

~~TOP SECRET~~

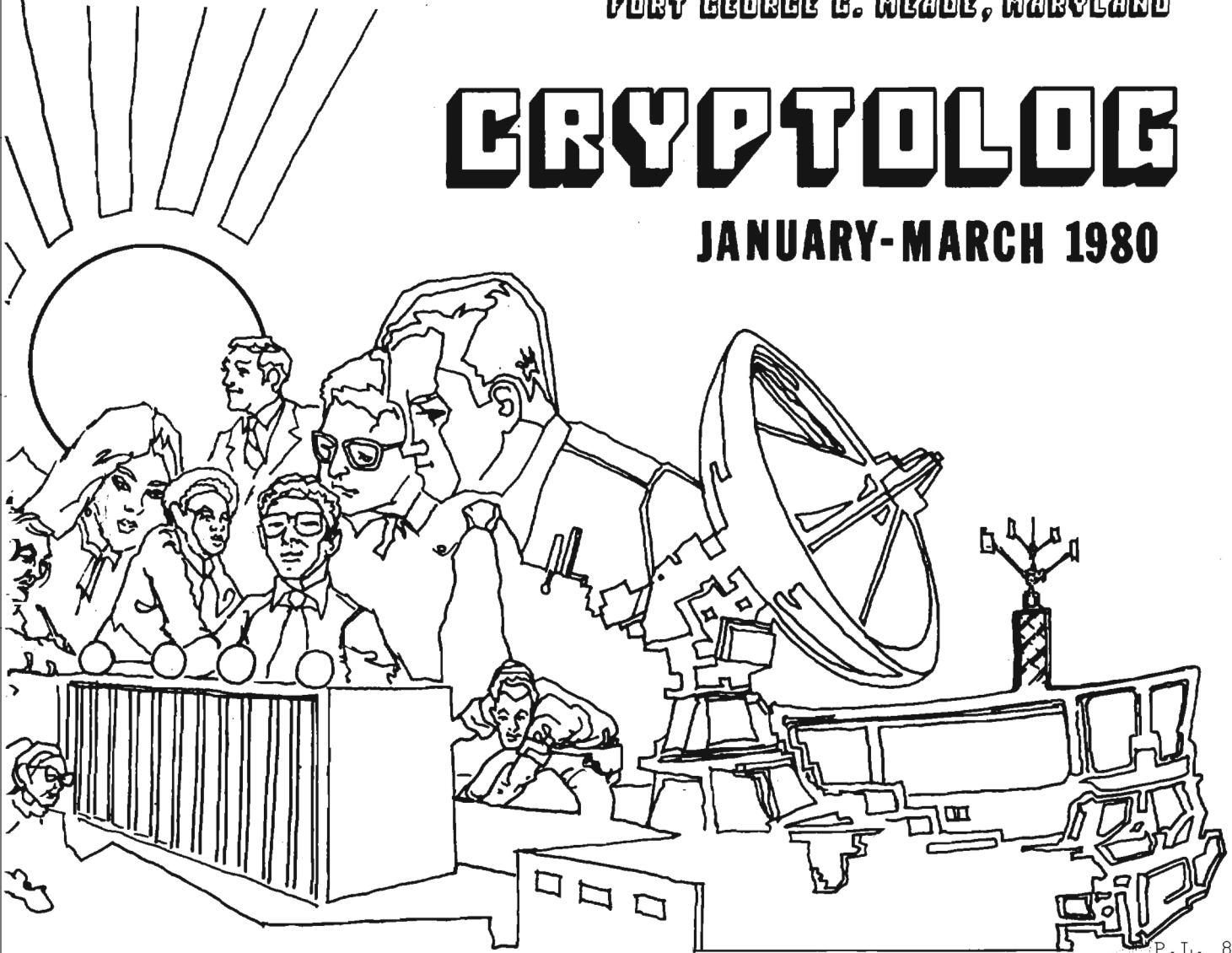
E42



**NATIONAL SECURITY AGENCY
FORT GEORGE G. MEADE, MARYLAND**

CRYPTOLOG

JANUARY-MARCH 1980



P.L. 86-36

THERE'S A NEW WORLD COMING — ARE YOU READY? (U).....	[REDACTED]	.....	.1
LIP (U)	[REDACTED]	.....	.4
SYSTEM ACQUISITION DOCUMENT REVIEW (U).....	[REDACTED]	.....	10
ANALYSTS OF NSA, ARISE! (U).....	[REDACTED]	.....	11
COMING HOME (U).....	[REDACTED]	.....	13
CIRC: AN INTELLIGENCE DATA BASE (U).....	[REDACTED]	.....	14
BETWEEN THE LINES OF YOUR PERFORMANCE APPRAISAL (U).....	[REDACTED]	.....	17
NSA-CROSTIC No. 30 (U).....	D.H.W.	.....	18
NSA/CSS MILITARY LINGUISTIC PROGRAM.....		.....	20

~~THIS DOCUMENT CONTAINS CODEWORD MATERIAL~~

~~TOP SECRET~~

~~CLASSIFIED BY NSA/CSSM 123 2
REVIEW ON 1 MAR 2010~~

~~TOP SECRET~~

CRYPTOLOG

Published Monthly by P1, Techniques and Standards,
for the Personnel of Operations

VOL. VII, No. 1 - 3

JANUARY — MARCH 1980

PUBLISHER

WILLIAM LUTWINIAK

BOARD OF EDITORS

- Editor-in-Chief.....David H. Williams (1103s)
- Collection..... [redacted] (8555s)
- Cryptanalysis..... [redacted] (4902s)
- Cryptolinguistics..... [redacted] (5981s)
- Information Science..... [redacted] (3034s)
- Language..... [redacted] (8161s)
- Machine Support..... [redacted] (5084s)
- Mathematics..... [redacted] (8518s)
- Special Research.....Vera R. Filby (7119s)
- Traffic Analysis.....Don Taurone (3573s)

P.L. 86-36

For individual subscriptions
send
name and organizational designator
to: CRYPTOLOG, P1

~~TOP SECRET~~

There's a New World Coming - Are You Ready? (u)



P.L. 86-36

Analyst response to a changing environment is an area that has piqued my interest for a number of years. This (u) interest has become especially pronounced in the last four or five years, largely as the result of the increase in the variety and number of automated processes that have become available, my involvement in a number of long-term research projects, and the prospects of newer and more sophisticated machine-based analytic techniques. As a consequence, I have given much thought to the effects that this increased automation will have on the analyst and to what we, as an organization, can do to respond to the challenges and opportunities that will arise.

(u) If we are to accurately assess how the analyst of the future will react to the increased automation of the analytic process, it is necessary to know the analyst of today. This is logical, since the majority of tomorrow's analysts are already on board and active in the analytic field. It also becomes essential to define the functions of the analyst since all personnel who carry the title "analyst" are not analysts by the strictest definition of the word. For convenience and easy reference I have divided these "analysts" into three categories which I've labeled, for lack of any better terms, "loggers," "case analysts" and "research analysts."



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

(u) The changes expected as we become more and more automated will alter the methods and procedures currently used in the analytic areas. This will have a profound effect on our operations, but to an even greater extent it will modify the lifestyle and environment of each of the three types of analysts I've defined. Each will be affected in a different way depending on the analyst's perception of analysis, his personality and his ability to adapt.

(u) Once the machine takes over the simple data manipulation and recording functions, the "logger" will become, to a great extent, obsolete. His routine will be upset and his workaday world completely disrupted. He will no longer have his logging to fill his day. He won't know what to do and he'll be completely lost. For those currently having trouble isolating the "loggers" in their outfits, they'll then be very easy to spot. Just look for those people sitting with a blank stare on their faces and for those making nervous movements at their desks as they anxiously try to find something to do. Eventually their names will appear on the list of those who are abusing their sick leave. The real "logger" will never recover from automation. He's lost his place in life. His day-to-day world will have been destroyed and he simply won't know what to do. For many it will be too late to start over. Others will lack the initiative, while for still others, it's nothing more than a lack of talent. The world will have passed them by. They, of course, will not be to blame. It'll be the machines' fault, or management's fault, or maybe just the breaks of the game.

(u) In reality, the "logger" has always been a clerk with a professional job title and a professional paycheck. He was created by the system, and, with the advent of new automated techniques, will be destroyed by the system. Some will be salvaged. Some "loggers" will regroup, retrain and regain a place, perhaps at the "case analyst" level. Those that can't make the transition will have to be purged since the cost of automated systems will call for a decrease in personnel expenditures.

(u) The "case analyst" will survive and thrive in the new automation. He really never did care for the logging and data maintenance functions associated with his job; therefore, he'll adjust. He'll re-order his priorities and use the additional time now available for the development and analysis that he never could quite get around to under the old semi-automated method of operation. His productivity will increase and more technical data on his targets will result.

The ultimate gain will be the production of more intelligence information in satisfaction of our requirements. The "case analyst" will grow as a professional, honing his skills as he practices his trade, and in many instances will develop into a "research analyst."

(u) The "research analyst" will see few changes in his method of operation as a result of this new automation. He'll have to deal with new data bases, new retrieval programs and new equipment, but his daily routine will remain pretty much the same as it is now. He will generally review the same types and amounts of material and work on the same types of projects. He should see some improvements in accuracy and completeness as a result of the elimination of the "logger" and the automation and resultant upgrade of the data bases. He will be able to spend less time on the verification and data gathering phases of his assigned tasks and thereby be able to complete more assignments in a shorter time. This will allow a more efficient use of the limited number of "case analysts" and permit us to achieve maximum benefit from their talents. Automation will also improve the morale of the "research analyst" since he will be able to function almost entirely in his primary capacity.

(u) The benefit of this increased automation is readily apparent. The talent of our people can be used to the fullest, with dull, repetitive tasks reduced or eliminated. The timeliness, accuracy and quality of our product will increase. Personnel not working at their prescribed levels can be eliminated, with a resultant savings of money. All of this is, of course, predicated on manageable machine systems that will function as designed. Since our track record for the development of such systems is not impressive, let's hope that we have learned from experience, and not attempt to reap benefits before we have proven follow-on systems.

~~CONFIDENTIAL~~ ~~HANDLE VIA COMINT CHANNELS ONLY~~~~TOP SECRET~~



INTERNATIONAL AFFAIRS INSTITUTE

3rd ANNUAL ESSAY CONTEST

Prizes: 1st Place \$100.00
2nd Place \$ 50.00
3rd Place \$ 25.00

Winning entries will also be considered for presentation in an appropriate Agency publication

Topic: Related to International Affairs

Enter By: 1 October 1980

**To enter (or for more information)
Contact Either :**

[Redacted box]

B51, Room 3W156

P.L. 86-36

or

[Redacted box]

G7, Room 5A150

P.L. 86-36

Winners Announced: October 1980

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

LIP (U)

[Redacted]

P16

P.L. 86-36

[Redacted]

P5

[Large Redacted Area]

a language could be stored. This data base could contain models of each language we may need to identify. The models would contain all of the information needed to identify an unknown text by some comparison technique. Thus any automatic language identification scheme would have to be structured as follows:

- language models
- comparison method

(U) For various reasons, it is clear that automatic dictionaries are the least efficient and least reliable method of identifying languages.² Further, linguistic methods based upon the morphological or syntactic structure of the language require a huge amount of effort to construct suitable models. The only reasonable approach to language modeling which appears easy to implement as well as reliable is by statistical methods. It now becomes a matter of deciding which statistic to use.

(U) We decided to try the simplest approach first: which method of modeling, which is inexpensive in terms of storage and CPU time, will yield acceptable results? Monographic modeling is indeed cheap, but not very powerful. The same can be said for standard Agency techniques of long standing, such as Delta I.C. and logweights (see Chart 1).

(U) The next possibility for modeling would be digraphs. Here is where the solution was found. A digraphic model of a language is very easy to construct, requiring a relatively small amount of text as input and very little storage for the model. A digraphic model stores the information in a digraphic matrix (see Chart 2) in terms of the probability of each possible digraph occurring for a given language.

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

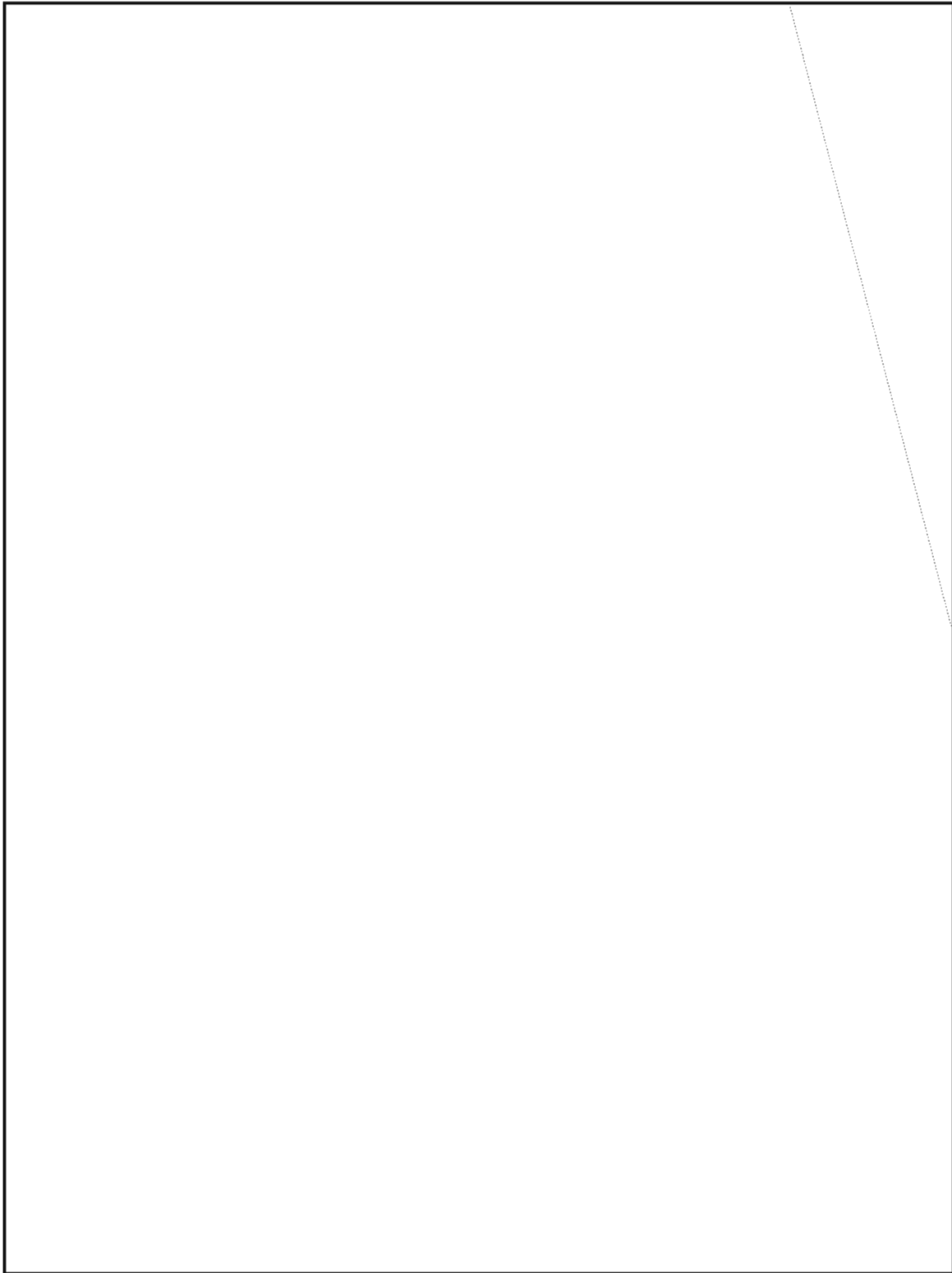
[Redacted]

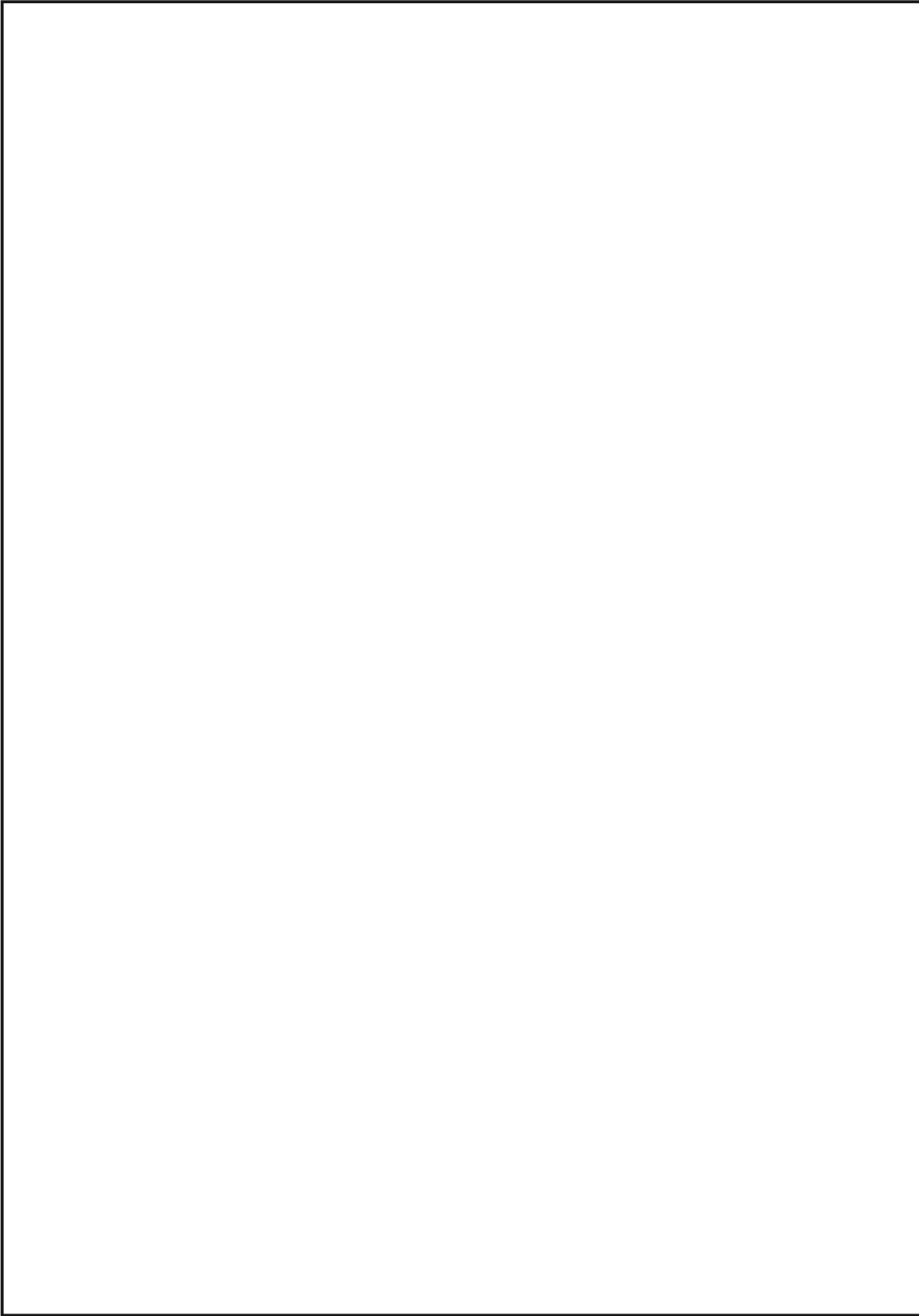
(U) But why should a linguist have to spend time identifying languages at all? Why couldn't an automatic, computerized method of identifying languages be developed? To implement such an automatic system, we would need to construct a data base, that is, an information bank where all of the information needed to identify

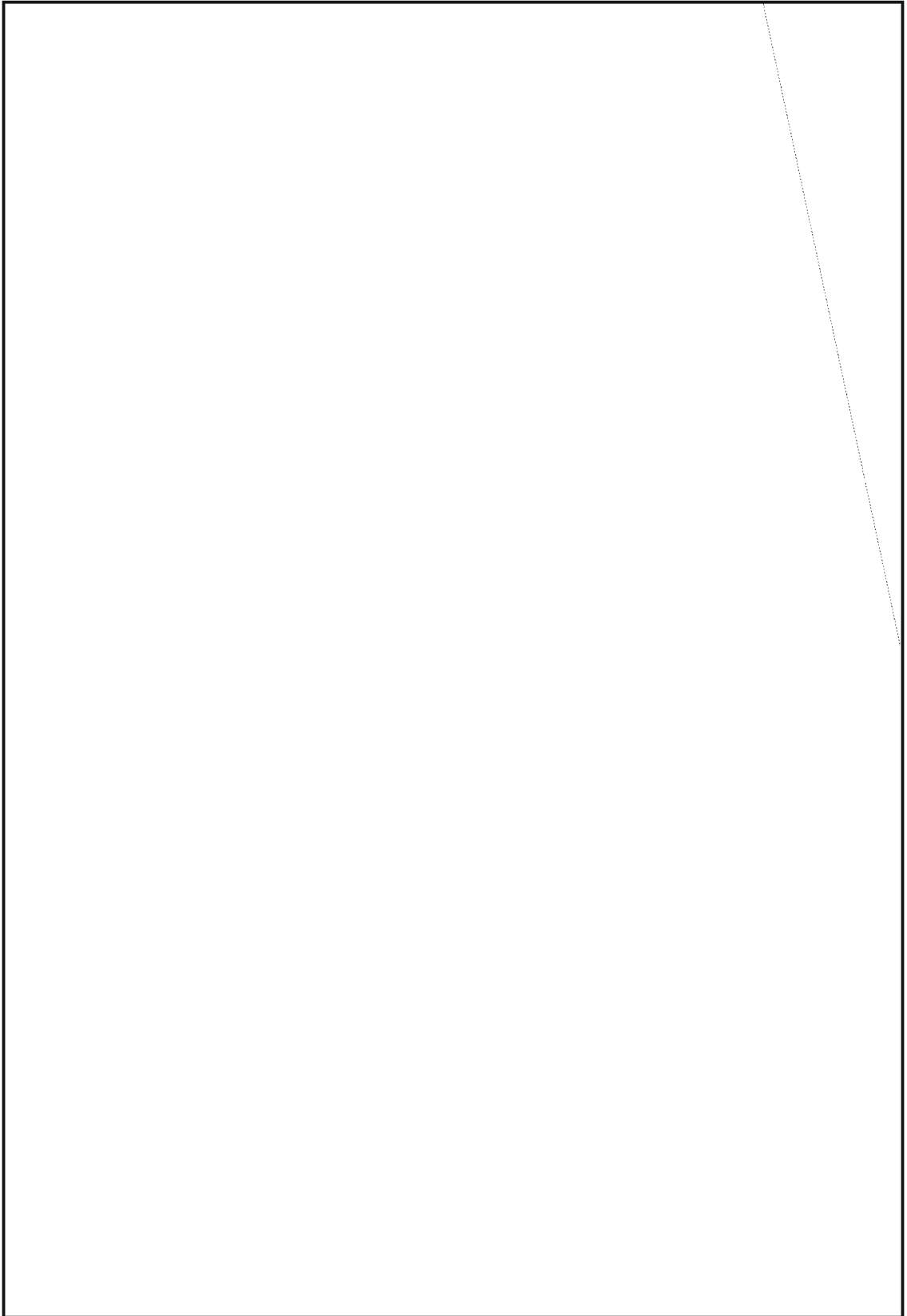
[Redacted]

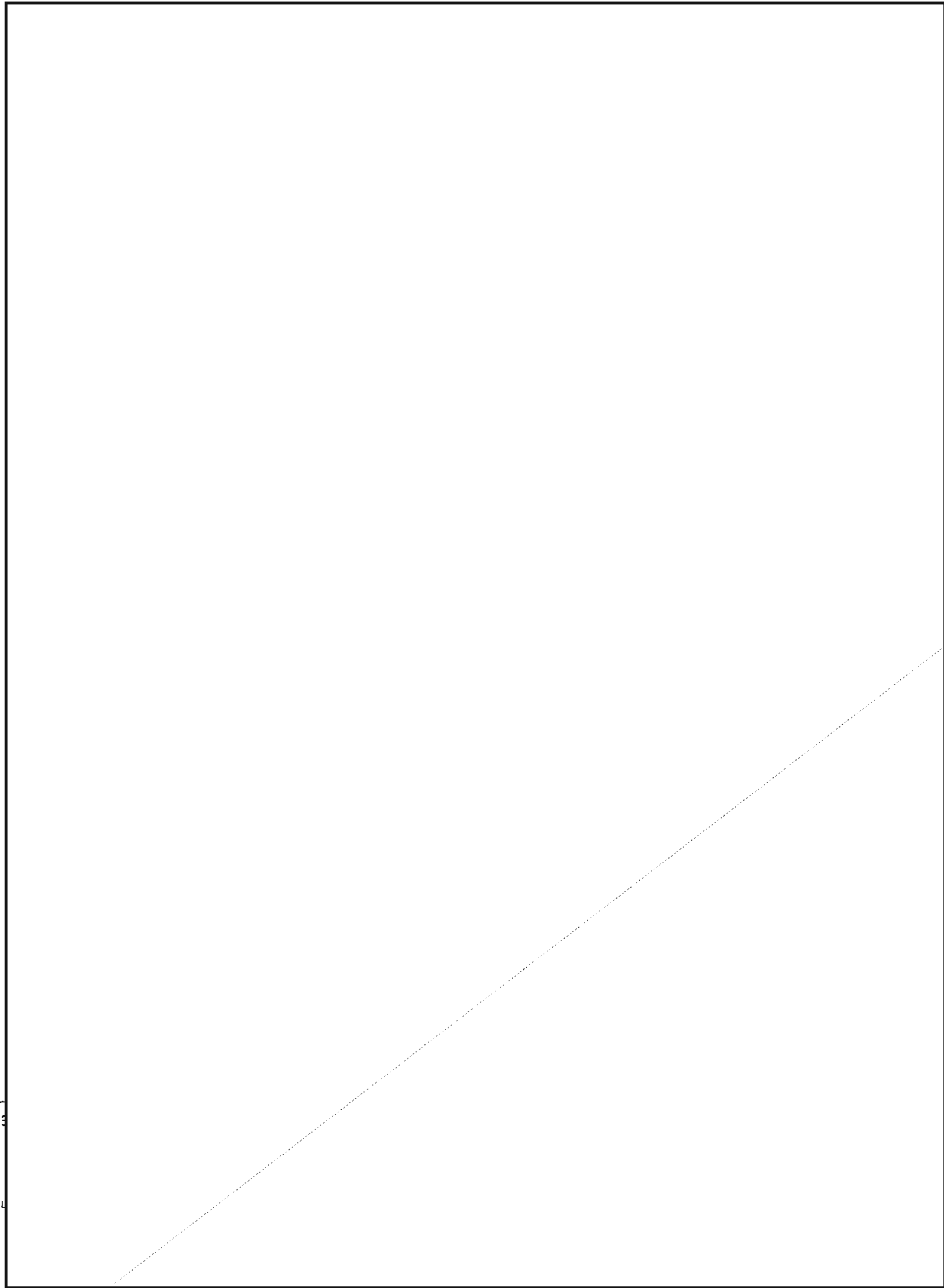
² For details, see the P16 paper of 25 July 1979 by [Redacted]

P.L. 86-36









WHY ARE ALL THE STREETS IN AMERICA WHICH ARE NAMED AFTER A FRENCHMAN IN SUCH TERRIBLE CONDITION, AND WHO WAS THIS FELLOW DETOUR, ANYWAY?

It is generally conceded that book-learning is not the best way to learn a foreign language. Instead, most people agree that the best way is to actually live in an environment where the language is present 24 hours a day. When a person sees and hears the words in a foreign language around him he soon learns what makes sense and what doesn't. How long, for instance, does it take for even the least language-oriented person to realize that there *isn't* any famous person named Einbahn, after whom so many streets are named throughout Germany and Austria, all of them coincidentally one-way streets? Well, I'll never forget the trip that two adults and four children, in one Rambler station wagon, took from Oberammergau, Germany, to Lake Garda, Italy. The reason why I'll never forget it is not just the horror I felt as I was being pushed down the Dolomites (it must have been at 150 miles an hour) by good-natured Italian truck drivers trying to meet a schedule. No, the reason is that, during calmer, flatter stretches of the trip, when I could relax my grip on the wheel and enjoy the scenery, it had seemed to me that Italian villages have such pretty names. But can they *all* have the same name! Hadn't we seen that name a few hours back when we were crossing that bridge? Then a half-hour ago when we went past the quarry? And here's *another* village with the same name — Lavori in Corso. Oh, dammit, I told myself, learning Italian quickly, it means "Men at Work"!

Right after World War II, as the Cold War was starting up, the United States had to think of ways to get information to "the Russian People." The proposed methods included balloons that were supposed to blow from west to east but often didn't cooperate. One method that was used at an early stage was to set up an official U.S. radio station, transmitting in Morse code to all the hams in the Soviet Union. Since it was an official U.S. radio station, it had to have a callsign beginning with a K (if the transmitter is located west of the Mississippi) or a W (if located east of the Mississippi). Since the transmitter was located on the East Coast, it was a W. And since callsigns often mean something—WGMS, for Washington's Good Music Station—it was decided to call this transmitter WRU, for U.S. radio transmitting to RUssia. But it didn't take long for Washington to learn that the Russian People didn't believe any of the broadcasts. Eventually someone pointed out that if you send the callsign in Latin letters, WRU, in Morse code (.-. -. .-), any Russian ham would convert those dits and dahs to the Russian letters BPY, which, unfortunately, represent the Russian word for "I'm lying." Well, back to the balloons...

Excerpted from "Twelve Language Anecdotes in Search of an Author," by Arthur J. Salemme, formerly Pl, now retired.

To Subscribe to CRYPTOLOG,
Or to Change Your Address, Call

1103s

SECURITY CLASSIFICATION				SAO USE ONLY	
SYSTEM ACQUISITION DOCUMENT REVIEW				CONTROL NO.	
DOCUMENT	COVERNAME			ACTION (If marked, indicate responsible individual)	
	TITLE NSA FORM H8274 JUN 79 SYSTEM ACQUISITION DOCUMENT REVIEW			DUE DATE (Action completed)	
	PORTIONS TO WHICH THIS CRITIQUE PERTAINS			RESOLVED (If marked)	
	(Section)	(Page)	(Paragraph)	(Line)	UNRESOLVED (If marked, no resolution found during review, may/may not require further attention)
NAME	ORG	CRITIQUE DATE		ISS ON TO	
	T424			P.L. 86-36	
REVIEWER	CRITIQUE OF NOTATED SECTION AND/OR				
	<p>Management guidelines pertaining to the system acquisition process (NSA/CSS Circular Numbers 25-5 and 25-16 and NSA/CSS Manual 81-1) have been in effect for approximately three years now. Many organizations have been involved in the acquisition process through planning, reviewing, decision making, implementing, or some other related activity.</p> <p>During this time, project management elements have been particularly involved in the preparation of various system acquisition documents such as System Plans and System Acquisition Plans. To aid the review process for such documents, several methods have been devised by different elements to record and manage comments, suggestions, critiques, and resolutions concerning the various documents. When it became apparent that some of these methods were quite useful, an effort was initiated to consolidate the most valuable concepts. A survey of T4 elements, particularly T42 Project Management divisions, was taken and the results were used to develop a draft "critique form". Subsequently, forms management personnel (N33) modified the draft to conform to standards established for similar type forms.</p> <p>The form, System Acquisition Document Review - H8274, is now available in the supply room. An initial supply of 1,000 has been provided and initial usage is expected to be approximately 400 per month.</p>				
SUG					
RESPONSL					
SAO	FINAL DISPOS				
SIGNATURE	REVIEWER INDICATING AGREEMENT TO FINAL DISPOSITION				DATE
	SAO OFFICIAL FINAL DISPOSITION				
FORM H8274 JUN 79				SECURITY CLASSIFICATION	

P.L. 86-36

ANALYSTS OF NSA, ARISE!

YOU HAVE NOTHING TO LOSE BUT YOUR PAPER

[] T12

This entire article is
~~FOR OFFICIAL USE ONLY~~

NSA is in the midst of a revolution. Before anyone rushes to call the Federal Protective Service, let me quickly add that the revolution, here at NSA, is an information services revolution. Webster's New International Dictionary defines the word revolution as a "total or radical change." A total change is exactly what is happening, in a rapidly evolving way, to the methods of information storage, retrieval, and dissemination now available or being planned at NSA. The radical change occurring at this Agency, of course, represents only a microcosm of the vast and rapid evolution of computers, data entry devices, and data storage devices which is taking place worldwide. New, swiftly growing industries offering information to the public, on virtually every subject known to man, have appeared in the last decade. This information is now instantly available by attaching a device about the size of a portable typewriter, to your telephone.

The New Information Entrepreneurs. T12, Information Services, now subscribes to the data bases of several of these new information entrepreneurs, including Lockheed's DIALOG, Bibliographic Retrieval Service's BRS/SDI Service, and the *New York Times'* DATABANK. Hundreds of hours of manual research time is now condensed to seconds and minutes when searching the vast data storage banks available via a telephone line to computers located in such places as Palo Alto, California and Scotia, New York. NSA information science analysts will query these data banks to aid in your work-related research on such diverse topics as chemistry, psychology, economics, education, physics, engineering, social sciences, medicine, drugs, industry and hundreds of other subjects. NSA is now considering the addition of LEXIS and NEXIS services offered by Meade Data Central. LEXIS is a legal citation service covering federal and state law. NEXIS is an extremely powerful research tool which provides a full text search capability of news sources such as the wire services, news magazines, newspapers and journals for a three year period. The addition of NEXIS to T12's inventory of commercial data bases would potentially eliminate a great amount of open source processing now being done.

Government-Sponsored Data Bases. T12 has direct access to a number of government-sponsored data bases which offer information of great value to NSA analysts. These include the files of the Defense Technical Information Center (DTIC), which provides access to technical reports on research and development projects of the Defense Department. These reports are available in special categories, on microfiche, in the NSA Library. Other DTIC data bases offer descriptive summaries of DoD R & D activities. COINS (Community On-line Intelligence System) offers valuable community-wide intelligence information to NSA customers with a need-to-know.

NSA's In-House Developments. NSA's mission must, however, be also served by information data banks developed and operated in-house. The useful and valuable classified information available through the SOLIS system is, of course, accessible by T12's information science analysts in researching your classified queries. In the last few years, T12 has developed and maintained a large number of its own specialized information data bases using the M204 language and the IBM 370/168 computer for storage and retrieval. These machine systems have greatly reduced the enormous collections of file cabinets so familiar to visitors to the old CREF. New systems, now underway and being planned, will soon guarantee that the last manual file cabinet, like the pterodactyl, will fade into extinction.

T12 is now hoping to solve one of the greatest barriers to the rapid conversion of the written word to digital form by using the Kurzweil data entry machine. This device, designed to "read" ordinary print and convert it to computer-compatible digits, was developed by the same company which originated the Kurzweil reading machine for the blind, now available for use in the NSA Library. The successful employment of this device, or one like it will do away with the slow "poking-in" of data by a human, so essential to the computer storage and retrieval of information.

Through [] T12's in-house information retrieval system, analysts will be able to index the hundreds of thousands of reports

P.L. 86-36

which contain information needed by Agency analysts in their daily work. Storage of full texts using new ultra-high reduction techniques on microfiche is being studied under Project [redacted]

Manipulation of Electrically Received Information. Other systems, designed to handle information received electrically, are also under developemnt using hardware and software already in use in another Agency system. [redacted] the name given to this project now awaiting software modification, will store large quantities of classified information presently received here via teletype and will enable the researcher to perform full-time searches by words, subjects, series numbers and other approaches. Thousands of documents now being processed manually for hard copy files, a process which is both labor intensive and time consuming, will become immediately available to researchers throughout the Agency using easy-to-learn search strategies. Automatic distribution of these documents, in hard copy, is already taking place under Projects [redacted] and [redacted] will eliminate the need for hard copy.

What This Revolution Will Accomplish. What does all this mean to the Agency analyst working against a deadline and seeking information vital to the completion of a report? It means that time-sensitive information will be available when it still has meaning and importance. It means that, in many cases, information will be available to the analyst, 24 hours a day, by querying T12's data bases directly, if required. It means getting an answer to your question in seconds or minutes instead of hours or days.

P.L. 86-36

The American Revolution freed us, as a nation, from foreign domination; the information services revolution will free, us, at last, from the overwhelming flood of paper that has dominated us for so long, stealing our time and efficiency. It may also, incidentally help save our forests for other uses.

The next time you call for information services from T12, don't be surprised when your question gets researched and answered with revolutionary zeal!

* * * * *



[redacted]

WINS SYDNEY JAFFE AWARD (U)

P.L. 86-36

~~(TSC)~~ At the 1980 Crypto-Linguistic Association Annual Banquet [redacted] of the Language Department of the National Cryptologic School was presented the Sydney Jaffe Award, the highest recognition a member of the Agency can achieve in the language field. His significant accomplishments as an Arabic linguist span an Agency career of some 24 years.

[redacted]

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

~~(C)~~ In 1977, [redacted] performed pioneer work in developing National Cryptologic School courses in the Syrian, Iraqi, Libyan and Egyptian dialects of Arabic. Unique among these is the Libyan course, the only such course available to the intelligence community. For this seminal work in course development, he received the Agency's Meritorious Civilian Service Award.

P.L. 86-36

(U) If there has ever been at NSA a linguistic factotum, it is [redacted]. He yields to no one as a model of the traditions and ideals set by Dr. Sydney Jaffe.

COMING HOME

P.L. 86-36

G

This article was originally published in the WIN [Women in NSA] Newsletter for May 1980. Since the problem it addresses is certainly not limited to Agency women, but rather applies to all employees returning from tours of duty elsewhere, it is reprinted here so that it may reach a wider readership. dhw.

Last year, I was fortunate to have been selected for an external training program. I was thrilled, not only because of the opportunity it provided for me to learn more about the inner workings of the entire Department of Defense, but because I felt also that I would then be assimilated back into the Agency in a more responsible position. After all, if the Agency thought enough of me to have selected me for this "plum," then would they not want me to use my knowledge, later, to the best advantage?—or so I thought.

Judging from my past job experience in several areas of the Agency, in addition to my recent schooling, I felt I was ready to assume a position of greater responsibility upon my return; however, I was stymied in my attempts to find such a position. My two-month attempt to find a job before I returned to the Washington area was greeted with such responses as: "We've just changed the PMM's, and your name will no longer be circulated to key components" (as I had been led to expect prior to my departure); and "We've just changed the PMM's and you must return to your original key component, since they sponsored you" (that's been changed again, I understand). (The difficulty was compounded by my trying to do business via a long-distance commercial phone.) Rather than being given a choice of assignments, I was told that I would take a job in a certain organization, and I drove back to the Washington area specifically to interview for this job. After the interview, I decided, for several reasons, that this was not the job for me; however, I was "on the books" as returning to that job, and that was that, as far as the Agency was concerned. When I returned to the Agency, I personally scouted around and arranged some job interviews, but I felt that I didn't have the time to pursue potential opportunities because I was under pressure to be assigned SOMEWHERE. I finally returned, in a similar capacity, to the group from which I had left. The other three Agency employees who were in school with me also returned to the same or similar jobs. A sad commentary, I feel.

I am grateful for the opportunity the Agency provided for me to broaden my knowledge. However, I do have a few suggestions for both the Agency and for those employees contemplating applying for external training. First of all, I know the Agency's reassimilation program has historically had its problems, and I am confident

that the current administration is doing everything it can to help remedy the situation. I can't speak about overseas returnees, but it seems to me that those returning from specialized external training, such as the joint and senior service colleges that provide their students with a broad background in military affairs, could be used by the Agency in a variety of areas. I know that there is one slot, a one-year tour as executive assistant to the Deputy Director—that goes to a returnee from the National War College—but other areas of the Agency could also use the special kind of expertise gleaned from this training. A one-year tour in any one of these areas would benefit both the Agency and the employee. In lieu of that, the employee should not be "locked into" a job upon his or her return. A number of interviews (perhaps three) should be arranged for the employee. There's no substitute for personal contact to aid one in deciding if one could effectively work with an individual or in a particular area (one can't make this decision via long distance), and a specified period of time (a week or ten days) should be allotted the employee to make up his or her mind.

Failing this, what can YOU do to assure yourself a good job upon your return? (This advice holds true also for those who may be contemplating a change of jobs.) First, make certain your Personnel Summary is up to date, and don't be shy, even before you go on TDY, about giving it to those who may be in a position to place you. Secondly, decide which areas REALLY interest you; find out what you can about these areas, who the managers are, and get appointments with them. Most managers are willing to talk to potential employees. Thirdly, don't discount the theory of "networking"—it *can* work for you. A few of the job interviews I lined up were as a result of "contacts" I had made while working on a group-level staff. A few managers even remembered me from my stint as a Director's briefer (and that was in 1973!). In addition, senior WIN members were very generous in giving me advice and support.

In short, the opportunities are there; YOU CAN MAKE IT HAPPEN!

Now, nine months after my return, I have secured a very good, career-enhancing position. It's nice to have the better job now, but it would have been even nicer to have obtained it upon my return.

CIRC: AN INTELLIGENCE DATA BASE (U)



P.L. 86-36

T123

CIRC, which stands for Central Information Reference and Control, is a system of scientific and Technical (S & T) intelligence support which is operated under the auspices of the Defense Intelligence Agency (DIA) by the Foreign Technology Division (FTD) of the Air Force Systems Command (AFSC). The primary purpose of CIRC is to support the intelligence information needs of the five DoD S & T intelligence production agencies: the Naval Intelligence Support Center, the Army's Foreign Science and Technology Center (FSTC), Medical Intelligence Information Agency (MIIA) and Missile Intelligence Agency (MIA), and FTD. Access to the CIRC data base is available to other organizations, and NSA does have a CIRC terminal.

CIRC means on-line access to almost 1.5 million documents, and another 3.6 million are available through batch searching. These 5 million records are available to NSA for retrospective research through the remote terminal, which is located in T1232 (Soviet Data Support Workcenter), Room 3W032, x5989s. For on-line searching the terminal converses directly with the computer located at FTD, at Wright-Patterson AFB, Dayton, Ohio, and retrieves document references and abstracts in response to search queries. CIRC provides document retrieval in a bibliographic sense, giving citations to documents relating to a given subject or author, rather than selected and sorted data ready for insertion into documents which the requester may be preparing. The intent is to furnish source material to be studied by the requester, who then has to decide the suitability and validity of the information. The user does not receive the document itself from the computer; instead, representations of the reference are retrieved, giving

such things as title, date of report, report number or source, text extract, and ending with a list of specific surnames, facility names, and nomenclature designators occurring in the document. Should the requester need the entire document, T1232 can usually obtain it.

CA major difference which tends to separate CIRC from many other data bases is that CIRC does *not* use a controlled dictionary of terms or keywords. Virtually all the words in the extracts entered into the CIRC system are usable in searching, with the exception of some common words such as "both," "who" or "latter," which contribute little to retrieval. Because of the free text type of search, use of broad terms will certainly lead to a high chance of irrelevant retrievals while obtaining all the essential coverage. Therefore, the requester should be prepared to screen a great deal of information to avoid missing anything that seems pertinent. The other extreme—very narrow terms—will usually render an output of mostly relevant documents but eliminating some valid ones in which the searched items are expressed differently in the referenced document from the search terms used—for example, searching for the SA-7 missile, but not for its nickname GRAIL, or looking for the nickname FISHBED, but not for MIG-21. If SA-7 or FISHBED were not in the reference, but GRAIL or MIG-21 were, the reference would not be retrieved. The indexer can only use terms that are precisely in the reference and is not to assume a relationship unless it is spelled out. Thus, there are problems in using narrow or specific terms without using synonyms or related terms to achieve full subject coverage.

DATA BASE CONTENT. Documents entering the CIRC data base contain information about for-

~~CONFIDENTIAL~~

eign science and technology as it relates to U.S. Army, Navy and Air Force interests. All scientific disciplines, engineering specialties and technologies are represented as available. Worldwide coverage is maintained with emphasis on Communist countries. U.S. information is not included except when it is incidental to foreign data.

(u) Domestic and foreign open source publications are included in CIRC as well as classified messages, Intelligence Information Reports and other material of all classification levels up to TOP SECRET CODEWORD and TK. Army, Navy and Air Force finished technical intelligence publications containing analyzed information are entered into CIRC, as well as reports of some non-DoD agencies. The DoD S & T agencies also participate in obtaining information from other sources (such as NSA and CIA which do not submit reports directly to CIRC) for inclusion in the CIRC data base.

(c) About 83 percent of CIRC's on-line data bases and 93 percent of the total CIRC data bases—on-line and batch—comes from foreign literature, 4.7 million out of a total of 5 million references. In 1979 over 1350 subscriptions to worldwide publications were scanned for content selection for CIRC. This provides a great number of open source unclassified references to a broad spectrum of subjects, nomenclatures, facilities, and authors or personalities, which are available for search, again, worldwide in coverage, but with emphasis on Communist countries. The other 7 percent of CIRC, nearly 300,000 document records, includes finished intelligence reports, IIR's, sensor reports, and other



(u) Many of the open source references are not available for computer retrieval elsewhere, so this part of CIRC is largely unique. While the retrieved abstract is in English, most often the open source reference will be in the original language. The reference in CIRC refers the requester to the original periodical, journal, newspaper or monograph for the complete article.

OFF-LINE PRINT ORDERS. Because the on-line terminal printer is slow, bibliographies are usually ordered from FTD for off-line printing and mailing to T1232 for forwarding to the requester. There is only one NSA on-line terminal; when it is receiving output from the computer, no searches can be initiated. Bibliographies classified up to SECRET take seven to ten calendar days from order to

receipt in T1232. TSC/TK orders take two to three weeks, since they must be sent by courier, and there is only one courier flight per week from Wright-Patterson AFB to the Washington area. (If an order misses a flight, it must wait an entire week until the next one.) Thus, any request resulting in a number of retrieve references must allow ample time for the delivery of the data. FTD is hopeful that high speed printers will someday be installed at the principal CIRC user sites (including NSA), which will result in much faster delivery, usually by the next working day, and will free the remote on-line terminal for queries. Instead of printing and shipping by mail or courier, FTD will use the high speed printers for transmission of the bibliographies to the system-associated workcenter. No firm date for this enhancement is available, but FTD is hoping it will take place during late FY1980 or early FY1981. Where possible, T1232 will attempt more expeditious responses for high priority requests as appropriate.

PROFILES. One additional CIRC feature—the profile—is available to requesters who want selected information on a current, recurring basis. A CIRC profile is a preselected canned query prepared for a requester and stored on-line at FTD. When the CIRC data base is periodically updated, prior to their being put on-line, the newly added documents are automatically compared with the profiles, and those documents which match the profile search statements are printed and sent on to the requester. A profile is a good way to maintain current awareness on a particular topic as material is added to CIRC. Queries may consist of terms, nomenclatures, personalities, facilities or organizations, countries, source (such as a specific publication), or classification of the references. Queries may be as narrow or as broad as the requester desires. Profiles may be of any classification.

USING CIRC. CIRC usage at NSA has been increasing substantially over the last several years to the point where NSA is among the top five users of the data base. This is despite the fact that the availability of the data base within the Agency has not been widely publicized, because, in part, of computer downtime problems, which have led to feelings of uncertainty about response times.

(u) Use of CIRC can be cumbersome because the data base is so large it is broken into two segments: the afternoon, or classified, session where a full abstract of the reference is available for all classified references (TSC/TK material is available during this session only), and the morning, or unclassified session where a full abstract is available on-line only for unclassified references.

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

~~CONFIDENTIAL~~

If a CONFIDENTIAL or SECRET reference is retrieved on-line in the morning session, only the microfiche number is given. This procedure is followed because not all terminals for the unclassified session are in secure locations, because a number of users have dial-up terminals which use unsecure telephone lines. Off-line bibliographies do print the complete abstracts of classified morning references.

(U) The morning unclassified session is so large that FTD's IBM 360/65 cannot contain all of the references, so it has been broken into three segments:

- CIRC, which consists of the CONFIDENTIAL and SECRET material, as well as the last two years of unclassified input. This is available on-line every morning except Wednesday.
- CIIO, which contains unclassified material entered into the system within the past two to five years. This is available on Wednesday mornings.
- ARCH, consisting of the archival data base of unclassified references which were input over five years previously. This material is available only for batch searches.

Thus a requester wanting complete coverage from all of CIRC might receive four separate

outputs, all containing different references, from CIRC, CIIO, ARCH, and from SISA, the TSC/TK data base. Of course, searches can be limited by classification or by date span. The requester can limit his retrievals by indicating specific desires when making his request.

(U) The primary costs to NSA for the use of CIRC are the expenses of the 24-hour dedicated circuit to FTD, paper for the printer, the cost of the Teletype Model-40 Keyboard Display Printer, and the salary of the one analyst who spends most of her time doing CIRC-related activities. There is no charge for search time, printing or mailing, or for CIRC microfiche.

(U) All in all, CIRC is an excellent data retrieval system, which is to a considerable extent unduplicated by any other system.

* * * * *

Analysts who have not been aware of the existence of CIRC, and who might have questions concerning the system, or who might wish further information on how CIRC retrievals of profiles could help them, should call the NSA CIRC remote terminal location, T1232, on 5989s, or drop in at Room 3W032, where T1232 personnel will attempt to answer their questions.

LIP (Continued from page 8)

(U) An interactive computer program has been developed on the LODESTAR system for use by the analyst/linguist. The program uses the technique discussed above, and has complete instructions for its use contained in the program itself. The program can usually identify the correct language in under three seconds of CPU time. For further details, contact one of the authors.

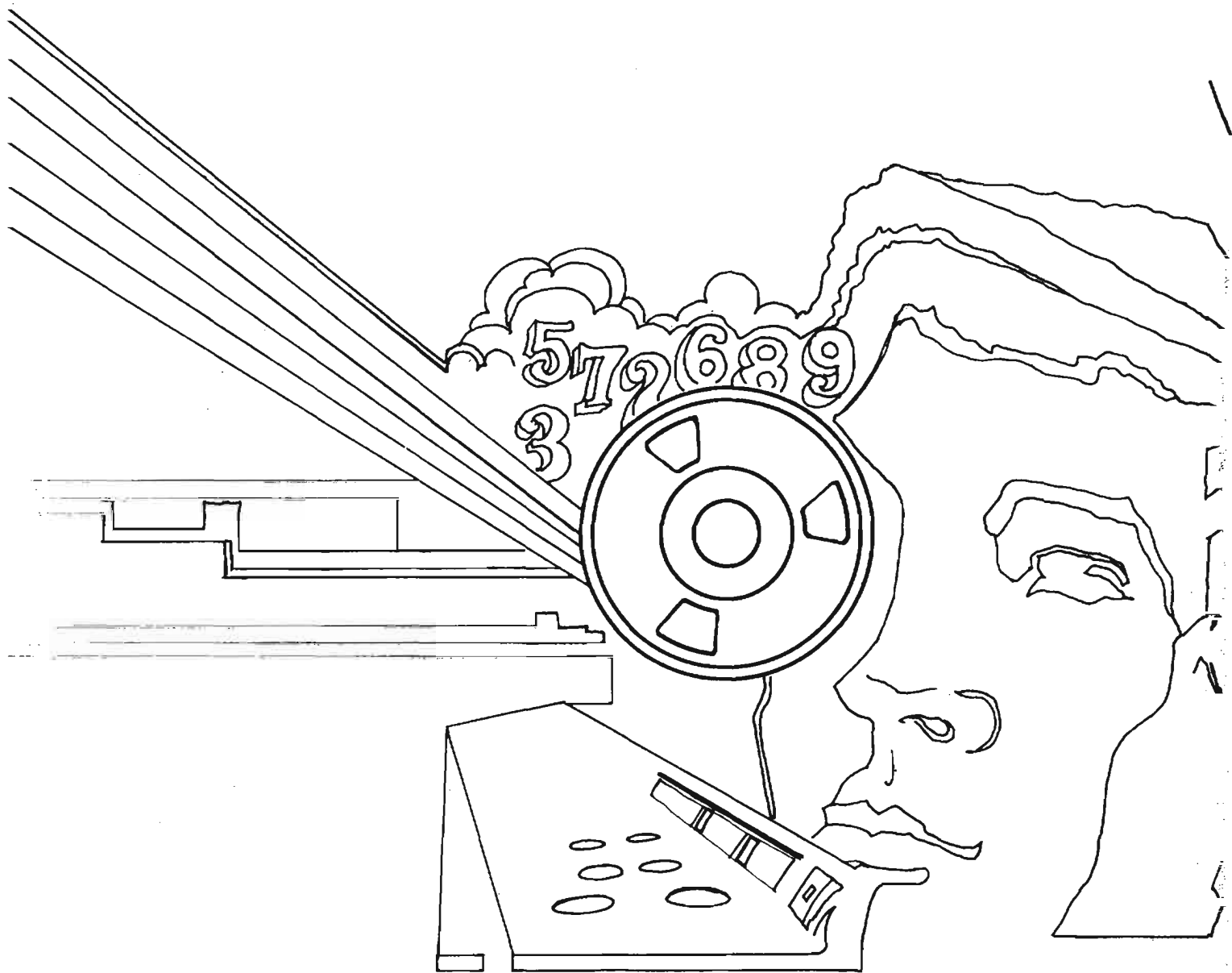
Editor's note: Since the writing of this article, the data base has been expanded by the inclusion of the major languages of Europe.

(U) The authors feel that this "distancing" technique described here probably has other applications in addition to language identification. Readers who wish to discuss such applications are requested to call either Dr. [redacted]

SOLUTION TO NSA-CROSTIC No. 29

"[A Proposed Cure for the] Time-in-Grade Syndrome," [redacted] CRYPTOLOG, November 1977.

"In general, promotion decisions [must] ultimately determine [just] who will make the key decisions within [an] organization. ...The initiative for promotion must belong to the managers and it is their responsibility to see that worthy personnel are promoted. It [must] be the employees' responsibility to qualify for promotion."



~~THIS DOCUMENT CONTAINS CODEWORD MATERIAL~~

~~TOP SECRET~~