

~~TOP SECRET~~

NATIONAL SECURITY AGENCY
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CRYPTOLOG

FEBRUARY 1979



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FROM THE EDITOR

By DAVID H. WILLIAMS



[REDACTED] and a Little Bit of Luck

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

One of my first actions after becoming the new editor of CRYPTOLOG was to sit down and read through the back numbers. One of my principal discoveries was finding out that virtually all of the articles could be assigned, by general type, to one or another of a rather small number of categories.

By far the most frequent was the *This is Such-and-such* article, a straightforward description of something: an organization, an analytic technique or skill, a machine program, a new piece of equipment, or whatever. This article is the lifeblood of the publication, and every issue contains at least two examples of the type.

A special sub-category of this article is the *Here's How We Handle (or Handled) Such-and-such* piece, covering one organization's approach to an operational problem. To my mind one of the best of these was "The Iron Thumb," by [REDACTED] (March 1978) on the subject of MORETOWN, B Group's machine assist to the Chinese language translator.

Another frequent theme is found in the *Cry of Anguish* item, which describes some major injustice, frequently relating to promotions, especially in regard to their inequitable distribution to persons of one COSC (usually linguists) vis-a-vis another (usually engineers). Articles of this sort are often followed by a flurry of rebuttals and counter-rebuttals in subsequent issues. (Interestingly, one subdivision of *Cry of Anguish*, the comment on the performance appraisal, or the performance appraisal system, never receives any response in defense of that system.)

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One of my favorite articles is *Oops! We Goofed*. This article, which, understandably, appears relatively infrequently, details some organization's adventures and misadventures in going astray in the handling of some SIGINT phenomenon, and how they eventually coped with it.

[REDACTED]

There are, however, two types of potentially worthwhile articles which, to my recollection,

have never appeared, and I'm sure there are numerous examples, both current and ancient, of both of them here and there around the Agency.

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~~SECRET SPOKE~~

So if you have any [redacted] piling up in your desk, drop a note to CRYPTOLOG. Maybe we can help you find the other half of your puzzle.

Or if you have any examples of breakthroughs made without the slightest intervention of any "scientific know-how and technical expertise," send them along.

Incidentally, if you have something you think you might want to contribute in either category, or on any other subject for that matter, but you feel a slight lack of self-confidence in your ability to put it down on paper, call or drop in at the CRYPTOLOG office. We're always glad to provide whatever editorial assistance might be needed.

The CRYPTOLOG office is located in P1, Room 2N039; the telephone is 3957s. ~~(S)~~

CLA NEWS

RUSSIAN INSTITUTE



The Crypto-Linguistic Association has approved the formation of a new special interest group -- the Russian Institute. The new group's purpose, as defined in the guidelines, is to "provide a forum at which students of the Russian/Soviet problem can discuss and exchange information and insights gained from research in the field."

The guidelines call for the Institute to present Soviet films and lectures by visiting scholars as well as to encourage its own members to take an active role in leading discussions and seminars on various topics. The Russian Institute's guidelines define the Russian/Soviet problem in a very broad sense; the Institute hopes to include presentations on a wide variety of both work-related and more general topics.

Membership in the Russian Institute is open to all CLA members in good standing. If you are interested in becoming a CLA member or in renewing a membership that has lapsed, dues for 1979 (\$3.00) can be sent to [redacted] Treasurer, P16, 2N039, 4032s.

A memo and survey form concerning the Institute have been distributed among Russian linguists. If you did not receive a copy and are interested in further information, please contact [redacted] A65, 2N001, 4367s. (U)



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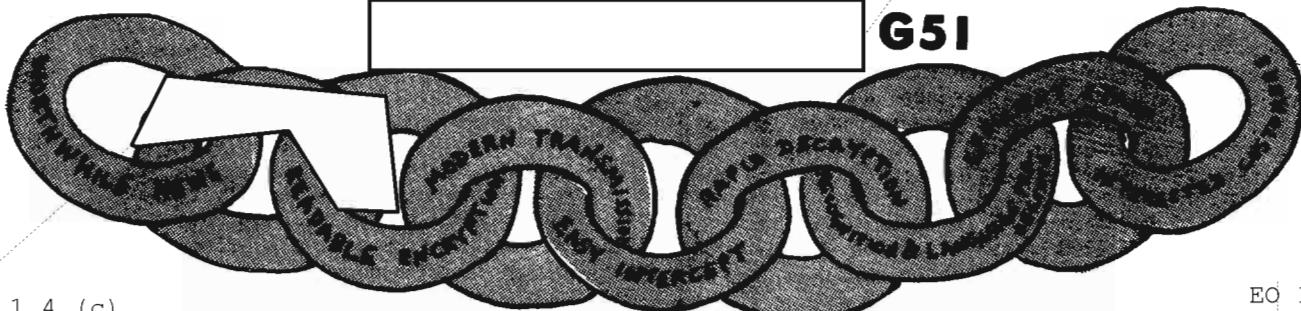
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~~TOP SECRET UMBRA~~

THE COMINT CHAIN "GANG"

G51

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I got a glimpse of how far-ranging NSA's activities are at NSA Day 1975, right after I came on board. I got the immediate feeling that there was a lot about the Agency I would never see, ostensibly because I had no need to know. It also became clear quite early that it would often be hard to find someone with sufficient knowledge to answer my questions even when I did have a need to know.

Being inquisitive (that's the word that applies to me -- "nosey" applies to other guys) and being interested in learning what the real career prospects are in the Agency, I began to ask questions about how things work in other offices. I asked my intern friends to compare and contrast what they had seen. I asked my classmates at the training school what their jobs were like. I also happened to hear conversations involving the occasional visitors to my work space (I really *wasn't* trying to eavesdrop). I even went so far as to listen to what was being taught in my professionalization courses!

The upshot of all my investigation was the decision to write a "tunnel vision" overview of COMINT operations, mainly for a friend in the Agency for whom the word "product" has little to do with the publication of intelligence. That term "tunnel vision" is a disclaimer so that if anything inaccurate is said, it can be blamed not on my personal inadequacy but on my limited perspective (one of my original aphorisms states that "what you see depends on where you stand"). With that warning you, the reader, are now ready for a worm's-eye view of the chain of COMINT Production.

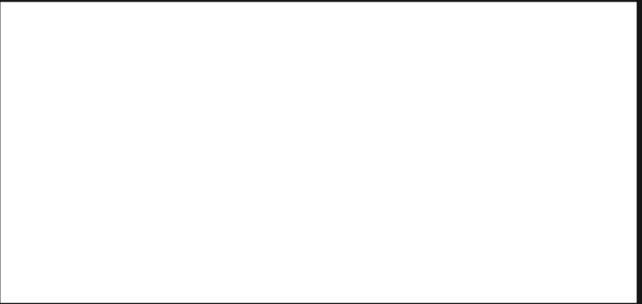
Worthwhile News

The first link in the chain is a newsworthy event. Actually the newsworthy event is so important to "end product" that a better metaphor might be an anchor or a hook, or some other object on the business end of a chain. In reality, until something important outside the intelligence system occurs, the system has no function, no reason for being. If all threats to national security (military and economic) evaporated once and for all, those of

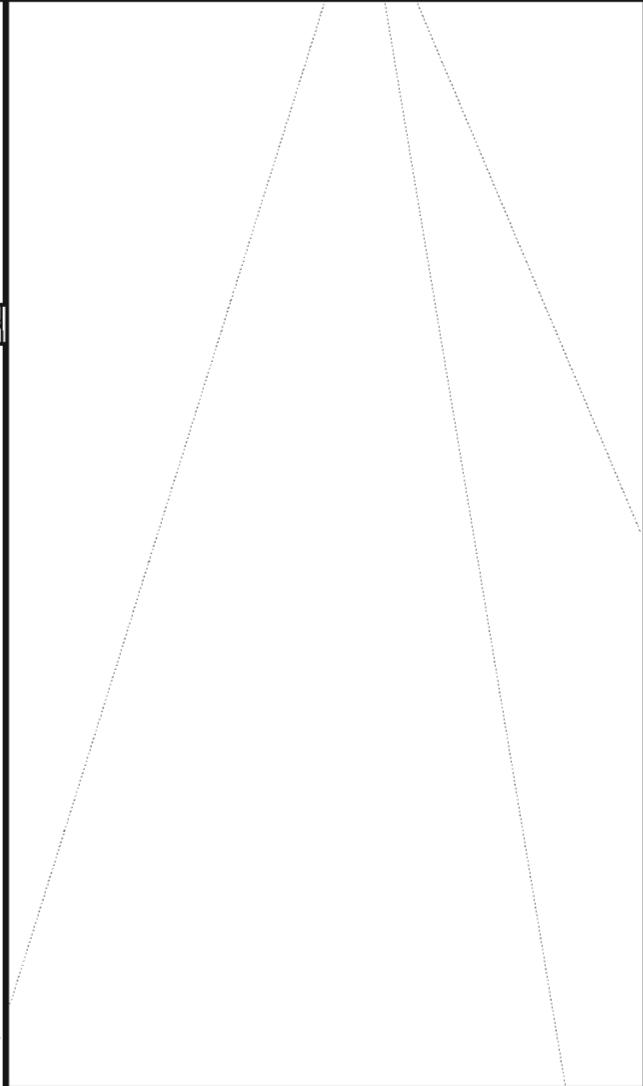
us who have veteran's preferences might have to exercise them to get jobs in HEW or DOE or maybe even forget the preferences and scramble for jobs in productive enterprises. Because we must wait for something to happen, the best the Agency can do is to try to plan to be in the right place at the right time with the right equipment.

Fast-breaking events are in an entirely different league. Because of the limitations of money, politics, and technology, NSA simply cannot have a finger in every possible pie. For that reason, private newspaper reporters are occasionally much better equipped for gathering information in remote places than we are, or, for that matter, better adapted than anyone inside the intelligence community. The Agency subscribes to three wire services to take advantage of the mobility of their reporter. Right in the first link, then, we depend on L. 86-36 factors largely beyond our control in order to get needed information into the hands of our decision makers.

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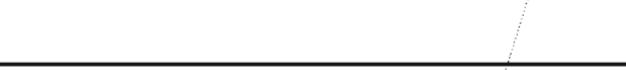


Readable Encryption



These first four links are all outside of NSA and the intelligence community. The rest of the chain is directly controlled by the community.

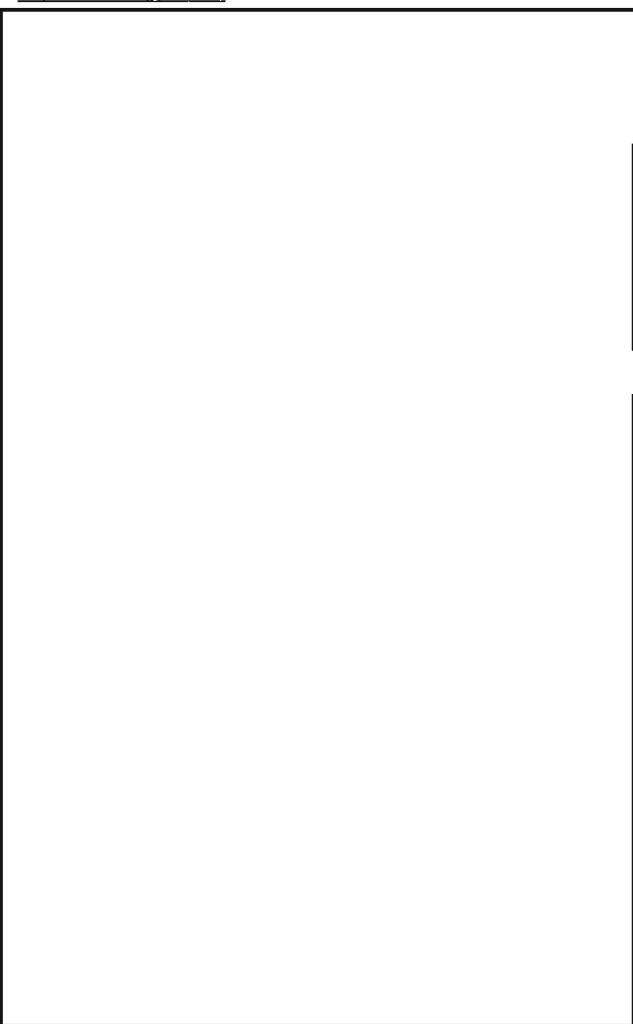
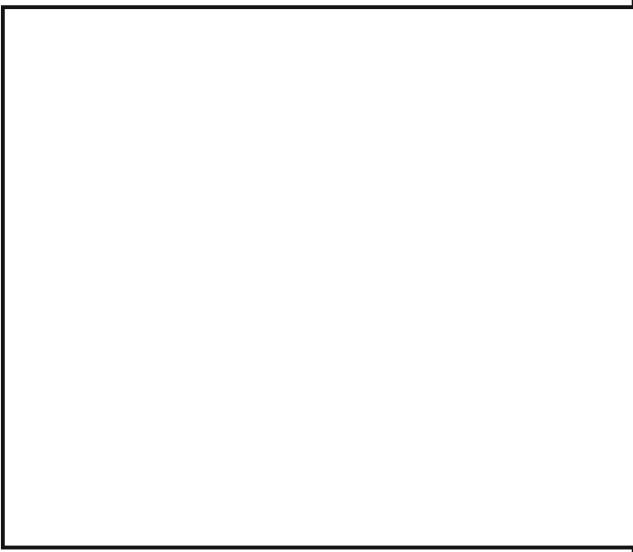
Easy Intercept



Modern Transmission

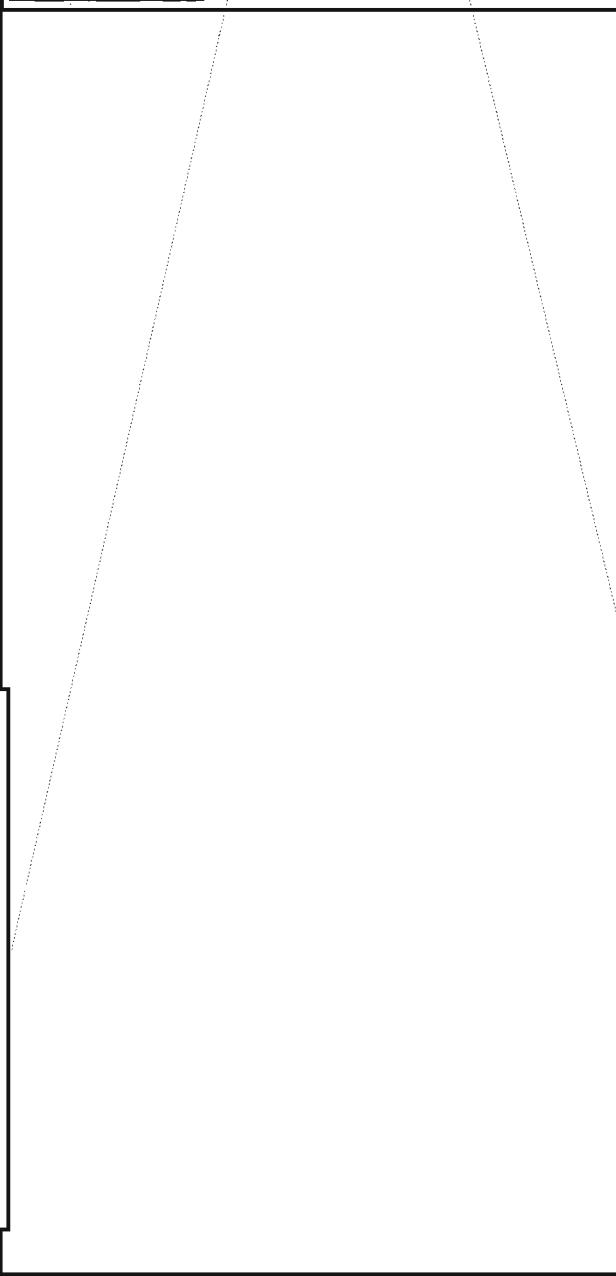
After a message is encrypted, the next step is to transmit it. In this fourth link of the chain there are still some factors over which the Agency has no control. The way a message

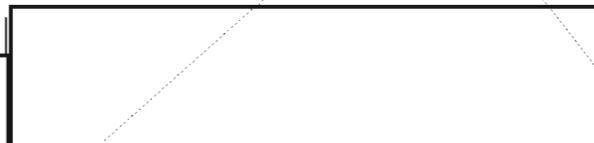
*For a fuller discussion of the translation problems [redacted] see "Thanks for the Attaboy!" (CRYPTOLOG, January 1978).

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P.L. 86-36Rapid DecryptionRecognition and Language Processing

One of the most important functions per-

formed by linguists is called dispostioning or scanning. To perform that task the scanner must not only keep abreast of a fluid set of "requirements" imposed by those who oversee the Agency, but also stay on top of what has already been published and what the consumers of our product think is hot any given time.

Efficient Staff~~TOP SECRET UMBRA~~

~~TOP SECRET UMBRA~~*Interested Customers**Casting Off*

Well, there you have it, folks! Everything you never needed to know about "production." Obviously, in such a short space many things had to be glossed over or skipped altogether. Anyone whose career field was slighted will just have to expand my horizons through an article in this magazine.

(TSC)

KNOW YOUR GEOGRAPHY

R.G. (Tony) Melzer, D5



Webster defines "sea" as "a body of salt water of second rank, more or less land-locked."

How many of these seas can you locate?

Adriatic	Japan
Aegean	Mediterranean
Arabian	North
Baltic	Norwegian
Barents	Okhotsk
Bering	Red
Black	South China
Caspian	White
Coral	Yellow



Solution on page 21. (U)

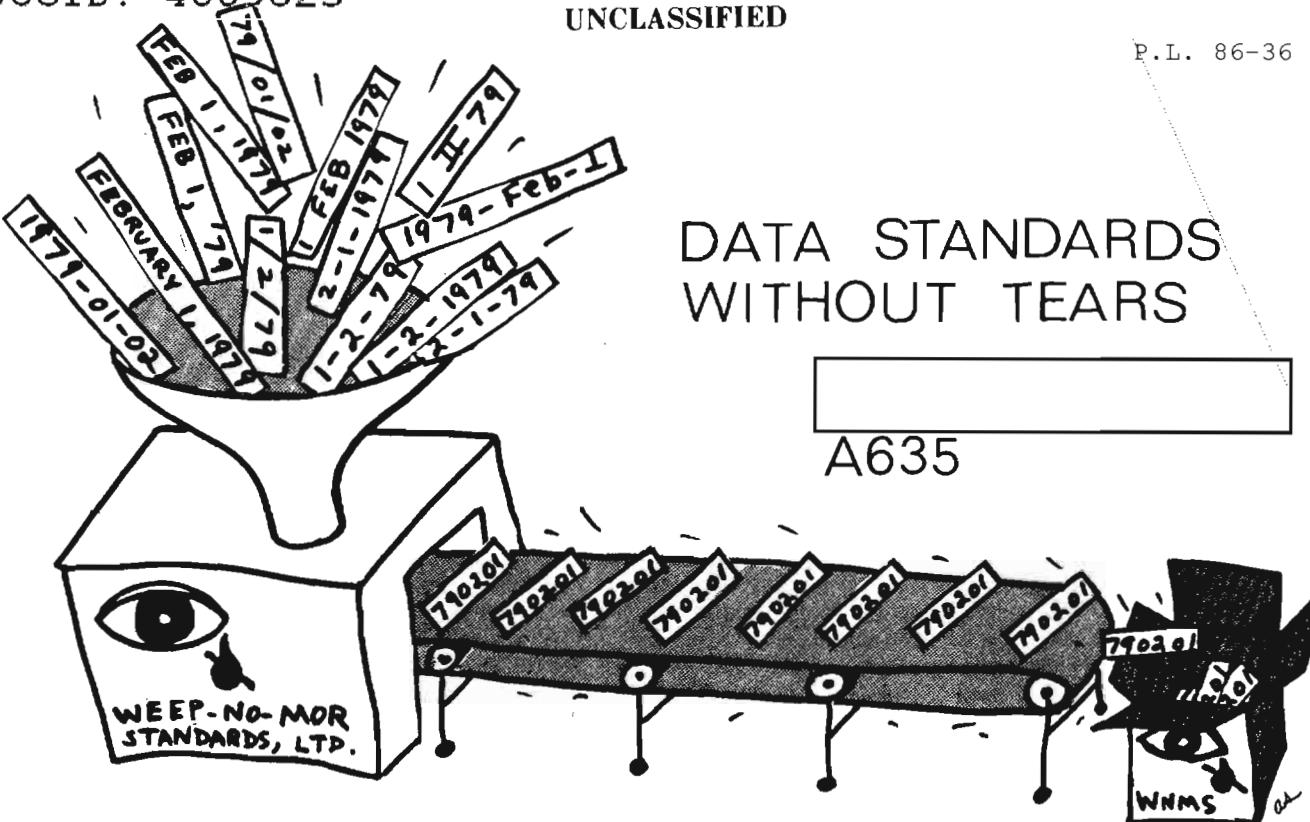
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DATA STANDARDS WITHOUT TEARS

A635



I strayed into the world of data standards quite by accident. Probably few do otherwise. As data base design manager for a fairly large project, I was concerned with the creation of a Data Element Dictionary/Directory (DED/D) system, mainly to document file designs and to provide some general-purpose software such as data editing. The establishment of data standards was expected to be a simple and natural product of the Dictionary. This initial naivete was soon shattered when it appeared that the length of time required to coordinate standards with the central authorities are likely to exceed the life span of the project. Even worse, there appeared to be valid reasons why complete standardization could not be enforced within the project itself. What happened was what will always happen. Standards took second place to operational necessity. The project was completed satisfactorily, as was the DED/D. As far as standards were concerned we did our best, turned a blind eye to some abuses, and hoped for better things in the future.

Since then I have talked at length with data standards experts, studied how things are done, and reflected on the experience of the DED/D. My conclusion is that data standards can be achieved, but that our present approach is wrong. We overcomplicate the issues and lose sight of the real requirements; we worry too much about irrelevancies; we view standards as something which not only can be, but must be, imposed in an inflexible, hard-handed manner.

Let's clear our minds and start again. Consider these two statements:

- Everyone agrees that data standards are a "good thing" in theory;
- No one agrees that data standards should be enforced on his project at the expense of operational necessity.

The crux of the problem is that these two truths appear to be mutually exclusive, so that, when faced with the question "to be or not to be standard" we feel constrained to reply either "yes" or "no." A better way would be to answer "Both." We need both to have standards and not to have them. "Standards without tears" means that we want to have our cake and eat it too.

It goes without saying that this cannot be achieved without some degree of magic. On the practical level the magic machine already exists for rendering coarse materials into fine standard gold. It is without doubt the Data Dictionary/Directory. On a more nebulous level a much stronger alchemy is needed to bend our present attitudes onto simpler, more flexible, more realistic paths.

Firstly, let us have a look at the mechanics of using the DED/D to achieve standardization without tears. From the plethora of terms in present use I have chosen two: "data element" and "data field." Forget "subfields," "data chains," "data use identifiers," "use modifiers," etc., At this point they are red herrings. In this simple system the terms are defined thus:

- data elements are "things,"
- data fields are "homes for things."

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In other words, a data field is a receptacle for holding a data element, and a data element is mostly what you want it to be, but essentially refers to the content of the data field. Do not worry too much about the exact definitions at the moment. Concentrate on the idea of two domains because I do not believe this to be arbitrary. It is a natural separation and, although apparently simple, is fraught with consequences, philosophical, political, and practical.

The immediate practical consequence is that the structure and functions of the DED/D are greatly simplified and the associated terminology is made clear. The Dictionary section of the DED/D describes "data elements." The Directory describes "data fields," and how they are built into records and files, or how they are used in software. No confusion exists because the Dictionary and the Directory deal with two inherently different concepts. A "data element name" cannot be confused with a "data field name" because the one is the name of the "thing" and the other is the name of the box in which the "thing" is put. Similarly, a "data element abbreviation" is the agreed standard abbreviation or code by which a data element is known, while a "field name abbreviation" is just the name of a container in which data can be housed.

Some important attributes belonging to these two domains are:

DATA FIELD:	Data field name Data field name abbreviation Field length (actual) Position in record Thread from Directory to Dictionary
DATA ELEMENT:	Data element name Data element abbreviation Data length (max/min) Definition Values [DATA ITEMS] Configuration(s)

The philosophical consequences of the subdivision into two domains relate to the fact that standards are applied initially at the Dictionary level only. The Directory confines itself to describing actual use. The former describes the ideal world; the latter describes the actual world. The "thread from Directory to Dictionary," listed above, links the real with the ideal. Before the hard-liners point out that this is not standardization but the avoidance of standardization, it is necessary to stress that this is a starting point only. The DED/D is not just a vehicle in which standards are enshrined for the multitude to gape at. It is the mechanism for developing standards. The success of standardization can be measured directly by the degree to which the data field descriptions in the Directory match with the data element description in the Dictionary. There is no

other practical way to tackle the problem. A standards authority cannot confine itself to documenting agreed standards because much of the time these do not exist. Instead the details of actual use should be recorded and analyzed so that new standards can be evolved. Standards will be much more acceptable to users if they evolve in this way from actual use.

Politically the subdivision into two domains is exceedingly useful. The Dictionary may be maintained and controlled by the central authority. Separate Directories can be built in each user area according to user specifications, with a large degree of freedom, saving only that the link from Directory to Dictionary must be present (in the form of some standard number or designator) so that varying data field uses may be related to a single, standard set of data element conventions. When a user builds a new file, he checks first to see if the fields he wishes to use have corresponding data elements defined already in the Dictionary. Say, for example, that he finds the data element name DATE OF BIRTH with the data element abbreviation DATEBRTH. There is a strong possibility that he will adopt the identical name and abbreviation for his data field, thus conforming to an existing standard. But maybe his system hardware or software demands an abbreviation not more than three characters in length. He may then say, "I accept the standard data element abbreviation DATEBRTH, but I must use DOB for my data field name abbreviation."

Two other situations must be catered for: the case of the user who rejects a standard for reasons of personal preference, and the case of a file or a software system which exists before the standard is set up, where the effort required to change it is unacceptable. In the first case, friendly persuasion is called for. In the second, there is no question but that the user wins. This is an overwhelming case against the indiscriminate enforcement of standards. The DED/D system must be democratic, not authoritarian. It is the only reasonable way to proceed. And most people are not rebels. They will accept a standard if they are able to. Thus the DED/D becomes a powerful force towards encouraging standardization whilst being able to accommodate all deviations.

The terms I have been using to express the idea of two domains, "data element" and "data field," are not sacrosanct. The concept matters more than the terminology. There are other words which I rejected earlier as red herrings, e. g., "data chain," "data use identifier." I did not mean to imply that they do not exist, merely that they are of secondary importance. If my "data element" is observed under a microscope it does indeed resolve itself into a number of different types. DATE becomes a data chain made up of YEAR, MONTH, and DAY. DATE OF BIRTH is seen to be a

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composite structure made up of the basic noun DATE plus a usage modifier. The mistake is to imagine that this causes any problem. Data Dictionary designers are sometimes bewitched by ideas of levels and hierarchies. The user needs definitions of YEAR, MONTH, DAY, DATE, DATE OF BIRTH, even DATE OF BIRTH OF FATHER, without worrying about type. Keep it simple. Just enter them all into the Dictionary as plain "data elements." There are many easy methods of expressing the various relationships within the Dictionary.

It also appears, on close examination, that the data element is not really the "thing" itself, but the name and description of a "set of things." Thus DAY OF THE WEEK is a set name. The actual members of the set are values such as "MONDAY" or "TUESDAY." These may be called

"data items" (or anything else), but, again, this poses no problem. They are simply entered into the Dictionary subordinate to their data element. (Some clarification is needed, however, to determine the exact relationship between data item and data configuration.)

To sum up, standards cannot be created in a vacuum. They must be developed from current usage, and this development cannot be carried out without automated assistance of the type offered by a Data Element Dictionary/Directory system which documents the real world as well as the standards world. There are two ways of tackling standardization: the easy way and the impossible way. We've been trying the latter for some time now. It's time for a change.

(U)

WELL, MAYBE A SNIFFLE OR TWO....

Mark T. Pattie, P13D (NSA DATA STANDARDS CENTER)

Since the topic of [redacted] article falls within the area of responsibility of the NSA Data Standards Center, we sent a prepublication copy of the article to Mr. Pattie, the chief of NDSC, and asked him if he wanted to comment on it. He did.

Ed.

Somehow I have the feeling that I am spending more time writing to CRYPTOLOG than I should, but "Data Standards Without Tears" demands a response. Mr. [redacted] uses words very prettily and if I did not already know better I might think he had made a worthwhile point. However, he gives himself away right in the first paragraph with his ". . . there appeared to be valid reasons why complete standardization could not be enforced within the project itself. . . . Standards took second place to operational necessity." If we change "necessity" to "convenience" I think we might be closer to the truth.

Usually, when someone begins a project he looks around and tries to make use of already existing material (standards?) so he won't have to reinvent the wheel. He then builds upon what is useful to him and attempts to develop new material as necessity demands. Within his own project, though, I would think he would be able to "enforce" standards. Otherwise, he must end with a Data Element Dictionary/Directory that will be anything but standard and reliable.

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A DED/D can be a marvelous tool, but it is useful and valid as the material placed in it. The saw, "Garbage in, garbage out" applies here too. That is why I take exception to the reference to the alchemy of "rendering coarse material into gold" which Mr. [redacted] speaks of in his article. The DED/D can provide valuable information about already existing standards and it can also help us pull together elements that ought to be regarded as potential standards. Simply placing material in the file will not automatically make it "gold," though, for it may only be useful within a single project (and, if I understand Mr. [redacted] perhaps only within a piece of a project). Someone would have to work with such material to make it acceptable to another Agency element.

Mr. [redacted] in his castigation of "experts" and "authorities" has really set up straw men for his pot shots. The NSA Data Standards Center has always held that, while we would prefer to see Project Managers use existing data standards, we recognize that individual projects may work without them. Whatever terms they come up with, though, are not standards and should not be regarded as such. We would have to test them out in other uses before we could determine what the Agency status should be. And that, as I pointed out in the previous paragraph, is where the DED/D can be very helpful. It is a tool for us to use. It is not the end-all.

A more detailed comment on "Data Standards Without Tears" is being prepared for next month's issue of CRYPTOLOG. (U)

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LITERATURE SEARCH ON-LINE

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Are you looking for information that may have been published in open-source literature or documentation? An item from an unclassified source? Or an unclassified item published by a government source or by a commercial organization working under government contract? If so, DIALOG may be your answer.

DIALOG is a comprehensive collection of on-line data bases maintained by Lockheed Information Systems, Palo Alto, California. Subject areas include science, technology, engineering, social sciences, business, and economics. Sources of information include research reports, technical reports, journal articles, government reports and publications, periodicals, pamphlets, reviews, monographs, conference proceedings, and books. All data bases are regularly updated to include the most recent information. Additional data bases are being added continuously. All these data bases can be accessed on-line. T12 (Information Services) has several terminals connected to the DIALOG system.

Many of the indexes covered by the DIALOG data bases are subscribed to in hard copy by NSA. These indexes are available for use in the NSA library. DIALOG greatly reduces the time necessary to perform most searches, as compared with manual techniques for searching literature. The accuracy and exhaustiveness of searches performed through DIALOG allow the researcher to retrieve a greater number of

documents with a higher degree of relevance than those obtainable through a comparable manual research effort. Because of the savings in research time and the increased thoroughness of the search results, DIALOG is an extremely cost-effective research tool.

A word about the cost of DIALOG. With DIALOG, the customer (government agency, commercial organization, etc.) pays only for the services that are used. Search charges are based on the time the terminal is connected to the computer, prorated to the nearest thousandth of an hour. There is also a charge for each citation printed and mailed to the customer. Rates vary, depending on the data base used. The expense of the DIALOG system has been included in the T12 budget. Although T12 analysts who operate the terminals must be cost-conscious and stay within this budget, they make every effort to provide complete search service for all operational problems.

The following table lists a few of the data bases currently included in the DIALOG system.

Name of data base (producer)	Information period covered	Number of citations (update period)	Contents of data base	Cost to NSA (on-line connect hour; full record, printed off-line)
ABI/INFORM (Data Courier, Inc., Louisville, Ky.)	August 1971 to present	65,000 (monthly)	Abstracts of significant articles of interest to MANAGEMENT and ADMINISTRATION from approximately 400 publications in business and related fields. Representative publications are <i>Harvard Business Review</i> , <i>Dun's Review</i> , <i>Sloan Management Review</i> , <i>Fortune</i> , and <i>Journal of Marketing Research</i> .	\$65; 10¢
COMPENDEX (Engineering Index, Inc., New York, N.Y.)	January 1970 to present	600,000 (monthly)	Machine-readable version of the <i>Engineering Index</i> (monthly/annual), which provides the ENGINEERING and INFORMATION communities with abstracted information from the world's significant engineering and technological literature. The EI data base provides worldwide coverage of approximately 3500 journals, publications of engineering societies and organizations, conference proceedings, selected government reports, and books.	\$65; 10¢
INSPEC (Institution of Electrical Engineers, London, England)	1969 to present	1,045,000 (monthly)	The Science Abstracts family of abstract journals, indexes, and title bulletins has been published since 1898. Today it forms the largest English-language data base in the fields of PHYSICS, ELECTROTECHNOLOGY, COMPUTERS, and CONTROL. Foreign-language source material is also included, but abstracted and indexed in English. INSPEC includes the <i>Physics Abstracts</i> , <i>Electrical and Electronic Abstracts</i> , and <i>Computer and Control Abstracts</i> . The principal subject areas are indicated by the major headings of the unified classification approach developed for the data base (e.g., Atomic and Molecular Physics; Computer Programming and Applications; Computer Systems and Equipment; and Elementary Particle Physics). Journal papers, conference proceedings, technical	\$45; 10¢



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			reports, books, patents, and university theses are abstracted and indexed for inclusion in the INSPEC data base. Approximately 2000 journals are scanned, of which 200 are abstracted completely.	
MANAGEMENT CONTENTS (Management Contents, Skokie, Ill.)	September 1974 to present	25,000 (monthly)	Current information on a variety of BUSINESS and MANAGEMENT related topics to aid individuals in business, consulting firms, educational institutions, government agencies or bureaus, and libraries in decision-making and forecasting. Articles from approximately 200 U.S. and foreign journals, proceedings and transactions are fully indexed and abstracted to provide up-to-date information in the areas of accounting, decision sciences, finance, industrial relations, managerial economics, marketing, operations research, public administration, etc.	\$55; 10¢
NTIS (National Technical Information Service, U.S. Department of Commerce, Springfield, Va.)	1964 to present	610,000 (biweekly)	Government-sponsored RESEARCH, DEVELOPMENT, and ENGINEERING, plus analyses prepared by federal agencies, their contractors, or grantees. It is the means through which unclassified, publicly available, unlimited-distribution reports are made available for sale from such agencies as NASA, DDC, AEC, HEW, HUD, DOT, Department of Commerce, and some 240 other organizations. State and local government agencies are now beginning to contribute their reports to the file. The data base includes material from both the hard and soft sciences, including substantial material on technological applications, business procedures, and regulatory matters. Many topics of immediate broad interest are included, such as environmental pollution and control, energy conversion, technology transfer, behavioral/societal problems, urban and regional planning.	§35; 10¢
PAIS INTERNATIONAL (Public Affairs Information Service, Inc., New York, N.Y.)	Bulletin: 1976 to present; Foreign-language index: 1972 to present	45,000 (quarterly)	Information in all fields of SOCIAL SCIENCE, including political science, banking, public administration, international relations, economics, law, public policy, social welfare, sociology, education, and social anthropology. 25,000 citations taken from more than 1200 journals and more than 8000 books, pamphlets, government publications, agency reports, and other documents are added yearly.	\$60; 15¢
PTS DATABASES (Predicasts, Inc., Cleveland, Ohio)	(varies according to file)		PTS (Predicasts Terminal System) maintains a number of BUSINESS-related files which are available on DIALOG. The EIS Plants data base provides immediate answers to a broad range of questions concerning the U.S. industrial economy. The F&S (Funk and Scott) Index cover both domestic and international company, product, and industry information. They contain information on corporate acquisitions and mergers, new products, technological developments, and sociopolitical factors. The Federal Index covers such federal actions as proposed rules, regulations, bill introductions, speeches, hearings, roll calls, reports, vetoes, court decisions, executive orders, and contract awards. The Washington Post and federal documents such as the Congressional Record, Federal Register, Presidential documents, and Commerce Business Daily, are indexed on a regular basis. The Predicasts Market Abstracts data base provides information on acquisitions, capacities, end uses, environment, foreign trade, market data, new products, production, regulations, and technology. Significant information is abstracted from	\$90; 20¢

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			thousands of newspapers, business magazines, government reports, trade journals, bank letters, and special reports throughout the world.	
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IN DEFENSE OF THE INDEFENSIBLE: Notes on the Russian PQE

Emery Tetrault, P16

Although the current Russian-language population at NSA is made up, for the most part, of shy, self-effacing scholars, its members can be uncharacteristically vociferous on the subject of language testing in general and the PQE (Professional Qualification Examination, for anyone who has just returned from 10 years on the dark side of Mars) in particular. This is a healthy phenomenon, but it should not merely assume the form of a diatribe against the pinheads who devise such tests, not because of humanitarian concerns, but rather because such a course of action is ultimately self-defeating. I am convinced that there are some individuals who have failed the Russian PQE (particularly Part I) out of test fright, or, more accurately, out of test repulsion. They have shared so many horror stories about the PQE with their colleagues that it has become for them an insurmountable barrier, a psychological Berlin Wall. As a result, their performance on the PQE may not be consistent with the actual level of their language skills. This is sufficient reason for someone to present at least a factual account of current test practices, if not a spirited psycholinguistic defense of the PQE. I shall limit my remarks to Part I A, the "non-voice," open-source section of this lengthy and occasionally unpleasant process.

For all languages except Russian, Part I A of the PQE is made up of a 500-550 word text of the language variety often found on the op-ed page of a newspaper. The test task is to produce a smooth idiomatic translation into English. In reality, few if any test papers realize this standard, but that is a story for another day and another article.

Up until PQE 13 (July 1976) the Russian I A was like this too. However, someone somewhere began adding up the person-hours involved in running this kind of PQE for Russian. Test preparation was a negligible part of the total, but scoring the test was a nightmare. Grading translations has never been an exact science and, therefore, it was done by a committee -- five senior linguists in the case of Russian. Each grader graded every paper independently, using the approved grading system, and then the committee met to make a preliminary evaluation. Papers were labeled "Pass," "Fail," and "Maybe," regraded during a series of follow-up meetings, and all the Maybes were regraded during a series of follow-up meetings. As the test population for each successive Russian PQE began to reach 120-130, this process started taking so much so-

called operational time (not to mention "subbotnik" time as well) that the same someone said, "Enough already!" And so the search for an alternative method began.

This alternative turned out to be a two-part test not unlike the Russian I A that we all know and love today. Early in 1976 we ran a kind of feasibility study with the help of some people who had just taken Russian PQE 12. About 32 hardy souls took an experimental test battery, the results of which were correlated with the PQE, Part I which they had just completed. The correlation was quite high and, more significantly, the first six ranks on the experimental battery were filled with five of the six people who had passed the PQE. The results were good enough for the Language Career Panel and the Russian PQE Committee, and the decision was made to go ahead with the new test forms.

The last two Russian I A exams have represented somewhat of a departure from the forms and procedures first used in 1976. The Russian Completion Subtest has changed very little (although verb pairs are now given in the word lists rather than single verbs), but the Translation Completion Subtest is a substantially different animal from what it was originally. On both subtests, examinees are allowed to use dictionaries (this was not the practice at first).

The Completion Subtest is a text of 220-240 words with 50 words deleted and 70-75 candidates for these blanks given on a facing page. Deletions cover a spectrum of difficulty from the trivial to the nearly impossible. Items can be said to describe a kind of bell curve; most of them are medium-tough with a few easy ones and a few hard ones thrown in on the ends of the spectrum. Items deleted are both syntactic and lexical, both bound and free (recoverable only from situational context). Morphology is tested as a by-product, since most content words inserted into blanks have to be inflected to fit both linguistic and situational context. A brief sample (without word lists) is given below:

... Все начались С
приспешствия. Аварии не
произошло, но обстановка
создалась опасная, когда

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водитель А. Морозов на автомашине, которая принадлежит институту "Госгипроводхоз", при выходе из тоннеля под Голубинской площадью не выдержал дистанцик. Во избежание столкновения со впереди идущей машиной он резко нажал на тормоза, и автомобиль развернулся перекресток.

This sample shows some of the possible kinds of deletions: bound prepositions (с and на), partially keyed items (принадлежит, выходе, под, etc.), and the more or less free (informational) items (опасная, впереди). Any plausible response other than the keyed answer is tried out on a native speaker. Scoring is simply two points per blank, with half credit given for a good selection incorrectly inflected (aspect choice is considered a selection, not an inflection).

The Translation Completion Subtest has gone through a lot of growing pains as a test form. At first it was thought that the underlying translation should be as different structurally from the original Russian as the law allows. However, the tendency now is to produce a reasonably smooth English text and let the natural differences between Russian and English (particularly the differences in informational structure as marked by element ordering) do the job without too much outside help. Once again we have a brief sample, a Russian text followed by a partial translation.

Сегодня криминалиstu нельзя быть просто криминалистом. При расследовании дел он часто попадает в такие ситуации, где нужно глубоко знать физику, химию, биологию, психологию... Поэтому в современной криминалистике появляются более узкие профессии.

The criminologist today cannot simply limit himself to criminology. In the course of investigating a case he will often find himself

in the kinds of situations which require a thorough knowledge of physics, biology, medicine, psychology. . . Consequently, a number of subfields have been emerging within the field of modern criminology.

The weighting or point value attached to each blank in the translation depends on the segment of Russian text being processed, not on any particular number or combination of English words. Thus any response that fits the context given and that accounts for the semantic features of the original Russian is correct and, in actuality, there are many different correct answers in this form of test, just as there would be many different correct translations of any given text.

When a different set of tests is used for each PQE cycle, there is justifiable concern about the reliability and validity of such a testing procedure. For this reason, all the potential test forms for a particular PQE cycle are first tried out on a small number of certified linguists and the best example of each test type is selected for the PQE. In the case of the Russian Completion Subtest, a native speaker of Russian is also asked in fill in his or her responses, a practice which we initiated with PQE 17 and which has proven to be extremely useful. This form of pretesting addresses the issue of content validity.

Predictive validity and reliability are ensured by having a small group of controls, four or five certified linguists, take the PQE along with the test population. The performance under actual testing conditions of this control group is then used to set the Pass/Fail cut. These individuals who make up the control groups for each PQE are performing an extremely valuable service and they should be encouraged and, if possible, rewarded by such bodies as the Language Career Panel and the A Group Language Advisory Committee. Maybe a steak dinner wouldn't be too far out of line.

There is no doubt in anyone's mind that the testing procedures now used for Russian PQE Part I A save time and money. The results of PQE 17, for example, were in the hands of the Language Career Panel in a matter of a few weeks rather than 3 or 4 months and with little or no time taken away from line functions (other than the time used by control groups to take the PQE along with the test group). But, obviously, cost effectiveness is not enough. Part I of a language PQE must, above all, measure the right level and the right kind of

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language proficiency. I believe it does and I believe that the individuals who have passed this form of PQE actually meet the minimum general standards set forth in existing descriptions of L-3 (Minimum Professional Proficiency). With the exception of a small number of people who may be spooked by the format, most people who fail this exam do so because they don't know Russian. Any other comparable measure of proficiency would produce the same results. The errors I see repeated 50 or 60 times on a hundred papers can be traced to certain features of Russian structure and lexicon and not to any particular arrangement of blanks on a test form.

There is a tendency in discussing the current method of assessing L-3 general language skills in Russian to forget what this method replaced. Translation testing, as it was practiced by Russian PQE committees, is not beyond criticism (for a discussion of the rationale behind the Agency's first Russian-language certification examination on 6 and 9 October 1967, see "The Russian-Language Certifying Examination," by Arthur J. Salemme, *QRL -- The Quarterly Review for Linguists*, Vol II, No. 2, February 1968). It was hard for the PQE committees to judge the relative difficulty of one text over another and, as a result, one PQE could be and most certainly was more or less demanding than the one preceding it, a fact which was demonstrated

by abrupt changes in the Pass rates, which fluctuated between 11 percent and 40 percent. While no particular Pass rate is sacrosanct, abrupt shifts in the percentage of people passing a PQE usually mean that test standards have changed, since the collective proficiency of the NSA Russian-language population doesn't change all that rapidly.

The present PQE can and should be improved and it is the duty of the Russian-language community (if there is such an entity) to keep the heat on the Language Career Panel to do so. One way to achieve this goal is for supervisors to encourage their professionalized Russian linguists to participate in the PQE process, both as pretest subjects and as controls. In this fashion, most of the bugs would be shaken out before 150 people see them and test validity and reliability would also be greatly enhanced. This is one area in which a relatively small investment of "operational" time would yield immediate results.

No one is suggesting that current PQE procedures are above criticism, constructive or otherwise, but such criticism should never be uninformed. To simply dismiss the whole process as the product of warped minds or pointy-headed theories is to perform an ultimate disservice to the cause of professionalism, a cause to which all but the most cynical proclaim their allegiance at every opportunity. (U)

LETTER
TO
THE
EDITOR

To the Editor, CRYPTOLOG:

If CRYPTOLOG had never existed except to print [redacted] article ("Some Tips on Getting Promoted," December 1978), the service to NSA employees would have been worth the entire CRYPTOLOG budget since its birth. I was very pleased to see such an important message receive the publicity you gave to it.

The Personnel Summary can be a potent effective document for promotions, rotations, and overseas assignments.

I am convinced that in the last 18 months at least three 'extra' G4 people have been promoted by the NSA boards -- because their Personnel Summaries were carefully written and reflected work well done.

Within G4, I use the Summaries to help with our rotation program.

Yesterday I reviewed the Personnel Summaries of 11 applicants for an overseas position.

Of all the papers that attend one's career at the Agency, I believe that the Personnel Summary is the most important and influential.

CRYPTOLOG is a great publication. Has been for years. My personal files contain several selected articles clipped from previous CRYPTOLOGS. But [redacted] article will be so useful, I ask that you send me 100 copies. I will circulate them in G4. I will make them required reading for touring interns. I will use them for my class in Promotion Theory.

Thank you and [redacted] for a valuable service to the Agency.

Charlie Bostick, G4 (U)

Editor's Comment:

Charlie's note was just the first of several requesting additional copies of [redacted] article. Anyone wishing to obtain additional copies may do so by calling the CRYPTOLOG office, ext 3957. (U)

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J. Gurin, R5

An acquaintance once described to me how he had to stand by helplessly while his very own company swelled its ranks with what he terms "nonproductive" people. He had started the firm himself, to cash in on an idea he had developed for monitoring the public's reaction to TV fare. A psychologist, he teamed up with engineers, statisticians, programmers, and others to develop and market the product, which did very well. It is now widely accepted by the television industry as one of the most reliable indicators of how well any program is doing.

But as the company grew and prospered, he found that he was required to add all sorts of people who had little or no relation to the basic mission of the enterprise. He needed a legal staff, public relations people, personnel counselors, etc., and admitted to some resentment at having to keep people on the payroll who played no role in improving the product or selling the service. "I am the one who does the hiring and firing," he said, "and yet I can't control the addition of nonproductive types to my payroll."

Another illustration of this sticks in my mind. In a magazine article a few years back, a retired Dean of Men from a small, respected private school wrote about his reaction during a visit he made to the school some 20 years after retirement. He was saddened to find that, although the size and abilities of the student body were about the same and the courses they took hadn't changed much, the non-teaching staff had increased greatly. He was certain, he wrote, that the quality of the graduates and of the instruction was much the same as it had been in his time. So why all the extra staff? Naturally, the tuition costs reflected their presence, but he could find no justification for them in the output of graduates.

Much the same thing happens with any institution, and this Agency is no exception. I suppose that at one time in our history, as the work force came through the gate at the end of a day, all but a few had been directly involved with processing intercepted traffic. Most likely the categories of traffic handler, crypt clerk, cryptanalyst, traffic analyst, and translator made up the bulk of those coming through, and after one added clerical help and a handful of bosses, all but a few were ac-

counted for. But we have changed -- and I'm not saying that it is better or worse today, just different.

There are many reasons why a large organization takes on people who have no direct involvement with the basic mission of the organization, and many of those reasons are convincing enough. But there is always the danger that the overhead will grow disproportionately large, and that the sound economic balance of the enterprise may be threatened and productivity undermined.

In a recent article in *The Washington Post*, Charles Peters, former bureaucrat and now editor-in-chief of *The Washington Monthly*, attacked the federal bureaucracy, citing some horrendous instances of waste and inefficiency. No doubt many of his charges could be refuted by those in possession of the facts, but some sounded authentic, or at least familiar. One of his tactics was to distinguish between what he called "essential work" and the work performed by those "employees with titles like Planning Analyst, Schemes Routing Specialist, Manager of Creative Services, Social Priorities Specialist, Suggestions Awards Administrator, Fringe Benefit Specialist, or Confidential Assistant to the Confidential Assistant (all real titles)."

It would be difficult, without detailed information, to defend jobs with such seemingly frivolous titles, although it is perfectly reasonable to assume that some could be justified to the satisfaction of the taxpayer. Perhaps we have jobs at NSA that would sound frivolous to those not privy to the jargon of bureaucracy or to that of SIGINT or COMSEC activities.

Given the propensity of any institution to add positions which may be only distantly related to its mission, what is needed is some way of fixing and maintaining a balance between those employees engaged in the basic mission or missions of the organization, and the other employees. To be more specific, it would be advantageous to be able to grade all employees by the relevance of their particular jobs to the fundamental mission of their organization. Having done this, it should then be possible for management to ascertain trends and to manipulate the balance with some precision.

But how do we define those jobs which are

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most closely related to the mission of NSA? And isn't the degree of relatedness a subjective judgment rather than a measurable quantity? And, as Bob Cooper (recently returned to DDO from CSEC) pointed out to me at lunch the other day, the Agency surely has more than one basic mission.

Yes, yes, it is a complex problem. It certainly requires subjective judgments, but then so do all hiring and staffing actions. What scientific rules govern tables of organization? Promotions? Grade levels for jobs?

So what I suggest is that each job in NSA be rated to indicate how close it is to a basic mission of the Agency. This is *not* to imply that jobs which are not closely related to a basic mission are not important. Far from it. It is just that the distribution of jobs must be a matter of proper proportion, and that proportion should be visible if it is to be kept under control. If, for example, DIRNSA proposes to absorb a personnel cut with minimum impact on SIGINT production, he should be able to specify with precision the types of jobs among which the cuts should be made, or in which they should not be made.

Suppose we assign the number 1 to those jobs which call for direct participation in the production of SIGINT product. Cryptanalysts, traffic analysts, appropriate programmers, and others who are *directly* involved in getting the product ready for the consumer should be on jobs that carry the 1 label. First-line supervisors who are not doing the work themselves, in addition to guiding others, should

be on jobs carrying a 2. Typists, and others who assist in this kind of operations, should be on 3 jobs. The farther the job is from the basic mission, the higher the number. To repeat: the only function of the number is to indicate how close the job is to the basic mission, not to indicate the value of the operation. A security guard performs a vital function, but the number attached to his job would be high, since his function is distant from the basic mission. Warehousemen and medical personnel perform vitally important functions, but their jobs are not basic to the mission.

The value of a system of job-grading such as this would lie in providing a display of the distribution of personnel resources by mission-relatedness. One could even envision deriving a number from the system which would represent the average of all the job numbers, multiplied by the number of incumbents. It would be useful, for example, to know that if our average was 6.22 last year, it climbed to 6.93 this year. Could the increase be explained away to the Director's satisfaction, or should he set as a goal the reduction of the number so as to assure himself that we are not losing sight of our real purpose in existing and spending the taxpayer's money?

Several of my more cautious friends have suggested that this article should be credited to an anonymous author, to protect me from possibly furious reactions. But I protest, in advance, that it would be reasonable to expect that my own job would be given a very high number, as it should, although I consider it a useful one.

(U)

SOLUTION TO NSA-CROSTIC No. 21

(CRYPTOLOG, January 1979)

W. Averell Harriman, "[Soviet-American] Relations," *Cryptologic Spectrum*, Summer 1976, Vol. 6, No. 3:

"In April 1945 I...[came] back to brief President Truman on...Stalin... I found he didn't need [very] much briefing because he had read the Yalta documents with great care and all the post-Yalta cables... He was a great student of history and that was...why he was able to deal with these new and complex problems with such skill." (U)

CLARIFICATION

The November 1978 issue contained an item stating that the Language Career Panel will award Certificates of Achievement to military linguists who pass the Language Proficiency Test. Effective 1 October 1978 any military linguist who receives a passing score on the LPT will receive a certificate; those who score five points or more over the passing grade for *each* of the two sections of the LPT will receive the certificate "with honors."

Military linguists who passed an LPT prior to 1 October 1978 should apply to the LCP for a certificate. The composite score requirements given in the November issue can be misleading and should be disregarded.

For further information, contact Capt [REDACTED]
[REDACTED] M36, ext 8267s. (U)

NSA-crostic No. 22

By D.H.W.

The quotation on the next page was taken from the published work of an NSAer. The first letters of the WORDS spell out the author's name and the title of the work.

DEFINITIONS

	<u>WORDS</u>
A. Hill; western city	201 139 182 127 225
B. Patronizing (one word); prisoner going downstairs (2 wds)	239 4 188 29 178 163 223 209 40 15 64 58 206
C. Removing facial hair again	120 23 162 100 1 51 28 60 168
D. Complete, thoroughgoing (comp)	75 80 176 16 125 41 246 111 55
E. —— bridge, in physics	31 249 14 195 21 84 81 57 160 42
F. Allen or Frome	200 91 132 220 170
G. Holmes' response when asked to identify the citrus plant: "A ——" (5 wds)	2 63 102 243 8 26 49 164 167 179 150 193 82 71 89 233 118 136 151 32 46
H. Mournful	154 7 44 169 180 114 159 70 25 197
I. Annoy; tease	72 115 103 134 203
J. —— and needles (2 wds)	108 186 235 190 221 144
K. Thomas or Horace	251 240 247 231
L. Plants of the nightshade family	68 218 61 211 129 59 37 117
M. Involving the lending of money at excessive interest	157 19 194 149 56 97 181 245
N. Hometown of the comic strip trolley car	241 106 128 174 50 224 184 213 155 196 148
O. Undergoing evolutionary change	30 147 145 34 122 242 214 175
P. Strong surface current flowing outward from the shore	199 204 110 74 121 222 232
Q. Sleepwalkers	212 77 219 205 226 109 156 85 237 192 27 248 140
R. Broad sash, often worn with formal attire	104 39 152 3 250 119 166 54 142 35
S. Logical sponsor for TV series about NSA (2 wds)	43 228 107 113 76 69 238 86 67 12 185 38
T. Play (1961) and movie (1966) by Thomas Bolt, about Sir Thomas More (5 wds)	141 78 116 9 98 24 33 133 53 130 172 93 76
U. Chinese dentist time (comp)	165 45 18 5
V. Fellow; roughening of the skin from exposure	227 10 126 6 137 22 171 105 216 96
W. Clumsy; ungraceful (comp)	13 177 48 79
	62 47 95 191 131 36 234 229 124 101 143

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X. Copy of a document made on
specially treated paper

236 92 88 207 52 158 17 20 11

Y. Plant louse

198 87 208 187 94

Z. Donizetti opera (4 wds)

189 153 202 230 73 99 183 65 138 146 90 217 123

83 135 215 173 210 161 244 112

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

(Answer next month.) (U)

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with ground forces ...
 hold the cases. Perhaps the results are still
 marked "Indefinite Retention".

P.S.

The two articles on Project SPELLMAN* prompt me to add this p.s. to those tales of the ill-fated P.S. Mine was a passing involvement -- some few hours, I recall -- but an involvement that allegedly contributed to the demise of the project.

I gather that ASA did put a great deal of time, effort, and money into the project, for, as I heard sometime afterwards, the \$3 million project had been scrapped. Don't ask me to vouch for that figure. All I know is that at the time \$3 million was a whole lot of money compared to a transcriber's salary. I probably just saluted in reaction and went back to transcribing chores. Those were the days when a transcriber was paid to transcribe and . . . I think I should not say more.

What was my brief encounter with SPELLMAN? Well, I was a transcriber (of questionable repute) and a typist of some proficiency. Oh, I might just as well say it -- there probably weren't two or three others at the time who could do as well at the keyboard, especially on the IBM Selectric with the Cyrillic keyboard. So, along with the tin ear, which everyone had to some degree or other, I had a pretty good reputation as a typist. Thence I was selected to participate in the "SPELLMAN test."

I don't know what criteria were used to grade the test. The results of my test were compared with the results of six SPELLMAN persons who had taken the test on their stenotype machines. (Six persons, six parts, 36 scores.) Holly informed me later of the outcome -- I had scored better in 35 of the 36 cases. Amazing? I don't know. But if the recovery rate, however quantified, of a tin-ear transcriber, especially

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P.L. 86-36

with a typewriter was that good, what worth was the SPELLMAN concept? I don't know what Holly and others concerned with the project expected from my taking the test. I have a notion the ploy was to drive another nail in the SPELLMAN coffin. To be perfectly fair and objective about it, perhaps someone who could not type quite so rapidly should have been chosen to take the test.

I don't recall exactly. My vague recollection is that Gary, who had prior knowledge and experience with [redacted] bested the SPELLMAN participants in over half the cases. Perhaps the results are still available. . . in that box marked "Indefinite Retention."

(S 660)

*A. J. Salemme, "I Remember SPELLMAN," CRYPTOLOG, July-August 1978; [redacted]
 "More B.S.", CRYPTOLOG, October 1978.

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LETTER
TO
THE
EDITOR

To the Editor, CRYPTOLOG:

In the December issue [REDACTED] "To Whom It May Concern" describes a sad situation but leaves out an even sadder part of it. I believe he was present in the auditorium when those who were "selecting their supporting casts" were giving their pitch to NSA personnel who might be interested in working in the new organization. When I left the auditorium I had the sinking feeling that I had been listening to a couple patent medicine barkers.

The top man introduced himself as someone who had no previous position in the Intelligence Community and he said that he looked upon that fact as an asset. No predispositions, I suppose. When he finished his spiel, one of his chief assistants took the floor to describe the actual jobs he was trying to fill. He said he had had a brush with the intelligence part of his former agency when he first went to work there, but succeeding jobs took him far afield. He left a number of questions unanswered but I thought that, with the proper selection of his personnel, the concept might work.

Several months later the second man returned to NSA to interview those who were interested in hearing more about the jobs. In my session with him I learned that he had been using the intervening time to fill the higher positions with people similar to himself, with little or no experience in intelligence work. What he was seeking, he said, was assistants who would provide the proper support to his

choices for the top jobs. I thanked him but said I was not interested, for I fear I would find it too frustrating to have to explain the facts of life in intelligence gathering to someone who should already have that knowledge.

I am sure that this organization was set up with the best of intentions but I am also sure that the actuality will in no way resemble the ideal. Like Lou, I am not optimistic.

Mark T. Pattie, Jr.
Chief, NDSC

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IN CASE YOU'VE ALWAYS WONDERED...

I was talking not too long ago with one of the young ladies of the Agency, who was telling me about a recent encounter. Seems she had been in the ladies' room washing her hands when one of the members of the custodial force came in, and walked up to the wash basins. She looked at all the little paper towel half-moons lying on the basin rims and on the floor and muttered something about all the thoughtless people who dirty up the restrooms.

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My friend tried to suggest, quite gently, that maybe the reason all those semicircles keep tearing out of the edges of the paper towels is that the towel dispensers are loaded too tightly at refill time.

"Nonsense," said the custodian. "The reason all those pieces tear out is that people grab for the towels when their hands are wet." dhw (U)

Solution to
KNOW YOUR GEOGRAPHY

by Tony Melzer, DS

- | | |
|-------------|------------------|
| 1 North | 10 Bering |
| 2 Norwegian | 11 South China |
| 3 Baltic | 12 Barents |
| 4 Black | 13 White |
| 5 Caspian | 14 Arabian |
| 6 Red | 15 Aegean |
| 7 Yellow | 16 Adriatic |
| 8 Okhotsk | 17 Mediterranean |
| 9 Japan | 18 Coral |

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CLA — NCS FEATURE FOREIGN FILM FOR FEBRUARY

UGETSU

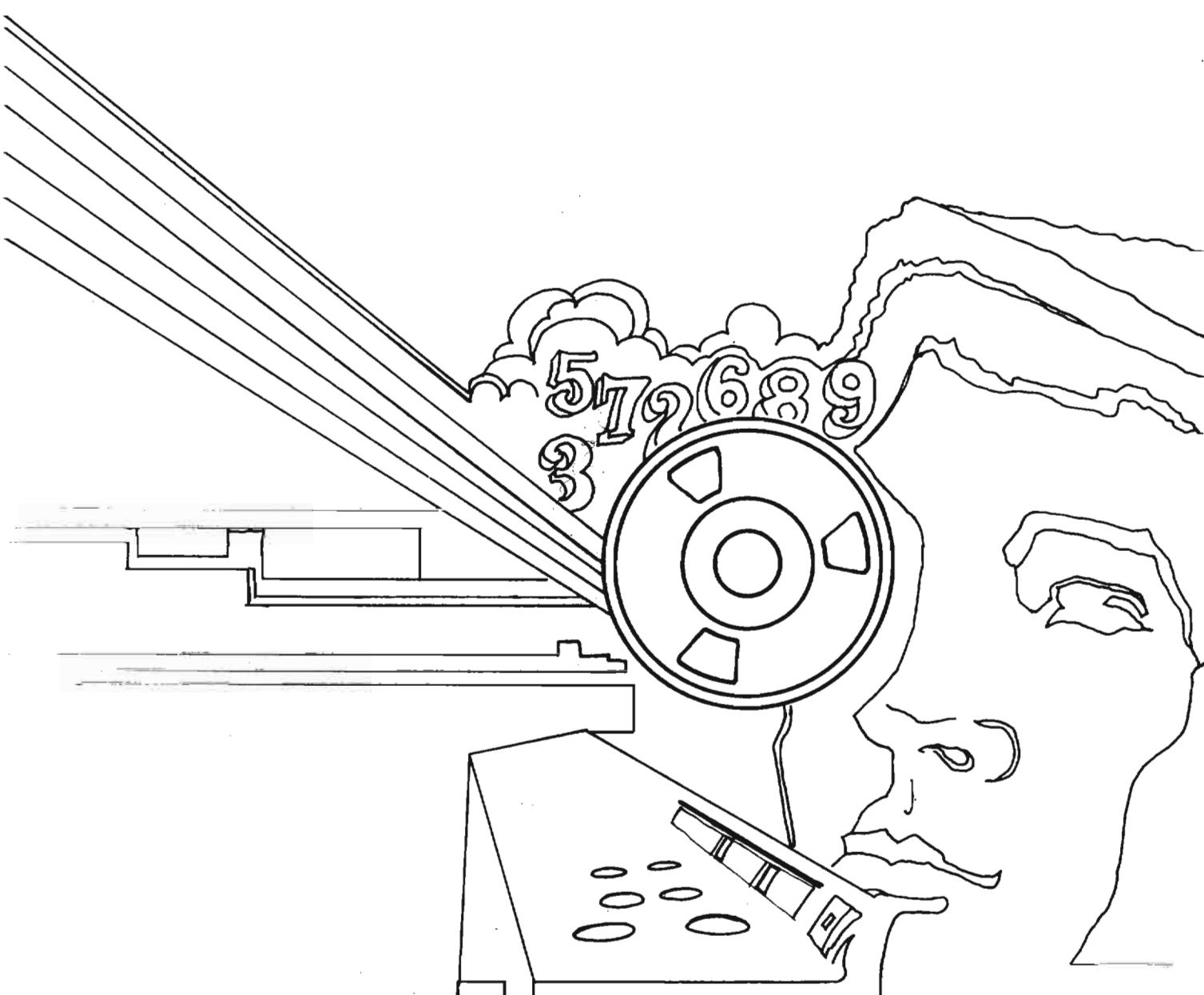
JAPANESE SOUNDTRACK WITH ENGLISH SUBTITLES

THURSDAY, FEBRUARY 8TH AT 0930

FRIEDMAN AUDITORIUM

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