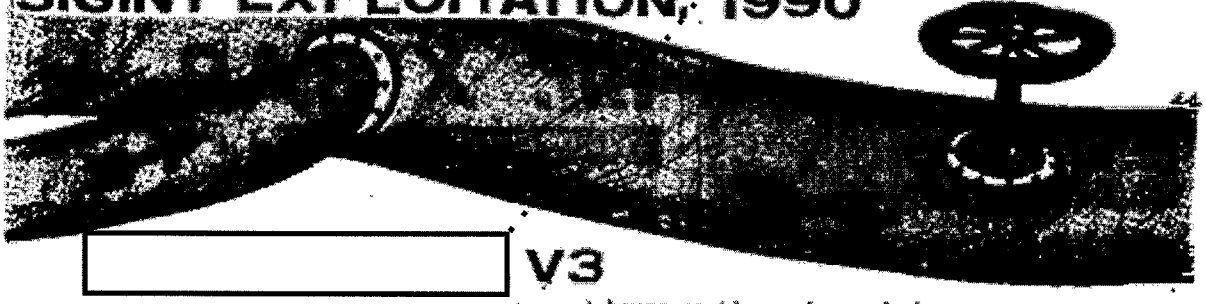
SIGINT EXPLOITATION, 1990



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Part of the problem in SIGINT Exploitation for the 1980s and 1990s is the simultaneous increase in collection capacity because of improved technological sophistication, and the decrease in analytic and reporting capability because of fiscal restraints. To put it simply, we are collecting more and exploiting less. There is a crying need to master the technology (which constantly threatens to drive our collection) and apply it smartly to assist our analysis and exploitation. If we cannot manipulate the massive amounts of data we are now able to collect, we are reduced to the primary function of selecting the constipation point in the SIGINT system. Do we inundate our collection facilities and arbitrarily cut off the incoming data in order to alleviate the load at the processing point? Do we allow free flow of voluminous collection to deluge the processors and confine our processing to artificially stringent limits, gambling that what is missed will not be missed? Or, do we overwhelm our customers with profuse and indigestible amounts of raw, unprocessed data, gambling that what is significant will be summarized?

What alternatives are there to preselecting the blockage area? We must master our machines for use in analysis, processing, and reporting as well as in collection, so that the monster that gathers also sifts. While we cannot eliminate the human element in exploitation, we must provide help to that human element -- the individual hers and hims -- in massaging the huge pile of material we are funneling into the SIGINT system. We must also gear the mechanical wizards we are building and buying to aid our reporters in preparing and presenting the information gleaned for specific customers who need it, in a timely and lucid manner. We must also design the machines to be used so that the human drivers can operate quickly, comfortably, and efficiently. This concept is more complex than it appears since it encompasses both human-engineering aspects like, "Can the terminal be operated with existing lighting by someone wearing bifocals?", and mechanical aspects like, "Can the operator get a report out in minutes to the right customers in a crisis when the computer system is saturated, the terminal has been operating for 72 hours continuously, and the current report must take precedence over 48 others in the queue?"

In addition to our own exploitation problems at NSA, we must also improve our man-machine interfaces so that software can be written quickly to assist analysts in solving technical, analytic (TA and CA; continuity, key and call-sign prediction, frequency and schedule forecasting, etc.) problems so that field stations and remoted sites can be directed more intelligently toward collection of desired targets of known value, as opposed to available targets of unknown value. Our collection technology has far outstripped the old-fashioned collection manager who continually asked for all the activity an operator could find. The dialogue between collection manager and collector must improve to include steerage and guidance based on and driven by mechanical applications and techniques which force the machine to disgorge more than regurgitated machine formats of exactly what was forwarded by individual collectors.

In summary, we must learn the techniques of controlling our machines beyond just turning them on and watching them run and spit at us. We must direct them to help us do a better job of collecting desired targets, manipulating collection data, processing significant information, preparing reports quickly, disseminating needed information to selected customers rapidly, and feeding back to collection sites to refine the process regularly. This is not a simple task. But if we are going to exploit SIGINT sensibly in what is left of the twentieth century, the architecture for SIGINT Exploitation must address this part of the problem. In reality, it is not a new task. Stating requirements, establishing collection priorities, directing collection, analyzing and processing collection results, preparing and disseminating intelligence to identified customers, evaluating results and feeding back to field elements have been the basics of SIGINT Exploitation since before the waylaying of Greek messengers. The critical task before us is to master the modern and sophisticated tools of the trade to improve our efficiency in handling the constantly increasing flow of SIGINT, while avoiding and eliminating blockages that could lead rapidly to internal ruptures of the SIGINT Exploitation mechanism.