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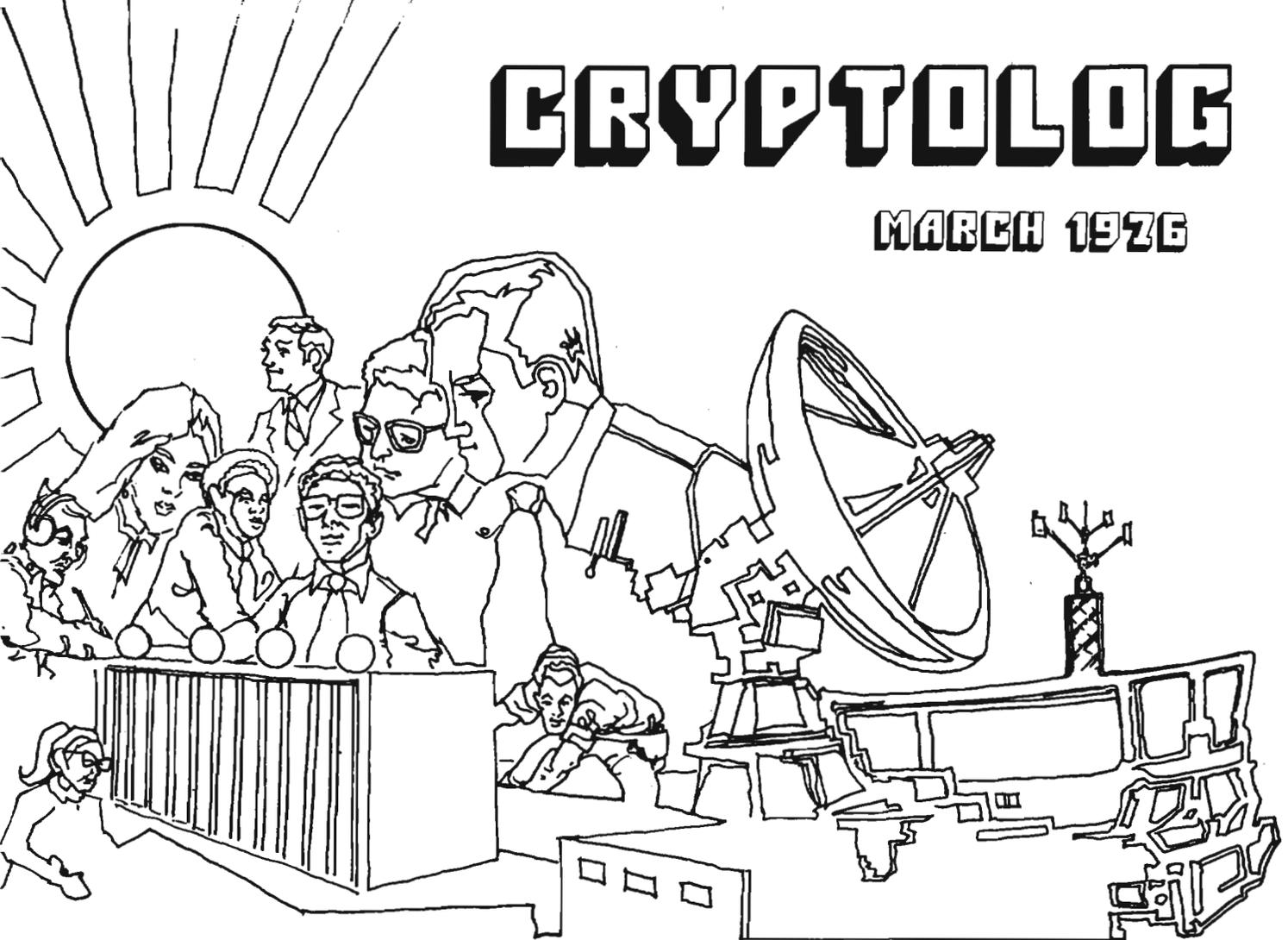
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WILLIAM LUTWINIAK

NATIONAL SECURITY AGENCY
FORT GEORGE G. MEADE, MARYLAND

CRYPTOLOG

MARCH 1976



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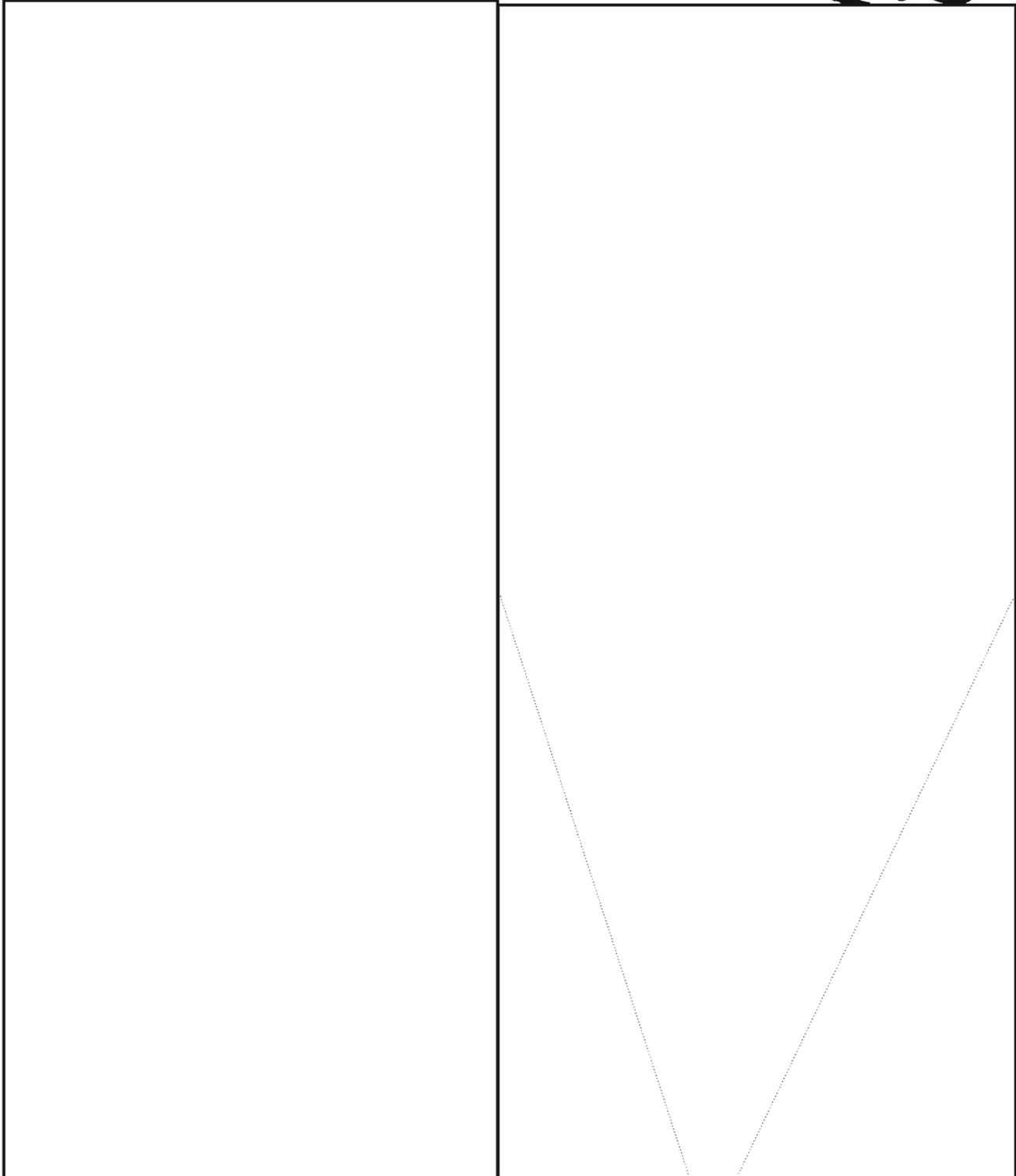
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TO PULL A "PONYAL"



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1976 LANGUAGE MEETINGS AND CONFERENCES

- March 3-6. Convention of Teachers of English to Speakers of Other Languages, 10th. New York, NY.
- March 14-15. North American Conference on Afro-Asiatic Linguistics, 4th, and American Oriental Society. Philadelphia, PA.
- March 21-24. Association for Asian Studies. Washington, D.C.
- March 25-27. Conference on Composition and Communication. Philadelphia, PA.
- April 1-4. Northeast Conference on the Teaching of Foreign Languages. New York, NY.
- April 3-5. Annual Meeting of the Linguistics Association of Great Britain. Edinburgh, Scotland. (Write: J. Christie, Dept Linguistics, 15, Buccleuch PL, Edinburgh EH8 9LN, Scotland).
- April 5-9. International Conference of Nordic and General Linguistics, 3rd. Austin, TX.
- April 6-9. Acoustical Society of America. Washington, D.C.
- April 9-10. College English Association. Cincinnati, OH.
- April 15. [Deadline for abstracts for LSA Summer Meeting].
- April 15-17. Conference on African Linguistics, 7th. Gainesville, FL. (Write: P.A. Kotey, Ctr African Studies, 470 LGH, Univ Florida, Gainesville, FL 32611).
- April 19-23. American Educational Research Association. Las Vegas, NV.
- April 20-24. Congress of the International Association for the Study of Italian Language and Literature, 9th. Palermo, Italy. (Write: Robert J. Clements, AISLLI, Rm 701, Main Bldg, New York Univ, Washington Sq, New York, NY 10003).
- April 22-24. University of Kentucky Foreign Language Conference. Lexington, KY.
- April 22-24. Southwest Areal Language and Linguistics Workshop, 5th. San Antonio, TX. (Write: B.L. Hoffer, Dept English, Trinity Univ, San Antonio, TX 78284).
- April 22-25. Chicago Linguistic Society. Chicago, IL. (Write: Chicago Linguistic Society, Goodspeed 205, 1050 E 59th St, Chicago, IL 60637).
- May 6-8. Conference on Perspectives on Language. Louisville, KY.
- June 21-26. Conference on the Psychology of Language. Stirling, Scotland.
- June 28-July 2. International Conference on Computational Linguistics. Ottawa, Ont, Canada.
- July 26-31. Philippine-American Communication Conference, 1st. Manila, The Philippines.
- August 17-19. World Congress of the International Reading Association, 6th. Singapore.
- August 26-31. World Congress of Phoneticians, 3rd. Tokyo, Japan.
- August 28-30. European Linguistics Society. Salzburg, Austria. (Write: G. Drachman, Institut Für Sprachwissenschaft der Universität, Imbergstrasse 2/III, A-5020 Salzburg, Austria).
- September 1-4. International Phonology Meeting, 3rd. Vienna, Austria.

*LSA Bulletin,
Linguistic
Society of
America,
October 1975*

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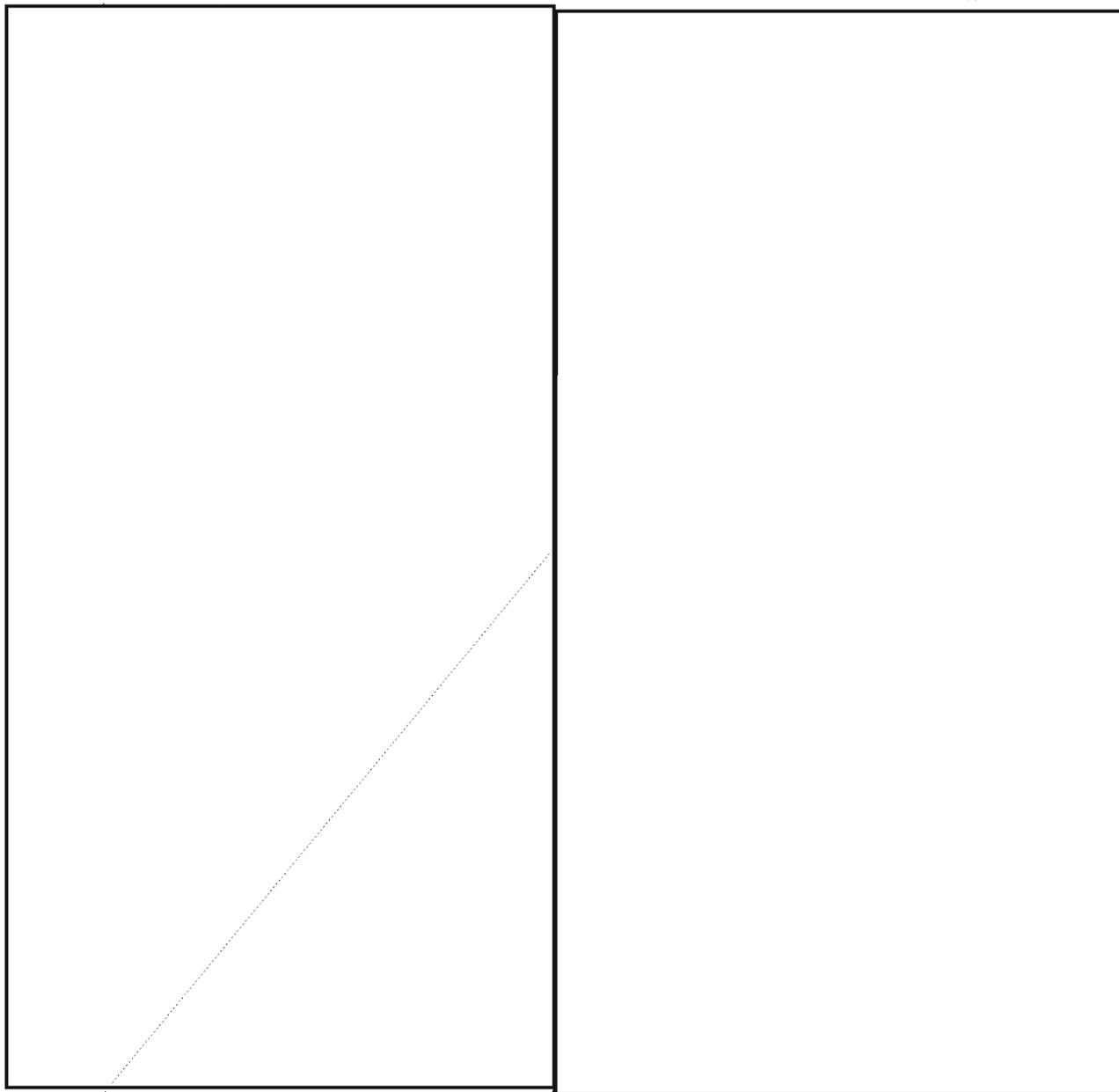
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MUSINGS ABOUT THE AG-22/IATS

Cecil Phillips, C03



The following article is reprinted from C-LINERS (C Group Machine Processing Information Bulletin), Vol. 3, No. 7, August/September/October 1975.



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TIME'S RUNNING OUT!

You'd better hurry if you want to enter the CMI ESSAY CONTEST or the CLA ESSAY CONTEST this year!

The deadline for submitting entries to the CMI ESSAY CONTEST is 26 March and the deadline for the CLA ESSAY CONTEST is 19 March.

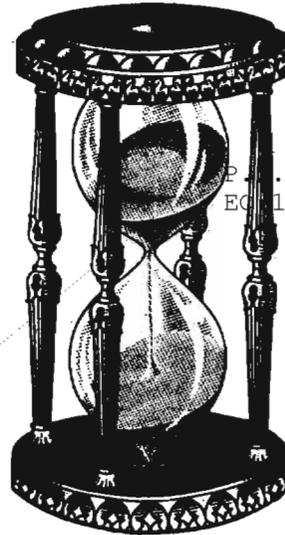
For complete information, see *The NSA Technical Journal*, Vol. XX, No. 4, Fall 1975. Or call the following:

CMI Contest: [redacted] or [redacted] 3957s
CLA Contest: [redacted]

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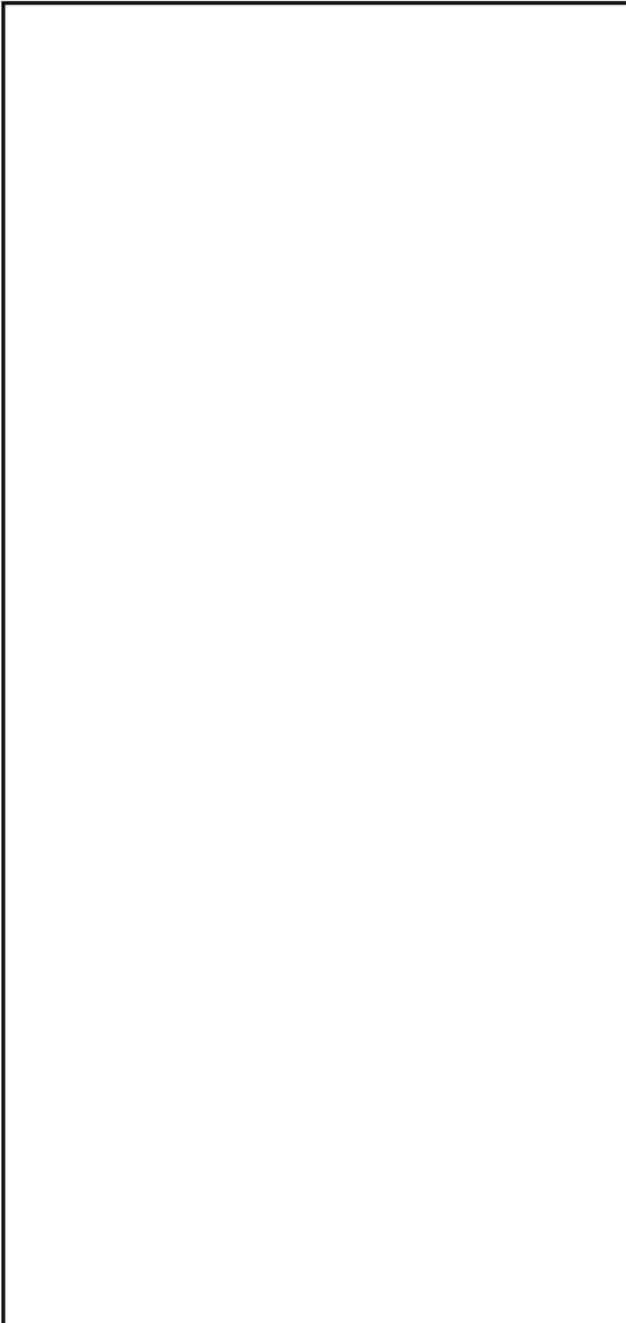
PENNEY PUZZLES

Puzzle fans, mathematicians, cryptanalysts! Here's an opportunity you won't want to miss! The Cryptomathematics Institute (CMI) has a number of copies of PENNEY PUZZLES, a collection of 68 puzzles by CMI's executive director, Walter Penney. While the supply lasts, a free copy of this fascinating unclassified book will be sent to everyone joining CMI. To join, send your name, social security number, organization, telephone number, and \$3.00 for 1976 dues to: [redacted] CMI Treasurer, S03.

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Comments, anyone?

Mr. Phillips was Chief of the ADVANGENS Joint Mechanization Group, which conducted the first tests of an AG-22-like device in 1960 and 1961

[redacted] were also members of the group. The specific AFSAV-D/311 tests Mr. Phillips mentions were carried out by [redacted]

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An Objective Approach to SCORING TRANSLATIONS

P16

P.L. 86-36

Reprinted from *QRL (Quarterly Review for Linguists)*, November 1973

Author's note: The philosophy underlying the translation grading system described in this paper has been developed and applied by Emery Tetrault and myself, with many valuable suggestions from our colleagues on Professional Qualification Examination (PQE) Committees and from other Agency linguists. My use of the pronoun "we" reflects this collaboration. I personally take full responsibility for presenting our findings here.

*

Translation as an intellectual activity has been practiced since antiquity for practical as well as esthetic reasons, but even today we have reached no consensus on whether it is even possible to fully "bring over" from one language to another the contents of a fairly pedestrian piece of prose, let alone fiction or poetry. We debate the merits of machine translation as a precursor to a truly "scientific" discipline or argue whether a "free" translation of a Greek lyric poem does not better catch the flavor of the original than one which adheres rather closely to the syntax of the original and results in an awkward (i.e. "literal") rendering in the target language. In short, the domain of translation has not been really determined. Our own work never demands (fortunately) the highly creative product of the artist translating Homer, Dante, or Pushkin but it does require something more than a purely mechanical approach; good translators have a flair for couching in idiomatic English the thought content of the source-language passage. Poor translators, on the other hand, seem never to master this complex operation regardless of how well they may know the source language or how well they may write English when not translating.

If we had only the two kinds of translators to judge we could sort them into sheep and goats and have done with it. The fact is that most aspiring translators are neither brilliant nor hopeless, but fall somewhere in between, and when professional certification is at stake we need, in the interest of justice to the candidate as well as to the system, reasonably objective criteria for making a final decision on *pass* or *fail*.

Lacking such criteria in our early attempts to evaluate translations, we ended too often with intuitive decisions not transferable to similar cases involving the same source language; nor was it even possible to compare in-

tuitive judgments across language boundaries, in source language-to-English situations.

Over the past 2 or 3 years my colleagues and I have developed a way to score translations which may obviate this problem to a large extent even though our results have admittedly been far from perfect (total "objectivity" in grading any kind of connected text is of course impossible). Our first large-scale use of the system, which I will describe later, was with the Russian PQE. We have subsequently tried it in a number of other PQEs involving several languages, mainly Indo-European, but also from other families. The results have been encouraging enough in both instances for us to recommend its use in the PQE Handbook.

Subjective Approaches to Evaluating Translations

One approach to scoring translations is in a sense historical in that the evaluator tries to guess the reason for the translator's mistake and in so doing draws unwarranted inferences. This attempt may be useful when the time comes to counsel the failing or borderline aspirant and the problems can be talked out. Unfortunately, though, the history of an error is irrelevant to the rendering of a particular text and whether the aspirant should have learned a particular grammar rule in a course is beside the point.

A second method in wide use is to decide arbitrarily that a certain kind of mistake (for example, failure to recognize proper nouns and inappropriate translation of them) is sufficient cause to fail a paper. This syndrome is evident among longtime subject-matter experts or specialists in some area of the world who see examinations solely in terms of their immediate interests.

One example of each approach should suffice. In the first case, a would-be translator missed a tricky negative conditional construction in the first sentence of a fairly long paragraph which contained other negative and conditional elements much less difficult. In the interest of coherent discourse the translator overrode the signals which "he should have learned" and produced a sensible but wrong text. A second translator decided that the name of a group of islands, which historically means "fishing platform," should be so translated. Not only did he fail to recognize the proper noun, but he also saw the context of an entire paragraph in terms of the translation, and produced a peculiar text in English.

The evaluators of the first passage initially decided that the paper should fail because

the aspirant did not know enough of the grammar of his language, regardless of his performance in the rest of the examination. (Fortunately, we reconsidered the translation as a whole and gave the paper a marginal pass.) The second faux pas made in an early PQE apparently caused such anguish to the evaluators that they failed the paper mainly on this point.

I hasten to add that none of the above is meant in a caviling spirit. Translations, wherever and by whomever done, have ordinarily been assessed by these or other equally subjective methods. What we propose here is an attempt to bring a measure of uniformity to grading translations so that intuition and idiosyncrasy play a minor role and some kind of objective standard is established. The framework and detail of the proposed system is described below.

Linguistics and Evaluation of Translation

Before discussing precise error weighting I should say a few words about linguistics, dreary as the prospect may be, and follow with some comments on how committees apply linguistic principles in test evaluation.

The first point to be made is that the grading system to be described is based insofar as possible on a somewhat artificial distinction between *syntax* and *semantics*. I will therefore define these terms insofar as they apply to the present case.

- Syntax is the system of relating linguistic elements to one another in phrase, clause, or sentence, a process which is concerned with selecting appropriate grammatical forms (hereafter called "affixes"), positions for vocabulary items, or a combination of both, depending upon the particular language. Syntactic analysis leads from particular texts to general statements about the linguist elements of a language. The traditional parsed sentence is an inductive exercise proceeding from, for example, the sentence "*The quick brown fox jumped over the lazy dog*" to a set of names or symbols: Definite article + adjective + adjective + noun + verb + past tense + preposition + definite article + adjective + noun. We cannot, however, recapture this gem by simply reversing the procedure, because, except for the definite article, a possibly infinite number of combinations could appear. Nonetheless, a command of the syntax of a foreign language, which will inevitably differ from that of English at many points, is the first element of the language the student necessarily learns.
- Semantics, on the other hand, is concerned with particular meanings of linguistic elements in context. To the extent that patterns of feeling and thinking between languages are similar, as to a large extent they will be in the Indo-European languages,

transfer of ideas and impressions will be on the whole fairly simple. (Some kinds of texts are dependent on an intimate knowledge of a vastly different culture subsystem, religious, political, and so on. These texts are never used for PQEs.) The student needs a vocabulary of a couple of thousand words, the main carriers of ideas, before he can work efficiently, regardless of how good his syntactic control may be.

Obviously, many members of PQE Committees have not had much formal linguistic training in syntactic and semantic analysis, excellent though they may be in the language they are concerned with. Just as obviously, there is no time for us to give extensive training in these subjects to people who are busy with other things. However, a certain minimum of linguistic thinking is needed to make our system work and we have tried to impart this informally to committees before they select passages for translation and evaluate them. Once a committee has a general grasp of the system, the members should be better able to select passages containing interesting syntactic and semantic problems. After having produced translations of passages against which papers will be judged, the committee can then to some extent predict likely errors. When the papers are actually graded, each evaluator works independently to derive a score based on the weighting described below then compared his results with the others.

Some differences in weighting are bound to occur and may be irreconcilable, but generally the findings show a narrow spread of 5 to not more than 10 points. The care required in such careful grading insures that at the very least major errors are not overlooked, a result not always achieved by subjective grading.

Our weighting of linguistic elements is based on the assumption that aspirants should be expected to control their source-language syntax. A failure to understand relations within and among sentences, which are marked by position and/or affixes as noted above, can seriously distort the meaning of an entire paragraph; hence, we take either 8 or 4 points off per error, depending on its severity. If, for example, a sentence should have been translated "*Dog bites man*" but comes out "*Man bites dog*," we would subtract 8 points because all the relationships are wrong. If a sentence which ought to have been translated "*We stopped near the train*" is rendered "*We stopped the train*," we would take off 4 points since the subject-verb relationship is correct even though the rest of the sentence is wrong. As we have set 70 as a passing score, four 8-point errors will fail a PQE.

Certainly the examples above are oversimplifications of translation problems which can be knotty. Our experience has shown, however, that in 9 out of 10 cases committees can achieve consensus on the kind and degree of syntactic error

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not only for Russian examinees but also for aspirants in Indo-European and Semitic languages generally. Where we have had problems, it has been in languages such as Chinese or Vietnamese where the intersection of "syntax" and "semantics" has not begun to be explored, let alone taught to university or DLI students. If aspirant translations from these languages go far afield and reverse the meaning of the original, or, even worse, do not even fall in the correct subject-matter area, the point system above is still applied: wrong is wrong. It would of course be possible to set as passing a score lower than 70 for languages structurally removed from English, but a decision to do so would be made on grounds other than linguistics.

Semantic errors are "charged at a lower rate" (2 points per error), not because we regard vocabulary as unimportant -- far from it. As I noted above, a knowledge of syntax alone won't do, for the idea structure mainly depends upon lexical units. However, our experience has shown that students of foreign languages pick up vocabulary unevenly, probably because no systematic attempt to teach it has ever been devised and successfully applied. Nor, for that matter, are students properly instructed in the use of either monolingual or bilingual dictionaries. To the extent that vocabulary instruction is given at all, it is given on the job and takes the form of *ad hoc* corrections and suggestions on how to use one or another dictionary to better effect. This process may be tedious but, provided the subject matter translated is not abstruse, is easy in comparison with mastering a new syntax.

For these reasons it seemed best for us to accommodate to the existing situation and apply the lighter penalty. Even so, we still encounter situations in which it is almost impossible to decide whether an error is in fact best viewed as semantic or syntactic. If a source-language pronominal reference is translated by the wrong pronoun, is this a simple error at a given point (hereafter, "punctilinear error") or could it open the way for misunderstanding several sentences (syntactic error)? Contextual judgment is the only method for making such a decision. On the other hand, some apparently pure grammar markers, such as tense forms, can be mistranslated without in any way distorting the basic noun-verb relationships. Thus, "*the dog bites the man*" and "*the dog bit the man*" have the same noun-verb-noun arrangement: the difference lies in the time of the event identified at a given point in the text. A tense error is hence punctilinear and costs 2 points.

As I have suggested, it is often difficult for PQE Committees to reach a consensus at every point of semantic and syntactic error in translation from the source language. The task of evaluating the translation from the point of view of English usage and violation of convention is even harder, but extremely awkward English does have an overall effect of blurring

meaning or, at the very least, causing the reader unnecessary strain. Violation of acceptable English we call "poor cooccurrence."

When the members of a committee are unanimous in judging an English phrase to reflect poor cooccurrence, one point is assessed. Here are examples of the kind of poor usage we have met: "an oblivious scholar to practical matters" instead of "a scholar oblivious to. . ." (awkward splitting of adjective and accompanying preposition); "the car collided against the bus" instead of ". . . with the bus" (a seemingly unlikely mistake for a native speaker of English to make, but this type is of high frequency nonetheless); "Foreign Minister Rogers" instead of "Secretary of State Rogers" (a violation of conventional usage).

Hundreds, if not thousands, of similar peccadilloes have been and are being committed under the present system and are the object of heated remonstrances from the failing aspirant. ("Why do they have to nitpick everything?") It has been our personal experience that committees on the whole err on the side of generosity in cases of one-point errors, and overlook altogether misspellings and wrong punctuation where these do not cause major problems in understanding the English text. Even those evaluators who take violent exception to misspelling will not fail a paper for this alone.

*

To sum up, it has been our intention to establish a system of grading which will be as objective as possible. Using a base of 100 and with 70 as passing, we have specified 3 kinds of errors. The first 2, syntactic and semantic, concern command of the source language; the third bears upon English usage. Syntactic errors are of two orders of severity reflected in the 8- and 4-point penalties, while semantic mistakes are charged 2 points and English misuse, or poor cooccurrence, costs one.

There are, to be sure, many doubting Thomases who question the efficiency of the system, either because they feel it is too complex to master or that the time spent in mastering it might better be devoted to something else and that the intuitive or "seat-of-the-pants" method will do as well. While conceding the time required to be considerable, the final result, we feel, more than justifies the effort and, in the absence of a better system, ought to prevail.

Editor's note: The system described in the reprinted article has been in use at the Agency since July 1972. [redacted] is currently writing a paper in which he will summarize the experience that the PQE Committees have had in using the system and will suggest theoretical and practical improvements.

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A COMPARISON OF NSA & ATA LANGUAGE CERTIFICATION STANDARDS



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How does an NSA language professional stack up against language professionals elsewhere? That question cannot really be answered inasmuch as apples and pineapples are not directly comparable. An insight at the very lowest level of professionalization can be gained, however, by comparing the criteria for NSA's open-source translation (Part IA of the Professional Qualification Examination) and those for accreditation by the American Translators Association (ATA).

NSA's test

The NSA language test is of such length in the foreign language as to generate a total of 450 to 600 words of English translation. Time is not a factor, therefore examinees can take as long as 4 hours for this section of the PQE. Texts do not pose any problems of content substance; that is, they do not require an overly specialized knowledge of subject matter. They are usually articles by professional journalists on a topic of interest to the general public -- at the difficulty level of *Reader's Digest* or a weekly news periodical. Any lexical item in the text which is not in the standard bilingual dictionary is glossed in a footnote.

NSA graders use a *points-off* system in grading the test. They give more relative weight to errors involving the *logical relationships* among major sentence parts and to identifying specific items in the source text (that is, markers for number, case, gender, tense, aspect, mood, voice, etc.). Each sentence is graded by itself; no more than 8 points is taken off for any one sentence. If the logical subject-verb-object/complement relationship in the translation is not substantially the same as that of the source-language sentence, no fewer than 4 and no more than 8 points are taken off. Experience in various test committees has shown that examinees who get the maximum of 8 points taken off on each of 3 sentences seldom pass the test.

For each translation error involving a *single word* (content words such as nouns, adjectives, verb stems; function words such as prepositions and conjunctions, and grammatical affixes) 2 points are deducted -- up to a maximum of 8 points in any one sentence. For errors involving poor selection of *dictionary meanings* of a lexical item or poor word *collocations* (words that just don't fit together right in English), only one point is deducted.

From the foregoing explanation, it can be seen that a sentence in the English translation might contain one major error involving logical relationships (say, 8 points), 3 single-word errors (6 points), and perhaps 2 collocation or word-choice errors (2 points), but the NSA grader would not deduct 16 points for that sentence -- instead he would deduct only the maximum of 8 points per sentence.

If the translation of Part IA of the Agency's PQE has fewer than 30 points deducted, it is considered to be a "pass." But a translation that just passes is far from good. It is not as simple as saying that a translation with 30 points deducted is "30% inaccurate." Instead, such a translation may be "all wrong," because it will almost certainly contain several errors of fact, any one of which could be critical in a real-life translation situation. So, if such a poor examinee were to be certified as a linguist and were to produce, on an everyday basis, operational translations containing such critical errors of fact, one can only imagine the tremendous amount of work and responsibility that would be placed on the language checker who would have to correct the translations before issuing them. Or one could imagine the inherent dangers if such translations, in a stress situation, were issued to the customer without being corrected.

If a particular grader deducts between 30 and 40 points, the translation must be debated in committee; if the majority of the committee members feel that enough of the *minor* errors would have been caught and corrected in the checking, proofreading, and analysis phases, a translation with as many as 40 points might actually be allowed to pass. PQE committee members sometimes lean over backwards in attempting to pass certain marginal papers. They claim that if only a few examinees pass, management tends to say that the test is too hard, never that the applicants are just not certifiable as professional linguists.

One thing must be borne in mind, however. A person who passes the PQE, even with distinction, is only *certified* as a linguist; it still might take him many years of on-the-job experience to become a senior linguist (something that a person becomes without having a piece of paper to prove it). Dr. Jaffe used to compare this situation with that of a medical student being awarded a diploma from medical school and the right to apply for a license to practice medicine; he would still need years of experience to become an expert in his field. If, then, a person who passes a PQE without debate has demonstrated the *potential* to become a senior linguist, the person who is allowed, after debate, to squeak through a PQE has demonstrated, if anything, the ability to function at only the very lowest level of linguistic competency.

ATA test

The American Translators Association is a different animal. Its members include both literary translators and technical translators. Literary translation is a creative art, and is not tested. But since all translators make most of their money from translating technical, scientific, and legal material, technical translation is used for ATA accreditation. The length of the ATA test is approximately 750 words. Time *is* a factor; precisely 3 hours is allotted for the test. As with the NSA text, the texts do not pose any problems of content substance: lexical items not in the standard bilingual dictionary are glossed in footnotes. Selections tend to reflect the subject matter of professional translators (international meetings, symposia, national projects, medical research, technology, science, etc.), but in a popularized version at the newspaper or *Reader's Digest* difficulty level.

Backgrounds and specializations of the ATA members vary greatly. The examinees are accordingly offered five selections in five somewhat different subject fields, from which they choose three to translate. The topics in the test that I recently took were the Apollo-Soyuz flight, the Helsinki Conference, blood immunology, a legal case involving patents, and the prospective Canadian Health Service System.

These selections do not reflect the difficulty level of the foreign-language texts that usually confront professional translators. But the grading criteria do reflect the requirements of the customers who let contracts for translators. The ATA examinees are told to be *precise* and *fairly literal*, and to be extremely carefully in paraphrasing so as not to lose one iota of the sense of the clause or sentence. They are warned that omissions of words (except for such low-information words as *schon*, *doch*, *und zwar*, *en effet*, *snacht*) can be extremely costly and can even result in failing a selection. A candidate must pass two out of the three passages selected. Only *one* serious error in a passage is permitted; two serious errors constitute a fail for that selection (of course, a large number of nonserious errors could also constitute a fail).

Following is a passage from a statistical text, *Calcul des probabilités*, that was used in the French test administered at the ATA workshop in California in the summer of 1975. The passage is followed, in turn, by three of the translations done by examinees (for the convenience of the grading committee, the translations are typed prior to grading). The underlined words and the notations in the left-hand margin were made by one of the ATA graders (a capital *E* is the symbol for a major error; a lower-case *e* is the symbol for a minor error; *mistr.* stands for mistranslation.)

Comparison of ATA and NSA grading systems

To compare the ATA and NSA grading systems, the typed translations, including the ATA grader's underlines and notations, were shown to an NSA linguist with experience in grading French PQEs. He made his own underlines (=====), most of which coincided with errors noted by the ATA grader, and indicated in the right-hand margin the number of points that would be deducted in accordance with the Agency's PQE criteria. For example, in translation #1 the ATA grader considered the error "for both" (mistranslation of *pour les dieux*, "for the gods," misread as *pour les deux*) to be a major error, whereas the NSA grader deducted 2 points for it.

Since the Agency's PQEs are usually twice as long as the ATA French selection, let us assume that the translators would have had an equal error rate for an additional 300 words. In that event, the results would have been as follows:

Trans- lator	ATA grade	NSA grade		
		Raw score	Extrapolated score	Pass/ fail
1	Fail	84	68	Marginal
2	Fail	72	44	Fail
3	Pass	100	100	Pass

French, passage A -- from a statistical text, *Calcul des probabilités*

Translator #1

I. LE HASARD

"Comment oser parler des lois du hasard? Le hasard n'est-il pas l'antithèse de toute loi?" Ainsi s'exprime Bertrand, au début de son *Calcul des probabilités*. La probabilité est opposée à la certitude; c'est donc ce qu'on ignore et, par conséquent semble-t-il, ce qu'on ne saurait calculer. Il y a là une contradiction au moins apparente et sur laquelle on a déjà beaucoup écrit.

Et d'abord qu'est-ce que le hasard? Les anciens distinguaient les phénomènes qui semblaient obéir à des lois harmonieuses, établies une fois pour toutes, et ceux qu'ils attribuaient au hasard; c'étaient ceux qu'on ne pouvait prévoir parce qu'ils étaient rebelles à toute loi. Dans chaque domaine les lois précises ne décidaient pas de tout, elles traçaient seulement les limites entre lesquelles il était permis au hasard de se mouvoir. Dans cette conception, le mot hasard avait un sens précis, objectif: ce qui était hasard pour l'un, était aussi hasard pour l'autre et même pour les dieux.

Mais cette conception n'est plus la nôtre; nous sommes devenus des déterministes absolus, et ceux mêmes qui veulent réserver les droits du libre arbitre humain laissent du moins le déterminisme régner sans partage dans le monde inorganique. Tout phénomène, si minime qu'il soit, a une cause, et un esprit infiniment puissant, infiniment bien informé des lois de la nature, aurait pu le prévoir dès le commencement des siècles. Si un pareil esprit existait, on ne pourrait jouer avec lui à aucun jeu de hasard, on perdrait toujours.

Pour lui, en effet, le mot de hasard n'aurait pas de sens, ou plutôt il n'y aurait pas de hasard. C'est à cause de notre faiblesse et de notre ignorance qu'il y en aurait un pour nous. Et, même sans sortir de notre faible humanité, ce qui est hasard pour l'ignorant, n'est plus hasard pour le savant. Le hasard n'est que le mesure de notre ignorance. Les phénomènes fortuits sont, par définition, ceux dont nous ignorons les lois.

I. CHANCE

"How dare we speak of the laws of chance? Is not chance the antithesis of every law?" Thus Bertrand expresses himself, at the beginning of his "Calculation of Probabilities." Probability is opposed to certainty; thus it is what is unknown, what we would not know how to calculate. There is at least an apparent contradiction here, one on which a great deal has already been written.

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First off, what is chance? The ancients distinguished between ~~the~~ phenomena which seemed to obey harmonious laws, established once for all, and those which they attributed to chance; they were the ones that couldn't be anticipated because they were unamenable to all law. In each domain, no precise laws were determined; they traced only the boundaries among which chance was allowed to operate. In this concept, the word "chance" had a precise, objective meaning: what was chance for one was also chance for the other, and even for both.

However, this is not our way of looking at it; we have become absolute determinists, and even the same ones who want to save a place for free will in mankind nevertheless let determinism hold untrammled sway in the inorganic world. Every phenomenon, no matter how minute it may be, has a cause, and an infinitely powerful mind, infinitely well informed of the laws of nature, would have been able to foretell it since the beginning of time. If such a mind existed, one would not be able to play any games of chance with it -- one would always lose.

For that mind, in fact, the word "chance" would have no meaning, or rather there would be no chance. It is because of our weakness and our ignorance that there would be chance with us. Also, even without going outside of our feeble humanity, what is chance to the ignorant is no longer chance to the wise man. Chance is only the measure of our ignorance. The chance phenomena, by definition, are those whose laws we do not know.

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Translator #2

Translator #3

I. CHANCE

"How does one dare to speak of the laws of chance? Isn't chance the antithesis of all law?" Bertrand thus expresses himself, at the beginning of his "Calculation of Probabilities." Probability is opposed to certainty; it is thus what one does not know and, consequently, it seems, what one does not know how to calculate. ②
 There is there at least an apparent contradiction, and one on which much has already been written. ①

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And, first, what is chance? The ancients singled out phenomena that seemed to obey harmonious, firmly established laws and those they attributed to chance; there were those that one couldn't foresee because they were rebellious to all law. In each domain, precise laws did not decide everything, they only traced the limits between which chance was permitted to operate. In this conception, the word "chance" had a precise, objective meaning: that which was chance for one, was also chance for the other and even for the gods. ①

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But this idea is no longer ours; we have become absolute determinists, and even those who wish to reserve the laws of human free-will leave at least the determinism to rule without division in the inorganic world. All phenomena, Every phenomenon as small as it is, has a cause, and an infinitely powerful spirit, infinitely well formed to the laws of nature, would have been able to foresee it from the beginning of the centuries. If a like spirit existed, no game of chance could be played with it, one would always lose. ① ②

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For it, indeed, the word of chance would not have any sense, or soon there would not be any chance. It is because of our weakness and of our ignorance that there would be one for us. And, even without leaving our weak humanity, that which is chance for the ignorant, is no longer chance for the well-informed. Chance is only the measure of our ignorance. Fortuitous phenomena are, by definition, those of which we do not know the laws. ① ②

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I. CHANCE

"How can we dare to speak of the laws of chance? Is not chance the antithesis of all law?" Thus speaks Bertrand, at the beginning of his "Calculation of Probabilities." Probability is opposed to certitude; thus it is what we do not know and so, apparently, what we cannot calculate. There is here an at least apparent contradiction about which much has already been written.

First of all, what is chance? The ancients distinguished between phenomena which seemed to obey harmonious, definitely established laws and those which they attributed to chance. The latter were phenomena that could not be foreseen because they were contrary to all law. In each field the precise laws were not all-determining; they merely defined the limits within which chance was permitted to operate. In this conception, the word "chance" had a precise, objective meaning: what was chance for one man was chance for another, and even for the gods.

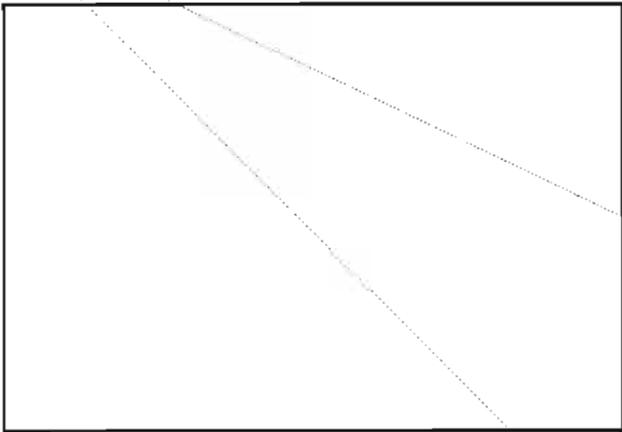
But this conception is no longer ours; we have become absolute determinists, and even those who wish to reserve the rights of human free will at least permit determinism to reign unchallenged in the inorganic world. Every phenomenon, however small, has a cause, and an infinitely powerful mind, infinitely well informed of the laws of nature, could have foreseen it from the beginning of time. If such a mind existed, we could not play any game of chance with it; we should always lose.

For this mind, in fact, the word "chance" would have no meaning, or rather there would be no chance. It is because of our weakness and our ignorance that one may exist for us. Even without departing from our weak humanity, what is chance for the ignorant man is no longer chance for the scientist. Chance is merely the measure of our ignorance. Fortuitous phenomena are, by definition, those whose laws we do not know.

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P.L. 86-36



One final remark about NSA PQEs and ATA's accreditation examinations: they are both designed to set the lowest threshold level of professionalization, no more! At NSA the emphasis is placed on accuracy of content. In the ATA, accent is placed on precise, literal accuracy and on speed. A person who can complete the exam in exactly 3 hours will be able to make a bare living just above the poverty level in translating material of that difficulty, using conventional paper-and-pencil techniques and typing up the finished copy himself. Translators therefore specialize in specific technical fields where they can get at least double or triple the basic translation pay rate. Then too, professional translators often dictate their translations into recording equipment and pay a typist to transcribe the translation into finished copy; despite this additional expense, this method is beneficial to the translator since it enables him to at least double his translation output. Consequently, a free-lance professional translator, after gaining experience and one or more specialties, should be able to earn at least \$36,000 a year. Even a part-time free-lance (moonlighter) translator can earn as much as \$5000 a year. These figures indicate that ATA accreditation is worth quite a bit in dollars and cents. They also indicate that, according to ATA standards, the majority of certified NSA linguists are overpaid, while the few truly professional certified linguists at NSA are underpaid.



~~(FOR OFFICIAL USE ONLY)~~



Letters to the Editor

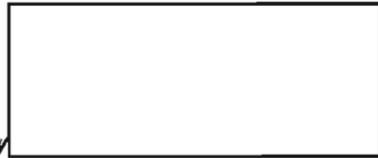
Chief, W

24 December 1975

TO: B

SUBJECT: Cryptolog Article, Oct 75

In one of the gaps which occurred during the holiday season I got to read your "...Proud and Bitter Memories" article. Your message is clear, as are your feelings about the people you worked with (and for). I think you've done a service for those of us here who didn't have much to do with "the problem" by writing that article. It wasn't enjoyable reading, but I'm recommending it to all in W.



cc: Ch, B
 Ch, P1
 Editor, Cryptolog, P16

P.L. 86-36



Communications Security Establishment

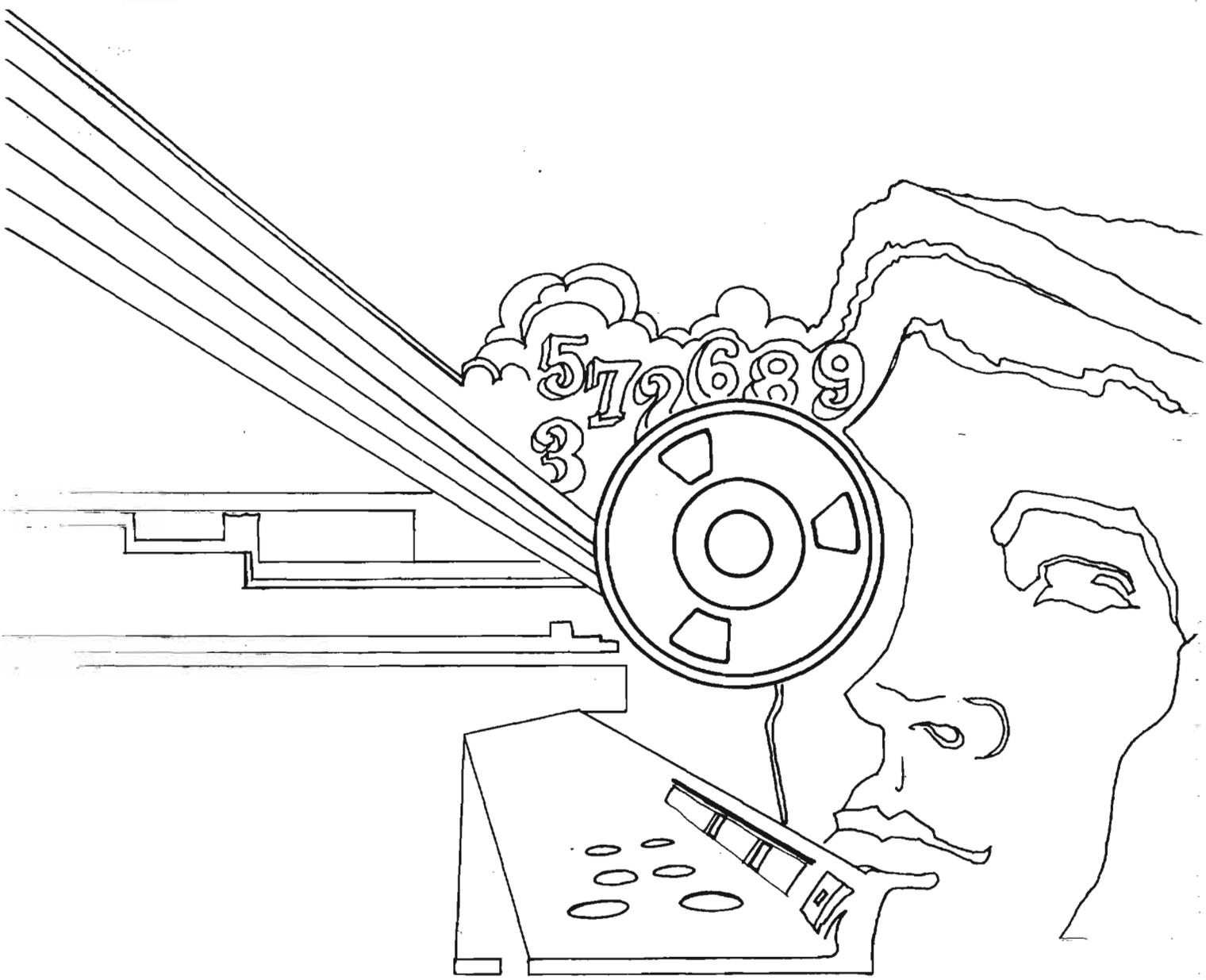
I very much enjoyed the October issue of Cryptolog, especially "Proud and Bitter Memories" and the extract from his "Uncertain Origins" which you put across as a splendid Double-Croctic. Noting that you are obviously very enthusiastic about this kind of puzzle, I am enclosing a copy of a related type which I constructed for fun, but on completion realized was not economically viable, since it is much more difficult and time-consuming to create than to solve. . . I don't think I shall ever construct another one, so this is probably an authentic O'Neill *hapax legomenon*. . .

Kevin O'Neill

Readers who would like a copy of Mr. O'Neill's puzzle may get one by calling the Editor on 56428.

(UNCLASSIFIED)

~~TOP SECRET~~



~~THIS DOCUMENT CONTAINS CODEWORD MATERIAL~~

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