key Component will nominate for promotion, which names will appear on the list, and what their order of priority will be. Key Component boards also decide about replacing, rearranging, adding or subtracting names from one cycle to the next. Any name which survives this process of constant review—a lengthy one in large organizations like DDO (Deputy Director for Operations)—has been considered by many people with a variety of backgrounds and experience. This, it seems to me, greatly increases the chances that the most capable and deserving people will in fact be nominated for promotion.

Two things result from the Key Component nomination process: a written promotion recommendation for each nominee, and a computer listing of all nominees in priority order. The promotion recommendation, which may run to some three or four pages, is prepared by the nominee's supervisor, and follows a format described in Annex C to NSA Regulation 11-10, of 7 January 1977.

- * Background data
- * Current Assignment
- * Proposed assignment data
- * Evaluation of the nominee against the criteria for promotion—experience, training, on-the-job performance, potential, personal attributes, and ability.

These recommendations are placed in the individuals' promotion folders where Board members review them during their reading of the files.

In the computer printout of nominees—a small listing this time—nominees are listed in priority order by the Key Component. (For DDO, extracts are provided for each Office.) This presents a very brief summary of each person by name, organization, job title, time at NSA, time in grade, professionalizations, and last three performance appraisals.

Field personnel appear in two lists: a prioritized list for all nominees submitted by the Deputy Director for Field Management and Evaluation (DDF), and one by individual sites.

Every Board member is responsible for reading the promotion folders for all persons nominated by the Key Components and for those persons turned up by the Board's own review processes.

All reading must be completed before the next step in the promotion process occurs—the management presentations, popularly called the Promotion Board hearings.

Management Presentations. When management presentations begin, so do the Board meetings—many, many of them. And it is here that one's duties on the Board tend to become a full-time job for several weeks. The purpose of these presentations is to give Key Component Chiefs an opportunity to present their nominees to the Board in person, to discuss their nominees' qualifications and accomplishments, and to answer the Board's questions about them. They also respond to questions about those whose names were submitted to them by the Board for consideration. In addition, some chiefs take advantage of this opportunity to present particular management problems and needs as they relate to the promotion process.

A typical management presentation goes like this. The Board members sit around a large table, with the "presenter"—a Key Component Chief or his representative—at one end. The Chairman and Executive Secretary sit off to the side. For a half hour to an hour, the presenter talks about his nominees. Styles of presentation vary. Some presenters go through the list in priority order, discussing each candidate briefly. Others are much more informal and may spend the time answering questions asked by Board members. Sometimes the Key Component Chief wants to highlight certain information and repeats things already known to the Board from its reading. Some Key Component Chiefs deliberately try to present information which adds to that gained from the reading. Others elaborate, talking about the person from angles which help the Board in its deliber-

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ations. The give and take between the members and the presenters ranges from refreshing and candid to sometimes heated exchange. But it serves the purpose well, because while the chiefs are striving to present their nominees favorably, the members are working equally hard to get the unvarnished information they need to make a sound evaluation of the candidates.

These presentations typically last for a numbers of days. In addition to all the Key Component Chiefs, DDO Group Chiefs also address the Board. Also, chiefs of field sites usually have an opportunity at least once a year to appear before the Boards. The Worldwide Station Chiefs Conference, an annual event, is deliberately scheduled to take place during a cycle of the Boards, so that the chiefs can personally present their candidates. These presentations are in addition to the regular presentations by DDF.

The Selection Process. When all the reading has been completed and the last presentation is over, it is then time for the Board to get down to the business of selecting the people who are to be recommended for promotion. This is done in a series of meetings which usually take place over a week or so.

To help accomplish the selection, Board members are supplied with two things

- * a ballot containing the names of all nominees, those submitted by the Key Component Chiefs, as well as those developed by the Board through its own reviews

- * the number of promotions which the Board is empowered to give out³

Selection is made by balloting, with successive ballots being taken over several days until the entire allocated number of promotions is reached. Between votes, the Board has time for discussion, deliberation and research. Board members have equal voice in

³ The NSA promotion program, including allocation of promotions, is described in an article by [redacted] in the NSA Newsletter of March 1979.

the voting; the Chairman and Secretary do not vote. In making selections, members tend to consider such factors as distribution by organization and COSC. But the fitness of the candidate is always the overriding criterion on which promotions are based.

The result of the voting process is a list of the Board's recommendations to the Director for promotions. Before the list goes to the Director, however, the Board provides each Key Component Chief with the names of the people in his organization who have been selected. Where the Board has made selections which alter the Chief's priority order, or has chosen someone not on his list, the Chief is given an opportunity to meet with the Board to discuss the effect of these choices. The Board then reviews its findings and makes its final recommendations. If any differences remain, they are summarized by the Chairman in a report to the Director which accompanies the list.

When the Director (for 14's and 15's) or D/DIR (for 13's) has approved the promotions⁴, the Office of Civilian Personnel (M3) then schedules to promotion ceremonies in the Friedman Auditorium—one for the 13's and a combined one for the 14's and 15's.

For the members of my own Promotion Board, the promotion ceremony marked the successful culmination of a difficult, and time-consuming task. It was fascinating to be able at last to put faces to the names which had become so familiar to us over the past several months. And we were exhilarated to have finished the job entrusted to us. The amount of work involved is tremendous—hours, days, even weeks, of sitting and reading the folders. And then there is the time spent evaluating, culling, and making the difficult final selections.

Board members take their assignments most seriously and work long hours in the knowledge that out of a mountain of material have to come decisions which they must labor to make fair to every employee, and which are sound to the future of the Agency.

⁴ The Director is empowered to add to or to delete from the Boards' recommendations.

...but on the other hand

Write 300 words on the best method of selecting an employee who will get a Division's sole promotion for the quarter, read one of the questions in a recent NSA writing exam. All of the answers were good; this one excels in the simplicity of the solution.

The methods used by managers to select employees for promotion have been the object of study and controversy for centuries. No method has been found to be universally satisfactory, and the study and argument will continue, as times and conditions change. Serious examination of the goals sought through employee promotion shows that there should be considerable flexibility. Not only are the goals diverse, but the conditions under which the organization operates vary.

In a Division of 100 people today there may be only one promotion per quarter; twenty years ago a Division of similar size might have had as many as 25 to 30 promotions per quarter. Other variants have been subject to similar degrees of change. Managers today must therefore be prepared to cope with these dramatic changes.

In the present situation, a serious backlog of promotion candidates has grown up. Most of these people are well qualified in performance, experience, education, personality, potential, and time in grade; and in a given list, most perhaps would be about even. In our Division of 100, promoting four persons

per year means that every eight years we can get one promotion for each employee in the upper 25%, assuming we follow the conventional system. In this system, a small group of managers meet in secrecy to select candidates according to individual goals. The result today is loss of the upper 15% through transfer to other jobs, minority-group inequities, and low employee morale because of their lack of participation. A better method of achieving Division goals must be found.

The best method of selecting the employee who will get a Division's sole promotion for the quarter is a lottery. Chances can be allocated to eligible candidates in ratio to the qualification on all counts. More (or fewer) chances can be allocated to a given grade of skill, or for a given employee quality, such as time in grade, or education. The lotteries can be held monthly, with quarterly runoffs, or just once every quarter in a winner-take-all event. Such a solution will remove the secrecy and result in much wider employee participation and higher morale. It is probably only a matter of time until this solution will be in use throughout the Civil Service.

CRYPTOLOG HAS MOVED!

CRYPTOLOG has moved to the eighth floor. The new address is 8A187, and the new phone numbers are 1103/1104/1105. Only the mailing address is unchanged; it still is CRYPTOLOG, P1.



PUNCTUATION: More Than Meets the Eye

A42

P.L. 86-36

Iwould like to share with the readers of CRYPTOLOG a nugget of Soviet humor that was given to me several years ago when I was a student at the U.S. Army Russian Institute (Detachment R) in Garmisch, Germany. I ran across it recently while rummaging through some dusty memorabilia, and decided it was too good to keep to myself.

The article is appropriate for at least two reasons: it is a reminder of the importance of punctuation marks; and it is perceptive commentary on man's declining ability to think for himself—especially in an Orwellian society such as that of the Soviet Union, where bureaucratic thinking and writing are so patently stereotyped.

A good friend, Oleg Konstantinovich Kavetsky, the language laboratory technician and general handyman at Det R, gave me the article and philosophized on its significance. Oleg saw it was a subtle condemnation of the typical Soviet bureaucrat, who is steeped in writing political New-speak filled with liberal quotations from Lenin and Brezhnev. In my opinion, it also applies to our own bureaucratese.

Oleg is a remarkable person; I encourage all NSA students who attend Det R to spend as much time as possible with him. He'll teach you some Russian you won't get in the classroom. A game of ping-pong or billiards becomes a drill in numbers—he calls it an "igra v vychislitel'nye," literally, a "game of numbers." He is filled with stories and anecdotes from his youth in the Soviet Union. And he can talk endlessly about each and every step involved in the building of his home. The article on punctuation marks that follows is typical of the kinds of things that Oleg often injects into his conversations. I hope you enjoy it as much as I did.

A man lost the comma and became afraid of complex sentences; he sought simpler phrases. With simple phrases came simple thoughts.

He then lost the exclamation point and began to speak softly, in a monotone. Nothing gave him joy or excited him; he related to everything without emotion.

Then he lost the question mark and ceased asking questions; nothing aroused his curiosity, no matter where it occurred—in space, on the earth or even in his own apartment.

Several years later he lost the colon and stopped explaining his actions to people.

By the end of his life he had only quotation marks. He never expressed an idea of his own, but was always quoting someone—and so he completely forgot how to think and came to the end.

Cherish the punctuation marks!

Чловек потерял запятую, стал бояться сложных предложений, искал фразы попроще. За несложными фразами пришла несложные мысли.

Потом он потерял знак восклицательный и начал говорить тихо, с одной интонацией. Его уже ничто не радовало и не возмущало, он ко всему относился без эмоций.

Затем он потерял знак вопросительный и перестал задавать всякие вопросы, никакие события не вызывали его любопытства, где бы они ни происходили — в космосе, на Земле или даже в собственной квартире...

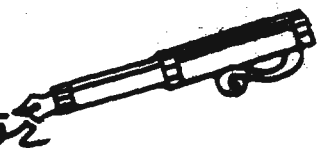
Еще через пару лет он потерял двоеточие и перестал объяснять людям свои поступки.

К концу жизни у него оставались только кавычки. Он не высказывал ни одной собственной идеи, он все время кого-нибудь цитировал — так он совсем разучился мыслить и дошел до точки.

Берегите знаки препинания!

г. Киев.

Letters To the Editor



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

To the Editor, CRYPTOLOG:

(u) It was just after a recent demonstration of the Radio Shack TRS-80 home computer that some of us got into a discussion about the problem of new equipment, and just how long we are going to have to wait to get to use it for any operational jobs.

↔ The principal problem seems to be that all new electronic equipment that is built for general public use radiates and is therefore not useful for handling classified data. It ordinarily seems to take years for the equipment to be engineered in a model that controls or inhibits radiation enough to meet our standards. Meanwhile, the march of progress goes on, and newer and even more useful things appear in this rapidly developing field. But each new item also radiates (there being no commercial incentive to develop devices that don't).

(u) So by the time each new piece of gear is ready for your use (and mine), something better, or faster, or whatever, is available to any private user who can afford it, but not to us.

↔ Well then, why don't we just try to find a way to screen the building, rather than each separate piece of equipment? I suppose the first quick answer is that there is no way to do that, but this place is full of people who can find ways to do things that aren't supposed to be possible. It may be expensive, when compared with screening (or otherwise fixing) each new piece of gear, but the cost would average out over the years pretty quickly, as we found we were able to cut years off the lead time for the practical use of state-of-the-art computery.

[Redacted]

P14

S64 replies...

↔ Although it's sometimes difficult to prevent RF energy from being transmitted, it's even harder to contain it after radiation occurs. For example, it's easier to reduce the current and voltage across a pair of contacts than to build a copper mesh room around them.

[Redacted]

[Redacted]

(u) We plan to apply some of these approaches to selected operational areas in the next few months. Permanent installation of any RFI suppression techniques will depend on the results of our experiments.

(u) I would like to say "Amen" to one statement made in [Redacted] letter, namely: "...this place is full of people who can find ways to do things that aren't supposed to be possible." This is particularly true of CRYPTOLOG readers. If any readers have any ideas for "blanket" RFI suppression, we in S64 would like to hear them. Call or write [Redacted] (2443s). One more thing: don't worry about a "not invented here" response; that's a disease we try to combat.

[Redacted]
Chief, S64

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To the Editor, CRYPTOLOG:

(u) Having had long, and often passionate, discussions with both Mr. Buckley and Mr. [Redacted] on the subject of Traffic Analysis "overages," I was surprised to see that both gentlemen missed several important points [see Letters to the Editor, CRYPTOLOG, July 1979].

(u) First, I think (please note, opinion) there are a fair number of individuals who hold TA COSCs who are not doing TA work. One example: a branch chief is a manager, not an analyst, yet the analytic COSC is often held.

(u) Second, quality is not an element included in the "bean-counter" approach; it's the number of bodies bearing the title that are counted. The fact that one quarter of the bodies may be doing three quarters of the work does not enter in.

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~~cc~~ Third, we seem desperately intent on trying to "professionalize" (read, certify) ever-increasing numbers of people in overage fields. The problem with this is twofold:

➤ What is the purpose of creating many more professionals than we have professional billets? What is the purpose of allowing second certifications in overage fields?

➤ Why are we tutoring professional aspirants? Individuals of professional quality will, like cream, rise to the top by dint of personal study and research. They will do so simply because it is in their nature to excel, not because they were pushed, prodded or carried through the test. (Please note that "top" refers to one's ability to perform, not to one's promotion record.)

~~cc~~ I agree with [redacted] we are losing our TA skills [see CRYPTOLOG, March 1979]. It is evident in the simple fact that many case analysts do not log intercept in such a manner as to see a simple rota. It is reinforced by the fact that on our professionalization exam the net reconstruction section is pre-logged and fairly easy. The difficult section is the crypto-TA part, and few traffic analysts are charged with this type of responsibility in their daily jobs.

(u) Suggested solutions for eliminating the overage and up-grading the quality are fairly simple. Ensure that only those doing traffic analysis carry that COSC; let's start calling managers managers. Next, devise a weighting system so that a manager can state for the TD that he needs three topflight TAs, or five average, or ten below-average (or some combination thereof) to accomplish his mission. And, finally, if we feel compelled to tutor someone, let's begin by tutoring those most in need so that they may become proficient in their current jobs.

(u) Years ago achieving professionalization was akin to winning a place among the elite. Today it is simply a means of proving oneself average. Elitism is not only dead, but is scorned as well.

(u) Let's put the emphasis back on the quality of our human resources.

[redacted] B32

LANGUAGE PROFICIENCY CERTIFICATES

FOR MILITARY PERSONNEL

Capt Gary J. Twogood, M362

(UNCLASSIFIED in entirety)

On 4 April 1979, MG George L. McFadden, then Chief, DDO, presented certificates to 26 military linguists who passed NSA's Language Proficiency Test (LPT). The ceremony was one aspect of a continuing program to recognize the 30% of the military linguists who have passed the LPT. To date, 56 military linguists have been presented certificates in eleven languages. This total includes 26 individuals stationed overseas.

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To identify the linguists whose scores were particularly high, the Agency established a policy of awarding the certificate "With Honors" to those who scored five or more points above passing in each portion of the LPT. We have since discovered that this arbitrary cutoff point was too low. To make the honors group more selective, we have raised the cutoff, so that now a linguist must achieve 80% on the Completion portion and 90% on the Translation portion, or a Staten rating of eight on both portions.

Concurrent with the realignment of the "With Honors" criteria, we are beginning an official policy of awarding the LPT certificates retroactively. NSA directives state that LPT scores are valid for three years from the test date, and we will use this criterion as a cutoff for retroactivity. Linguists may request retroactive awards through NSA/M362, [redacted]. To help verify test scores, M362 will need the name, SSN, service, grade, language, and (if available) test date and scores.

We appreciate the interest and support that has been shown throughout the cryptologic community and look forward to even more military linguist participation in the future.

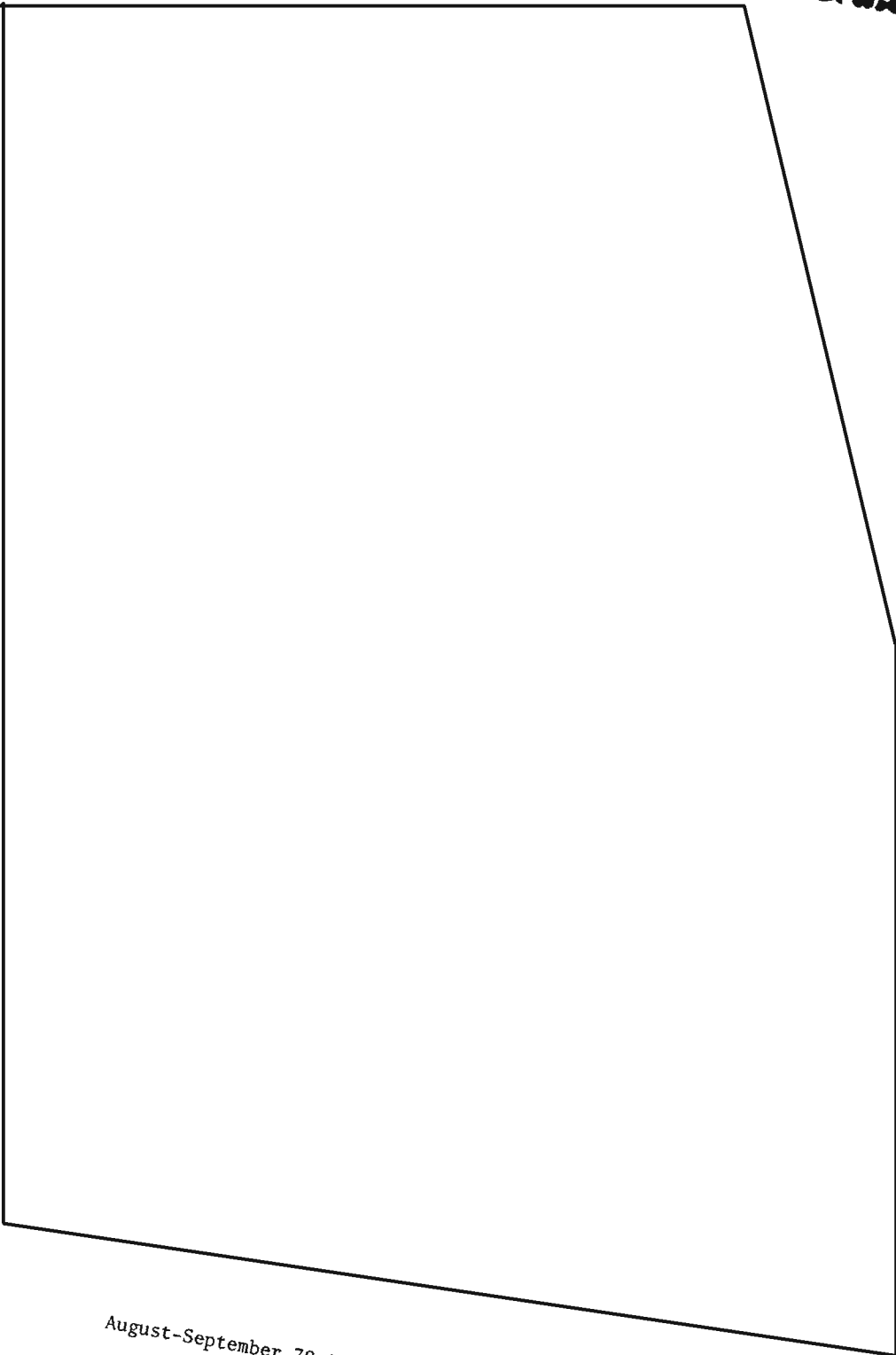
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~~SECRET SPOKE~~

MEMORABLE MEMOS (U)



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EO 1.4.(c)

~~SECRET SPOKE~~



**News of the
Communications
Analysis Association**

[Redacted] P14

The present officers of the Communications Analysis Association are as follows:

President	[Redacted]	3369s
President-Elect	[Redacted]	3866s
Secretary	[Redacted]	5585s
Treasurer	[Redacted]	4398s
Board	[Redacted]	5306s
	[Redacted]	5492s
	[Redacted]	5901s
Programs	[Redacted]	4452s
Crypto-TA SIG	[Redacted]	4466s
Cryptologic	[Redacted]	
History	[Redacted]	2171s

Now! Membership in the CAA automatically gets your name on the CRYPTOLOG subscription list. For just one dollar a year, you can get every issue of CRYPTOLOG delivered right to your door (or wherever your IN-box happens to be), along with all of the announcements about the various activities and happenings of the CAA. Send your dollar, along with your present mailing address to our treasurer, [Redacted] B62, Room 2S045.

Note: For those of you who *think* you are members of CAA, but who haven't been getting our announcements lately, look at the address label of the last one you received. If the number 78 appears on the label, then Dana has no record of receiving your 1979 dues.

Solution to NSA-Croctic No. 27, CRYPTOLOG, July, 1979.

From a memo to General Ismay from Winston Churchill, 8 August 1943, quoted in "Cover-terms," by Vera R. Filby, CRYPTOLOG, April, 1975.

"Operations in which large numbers of men may lose their lives ought not to be described by codewords which are calculated to invest the plan with an air of despondency, such as 'Woebetide,' 'Massacre,' 'Jumble,' 'Trouble,' 'Fidget' ... 'Pathetic,' and 'Jaundice.' They ought not to be names of frivolous character.



**NEWS OF THE
CRYPTO-MATHEMATICS
INSTITUTE**

[Redacted] R51

The Crypto-Mathematics Institute extends Associate Membership to all NSA Retired Employees who have been members of the CMI. Upon payment of the \$2.00 annual fee, Associate Members will be put on the mailing list for current notices. These notices include announcement of monthly speakers, the problem department, and information concerning the Annual Essay Contest, the President's Award, and the Annual Banquet. Retired members are entitled to participate in the Essay Contest and to attend the banquet at regular CMI member rates. They may, or course, attend monthly lectures provided they have the appropriate security clearance and access to Agency spaces.

Any retiree and former member of the CMI who wishes to become an Associate Member should send his name, address, and \$2.00 to

Director, National Security Agency
ATTN: [Redacted] G95
Fort George G. Meade, Maryland 20755

For further information, call [Redacted] [Redacted] R51, ext 8718s.

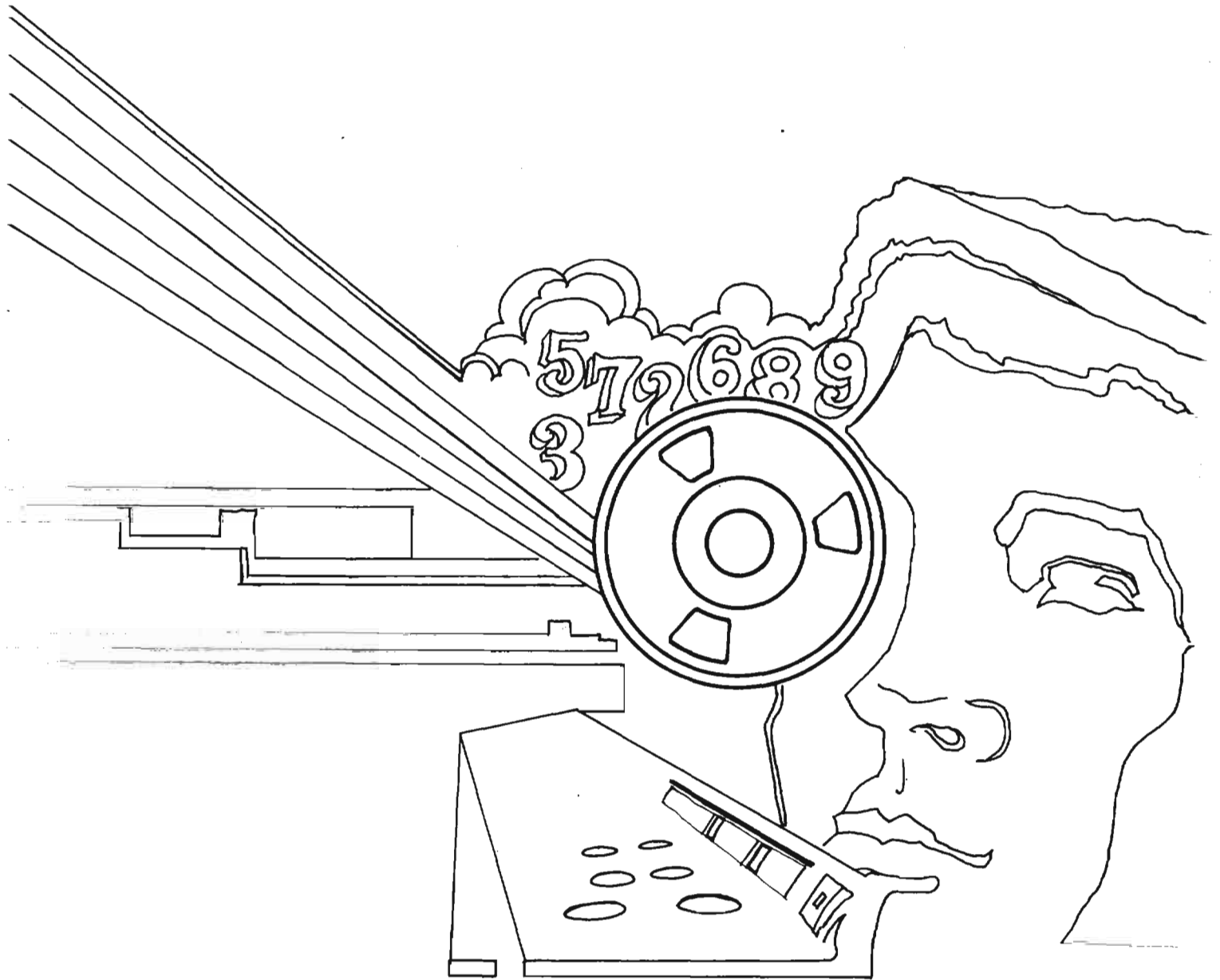
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Further to the solution of "A Somewhat Larger Problem," published in the April issue. The first part of the solution appeared last month.

The callsigns are taken out of a large chart, the upper right corner of which is



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