The Directorate of Science and Technology Historical Series

The Office of Scientific Intelligence, 1949-68

VOLUME THREE ANNEXES VIII, IX, AND X

OSI-1
June 1972
Copy No. 1 of 2

TOP SECRET

Annex IX

OSI's External Assistance Program

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THE DD/S&T HISTORICAL SERIES

OSI-1

THE OFFICE OF SCIENTIFIC INTELLIGENCE, 1949-68

VOLUME THREE ANNEXES VIII, IX, AND X

by

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June 1972

[redacted]

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HISTORICAL STAFF
CENTRAL INTELLIGENCE AGENCY

Annex VIII

OSI Publications

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Annex VIII

OSI Publications

I. Introduction

When the Office of Scientific Intelligence was established on 1 January 1949 under CIA General Order 13, it was decreed that the Office be "the primary intelligence evaluation, analysis and production component of CIA with exclusive responsibility for the production and presentation of national scientific intelligence." During 1949, the state of scientific intelligence within the entire intelligence community came under heavy fire from two high level committees. The Eberstadt Committee found that "responsibility for intelligence evaluations in such fields as BW and CW, electronics, aerodynamics, and guided missiles is spread amongst various agencies .... Medical intelligence is virtually non-existent .... estimates of foreign potentialities made by various agencies are inadequate and contradictory." At about the same time, the Dulles Committee found that there was "no procedure for arriving at authoritative intelligence estimates in the scientific field with the possible exception of atomic energy matters." It further found a lack of broad brush interdisciplinary studies which could have been done by CIA in contrast to the parochial studies prepared by the services.

In order to improve the condition of scientific intelligence and to carry out its function as coordinator of scientific intelligence within the community, OSI took the lead in establishing the Scientific Intelligence Committee (SIC) under the Intelligence Advisory Committee (IAC). The SIC was established by DCID 3/3, dated 28 October 1949. Thereafter it was felt by some members of the Community that OSI abandoned its right to correlate and evaluate departmental scientific intelligence for the purpose of producing national scientific intelligence by entering very heavily into competitive research and production in the same field as the military departments. As a consequence, OSI came to be viewed as a fifth wheel in the intelligence community rather than as a coordinator of intelligence.

Nonetheless, OSI believed that production of intelligence rightly came within its purview.

[redacted]

[redacted] Under these various headings, OSI began the production of needed scientific intelligence. In its quest to provide the broad interdisciplinary studies ranging from basic research to weaponry development, OSI began increasingly to impinge on what the services considered their areas of responsibility. This led in turn to the issuance of DCID 3/4 which in essence limited OSI production to studies in the basic and applied research areas and assigned the task of reporting on military hardware to the military agencies. Subsequently, OSI was authorized to produce scientific and technical intelligence as a service of common concern and as required to fulfill the statutory responsibilities of the DCI under DCID 3/5 (new series), issued in February 1959.

Types of OSI Reporting and Division of Effort

Since its establishment, OSI has produced intelligence in three general categories; publications prepared to support intelligence issuances of other offices, responses to specific ad hoc requests, and reports on self-initiated research. Reporting in the first category

[redacted]

consists primarily of contributions to National Intelligence Estimates (NIE) and National Intelligence Surveys (NIS) and, to a lesser extent, publications of the Office of Current Intelligence and various USIB committees. Research in the second category--papers in response to specific requests--may be issued in typescript solely to the requestor or may be published for general distribution. Research publications in the third category are designed primarily to fill important gaps in intelligence and to add to the basic knowledge of the Office, the intelligence community, and policy makers. Research in this third category is selected, in part, on the basis of suggestions from other components of the Agency and from other parts of the intelligence community. Reports in all of these categories have been published throughout the period of OSI's existence and can be generally characterized as progressing from informal memoranda and periodicals of limited subject coverage such as the Epidemiology Bulletin of the early OSI era to the much more formal, coordinated intelligence publication of today, such as the Scientific and Technical Intelligence Report.

OSI production can be further characterized by three, more important categories--the basic or depth reporting as exemplified by the Scientific and Technical Intelligence

Report (STIR) and the NIS; the estimative as exemplified by contributions to the NIE; and the current exemplified by the Scientific Intelligence Digest (SID).

In the early 1950s, the division of OSI effort into three categories was determined primarily by outside requests and commitments such as the National Intelligence Estimate and by the need to compile available information to determine the actual data base available in scientific intelligence. From these two factors the most pressing gaps in scientific intelligence were to be determined. For this purpose, OSI set up "Consumer Programs" to fulfill the former and the "Basic Programs" for the latter. All of these programs and efforts, however, had one overriding goal; namely, support to national intelligence estimates. Thus, in terms of quantity of production, the depth research report devoted to building up a basic understanding of the scientific and technological capabilities of the Soviet sphere and exemplified by the numerous studies prepared on the Soviet Academy of Sciences and other Soviet scientific organizations, received the greatest attention. While contributions to NIEs generally were significantly smaller in terms of actual production output, with the exception of the estimates on Soviet nuclear capabilities, contributions

to estimates were indeed the quality output of the Office and consumed a large portion of the Office effort. Current intelligence was a poor third, in both quality and quantity of effort. As OSI developed a basis from which to move forward and to devote more time to both current and long-range problems, the balance of effort slowly shifted. Thus while NIEs still today remain the ultimate in intelligence reporting, OSI's efforts in the production of current intelligence have gradually increased and a second periodical for current reporting was established. A decline in the quantity of depth research production was evident for a time, particularly in the mid-1960s, but recent efforts have again pushed the rate of production upward. In addition, this type of reporting has become increasingly responsive to the intelligence problems of today as programming of projects takes effect.

A. Planning and Programming

Although OSI's programming has been somewhat unjustly criticized as "being born without benefit of clergy," the criticism that is has never had a generally accepted set of guidelines controlling its make up does have some truth. It has been subject to the influence of many different people and conditions.

As might be expected in the early 1950s, the newly established Office was attempting to fill the critical

needs of scientific intelligence. Most of this was done on an ad hoc basis as a result of specific requests rather than in conformity with any well established program. Nonetheless, by 1951 the Office was planning the production of scientific intelligence--at least to a limited extent--in consultation with the Office of National Estimates; with the Research and Development Board, and the Weapons Systems Evaluation Group in the Department of Defense; with the Inter-departmental Committee on International Security; and with other organizations of the Government concerned with science and technology. Shortly thereafter, the use of consultants to aid in Office planning was instituted.

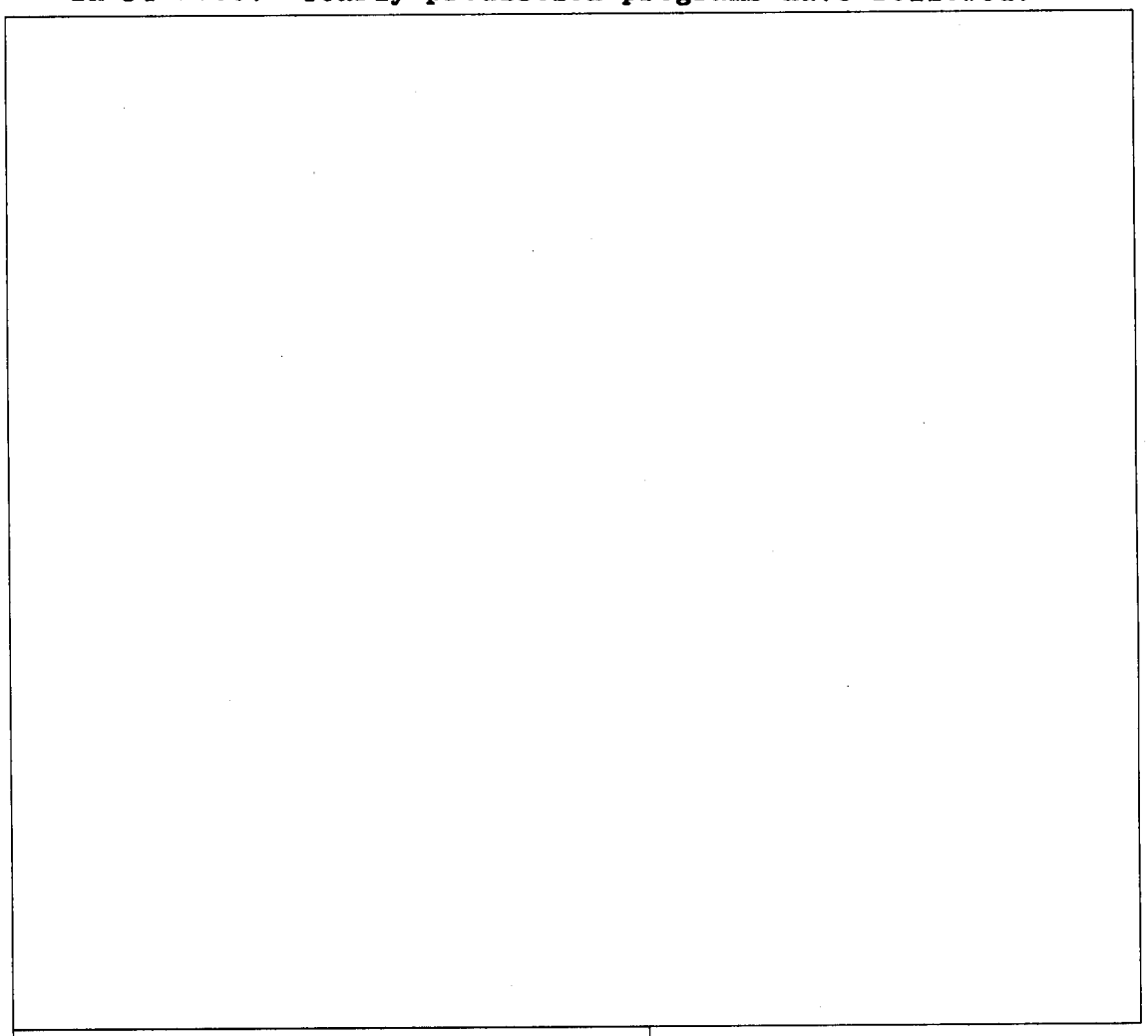
In 1954 and 1955, partly as a result of an IG recommendation and partly because the Office had acquired sufficient background to determine sensibly the needs of the consumers of scientific intelligence and the capability of the Office to fill these needs, a formal mechanism for programming was set up.

[redacted]

[redacted] By 1955, an OSI Research and Production Plan was in an advanced stage of preparation and a statement of "Critical Scientific Intelligence Objectives" and a listing of selected research problems or areas had been prepared by the [redacted] and approved by the Intelligence Board. The Board, a fairly informal organization established in the early days of OSI and composed of Staff and Division Chiefs, was beginning to take a more active part in fulfilling its mission of reviewing and recommending action to the AD/SI on substantive matters, including the establishment of critical scientific and technical objectives and priorities and the Office intelligence research and production programs. Although the problem areas were too great for the size of the Office, a start had been made and the first OSI

[redacted]

Research Program was prepared for work to be performed in FY-1956. Yearly production programs have followed.



An example of the results of this sort of coordination was a request from the Air Technical Intelligence Center (ATIC) in 1961 for OSI support in the basic sciences. At that time, the indicated that while "there is no feeling on the part of the AD/SI that ATIC statements of requirements

have to be accepted in toto by the Office, we should give full and complete consideration to them as we enter into the planning exercise for the FY-1962 Research and Production Programs."

Extra-Office inputs to OSI production also affected short-range planning and current reporting. For example, in 1964 the DDI Assessment Panel, which was established to assure Agency production on topics of current interest, made several recommendations to the Office regarding production of specific reports.

In spite of the elaborate mechanism established to plan and review OSI production, there have been certain limiting factors evident in the process. One of these is the desire of personnel to work in "their favorite substantive field" regardless of the value of that field to intelligence. Although, such practices as the use of external contractors help overcome this problem to some degree it still persists. Another factor has been the preoccupation at times with the production of non-planned current intelligence to the detriment of scheduled reporting, as occurred frequently in the early 1960s. Recently, however, procedures have been established for more frequent regularly scheduled meetings with individual Division Chiefs in order that more stringent control over the planning of OSI production be effected.

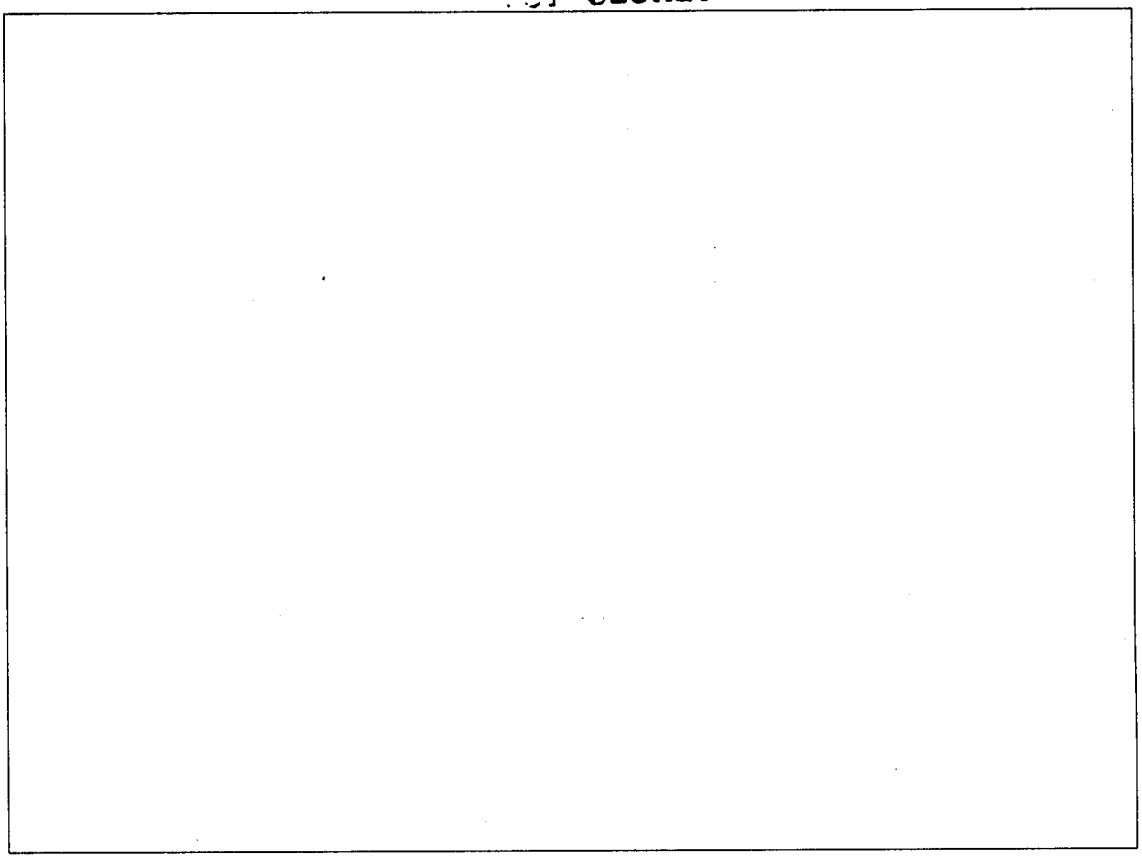
B. General Areas of Geographic and Substantive Coverage

Since its establishment, OSI publications have heavily emphasized coverage of the USSR [redacted]

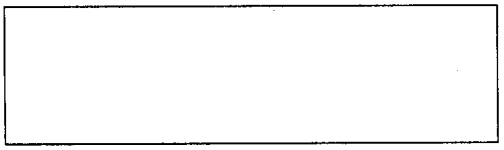
[redacted] Intelligence coverage of the Soviet Eastern Satellites received next greatest coverage followed by China. The latter, because of its very poor scientific and technical capabilities at that time, ran a very poor fourth. [redacted]

As Communist China developed its resources, OSI's interest in China grew. More personnel were assigned to the study of China, particularly in the field of nuclear energy. [redacted]

[redacted]



Production of scientific intelligence on Free World areas has been a matter of concern to OSI for many years. Production in this area has been required by Office responsibilities particularly to the NIE and NIS programs, but it has had the effect of using manpower that might more justifiably be expended on the Soviet Union and China. As a result, it was decided in 1961 that OSI production activities for the non-Sino-Soviet Bloc countries were to be limited to contributions to the NIEs and NISs, broad assessments in the scientific and technical fields which have a bearing on national



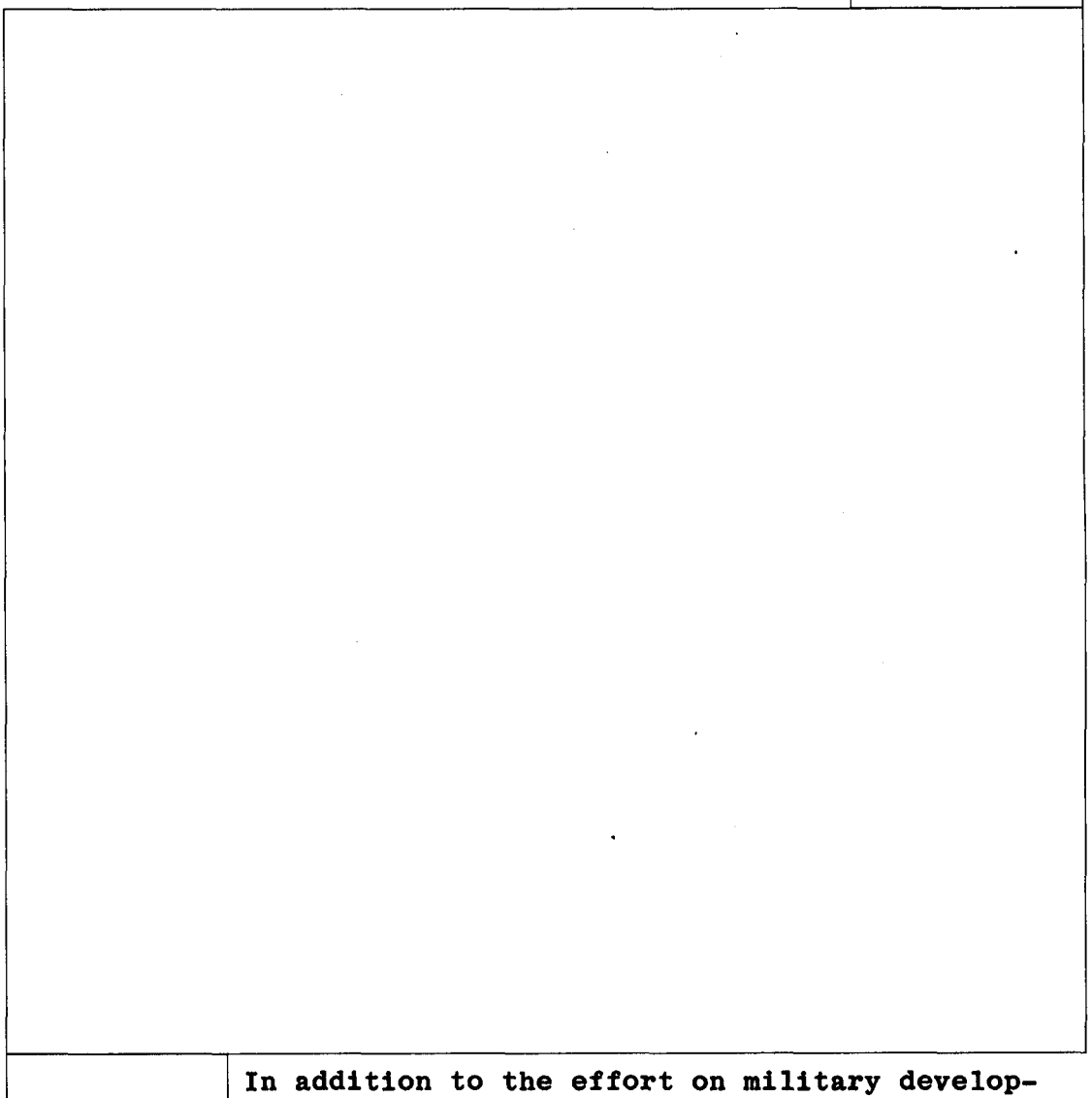
strengths, evaluations in critical areas of science and technology which could have a direct influence on R&D progress in the US and USSR, and evaluations of nuclear energy and space activities. Production relating to nuclear energy and space was to be done within OSI and all other areas were to be done under external contract or, as in the case of guided missiles left to the Department of Defense. These guidelines have generally been followed up to the present with the exception that non-Soviet guided missile development is closely followed elsewhere in the Agency. Current OSI production on Free World areas is almost entirely in the field of nuclear energy, [redacted] with some publications on BW/CW developments in the mid-East.

[redacted]

In the beginning, the division of effort into various substantive fields was influenced heavily by the generally poor state of scientific intelligence within the intelligence community, as indicated by the various governmental committees which investigated the situation. Undoubtedly another strong factor was the Soviet detonation of an atomic bomb in the late summer

[redacted]

of 1949, almost four years before it had been predicted that the Soviets would have such a capability.



In addition to the effort on military developments, OSI conducts a sizeable amount of basic research intelligence, often to support studies in the weapons area. For example, as early as 1950 the Office was engaged in the study of veterinary medicine, especially as it applied to animal biological warfare.

In 1954-55, a stringent review of the Office was made and production priorities were spelled out more clearly. Critical Scientific Intelligence Objectives were derived from the Priority National Intelligence Objectives. The scope of these objectives was briefly as follows:

a. All aspects of the Soviet atomic energy program.

b. All aspects of the Soviet guided missile program but with emphasis on determining research and development capability relative to the creation of an intercontinental ballistic missile.

c. Soviet research, development and future capabilities in the perfection of electronic equipment for use in major offensive and defensive weapons systems.

d. A limited intelligence research coverage of Soviet air, ground, and naval weapons as a supplement to surveillance by Service Intelligence Agencies in these areas.

e. A comprehensive coverage of Sino-Soviet Bloc capabilities in the scientific and technological frontier areas where unique advances of military or economic significance may occur.

f. The research and development aspects of Sino-Soviet Bloc offensive and defensive BW and CW capabilities.

g. The scientific and technological aspects of Soviet capabilities for Arctic warfare and Arctic development.

h. The basic scientific resources of the Sino-Soviet Bloc--the quality of Soviet scientific and engineering manpower and the effectiveness of their utilization.

Since it was felt then that the Office was preoccupied with technical intelligence to the detriment of intelligence on the basic sciences, the Fundamental Sciences Area was established.

In spite of OSI's desire to strengthen production in the basic sciences, depth research production remained about evenly divided between the basic sciences and weapons developments. (See chart in subsection on depth research.) Amid the strongly emphasized weaponry developments, guided missiles were beginning to occupy a prominent place. In 1955, the first national intelligence estimate on guided missiles (NIE-6-54) was published. Contracts with US firms in the guided missile business were established to perform intelligence research. In this period, research on ground weapons was discontinued,

and publications on air and naval weapons, BW and CW were prepared only to supplement those of the services. Elint and Electromagnetic warfare received strong emphasis at this time resulting in at least six periodicals in these fields, and coverage of the peaceful uses of nuclear energy was beginning.

In the late 1950s and early 1960s, emphasis on weapons systems, especially nuclear delivery systems, continued and resulted in a gradual shifting of effort from tactical missiles to ballistic missiles. At this time, work in electromagnetic warfare, agriculture, and geology was curtailed or discontinued. The Geneva Test Ban Treaty Conference required heavy OSI support in the form of publications relating to disarmament problems. OSI also continued to produce intelligence on Soviet Bloc aid to underdeveloped countries.

Through the 1960s emphasis on nuclear energy and guided missile production continued. With the formation of the Foreign Missiles and Space Analysis Center in the early 1960s, the responsibility for production of intelligence on guided missiles was transferred to FMSAC. In response to increasing Soviet capabilities in defense, OSI began to place greater stress on Soviet defensive systems, in particular antiballistic missile and antisatellite developments. The increasing involvement of the US in Vietnam resulted in greatly increased OSI

production on Soviet air defense systems both in Vietnam and in the USSR.

OSI concern with future threats, i.e., Soviet and Chinese Communist scientific and technological research and development which could lead to new types of advanced weapons or otherwise affect the balance of power, was evident as early as 1964 when a committee on the subject was formed. Subsequently, the [redacted] established a branch to deal with the problem. A paper on the methodology of dealing with this question has been scheduled for production in 1969.

C. Review and Coordination of OSI Production

OSI publications are always coordinated within the Office and within the Agency; they are sometimes coordinated within the intelligence community, other governmental organizations, and private individuals or corporations.

Within the Office, the primary mechanism for coordination is the OSI Intelligence Board (IB). This Board was originally established in February 1949 to review intelligence production requirements, to review and approve the periodic issuance of the OSI intelligence production plan, to review and approve the specifications for each report, to review the finished intelligence

[redacted]

produced, and to consider problems relating to scientific intelligence production.

With the problems inherent in establishing a new office and the problems caused by DCID 3/4 in regard to OSI areas of production, the early IB played only a minor role in OSI's intelligence production. In April 1953, the IB was reestablished with OSI Division and Staff Chiefs as members. It was to serve as an advisory body to the AD/SI and to review and advise him on major policies, programs, projects, and procedures relating to research and production of scientific and technical intelligence. It was felt that the scientific disciplines and sub-disciplines were so interrelated that they could not be treated independently without loss of comprehensive coverage and the danger of erroneous conclusions and furthermore, that the IB could provide the AD with the necessary integrated approach to the production of scientific intelligence. Since that time, the Board has continued to function in its assigned role of reviewing all OSI depth research and estimates production. The current intelligence publications of the Office do not receive formal IB review. The Scientific Intelligence Digest is reviewed by the Scientific Intelligence Digest Board, established in the early 1960's. The STIR (Briefs) are reviewed by those divisions which have a substantive

responsibility in the area covered, and the Daily Surveyor does not have a formal review mechanism. All OSI publications with the exception of contributions to estimates are reviewed and coordinated by other Agency offices with overlapping substantive interests.

On occasion, OSI publications are coordinated with substantive experts in the field being evaluated. One of the earliest of these reviewing groups was the Boston Scientific Advisory Panel which was established in 1951. Other groups of experts, such as the Webster Panel for nuclear energy and the Hyland Panel for strategic weapons, were subsequently established and have provided valuable substantive review of OSI production. In addition, certain OSI contractors have performed substantive review of OSI production prior to publication.

D. Consumers of OSI Publications

Since its establishment, OSI publications have been prepared to serve a variety of readers. In the early days many reports were prepared at the direct request of such consumers as the Department of State, the Research and Development Board and the Weapons Systems Evaluation Group. For example, within six months of OSI's establishment the WSEG had requested a comprehensive survey of Soviet capabilities with respect to U.S. strategic bombing.

[redacted]

The table below gives the types of OSI publications produced in 1954, the number of copies, and their distribution.

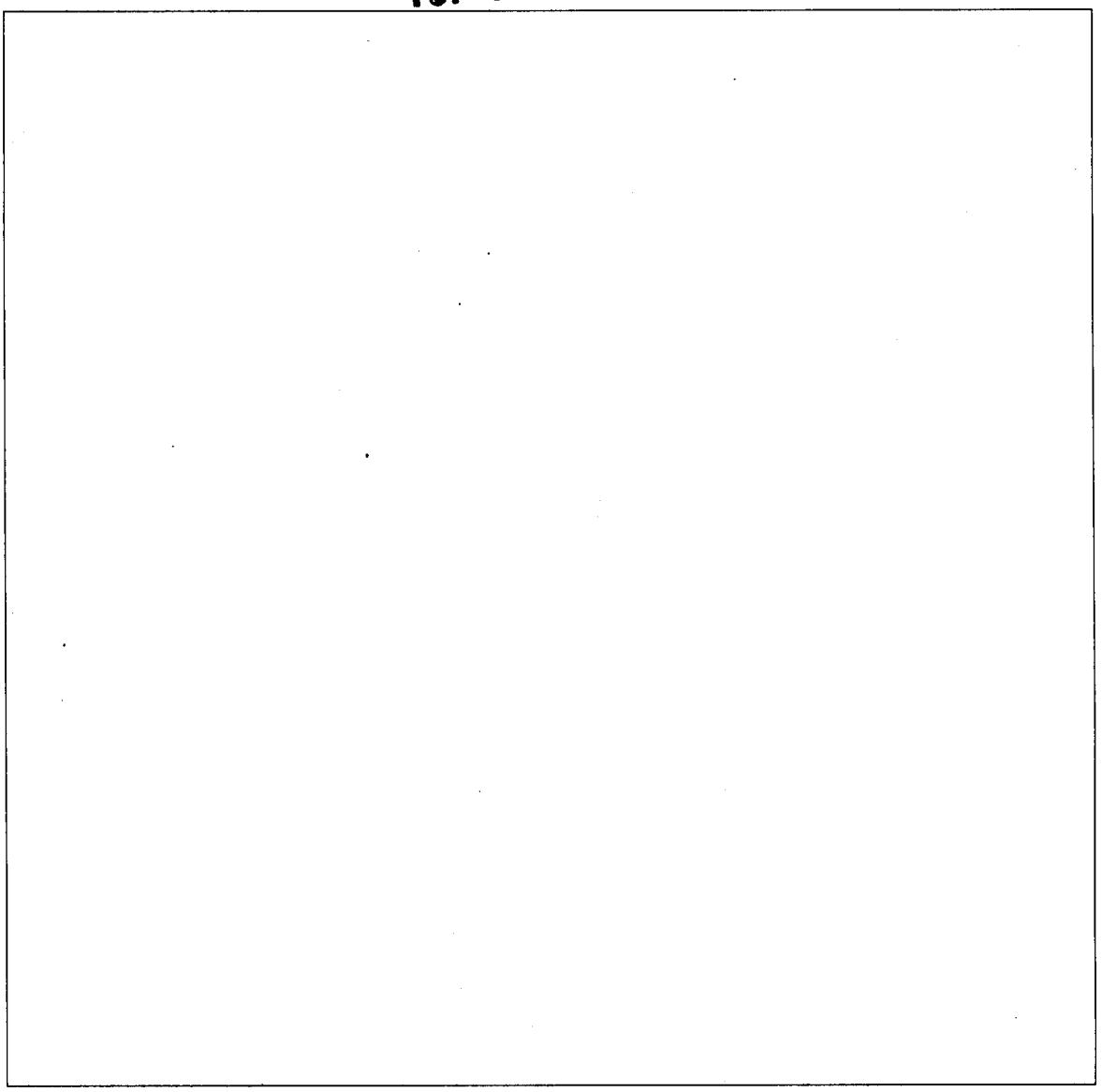
Publication	No. of Copies	Recipient
Contribution to NIEs		

[redacted]

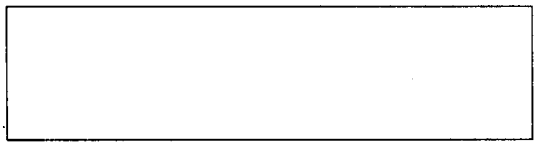
Publication	No. of Copies	Recipient
Contributions to NISs		
Contributions to SEC Estimates		
Contributions to SEC Reports		
Scientific Intelligence Report		
Provisional Scientific Intelligence Report		
Scientific Intelligence Research Aid		
Scientific Intelligence Collection Guide		

Publication	No. of Copies	Recipient
Scientific Intelligence Digest		
Scientific Intelligence Memorandum		
Electromagnetic Warfare Brief		
Epidemiology Bulletin		
Special Supplement to the Scientific Intelligence Digest		

By the late 1950's stronger efforts were being made to expand the distribution of publications beyond the intelligence community and other governmental organizations into the scientific community.



Other efforts to increase the readership of OSI publications have been made in recent years. For example the Monthly Index was started in July 1966 to provide to a select group of governmental officials short abstracts of OSI, FMSAC, and OEL reports and SID items. In 1968, it was expanded to include the titles



of Weekly Surveyor items. In addition, in the fall of 1965, OSI began to submit to the DDI each week an abstract of those OSI publications that we felt would be of interest to the Secretary of Defense. Only a few OSI reports have been selected for the Secretary's attention.

Efforts to provide the readers of OSI publications with the subject coverage, scope, and detail that they desire have included consumer surveys conducted by the Office throughout its existence. One of the earliest was a survey of the Scientific Intelligence Digest in 1953. At the same time, OSI attempted to have a survey of the NIS made but was unable to persuade the Office of Basic Intelligence to do so. By 1955, selected Scientific Intelligence Reports were surveyed. Consumer survey "interviews" were held with various Governmental units; for example, in 1958 the scope and coverage of OSI depth reports were discussed with the Navy. In 1960 and again in 1965, consumer surveys of the SID readership were conducted, and in 1965 certain STIRs were selected by the Intelligence Board for consumer surveys. Some of these surveys were directed by the Inspector General and some were initiated by OSI itself. Generally, few replies were received and these were for the most part favorable. The various surveys

throughout the years have thus been of little value.

[redacted]

E. Processing and Printing of OSI Publications

The editorial work and the processing of OSI publications* have been the responsibility of the [redacted] since the establishment of the Office. Until 1963, OSI depth research

[redacted]

[redacted]

publications were generally set by linotype by the [redacted] and the more current and ad hoc publications were generally typed on multilith mats by [redacted] for subsequent processing by [redacted] In 1963, Justowriter machines were purchased in order to improve the appearance of the SID providing justified margins and to speed its printing by preparing camera ready copy. Certain STIRs were subsequently prepared in camera ready copy on the Justowriter.

OSI also participated in a [redacted] experiment in the use of the EPIC system to produce selected NIS drafts and certain STIRs. The first STIR produced with the EPIC system was published in March 1967. The system made use of a paper tape prepared in [redacted] which was then given to [redacted] for computer processing and subsequent justification. The Dura machine used in this process was also used to prepare the Daily and Weekly Surveyor. The use of the tapes from the Daily Surveyor to prepare the Weekly Surveyor resulted in a considerable saving of time. The Dura, which was on loan from [redacted] was returned at [redacted] request in late 1968.

In mid-1968, the Office rented the IBM magnetic tape selectric typewriter/magnetic tape selectric composer system to provide the Office with more flexibility and speed in preparing camera ready copy for the printer.

[redacted]

While the use of all of these machine systems has improved the time required by [redacted] to print both current and depth OSI publications, their use for preparing depth research reports has placed a fairly heavy burden on the [redacted]

[redacted]

II. Current Intelligence Reporting

A. Daily Surveyor

Philosophy

The Daily Surveyor, first published on 15 June 1964, was established with the primary purpose of serving as a vehicle for current reporting of important scientific and technical intelligence. Three principal subgoals were (1) to furnish the DDS&T, the D/OSI and other high-level readers a resume of the most important and "newsworthy" material received in OSI in the previous 24 hours, (2) to create an awareness among OSI analysts of the importance of current intelligence and of reporting scientific and technical intelligence on a current basis, and (3) to stimulate greater OSI production in the current intelligence publications of the community and the Agency.

A review of the Surveyor operation in January 1965, as requested by the IG, indicated that from its very beginning the Surveyor has been eminently successful in providing high-level Agency readers with current scientific intelligence. Further, the value of the Daily Surveyor to CIA working level analysts is indicated by the following comment from OCI in January 1965:

"The Surveyor also is providing much previously unpublished intelligence analysis in

scientific and technical fields relating to important foreign military and other programs. This has served to enhance other analysts' understanding and evaluation of other intelligence -- military, economic and political -- concerning such programs, Surveyor is illuminating and giving definition to many new fields of human activity caused by scientific and technical advances, new fields of activity which might otherwise be obscure to and misunderstood by intelligence analysts."

The Surveyor has also been successful in creating an awareness for current intelligence among OSI analysts. From its inception, Divisional representatives have been assigned to Surveyor work. It is now office policy that all OSI analysts will serve in this role -- at first full time, later on a part-time basis. They now serve a 2-4 month period rather than the earlier 4-6 month period. By November 1967 [redacted] OSI and FMSAC analysts have worked on the Surveyor Staff. Their Surveyor related work, such as scanning the incoming mail, suggesting items to divisional analysts, and coordinating items, has created a current intelligence awareness among these analysts, broadened their outlook, and made them aware of Office problems beyond those of their own individual specialty.

[redacted]

OSI has been less successful in the third goal of stimulating OSI participation in OCI publications. As originally conceived, the divisional representative was to learn to determine what was significant current scientific intelligence and then to prepare it in such way that it would be acceptable to the CIB and CIWR. Little was done along this line by the OSI division representative although the published Daily Surveyor has in some cases sparked OCI interest and has led to OCI, and later OSR, preparation of items for the CIB, CIWR and the President's Daily Brief based on Daily Surveyor items.

Although the Surveyor has not been successful in attaining the third goal, several other benefits not originally anticipated have been realized. The Daily Surveyor has become of itself an important in-house current scientific and technical intelligence publication, not only for OSI but for other DDS&T Offices. In addition, Offices outside the DDS&T have occasionally published Surveyor articles when the subject matter is in a substantive area not clearly relegated to one Office or the originating office has no appropriate publication medium. So successful has the Daily Surveyor been that it now serves as a draft for a Weekly Surveyor widely disseminated through the intelligence community.

Origin of Daily Surveyor Items

The Daily Surveyor has retained much of the original concept that it is the analysts' publication, and therefore items are originated for the most part by individual analysts. No programming is involved although in the early days, items were most frequently written by the divisional surveyor representative rather than the responsible division analyst. Items are occasionally suggested by the divisional surveyor representative, by Division supervisory personnel, by the Office of the Director or the [redacted] [redacted] but the prime responsibility for initiation of an item remains with the analyst.

Format, Classification, Sources

The Daily Surveyor is an all-source publication.

[redacted]

Surveyor items are generally based on a single source with the analyst comment following thereon. As the Daily Surveyor has matured, the items have lengthened from the early days of three- to four-sentence comments

[redacted]

to longer and more thorough evaluations. In addition, items are now more and more frequently based on several sources and set in a format that does not separate gist and comment. In some instances, contractor analysis provides the item.

Daily Surveyor items cover all geographic areas of the world and all substantive areas of responsibility of OSI and FMSAC. The majority of the Daily Surveyor items are on the Soviet Bloc, as might be expected. The next greatest area is the free world and lastly China/ Asian satellites. The high percentage of items on the free world can be explained by the fact that little programmed effort is made by OSI on this area and the Daily Surveyor is therefore a convenient place to publish such items. The following table shows actual numbers of items by geographic area:

A rough comparison of the basic sciences type item with the applied and hardware type item shows slightly more of the former have been published in the Daily Surveyor.

[redacted]

Distribution

The Daily Surveyor began in June 1964 with a distribution [redacted] only within CIA. [redacted]

[redacted]

Coordination and Review

Items submitted for publication in the Daily Surveyor are approved by the chief of the division submitting the item except in the case of [redacted] by the [redacted] Surveyor Officer, and by the Chief [redacted] No coordination

[redacted]

of these items is required for the Daily, thus providing the OSI analysts a reasonably painless method of getting their ideas into print and, at the same time, developing their sense of responsibility for their work. Six months after inception of the Surveyor almost 100% of the OSI analysts had written for it.

B. Weekly Surveyor

By June of 1965, the Daily Surveyor had become a very successful publication, alerting other Agency components to significant foreign scientific and technical developments on a timely basis. Because of the volume of newsworthy scientific and technical intelligence and because the Agency's present current intelligence publications were primarily politically oriented, it was decided to publish a community-wide Weekly Surveyor. The first issues were published in September 1965.

[redacted]

C. Scientific Intelligence Digest

Background and Philosophy

The Scientific Intelligence Digest (SID) is an outgrowth of the Scientific Intelligence Bulletin which was first issued in July 1951. The Bulletin was established to meet OSI's responsibilities for reporting current scientific and technical intelligence under CIA

[redacted]

The Bulletin was distributed to those organizations within the Agency and the Intelligence Community that had a direct interest in scientific and technical intelligence. OSI Division chiefs met weekly to review, select, and edit those items submitted by the divisions for inclusion in the Bulletin.

In April 1952 the name of the publication was changed to the Scientific Intelligence Digest, and in September 1953 it was being issued as a regularly scheduled (bi-weekly) publication. In early 1953, items

for the SID were described as consisting of new information which has been integrated with past knowledge and analyzed as to significance. The new information was to have been "such as to effect an element of change in the analysts' own intelligence appreciation" and this change was to have been "of consequence in the East-West struggle for world power which was considered the basic frame of reference." More importantly the Digest was to reflect new knowledge of important and timely developments in science and technology as they occurred or became apparent. As could be expected few items in the SID reflected changes in the world power struggle; many however, were concerned with the reporting of "firsts." Emphasis was to be placed on the Soviet Bloc.

Currently, the SID resembles a scientific journal in the depth and breadth of its articles. Some of its currency was lost when it became a monthly publication in November 1963. However, it still presents timely analytical and estimative intelligence articles on foreign scientific research and development. Most articles are preliminary assessments of current information and present the best current judgments of the office. In certain fields it provides regularly scheduled periodic reporting, e.g. the monthly report of foreign missile and space activities which began in early 1958 and the regular reporting of disease and health problems worldwide begun in April 1966.

Both the quality and quantity of SID items have been of concern to the Office since the inception of the Digest. In the first full year of publication, (Calendar year 1952) [redacted] items were submitted for publication in the Digest of which only [redacted] appeared in print. A tabulation of items published in each calendar year is given below.* In early 1953 a survey of consumer reaction to the Digest demonstrated that the Digest was of definite value and that its publication should be continued. Additional consumer surveys made in late 1959 and early 1965 confirmed the continuing validity of the conclusion, although the 1965 survey indicated insufficient coverage in the aerospace and missile fields.

[redacted]

[redacted]

In the fall of 1953 a goal of one item per analyst per month was set. To meet the goal each division selected a "current intelligence representative" who was to devote full time to work on current intelligence production (SID, SIM, items for OCI publications) for a period of six months. At that time selected raw information documents were routed to the [redacted] where they were scanned for items warranting publication. Subsequently they were given to divisional analysts who were responsible for alerting the divisional current intelligence representative who with the [redacted] would prepare the item and determine the category of publication. This procedure had the additional goals of improving the quality of the publication as well as saving the time of the analyst and of the Intelligence Board, the latter at that time being concerned both with the worthiness of an item as well as editorial matters. Being too cumbersome, the above procedure was discontinued shortly.

Since then the primary responsibility for originating SID items has remained with the analyst. Two other methods have also been used with some degree of success. When the Daily Surveyor was initiated and was disseminated only within the Agency, it was realized that much

[redacted]

valuable intelligence was not reaching all of the appropriate consumers. A system was thus set up whereby members of [redacted] clipped those Surveyor items which seemed to be of most importance and suggested that they or an expanded version thereof be included in the SID. In addition, when the formal SID Board was established in early 1963, the Director, OSI in board sessions ordered certain items to be written; subsequently this procedure was modified so that the [redacted] prepares a list of proposed topics for coverage. These topics are discussed during the board sessions and if the topic is found suitable for coverage and there is sufficient information upon which to base an item, it is then scheduled for publication. During the discussions, the Division Chiefs also propose to the Board additional topics for coverage. These subjects are generally based on an upward flow of information from the analyst to branch chief to division chief. Occasionally the D/OSI or DD/OSI proposed a topic, either at the Board meeting or directly to the division.

Format and Classification

In the early years of the SID publication, most of the items were similar in format to those today published in the Surveyor -- the gisting of a single

[redacted]

source and a comment which evaluated and analyzed the information contained in the source. As the SID has matured, the individual items have more frequently become short wrap-up type items on various fields and subfields of science and technology, frequently covering trends rather than single scientific events. These were originally considered and labeled "Feature Articles" when the format of the SID was primarily composed of short items and a few feature articles. The regular reprinting of the Summary or Summary and Conclusions of longer OSI reports was begun about 1955 and has continued to the present. Their inclusion in the SID was to provide quick dissemination of the highlights of these position papers to a wide audience.

SID items, as indicated above, may be and generally are based on several sources and include the analyst's evaluation. They always are evaluated intelligence. As to format, always have conclusions, whether alone or in combined Summary and Conclusions. They may be based solely on OSI or FMSAC analysis.or they may be based primarily on work done under contract to OSI. In such a case the contractor is credited with his work.

In no case, however, are the conclusions of an article included in the Digest without being fully approved by the Office. Occasionally the SID has served as a mechanism for publishing articles prepared by offices of the Agency other than OSI or FMSAC when the producing office had no suitable publication. ORR (now OER) has been the primary user of this mechanism.

[redacted]

The SID has never been restricted in either substantive or geographic area coverage with the exception of the early 1950's when the coverage of the Office of Scientific Intelligence in the field of military research and development was limited to a surveillance role by DCID 3/4. In the early 1950's a fairly large proportion of the items in the SID was devoted to basic research. This proportion has since decreased as the number of items directly related to military research and development has increased. During the 1960's those items dealing with organization and manpower have generally declined

[redacted]

in number and those dealing with the pure sciences began to include discussions of possible applications of the research, especially to weapons technology.

As in other Office publications, the primary geographic emphasis has been on the USSR. In the early 1950's a fair amount of space was given to scientific and technical developments in the European Satellites, but this coverage has steadily declined.

[redacted] In the late 1950s the Office began devoting more manpower to the problems of scientific and technical intelligence reporting on China. As a consequence of this emphasis, together with improved collection techniques and Chinese development of advanced weapons, much more space has been given in the Scientific Intelligence Digest to China. Most of this reporting has been in the basic sciences, the life sciences, and the nuclear energy field. [redacted]

Review Procedures

The SID article undergoes multiple review. With the exception of articles prepared by certain OSI divisions during 1955 and 1956, articles submitted to the [redacted] for publication in the SID have undergone review

[redacted]

within the divisions by both the branch and division chief. This procedure still prevails although in the case of articles written by members of FMSAC, the Director, FMSAC frequently reviews the article prior to submission for publication. Subsequent to review and editing by the [redacted] the articles are coordinated with other Agency Offices [redacted] and are reviewed in a formal OSI/SID Board meeting.

The SID was reviewed at special bi-weekly meetings of division chiefs during 1952. This mechanism was discontinued in the early 1950s although the drafts were reviewed by individual division chiefs who had the option of calling a meeting on any item. Such a meeting was rarely, if ever, called. In early 1963, a formal SID Board was established. The original composition was the Assistant Director of OSI, the Deputy Assistant Director of OSI, and two division chiefs chosen by the Assistant Director. As originally conceived, the divisional members of the Board were to divorce themselves from their divisional points of view and to review the Digest in a manner similar to that of the Editorial Board of a scientific journal. In about 1965, the Board was expanded to include all OSI division chiefs because those division chiefs not represented on the Board felt that they had no

means of defending their items. When [redacted] was transferred from OSI to become the basis for FMSAC, the then Deputy Assistant Director [redacted] became a member of the SID Board. Subsequently a member of Project Staff, FMSAC, was assigned this responsibility. To some degree in the early days of the Board and to a large extent in 1964 and 1965, the Board spent many hours reviewing draft items for both substantive and editorial problems. In early 1966, efforts were made to limit Board review to major problems. Thus, the Board currently reviews the articles to determine their worthiness for publication, to ascertain that they are not in conflict with accepted Community or Agency positions, and to determine whether there is sufficient evidence to support the conclusions and whether the conclusions are the logical ones to have been drawn from the evidence. During Board sessions, major objections or comments from other Agency offices are considered, and accepted or rejected. The multiplicity of review, while having an overall effect of improving the articles published in the SID, may at the same time be both a temporal and psychological block to publication and thus discourage many analysts.

[redacted]

Dissemination

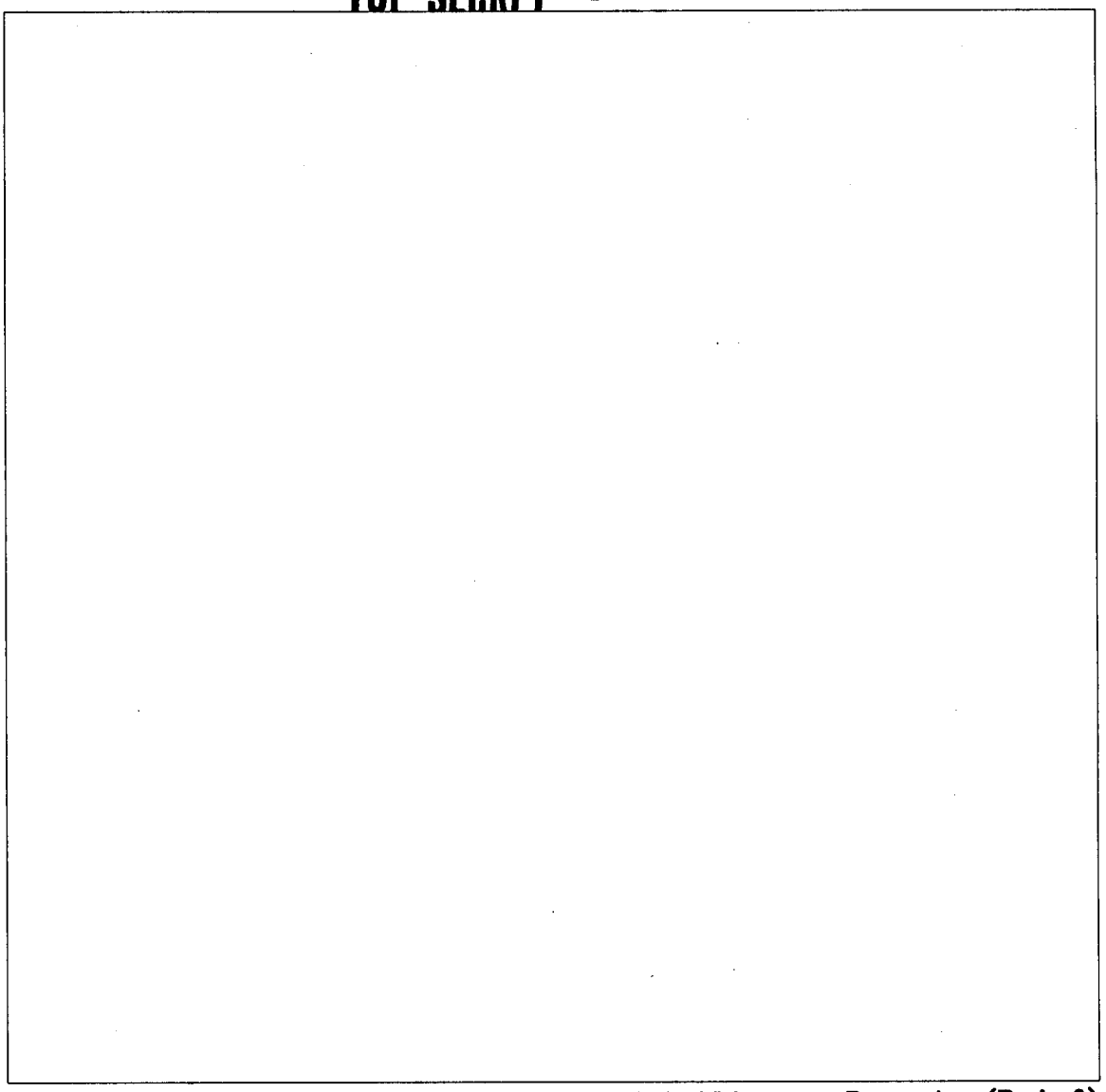
Because SID articles vary widely in breadth, depth, and topic, the Digest is addressed to all levels of consumers. Although this broad brush distribution has frequently caused problems in determining the amount of technical language that should be in each item, a decision was made in 1962 that the Summary of each item should be understandable to a non-scientist but that no restrictions would be placed on the language of the body of the item.

Distribution of the SID has always been primarily to the Intelligence Community. In the Community, the greatest users have been and remain the military services and the Department of Defense. Other governmental departments, such as the Department of Agriculture and the Department of Commerce, are also receiving the Digest. Throughout the years, efforts have been made to provide the Digest to policy makers. The SID is now being sent to the President's Foreign Intelligence Advisory Board, the National Council on Space Sciences and the National Council on Marine Engineering and Marine Resources, both headed by the Vice President. (April 1969)

In 1963, efforts were made to provide the Digest to Office consultants through the local field offices.

While much effort was expended and the consultants indicated their interest, it was not successful except in the few cases where the Digest was taken directly to the consultant. The procedure was discontinued in about 1965. In 1967 the transmittal of the SID to OSI contractors was discontinued except for the transmittal of individual items of interest to the contractor.

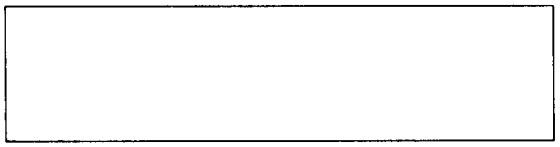
The circulation of the Digest increased considerably throughout the community following the USSR's launching of Sputnik I when the Office was able to demonstrate that several key aspects of the Soviet satellite program had been reported and evaluated well in advance of the launching.



D. Scientific and Technical Intelligence Reports (Brief)

Background and Philosophy

Another category of current intelligence publication is now called the Scientific and Technical Intelligence Report (Brief). This publication serves



as a medium for very quick reporting of important scientific or technological developments, primarily for the high level policy maker.

This type of publication has been in existence in the Office of Scientific Intelligence for many years under a variety of titles. Informal memoranda apparently served the purpose until 1954, when the Scientific Intelligence Memorandum (SIM) became a current intelligence publication medium. (Prior to 1954, the SIM was a short report but was not necessarily a current publication.)

One of the first was the reporting of the first Soviet surface-to-air missile launch sites. After several years the SIM lost its role as a medium for current publication and became in essence an unscheduled Scientific Intelligence Report. Thus, for several years, the Office had no specific mechanism for current publication and the SID and the OCI publications

filled the gap. In 1963, the Scientific Intelligence Brief was instituted so that the Office could have once again a mechanism for quick publication. [redacted] It was prepared at the request of the DDI. In August 1964 the name of the publication was again changed, this time to the Scientific and Technical Intelligence Report (Brief) at the request of the DD/S&T who felt that the OSI categories of reporting had proliferated beyond reasonable bounds. During 1965 and 1966, the OSI divisions began to use the STIR (Brief) as an alternate publication mechanism to the SID to publish short articles that were neither current nor of overriding importance. In that the publication tabulations made during this period did not truly distinguish the STIR (Briefs) and the depth STIRs, such tabulations were a means to show impressive divisional production. In addition, the STIR (Briefs) offered an easy means of publication in that they were not subject to Intelligence Board review. By early 1967, more stringent requirements were placed on the use of the STIR (Brief) mechanism, i.e., IB review and a topic related to a national crisis. Only a very limited number of STIR (Briefs) were published in 1968.

[redacted]

Generation of STIR Briefs

The Briefs and their predecessors have always by their nature been unscheduled publications. For the most part they have been generated by important incoming information being recognized by the analysts as worthy of immediate reporting. In a few instances they have been generated by high level interest in a topic and have been done on request.

Format and Classification

The format of the Brief has followed the classic OSI style of writing and generally has a Summary and Conclusions and then a Discussion. As in almost every other category of OSI publication the information is evaluated, although in the case of the Briefs with the requirement for timeliness the analysis is frequently preliminary and so stated. Often the Brief is speculative as is fitting for this type of reporting.

No restrictions are placed on the classification or the controls used on Briefs. Indeed, in some instances items that normally would have been published in the SID by virtue of their subject matter have been published through the Brief mechanism because of classification and control restrictions [redacted].

Coordination and Review Procedures

The Brief and its predecessors have always been fully coordinated within the Agency. As far as can be determined, they have never been coordinated outside of CIA. Early SIMs were coordinated by the OSI Intelligence Board in regular session but could be and normally were coordinated by the IB members without a formal Board session. In addition they were generally coordinated with the Office of Current Intelligence and the Office of Research and Reports (now OER). The more recent Briefs have been coordinated with the appropriate OSI divisions and other appropriate CIA Offices as determined by their content. Because of time restrictions, they are not normally reviewed by the Intelligence Board. Intelligence Board members, however, have always had the option of calling Board meetings on the Brief and have done so in one or two cases when a paper was particularly controversial. The lack of IB review has both advantages and disadvantages. It tends to slow the publication but at the same time frequently results in a casual review of the material presented. Further, the lack of IB review normally makes it more difficult for the author and the reviewer to meet and discuss any problems in the paper.

Coverage

There are no limitations on either the geographic or substantive areas of coverage in the Briefs. For the most part they have been on important Soviet developments. In addition, they have stressed reporting on North Vietnam, especially in 1964, and the Near East in 1967.

The substantive content of the Briefs has been heavily weighed in favor of developments related to military research and development and in a few instances, such as chemical warfare, deployment and usage.

Dissemination

The Briefs are widely disseminated with special efforts to provide them to the policy makers. They frequently have been earmarked for the Secretary of Defense, the 303 Committee and occasionally for the National Aeronautics and Space Administration. In the early 1960's, the Briefs were disseminated selectively but more recently they have received standard STIR distribution except for those few with special classifications that have stringently limited their distribution.

E. Index of Scientific and Technical Publications

In an attempt to assure that the high level policy makers of the Government were aware of DD/S&T publications, the Monthly Index of Scientific and Technical Publications was initiated in August 1966.

This publication is prepared by the [redacted] of OSI and contains abstracts of all STIRs published by OSI and FMSAC. In addition, it abstracts selected OEL reports. It contains also abstracts of FMSAC Missile Event Reports and FMSAC Space Event Reports and all articles published in the Scientific Intelligence Digest. In May 1967, it was decided that titles of articles published in the OSI Weekly Surveyor would be included so that a more proper balance of OSI and FMSAC publications would be obtained.

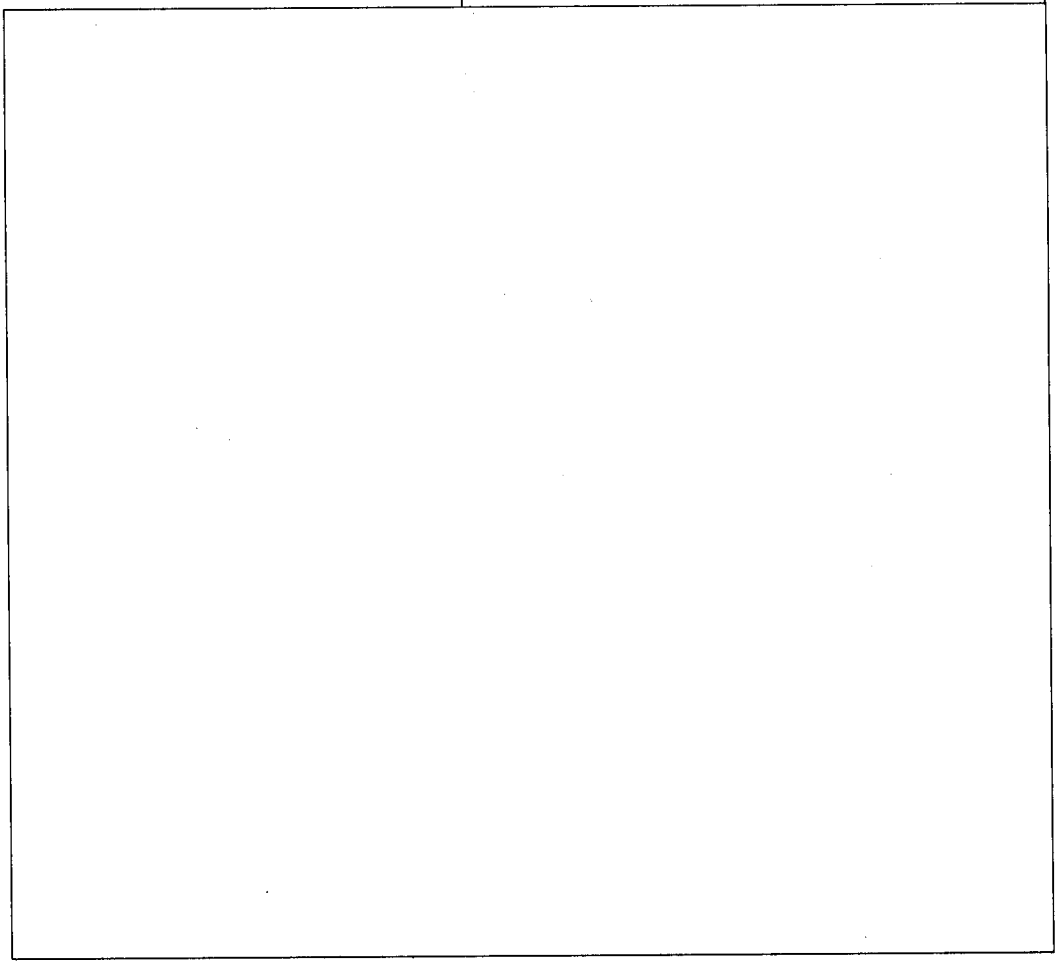
The Index is published on a current basis; reports disseminated during the month are included in the Index which is published during the first five working days of the following month. The dissemination of the Index is limited to about 35 recipients. That the Index has functioned as an alerting mechanism to those policy makers who might not normally receive all of the publications of the DD/S&T is shown by the continuing requests for such publications. [redacted]

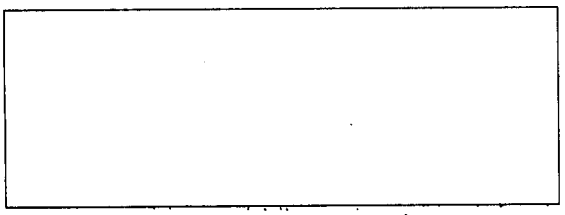
F. OSI Publication Through the OCI Mechanism

Shortly after the formation of the Office of Current Intelligence, OSI was charged [redacted]

[redacted]

with the production of a Daily Summary of current scientific intelligence which was based upon current information and which included evaluated CIA comment. As early as 1951, OSI assumed the responsibility for recognizing those items in scientific and technical intelligence which ought to be included in the Current Intelligence Bulletin (CIB - later Central Intelligence Bulletin).





OSI was also to support other OCI publications such as the Current Intelligence Review and the Situation Summary (merged in 1955 to become the Current Intelligence Weekly Review).

In the early 1950's, the Agency had a category of publications entitled the CIA Memoranda. These memoranda represented an Agency view and were issued only on subjects which were, or soon were to be, under high-level policy consideration. They were not to be issued very frequently, lest the currency be debased. General supervision of their production was to be exercised by a Panel consisting of the Assistant Directors for National Estimates, Current Intelligence, Research and Reports, and Scientific Intelligence. No evidence has been found indicating OSI preparation or coordination of such memoranda.

OSI participation in OCI publications by the preparation of items within OSI has never been entirely satisfactory. As early as 1952 OSI was aware that it must improve its performance in fulfilling its current intelligence responsibilities. At that time only one article in a period of one year had been submitted to the Current Intelligence Review. In November of 1952 the [redacted] requested the [redacted] to prepare an article

for the Current Intelligence Review on Soviet Developments in Very High Frequency Communications. After repeated requests, the article was published in January 1953. As of 1954, OSI had set a goal of one item per month to be submitted to the Current Intelligence Review; however, in CY 1954 only two items prepared by OSI were published in the Review.

[redacted]

[redacted]

Central Intell. Bulletin* (estab. as Current Intell. Bulletin) 1951		Current Intell. Digest**		Current Intell. Weekly Review		Situation Summary***	
Items		Items		Items		Items	
Sub.	Coord.	Sub.	Coord.	Sub.	Coord.	Sub.	Coord.

* Became Central Intelligence Bulletin in January 1958.
** Discontinued in early 1968.
*** Situation Summary discontinued February 1955.

The lack of OSI participation in OCI publications, and later the national current intelligence publication (Central Intelligence Bulletin), is due to many factors. One of the primary causes probably has been and continues to be the lack of full appreciation on the part of many OSI analysts that the primary responsibility of the Office is the production of intelligence and that the production of national intelligence carries more weight than departmental (Agency) or Office intelligence. Furthermore, the stringent chain of command and internal OSI approval of all items prepared for or coordinated for the OCI publications may make the analyst feel that he need not be responsible for that which he writes or coordinates and makes him either more passive or more irresponsible. Further, the analyst may not have been led to feel by his superiors that he would receive any recognition for his contributions to another Office.

Other factors also have been evident in OSI participation in OCI production. Some of these have been purely physical. Until 1961 when the Agency moved into the Headquarters Building, OSI and OCI were so separated physically that normal day-to-day analyst-to-analyst discussions were very difficult. Additionally the physical separation of OSI made it almost impossible

to receive incoming information as quickly as OCI. Thus often items that OSI might well have produced were drafted by OCI before OSI had received the information. This situation has improved somewhat but mail still is not received in OSI divisions as early as in OCI divisions. One attempt to remedy this situation was the establishment of the Surveyor Staff, which in its early days (1964) was manned by full-time divisional representatives who were to scan the incoming mail for items of CIB importance. This procedure was not entirely feasible as rarely did any one analyst have the scientific background to recognize such items for his entire division. For this and other reasons, the procedure was discontinued shortly after its inception.

Other reasons for the lack of OSI participation in the national current intelligence publications are also evident. One reason is the ever present problem of knowing the readership of the publication. This has led in the current intelligence field to a continuing skirmish between OSI and OCI as to the most suitable form of presentation of Intelligence with OSI striving for technical accuracy and OCI striving for technical accuracy and OCI striving for clarity for the lay reader. Further there has been the

continuing problem of accuracy versus timeliness. As the Office of Current Intelligence is responsible for the immediate reporting of intelligence, all of its efforts have been toward this end; on the other hand, by virtue of training and orientation, the personnel of OSI have a tendency to "wait for all the facts to come in" and then slowly and carefully to analyze the information and only then consider publishing. That this problem has been recognized is indicated by a 1962 memorandum from the D/OCI to the D/OSI which states in part, "I sympathize with your analysts' reluctance to put their tentative views in print (in the CIB and CIWR). I would point out, however, that since they are the experts, their views, even though based on tentative information, are far better than those of our high level readers who have a genuine need to know our views. Furthermore, they (the analysts) should read and take to heart the caveat printed on the back of the cover page of the CIB which says: "Interpretation of intelligence information in this publication represents immediate and preliminary views which are subject to modification in the light of further information and more complete analysis."

[redacted]

An additional influence has been the organization of the DDI in which one Office - the Office of Current Intelligence - has had only the responsibility for the publication of current intelligence (with minor exceptions when they were made responsible for sections of the NIS). OCI has had the responsibility (de facto, if not de jure) of producing political and military current intelligence as well as the staff (and supervisory responsibility) for the production of current intelligence by other Offices, namely OSI and ORR. This had been a logical organization but it has not led to the best in Agency efforts. This has been recognized and minor efforts have been made by OCI to improve the situation. For example, in 1953 discussions were held with the D/OCI and "OCI is expected to be more sympathetic to the inclusion of OSI items in OCI publications." In 1955 as a result of the DDI wish for other DDI offices to participate more in OCI publications, a procedure was instituted whereby a credit line indicating the office that had prepared the item was placed at the end of each item. When the initials of OSI were taken by some of the readers to indicate the Air Force Office of Special Investigations, the credit line was discontinued.

The multiple responsibilities of the OSI analyst have also influenced OSI participation in OCI publications. Whereas the OCI analyst has only current intelligence reporting responsibilities, the OSI analyst had not only current intelligence reporting responsibilities, but also responsibilities for depth and estimative reporting. In some cases, he also had much of his time devoted to operational support. While this had placed a heavy burden on the analyst, it has however given him a depth and breadth of knowledge rarely found elsewhere and made him the expert in his field. This has in most cases led to OCI's ready acceptance of OSI's point of view in substantive matters.

In spite of the problems inherent in the production of current intelligence in OCI publications, and the decrease in OSI substantive areas of responsibility, OSI has made sporadic efforts to improve production in OCI publications. A report to the President's Foreign Intelligence Advisory Board on OSI activities in FY 1959 stated that one of the important responsibilities of the Office was to furnish support to the Office of Current Intelligence by initiation of items of a scientific or technical nature for publication by

OCI and by coordinating the scientific or technical aspects of items originated by other DD/I offices. By May of 1964, OSI realized that its failure to publish extensively in the Agency current intelligence media had, in part, led to an S&T void in the "intelligence education" of our non-scientific policy makers and thus proposed to set up a Current Intelligence Analysis Group. Its primary function was to produce current scientific and technical intelligence of high quality within the time span and in the style required for inclusion in Agency current intelligence publications. Specific individuals would be responsible for identifying and preparing current intelligence. This organization was approved by the DD/S&T on 3 June 1964 and led to the establishment of the Surveyor Staff. While this mechanism did not serve effectively its primary goal, it led to the establishment of the Surveyor, a publication from which OCI then on occasion took OSI items published therein and used them as a base for CIB articles.

In the spring of 1965, OSI again made a concerted effort to increase its participation in the CIB and CIWR. No organizational changes were made, but analysts were requested to attempt to increase their current

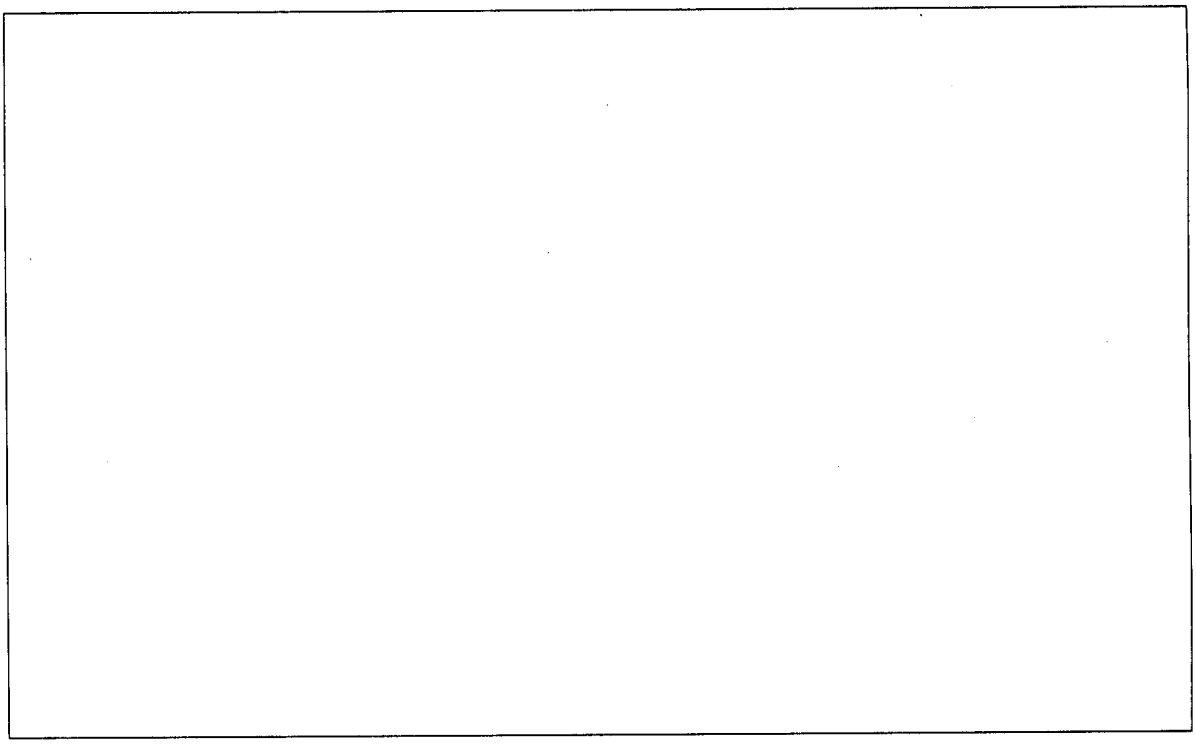
publications. This was successful for the short period during which constant pressure was applied to the OSI analyst.

[redacted]

In the mid-1960's, the DDI again made efforts to increase the production of current intelligence by his offices and by OSI (by then in the DD/S&T). An Assessment Panel was formed, primarily to make sure no important current intelligence was overlooked and that the material that was published was properly coordinated. The efforts of this group were directed especially to the production of the CIA and DDI memoranda categories. Because there were no limitations on the classification and controls of this type of memoranda as on the CIB and the CIWR, they were able to provide a publication mechanism not previously available. Although the Panel itself has ceased to exist, OSI participation in the

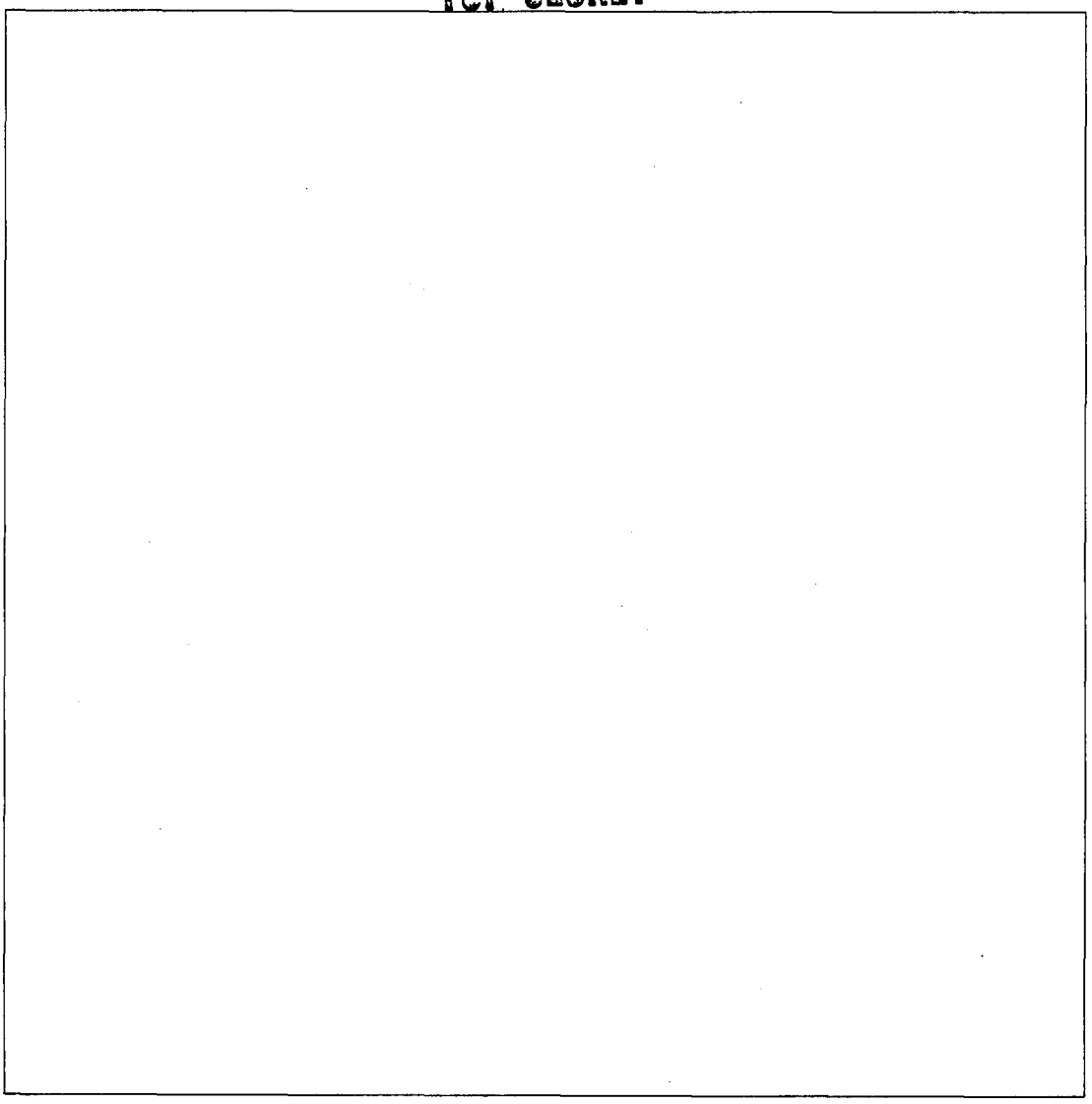
[redacted]

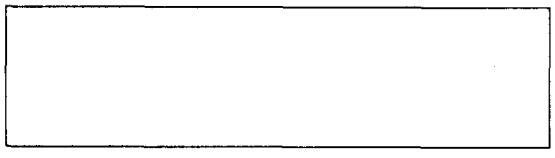
joint preparation of CIA memoranda and the coordination of DDI memoranda has continued to increase. OSI participation is indicated below:



In 1968, OSI became involved in the joint production of several formal memoranda with other governmental departments. These memoranda generally were handled outside the normal USIB committee mechanism for interagency publications.

* Including ORR Current Support Briefs and ORR Military Intelligence Memoranda.





III. Estimative Intelligence Reporting

A. National Estimates

National estimates, those community-coordinated reports which attempt to assess a foreign nation's intentions, future policies, or capabilities, are the most important finished intelligence product of the intelligence community. From its earliest days, OSI has been heavily involved in the production of these estimates.

Inasmuch as estimates are the result of community participation, OSI's participation has generally been through normal community mechanisms, i.e., the SIC, JAEIC, and GMAIC of USIB. In the early days of OSI's existence, however, OSI produced estimates in two quite separate ways. One path was for estimates that related to the field of atomic energy. These were processed through JAEIC (then a subcommittee of the SIC) to the IAC (now USIB) without ONE participation. For all other types of estimates, the path was from OSI through the SIC and later GMAIC mechanisms to ONE and subsequently to USIB.

1. Nuclear Estimates

Among the most important early OSI production were the early estimates of Soviet nuclear capabilities. These estimates were produced independently of the normal NIE mechanism and to a great extent independently of the

SIC even though from 1949-52 JAEIC was a subcommittee of the SIC. [redacted] In 1953, they were for the first time designated National Scientific Intelligence Estimates (NSIE). By 1954, they had been designated National Intelligence Estimates although they were prepared through a mechanism that did not involve ONE. By that time they had begun to take on a more estimative stance in that they began to project future Soviet capabilities. [redacted]

Throughout this early period, JAEIC operated with "well nigh absolute authority" in respect to atomic

[redacted]

energy intelligence. In 1955, ONE's views on procedures for handling nuclear energy estimates were sought by the Inspector General. It was felt by ONE at that time that while the first nuclear energy estimates were appropriately limited to the problems of science and technology, those produced in the 1953-54 period did not take into sufficient account other pertinent aspects of the Soviet system such as strategic planning, economic costs and industrial needs. Further ONE felt that the review services that it could supply were not being used. In 1955, OSI therefore began to take steps to increase consideration of the broader aspects of atomic energy intelligence and to enlist the support of other offices in the preparation of estimates.

The proposal of the DDI in the Spring of 1955 that the Board of National Estimates (BNE) participate in the

production of estimates related to Soviet nuclear energy was another attempt to broaden these estimates. It was further felt that the Board was well equipped to "assay the needs of the policy maker" and could provide valuable editorial assistance. The following specific recommendations of the DDI were thus proposed and adopted; albeit not without resistance from the then Chairman of JAEIC:

1) The JAEIC and the Board of National Estimates should prepare terms of reference.

2) The draft of the NIE should be prepared by the JAEIC with the assistance of the military, economic, and political components of the various IAC (now USIB) agencies.

3) Prior to submission to the IAC, the draft estimate was to be reviewed by the "Webster Panel" (a panel established by the DCI to deal with the methodology of arriving at atomic energy estimates) and by the Board of National Estimates. Any differences were to be arbitrated at a joint meeting of the Board, the JAEIC, and the Panel.

Throughout the 1950-55 period, atomic energy estimates were almost entirely devoted to estimates of Soviet capabilities, although there was some participation in non-Soviet estimates.

[redacted]

The primary OSI support for the production of nuclear energy estimates has been from the very beginning the [redacted] of OSI which has served as the primary producing unit both by writing the major part of the estimate and by integrating community contributions. Although the Director of OSI has frequently served as the Chairman of the JAEIC, the [redacted] was fairly independent of OSI controls and review procedures in the production of the early nuclear estimates. Nuclear energy estimates in recent years have been reviewed by the OSI Intelligence Board but no unilateral OSI contributions in this field have been made directly to ONE.

2. Estimates Other than Nuclear Energy

Since the establishment of OSI, it has been Office policy to render strong support to the production of

[redacted]

national estimates. This has been done in two ways: the first, by the actual preparation of inputs to estimates and subsequent review of the draft estimates provided by the ONE; and secondly, by the preparation of other types of intelligence publications as back-up or depth studies to support certain estimates. This section will deal primarily with the former.

The first estimate with major OSI participation was NIE-18, entitled "The Probability of Soviet Employment of BW and CW in the Event of Attacks upon the U.S.," which was published in January 1951. The entire estimate was drafted by O/SI. In 1951, OSI participation in the estimate production increased greatly. In that year, OSI played some role in the production of 16 estimates, then published under a bewildering array of report designations -- NIE (National Intelligence Estimates), SE (Special Estimates), SIE (Special Intelligence Estimates) and NSIE (National Scientific Intelligence Estimates). By the end of 1951, the ONE working through the IAC had evolved a mechanism for producing and coordinating periodic NSIEs. These estimates were to cover the most important fields of basic sciences as well as weaponry research and development and were to include contributions by various governmental departments and agencies. As far as can

be determined, no NSIEs were published except in the field of atomic energy, and in 1951 and 1952 most of OSI's participation in estimates was done directly with ONE rather than through the SIC mechanism. Beginning in 1952, however, OSI began to participate more fully in estimate production through the SIC mechanism. One of the first important estimates handled this way was SIE-5, Soviet Air Defense Capabilities which was originally initiated as NIE-60, Civil Defense in the USSR. OSI prepared the initial draft and integrated contributions from the services for SIE-5, published in early 1952. In late 1952, OSI prepared the SEC contribution to another of the major estimates of that year, NIE-65, "Soviet Bloc Capabilities Through 1957" by integrating contributions from the Army, Navy, Air Force and the OSI.

Review and Coordination Procedures

By late 1952, the general mechanism for OSI participation in national estimates had been established, namely through the SIC. This procedure with minor variations has continued to present. In addition, all of the OSI estimate production is either monitored by or coordinated by the OSI Estimates Officer of the [redacted] in close conjunction with the SIC Secretary also provided by the [redacted] The Estimates

[redacted]

Officer is responsible for programming Office estimate contributions in the OSI research plan, drafting Office contributions, arranging IB review of Office contributions to ONE or to ad hoc committees or working groups of the SIC, and coordinating Office representation at Board of National Estimate and USIB representatives meetings. Until the late 1950's, much of this work was done primarily by the [redacted] Since that time, however, with the increasing complexity of scientific fields, the Office has appointed individual project officers to deal with estimates of major interest to OSI. These project officers are generally senior OSI division analysts with the requisite technical and intelligence background. The project officers work with other analysts from within the office and coordinate the drafting of major contributions for IB review and attend all pertinent meetings of the BNE and USIB representatives.

OSI seldom contributes directly to a national estimate; most OSI production is prepared for USIB committees and their subcommittees and working groups. These contributions are reviewed by the OSI Intelligence Board prior to submission to these various groups. Occasionally they will be reviewed and approved only by the D/OSI or the DD/OSI. This review procedure was established fairly recently in order that the Office

[redacted]

position be fully incorporated in these contributions. After submission of OSI-approved contributions to the various subcommittees, etc., these contributions are then merged into SIC or GMAIC contributions, approved by the Committee concerned and subsequently submitted to the BNE. An independent OSI contribution would go directly to the BNE after approval by the IB. After BNE approval, the estimates are submitted for USIB approval. Throughout the entire review and process, OSI through its membership on the subcommittees and committees as well as through its project officers and Estimates Officer monitors the estimate until final USIB approval.

Planning

Planning of the estimates program is primarily the responsibility of the Board of National Estimates and the USIB. After estimates are approved and scheduled draft Terms of Reference are prepared by the BNE and these TRs are reviewed by both OSI and various interested committees and subcommittees with OSI membership. OSI participation in planning of estimates does not extend beyond this review, but OSI does determine which estimates the Office will contribute to.

Subject and Area Coverage

Determination of both substantive and geographic area coverage in national estimates has always been to

some extent outside of OSI's control. Coverage is determined by the production mechanism discussed above, by certain DCIDs which limited those areas of OSI responsibility at times, by OSI's capabilities in various fields, and by the necessity to react to certain foreign events such as the first Soviet earth satellite vehicle.

The earliest OSI estimates were concerned primarily with research and development of military weapons and equipment. These estimates laid heavy emphasis on nuclear energy as well as biological warfare and chemical warfare. In fact, the first non-nuclear OSI estimate to which OSI had a major input was published in 1951 and concerned the probability of Soviet employment of BW and CW. In 1952, another estimate on BW, SE-24, "Communist Charges of U.S. Use of Biological Warfare," was published.

In this early period, OSI saw a larger need for comprehensive and factual estimates in each major scientific and technical field as had been prepared for the nuclear energy field. OSI also realized that to a great extent a large data base from which to prepare estimates was lacking. Thus, plans were made to produce periodic national scientific intelligence estimates which were to lead ultimately to the preparation

of broader estimates or to provide direct support to national estimates in preparation. Semiannual or annual reports were planned for each of the major fields such as guided missiles, electronics, biological and chemical warfare, and medical research. While these plans did not reach fruition as estimates, many studies were actually published -- primarily as SEC studies -- and were of much support to the national estimates program, in that sufficient information had been collected and evaluated to cause a revision of previous concepts of Soviet capabilities in electronics, guided missiles, and other vital fields.

In August 1952, DCID 3/4 was promulgated and OSI contributions to estimates became sharply limited, at least in theory, to the basic sciences. In spite of DCID 3/4, OSI continued to participate in militarily related estimates, again primarily through the SIC. One of the most important estimates which OSI participated in in this period was the first estimate on guided missiles which was published in October 1954. This estimate was particularly important because, for the first time, the meaning of Soviet developments in guided missiles began to be appreciated in the U.S. Nonetheless, "post mortems" and "validity studies" on

guided missile estimates in the late 1950s showed that the intelligence community was having a difficult time keeping abreast of the rapidly developing situation in the USSR.

Another milestone in OSI participation in national estimates was the preparation in 1956 of the first national estimate devoted exclusively to Soviet science and technology. This estimate was based on the first comprehensive coordinated study of the capabilities and trends of Soviet science and technology prepared jointly by the SEC, the JAEIC, the GMIC, and the EIC (Economic Intelligence Committee).

Throughout this period and up to the present, OSI participation in national estimates has continued with strong emphasis on military research and developments. With the formation of the Foreign Missile and Space Analysis Center in 1965, OSI's responsibilities in ballistic missiles were transferred, but in all other fields of military research and development OSI continues to support the estimate program.

Concurrently with the spread of scientific and military capabilities to more and more countries, OSI's participation in national estimates on various

countries has increased. In 1951, 11 of the 16 estimates in which OSI participated were concerned with Soviet actions. In the period of the early 1950s Western European countries received estimate coverage second only to the USSR and virtually no estimates of OSI interest on Communist China were published.

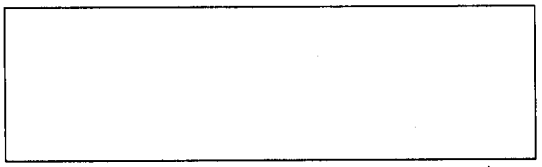
Statistical Summary of OSI Participation in National Estimates Program

Year (FY)	Bloc	Non-Bloc
1958	14	4
1959	10	5
1960	16	1
1961	17	7
1962	22	4

For comparison, in FY 1968, OSI participated in 8 Bloc estimates and 12 non-Bloc estimates. OSI participation

in estimates has generally averaged between 15 and 20 per year, with a substantial contribution made to about one-half of these.

Throughout the entire period of OSI participation in the preparation of national estimates, the Office has strongly supported this program while at the same time realizing that much of the intelligence provided by OSI did not find its way into national estimates. Many in OSI believed that the effect of science and technology on the economic and political postures of world powers was not sufficiently recognized by ONE and ONE did not recognize that the hope of emerging nations to attain advanced status hinged largely on the development of their technical strengths. In 1962, for example, the OSI annual report pointed out that "a previously operating factor -- the increasing community awareness of the relationship between scientific competence and politico-economic stability -- played a lesser role in that year because of ONE emphasis on shorter, politically-oriented NIEs, wherein the short-term relationship cannot usually be demonstrated." In an effort to improve this situation, OSI as early as 1953 pointed out that a competent scientific and technical representation on the Board of National Estimates



would enhance the value of estimates. As late as 1968, it was reported that the DCI was to appoint a scientist to the Board, but as of early 1969, no such appointment had been made. Thus, efforts to bring ONE to a greater realization of the influence of science on the development of a country have never been completely successful and OSI has continued to place its primary emphasis on the production of those estimates related to military developments.

National Intelligence Projections for Planning

The National Intelligence Projections for Planning (NIPP), formerly the Assumptions for Planning (IAP) are a series of documents on Soviet military programs and capabilities prepared to meet the needs of the Department of Defense in programming, conducting exercises, war-gaming, and some research and development planning. They are prepared as supplements to various estimates in that they provide more details than the estimate, attempt to quantify words found in these estimates, and to provide figures for force levels, manpower, expenditures, and specific capabilities for various military systems. OSI concern with the NIPP is primarily with the capabilities and characteristics of the various weapons systems. OSI participation in the NIPP is handled in the same manner and through the same committee mechanisms as in the NIE.

IV. Scientific and Technical Intelligence Reports

[redacted]

In order to meet these responsibilities, OSI has since its establishment conducted in-depth research leading to the publication of [redacted] comprehensive reports. This has been the backbone of OSI production. In the early years, four general types of in-depth reporting were emphasized: reports on the results of exhaustive scientific intelligence research; working papers which were generally preliminary versions of a report or portion thereof; memoranda which were more timely, short reports; and summaries which were periodic publications. [redacted]

[redacted]

[redacted] This report and the many others that followed shortly thereafter were in many cases prepared

[redacted]

with the realization that the data base then available was not sufficient to provide adequate support to the national estimates program. Thus, many of these early reports were prepared as springboards from which more important and far reaching intelligence judgments could be made. Nonetheless, many of these reports, especially the memoranda, were prepared for a high level readership.

[redacted]

Programming

OSI programming and planning of production has been done both formally and informally. In 1953, the OSI Intelligence Board was established by OSI [redacted] The Board, composed of the OSI division and staff chiefs, was established as an advisory body to the Assistant Director/OSI to provide him with the necessary integrated approach to the production of scientific intelligence. It was to review and advise him on major policies, programs, projects,

[redacted]

and procedures relating to research and production of scientific and technical intelligence. By 1955, in keeping with the recommendation of the Inspector General, OSI had prepared a statement of "Critical Scientific Intelligence Objectives," and a listing of selected research problems or areas were approved by the IB. These formed the basis for the first annual OSI Research and Production Program. Subsequently, OSI production programs have been produced annually in support of the Priority National Intelligence Objectibes and the NIEs scheduled for the next fiscal year. This formal mechanism for the planning of depth research and production was somewhat limited in effectiveness for many years as OSI production was too often dependent on the capabilities and interests of individual analysts. In recent years, the Director/OSI with individual division chiefs has taken a more active part in the planning of production in an effort to increase both the scope and quantity of production. OSI production of STIRs per professional per year is shown below:

FY	64	65	66	67
[redacted]	.29	.54	.52	.37
	.63	.76	.55	.43
	.26	.96	.16	.85

[redacted]

FY	64	65	66	67
[redacted]	.25	.54	.73	.37
	.17	.32	.54	.27

In the very early days much OSI production was responsive to direct requests for intelligence from consumers. At that time, many requests came from the Research and Development Board for coverage of specific topics. As early as 1951 special studies and reports also were being prepared for subsidiary groups of the Joint Chiefs of Staff, for the Chemical, Biological and Radiological Warfare (CEBAR) Committee of the Office of the Secretary of Defense, the Chairman of the Armed Forces Medical Policy Council, and the National Security Resources Board. Though to some extent, depth reporting in response to specific requests continues, the majority of such requests are related now to matters of current scientific intelligence.

Categories of Reports

Since 1949 OSI has published a variety of categories of depth reports. They are defined below:

Intelligence Memorandum (IM) -- a brief, timely, and interpretative statement of scientific intelligence. This term was superseded by Scientific Intelligence Memorandum (SIM) in 1951.

[redacted]

Intelligence Summary (IS) -- usually a periodic summary of regional or functional intelligence on current capabilities of foreign powers. The term became obsolete in 1952.

Working Paper (WP) -- a preliminary version of a Scientific Intelligence Report or of certain parts of an extended project. The category was replaced in 1952 by the Provisional Scientific Intelligence Report (PSIR).

Scientific Report (SR) -- This category was replaced in 1950 by the Scientific Intelligence Report (SIR).

Miscellaneous Publication (MP) -- a compendium of information such as lists and descriptions of installations or publications; a little used category.

Scientific Intelligence Report (SIR) -- this category was replaced about 1964 with the Scientific and Technical Intelligence Report (STIR). These are analytical, estimative studies that present conclusions on a specific intelligence problem concerning foreign

scientific research and development and are based on as thorough a search for and assessment of available information as time permits.

Scientific Intelligence Memoranda (SIM) -- See IM above. This category became obsolete in 1964 after the establishment in 1963 of the Scientific Intelligence Brief (SIB) to provide timely reporting.

Scientific Research Aid (SRA) -- a publication which presents systematically arranged data for ready reference of analysts. This category was replaced in 1953 by the Scientific Intelligence Research Aid (SIRA) which became obsolete in 1967.

Scientific Intelligence Collection Guide (SICG) -- a compilation of research needs systematically arranged.

With the exception of the MPs, the SICGs, and certain sensitive reports, the above categories of publications are presented in the attached chart which shows the number of each type of publications that has

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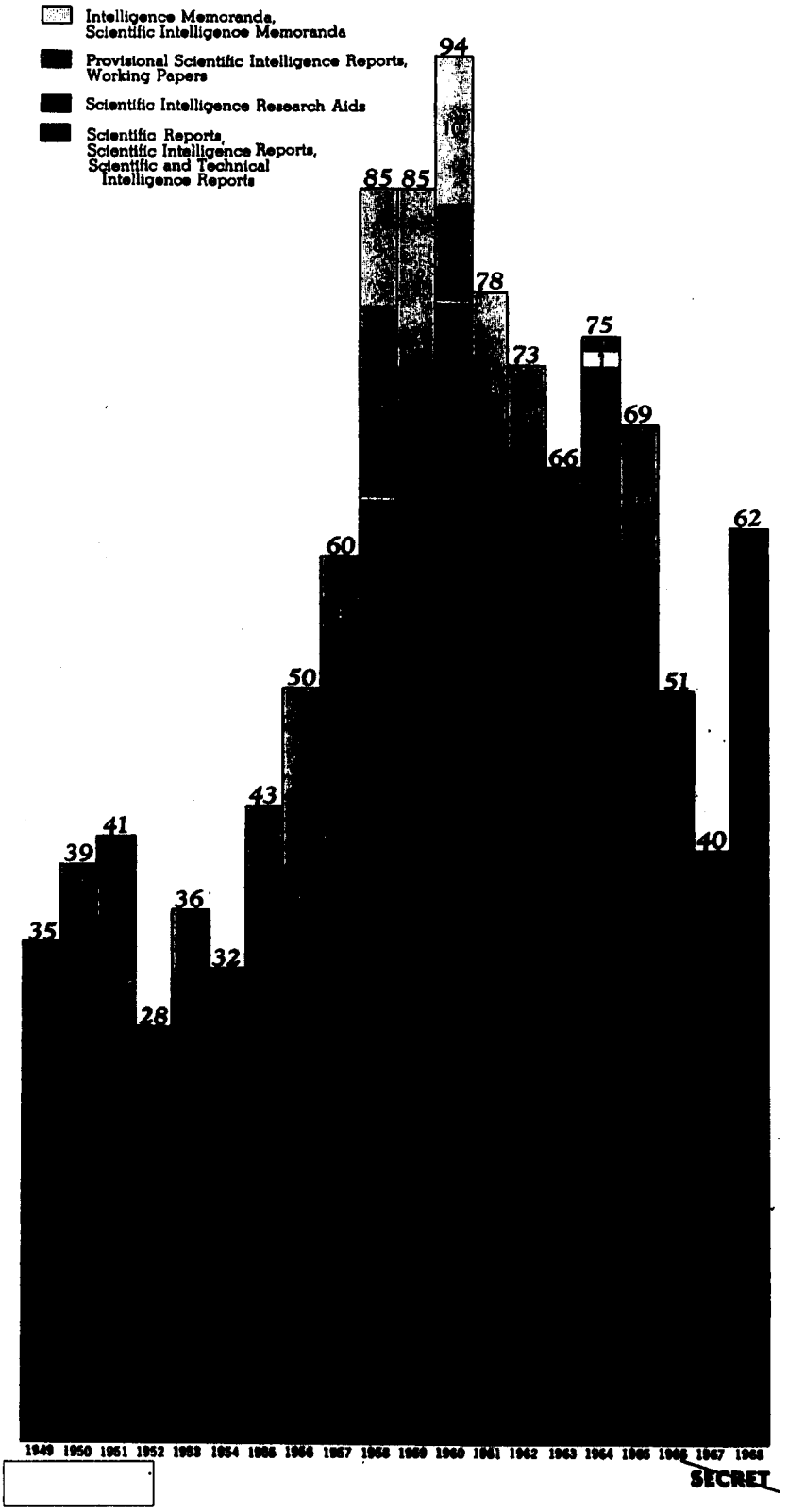
OSI Depth Research Publications by Type of Publication



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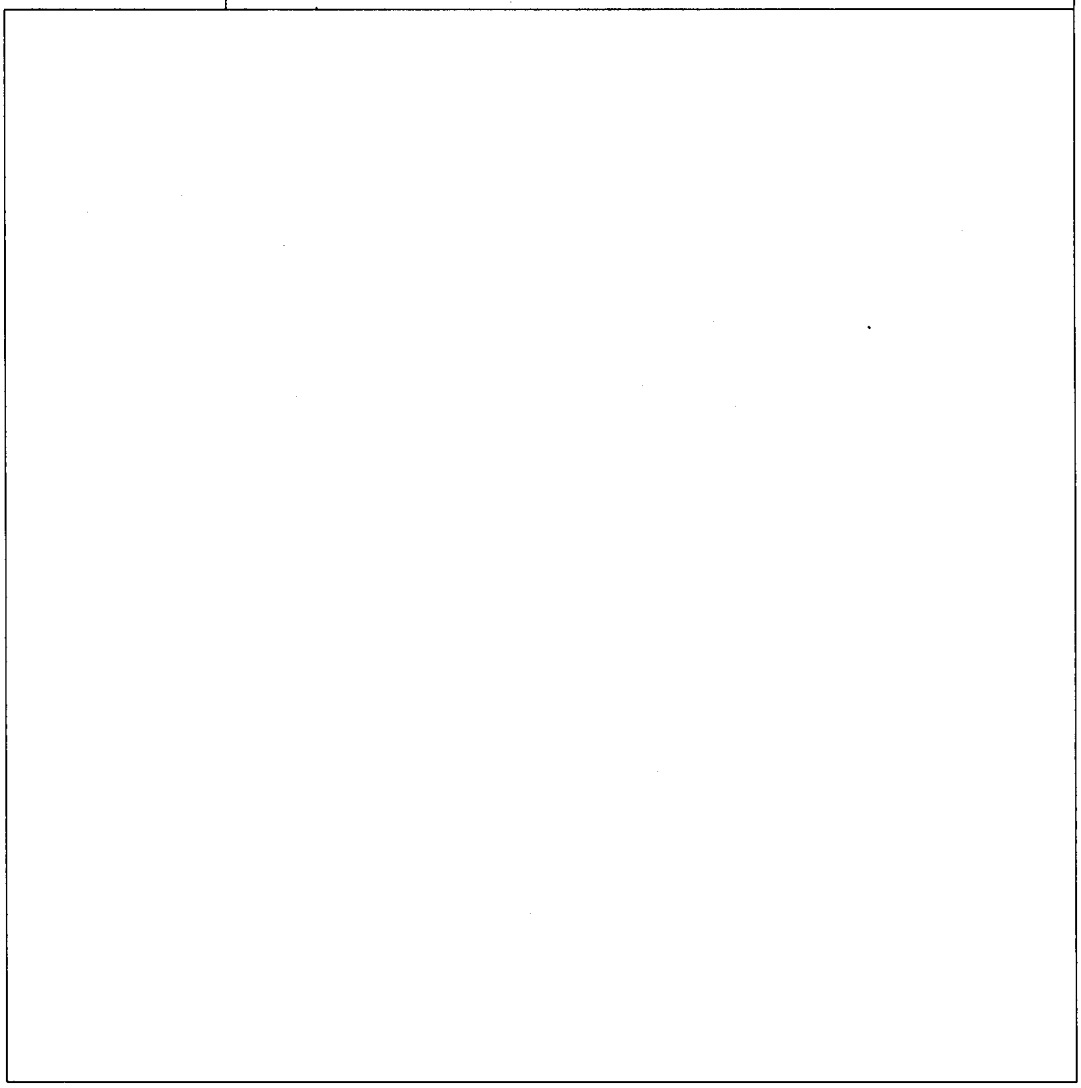
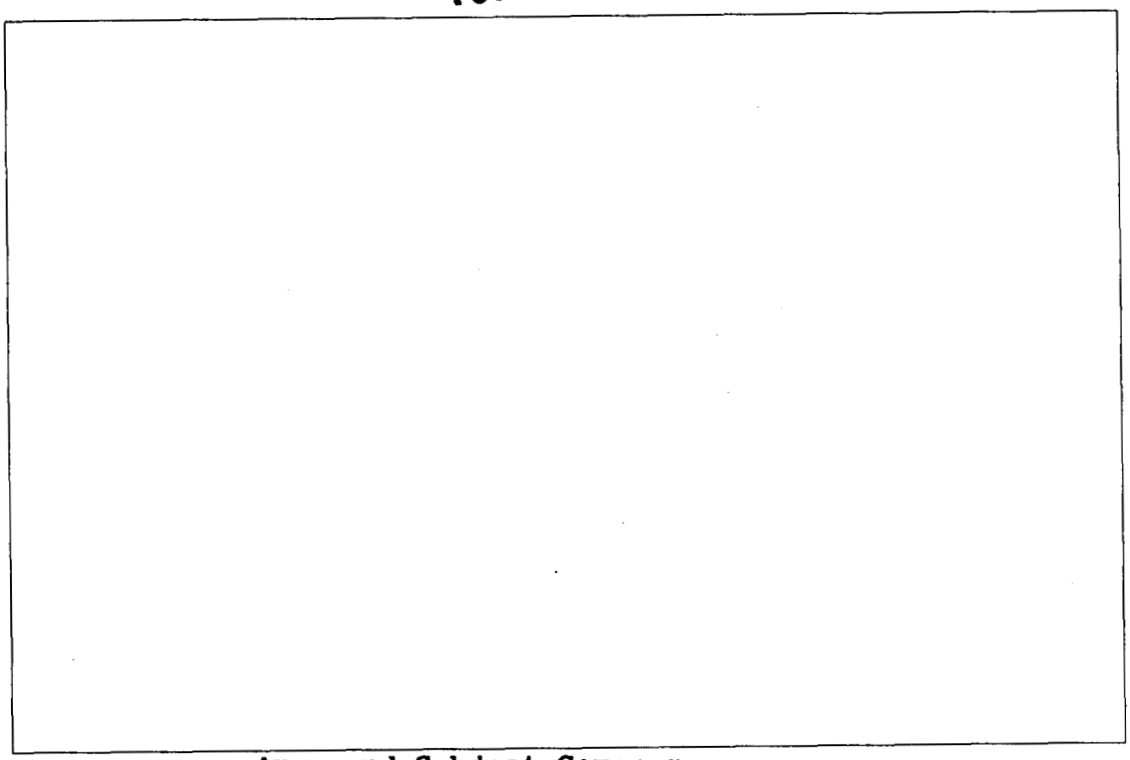
been published each year since the establishment of OSI. As can be clearly seen, the STIR and its predecessors have increased over the years so that they now comprise the major part of OSI production. In 1949, they made up 17 percent of the total OSI depth research production; by 1968, they made up 100 percent of this production. In 1952, it was realized that much information basic to the preparation of national estimates and the evaluated STIRs was not available. Therefore the SIRAs were established as a means of pulling together and collating this information to support further analysis. Through the 1950s a fairly sizeable effort was made in this area but this effort has gradually declined as the data base and analytical capabilities have grown. A similar case is shown for the PSIRs. In the first three years of the existence of the Office, they made up 59 percent of the entire depth production; by 1964 the Office had sufficient confidence in its intelligence judgments to abolish this category. Thus, by 1968 almost all of the OSI production of in-depth reports consisted of fully analyzed studies.

Two other categories of depth production have been published by OSI. One, designated MP (Miscellaneous Publication), has included such material as listings

of previously published reports, listings of Soviet periodicals or organizations, the production program, the OSI Publication Standards Series (in 1957 and in 1962), certain disarmament reports in 1962 and later the reports of the Guided Missile and Space Symposium.





Area and Subject Coverage

OSI depth production by substantive area and by geographic area is shown in the two attached charts. As is very evident from the chart on geographic area coverage, the Office has concentrated its efforts on the Soviet Union. Indeed, 77 percent of the total OSI depth production from 1949 through 1968 has been on the USSR. Of the remaining, 9 percent has been on the Soviet Satellites, 8 percent on the Free World, and 6 percent on China. As can be seen on the chart, the proportion of reporting on the USSR compared to that on all other areas increased to

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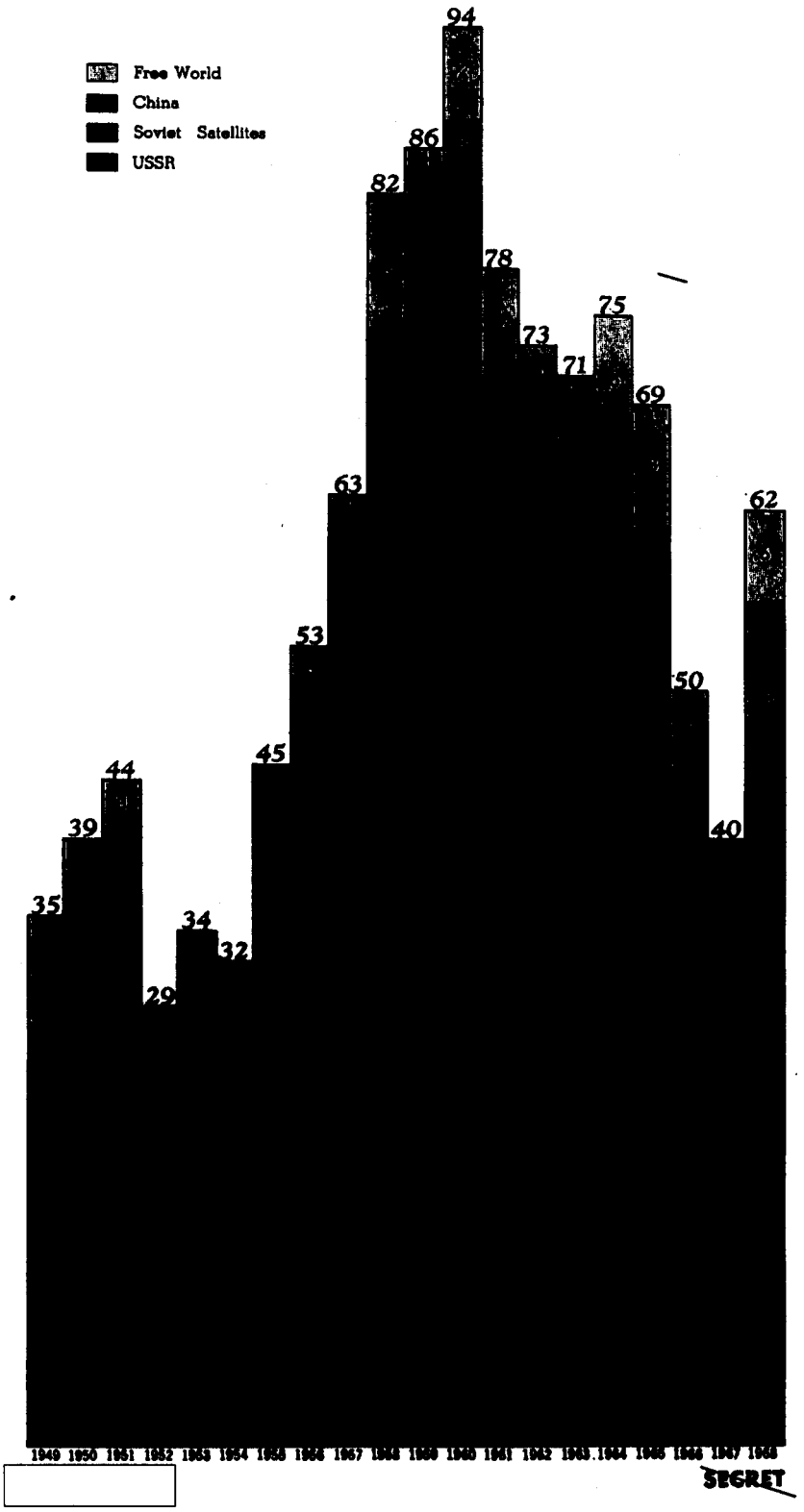
OSI Depth Research Publications by Geographic Areas



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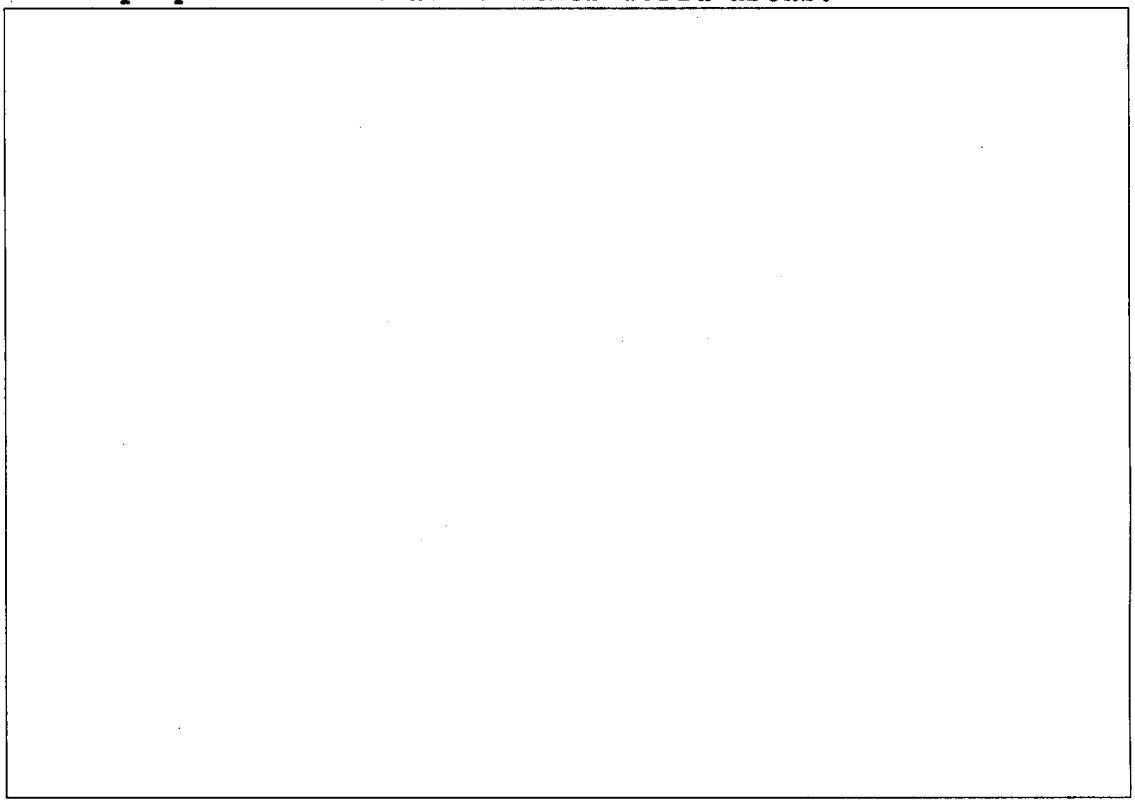
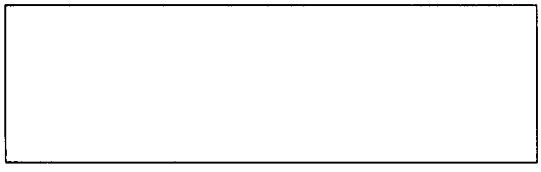
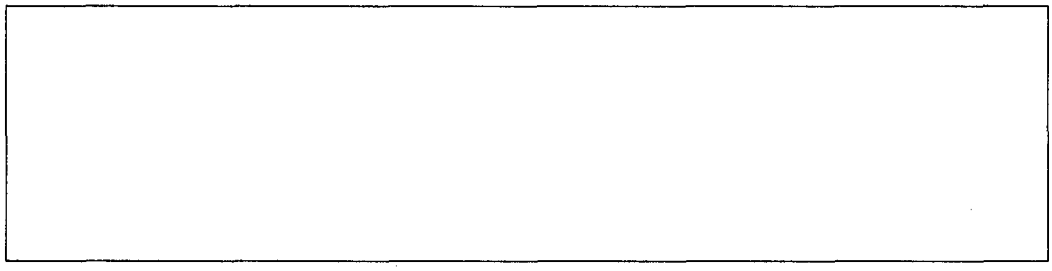
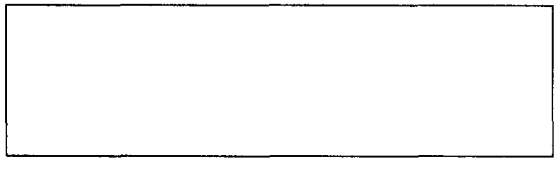
a peak in 1960 and has declined slightly since then. Reporting on the Free World has increased slightly over the years, primarily due to the increasing scientific capabilities of these countries, which has led in some cases to an increased capability in weapons development, particularly in nuclear weaponry and chemical warfare. Early reporting on Soviet Satellites was primarily concerned with scientific capabilities of the Eastern European Satellites, but this reporting has declined as their scientific capabilities have declined in proportion to that of other world areas.







A review of the chart of OSI's depth research publications since the establishment of the Office shows that for most of OSI's existence approximately one-half of its publications have been concerned with the basic and applied sciences and about one-half with weaponry research and development. Forty-eight percent of the total Office production in this period has been applied to reporting of basic and applied research. This division of effort has been fairly constant except for the early 1950s. At that time scientific intelligence reporting in the community was not well organized and early efforts were made to focus on weaponry developments as they were considered the most critical intelligence problems. OSI's role in this field, however, became very limited by the promulgation of DCID 3/4 in 1952 which limited OSI's areas of responsibility to the basic and applied sciences and gave the responsibility for weapons research and development to the military agencies.



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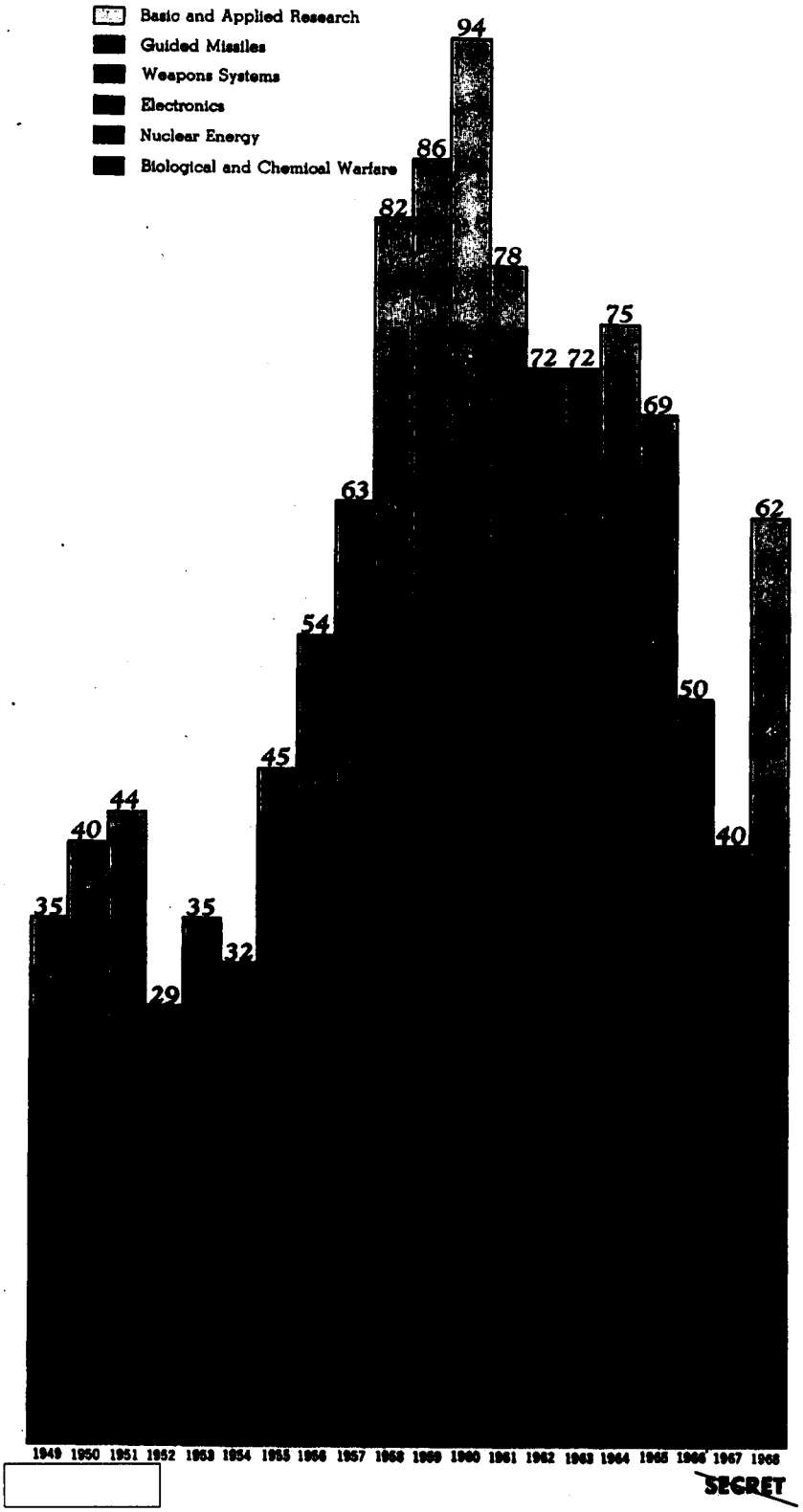
OSI Depth Research Publications by Subject Area



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In spite of this directive, OSI continued to publish a small amount in the weaponry field but as can be seen on the chart, publications during the years 1953, 1954, and 1955 were primarily on the basic and applied sciences. Shortly thereafter, the division of effort stabilized at about fifty percent each on basic and applied sciences and has generally remained so through 1968.

Within the general category of weaponry, the primary emphasis has been on nuclear energy. In 1950, for example, 22 of the 40 OSI depth research publications were on the subject of nuclear energy and all of these were on Soviet capabilities in this field, reflecting what was then probably the most critical area of scientific intelligence. With the exception of the period from 1952 to 1956, OSI has continued to place heavy emphasis on nuclear energy and this field comprises 18 percent of the total OSI depth production through 1968. Another category of weaponry, research and development is the field of guided missiles. Intelligence production in this field has increased concurrently with increased development of missile systems throughout the world. Only a few reports on this subject were produced in the early

days of OSI but production gained with the formation of a division concerned solely with the subject and attained its highest level in the period of 1963-1965. OSI production in this field declined sharply in 1966 following the transfer of [redacted] to the Foreign Missile and Space Analysis Center in October 1965. Since that time, OSI publications on guided missiles have been limited to those on surface-to-air and air-to-air missiles and cruise missiles.

In proportion to OSI's total production between 1949 and 1968, the field of biological and chemical warfare has declined from a high of 20 percent in 1949 to 9 percent in 1968, while remaining generally stationary in the actual number of publications in this field. Of the 20 percent published in the field in 1949, the majority was devoted to biological warfare, then an esoteric subject of perhaps exaggerated interest and concern within the intelligence community. The subsequent downgrading of emphasis on this subject has tended to place it more nearly in perspective in the range of OSI interests.

Within the general area of basic and applied sciences, OSI's depth production has shifted

[redacted]

generally from the compilation of basic data as exemplified by the production of scientific research aids on various organizational units, manpower, and general scientific resources such as education and equipment, to basic and applied research more clearly supporting weaponry development. Early studies tended to encompass such broad fields as physics in the Soviet Union. [redacted] These were similar to a series published in 1954 at the request of the Department of Defense. While these studies were both analytical and estimative, they also served to compile the available data from which to draw answers to more specific intelligence problems.

Within this area of basic and applied science reporting, OSI also included reporting of space events as the field developed. [redacted] Publications in this area, however, never comprised a large

[redacted]

portion of OSI production, and with the formation of the FMSAC responsibilities in this area, except for scientific experiments aboard space vehicles and manned space developments, were transferred out of OSI.

Coordination and Review Procedures

OSI depth reporting has always been subject to fairly stringent review procedures in order that it does not conflict with official Office positions or with positions in national intelligence' previously agreed to by the Office. Thus OSI evaluated reports such as the STIRs, the early Memoranda, and the PSIRs were reviewed by the OSI Intelligence Board for accuracy, appropriate conclusions, previously established positions, and quality of work. No evidence of Board review of the STIRAs has been noted but on occasion reports planned for publication as STIRs have been designated by the Board as being more appropriate to the STIRA category. In recent years, a procedure has been established in which the DD/OSI reviews and gives final approval to the reports after Board recommendations have been incorporated in the product.

In the past and probably continuing to a limited extent today, certain papers were reviewed by OSI consultants and other outstanding U.S. scientists

in the subject field before the paper was submitted to IB review.

Concurrent with the IB review, OSI production has always been coordinated with other Agency offices with peripheral interest in the subject. The Offices currently most concerned are the Office of Strategic Research and the Office of Economic Research. Occasionally papers are reviewed by the Office of Current Intelligence or the Office of Basic and Geographic Research. Thus, when the paper is published the views of all Agency components concerned with the subject matter have been taken into account.

Distribution

OSI depth reporting, with the exception of the research aid type of publication, has always been directed to top-level governmental policy makers while at the same time attempt to provide detailed support to lower level officials as well. In 1954, for example, the SIRs and the PSIRs were disseminated "within the IAC agencies and whenever possible, disseminated to the Assistant Secretary of Defense for Research and Development

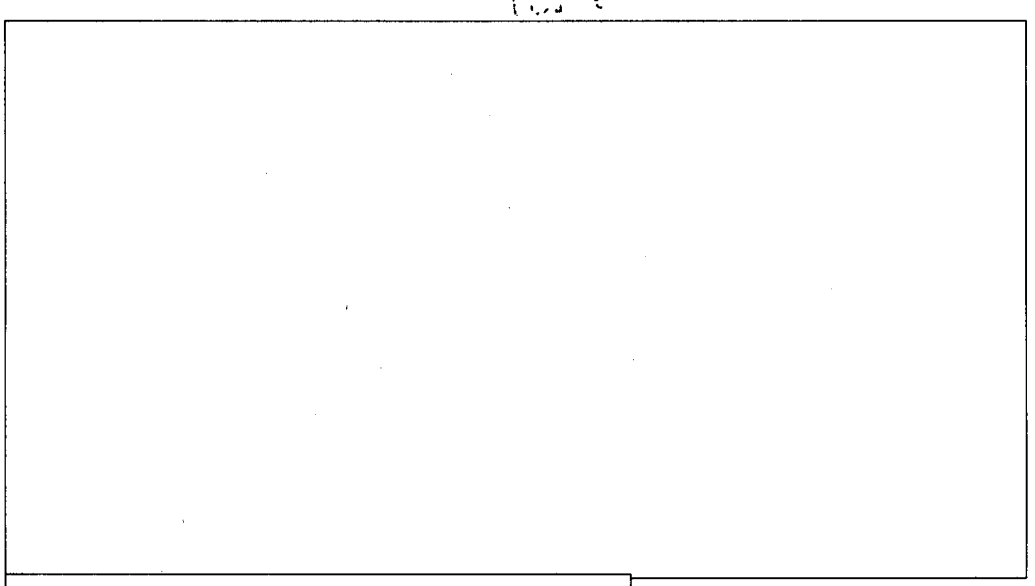
[redacted]

In about 1959 the Office, in conjunction with the Office of Technical Services of the Department of Commerce, worked out a procedure by which certain unclassified reports prepared either by OSI analysts or OSI contractors were released to the scientific community. These reports were judged not to have sufficient intelligence value for the Agency to produce. Ten such reports were released in 1964, 3 in 1965 and 1 in 1966, at which time such release apparently ceased.

Distribution of OSI publications has continued to increase. [redacted]

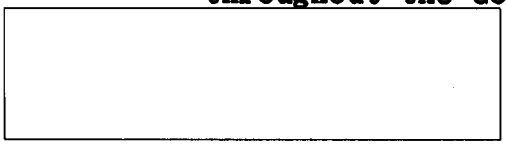
[redacted]

[redacted]



Each week certain OSI reports are recommended to the DDI for transmittal to the Secretary of Defense. About 45 percent of the total production is disseminated to various offices of the DDI and the DDS&T, with an equal number sent to the intelligence producing components of the armed forces. Copies are also sent to the DDS&T overseas representatives.

Throughout the period 1949 to 1968, several consumer reaction surveys have been made. The latest, made at the recommendation of the IG in December 1964, requested evaluations from designated recipients of specific reports, the worth of which or lack thereof was in need of confirmation. The survey which was conducted throughout FY 1966 indicated positive response to OSI reports and wide dissemination throughout the Government.



V. National Intelligence Survey

Chapter 7 (Scientific) and Section 17 (Scientific)

The National Intelligence Survey (NIS) Program was established pursuant to National Security Council Intelligence Directive No. 3, 18 January 1948. This directive provided that an outline of all basic intelligence required by the Government shall be prepared by the CIA in collaboration with other appropriate agencies. The NIS is defined as a concise digest of basic intelligence required by the Department of Defense for strategic planning and high level operational planning and by the Department of State for use in formulating and executing US foreign policy. It also serves other Government agencies which require it for the accomplishment of their missions. In general the intelligence contained in the NIS is concerned with the relatively permanent features and fundamental characteristics of a country, area, or broad special subject and covers such fields as geographical, political, economic, military, scientific, and sociological aspects of the country or area or the fundamental aspects of the broad special subject.

On 28 October 1949, DCID 3/3 established the Scientific Intelligence Committee* (SIC) whose Chairman (AD/SI) was designated the coordinator of NIS Chapter VII (Scientific) which comprised Sections 70 (General), 71 (Electronics), 72 (Aircraft and Weapons), 73 (Atomic Energy), 74 (Biological Warfare), 75 (Chemical Warfare), and 76 (miscellaneous).

OSI was unable to assume immediately the NIS responsibilities assigned it in October 1949 and the Department of Army continued to be the Chapter Coordinator until 1 July 1950. However, production of the Section 73 was assumed by CIA somewhat earlier, probably in the spring of 1950. By August 1950, it was recommended that the NIS Chapter VII Coordinating Committee (apparently an interim committee established until the SIC could assume full responsibilities) be abolished. SIC 4/4, approved in August 1950, then assigned sections of Chapter VII to SIC working committees in accordance with their basic responsibilities.

* Called Scientific Intelligence Committee from October 1949 to August 1952; Scientific Estimates Committee from August 1952 to February 1959; and Scientific Intelligence Committee from February 1959 to present. For convenience will be referred to as Scientific Intelligence Committee throughout this study.

Where no such committees already existed, ad hoc ones were formed to approve outlines of future work and to allocate production responsibility to the agency or agencies best qualified to produce the section or subsections assigned. The assignments were as follows: Section 71 to the Joint Electronics Intelligence Committee; Section 72 to the Joint Guided Missile Intelligence Committee; Section 73 to the Joint Atomic Energy Intelligence Committee; Section 74 to the Joint Biological Warfare Intelligence Committee; Section 75 to the Joint Chemical Warfare Intelligence Committee and Section 70 and Section 76 to ad hoc committees. Subsequently, during 1951, OSI was assigned the responsibility for the production of the Sections 70 and 76, and through the mechanism of providing the secretariat for the SIC, OSI also assumed the responsibility for coordinating the other sections through the SIC subcommittee system and for the coordination and editing responsibilities of the entire Chapter VII. At the same time, OSI through the SIC mechanism assumed the responsibility for the production of Section 17 (Brief). This section, a part of Chapter I, briefed down the contents of the entire Chapter VII. OSI continued to be responsible for the production of the Sections 17, 70, 73, and 76 until FY 1963 when the Chapter VII was abolished.

During the period from 1950 to 1963, OSI produced on the average three Section 70s, three Section 73s and three Section 76s, and about five Section 17s per year. In addition, the [redacted] in support to the SEC handled the coordination and processing of 12 sections per year produced by the military intelligence agencies. About 2500 pages were thus processed by the [redacted] each year.

Scheduling of the Chapter VIIs was done jointly by the SEC and the NIS Committee and was based on the NIS priority list which in turn was based on requirements of the Joint Chiefs of Staff. In addition, determination of area coverage for the Chapter VIIs was made by the SIC and approved by the NIS Committee. As might be expected, the most important geographic area requiring Chapter VII coverage was the USSR and in 1951 the first OSI-produced Chapter VII was on the USSR. [redacted]

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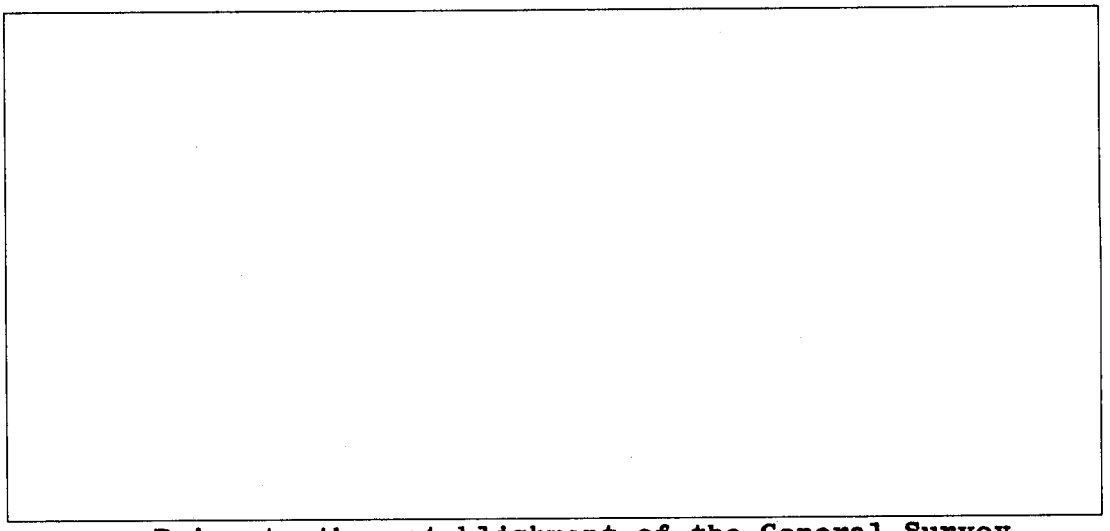
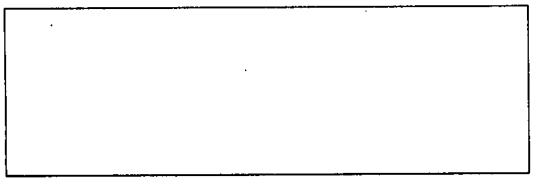
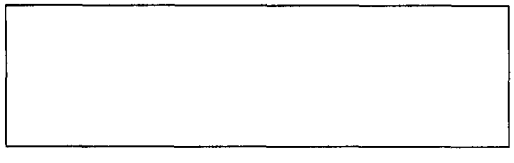


Prior to the establishment of the General Survey in FY 1963, the subject coverage of the OSI-produced NIS sections was very broad and extremely detailed. Section 70 which was primarily an introductory section also covered in depth such subjects as the general scientific level of the country, the scientific educational establishments, the number of scientists and engineers, government attitude toward science, and financial support, both private and governmental. The Section 73 (Atomic Energy) differed in some respects from other OSI-produced sections in that all aspects of atomic energy from basic research through production capability were considered to fall within the field of scientific intelligence and thus were covered in Section 73. This broad coverage in the field of atomic energy was established by SIC 4/4 in August 1950.



The subject coverage of Section 76 can be generally considered as basic research in all areas of the physical and life sciences; most of the section was prepared by OSI. The wide range of subjects covered in the Section 76 and the variety of contributors established very early in the NIS program are shown by contributions made by Navy in 1951 to subsections on acoustics, applied mathematics and computers, cosmic ray research, critical materials and explosives; by the Signal Corps Intelligence Agency contributions in 1951 on meteorology, acoustics, cosmic ray research, nuclear physics, and optics; and by the Air Weather Service, USAF, on meteorology in 1952. Other subject areas covered in the Section 76 were chemistry, biology, physics and mathematics, geodesy, geophysics, and any other subject area in which the country had sufficient capability to warrant coverage. In general, this section described and evaluated those scientific areas in which the country had done noteworthy research, while at the same time pointing out any significant weaknesses found there. The section also included short descriptions of the most outstanding scientists and organizations involved in specific research fields.



Research for and writing of OSI-produced NIS sections have been done within OSI and under contract. In the early days of the NIS program, Sections 70 and 76 generally were researched and written within OSI as most of these sections dealt with Bloc countries. By the mid-1950's most of the work on non-Bloc countries for these two sections was being done under contract. [redacted] When possible, the Section 17 was scheduled to follow shortly after the Chapter VII; in this case, the Chapter VII was then used by the [redacted] to write the Section 17. If research were needed because the Chapter VII was out of date, then OSI divisions produced the Section, either through a contractor or by in-house research.

After the draft sections of the Chapter VII were written, they were sent to the [redacted] for editing and coordination as part of the SEC (SIC) secretariat. A so-called preliminary review

[redacted]

of the non-OSI-produced sections was made by appropriate OSI divisions and by subcommittees of the SIC. Subsequently the Chapter VII was reviewed by the SIC with most OSI divisions participating in support of the CIA member of the SIC. An exception was the Section 73 which was reviewed by the Joint Atomic Energy Intelligence Committee of USIB. In addition, the guided missile sections were reviewed by the Guided Missiles and Astronautics Committee of USIB. Concurrently with this process, additional reviews of the sections were made by the State Department scientific attaches and the various military attaches in the countries about which the NIS was written. After approval by the SIC, the sections were then sent to the Office of Basic Intelligence (subsequently the Office of Basic and Geographic Intelligence) for final polishing, review, and publication.

OSI support to the NIS has varied. In 1951, the Assistant Director, Scientific Intelligence, stated that it was "OSI policy that NIS production rates high among activities being undertaken by this Office." Nonetheless, throughout the 1950's there was a growing feeling throughout the Office that

a disproportionate amount of time was being devoted to NIS production on countries that were not scientifically important or to countries which were already receiving coverage through other and more current publication media. In March 1958, the Office indicated to the Assistant Director/Basic Intelligence that the Office had been concerned for some time with the growing expense in manpower and money of providing adequate intelligence contributions to the NIS. At that time it was stated that "OSI must give low relative priority to this (NIS) effort .... Many of the countries with which the NIS is now concerned are of little or no interest to us from a scientific intelligence point of view .... Despite our efforts we have achieved neither an accurate nor a particularly useful product." No change was made in OSI's responsibilities to the NIS program at that time, but the general Office attitude continued until the establishment of the General Survey in FY-1963.

In late 1962 USIB requested an evaluation of the entire NIS program. This evaluation was conducted in CIA by the Coordination Staff of the DCI under the leadership of [redacted] It was found that the NIS program had evolved into a highly formalized,

[redacted]

deeply entrenched intelligence effort which produced a high quality stylized product in considerable volume, but which required carefully controlled and time-consuming administrative procedures as well as an ever increasing production capability to maintain its timeliness. Among the general recommendations of the [redacted] were that the NIS be redirected toward providing basic-type intelligence for strategic and high-level operational planning and for the development of foreign policy rather than attempting to meet lower level requirements. This, in turn, led to a specific recommendation that was to affect strongly OSI's role in the NIS program, namely the elimination of the Chapter VII. The [redacted] recommendation to USIB read, "It appears that coverage of this subject (Scientific), over and above that in Section 17 of Chapter I, can be better accomplished on a more current basis by departmental or interdepartmental intelligence with respect to the Sino-Soviet Bloc; for other areas there appears little usefulness in Chapter VII coverage which, in any case, is presently limited to only 16 countries outside the Bloc." These revisions, which were approved in principle by [redacted] had a considerable effect on OSI's role in the NIS.

[redacted]

OSI's effort in the NIS thus became primarily directed to support of the Section 7 (formerly Section 17) of the General Surveys. These can be described as a comprehensive but concise coverage of the basic characteristics of an area for the high-level consumer. Generally the implementation of this new program has meant that OSI is providing less detailed subject coverage on many more countries in much less time. OSI produces an average of 10 Section 7s annually for the General Survey. These sections are revised and up-dated every three to four years.

Although the General Surveys are done on a world-wide basis, OSI -- through the same general SIC mechanism described above for the Chapter VII -- participates by preparing Section 7s only on selected countries which have major scientific and technical capabilities or on countries which are of strategic importance or are attempting to develop a scientific capability. In some cases they provide the only scientific intelligence coverage of a country. Currently, about 37 countries receive Section 7 coverage. They include the USSR and Communist China, all the Bloc countries

[redacted]

In general, the subject areas tend to follow those that were prepared for the Chapter VII. The Section 7 is divided into four major subsections: 1) general, 2) organization, planning and financing of research, 3) scientific education, manpower, and facilities, and 4) major research fields. That part of the subsection on major research fields that deals with weapon research and development is provided by the appropriate military service through DIA. OSI provides the major input to the other subsections. Most of this work is done under an [redacted]

[redacted]

The [redacted] handles the coordination of the Section 7 through the SIC secretariat. [redacted] edits the contributions from both OSI

[redacted]

divisions and the services and arranges for substantive review by SIC members and all OSI divisions, and through State review by Scientific attaches in the countries concerned. After final approval, the Section 7 is sent to OBGI for incorporation into the General Survey and subsequently for publication.

Section 45*

In May 1954, the NIS Committee found that CIA (OSI) was the proper agency to coordinate the production of Section 45, then called "Public Health" and prepared by the Army. In early 1955, after extended negotiations, CIA/OSI and the Surgeon General's Office reached an agreement for the future production of Section 45 -- by that time called Health and Sanitation. Under the agreement OSI assumed responsibility for coordination of the Section and producing the contributions on the non-military subsections. The Surgeon General's Office continued to produce the subsections which were primarily of military significance. Responsibility was assumed by [redacted] of OSI on 1 July 1955. As of FY 1967, the Defense Intelligence Agency assumed responsibility for all Section 45's

* Additional information on Section 45 may be found in VI.

[redacted]

except those on satellite countries. On 1 July 1968 the production of the Section 45 for all areas was assumed by the Defense Intelligence Agency.

Section 45, a subsection of Chapter IV (Sociology), is a survey of the health conditions of the area under observation in terms of both indigenous inhabitants and alien personnel entering the area. It provides an estimate of the state of health and public sanitation as reflected in general morbidity and mortality. The level of medical capabilities is stressed. Political, sociological, and economic factors bearing on the administration of public health and the implementing of measures pertinent thereto are included. All areas of the world are covered by Section 45's.

Except for the first year of OSI responsibility for the production of Section 45's, the basic research for the Section has been done under external contract. The contractors have ranged from private individuals to private organizations, such as universities, and to other Government agencies such as the Department of Health, Education, and Welfare. In addition, inputs have been made by [redacted] OSI, The Department of Agriculture and the Defense Intelligence Agency.

[redacted]

After the inputs from other organizations are incorporated into the basic Section 45 by OSI, the Section is sent to the Department of State and to the DIA for review. Other appropriate agencies, such as the National Institutes of Health, may be sent copies for review prior to publication. After this review procedure, these sections are sent to the Office of Basic and Geographic Intelligence for publication.

Between FY-1956 and FY-1967, an average of eight section 45's were produced yearly by OSI. These were sizeable contributions as evidenced by the FY-1959 production record of slightly over 1000 pages. Between FY-1967 and FY-1969, OSI production dropped to three section 45's per year and, as indicated above, OSI production responsibilities stopped at the beginning of FY-1969 when the Office found that it was unable to produce the large number of sections requested by DIA and also found that dividing production responsibilities by area coverage was an unworkable mechanism.

Section 62 and Section 63

The Office of Scientific Intelligence has played a small role in the production of the Section 62 (Fuel and Power) and the Section 63 (Minerals and

Metals) of Chapter VI (Economic) for many years. OSI responsibilities for contributions to the Section 62 have been limited to the subject of nuclear power. Contributions are prepared by the [redacted] of OSI and are reviewed by the Joint Atomic Energy Intelligence Committee (JAEIC) of USIB. OSI assumed this responsibility in about 1958 and the number of subsections prepared per year has ranged from 1 in FY-1963 to seven in FY-1967.

In March 1952, the [redacted] assumed the responsibility for the production of those portions of Section 63 which pertained to the radioactive elements, uranium, thorium, and possibly radium. These subsections were previously prepared by the Bureau of Mines, which found that it did not have sufficient information to provide adequate coverage in these fields. After preparation of these subsections by [redacted] they are reviewed and approved by JAEIC prior to forwarding to the Department of Interior to be merged with the remainder of the Section 62.

Annuals and Key Personalities Subsections

The Annual was a short-lived publication developed in 1958 by the Office of Basic Intelligence as a mechanism for up-dating the Chapter I. OSI's

[redacted]

production responsibility in the Annual was determined by the Scientific Estimates Committee which had a general policy of not participating in the production of the Annual. As a consequence OSI's contributions to Annuals was very limited. As far as can be determined, OSI made only 7 contributions to the Annual program, all of which were done in FY-1959.

The Key Personalities section of the NIS was a comprehensive survey of the leading personalities in various countries. The Sections were instituted in late 1955 and were discontinued sometime after 1963. OSI participation was limited to reviewing the list of scientists proposed for coverage by the [redacted] and a subsequent review of the substantive material included on each scientist.

[redacted]

VI. Miscellaneous Defunct OSI Publications

As intelligence requirements and interests have varied over the years, OSI has established certain publications to meet these needs and subsequently cancelled these publications when the need no longer clearly existed or when the area of responsibility was removed from the Office. One of the first of these publications was the unclassified Epidemiological Bulletin. This report, which was initiated at about the time of the formation of OSI, was being disseminated regularly in 1949. [redacted]

[redacted]

The reports were prepared for publication by OSI and issued daily. They contained information on epidemiological conditions and disease outbreaks on a world-wide basis. The Bulletins were disseminated both to the intelligence community and to commercial organizations such as steamship lines and airlines. Approximately 50 copies of the early Bulletin were issued daily; by 1954, it had become a biweekly. These reports were continued until early 1955.

Another area in which OSI once had a very heavy responsibility was that of ELINT and

[redacted]

electromagnetic warfare, and many publications in these fields were issued under authority of NSC-169. These publications were primarily periodicals.

[redacted]

[redacted]

[redacted]

In the related field of electromagnetic warfare, OSI established two additional publications, the Electromagnetic Warfare Briefs and the Electromagnetic Warfare Monthly Reports. The Briefs were authorized under [redacted] The Briefs, were originally issued irregularly but became a regular biweekly publication by 1957. [redacted]

[redacted]

[redacted]

[redacted]

[redacted] The Monthly Report apparently fell into disuse and in 1962, responsibility for publishing the Electromagnetic Brief was transferred to NSA.

A related type of publication was initiated because of OSI's responsibility under NSC-169 to make appraisals of the technical effectiveness of U.S. international broadcasting and analyzing the Soviet Bloc jamming operations directed against such broadcasting. [redacted]

[redacted]

[redacted]

During the International Geophysical Year, OSI initiated the production of the International Geophysical Year Briefs. These Briefs, which reported important foreign activity related to the IGY on a current basis, were published biweekly on the average. The first was issued on 13 September 1957 and the series was discontinued with issue No. 37 of 15 January 1959.

Another periodic OSI publication was the informal [redacted] Current Activity and Highlight Brief. The Briefs contained both substantive and personnel information. They were disseminated within the Agency and there is some evidence that at least selected issues were sent to the Air Force. The publication apparently began in 1960 and continued at least to mid-1961.

[redacted]

NEXT 5 PAGES

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Annex IX

OSI's External Assistance Program

CONTENTS

Annex IX

OSI's External Assistance Programs

Heads of OSI since its beginning have felt a strong need for contact between OSI and the U.S. scientific and engineering world. They have sought the perspective of experienced outsiders to insure that OSI programs were directed toward important tasks and that OSI analyses were technically competent and sound. It was also clear to them that OSI could never hope to have internally the complete range of technical competencies necessary to follow all significant world science and technology and, even if it were possible to have specialists in all important fields, that these specialists would eventually lose much of their technical competence while working in the intelligence environment if they remained cut off from the U.S. scientific and technical world. It would be essential, therefore, to have continual contact with individuals and organizations with up-to-date knowledge of the state-of-the-art in key fields of U.S. science and technology. In some instances such contact was necessary because OSI was becoming involved in the development of pieces of equipment, for which, of course it had neither facilities nor manpower internally. In other instances, particularly in the past decade, OSI

has had to rely on contractors for the use of complex equipment for analysis; for example, complex computers that were unavailable in the Agency and impractical to purchase.

The earliest contacts were little more than informal arrangements in pre-OSI days between [redacted] ORE, and a few members of the scientific world who already had an interest in fostering the development of scientific intelligence. [redacted] These men and others like them apparently provided useful, though general, guidance for the earliest stages of OSI development. It was not until late 1949 and early 1950, that the first AD/OSI, Dr. Willard Machle, began to pursue a more aggressive and formal program to arrange for external assistance. [redacted]

[redacted]

[redacted] It was the starting point for the ensuing relatively rapid build-up of a scientifically competent group of consultants as well as a relatively successful external research program.

The earliest OSI contracts for research projects reflected a serious concern with biological warfare (BW) -- a relatively new and frightening concept at that time. [redacted] OSI analysts, however, felt that there was a good deal that could be done on agricultural vulnerabilities, a subject which could be developed on the basis of information derived from open agricultural information. The first contract was with the Department of Agriculture on agrometeorological sciences and was approved in April 1950. [redacted]

[redacted]

[redacted]

Another early effort to obtain outside help was one initiated by Dr. Machle in 1949 to obtain external assistance to study OSI's information organization and retrieval problems. OSI analysts were even then overwhelmed by the vast amount of information reports that flowed into the office daily. The main problems at that time was how to file this information so that it could be made available for future use. [redacted]

[redacted]

The result of this effort was a machine card system in which analysts of the [redacted] abstracted and coded information on machine cards,

[redacted]

copies of which were retained both by OSI and the CIA Library. The system proved to be workable, but was discarded eventually because it required so much time on the part of OSI analysts that they became more librarians than producers of finished intelligence. Later OSI managers decided that information handling work should be done by the CIA Library, or even by contractors, so that OSI analysts could devote maximum time to intelligence analysis and to the production of reports.

I. Use of Consultants by OSI

Most OSI consultants have been recruited either from industrial organizations, [redacted] or from universities, [redacted] Roughly equal numbers have come from these two types of sources. There have been a few private, independent consultants and a few that were employed by non-profit organizations. As scientific intelligence has become more involved in advanced technical detail, the use of consultants to advise on narrow technical aspects of specific problems has become increasingly common and the number of consultants has increased. [redacted]

[redacted]

In addition, a number of individuals have been employed by the U.S. Government who have assisted OSI informally in much the same way as formal consultants. When the term "consultant" has been used in OSI, it has usually meant an official consultant, this is, an individual with whom there has been a formal arrangement or contract. This section, for the most part, deals with official consultants, but it should be stated at the outset, that OSI analysts have relied heavily on unofficial consultants -- largely Government employees -- who have contributed time and talent to OSI problems without any formal agreement or pay. In scientific and technical fields where the U.S. Government maintains large organizations, especially those with headquarters in Washington, it has been possible to obtain a great deal of expert assistance in a wide variety of subjects on short notice and at no cost. In fact, most Government specialists do not wish to bother with the red tape of consultants' fees and usually could not if they wanted to. Yet very competent assistance can be provided by them and many relationships with them have been very satisfactory and simple to utilize [redacted] The availability of specialists in the Atomic Energy Commission and its

[redacted]

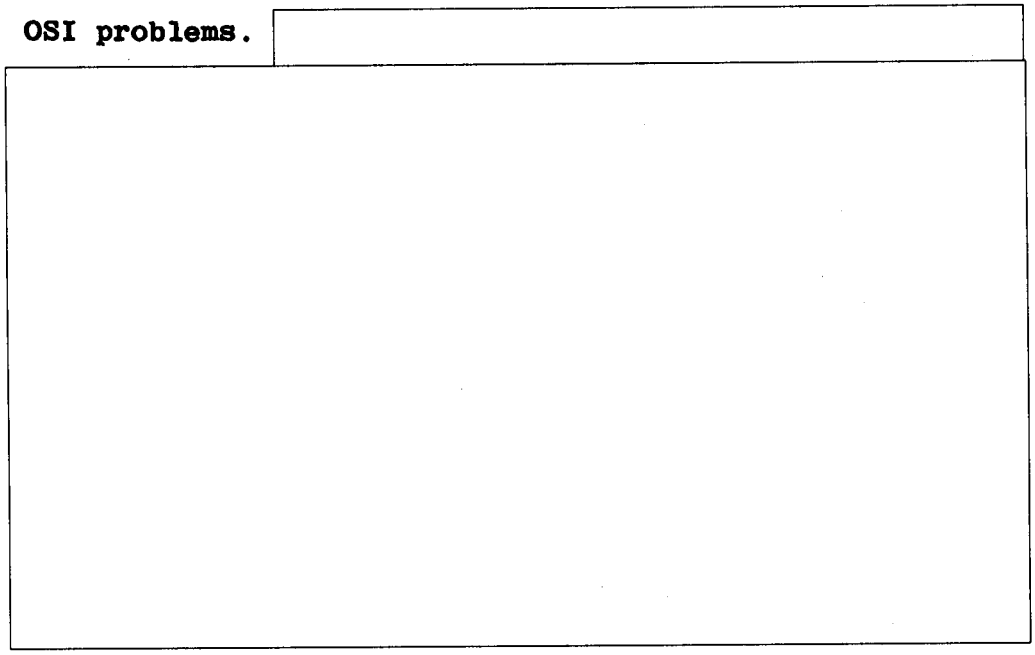
contractors has been particularly important in the development of nuclear energy intelligence in OSI [redacted] Through interagency cooperation NASA specialists at Langley Field have been very helpful [redacted] Examples of other Government agencies that have provided consulting assistance are the National Environmental Satellite Center and the National Bureau of Standards [redacted]

OSI has used consultants both as individuals and in groups or panels. [redacted] Generally, whether used individually or in panels, they have tended to fall into three classes. One class consists of those with high prestige value whose reputations have been useful in adding weight to intelligence positions that otherwise might have been difficult to sell to policy-makers. Another class consists of advisers who may generate useful new ideas but usually limit their activity to commenting on what is presented to them in the form of papers or briefings. The third category consists of "shirt-sleevers" who sit down and analyze

[redacted]

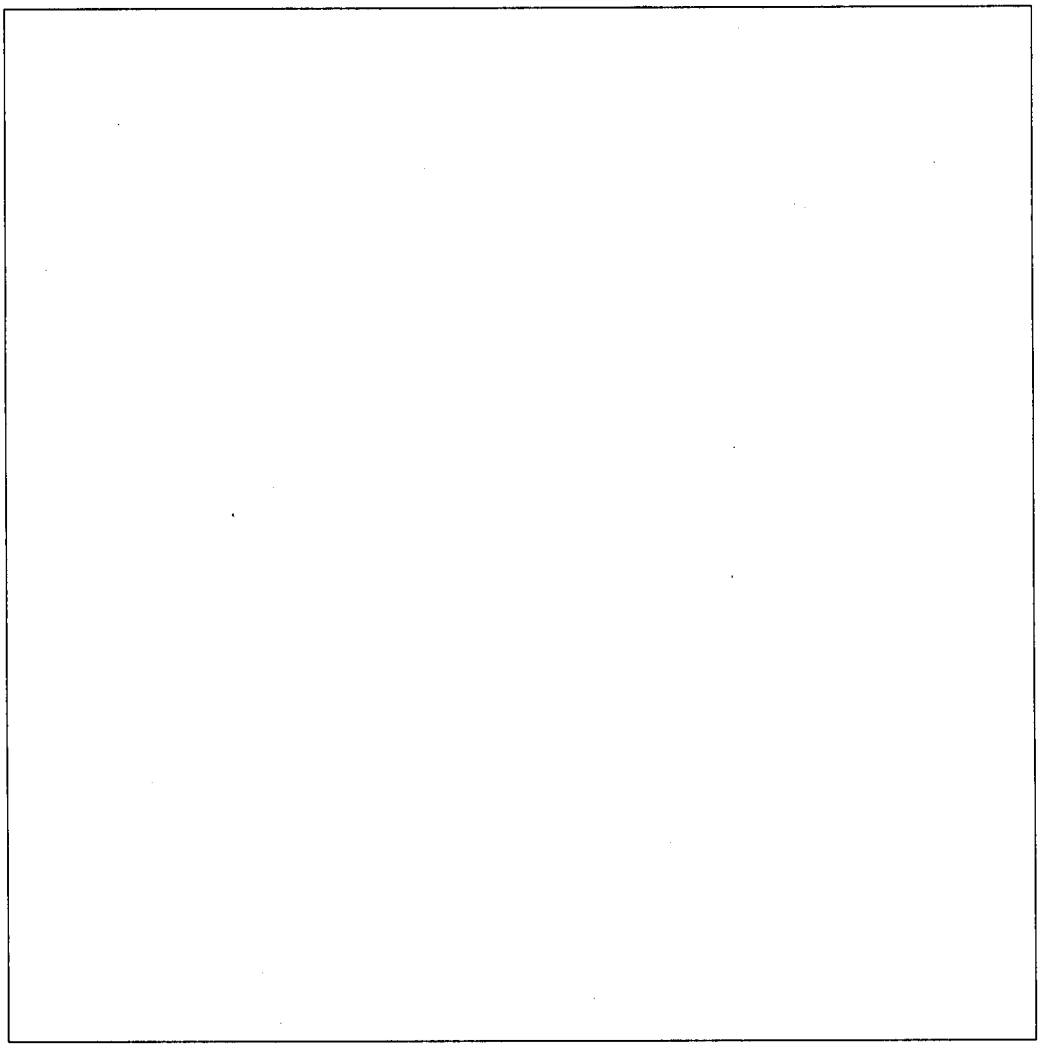
data and work out conclusions. All three types have been useful to OSI in different ways.

Perhaps the most elaborately planned attempt to use consultants in a systematic manner was the Boston Scientific Advisory Panel (BSAP), which was set up in 1951 and lasted until 1959. The BSAP met periodically -- some years two or three times, other years about every six weeks -- to discuss OSI problems.



The BSAP agenda usually posed problems framed by OSI divisions or by the front office (assistant director or deputies) and frequently included intelligence briefings by individuals from OSI divisions. Discussions by the BSAP probably contributed a significant amount of assurance to OSI chiefs that

their organization was in general on the right track. However, direct, meaningful inputs to substantive intelligence analysis and conclusions were not sufficiently significant alone to justify the BSAP. This became increasingly the case as OSI had digested more and more intelligence information and had become more sophisticated in its analysis. As was the case with many other "name" consultants, BSAP members did not have sufficient time to devote to the study of an intelligence problem in all its detail to be able to add much to what had already been done on the problem. The main advantage of the BSAP was that it provided an important link between OSI and the U.S. scientific world. This link tended to prevent OSI from becoming ingrown and sterile. In addition, a number of BSAP members either were or became influential in Washington and helped make OSI a respected contributor in support of policymakers.



An early prototype for future panels on specific subjects was an ad hoc panel on unidentified flying objects (UFO's) that met in January 1953. The convening of this panel grew out of a study on the subject made in OSI in August 1952. At that time, as now, considerable public confusion was caused by a flurry of reports on UFO sightings. The OSI study group, after reviewing available information, decided

that additional expert assistance was needed if OSI were to present credible conclusions. [redacted] [redacted] The conclusions did not differ greatly from those previously arrived at by OSI: that UFOs seemed to present no direct threat to U.S. security and that most reports were based on poor observations, mistaken interpretations of actual phenomena, or the work of cranks. At least the weight of the consultants' opinions left OSI satisfied that the subject had been fully covered.

The exercise provided the Office with a good example of how a well-structured panel meeting could operate. The agenda was tight, aims were clearly specified, and needed information was prepared and ready to examine. The panel met for five days, at the end of which a final report was written and submitted

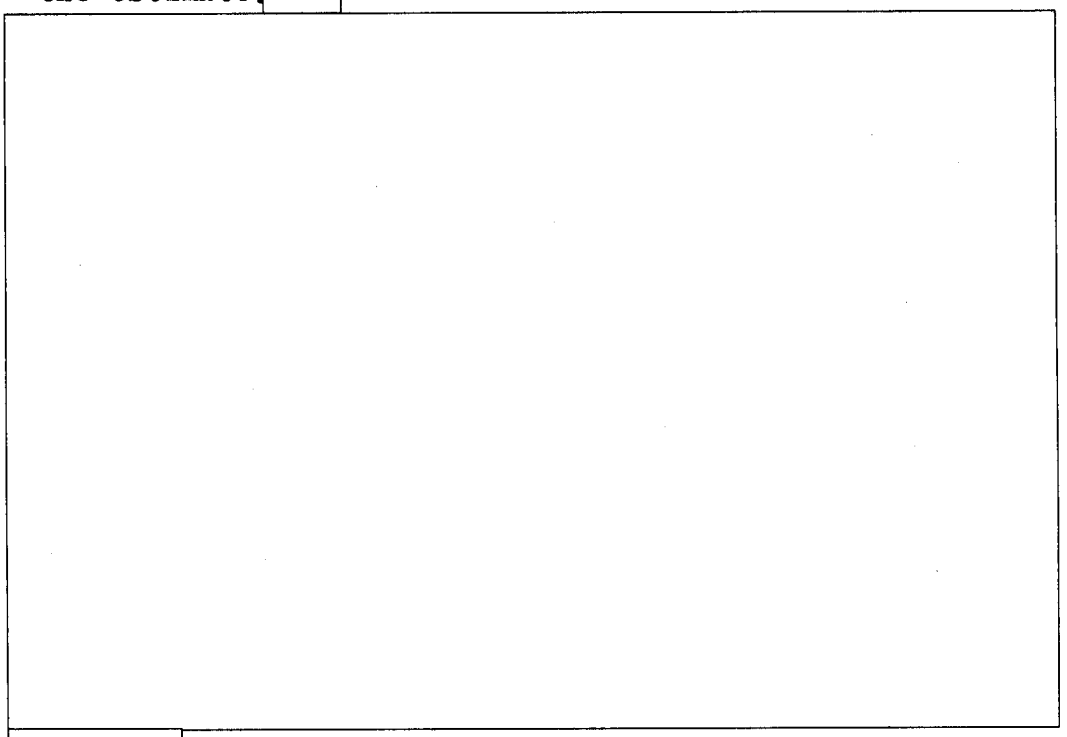
[redacted]

to the Office. It is clear from the record, however, that many days of staff work by OSI personnel were necessary to plan such a meeting and support its work.

The use of special consultants in the field of guided missile intelligence began seriously in 1954 in connection with the preparation of an OSI contribution to a national estimate [redacted] A panel of four experts [redacted] not only reviewed pertinent information and assisted in preparing the draft contribution, but stayed with the contribution and defended it during the entire estimate process through USIB approval [redacted] As a result the assessments of the Soviet missile threat varied widely among the various intelligence agencies involved with the estimate. Against this

[redacted]

background of controversy, the prestige and technical competence of OSI's four consultants proved to be very effective in selling the OSI assessment to the community, at least with respect to what was put into the estimate.



As the panel gained in prestige and authority, it continued to become involved in the substance of missile estimates, helping to resolve differences in the community, somewhat on the order of the work of the original panel set up by OSI in 1954

In some respects, the history of the nuclear energy consultants' panel resembles that of the guided missile panel. In August of 1952, a group of five experts was

asked to assist in the preparation of a special estimate concerned with nuclear energy. [redacted]

[redacted] The panel was of value in "selling" annual estimates, after performing a minimum review of the OSI draft. [redacted] support was most helpful in overcoming early opposition from other agencies, particularly the Navy, to the high capabilities given the Soviets in national estimates. In later years, however, the panel has become an overseer of nuclear energy intelligence for the DCI and has tended to be concerned more with judgments on organization and management than with the substance of intelligence.

[redacted]

II. Growth of OSI Contracting

About one third of all funding for OSI up to 1968 has been for external contract support. Although the proportion of the total OSI annual budgets devoted to such support in recent years (44.4% in 1967) has been much greater than in earlier years (17.9% in 1953),

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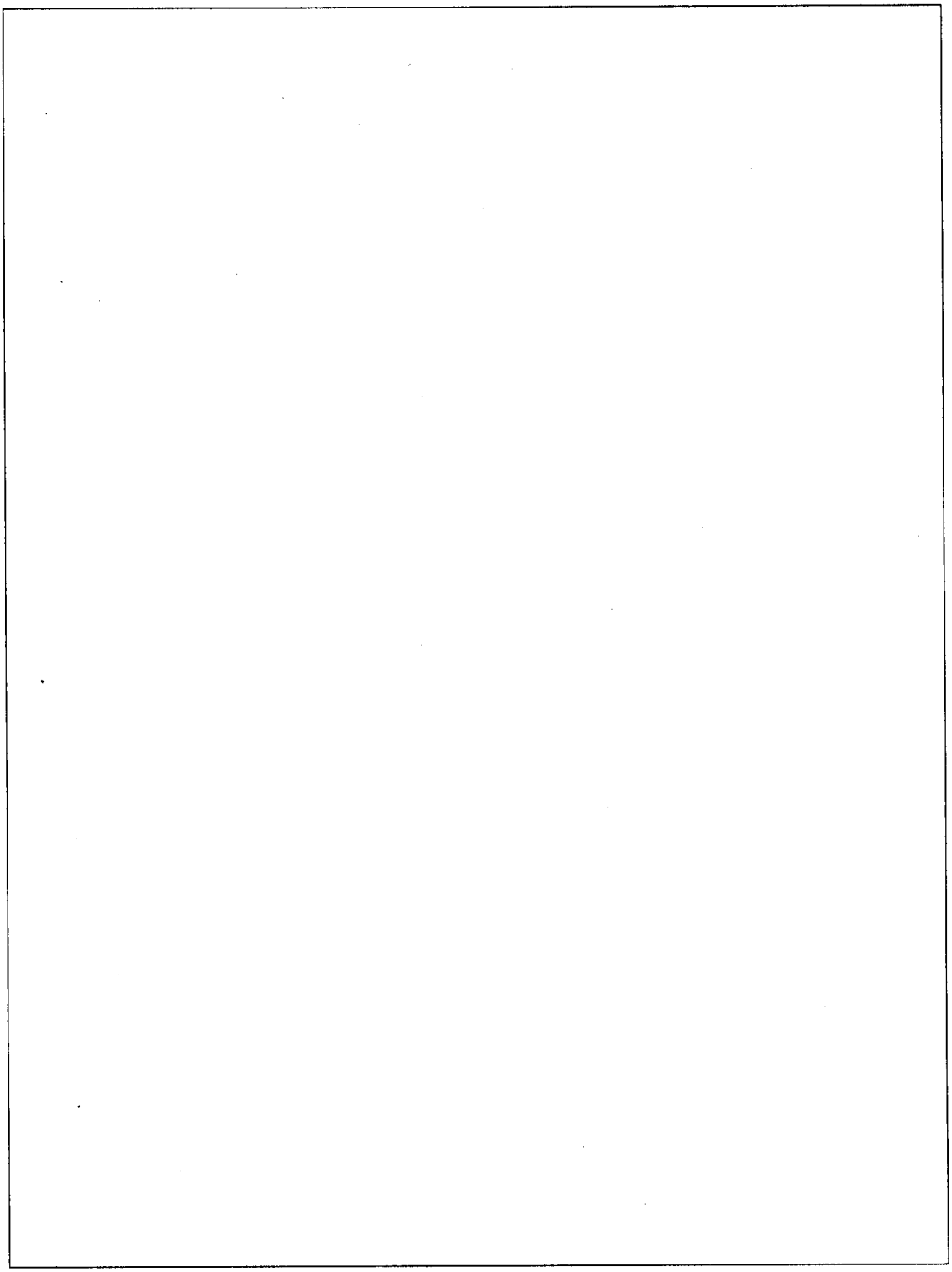
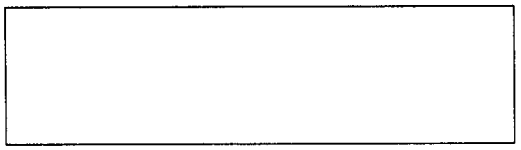
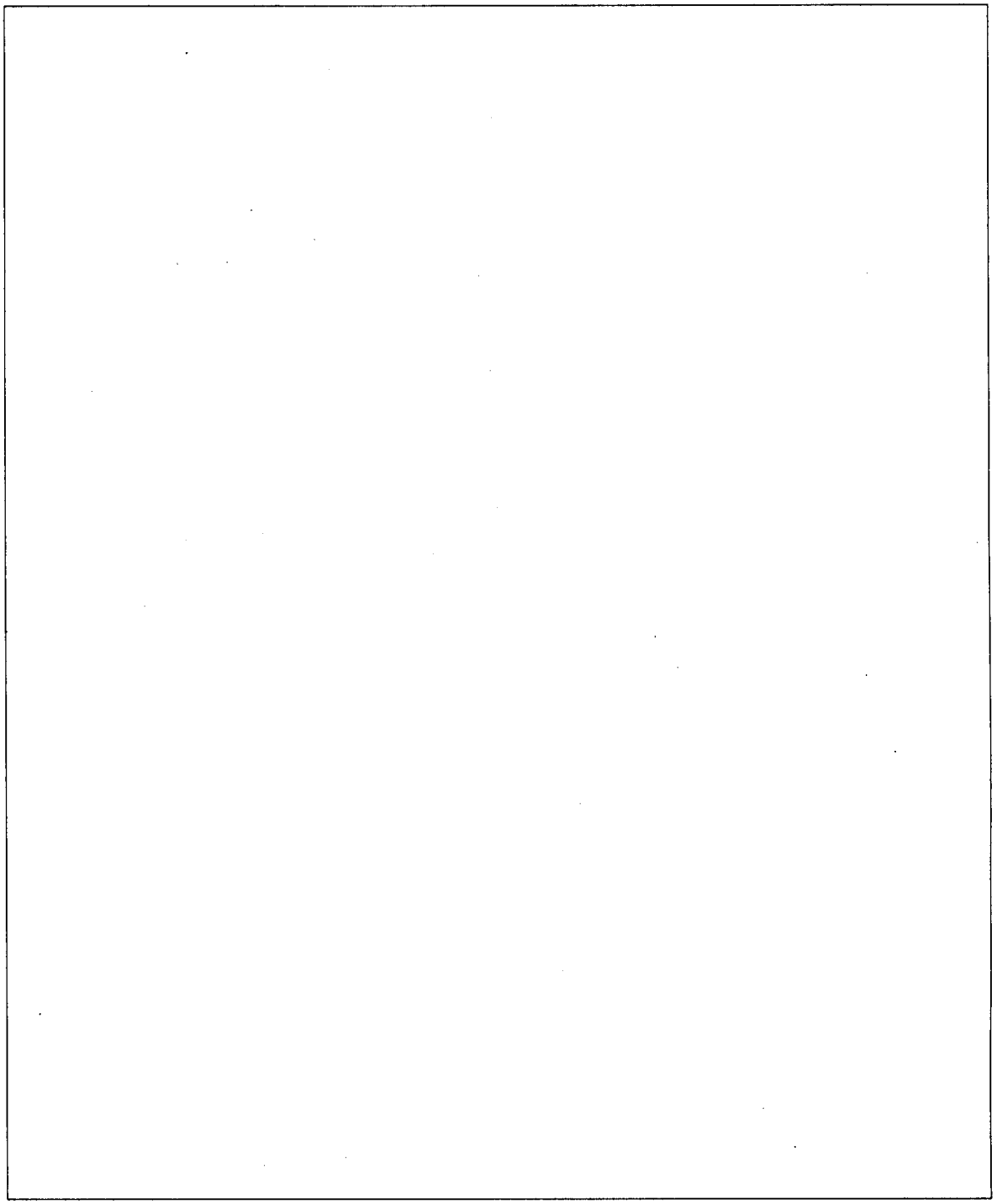
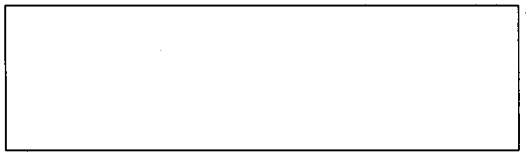
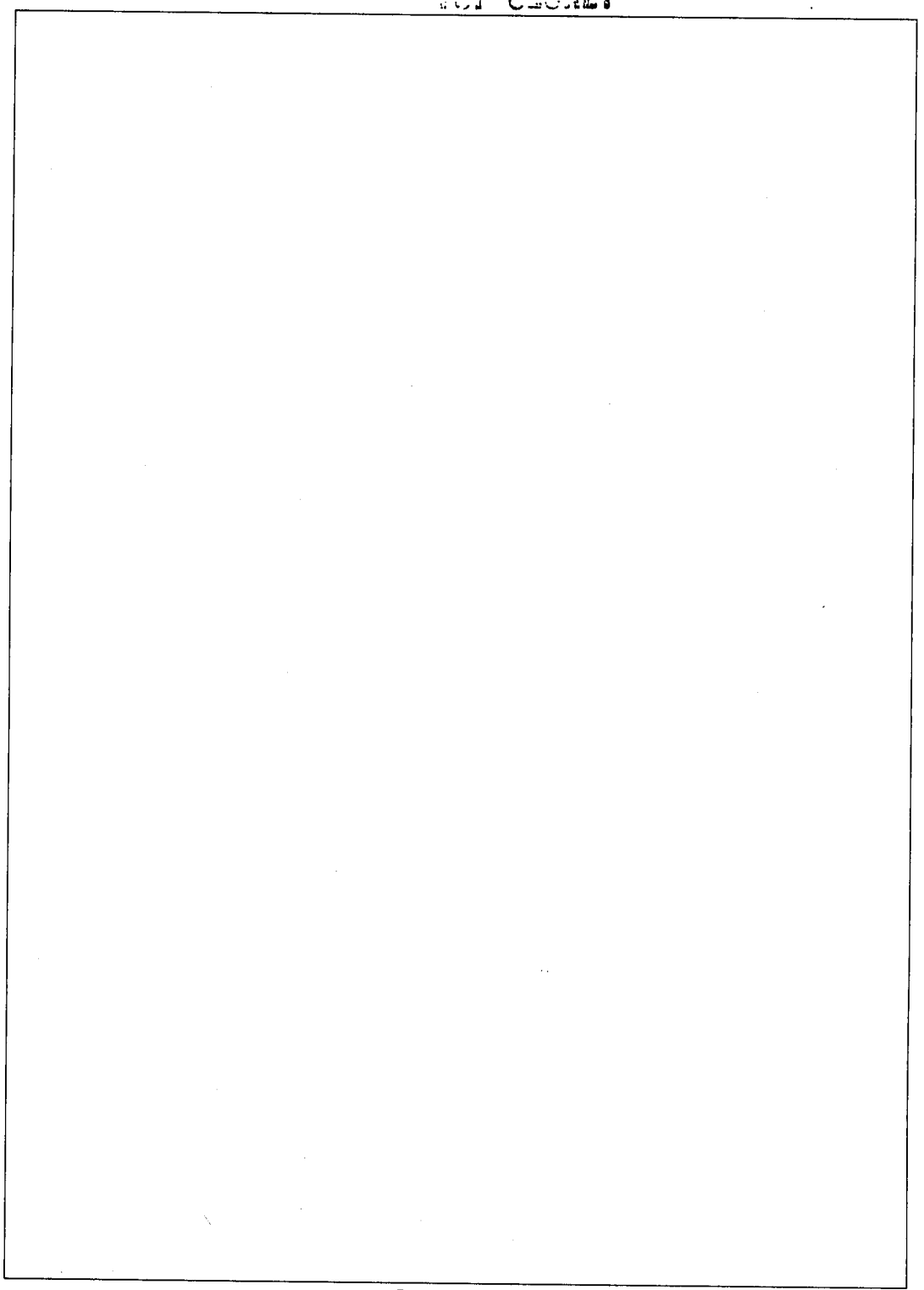
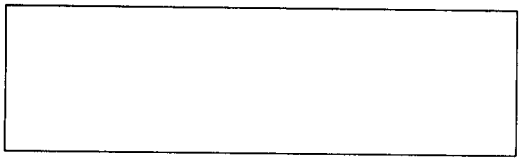


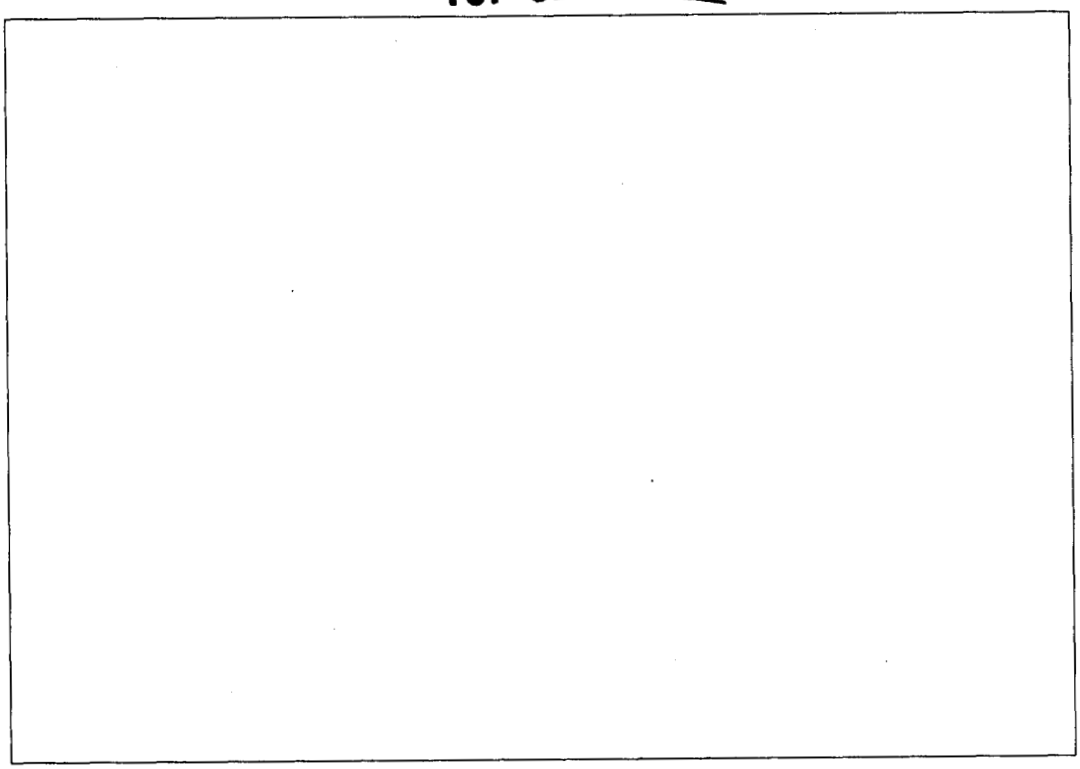








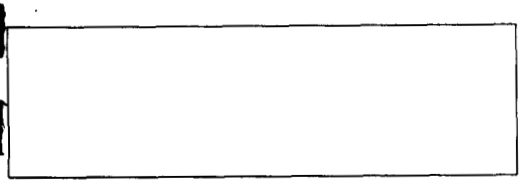




C. Review and Coordination of OSI Production

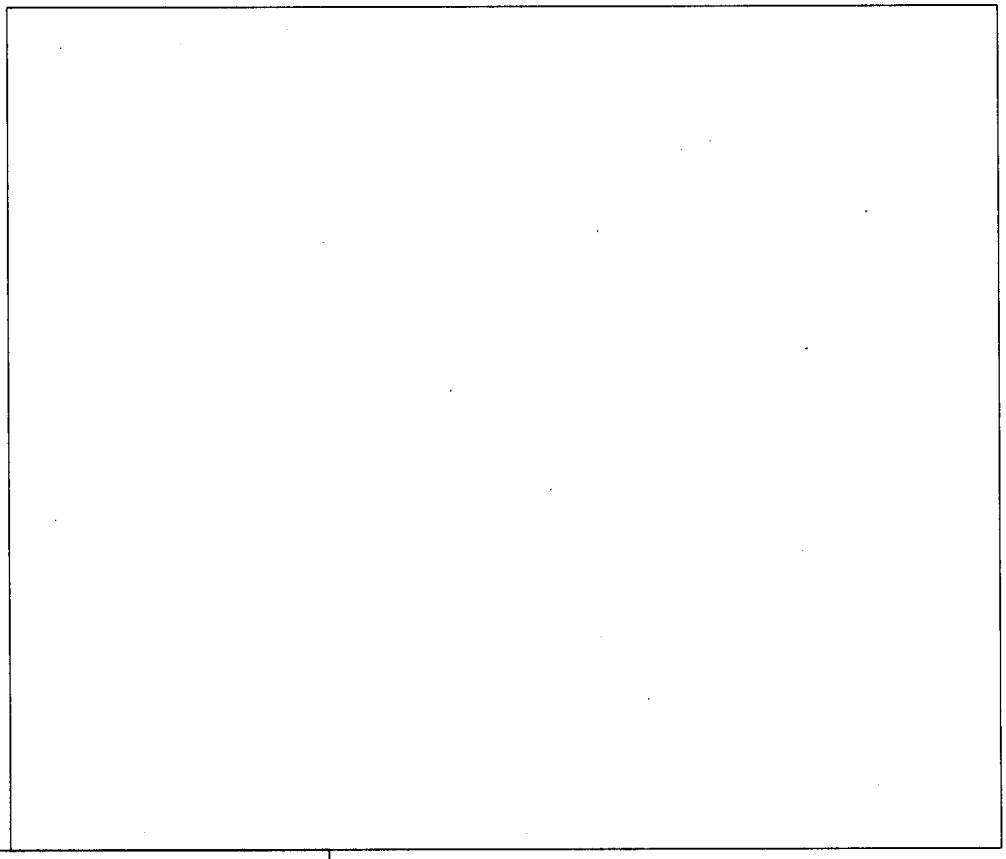
OSI publications are always coordinated within the Office and within the Agency; they are sometimes coordinated within the intelligence community, other governmental organizations, and private individuals or corporations.

Within the Office, the primary mechanism for coordination is the OSI Intelligence Board (IB). This Board was originally established in February 1949 to review intelligence production requirements, to review and approve the periodic issuance of the OSI intelligence production plan, to review and approve the specifications for each report, to review the finished intelligence

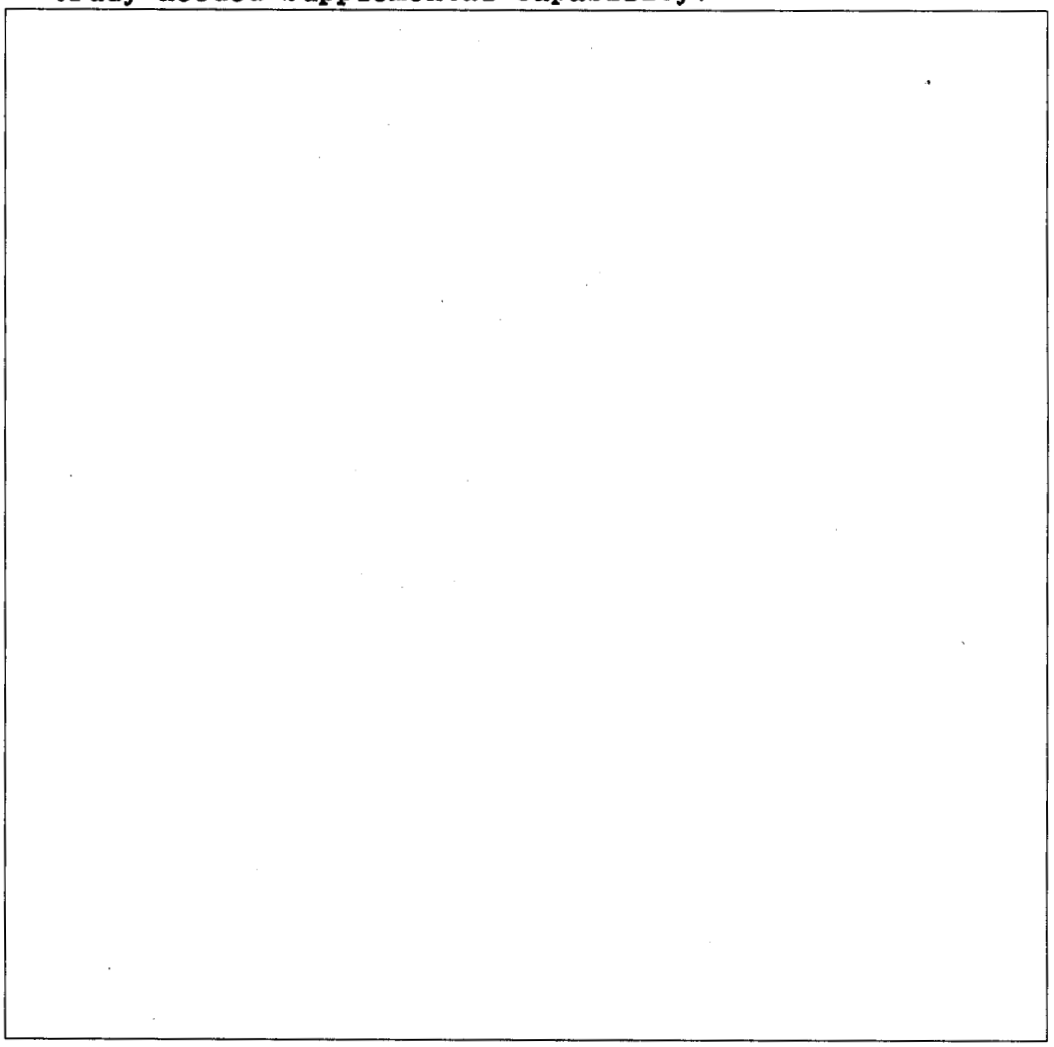


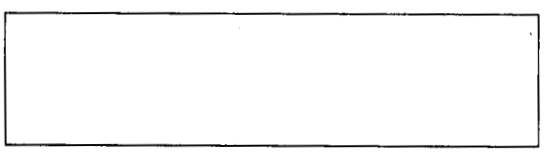
III. Evaluative Studies of Foreign S&T

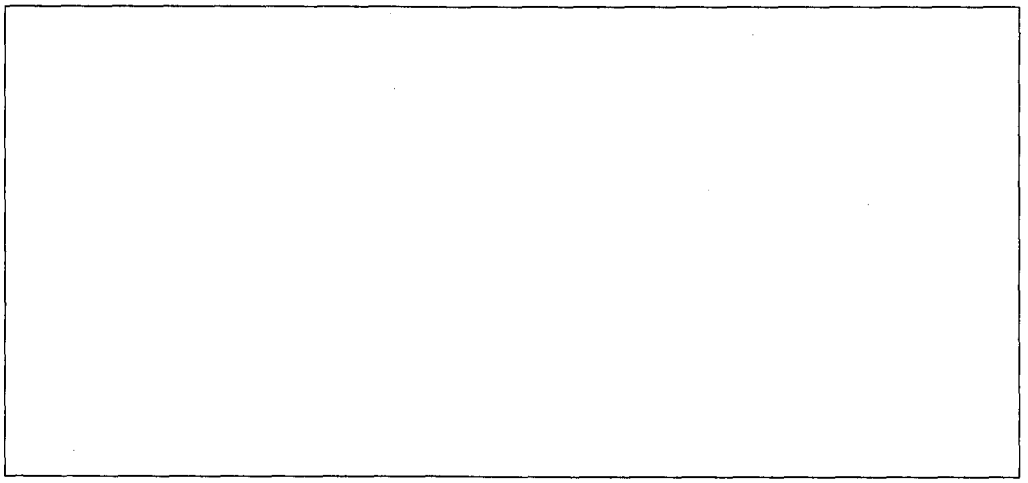
In number, though not in cost, academic-type evaluations based primarily on literature surveys have constituted the dominant type of OSI contract. The object of these surveys has been to determine the state-of-the-art in given fields of science and engineering in foreign countries and to estimate likely future progress in these fields. Most have been on the USSR, but there have been some on other countries, especially on Communist China in the last few years.



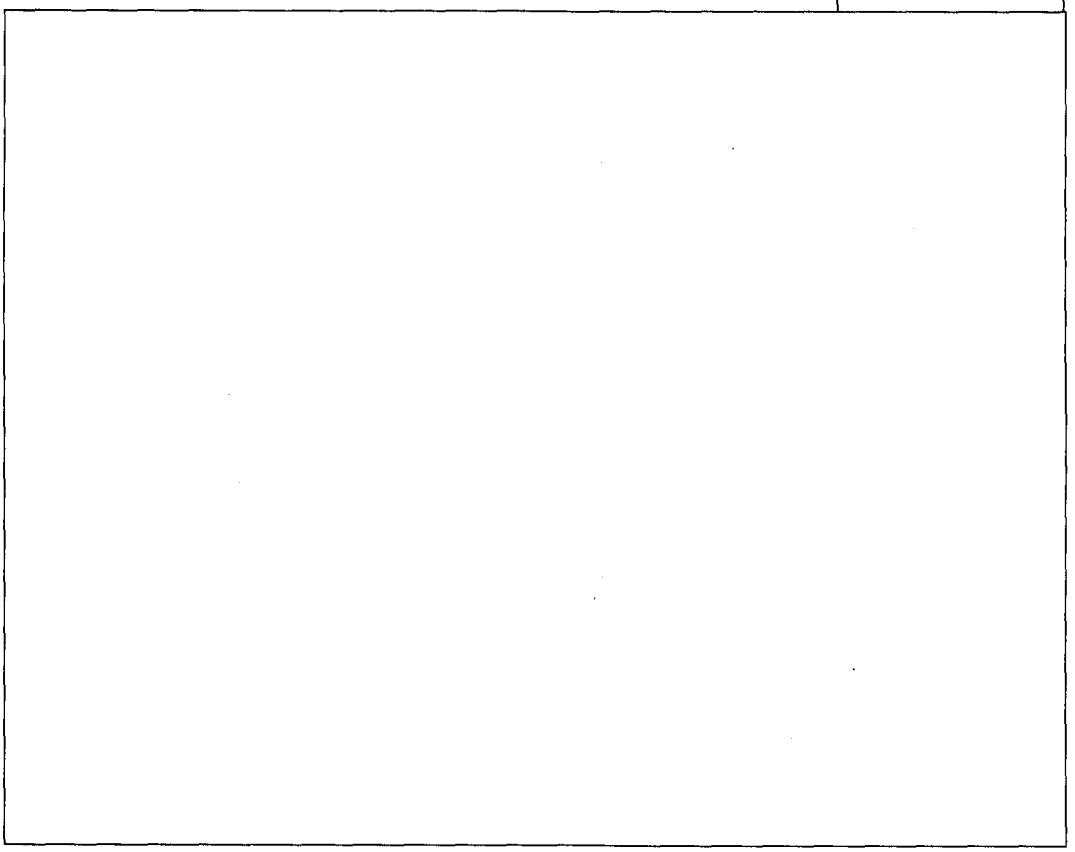
a sufficient variety or a sufficient number of analysts to accomplish analysis in all pertinent fields. Although some of the papers produced by experts on contract were probably inferior to those that could have been produced internally, many of them represented specialties in which OSI truly needed supplemental capability.

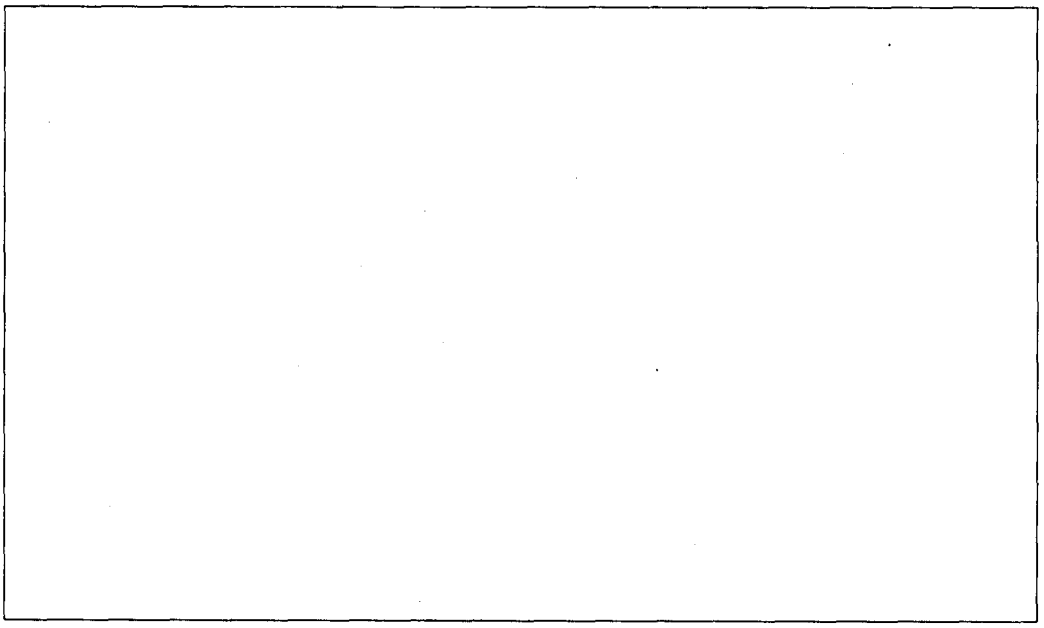




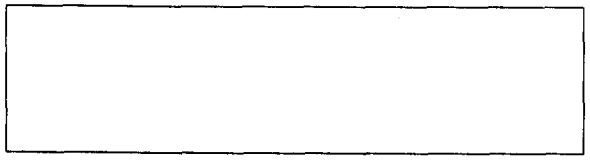


The contractors used for evaluative studies of foreign S&T fall into five types: industrial R&D firms, universities, individuals, non-profit institutions, and other Government agencies.





Of the five types of contractors used for evaluative studies of foreign S&T in the physical sciences and engineering, other Government agencies--the least used--represented also the least efficient. According to OSI experience, other Government agencies are generally busy with their own problems and lack incentive to adapt themselves to the requirements of this type of project. Relations with universities were more fruitful, but there was a wide variation in performance, depending usually on the competence of the particular people assigned to the OSI project. Frequently, progress on university contracts was hampered by travel plans, summer vacations, and the press of other work. Also, academic personnel frequently failed to



understand the need to meet deadlines and to produce intelligence-oriented studies rather than detached scholarly reports or extensive catalogues without assessments.

Contracts with industrial R&D firms worked well as long as OSI insisted that the firm appoint a competent project leader to manage the work. Frequently problems arose from the tendency of a firm to use a project leader for other jobs. Contracts with such firms had the advantage, however, of benefitting from technical capabilities of the firm as a whole in that the project leader could call for assistance from a diversified S&T staff of specialists already on the payroll. The effectiveness of academic-type research projects undertaken by non-profit organizations seems to lie somewhere between that of university work and that of industrial firms; non-profit organizations have some of the advantages and disadvantages of each of the other two.

Probably the most effective contracts for the money spent were those with private individuals. Many of the contracted individuals were not only competent technically but frequently had a strong intellectual interest in the subject matter as well as a regard for their personal reputations,

which led them to produce a higher quality product than individuals who were part of organizations. Such individuals were difficult to find, however; also, there was some aversion to such contracts from the administrative side inasmuch as it was considered uneconomical to negotiate and keep separate records for large numbers of contracts involving relatively small amounts of money [redacted]

Each of the projects was supposed to lead to the production of a scientific intelligence report, comparable in content, style, and format to those that were produced internally. Many contract reports did conform to OSI standards to the extent that they could be submitted directly upon completion to OSI editors as if written by OSI analysts and were published as intelligence reports without much further work. Others did not achieve this ideal. Despite tedious hours of instruction on the part of the OSI project officers, when the reports were finally received from the contractors they required further hours of work on the OSI project officers' part to make them acceptable as intelligence reports. In some cases the contractors provided good data but poor analysis. Sometimes, conclusions by the contractor were doubtful on the basis of his

[redacted]

evidence. In other cases, there was good material but it was poorly organized. Occasionally, a project officer had to start virtually from scratch -- redoing research to check the contractor's work and essentially writing the paper himself. There was a tendency sometimes to think that the success or lack of success of a contract was a function of the degree of supervision by the project officer; it was more likely a function of the variation in competence among contractors. Since a contractor was required only to put forth his "best effort" -- and who was to say that he did not -- there was little an OSI project officer could do to force an uninspired contractor to meet OSI standards.

Despite the many difficulties with contract supervision, the fact remains that OSI in the span of five or six years did succeeed in publishing a large number of state-of-the-art type papers which added up to a good appreciation of the achievements of Soviet research in most fields of possible relevance to U.S. national security. The "base line" of Soviet R&D was established on which to build other future intelligence activities more oriented toward current high priority problems.

There is no doubt that, through contracting, expert knowledge from outside the Government was brought to bear on this problem and contributed to this effort. A similar effort has been underway for several years to establish a "base line" for Communist China; this effort has been handicapped by lack of information and thus far contracting, with exceptions in some areas, has not added significantly to the internal OSI effort.

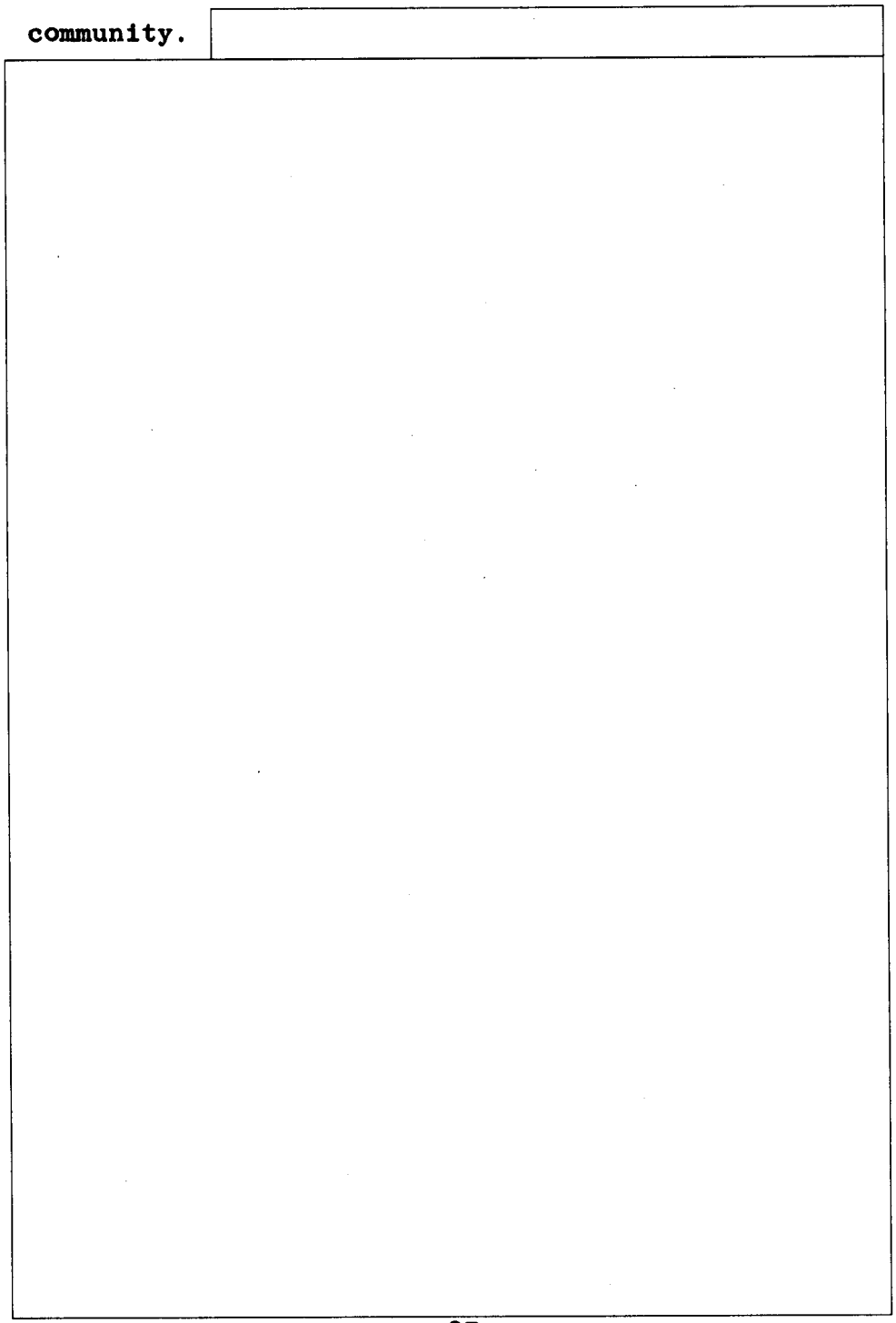
IV. Studies on General Aspects of Science and Technology

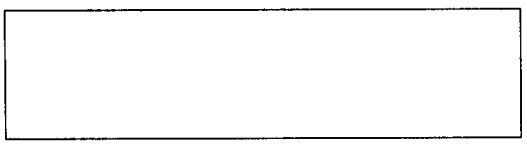
A series of studies done on general aspects of science was handled much as those in the physical sciences and engineering and paralleled them in time. The types of contractors and effectiveness of contracts were very much the same. These projects included such items as the study of characteristics of scientific breakthroughs, environmental problems affecting science in various countries, Soviet scientific and technical education and manpower, and Soviet organizational problems connected with science and technology [redacted]

One of these studies is of particular interest because it illustrates some of the difficulties caused by differences in orientation between

[redacted]

intelligence analysts and members of the academic community.





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V. Surveillance Projects

More difficult to assess in terms of lasting value than the areas of external contracting discussed thus far, are those that might be described as literature surveillance projects.

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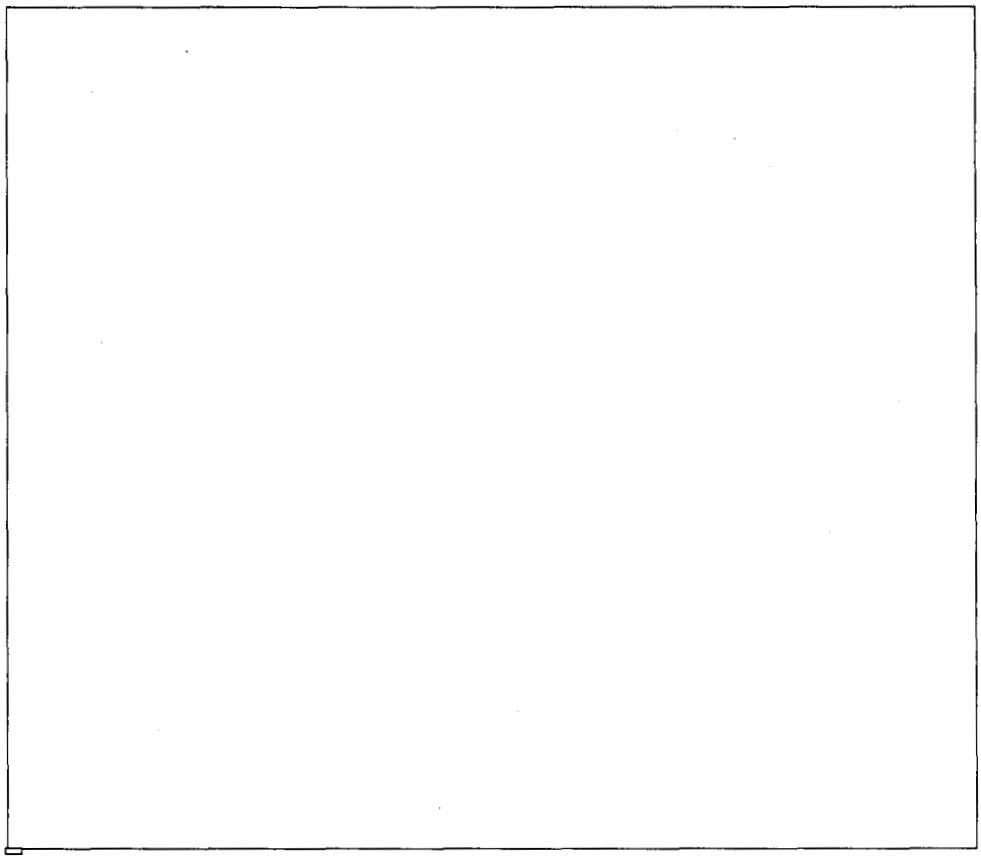
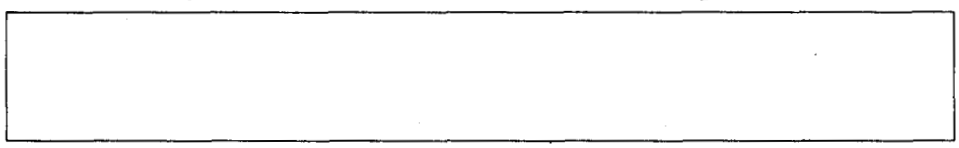
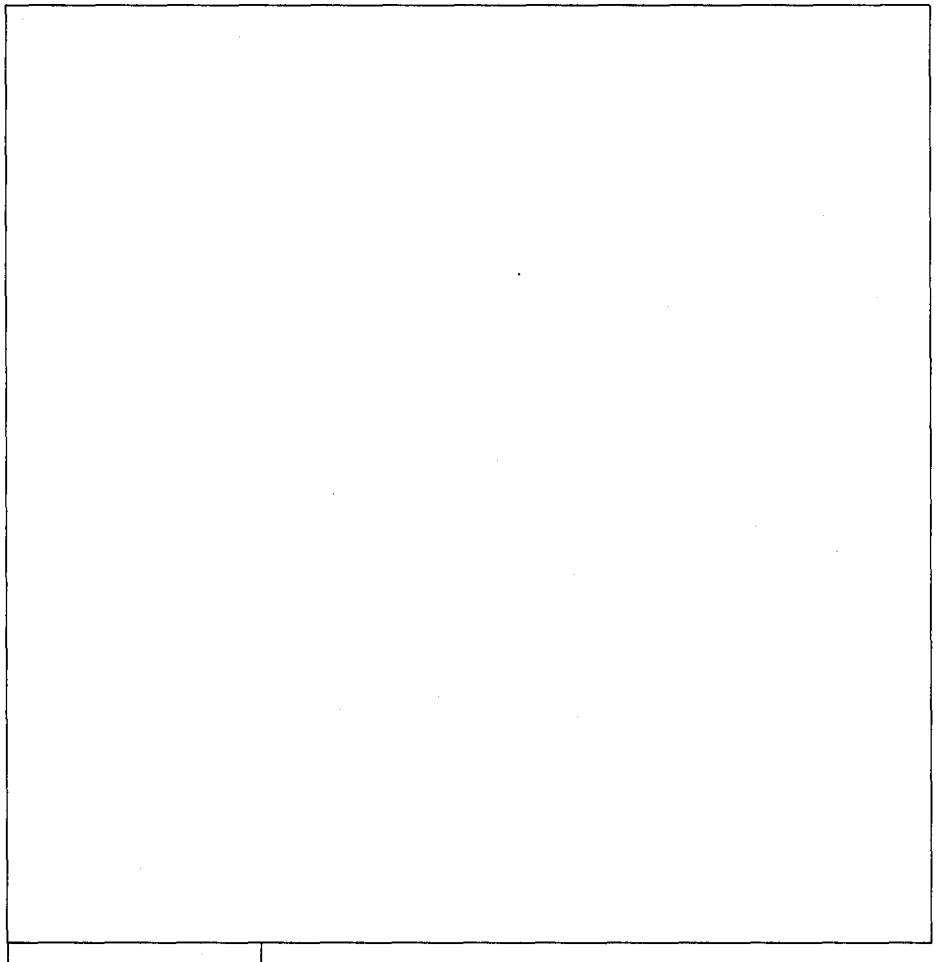


Unlike the types of contract projects previously discussed, those for literature surveillance seem to have been justified on the basis of needing to purchase hours of manpower rather than special technical knowledge or experience. For the most part, work done under these contracts could have been done internally had it been decided to allot the necessary internal manhours to these problems.



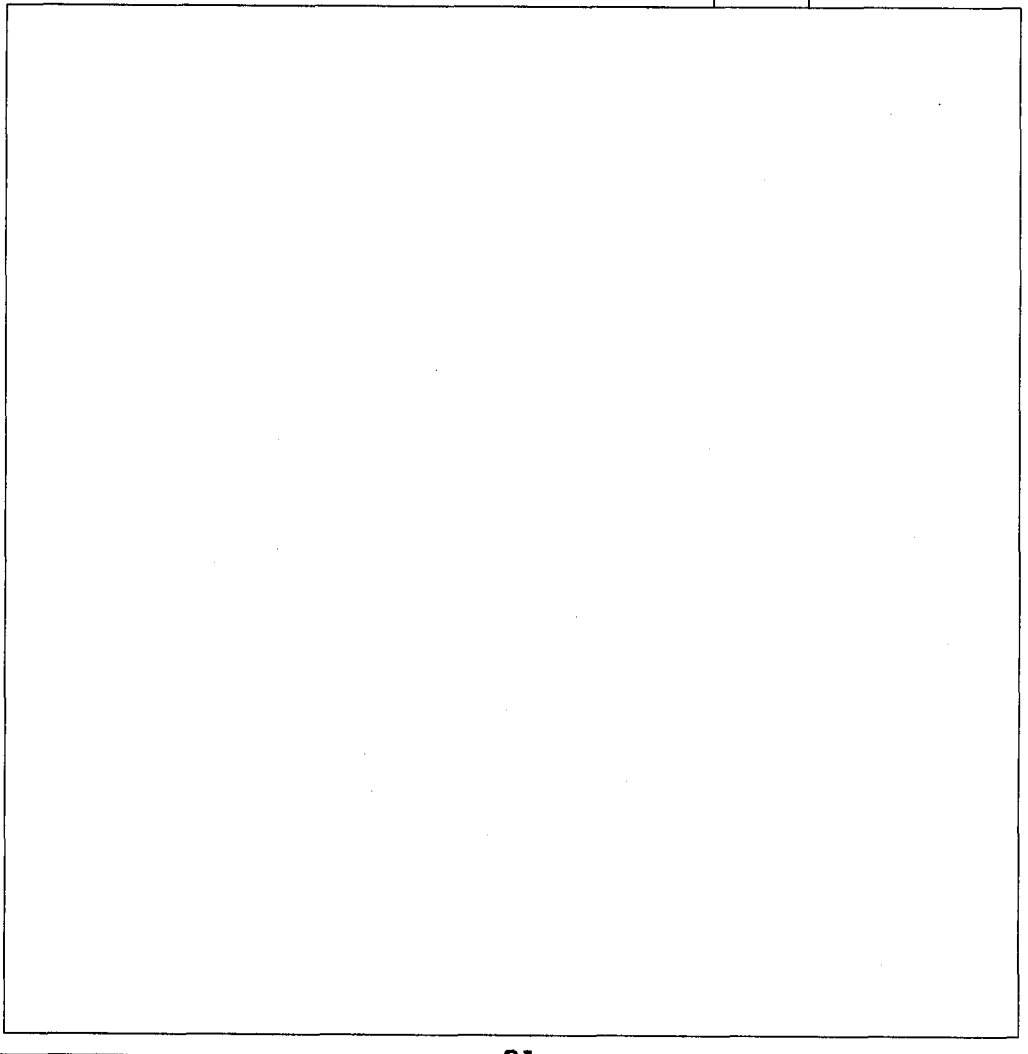


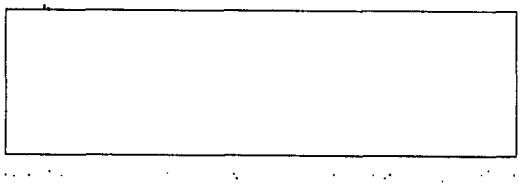
In an environment of allocating available OSI resources to high priority subjects, the surveillance projects were difficult to justify because they were costly and because their omnibus nature made it difficult to tie them neatly to niches in the Office production programs

VI. NIS Support

External contracting for NIS work falling within OSI responsibilities is another area in

which services were purchased more to gain additional manhours than technical competence and experience. Although NIS contributions have had relatively low priority for a number of years, OSI's obligation to support the NIS continues. Thus, as of 1968, external contracting is still being used to meet these obligations, with little internal effort being devoted to them except for those on the USSR and Communist China





In terms of quality of the final product, contractors' NIS papers have generally been less satisfactory than comparable previous internal efforts. Also, some past contractors have had difficulty meeting NIS deadlines, which are always rigidly fixed. Within the last few years further reductions in quality have been incurred as a result of attempts to keep down costs of contracting in this area. The reduction of quality has not necessarily reflected upon the competence of the contractors but rather on the manner in which the task is presented to them; they are, in essence, told to produce the best contribution they can for a certain small fixed fee. Nevertheless, the NIS contracting program has been successful in keeping OSI analysts relatively free from a time consuming task, which was one aim of this program.

VII. Support to ELINT and EMW Development

Through the 1950s OSI was heavily involved in the development of electronics intercept (ELINT) and electromagnetic warfare intelligence (EMW).

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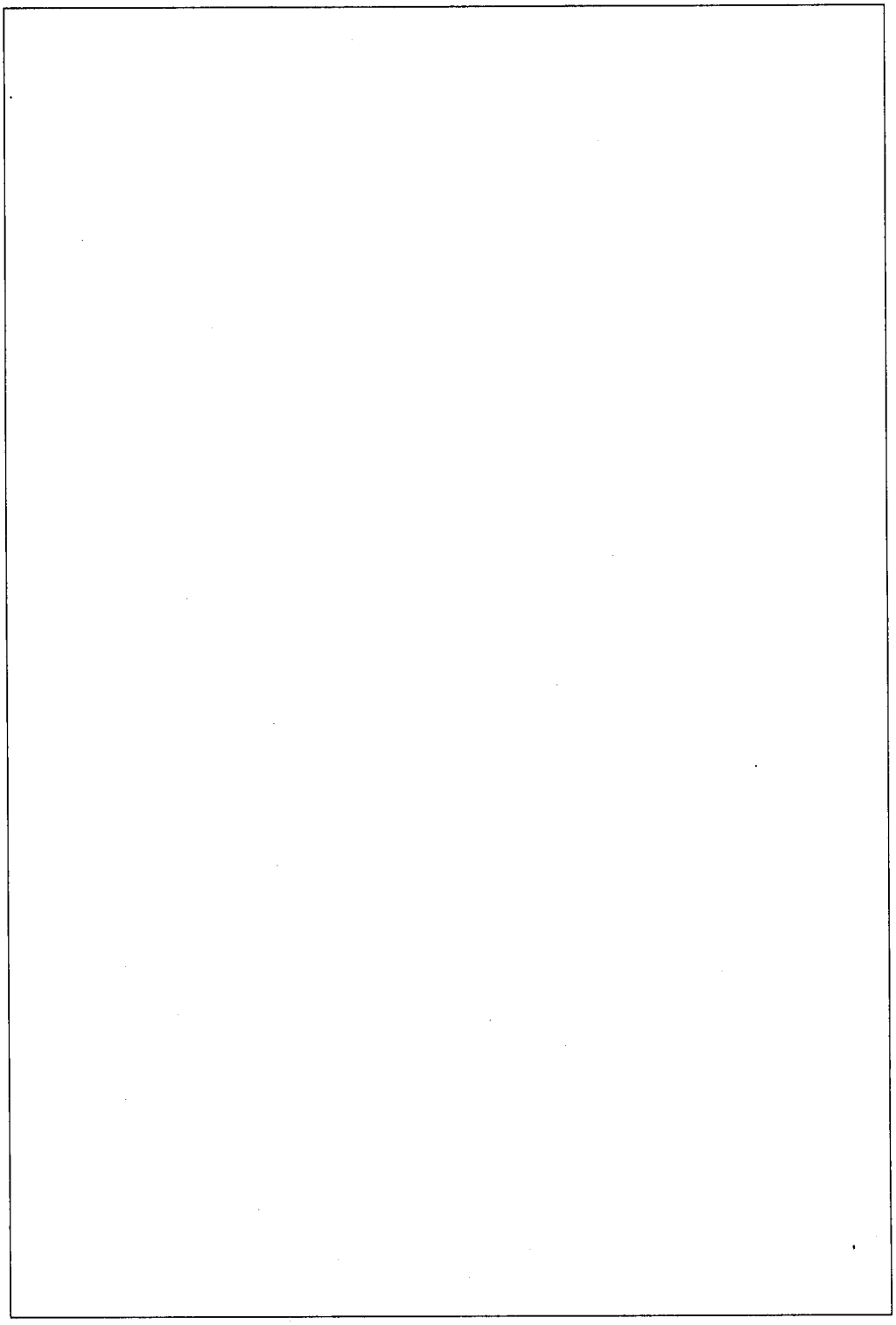

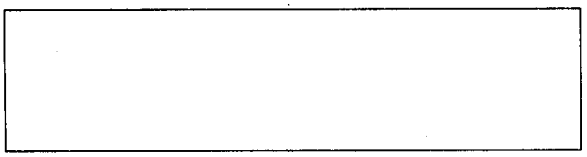

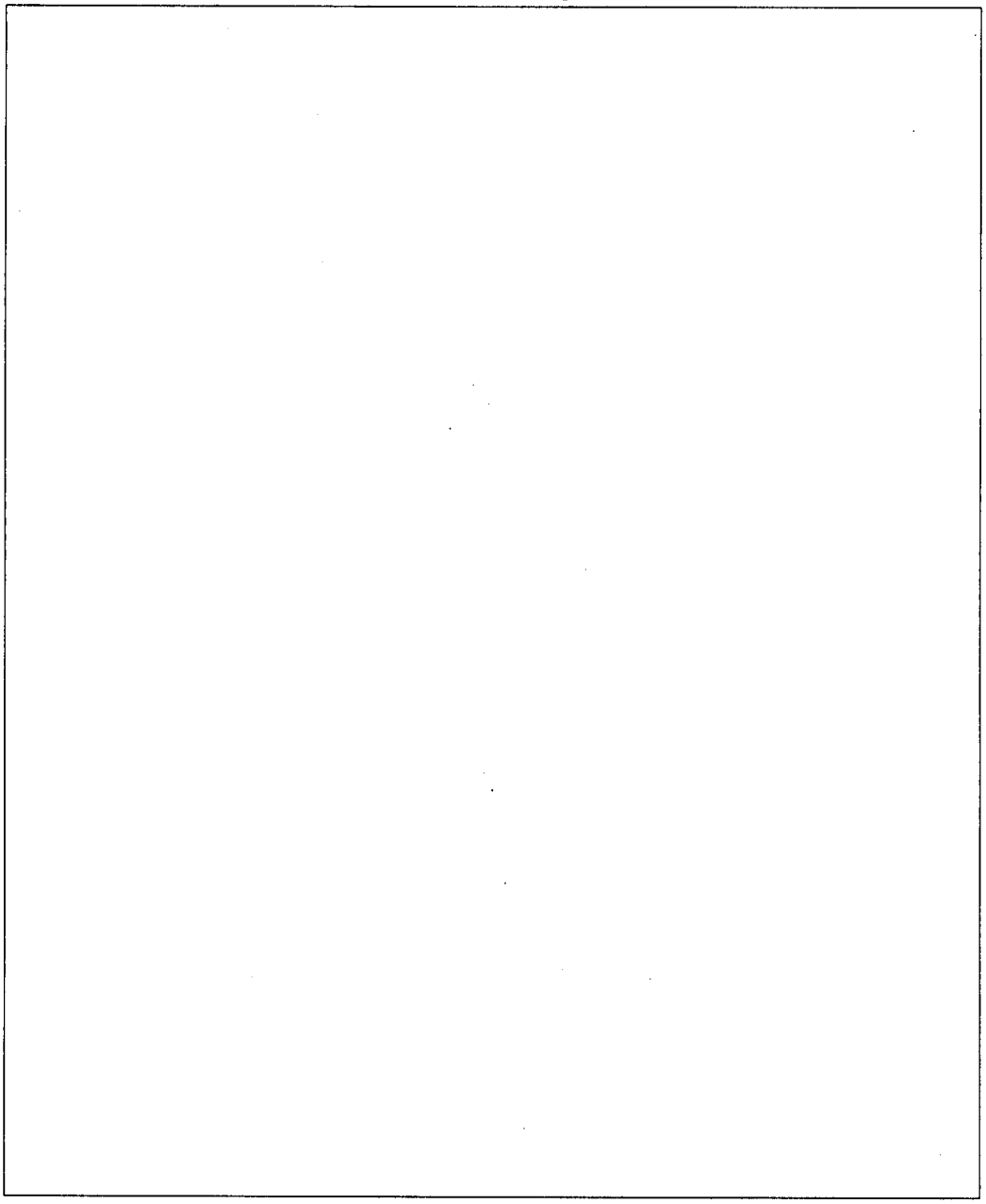

Just as in the case of ballistic missile and space intelligence, OSI experience in ELINT and EMW analysis provided a nucleus for the building of intensified and expanded efforts

[redacted]

VIII. Offensive and Defensive Systems

The recent concentration on weapons analysis (1963-1968) has been concomitant with the drastic increase in technical collection efforts. During this period heavy emphasis has been placed on the examination of [redacted] the study of new types of electronic signals, and new types of photographic intelligence. The data issuing from these new collection methods required analysis concepts and techniques quite different from those used traditionally by a majority of analysts in the intelligence community. The development of the needed concepts and techniques required inputs from groups with direct knowledge of technologies involved and which, for the most part, weren't available within the Office. [redacted]

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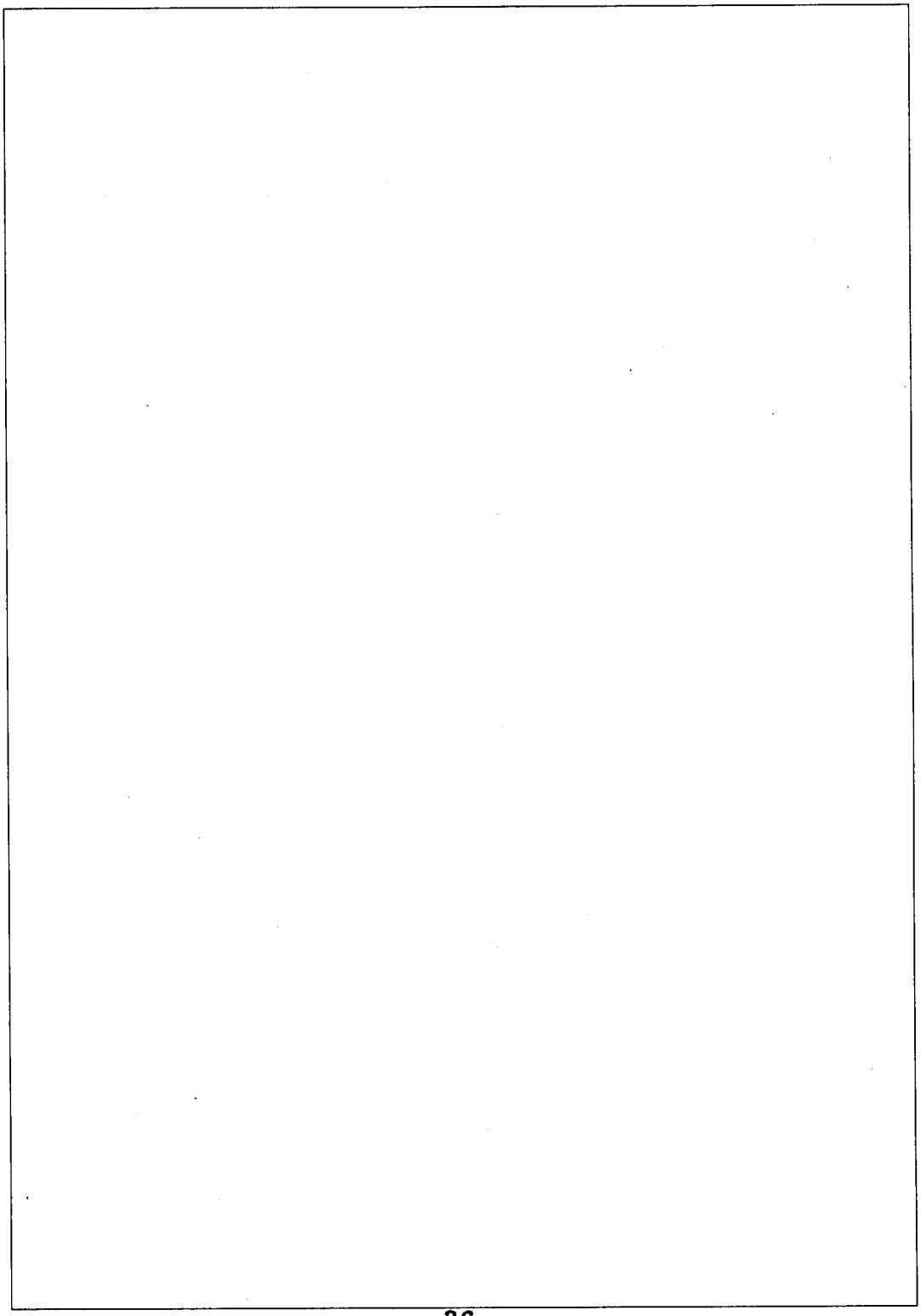
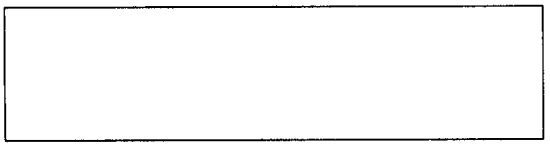
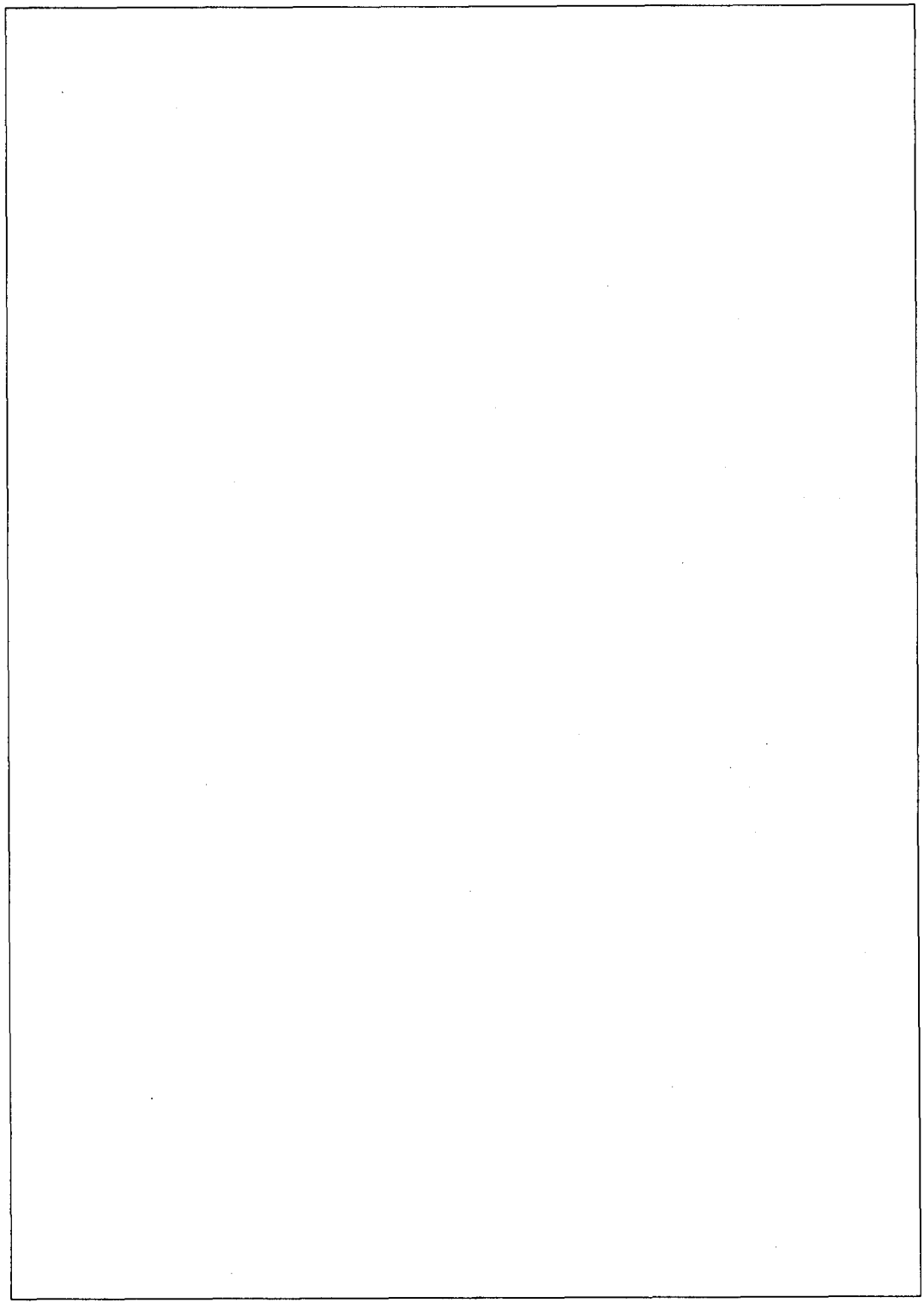
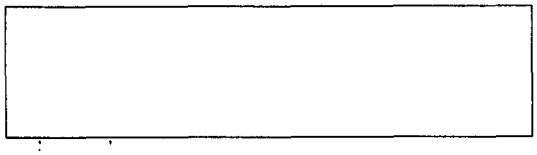
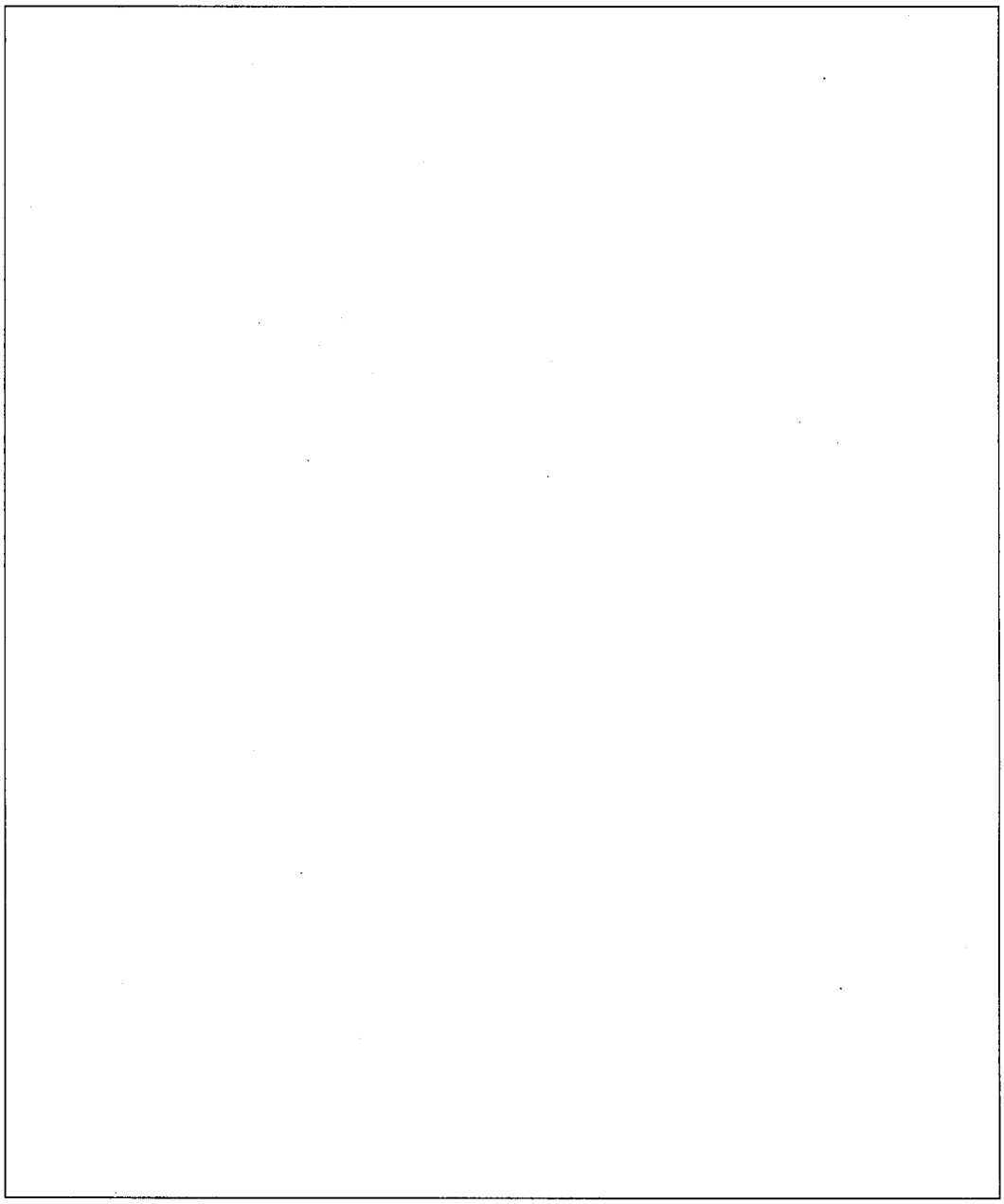




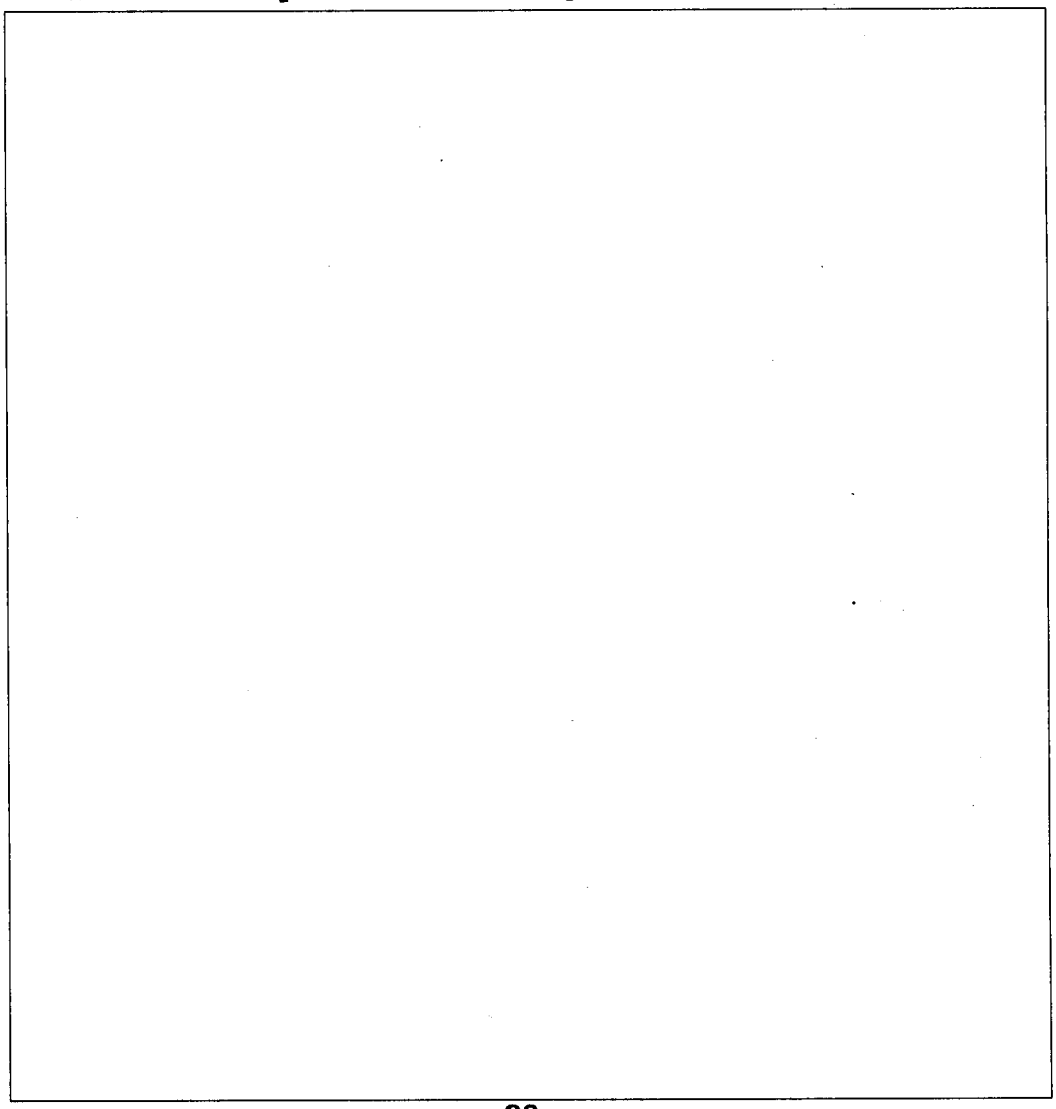


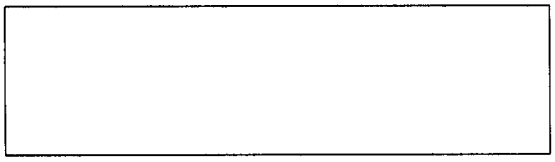




With the transfer of responsibilities for intelligence on offensive missiles and most aspects of space vehicles to FMSAC in 1965, OSI's contracting activities were devoted increasingly to defensive

systems and nuclear energy problems. Although some of the external projects in these two areas were based on technical literature surveys of the academic type, by far the major share of money spent in these fields was for the development and utilization of new techniques for analysis by firms or Government facilities experienced in comparable U.S. technology.





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IX. Nuclear Energy Intelligence

In comparison with other areas of OSI activity, contracting in the area of nuclear energy intelligence was relatively modest up to 1963. OSI efforts in this field were always closely dove-tailed with those of other intelligence community elements that have been tied together through the Joint Atomic Energy Intelligence Committee (JAEIC) of USIB, for which OSI has held and continues as of 1968 to hold chairmanship. Close relationship with the Atomic Energy Commission (AEC) [redacted] provided OSI with the best available expert knowledge both from among their own specialists and from AEC contractors [redacted]

External OSI projects in this area of intelligence during the 1950s consisted to a large extent of literature research. [redacted]

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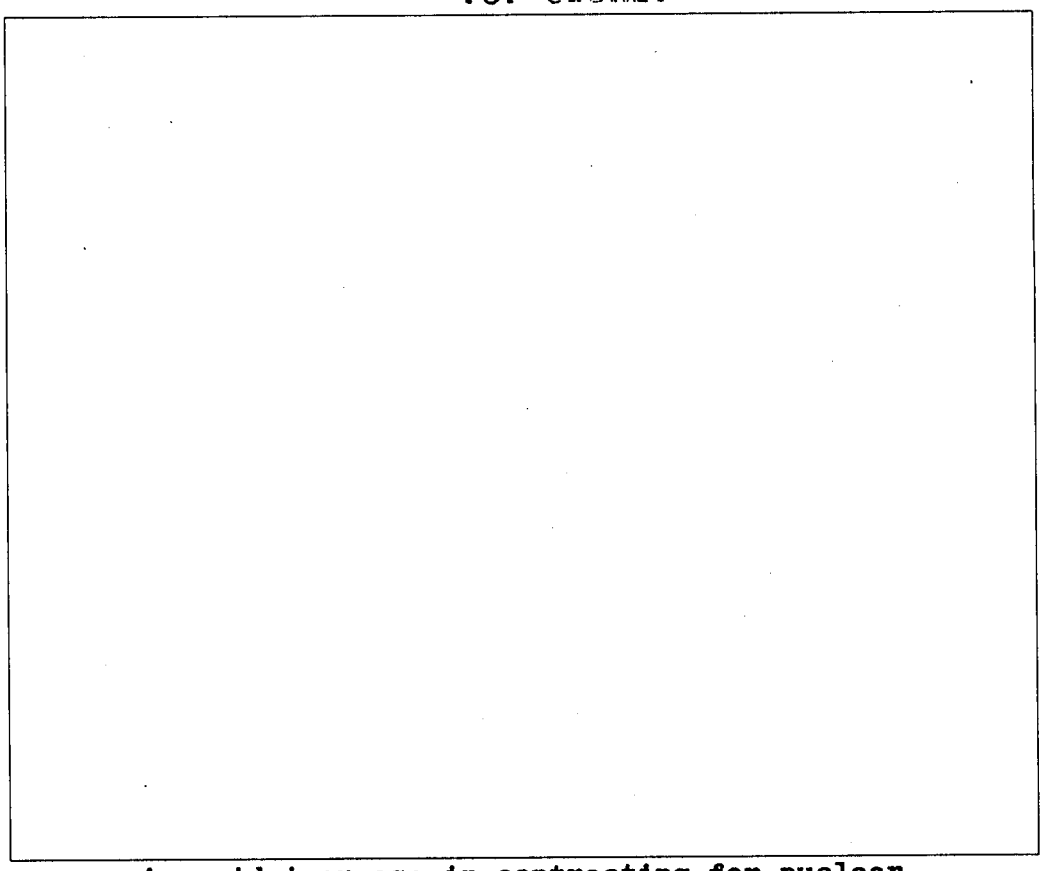
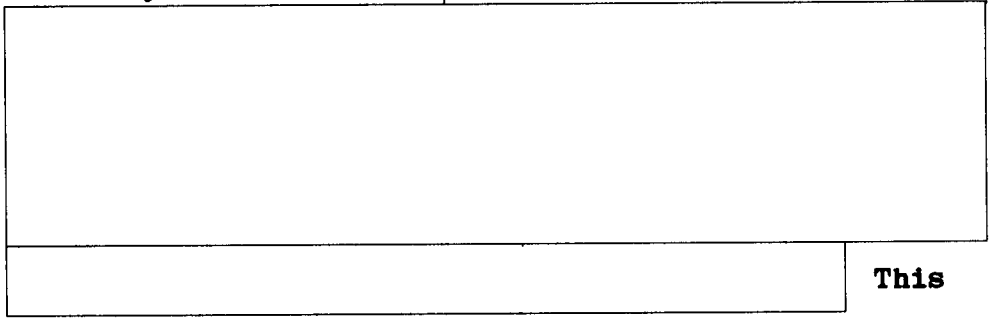
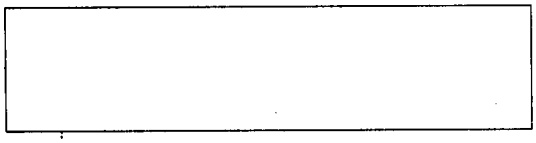


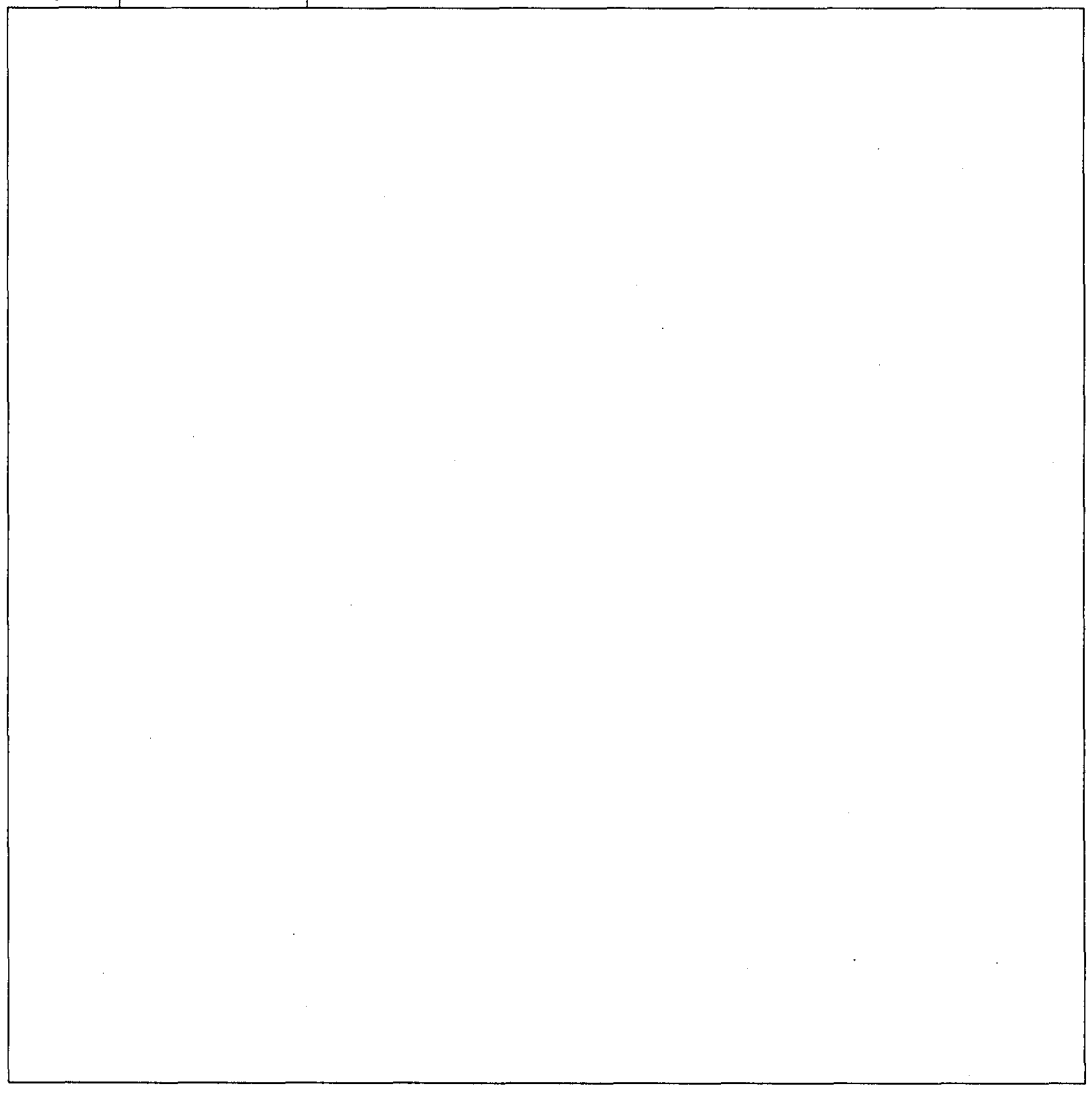
A rapid increase in contracting for nuclear energy intelligence work has taken place in the last five years (1963-1968)

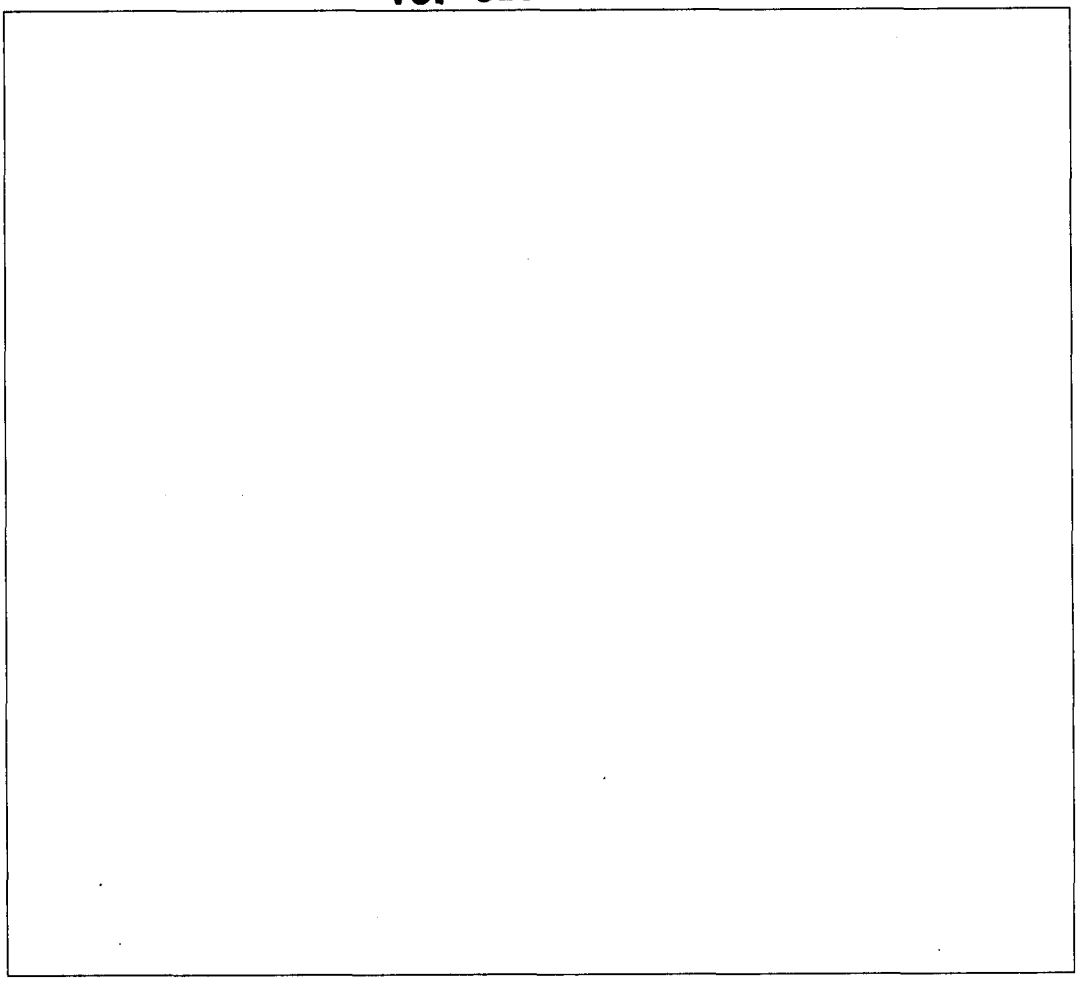


This "depth" analysis has required the services of highly specialized and experienced personnel and costly equipment. During this same period there have been



changes in AEC policies for financing contracts, which have left needs that OSI felt must be met in order to fulfill national intelligence objectives. At the same time, OSI has pursued a more aggressive policy with respect to pushing the development of nuclear energy intelligence than it did in the past

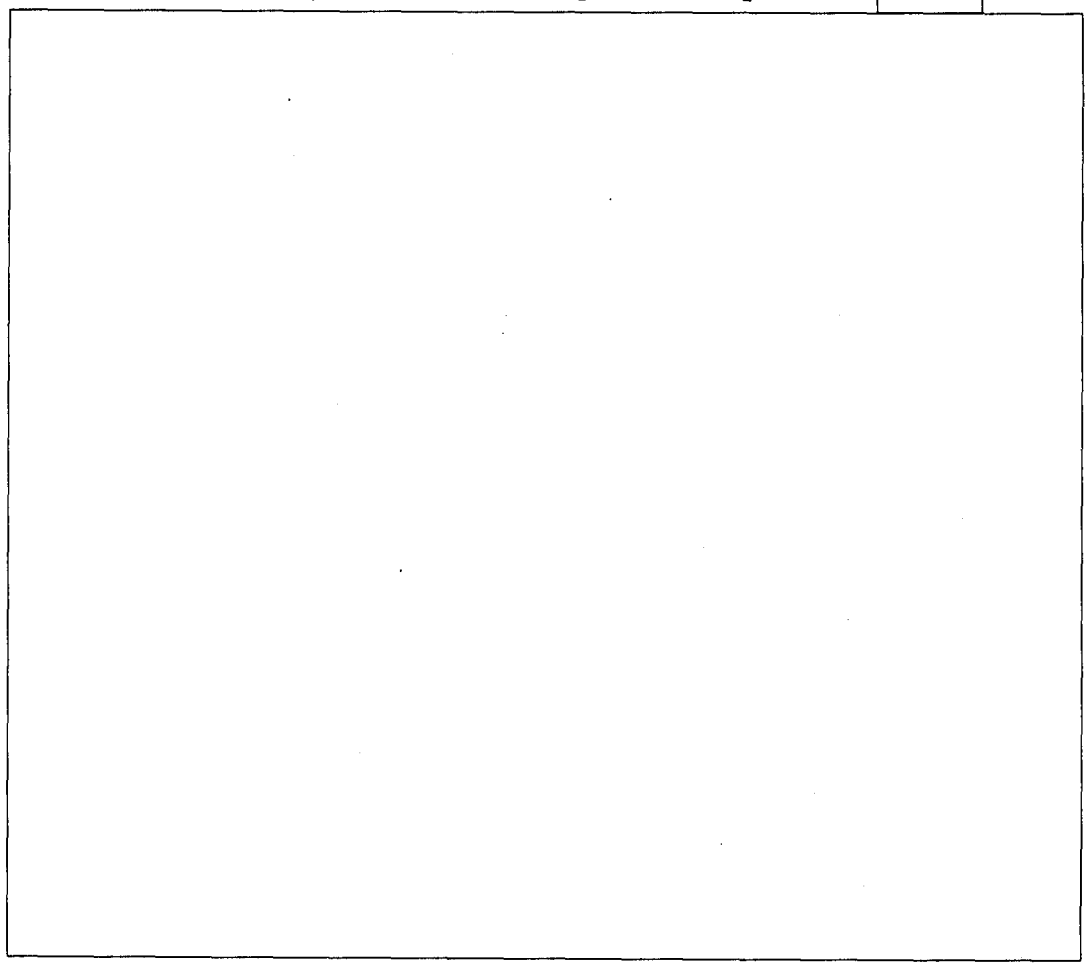




X. Planning and Programming

Office procedures for external support planning, implementation, and management began to emerge about 1953. In January 1954 an Office External Projects Advisory Board (EPAB) began to function [redacted] with a rotating membership of division chiefs. This board attempted to advise the head of the Office on general policy as well as on specific proposals being forwarded

for approval by him and to higher headquarters



The principles developed during the 1955/56 period still form the basis for Office programming, although many refinements and rearrangements of project data have been made to suit the needs of various reviewing authorities. Two features have been dropped. Manpower allotments to specific projects proved to be an unreliable guide to how much work was required; after repeated efforts to

find a workable formula, they were finally discontinued in the FY 1962 program. Also priority grouping became unnecessary, for as additional demands were made on OSI, low-priority work had to be cut back to the minimum levels consistent with OSI coverage responsibilities. Currently, all external research projects must be related to high priority Office objectives except those that pertain to the NIS, a low priority obligation that is still being levied on OSI.

When Wheelon became head of OSI in 1963, he attempted to make an official policy of what had actually been a previous practice of keeping a portion of external contracting funds available to take advantage of unanticipated opportunities or meet needs as they occurred. It was realized that many new developments in scientific and technical intelligence simply could not be anticipated. The policy of flexible programming, as it was called, was aimed at avoiding the trap of being forced by annual budgeting procedures to commit all funds too far in advance.

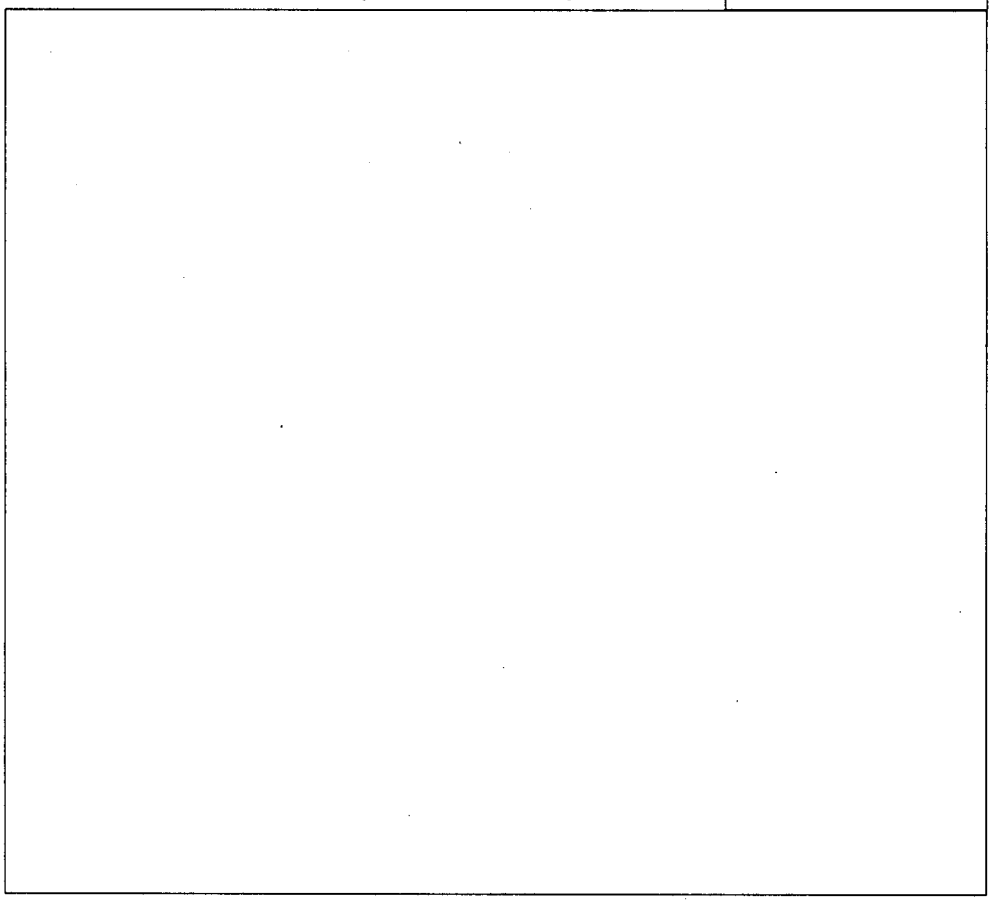
XI. Administrative Problems

By FY 1957, the OSI external support program had grown [redacted] and began to impose an

excessively time consuming burden on administrative resources. The Office undertook therefore to shift gradually from numerous narrow specific support projects that seldom ran more than a couple of years to broader long-term contracts with organizations having varied resources at their disposal. This new policy was intended to cut the negotiation of new contracts back to manageable proportions, for new projects could be started as old ones were completed by merely issuing new task orders to the contractors. In addition, the time spent by OSI analysts in orienting new contract personnel to intelligence needs would be reduced. This policy change was never fully implemented; Office personnel responsible for arranging for contract support frequently came up with convincing arguments on technical grounds, favoring a new contractor. Nevertheless, several contracts were set up with the aim of concentrating projects among a few contractors.

The problem has ceased to be as important an issue as it once was, however, because the program of contracting for individual state-of-the-art type papers, which was mainly responsible for the proliferation of small contracts, has largely been discontinued

During the late 1950's, another considerable administrative burden was imposed by the external project funding approval procedures that evolved as budgeting controls on the Agency grew. The basic problem was a severe lack of delegation of funding authority to the deputy director and assistant director (office head) levels.



Review and approval within the DDI was further complicated by the creation of a small Office of Intelligence Coordination, which had to examine and

pass on each project for possible conflict and coordination with proposals of other DDI elements

[redacted]

XII. Summary

In summary, gains from external contracting have not come easily or cheaply. Experience has shown that an external support program cannot be set up to run itself; considerable money and time of analysts' must be spent in support of existing contracts and in searching for new contractors. The intelligence point of view does not seem to come easily to those outside the intelligence community, especially to the highly specialized technical experts that are needed, so that a large amount of orientation is usually required. It has often been pointed out that the contract-analyst manhour costs considerably more than an in-house one (even including internal overhead) and that contract monitoring costs (including the time of the project officer) increase the discrepancy. Yet

[redacted]

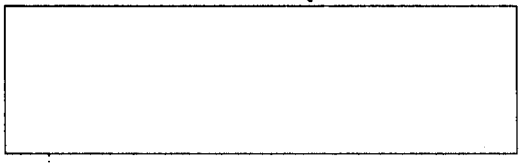
no conceivable internal staffing plan could provide the diversity of coverage and flexibility in shifting coverage that has been required of OSI.

The external support program has enabled OSI to produce considerably more intelligence than it would have been able to produce otherwise. It accomplished an across-the-board survey of Soviet research and development of intelligence significance, in a much shorter period of time than it could have been accomplished internally without a considerable increase in personnel, who might later not have been needed. Also, farming out low priority tasks such as NIS work has undoubtedly saved many internal analyst manhours for application to higher priority work. The most significant contribution of OSI contracting, however, has been in buying highly specialized technical competence that could not reasonably have been duplicated within the Agency, even if a managerial decision had been made to do so. Some of these contractors, guided by OSI, can be said to have pioneered new and important areas of scientific intelligence.

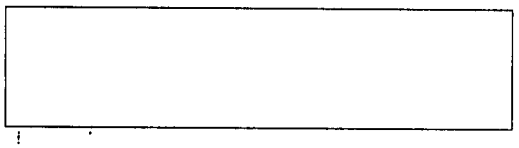
XIII. Future Threat Forecasting

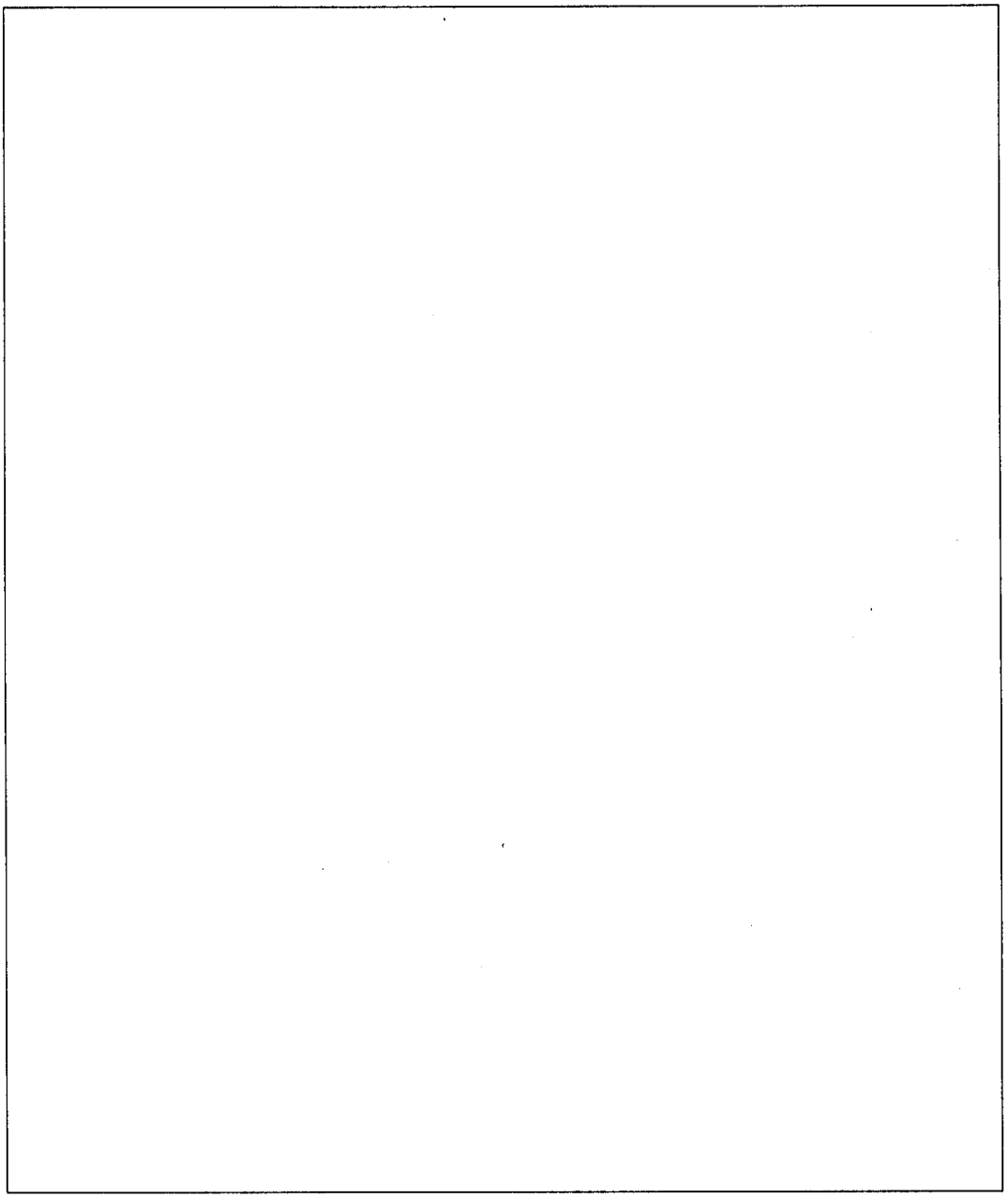
The prediction of future scientific-technical threats to U.S. national security has been considered an important OSI mission from the time that the Office was organized. Despite its importance work on the problem was not pushed steadily and in the late 1950s and early 1960s a number of factors necessitated the shelving at times of analytical effort on future threat identification. Gradually, however, US awareness of the need for systematic consideration of long-range threats (5-15 years) has increased along with the increased importance of research and development in U.S. Government resource allocation, greater use of guidelines for long-term U.S. force-mix planning and, with increases in the cost of intelligence collection apparatus, greater recognition of the need for long-term planning of intelligence operations. These needs led OSI, beginning in 1965, to undertake a re-examination of the future-threat problem and various methods for dealing with it.

A large part of the total OSI analytical effort from its beginning through the early 1960s was devoted to the study of topics that were supposed to provide bases for forecasting new developments. In connection with the preparation of national estimates and through

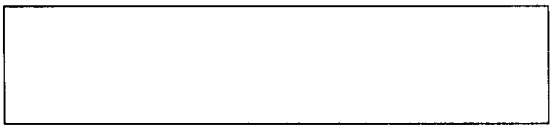


the preparation of special monograph series, attempts were made to integrate the substance of previously produced intelligence papers for the purpose of making scientific and technical forecasts. The R&D elements of the DOD were especially eager consumers of such estimates. Unfortunately, however, the forecasts were disappointingly general and, in addition, were very conservative. Special studies were undertaken in the late 1950s to find new approaches, several with the aid of contractors. One project consisted of a study of the characteristics of "breakthrough", in order to identify key questions that could be applied systematically to information on the USSR to determine whether future advances in specific fields were probable. Another project applied statistical analysis to Soviet scientific publication patterns on the assumption that increase or decrease in rates of publication might indicate Soviet intentions as to future developments. Although a good deal was learned from these endeavors, no workable method for forecasting emerged. The major underlying difficulty of all such efforts was insufficient information on the USSR, particularly with respect to the applied research and the developmental phases of weapons systems programs -- classified Soviet research.





Most earlier approaches to future threat forecasting had been inductive; that is, analysts were supposed to project future threats from available pieces of new information, which consisted mostly of Soviet nonclassified



scientific and technical literature. But the possible implications of any piece of such information are usually so broad that they do not seem to provide a basis for specific forecasts. Recognition of this problem prompted the [redacted] recommendation that possibilities for deductive methods be examined. A deductive method would consist of postulating a specific Soviet threat, then determining what work would be required for the Soviets to produce the threat and, finally, comparing the resulting data with available Soviet scientific-technical information to assess the probability that the postulated threat is real.

Examination of methods used for technological forecasting in U.S. industry showed promise that some of these methods might be usefully adapted for future threat forecasting. [redacted]

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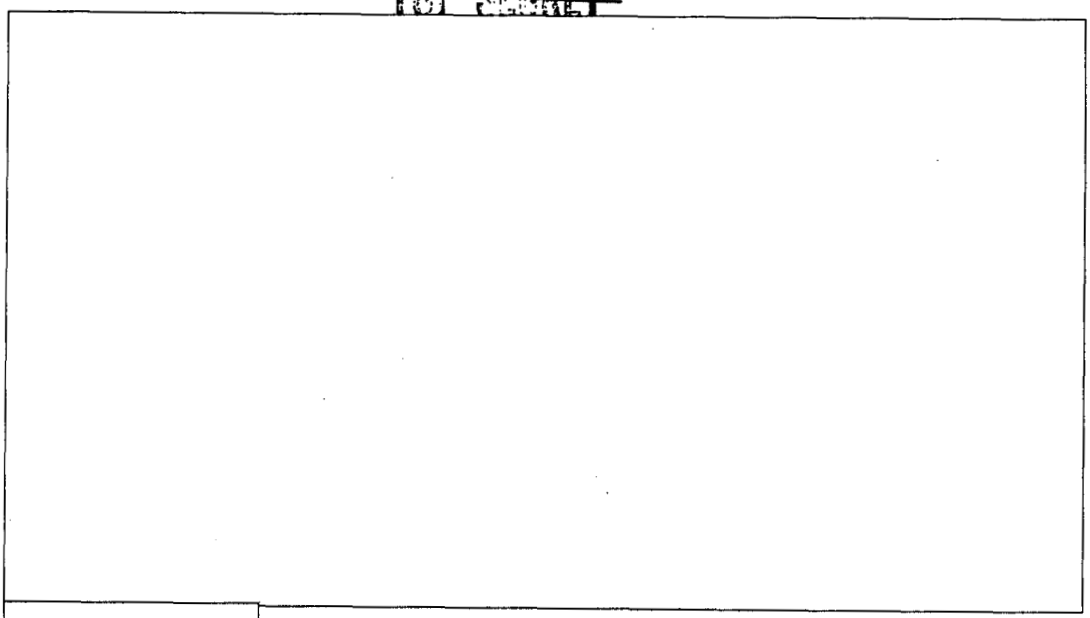

Hopefully, this method will lead to a ranked list of potential threats and will ultimately provide the intelligence indicators needed to search the available literature deductively and to arrive at threat statements bearing a measurable level of confidence. Even if this method is eminently successful, however, it is not likely to supplant all other approaches to threat forecasting but, at the very least, it offers an imaginative new approach that significantly departs from the past traditions of scientific intelligence.

Appendix

OSI CONTRACTS BY FISCAL YEAR

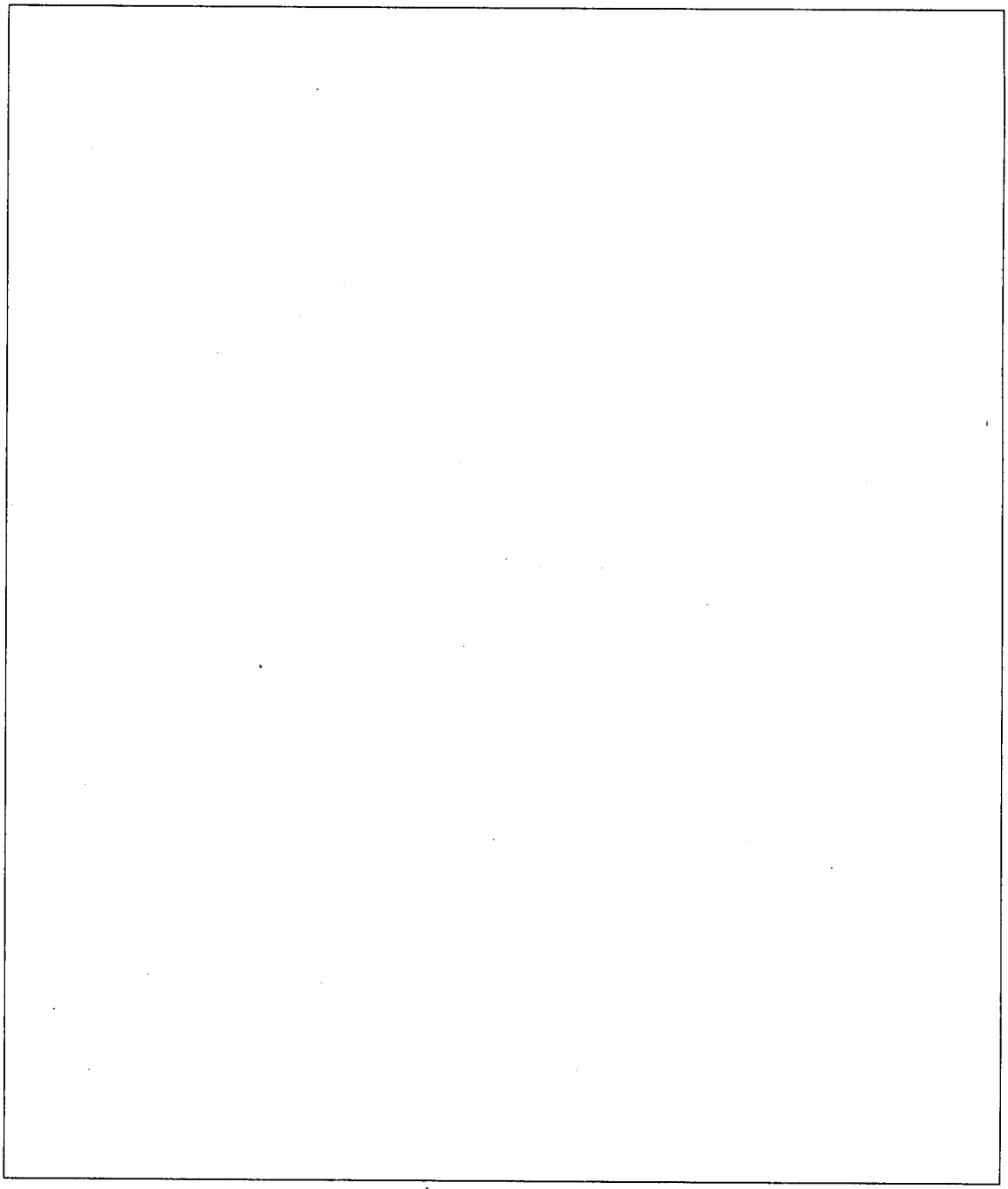

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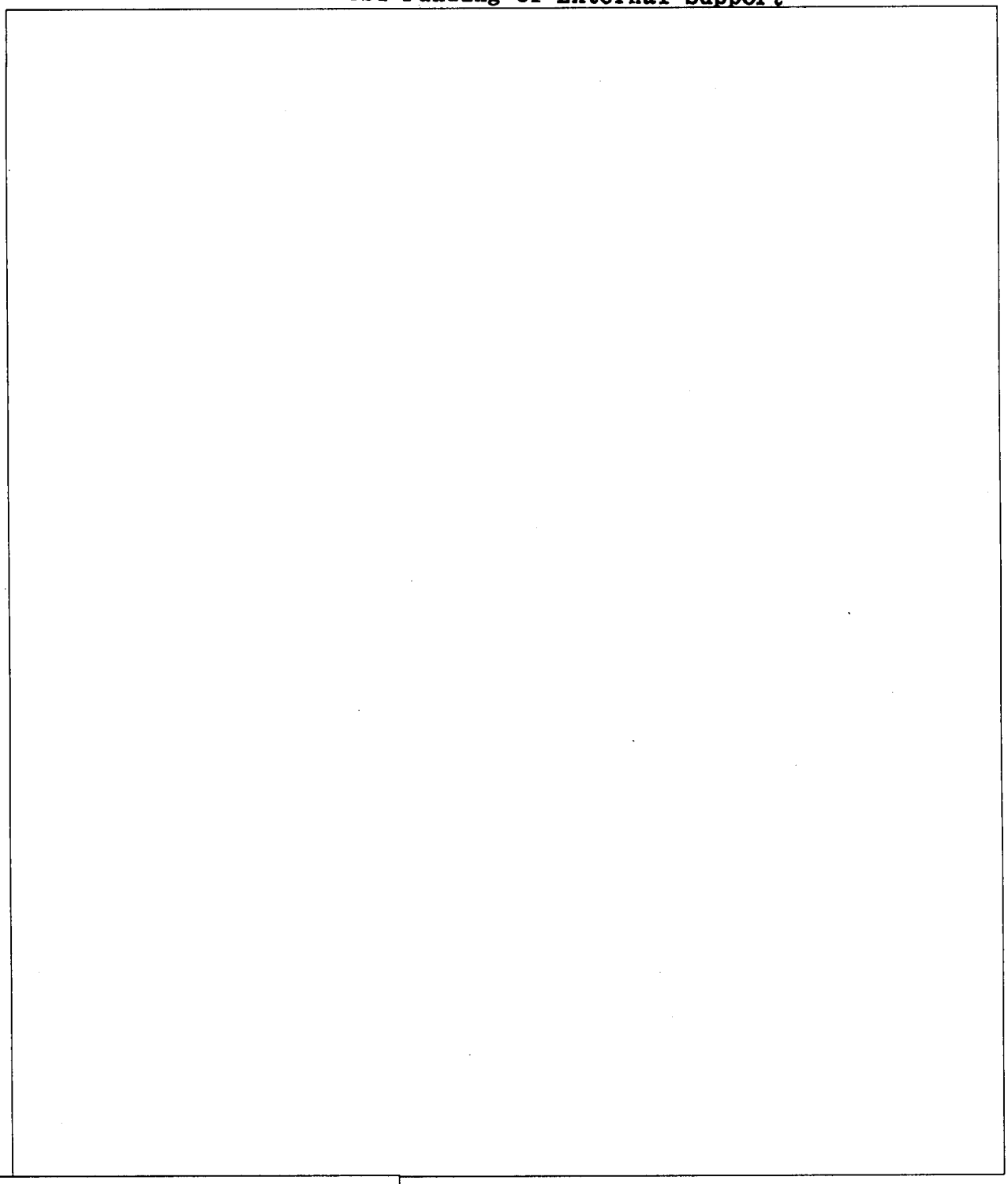
TABLE I

OSI Funding of External Support



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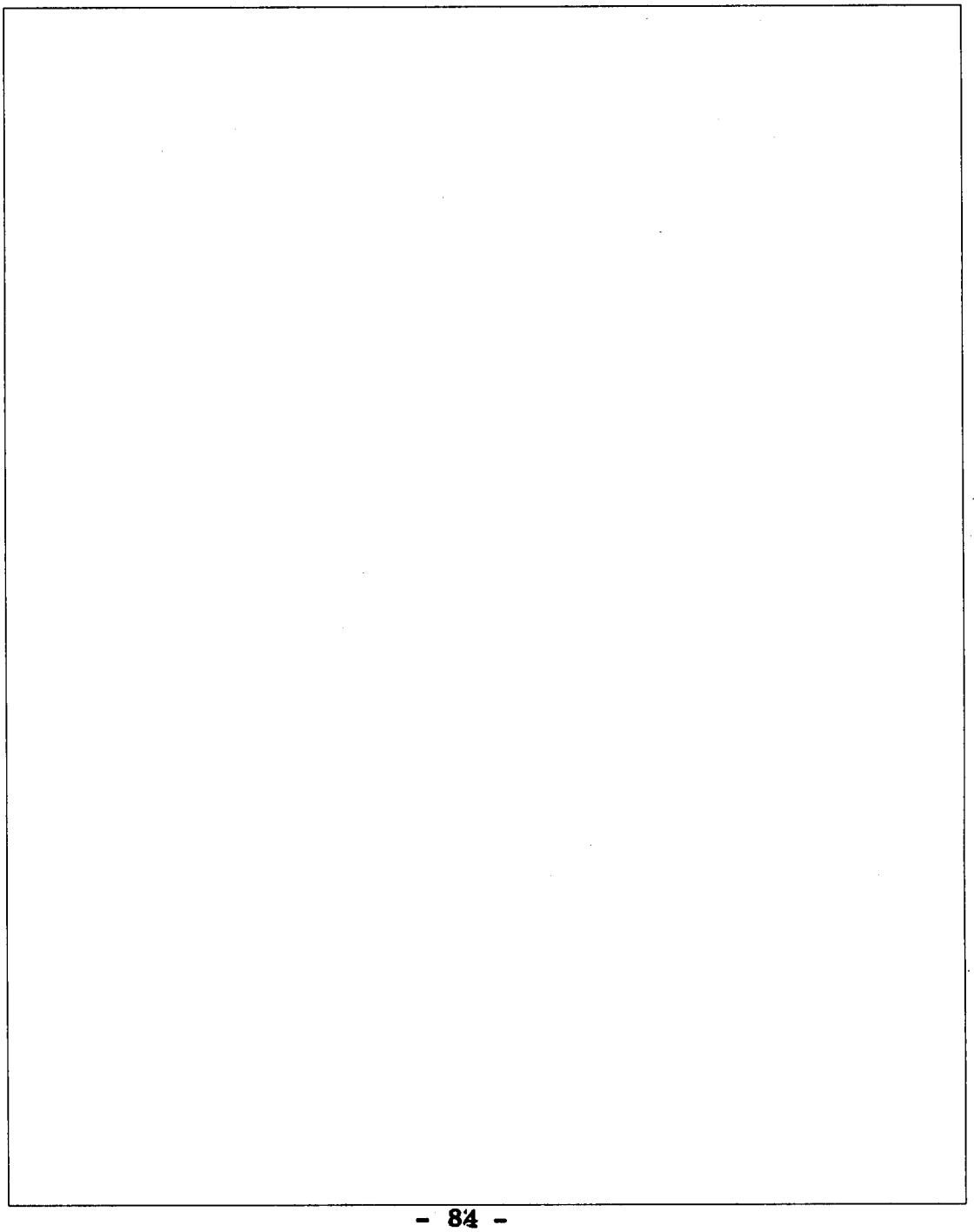

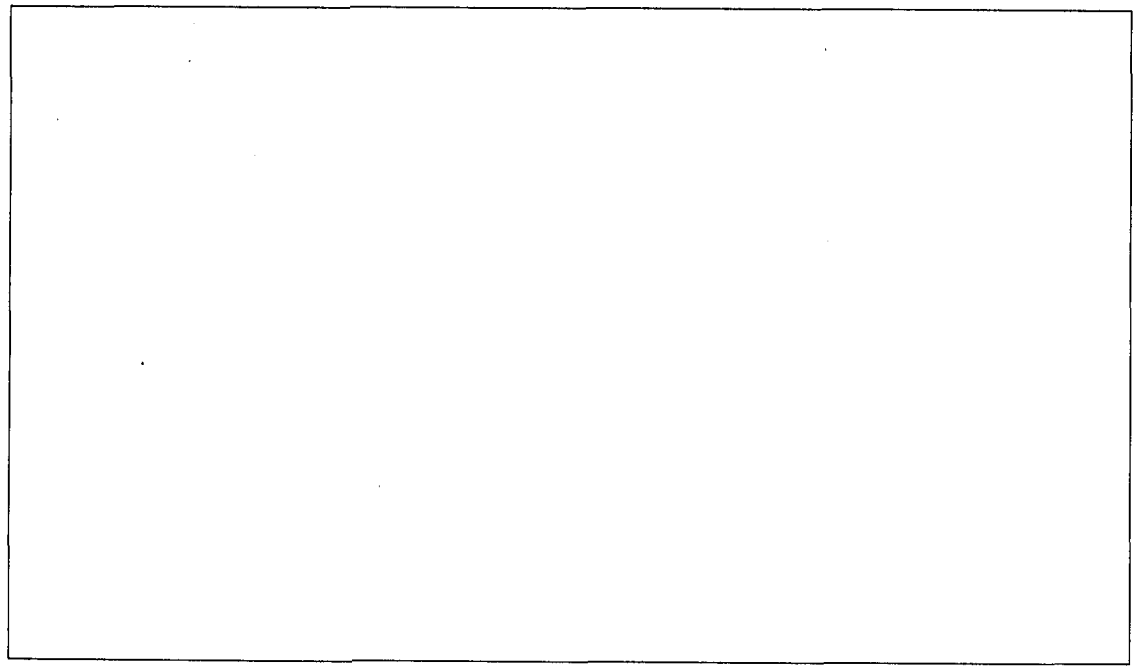

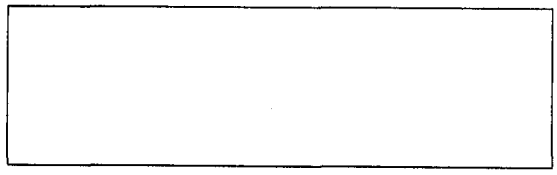

Annex X

The Interaction Between OSI and the National Security Agency

CONTENTS

Annex X

The Interaction Between OSI and the National Security Agency

The [redacted] in the production of scientific intelligence predates both the CIA Office of Scientific Intelligence and the present National Security Agency. OSI, and the Scientific Branch/ORE before it, worked with NSA and its predecessors on a wide spectrum of problems.

[redacted]

OSI has had personnel actually working in NSA spaces [redacted] and senior CIA personnel have been assigned to responsible jobs in the NSA organization. All of this is woven in the fabric of OSI relations with NSA.

A brief history of NSA will be useful in understanding the relations of OSI with NSA and its predecessors. In 1947, when the Central Intelligence Agency was created, COMINT was the responsibility of the Army Security Agency, and the Naval Security Group. The merger of these two organizations, ordered by the Secretary of Defense in 1949, became effective in 1950

[redacted]

with the appearance of the Armed Forces Security Agency. The name was changed to the National Security Agency in 1952. NSA assumed responsibility for ELINT as well as COMINT in 1958. NSA today has the basic responsibility for the collection and processing of SIGINT, a term used to refer to either ELINT or COMINT.

Prior to the existence of the Office of Scientific Intelligence the analysis of intelligence relating to scientific and technological capabilities was the responsibility within CIA of the Office of Research and Estimates. In the late 40s the Naval Security Group and the Army Security Agency concentrated on processing for their non-military consumers [redacted] CIA personnel who had become familiar with COMINT during World War II knew the value of other kinds of COMINT and pressed for the processing and release to cleared CIA personnel of economic and scientific material. Thus, in January 1949 when the Office of Scientific Intelligence was formed some of its personnel were already cleared for access to COMINT. So important did Dr. Willard Machle, Assistant Director for Scientific Intelligence, consider COMINT, that prospective OSI employees had to qualify for COMINT clearances as a condition of staff employment. This was remarkable in 1949 when the total number

[redacted]

of cleared persons in CIA was quite small by today's standards. Today the majority of persons in the DDS&T alone are cleared for COMINT.

OSI personnel have worked with NSA and its predecessors over the years so that OSI could more clearly describe the threat posed by foreign weapons systems technology.

NEXT 11 PAGES

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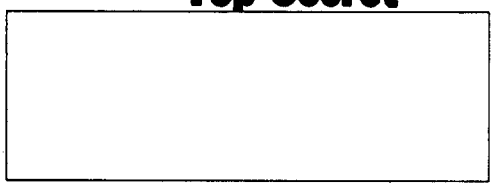

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