

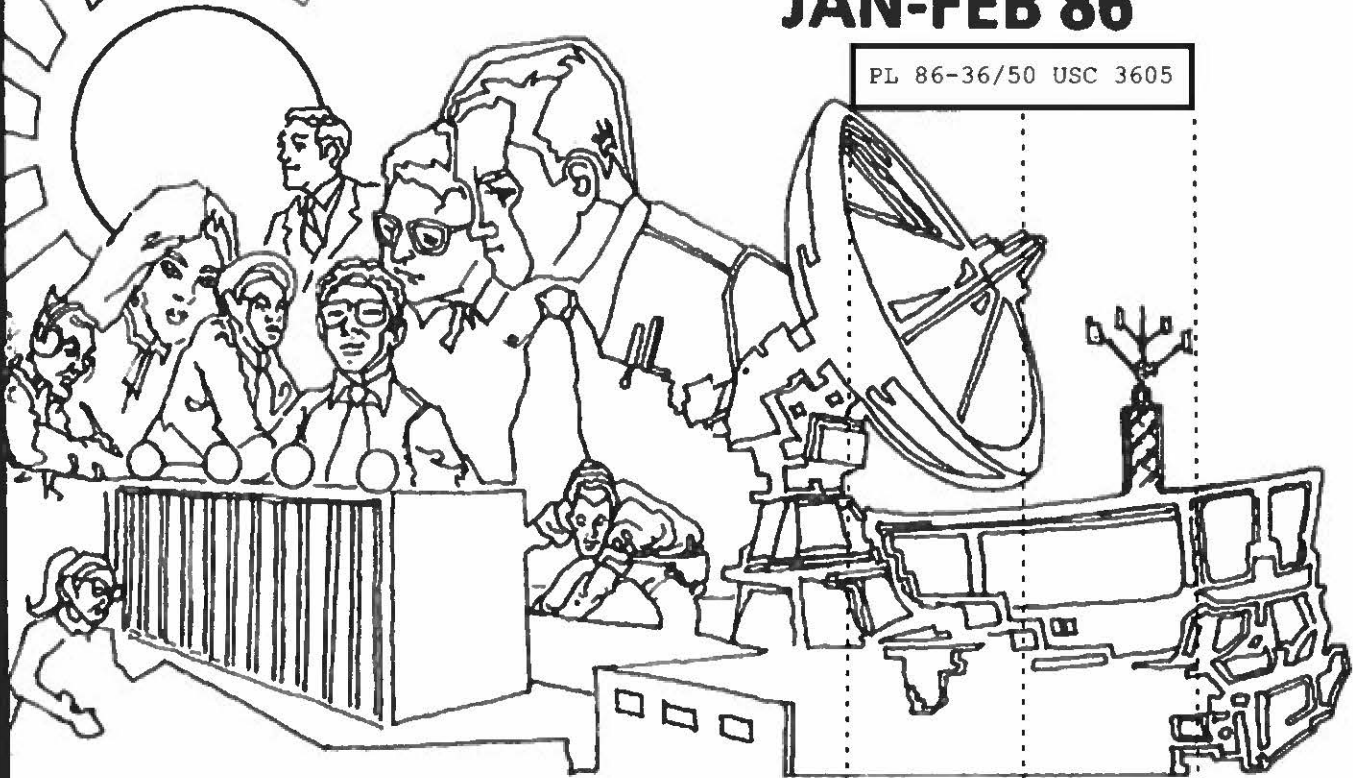
~~TOP SECRET~~

NATIONAL SECURITY AGENCY
7055 GEORGE G. MEADE, WASHINGTON

CRYPTOLOG

JAN-FEB 86

PL 86-36/50 USC 3605



WHAT I PERCEIVE TO BE HAPPENING IN THE PACIFIC (U)	1
DIARY OF A GEISHA (U).	6
CAREER OPPORTUNITY (U)	11
A CASE OF FORENSIC SIGINT (U).	12
CRYSKOM-86 (U)	16
A MORALITY PLAY IN ONE ACT (U)	17
A PROBLEM IN RETRIEVAL (U)	22
IMPROVING TRAINING IN TECHNICAL ELINT (U).	24
BULLETIN BOARD (U)	26
LETTERS (U).	27
PUZZLE (U)	28

~~THIS DOCUMENT CONTAINS CODENAMES AND REFERENCES~~

~~CLASSIFIED BY NSA/CSSM 123-B~~

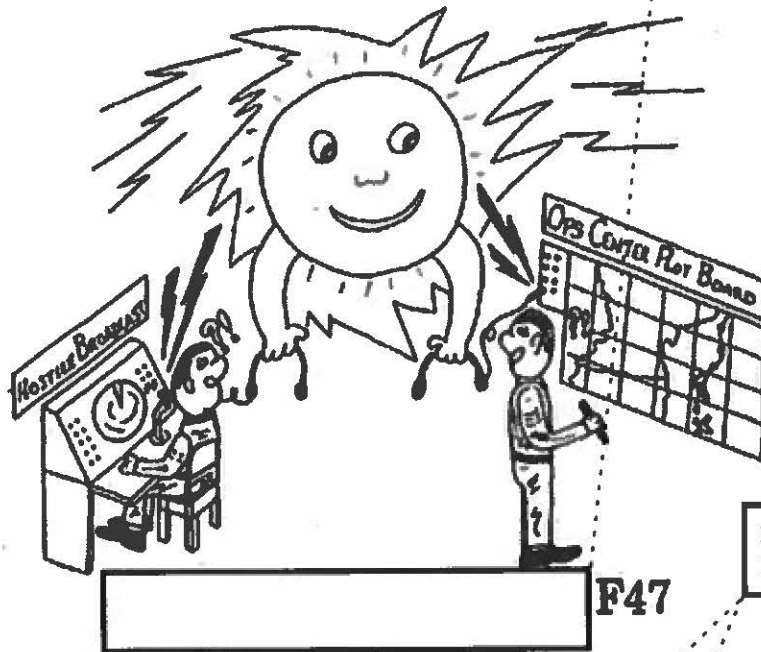
~~TOP SECRET~~

~~DECLASSIFY ON: Originating~~

~~NOT RELEASABLE TO CONTRACTORS~~

~~Agency's Determination Required~~

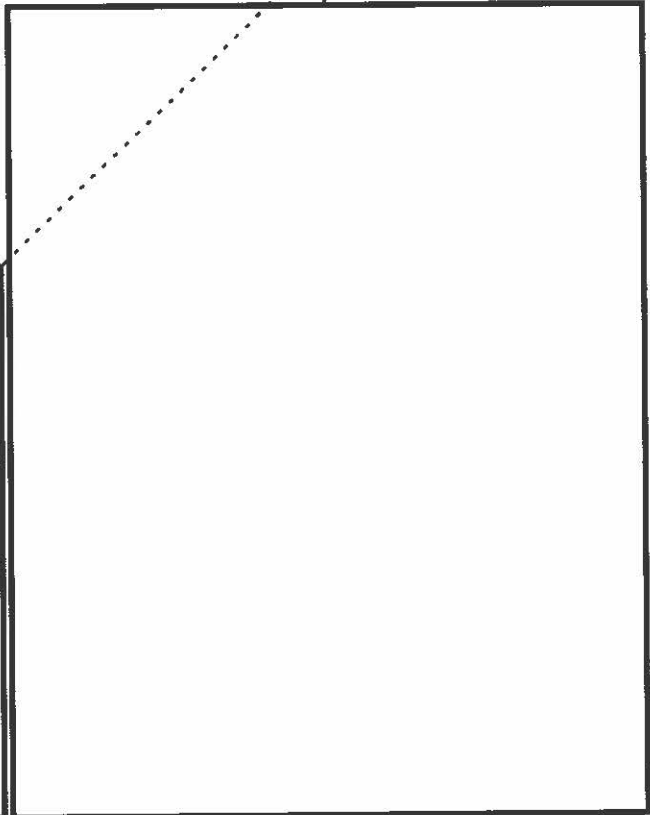
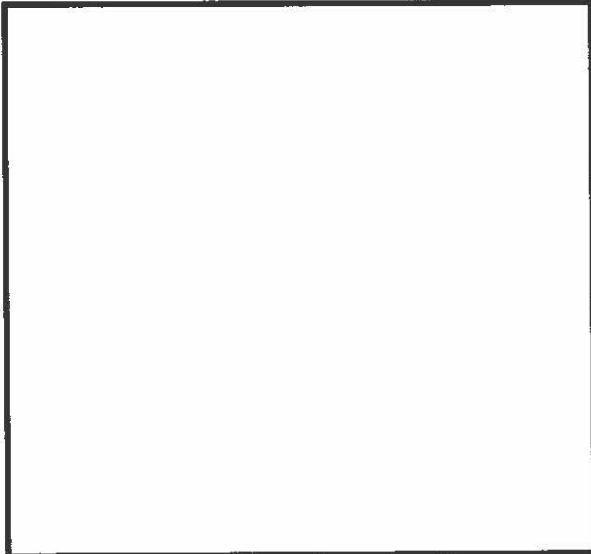
A CASE OF FORENSIC SIGINT (u)



EO 3.3b(3)
PL 86-36/50 USC 3605

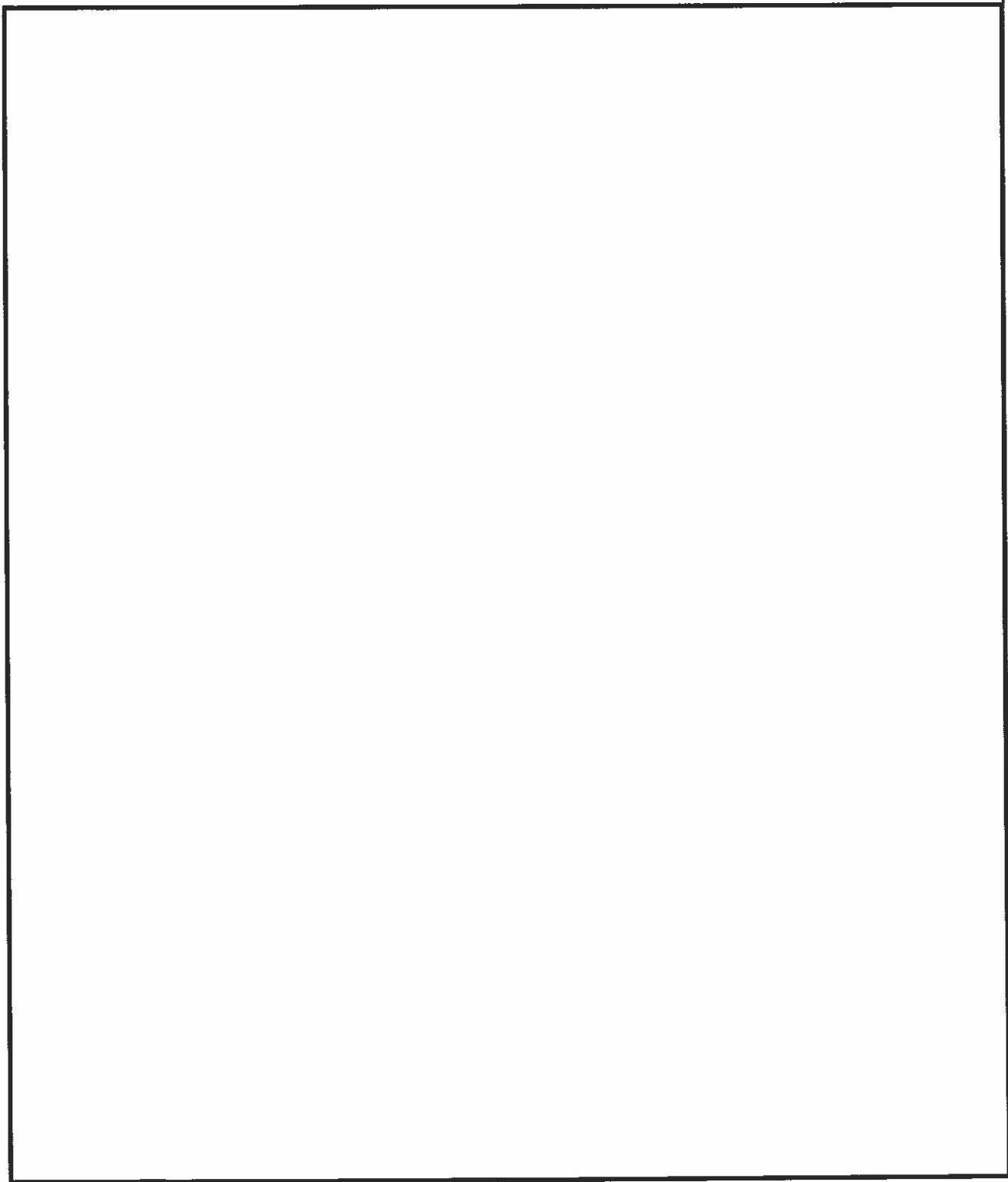
(U) SUNSPOTS???

~~(FOUO)~~ While I knew that our colleagues would find our explanation of what had just happened hard to believe, the reaction was even stronger than I had anticipated. But the first explanation of the event had been just too simple to be correct. On top of that, it didn't square with the target's mode of operation. There had to be another answer, and it had to be atmospheric in origin.

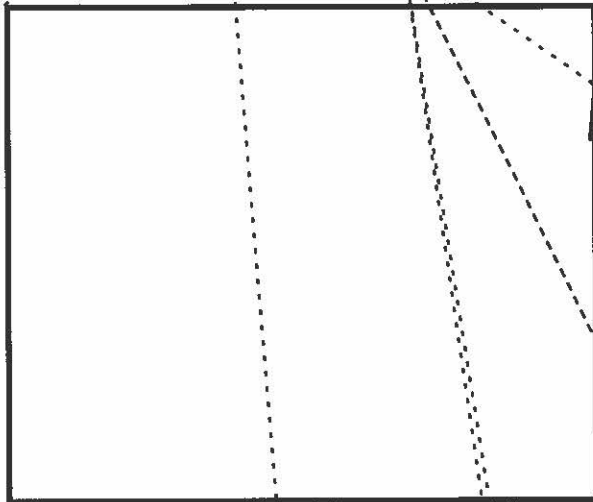


EO 3.3b(3)
PL 86-36/50 USC 3605

~~SECRET-SPOKE~~



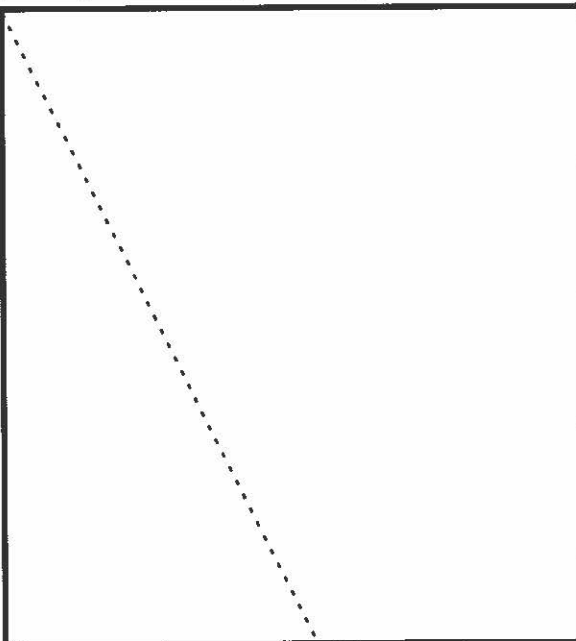
~~SECRET SPONS~~



possibility. Sunspots? Oh, come on! Everyone KNOWS that sunspots don't have an immediate effect!

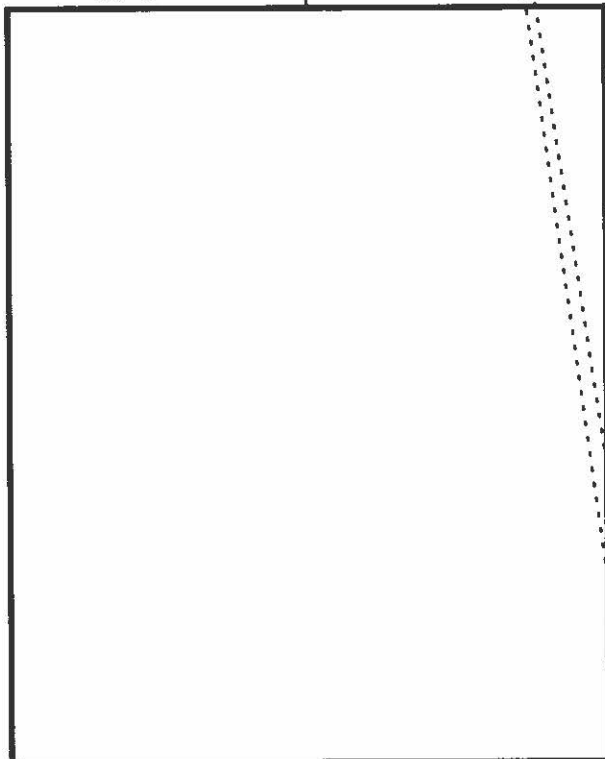
Ridiculous!

(S) A little research revealed the following:



(U) As luck would have it, Murphy's Law was operative on that day. A US field station in the vicinity issued the SPOT report marked (1) on the facing page.

(U) Approximately one hour later, the same station issued the follow-up marked (2) on the facing page.



(S) To say that there was opposition to the view that atmospheric disturbance was the culprit would be putting it mildly, indeed. But the telling piece of evidence, made available by the NSOC Weather Desk, was received in a message from the Space Environment Services Center at Boulder, Colorado. It was a report of a major solar flare that peaked at 0203z on the day in question.

This event was not one or many over a several-day period, but its timing was such that Mother Nature was able to fool the system, at least, initially.

Our summary appears in (3) on the facing page.

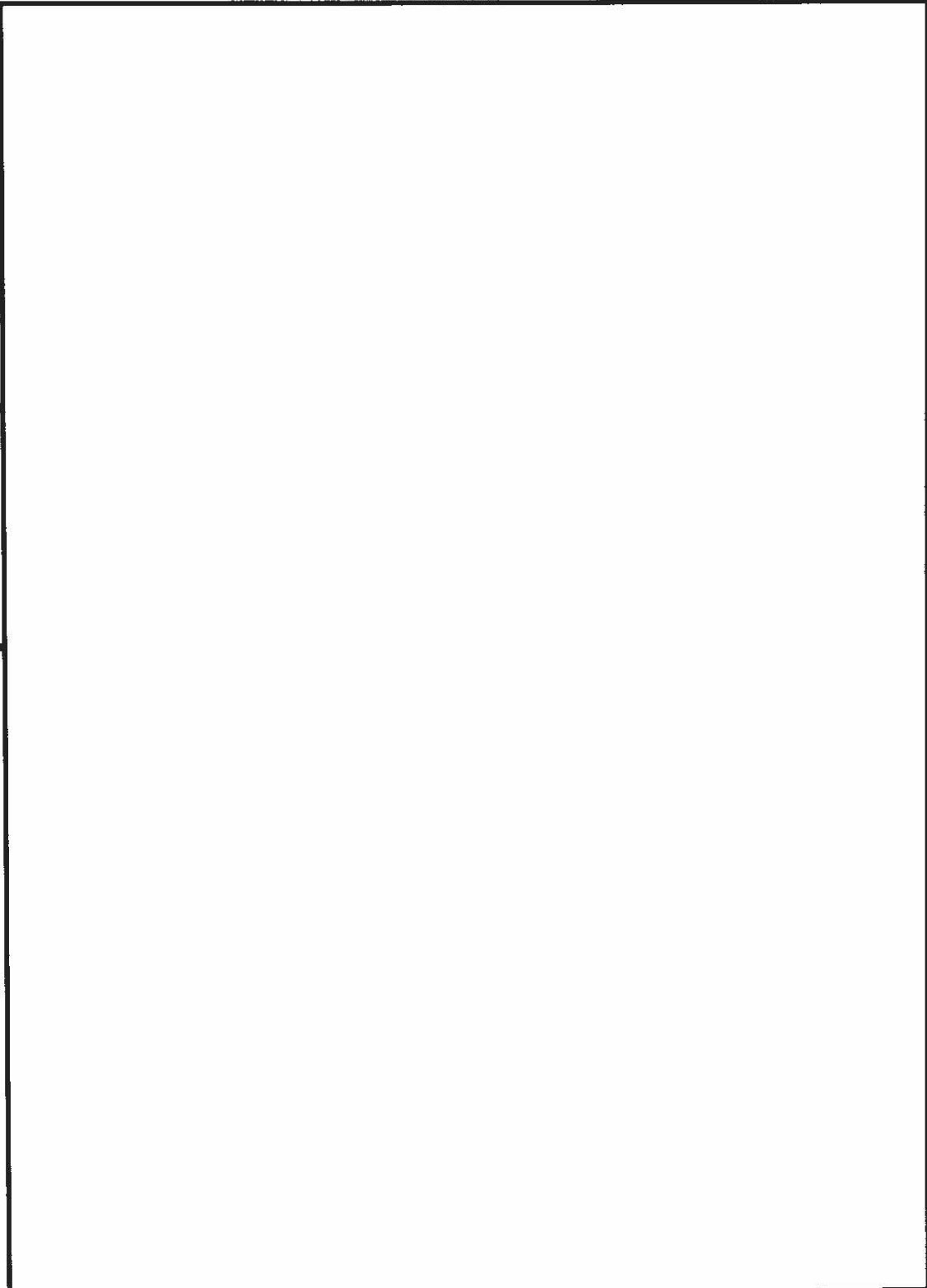
(S) Still, our brothers and sisters in some quarters of the intelligence community saw something more sinister in this than a mere sunspot. But, a trip to the good old NSA Library turned up a tome that saved the day, providing a technical explanation when no other would do. Here is a copy of the

(S) This indicated to our analysts that the answer lay not in willful suppression of tracking, but inability to communicate. What was the cause, then? Jamming? That was not considered a

~~SECRET SPONS~~

EO 3.3b(3)
PL 86-36/50 USC 3605

~~SECRET OF ONE~~



~~SECRET~~

resulting note we penned to one of our doubting "all-source" counterparts:

Ed.

Your question prompted me to do some more homework on solar flares. In the NSA library I found a book titled *Solar Flares* by Smith and Smith (McMillan, 1963).

Pages 242-250 describe the sudden ionospheric disturbances (SID) accompanying some solar flares and consequent short wave fadeout (SWF) alluded to in our report.

According to Smith and Smith, SID is noted "only in the illuminated hemisphere" and occurs simultaneously with the event. "This class of terrestrial response must therefore be due to short-wave electromagnetic radiation of the flare." (p. 242.)

"SWF are the most familiar and certainly the most economically significant ionospheric flare effects. Fadeout may become complete in as short a time as one minute, and can endure for a few minutes to several hours." (p. 243.)

"An ionospheric disturbance characteristically begins about 7 minutes after the flare commences, but this time is always during the flare's rise to maximum." (p. 244.)

"We mentioned earlier the observed time delay between maximum phases of flare and SID (7 minutes). Some authors have pointed out that the delay can be interpreted simply in terms of the normal response of ionospheric layers to an impulsive rise in the flux of ionizing radiation. Thus there is no need to assume that in the rising stage of a flare, there is time separation between its visible and its ionizing radiations." (p. 249.)

The above notwithstanding, there are many who still doubt the sunspot explanation of the events of that day.

In any case, as I pointed out in my August 1983 CRYPTOLOG article, "The Case of the 'Powled Up' Critic," when the target is a military one, it is necessary to be aware of environmental factors that might affect the interpretation of SIGINT events. □



CRYSO - 86

THIRD ANNUAL CONFERENCE

2-6 June at NSA

Sessions held in the Friedman Auditorium
and in Conference Room 2W087

AUDITORIUM SESSIONS ARE OPEN
to persons with green or orange badges

OTHER SESSIONS REQUIRE TICKETS
(distributed through your office)
a green or orange badge
and LACONIC access.

Topics for the conference room sessions include:

- HYPERCAN hardware, present and future;
- CRYSO in review;
- Components of distributed processing;
- Cryptanalysis on personal computers;
- Life after IMP;
- Software exchange -- can it work?
- Major applications packages;
- Parallel computers and their applications;
- Automatic processing packages;
- Digitization packages;
- Computer graphics for cryptanalysis;
- CRYSO-86 wrap-up.

Additional information can be obtained from the
CRYSO Executive, [redacted]
A531P13, 963-3197s.
(FOUO)

PL 86-36/50 USC 3605

~~SECRET~~