Information and the Sigint Analyst (U)

Information Support to Analysis

(U) Whether the intelligence task is related to police work ("we're just after the facts, ma'am"), or to a newspaper exposé of wrongdoing in government, to military operations, or to any other exercise that involves generalizing from particulars, the process rests largely on judgments made after consideration of information. These bits, often apparently unrelated, must be pieced together to produce a coherent and credible story. In every case other than the lucky guess, the relationships and significance of these pieces can only emerge when they are examined against a backdrop of information. There simply is no other way to assign values and meanings to these bits.

(U) The information which is brought in to assist in the process may be internal — derived from the experience and knowledge of the analyst, or external — provided by supplementary sources. Most commonly, the process calls for a combination of the two. In those cases where only internal information sources need be used, the problem is either very simple or the analysis is being done by someone who is obviously an expert. For some, being able to solve a problem with purely internal information sources is a sure sign of the professional — someone who can, by quickly glancing at the available evidence (blood pressure and other vital signs for the physician, noises made by an automobile engine for the expert mechanic, the dirt on the child's face and hands for the mother), accurately diagnose the nature of the problem. The more experienced the analyst and the more patterned the evidence, the more likely that internal information will suffice.

(U) Very often, however, supplementary sources must be relied on, whether because the evidence is just too fragmentary to provide an obvious pattern, or because the analyst is simply not experienced enough to rely entirely on internal resources, or because the subject matter is too complex for any individual to cope with without outside help. These supplements to the analyst's own store of information may take on many different forms. A colleague may be consulted; a document may be perused; a list may be studied; a 3x5 card file may be checked; or a computer printout of potentially helpful information may be requested.

(U) In *Strategic Intelligence and National Decisions*, Roger Hilsman, former Assistant Secretary of State for Far Eastern Affairs, describes an analyst's *modus operandi* as follows:

> Having formulated his question and made his assumptions and tentative hypotheses explicit, the investigator begins to look for facts. By logical thought he tries to deduce what facts can be found in what places under what conditions if his hypothesis is correct and what other facts can be found in what other places under what conditions if it is not. He then makes a careful search for facts of both kinds. If he finds only facts that fit into his hypothesis, he assumes it to be correct; if he finds only facts that do not, he assumes it to be incorrect. If, as usually happens, he finds some of both kinds, his next task again calls for thought; he must modify his hypothesis to account for the facts he found of both kinds, or find a new hypothesis.

(U) The value of obtaining and studying great masses of information was demonstrated in the 19th century by Charles Darwin, whose work reinforced the principle that information is needed to advance from particulars to generalizations in science. As a matter of fact, many outside the intelligence community have struggled with ways to improve the organization of information and techniques for extracting what is wanted. But certainly the need for rapid, accurate, and complete information is as acute for the intelligence analyst as for anyone.

(U) One of the distinguishing qualities of the professional analyst is knowing where in the

confusion of information sources the desired answer is likely to be found. A common problem for the student, confronted with a question in connection with a school essay assignment, is whether the answer may be found in a dictionary, encyclopedia, or thesaurus. If one has a question which might be answered from a book, where should one go in the library to find the appropriate book? And if directed to a particular book, should one thumb through it, look up the key words in the index, or consult the table of contents?

(U) A major difficulty is that the information is not organized in a manner designed to help in the specific problem faced by the analyst. To remedy this, attempts are made to anticipate those questions which are asked most often by bringing together relevant information in a form which is most likely to be helpful. The following is an outline of the structure of strategic surveys of various countries, recommended for use by the West German government. It quickly becomes evident that even with great effort it would be difficult to keep such a study from being so superficial as to be almost valueless in all but the most generalized intelligence tasks.

- *General Background*. Location. Frontiers. Area. History. Governmental and Administrative Structure.
- *Character of the Country*. Surface Forms. Soils. Ground Cover. Climate. Water Supply.
- *People*. Nationalities. Language. Attitudes. Population Distribution. Settlement. Health. Structure of Society.
- *Economics*. Agriculture. Industry. Trade and Commerce. Mining. Fisheries.
- *Transportation*. Railroads. Roads. Posts. Airfields. Inland Waterways.
- *Military Geography*.
- *Military Establishment in Being*. Army: Order of Battle, Fixed Defenses, Military Installations, Supply. Navy: Order of Battle, The Fleet, Naval Shore Installations, Naval Air, Supply. Air: Order of Battle, Military Aircraft, Air Installations.
- *Special Appendices*. Biographical data on major governmental figures. Local geographic terminology. Description of rivers, lakes, canals. Lists of specifications of electric power plants. Description of roads. Lists of airfields. Main telephone and telegraph lines. Money; weights and measures.

With Reference to Sigint

(U) Because of the specialized nature of most of the communications processed by Sigint analysts, their questioning tends to probe most frequently into areas of information more restricted in scope and more exhaustive in detail than the country survey. It is useful to note that while this questioning process could come up with nothing for the analyst, new information could be added to the information store as part of the process. This interactive relationship is most fruitful when dealing with time-sensitive targets, and in this context the traditional methods of providing information support have not been completely successful. A rapidly changing situation, such as a military operation, demands a flexibility and a responsiveness that has been difficult to provide.

~~(C)~~ If one grants that information support to the analytic process is not only essential but also frequently laborious and time-consuming, a natural follow-on question would be "Can technology help?" And technology *should* be called upon to help, with the objective of making the analytic process faster, more accurate, and more complete. This is by no means an original thought, of course, but perhaps not as much has been done to assist the intelligence industry as could be done, given the state of the art in information storage and retrieval techniques and trends in computer development. There can be little question that analysis of intercepted communications, whether performed in transcription, translation, or in the processing of the results of these efforts, would benefit by improved information support. But how much gain for how much cost?

~~(C CCO)~~ One area of information that is particularly clumsy to deal with is geography. Maps are difficult to handle, require a large, uncluttered surface (seldom available in operational areas), tear easily, and are sometimes impossible to fold back into their original form. They frequently have too much information on them, if they are the kind designed to serve for general reference, and they have to be fetched from and returned to a central storage point. Many analysts will use them only in desperation. Gazetteers are easier to use, but even they pose problems: one has to know how to spell a name in order to find it,

(U) A frequent complaint made of traditional information sources is that the questioner is rebuffed because the inquiry is about material that is

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(b) (3)-50 USC 403
(b) (3)-18 USC 798
(b) (3)-P.L. 86-36

too recent to have been included in the reference work. Even in those cases where the information base is updated regularly, a rapidly changing situation will often outstrip the capability of the system to stay abreast.

(U) Seeking help from dictionaries, glossaries, grammars, and other language aids is often time-consuming. Although such sources are most frequently consulted by those who are less expert in the foreign languages of concern, even the experienced professional must search through them on occasion. The answer may be difficult to find: a specialized technical meaning for a term; the conjugated form of an irregular verb; dialect variations and local idioms; neologisms, acronyms, abbreviations, and ordinary words used to conceal the true meanings of the communication. The search for answers may be baffling and tedious.

~~(C-CCO)~~ The Sigint process itself generates an enormous amount of information which must be recorded for later reference. Its availability to the analyst is essential to avoid redundant effort and often provides the key to successful exploitation of the traffic. When this type of information is being generated by several analysts working simultaneously in different communications relating to a common target, there is a time lag in supplying their analytic observations to each other, a situation which at the very least slows down the analytic process.

A Need for Action

(U) It is time that the issue of radical changes in the nature and extent of information support technology be examined in earnest. What do we stand to gain, and will it justify the cost in money and effort?

(U) It makes sense to visualize the processing position for the reporting analyst, or transcriber/analyst, or translator/analyst, as including computerized access to the information he needs to support him in the performance of his task. The emphasis in the preceding statement is on the word *access,* for a good number of information files are now in computerized form, but they are not really very accessible to the analyst, at least not from his working position. A frequent comment from many who are required to use the large data bases designed to assist them is that they would almost rather go back to 3x5 card files, which at least were accessible to them and up-to-date.

(U) One obvious way of improving the current analytic support condition is to buy additional computers to permit analytic units greater accessibility to existing data bases. Such a move has the undoubted advantage of simplicity, with results predictable for any given increase in investment. The gains would be immediate in that existing data files could be exploited much more quickly and completely than at present.

(U) But many other information sources are not in computerized form now, for a variety of reasons. For these, steps would have to be taken to bring them into the range of the computer. Mind you, no elaborate research program need be set up to find out how one can do this. There are off-the-shelf systems available for most, if not all, Sigint information needs. It would take some vision and lots of work (especially software development), but it would be entirely feasible to bring virtually all the information support to the analyst's position via computer terminal. It is also highly likely that this would permit the analyst to produce his product, whether report or transcript or translation, more quickly and with greater accuracy and completeness. What remains to be demonstrated is whether the improvement in accuracy, completeness, and timeliness would justify the costs involved.

(U) (b)(3)-P.L. 86-36**nay have retired early this year, but he found that questions posed to the Research Group (R5) continued to fascinate him, so he returned to his desk. He stubbornly maintains that technology is the only answer to some of our long-standing problems, yet argues that the human, not the machine, must call the tune. He blithely refuses to discuss computer foul-ups such as occur with depressing regularity in real life, preferring to cling to his conviction that the machine will eventually bring us the best of all possible worlds.**