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# CRYPTOLOG

## Editorial

One of the things that is often missing
around here is some time to stop and just
think a bit about what we are doing. We don't
always do that as often as we should. As I
begin my third year as editor, it seems to be
a good time to pause and reflect about the
magazine.

My strongest impression is that the maga-
zine is really the result of the collective
efforts of a lot of people. Responsibility
for whatever success the magazine has enjoyed
must be shared by many.

My predecessors, who built up a going pub-
lication process, deserve much of the credit.
Building on someone else's work is a lot
easier than starting something from scratch.

Then there are those who help during the
publication process from manuscript to the
final printed and distributed copy that lands
on your desk. Without all these friendly
folks, we would never make it.

There are the many people who provide the
articles, letters, and various items that fill
our pages. Over the last decade, most of the
in-house technical periodicals have stopped
being published, often for lack of material.
That has not been a problem for CRYPTOLOG and
so I must acknowledge our continuing debt to
the authors.

Ultimately, of course, it is you the
readers who keep us going. You are a taciturn
bunch, I must admit, but you do manage to con-
vey your interest and your appreciation.
Without that, there would be little need for
the magazine.

# A Few Words About CRISIS MANAGEMENT (U)

## from
## LT. GEN. LINCOLN D. FAURER,
### Director, NSA/CSS

(U) ood morning! I'm pleased to join you in kicking off this symposium on crisis management. I am proud of our agency's Learned Organizations: they permit us to stay in the family while removing ourselves from normal work structures to pursue professional interests.

(U) I would like to make it clear at the outset that I am not an advocate of the "crisis style of management." To the contrary, if we are to cope adequately with the many crises which come our way, we must actively plan and prepare ourselves to deal with a great variety of crisis scenarios.

(U) In the coming week you will be looking at crisis management on a couple of different

Director's Remarks on the opening of The Communications Analysis Association (CAA) Symposium on Crisis Management on 24 October 1983

planes. On one plane, you will be learning how crisis management looks from the vantage point of national policy and decision makers. As we better understand what they need in their efforts to keep bad situations from getting worse, we should be able to provide more useful SIGINT support.

(C CCO) On a second plane, you will be looking at how we in this Agency operate in times of crisis to provide that SIGINT support. I think it is appropriate that the Communications Analysis Association, a multidisciplinary organization, has sponsored this examination of crisis management. It is appropriate since our response to every crisis is inevitably a multidisciplinary response. Linguists, cryptanalysts, traffic analysts, signals analysts, and intelligence research analysts all play an important role in every flap. In addition, all kinds of support activities play essential roles. We couldn't begin to do the job without the communicators, engineers, computer operators, and all the others that make our complex production efforts possible. This Agency, more than any other, spends most of its time in a "crisis" posture.
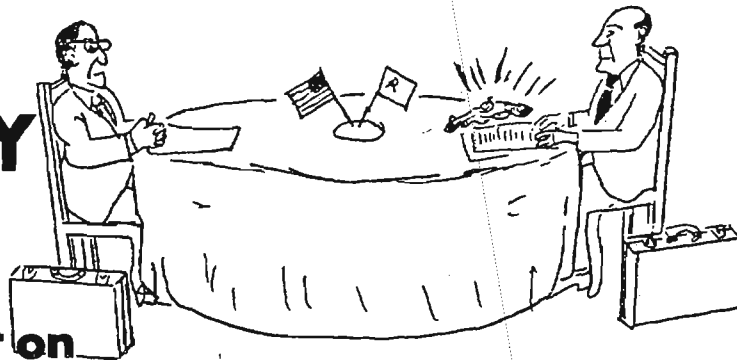
(U) I urge you to take advantage of the opportunities this week will provide to learn more about crisis management and our important role in that process.

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

SECRET        HANDLE VIA COMINT CHANNELS ONLY

# SOVIET MILITARY GOALS
## and Their Effect on
# Negotiations for ARMS LIMITATION (u)

by

S243

The Soviet Union has used SALT and START negotiations to achieve long-range military goals and to advance its foreign interests. Soviet military goals emphasize border defense through control of neighboring countries, increased influence abroad, and quantitative superiority in military hardware. Whether negotiations or military planning concerns intercontinental ballistic missiles or tanks, the Soviet objective is to end up in a position of strength.

Soviet military planning combines the use of conventional and nuclear warfare to maintain control of the conflict. The Soviets view limited nuclear warfare as a means to hold positions, resupply, contain the enemy, and continue fighting to victory.

One Soviet long-range military goal has been the development of a modern navy. The US naval blockade during the Cuban missile crisis of 1962 is probably the most recent event which showed the Soviets the importance of a strong hardware base, particularly in naval vessels. US Navy units prevented a weak Soviet Navy and merchant ships from docking in Cuba. Unable to break the blockade, the USSR was forced to withdraw its nuclear missiles from Cuban soil. After the conflict, Soviet foreign policy changed to emphasize protection and expansion of its foreign interests. The Cuban Missile Crisis was the last time the Soviets backed down under foreign pressure.

The USSR arrogantly expresses its intention not to allow any outside power or world opinion to affect its foreign policy. Since the 1960s the Soviets have been on a program of constant military hardware building and personnel training, which has only recently showed some signs of diminishing. This tapering off reflects a quantitative advantage gained in a modern navy, tanks, nuclear missiles, and NBC (nuclear, biological, and chemical) equipment and training. The Soviet leadership's lack of concern about world opinion is exemplified by the invasion of Afghanistan and the use of chemical weapons there, as well as by its control of Eastern Europe, particularly Poland.

History has taught the Soviets that tactical surprise and swift troop movement are advantageous in military operations. They admired the rapid troop movements of the Nazi blitzkrieg in World War II and adopted this concept into their military operations. Motorized infantry units and extensive long-range airlift operations during the invasion of Czechoslovakia and Afghanistan are examples of Soviet adaptation of the blitzkrieg concept. In both these invasions the Soviets transferred large numbers of troops and enormous quantities of equipment and supplies in a short period of time. Armor and motorized infantry, supported by bombers and fighter aircraft, are the cornerstone of a Soviet invasion. Tactical goals are to capture and control territory and to surround heavily defended areas. Infantry, artillery, and missiles are used to destroy trouble spots.

Eastern Europe and virtually all the northwestern section of the USSR are well protected by ground, air, naval, and strategic rocket forces. These forces offer a manmade barrier for a border with no natural obstacles. Soviet and Warsaw Pact forces counter NATO and are trained to prevent foreign troops from entering Soviet territory. In negotiations for arms limitations the Soviets attempt to increase their military forces' quantitative gains. They have made reductions only by mothballing older military hardware.

During arms negotiations the Soviets attempt to block implementation of new Western hardware while maintaining their hardware production levels. The Soviets project a superficial appearance to the world of wanting to reduce their levels of military arms. In reality, their objective is to wear down the opposition, using to their advantage world opinion, debates, and demonstrations against any Western arms buildup. The delay in implementing production of the United States' B1 bomber and the MX missile has assisted the USSR in its goal of maintaining a quantitative advantage in strategic weapons. With the production of modern military hardware, including titanium-hulled attack submarines, SS-20 missiles, and FOXBAT long-range bombers, the Soviets have caused the West to reevaluate its strategic defense policies. The Soviet military buildup has caused some Western nations to espouse neutrality in the event of war. Other nations are experiencing internal conflict over how to counter the Soviet military gains. Debates and demonstrations in the US, UK, and West Germany have given the Soviet arms reduction propaganda some credibility and sympathy.

START negotiations will be lengthy and will be criticized as being favorable to the Soviets. An arms limitation agreement will assist the USSR in maintaining a desired quantitative advantage. For example, even if an agreement is made not to place MX missiles in Europe and to remove all Soviet SS-20 missiles east of the Urals, the Soviets would gain. The mobile SS-20s can move into Eastern Europe with little or no warning.

The Soviets are virtually silent about the START negotiations; the West is experiencing debates and demonstrations. Soviet SS-20 missiles are in Eastern Europe; the MX missile is still on the drawing board. Comparison and contrast of Soviet and Western strategic positions lead to an argument about who is superior. The Soviets have progressed from a position of military inferiority to one of equality and, in some cases, superiority over the West. All the Soviet military goals have not been met. However, by using the arms limitations talks, world opinion, and Western desires to end the arms race, there is no reason to expect that the Soviet Union won't meet these goals.
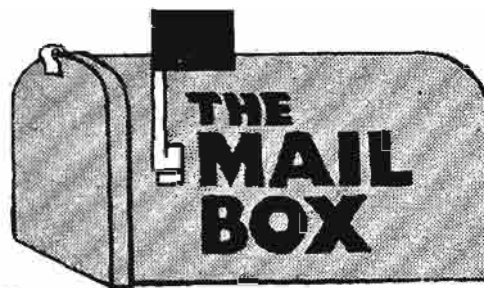


Dear Editor:

Ref [          ] article on "Management of Coordination." I hope that when the person mentioned on page 8 told him that there are "only two Os in 'coordination,'" he had the presence of mind to point out that there are three Os in "cOOrdinatiOn"!
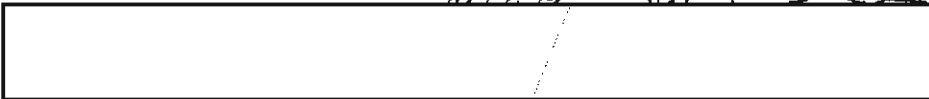
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Juan Tuthri

# TIPS ON TOPICAL REPORTING (U)

## BY

P.L. 86-3

These few suggestions stem from a presentation the author developed for a National Cryptologic School course[                    ]

(S) Having incorporated some minor changes, he believes these tips can be helpful to analysts working on any military problem at NSA.

### BE FAMILIAR WITH FORMAL SIGINT REQUIREMENTS

(C) These can be found in the National SIGINT Requirements Lists. While important to know, these requirements generally are not crucial in deciding what topics are reportable; almost anything that sounds significant or interesting in a military context is covered by at least one requirement. Furthermore, more often than not there are several requirements in each list with identical priorities, so a person should develop other analytical tools for judging the worth of topics encountered in military traffic. Basically, as intelligence specialists, we need to focus on gems of good information, not overlooking the fact that gems are often found in low-grade ore.

### TRY TO KEEP CURRENT
### WITH UNCLASSIFIED MILITARY LITERATURE

(U) This advice applies especially to magazines but also to books. NSA keeps most important magazines and new books on file in the main library or in specialized technical collections, kept in other locations in the building, in the case of foreign language publications.

(U) No one, of course, can expect to keep track of everything military writings can cover. but a broad knowledge is extremely helpful in defining the issues of real importance in your own mind. Find out what our military brass is thinking. Don't neglect openly available material from Warsaw Pact or other target country sources, either; even the titles of articles can say a lot. Yes, this takes time, perhaps even some personal time reading at home or time which might be deemed "wasted" plowing through thick read files, but this can pay off big sometimes. Consider this as your basic research, very similar to what is expected in every facet of work done in the scientific community.

### IDENTIFY THE AREAS OF PRIMARY CONCERN
### AMONG MILITARY THINKERS AND PLANNERS
### AT THE PRESENT TIME

(U) This practice has its dangers, though. The tendency in any field of endeavor, but especially in military circles, is to grab a "hot topic" and run with it, neglecting some of the basics that need continuous attention. This often happens when new weapons systems are coming on line. Granting that, intelligence reporters can "make a lot of money" for their organizations by reporting on those current high-interest topics if information becomes available on them; you can be sure any such report, or a briefing based on it, will be received much more avidly by our users than our more run-of-the-mill products.

### INFORMALLY PRIORITIZE THE SUBJECTS OF GREATEST INTEREST AS YOU TAKE A LOOK AT THE TRAFFIC IN YOUR CURRENT PROJECT

(U) The National SIGINT Requirements Lists are only general guides to themes of continuing interest, but they cannot stay as current as an analyst who is really on the ball. Sure, there is always the old excuse of too much to do in most offices, where workers slog through piles of traffic that need some sort of attention. But priorities are ultimately set by the same military thinkers whose writings, interviews, and concerns you have been reading about. Get the current priorities straight in your own mind, and you are a jump ahead in the game of producing relevant intelligence.

EO 1.4.(c)
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### DEVELOP A SPECIALTY

(S) There are many generalists among analysts at NSA who know a little about a lot of things. However, it is encouraging to know that with not a great deal of extra effort you can get to be the recognized expert, if you please, in your office or maybe in all of NSA about one or two areas of military knowledge.

Receptiveness to new areas of learning is all that is necessary for such a new status; it has nothing to do with grandstanding or empire building.

### ACTIVELY SEARCH FOR SOURCE DATA WHICH CAN PROVIDE ANSWERS FOR QUESTIONS ON USERS' MINDS

(U) Unfortunately, we very seldom get transcripts or printouts in which reportable information sort of leaps from the page in a neat, logical, and complete format. When that happens, those writing it up become mere translator-reporters. Translation and reporting are both necessary skills but hardly the stuff from which analytical breakthroughs are made. True analysts are those people who recognize clues and subtle hints in otherwise unintelligible, fragmentary data and manipulate that information into a story of useful intelligence. But analysts have to do their homework, and not just by signing up for more formal classes.

### BUILD A NETWORK OF FELLOW ANALYSTS

(U) No one can do it all alone. Even competent loners need some help in producing accurate, comprehensive reports. A handy shortcut in research is using the knowledge stored in other people's heads or personal files. Remember, though, that networks require give and take to be effective. Be prepared to share your own expertise with others, within the limits of special clearances and need to know. Fellow analysts also can help you avoid going out on a limb and saying something stupid before your report hits the editors or gets to the formal coordination process.

### DON'T OVERLOOK HISTORICAL DATA WHEN WRITING ABOUT THE PRESENT OR PROJECTING TRENDS INTO THE FUTURE

(C) Many of us can get so wrapped up in the here and now of intelligence reporting that we neglect to dig into the past. Many old reports, for instance, have a wealth of essentially raw data which was reported "as is"-- and rightly so, it should be added--because at that time whoever was working on the problem did not have a complete understanding of some particular aspect. Let's digress a moment to consider an important point. We need to put details into our event and topical reporting for precisely that reason. (This can be done without letting a report degenerate into a formless mass of undigested data.) Reports don't get lost as easily as traffic over the years, and those details can be a gold mine for future analysis of a particular topic. Of course, old traffic should not be neglected if it is possible to make a pull that zeroes in on the topic being developed, especially if an analyst is on to something really hot.

### MAINTAIN A HEALTHY CURIOSITY AND DON'T BE AFRAID OF INITIATIVE

(C) I saved the most important point for last. As you know, we are working in a big bureaucracy here that seems quite impersonal at times. As long as we choose to remain NSA employees, we'll have to live with that fact. But don't let the bureaucracy become an excuse. That spirit of curiosity, that propensity to delve into new territory, can not only be kept alive but flourish in our business, which, after all, thrives on being snoopy. Many of you would be surprised, too, at how much say an individual analyst has in what he or she reports. Sure, there are always regular demands placed on our time, including things we are specifically ordered or expected to do, but don't hesitate to make noises and try to convince people on up the line that something needs doing if you smell something important in the target you are examining. And don't give up if a pet project gets quashed for some reason. There is always something else to report. Good intelligence comes from dedicated individual analysts dredging up good stuff buried in trivia, not by supervisory decree. Besides, satisfying curiosity and coming up with something new are just plain fun.

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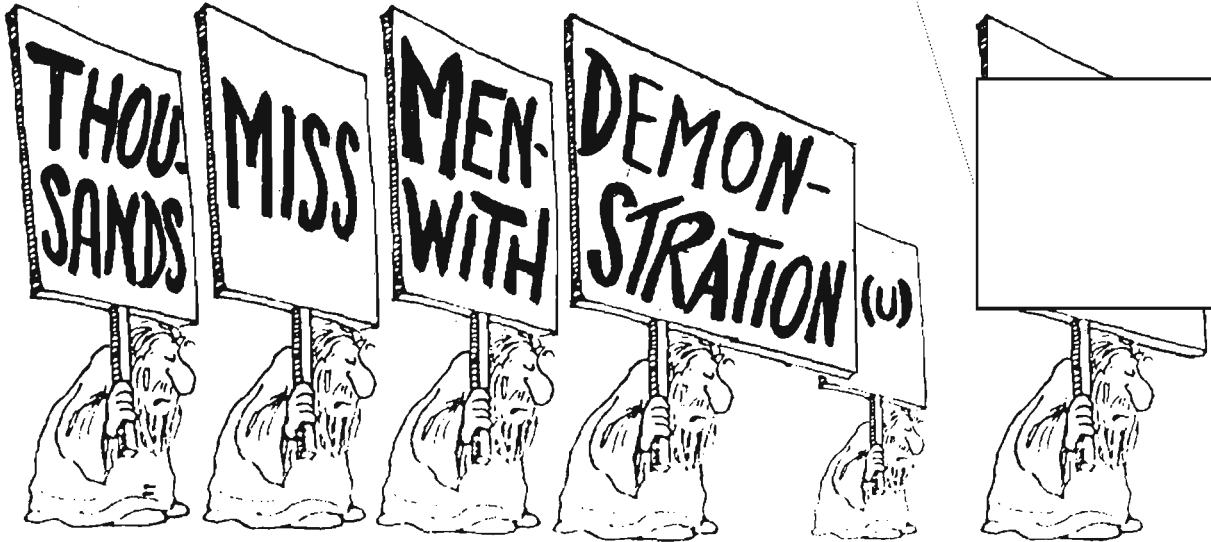


"Thousands Miss Menwith Demonstration." So headlined the account of the 4 July 1982 protest at Menwith Hill Station published by the local (U) newspaper, The Harrogate Advertiser. Indeed, the day's events were anticlimactic for those concerned with protecting the Station and discouraging for the protest organizers who attracted less than 10% of the expected 20,000 marchers.

(C) By now, Menwith Hill Station might be the most protested-against NSA/CSS facility in the world. From time to time over the past 16 years, small groups have appeared at the front gate supporting a wide variety of causes. Since mid-1980, however, the tempo and the intensity have increased markedly, and we have had to organize ourselves to handle these demonstrations.

(U) The renewed interest in Menwith Hill was sparked in March 1980 by Duncan Campbell, a British journalist who writes frequently for the New Statesman, a left-oriented magazine. Campbell had previously exposed the British Post Office's "Tinkerbell" operation in which domestic telephones were allegedly being tapped and had caused a major debate in Parliament. In his new article and in subsequent television interviews, Campbell made three points:

[] that since he had made the British Government stop tapping UK phones, it was obvious the Government had to get someone to do it for them:

[] that NSA intercepted international lines and Menwith Hill was an NSA station; and

[] that Menwith Hill was situated near and hooked into Hunter's Stone Tower, a major British Post Office microwave relay tower and was therefore tapping British telephones as well as international lines passing into and out of the UK.

(U) Campbell's accusations were picked up by the British national and local (as well as the US) press in July. The immediate direct response was a very small demonstration by college students from Bradford in the summer of 1980, a few letters to the editor, and follow-up stories in the local Yorkshire newspapers. Considering the potential hostility towards the Station these stories could have generated, we considered ourselves fortunate with so mild a reaction. (The British press plays by different rules: Any accusation is assumed to be true unless specifically denied, and a "No comment" is often treated as a confirmatory statement.)

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(U) The publicity apparently then attracted the renewed attention of the Committee for Nuclear Disarmament (CND), one of the largest protest organizations in the UK. CND had selected the "target" theme as the basis on which to organize anti-US demonstrations, usually centered on the Cruise Missile deployment. The target there was well summarized in the December 1980/January 1981 issue of San-ity, the national CND magazine:

"We are a target
 because we have nuclear weapons;
"we are a target
 because we are an American base;
"we are a target
 because we are involved in the NATO Alliance;
"and if we are a target we can't survive."


Strategic targets around Otley.

**Figure 1**

(U) By early 1981 Menwith Hill was almost an incidental in the national organization's strategy. Far more prominent was the exploitation of a Civil Defense exercise run by the British Government in the fall of 1980. "Square Leg," as the exercise was known, had identified the cities of Leeds and Bradford as Soviet nuclear targets in the event of war with the Soviet Union. When CND literature described the effects of a 5-megaton bomb dropped on Leeds or other nearby targets, Menwith Hill was but one of many targets. (See illustrations 1 and 2.)

(U) However, by early 1981 the local Yorkshire CND had begun to plan a major demonstration directed against Menwith Hill Station. The "target" theme was by now narrowing down to US facilities in the UK with no mention being made of the obvious British "targets," such as RAF Catterick, HMS Forest Moor, or Leeds. When a British base was mentioned, it was only in the context of the base serving American purposes. For example, RAF Fylingdales was described in The Harrogate Nuclear Handbook, published prior to the 4 May demonstration, as "... a crucial link in the U.S.A.'s Early Warning System. This 'Early Warning' would come too late for the U.K." Illustration #3, taken from the Harrogate Nuclear Handbook, demonstrates how the British targets disappeared from CND literature in favor of US targets.

(U) The "target" was further narrowed by the spring of 1981. The issue was now to close down Menwith Hill Station on the premise that if war should break out the Russians would not bomb Yorkshire if there were no Americans there.

(U) This approach can be illustrated by a letter to a local paper by Bob Wilkinson, a member of the New Communist Party in the UK. Wilkinson, who actively assisted in organizing the 4 May 1981 "Peace Picnic" and who later organized the 4 July 1982 "Menwith Hill Picnic," wrote:

"Our 'allies' have probably their most crucial major retaliatory target eight miles from Skipton, at Menwith Hill. This remarkable top secret base is run by the highly secretive U.S. National Security Agency. Menwith Hill Station, with over 800 employees working round the clock to gather military, political and economic intelligence, is the biggest communications tapping center in the world—reflecting Britain's strategic position in the U.S. world communications network...
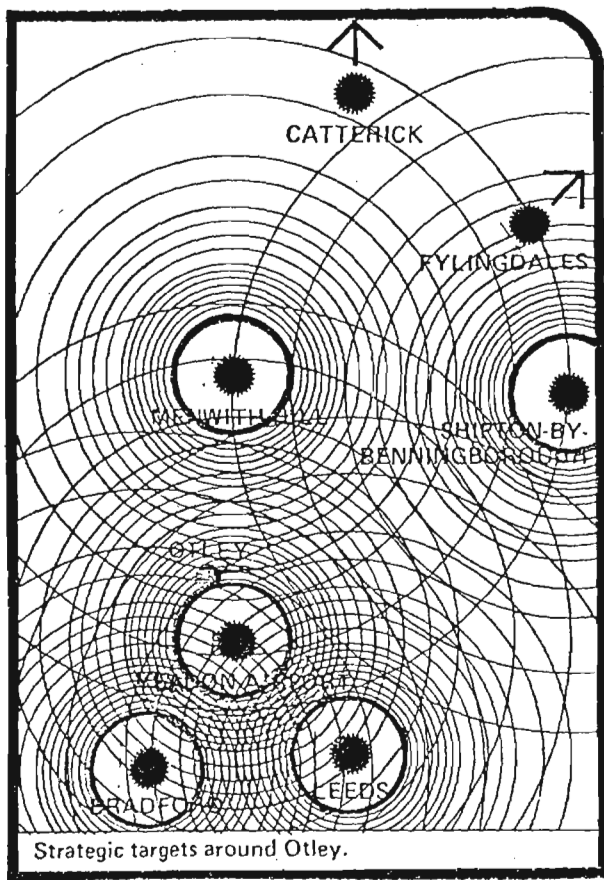
"It is the PRIME target for any nuclear strike after an American 'first strike' from a Cruise or Pershing missile ...

"In the interests of the only possible means of survival for the human race there is to be a Peace Picnic at Menwith Hill on May Day. ... Let us put aside all that divides us. Now is the time to act together."

(U) Over 6,000 people marched past Menwith Station on 4 May 1981 behind a very wind-blown banner proclaiming:

CLOSE MENWITH HILL
GIVE PEACE A CHANCE
NUCLEAR-FREE YORKSHIRE

(U) In a nearby field they heard speeches, including one by the Labour Member of Parliament for Keighly, Mr. Bob Cryer, who was the one major "name" attraction present. (Early in the organizing promotion, it was reported that actresses Julie Christie and Susannah York would be present. They were not.) The demonstration was large, peaceful, and successful in drawing media attention. At the close of the day, the organizer said the protesters would return every May Bank Holiday until Menwith Hill was closed down.

(U) There was local opposition to the demonstration. The Harrogate MP condemned it, the Bishop of Ripon refused to become involved, and the parish priest from the organizer's hometown urged a Catholic boycott. One local farmer even managed to "muck" the adjacent field during the speech making.

(U) Following the demonstration, Menwith Hill dropped out of the news. CND actions were concentrated on so-called peace camps at the gates of major USAF bases in the south and the Midlands. On 26 February 1982, after six months of quiet, Menwith Hill hit the front page of the local papers under the headline:

35,000 Target at Menwith "Peace Picnic"

(U) Subsequent articles reported that Bob Wilkinson, the chairman of the organizing committee, had scheduled a massive demonstration during the Station's Independence Day celebrations on 4 July 1982. Significant trade union support was claimed and the national secretary of CND was to be the featured speaker. "Our sole aim," Wilkinson was quoted, "is to get the base closed."
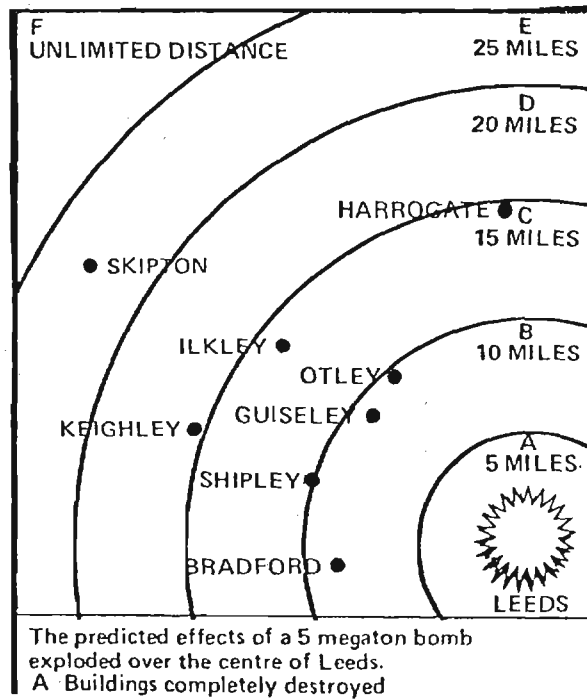


The predicted effects of a 5 megaton bomb exploded over the centre of Leeds.
A Buildings completely destroyed

**Figure 2**

(C) By mid-March, there was a renewed emphasis, perhaps coincidentally, in the tabloids on the number of US bases in the UK. One article began: "Britain is just an aircraft carrier for America's fighting machines in Europe, it is said—a giant parking lot for their strike aircraft, nuclear bombs and spy planes." Probably the CND campaign would have brought substantial publicity to Menwith Hill, but the Station was soon thrust back into sensationalized stories when James Bamford began his publicity campaign for his exposé of NSA, The Puzzle Palace. Bamford's first disclosures concerned the NSA-GCHQ relationship with emphasis on NSA's "Minaret" operation between 1967 and 1973 and GCHQ's assistance therein. There followed a series of articles, including one by Duncan Campbell's associate Linda Melvern, about Anglo-American intelligence cooperation. Menwith Hill received its share of attention in these articles.

(U) The phone-tapping stories reappeared, and were coupled with the "target" theme, which continued to be the main point of emphasis. The Leeds Other Paper published by Leeds Alternative Publications Ltd, (self-styled as a "Trade Union and a worker's cooperative") merged the two themes in its 16 April 1982 issue:

"The Effects Of A One Megaton (airburst) Nuclear
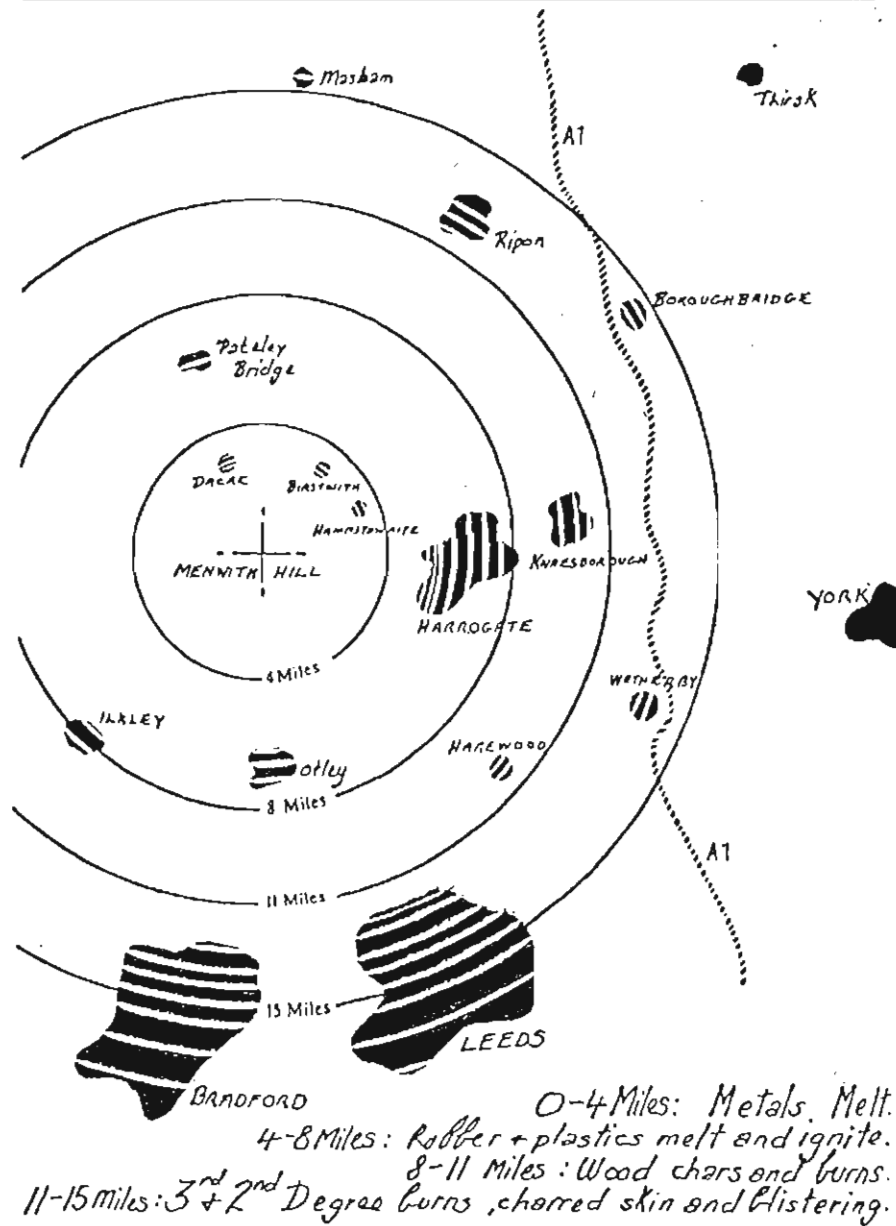Bomb Over Menwith Hill."



O-4 Miles: Metals. Melt.
4-8 Miles: Rubber + plastics melt and ignite.
8-11 Miles: Wood chars and burns.
11-15 miles: 3rd + 2nd Degree burns, charred skin and blistering.

**Figure 3**

"Council Leaders George Mundie (Leeds) and Derek Smith (Bradford) are giving their support to the picnic. 'Our support for this campaign is twofold. Firstly, we must accept and believe that it is a nuclear target and as such must be removed from our country,' said George Mundie. 'Secondly, we object strongly to the existence of a spy base which is responsible for invading the lives of the people of Britain. ...

"Menwith Hill is a U.S. base comprising the world's most technically advanced and comprehensive spying system. ... For 15 years it has existed to tap the telephones of private citizens, corporations, governments, both nationally and internationally."

(U) By the first of May, the press was reporting that over 30,000 anti-nuclear protesters would converge on the Station. The demonstration was said to have the support of 12 national trade unions and Keighly's MP Mr. Bob Cryer. A 24-hour vigil was now to be added, and the base was to be encircled during the day. According to the organizers, over 3,500 circulars were mailed to trade union branches and shop stewards and 15,000 petition forms had been issued.

(U) Although police liaison indicated the organizers really expected only 20,000 people, all the signs pointed to a massive action at the gates of Menwith on the 4th of July. And as the date approached, the BBC broadcast a story featuring James Bamford, his book, and his allegations, none of which did much that was beneficial to Menwith Hill's image or standing in the community.

(U) A new ingredient was added about this same time, 8,000 miles away. Argentina's armed forces invaded the Falklands and in an instant media interest turned away from the CND. As British forces were organized into a task force, there was an overnight resurgence of patriotism and unequivocal support to the Government in the crisis.

(U) After the US declared for Great Britain, there was a noticeable increase in the general feeling of good will towards Americans in general and, in North Yorkshire, towards Menwith Hill in particular. This was particularly evident during community relations tours when guests offered to their Station hosts their personal appreciation for "the help America is giving us publicly and the help we don't know about."

(C) On 15 June, the BBC carried a report called "Falklands Special" that included a segment entitled "The Secret War." Featured was James Bamford, standing in front of NSA/CSS Headquarterss, identified only as an "Electronic Intelligence Analyst"--in other words, he appeared to be an official spokesman for NSA. The following exchange between BBC reporter Tom Mangold and Bamford probably had a stronger effect upon anti-Menwith Hill Station efforts than anyone could have realized at the time:

Mangold: "America's spy satellites tried to help guard the Task Force by giving details of coastal photographs showing the Argentinian Navy, usually in port, weather patterns, and intercepts of coded military traffic. Once the intelligence has been acquired by the satellites, how is it routed to the Task Force Commander?"

Bamford: "Well, it's a very complicated process, and what happens is when the satellite makes its route around the earth it passes over Argentina and the Falkland Islands. It collects its signals intelligence and its photo intelligence, and it stores it on tape, and then it makes about a 45-minute journey northwards on the same trajectory and it passes over England--the first friendly country it passes over. At that point, then the signals are sent down to a ground station--at Menwith Hill Station, the National Security Agency station run by the Americans with some British cooperation, in Yorkshire, near Harrogate. At the ground station the analysts go over the information, produce intelligence out of it, translate it into pictures and sounds, words, and then transmit that information down to Cheltenham, the headquarters of the British Government Communications Headquarters. Once at Cheltenham, the analysts go over what they want to send to the Task Force and they take that information and beam it up to a Defense Satellite--it's called "The Discuss Satellite," a Communications Service satellite, that's just over the Atlantic at 22,300 miles, and in turn that beams it down and the Task Force then receives the information."

(U) There was an immediate and strongly favorable reaction in Yorkshire. Again, this was seen in the Community Relations visits: there was an increase in requests to visit the station and, on those tours already scheduled, the broadcast was mentioned in an appreciative manner. Most of the visit requests came from the Keighly-Bradford area, the hometown of Mr. Cryer, and those groups tended to be supportive, not critical, in their comments during their visits.

(U) As the date of the demonstration approached, there was another complicating factor: a national rail strike had shut down all trains. The impact of that strike is debatable but it probably helped cut attendance. However, by 25 June it was obvious that the demonstration was floundering; only 50 buses had been chartered.

(U) On 27 June a new factor entered: the Station learned that an anti-CND group intended to stage a counter-demonstration by flying over the group trailing a banner stating:

"CND - Communist Neutralist Defeatists."

The spokesman for the group stated he would take away from the media coverage of the demonstration, saying "If the BBC gives the demonstration 25 seconds, at least 5 of it will be on my airplane."

(U) At midnight the demonstration began. A small number of young people started the vigil on schedule. By mid-morning, the police were briefed and the Station waited for the action to begin. So did the organizers. The 12:30 step-off time was delayed to await more protesters, as only about 1,000 were present. Eventually, the police insisted that the march move out and 1,362 men, women, and children began walking behind the lead banner:

MENWITH HILL PEACE PICNIC
GIVE PEACE A CHANCE
CLOSE MENWITH HILL BASE
MAKE YORKSHIRE A NUCLEAR-FREE ZONE

. (U) The day was uneventful for the Station, but adding to the demonstrators' woes were the gusty winds and threatening clouds. Just as the climactic ceremony was beginning in front of the gate, horizontal rain (a regular feature at Menwith Hill) struck, driving away all but the organizing officials and their speakers.

(U) One final note: the press coverage proved the anti-CND group correct. Almost as much coverage was given to the airplane and its sign as to the demonstration. Nevertheless, the CND has promised one more demonstration this year and a return visit next 4th of July.

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SOLUTION TO NSA-CROSTIC No. 49

"[Logic] Design [Exceeding Boolean Capabilities]," CRYPTOLOG, Jan-Feb 1983

"Contemporary digital computer programming makes use of 'languages' which have progressed from the [absolutely] machine-dependent, tedious, 'assembly' stage to a nearly machine-independent, expedient 'high-level' stage."



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To: cryptolg at bar1c05
From: jim at bar1c05
Subject: 1983 wordsmithing award

The 1983 user-friendly award for clarity is awarded to the unknown (probably for good reason) author of the following sentence appearing in the UNIX ED (I) manual page.

"The concatenation of regular expressions is a regular expression which matches the concatenation of the strings matched by the components of the regular expression."

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SOLUTION TO NSA-CROSTIC No. 50

"Clear Writing,"
Lieutenant General Lincoln D. Faurer,
Memorandum of 19 October 1983

"Use plain English. Write like you talk by using the active voice. Make your verbs do the work. Use personal pronouns and contractions when they come naturally and the tone allows them."

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LOOKING
    AROUND
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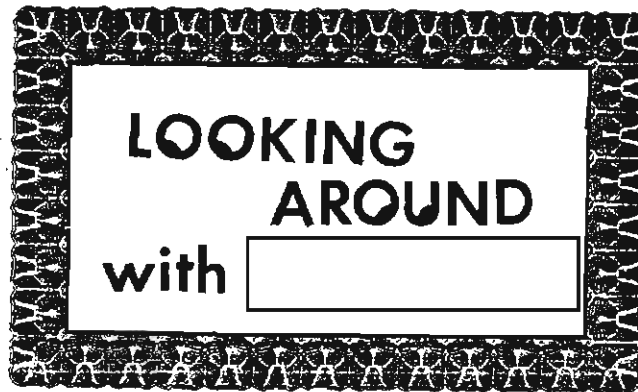
# TELECOM 83 [U]

he Telecom 83 meeting combined the largest and most important exhibition of modern telecommunication equipment with a three-part Forum 83 conference on the financial, technical, and legal aspects of telecommunications.

The Telecom meetings are held at four-year intervals and are the premiere conference and exhibition of this kind.

To give a brief quantitative survey, the Exhibition filled two floors of the large Palais des Expositions in Geneva, Switzerland, and a large tent was erected outside to extend the French exhibit. Beyond the tent, a large open space contained dozens of antennas of every kind, many of them operating to satellites or other radio links.

More than 650 companies and nations had exhibits, which covered 90,000 square meters (about one million square feet). Over 700 companies sent teams of people to attend the Forum and to explore the exhibition. The PTTs (Postal, Telephone, and Telegraph Departments) of most nations also sent representatives to look over the equipment, make purchases, and review the technology.

The exhibition was crowded until the last day. It was officially open for seven days, with a preview on 25 October 1983 for the press. Over 100,000 attendees were expected. One effect of the meeting was that every hotel room in Geneva, and for about 50 miles around, was booked up two years before the meeting. Hundreds of visitors were traveling long distances every day to attend the Exhibition and the meetings, and even the planned peace negotiations had to be delayed until the Telecom was over.

Security was very tight, with hundreds of Swiss police and security personnel at the Palais des Exposition and in the streets around that part of Geneva. There was a fear of terrorist activity, because of the Palestinian issue and also because many delegates to a big Socialist meeting being held elsewhere were being quartered in Geneva. Leaflets about the threat were distributed to the exhibitors.

The Forum meetings had high-quality talks and were well attended, even crowded. To illustrate the selectivity, the Technical Forum was offered 400 papers by leading technical organizations in the world and chose 80 of these papers for publication. As a result, the quality of the published papers was very high. One plenary technical paper, by Ian Ross, Director of Bell Laboratories, gave an outstanding prospectus of developments in telecommunications technology; the other plenary papers were of the same quality. The financial and policy papers were also carefully composed and were given, for example, by the Chairman and President of AT&T and by other experts of similar rank. The legal papers were given by prestigious figures, but contained more disagreement than the technical and policy papers.

## EXHIBITION NOTES

Some information was gathered in discussions with representatives at the Exhibition stands.

[] The diffusion of telecommunications manufacturing technology was very wide. European and Japanese products were as up-to-date as the latest US products.

[] Small nations, such as Spain and Indonesia, are now manufacturing equipment as well-made as Western Europe, because of turn-key production plants from Europe.

[] Yugoslavia has developed a switch manufacturing capability, based on Silicon Valley (California) technology and other technology transfers, that is extremely up-to-date by Bell Labs (BTL) standards, according to J. Ryan of BTL, who toured their plant and is the BTL expert in switching. The Yugoslavs have overcapacity and are manufacturing modern switches for others.

[] India is producing a wide range of telecom equipment, which appears to be as well-made as European or Japanese equipment.

[] China had a fairly large exhibit, and their best equipment appeared to be of high quality. They have a teleprinter that forms excellent Chinese characters on a screen and also can do excellent matrix printing of the Chinese characters. Any Chinese character can be formed from four teletype letters, based on the radical decomposition. A Chinese operator can learn to type 60 Chinese characters per minute with four weeks of training.

[] Most of the Exhibition literature was very well done from a graphics art viewpoint. This was true of the Chinese, the Saudi Arabians, the Czechs, and other Comecon countries, India, Spain, etc. Only the Soviet exhibit had data sheets that had an engineering rather than a marketing presentation and appearance.

[] The USSR exhibit was fairly large, with over 100 kinds of telecom equipment shown. The Russians also supplied a show with singers, dancers, and musicians, and much of their exhibition was very artistic. However, their equipment appeared to be noticeably less well-made than the other Comecon equipment. They had a computer on a chip, but had to solder the printed wiring to make it work. (The solder points were proudly displayed to me by a Soviet engineer to prove it really was a working 16-bit computer, not a dummy). The connectors however appeared well-made.

[] There was a wide range of new microwave and optical fiber equipments from many suppliers.

[] ECI, an Israeli company, had a time-assigned speech interpolator (TASI) speech compressor so good that the German Bundespost is adopting it to double their trunk circuit capacity. It will carry voice and data, and is intended to increase traffic capacity faster and more cheaply than microwave links can be built. The Israelis have apparently approached the PRC about marketing it in China to speed up PRC telecom development. It may also have emergency communications uses.

[] The broad emphasis of the show, and of the technical forum, was on producing more services and more "bits down the channel" per hertz and per dollar.

[] There was some cryptographic technology displayed at the exhibition by about ten companies, including a Fujitsu DES device with Public Keying; however there seemed to be almost no spread spectrum equipment.

[] Telecom business skills, as well as manufacturing and operating technology, are being diffused to Third World nations; e.g., a Saudi company bids on Arab and other tenders, after being started up with help from AT&T; Brazilian companies are developing in-house design and marketing competence.
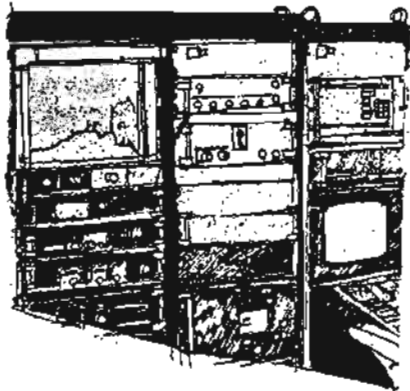
[] Turn-key operating networks in the Third World are very questionable. The Finnish company Nokia put a microwave network into the Sudan, which they are sure is not working. The customer, after the turn-key takeover, has not asked for help. Sudanese personnel sent to Finland for maintenance training spoke little or no English, having been selected for bureaucratic reasons. The company is concerned about its reputation. In Indonesia, the same Finnish company has set up a post-turn-key office to provide advice and spare parts sub rosa, so that the customer can claim credit for successful maintenance. In Saudi Arabia, L. M. Ericsson, with a big contract, is setting up the network so they can telemeter its status and performance after the turnover, apparently without the customer's knowledge. This is to protect their reputation. The L. M. Ericsson engineer felt that the Arabs, keen on business, had no interest in technical matters and would be unable to maintain any kind of equipment.

[] Foreign manufacturers, in a number of conversations, seemed generally unfamiliar with the US telecom market and the marketing concepts of the US telecom suppliers. On the other hand, many US companies seemed very alert to the foreign market. IBM, for example, had sales literature in about a dozen languages, including Japanese. AT&T also had multilingual brochures and data sheets.

[] There are uncertainties about the ISDN (Integrated Services Digital Network) development over the next two decades. Market competition and national developments may outrun the ability of the standardizers to agree on what the global ISDN should be. The British announced that they would not wait for the standards. ISDN is supposed to be settled next year, but there is still a lot of uncertainty about both the specifications and whose standards should apply. The result could be a de facto deregulation of future ISDN development.

[] The Telecom 83 was apparently successful from the standpoint of making sales, according to various sources. The British had banking services included in their exhibition, to underscore the importance of financing sales.

[] The Czech exhibit displayed very little equipment and held its brochures and data sheets closely. Apparently they were not available unless a sale was imminent. On the other hand, the Hungarians, Romanians, East Germans, Bulgarians, and Yugoslavs had equipment and literature readily available.

[] One Czech PABX brochure showed equipment that appeared as modern and well-made as US and Japanese equipment, and the brochure was of high quality.

[] The French exhibit seemed to be the largest, by a factor of two. The show inside the Hall was as large as the US exhibit, but they put up a huge tent, equally large, outside with more exhibits and a theater, and gave parties.

[] Cryptographic equipment was listed by nine companies, but was not visible as apparatus or literature at five of these exhibits. On the other hand, there were three companies that showed new cryptographic products, not indicated in the catalog. Fujitsu had a DES modem. A small Dutch company Text-Lite, had a handheld word processing and data modem, which had DES in a software algorithm, for $600. ITS, an airline communications company, had a Japanese data scrambler to pursue an expansion into banking traffic. The availability of DES from foreign sources in a neat package is significant.

[] Paradyne, a US and UK company, got a special license to take a DES modem to Geneva for demonstration. They have been successfully testing 15,000 bps on a leased telephone line between UK and Egypt, and 12,000 bps over a switched line between UK and Finland. Those are fairly high bit rates for a 4-KHz circuit.

[] Motorola had a paging system that would deliver short messages to a 2" x 3" receiver for scrolling display. The Swiss also had a similar device, but not working. These new message delivery systems will probably be competitive, and spread fairly quickly in big cities.

[] Amos Joel, the recently retired Bell Labs switching expert, received an award at Telecom 83 for his contributions to the industry. He had a contract with System Development Corporation (SDC) to make a study of the comparative state of switching technology in different countries. SDC in turn got the contract from DoD. The study was confined to PBXs but that is where the newest technology is going. This study could be useful to various parts of DoD.

[] Dittberner Associates, Inc. has done a 5-volume study for DCA on the telecom networks of 20 countries. The countries are apparently in Europe. This study would complement the Joel study above and would be useful in various parts of DoD.

[] J. Reed, apparently the founder and head of Communications Technology, a California firm that sells military radios to Third World countries, claimed that US export limits on low-grade cryptographic equipment are unfair because the Israeli firm Tadiran and the British company Racal, for example, are selling equivalent equipment in Guatemala, which is costing US companies sales. His company usually uses TCC cryptoequipment, manufactured by the Technical Communications Company. Many of his customers are military and security services, who want security on their radio links, but the delays in US export licenses—apparently not equaled by the Israeli and British governments—make competitive business deals infeasible.

The most striking feature of the Telecom 83 show was the diffusion of the telecom manufacturing technology down into small countries. The Spanish not only build Ericsson switches for their civil net, but also have an Ericsson-designed gridded military net that

they are building and operating. It is probably based on a corresponding Swedish military net. They are not yet in a position to compete with the Swedish company or other big manufacturers for foreign markets, but are producing well-made products. Medium-sized Asian countries are also becoming manufacturers. The Brazilians not only have research links to Brazilian universities, but to MIT and its industrial partners as well. Brazilian companies also send students to MIT to get new ideas and technology, and then offer them careers that bring them back to Brazil, to a young company. The Saudis have made a major push into telecommunications, backed by oil money, and a Saudi chaired one of the financial and policy sessions. Despite the problems in Africa and the Arab world in operating the systems, there is a sense of urgency in the Third World and in China that they must expand their telecom nets very rapidly—and also get organic manufacturing capacity. The West Europeans, Comecon nations, Japanese, and US companies are eager to sell them anything they want.

The second striking feature of the Telecom 83 exhibit, apart from its size, was the completely up-to-date and competitive products offered by the European companies, a big advance from four years ago, according to various sources. In essence, the technology transfer has already occurred, and from now on it is a marketing race, in which the US lags in banking, financing, export policies, and government support. This could have strategic impact.

# Banners, COW-BOY HATS, & ELINT Notations (U)

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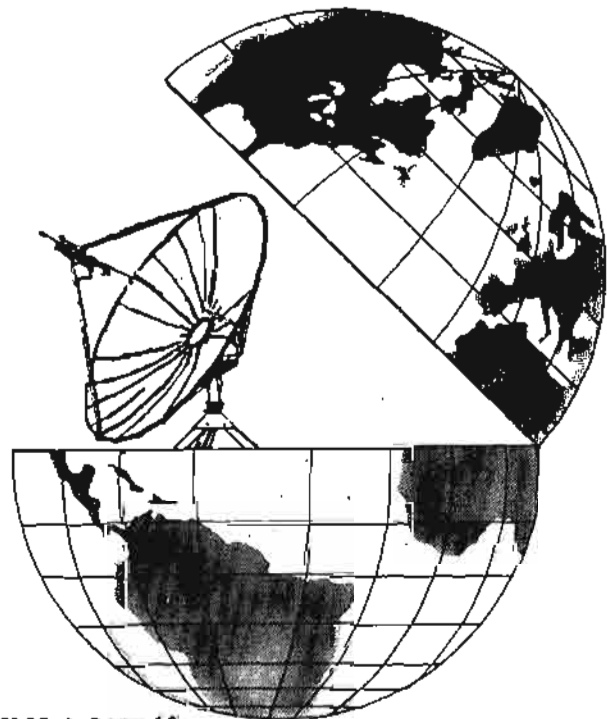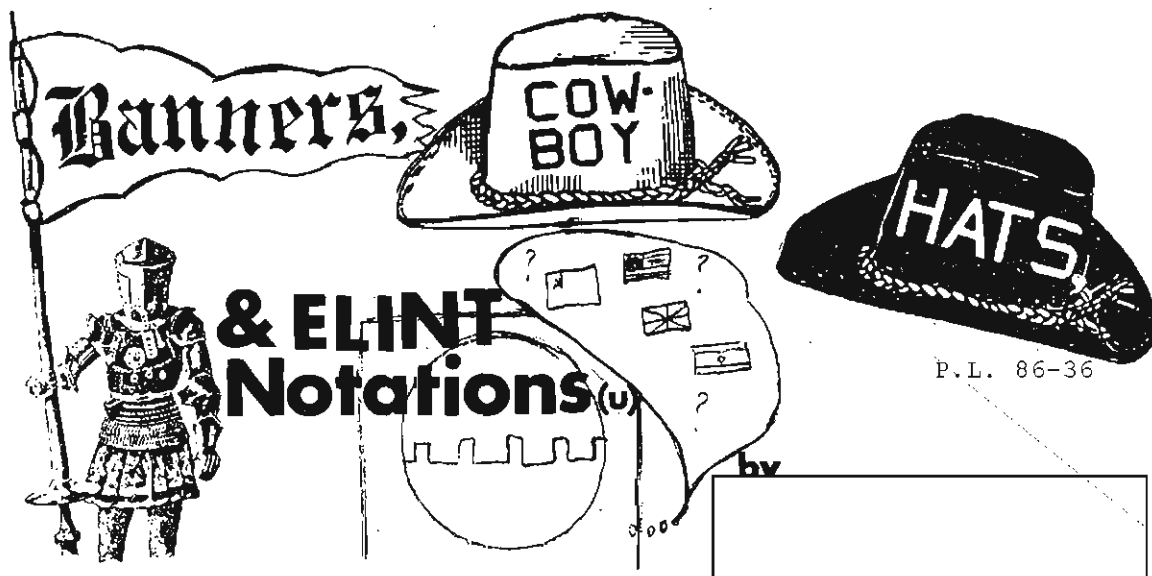
(U) In the film biography "Young Winston," little Winston Churchill arrived at his boarding school for the first time. His professor, in order to make a preliminary evaluation, opened a Latin grammar book and told him to memorize all the case endings of a certain noun. Later, the boy recited his lesson and asked, "But what does it mean, Sir?" The flustered professor answered, "Well of course this is the nominative masculine singular, ... accusative, ... ablative ..." The boy responded politely, "Yes, Sir, but what does it mean?"

(U) When we use technical designations such as electronic intelligence notations (ELNOTs), we may be as far from explaining what it really means as was Winston's professor. They serve a real purpose, just as the case system did in Latin, but they are simply an intermediate step in the process from concept to communication. They are in themselves no more meaningful to a tactical commander than terms like "ablative" were to a little boy whose native language contained no such feature. Just as grammarians attempted to impose the descriptive terms for a dead language on the evolving Romance and Germanic languages, ELNOTs may not fit the military realities of today without adjustment and flexibility.

(C) ELINT must be translated clearly because of its growing importance in the total intelligence picture. ELINT can be made available in near time, unlike imagery, HUMINT, or the products of cryptanalysis.
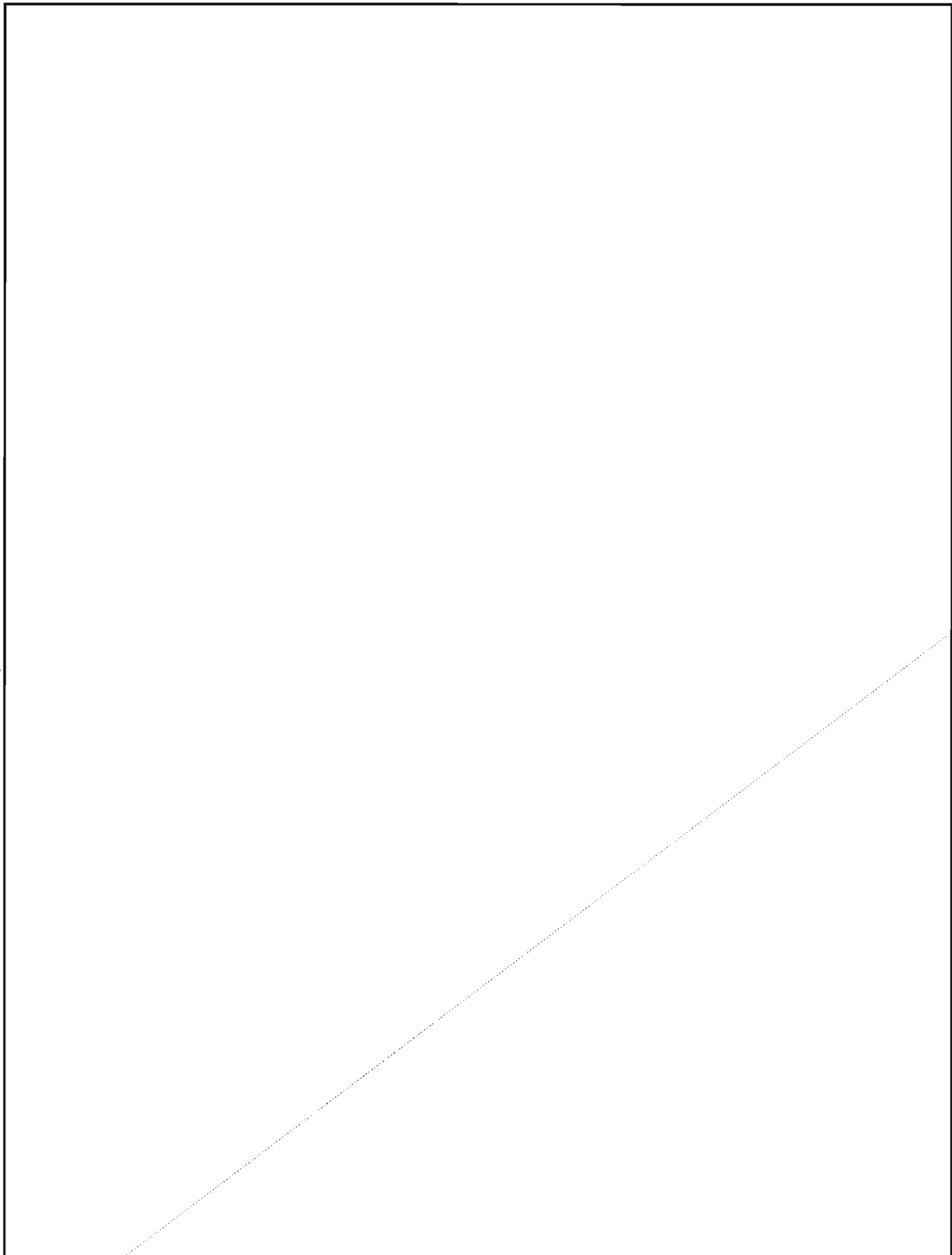
(U) When the present ELINT notation system was introduced in the mid-1960s, it was tailored to the circumstances of the time. The following presumptions were present from the outset:
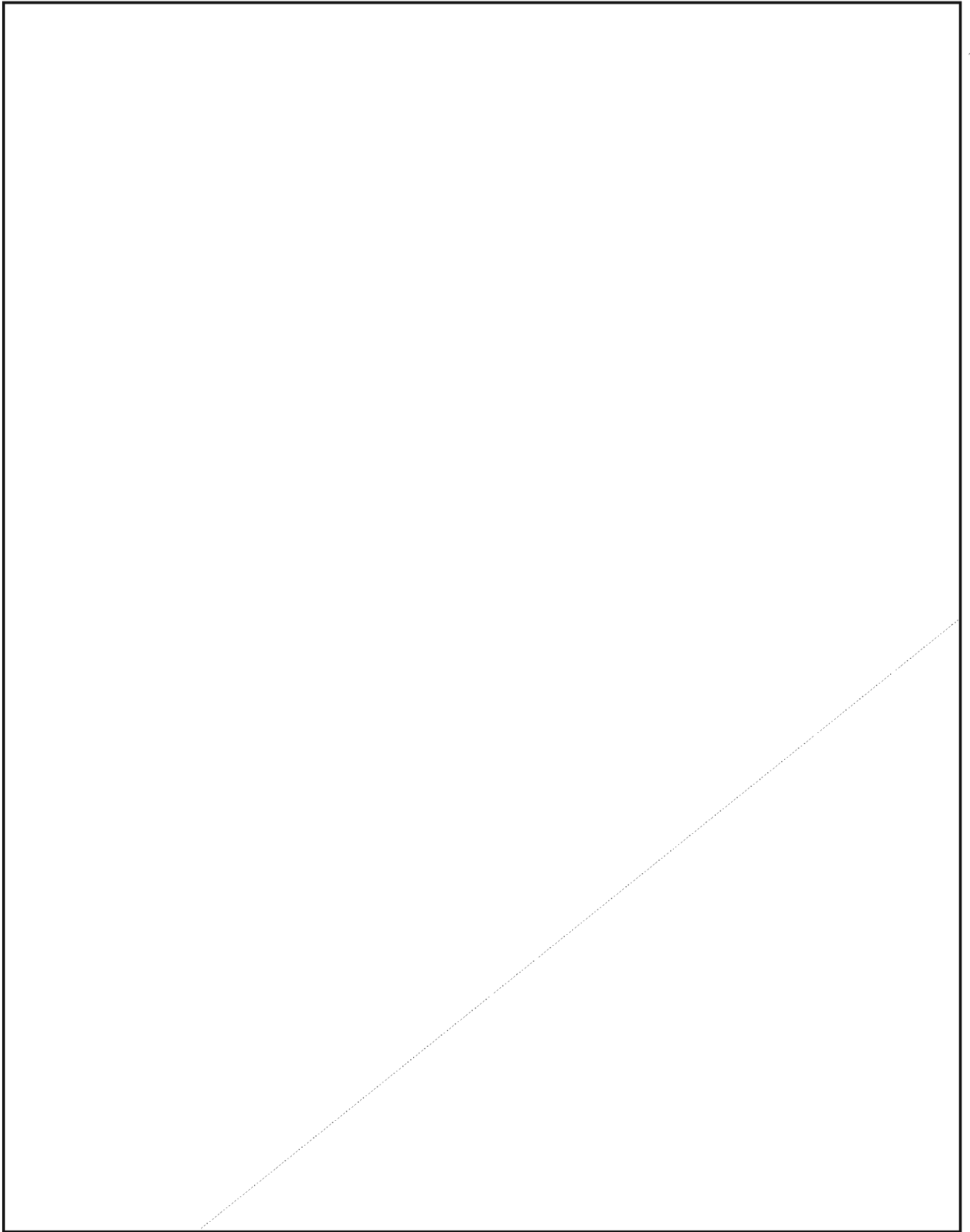
[] Electronic equipment, such as radar, was manufactured in either the Soviet Union and other Warsaw Pact countries (the Communist world) or in the United States, Britain, France (the non-Communist world). Countries with Communist equipment in their inventories were unfriendly, those with non-Communist equipment were friendly.

[] Electronic equipment was specialized to a certain basing mode, either airborne, landbased, or shipborne.
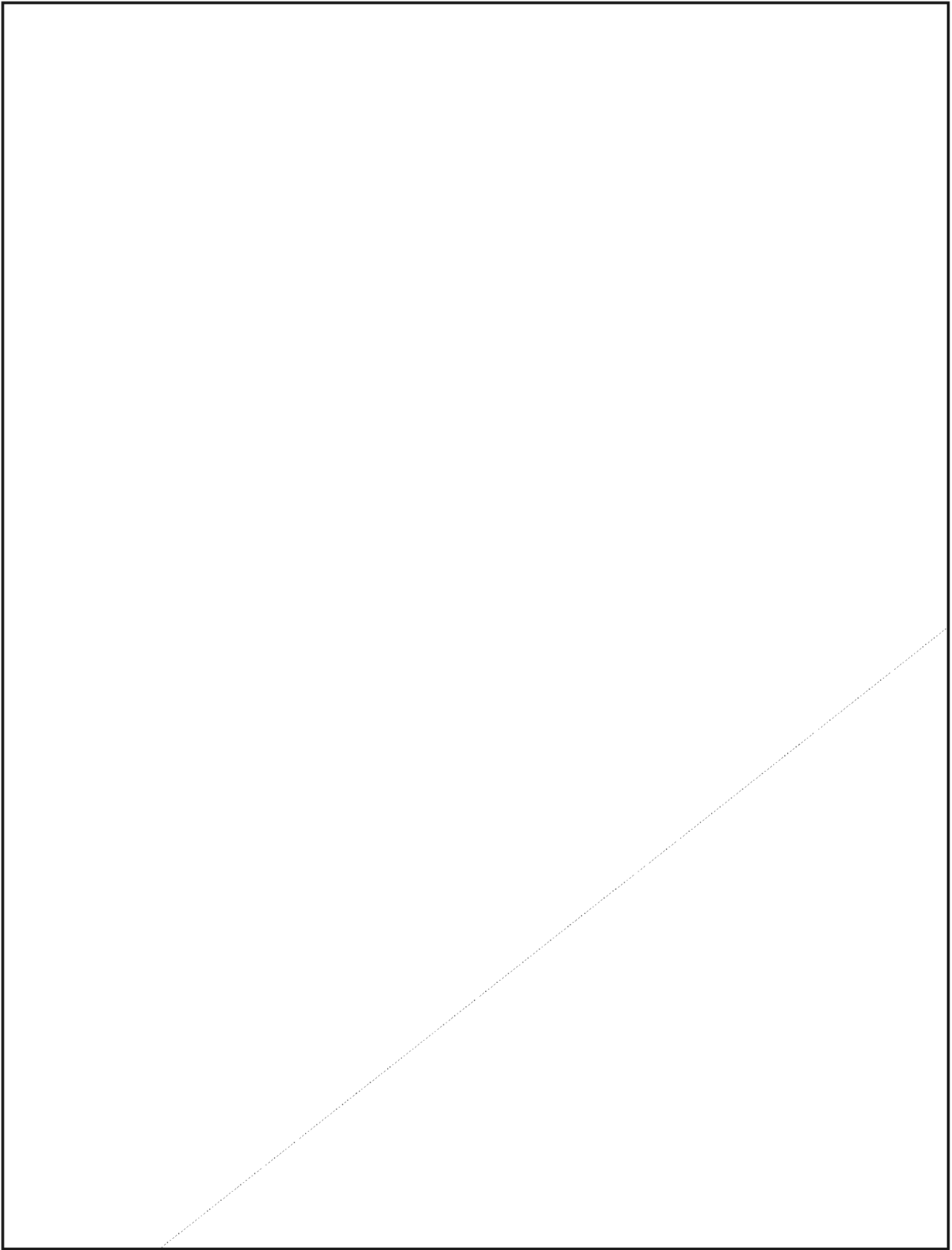
(C) These presumptions conveniently provided a means of distinguishing friend from foe (like the banners carried in olden times by military units and knights errant) and separated activity into areas of interest. The notations did not reflect function of the equipment nor did they provide any information regarding the threat which the radar (and the weapon associated with it) might pose. An ELINT specialist would distinguish function and threat by his knowledge of the signals on a case-by-case basis.
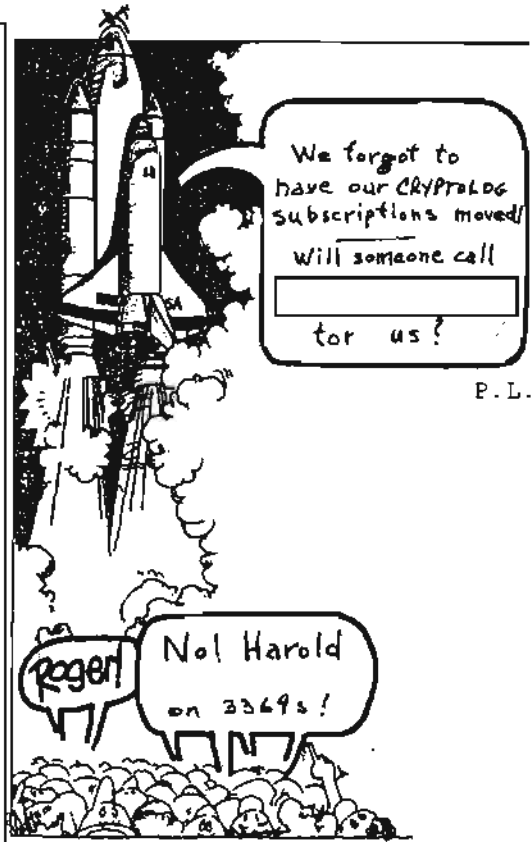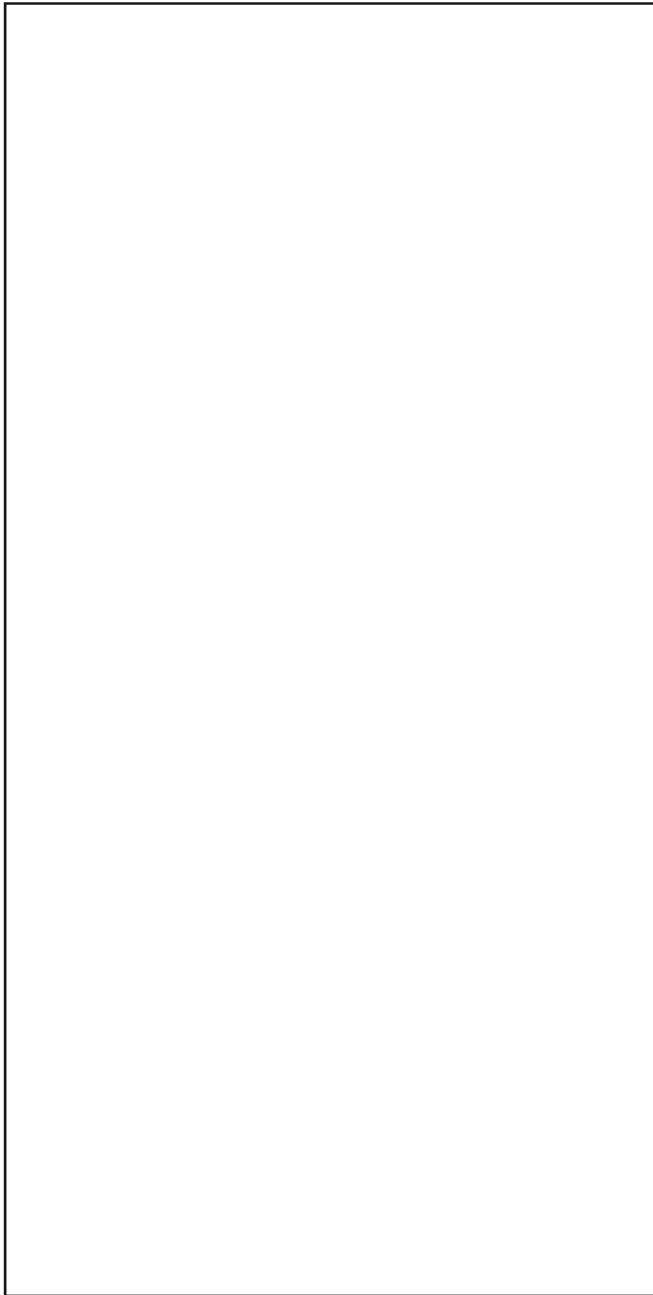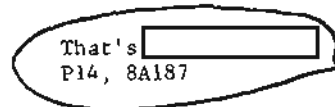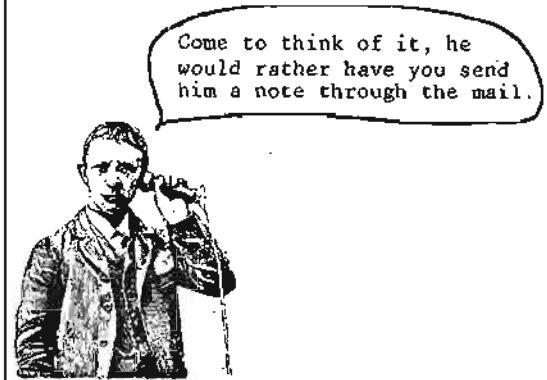
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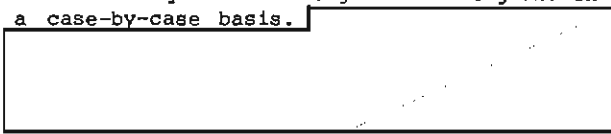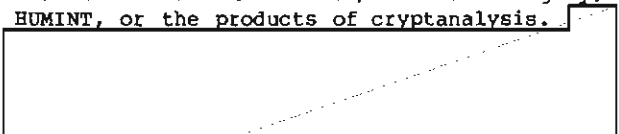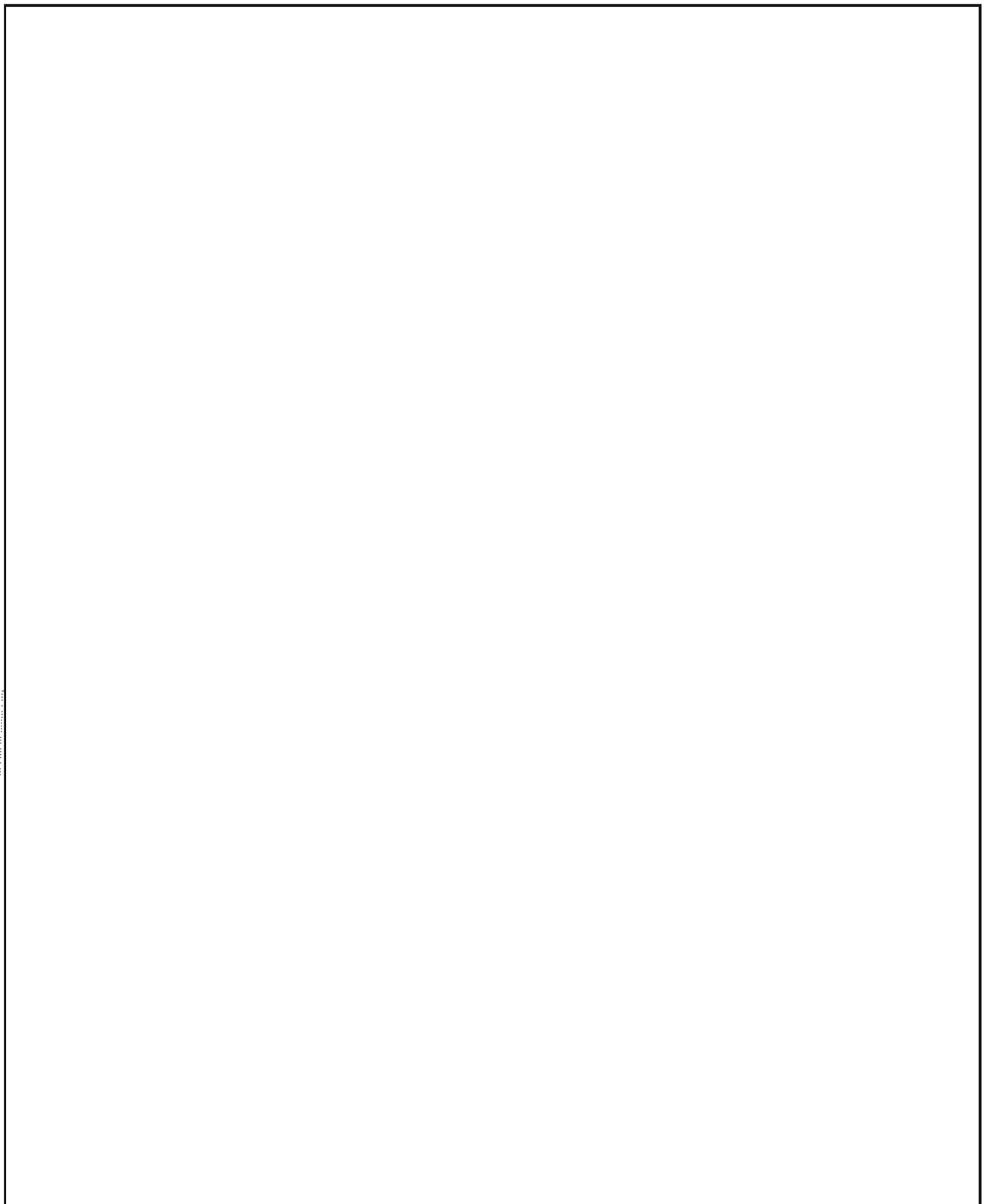
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