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Central Intelligence Agency
Washington, D.C. 20505

2 March 2022

Reference: EOM-2009-00763

This letter is a final response to your 29 May 2009 Mandatory Declassification Review request referenced above, for **A copy of the monograph by Karl Weber, History of the Office of Scientific Intelligence, DDS&T Historical Papers, No. OSI-1**.

We completed a thorough search for records responsive to your request and located the three enclosed documents which we can release in segregable form with deletions as marked on the basis of Sections 3.3(h)(2) and/ or 6.2(d) of Executive Order 13526.

As the CIA Information and Privacy Coordinator, I am the CIA official responsible for this determination. You have the right to appeal this response to the Agency Release Panel within 90 days from the date of this letter. Please explain the basis for your appeal. You may address appellate correspondence to:

Information and Privacy Coordinator
Central Intelligence Agency
Washington, DC 20505

If you have any questions regarding this response, you may seek assistance by calling this office at 703-613-1287.

Sincerely,

Andra Barker

Andra Barker
Acting Information and Privacy Coordinator

Enclosures

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The Directorate of Science and Technology
Historical Series

The Office of Scientific Intelligence, 1949-68

VOLUME ONE (INCLUDING ANNEXES I, II, AND III)

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[redacted]40/69
OSI-1
June 1972
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THE DD/S&T HISTORICAL SERIES

OSI-1

THE OFFICE OF SCIENTIFIC INTELLIGENCE, 1949-68

VOLUME ONE (INCLUDING ANNEXES I, II, AND III)

by

Karl H. Weber

June 1972

[redacted] 6.2(d)

for Carl E. Duckett
Director
Science and Technology

HISTORICAL STAFF
CENTRAL INTELLIGENCE AGENCY

~~TOP SECRET~~

BYE-1340/69

PREFACE

In preparing this account of OSI's history, full use was made of two earlier compilations. The first covered the period 1949-52 and was prepared by [redacted] who was in OSI at the time of its preparation in 1953. The second was an unofficial document prepared by the O/DCI/Historical Staff that covered the period 1953-60. These reports contain much detail, a good deal of which probably has limited lasting value. 6.2(d)

It was decided after reading the above documents that the present version, covering the period 1949-68, would be written in somewhat different fashion; i.e., that the main body of the history would attempt to highlight only the significant events, trends and features in the life of OSI while annexes would carry the details. In accordance with this format, the following annexes have been prepared by the authors indicated and are attached to the central text:

The Office of Scientific Intelligence, 1949-68

CONTENTS

VOLUME III

The Office of Scientific Intelligence, 1949-68

I. Background

WW II saw the first stirrings of U.S. intelligence interest in the scientific and technical capabilities of foreign countries. Largely under the impetus of German development of radar, missiles and diverse weapons-related technologies, the separate armed services and various committees of the Office of Scientific Research and Development (OSRD) became customers for scientific and technical intelligence on foreign activities. In these wartime years information on such subjects was most often obtained through combat intelligence and the exploitation of captured materiel, with occasional assists from clandestine and intercept operations. British success in fathoming German secret weapons programs contributed to the awakening of interest in U.S. official circles.

In the early 40s, however, no discrete U.S. organization could be labeled an "office of scientific intelligence". Scientific and technical intelligence was more an offshoot of the interests of the research and development (R&D) elements than an entity in its own right. In rather distinct contrast, the British had an identifiable unit under Dr. R. V. Jones in the

Intelligence Branch, Air Ministry which played a major role in the wartime efforts against German aircraft and secret weapons programs.

One exception to this general state of affairs in the U.S. was a foreign intelligence unit, the Foreign Intelligence Branch, in the Manhattan Engineering District (MED), the wartime agency under General Leslie Groves concerned with nuclear weapons development. It may be recalled that considerable fear was felt in some quarters, as the feasibility of nuclear weapons seemed increasingly assured, that the Germans might be carrying on a nuclear weapons program. It was reasoned that the early experiments on atomic fission had been performed by Germans, notably the Nobel Prize winners Otto Hahn and Lisa Meitner, and hence German understanding of the underlying principles of nuclear weapons was as great as ours. Attempts to establish the existence of a German program through clandestine operations were not altogether reassuring. Anxiety continued throughout the war in the West and even into the final stages of the war against Japan.

At the close of the war, while the soul-searching into the Pearl Harbor disaster was taking place, the assets of the Office of Strategic Services (OSS) were transferred in 1946 to an interim agency, the Central

Intelligence Group (CIG), under the general surveillance of a National Intelligence Authority. This was the first attempt to consolidate and centralize the highest level intelligence functions of the U.S. Government.

In CIG the analytical functions were centered in the Office of Research and Evaluation (ORE).* Under the persistent urging of the Joint Research and Development Board (JRDB),** the peace-time successor to the OSRD, a small Scientific Branch (SB) was established in the Fall of 1946 in the Estimates Division, ORE. The SB had a T/O of [redacted] and was headed by Dr. Wallace Brode, an organic chemist of international reputation from Ohio State University. Through an agreement between General Groves and General Hoyt S. Vandenberg, the Director of the CIG, the Foreign Intelligence Branch of MED was transferred to 6.2(d)

*The Office of Research and Evaluation, organized 22 July 1946, was renamed the Office of Reports and Estimates on 27 October of the same year.

**Eventually an agreement, entitled "Program for JRDB-CIG cooperation in the field of scientific intelligence," was signed by Gen. Hoyt S. Vandenberg and Dr. Vannevar Bush on 10 January 1947. The agreement followed much discussion and investigation by JRDB. It was perhaps the first high-level recognition of the desirability of combining intelligence considerations with scientific and military factors in the planning of weapons R&D in the U.S.

the CIG on 25 February 1947 and assigned to the SB as the Nuclear Energy Group (NEG) by order of the DDCI on 28 March 1947. About a year later, however, on 5 March 1948 the NEG was reassigned to the Office of Special Operations (OSO), again by direction of the DDCI. Thus, the NEG was removed at an early stage from the analytical component of CIA and placed in the clandestine operations component.

As might be expected, the SB was seriously hampered by lack of experienced personnel. Of equal importance, it also lacked sources of information and there is evidence to suggest that its support from top management was less than vigorous. After the transfer of NEG to OSO, the relationship of SB to the NEG was ill-defined at best and the absence from the SB charter of any responsibility for nuclear energy intelligence left a sizeable gap in its coverage of critical scientific intelligence problems.

Despite these shortcomings of the SB, the JRDB persisted in its demands for intelligence support during 1946-47 and into early 1948 with David Z. Beckler and Ralph L. Clark* as the two most outspoken advocates.

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* Beckler was Chief, Technical Intelligence Branch and Clark, Director, Programs Division of JRDB.

In its testimony before the Eberstadt Commitee of the Hoover Commission* in 1948, the JRDB voiced its general dissatisfaction with the intelligence support it was receiving. Prompted by this view, which one can imagine was presented with vigor by Dr. Bush (Chairman, RDB) backed up by Ralph Clark, the Eberstadt Committee in turn expressed its view as follows:

> "The Committee is particularly concerned over the nation's inadequacies in the fields of scientific and medical intelligence. There are difficulties peculiar to this situation which the Committee has not overlooked. Yet the vital importance of reliable and up-to-date scientific and medical information is such as to call for far greater efforts than appear to have been devoted to this essential need in the past."

Persistent JRDB prodding of CIG and CIA may well have been the most important external pressure leading to the eventual establishment of OSI.

With the passage of the National Security Act of 1947 and the creation of the CIA, the heretofore uncertain responsibilities of the CIG gave way to the statutorily defined mission of a greatly strengthened and centralized intelligence service, the CIA. The change to a more encompassing role for CIA and the growing capabilities of the military intelligence

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* More properly named the Committee on the National Security Organization of the Commission on Reorganization of the Executive Branch of the Government.

agencies prompted Admiral Hillenkoetter, who had succeeded General Vandenberg, to ask Dr. Bush in 1948 whether the old JRDB-CIG agreement should not be supplanted. Bush's reply was both assent and complaint for he felt that the Agency had never really begun to satisfy JRDB's needs. He agreed, however, in a letter of 26 March 1948 to set aside the formal agreement.

In particular, the coordinating and estimate producing functions of the new Agency were more firmly rooted and its resources greatly increased over those of the old. More or less concurrently, the period of uncertainty about the true intentions of the USSR and its threat to the U.S. ended. Doubts about the reality of a U.S. monopoly in nuclear weapons were fed by reports of Soviet interest in the advanced technology acquired from the Germans. There was an increasing sense of urgency about strengthening the U.S. intelligence posture.

At about the same time as the Eberstadt Committee was making its review for the Hoover Commission in 1948 another and separate review was being conducted for the National Security Council (NSC) by a team consisting of Allen W. Dulles, William H. Jackson, and Mathias F. Correa. The latter investigation resulted in the so-called Dulles Report of 1 January 1949 which had this to say about scientific intelligence:

> "We believe that there is an obvious need for more centralization of scientific intelligence. Where centralization is not practical there should be the closest coordination among the existing agencies through the use of committees such as the present interdepartmental atomic energy intelligence committee which works in consultation with the Nuclear Energy Group of the Office of Special Operations (. . .). A strong Scientific Branch, as a common service within the Central Intelligence Agency, would be the logical focal point for the coordination and appropriate centralization of scientific intelligence. There appears to be no overriding reason for the segregation of the Nuclear Energy Group within the Office of Special Operations, and it would be preferable to reattach this Group to the Scientific Branch, even though some insulation may be necessary for security reasons."*

> "To fulfill its responsibilities as the chief analytical and evaluating unit for scientific intelligence, and consequently as the principal guide for collection, the Branch would have to be staffed by scientists of the highest qualifications. We appreciate that in such a Branch it would be impossible to obtain a leading scientist for each of the many segments of scientific and technological intelligence,

*We understand that since this report was written steps have been taken to create a separate Office of Scientific Intelligence which is to include the Nuclear Energy Group. (Author's Note: The foregoing sentence was a footnote to the Dulles Report. NSC approval of the portions of the Dulles Report dealing with the strengthening of scientific intelligence did not come until 7 July 1949. CIA in the meantime had moved to establish OSI without waiting for NSC action.)

> but we believe that a staff of moderate size and of high quality can cope with the normal research and evaluation, co-opting, where necessary, personnel from such organizations as the Research and Development Board and the Atomic Energy Commission."

Under the impetus of the Hoover Commission and Dulles reports, the pressure on CIA and the DOD to get on with scientific intelligence mounted. The way was paved for a stronger CIA scientific intelligence effort.

II. Establishment of OSI and The Machle Period, 1949-50

A major reorganization of CIA took place in 1948 under the tenure of the then DCI, Admiral Roscoe Hillenkoetter. The process of splitting up the former ORE, which contained political, economic, and scientific units, among others, was begun.* To the complement transferred from ORE to OSI in the form of the SB was added the Nuclear Energy Group from OSO for an initial T/O of [redacted] and on-board 6.2(d)
strength of [redacted]** The activation date for OSI was 6.2(d)
1 January 1949.

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*In time not only OSI but also the Office of Research and Reports (economic, basic and geographic), the Office of Collection and Dissemination (forerunner of OCR), the Office of National Estimates, the Office of Current Intelligence, and the Office of Intelligence Coordination emerged.

**See Annex I.

Because of mounting frustration and his longing to return to what doubtless were in his view more legitimate professional activities, Dr. Brode left CIA in fall of 1948 just before the establishment of OSI. His successor in CIA was Dr. Willard Machle, who became the first Assistant Director for Scientific Intelligence on 1 January 1949. Machle was a dynamic person of wide interests with degrees in science and physiology, teaching experience, many years in industrial medicine, a Colonel's commission in the Army, and wartime experience as the Director of Research and Commanding Officer of the Armored Medical Research Laboratory. Faced with a half-filled T/O, Machle set out to recruit staff to implement his new OSI charter.

In 1949 the problem of recruiting qualified scientists and engineers for government service was difficult at best. Not only were such people in short supply as a result of the interruption of educational programs during the War but also many of the younger generation had had enough of government service in the military and were more interested in industry or education under the GI Bill. Thus, the build-up in personnel strength was slow and there were compromises in the qualifications of many of the individuals hired. The mounting demands imposed by the ever-worsening Korean situation, however, simply did not permit the more orderly growth that might have led to a scientific intelligence component of greater initial depth and competence.

With a far from ideal fighting force, Machle began to take on the job of carving out a working relationship within the Agency vis-a-vis ORE and OSO (later to become the FI portion of DD/P) as well as in the community against the burgeoning technical intelligence units of the departmental agencies. Eventually this over-commitment led to his undoing and departure from OSI after fourteen months of service.

In January 1949 the first organization chart was constructed as a framework against which to allocate the 100 positions assigned to OSI. The organization reflected strongly Machle's concepts of topics deserving emphasis and consisted of four staffs and seven divisions. The interest in collection was evident in the establishment of a Collection Staff along with Administrative, Production and Scientific Services Staffs. The latter staff was an interesting, though probably premature, attempt to provide information gathering and collating services centrally and did not survive for long. The divisions were Biology, Physics and Electronics, Chemistry, Medical, Ordnance, Naval and "A" (for Comint exploitation). The latter division mirrors Machle's strong interest in the Comint source and, as a matter of fact, he soon decreed that every OSI staff member should be cleared for special intelligence. OSI thus became one of the first, if not the first, of the Offices to have across-the-board access to Comint.*

The internal issues besetting OSI involved both the form and the substance of intelligence. On the one hand the current intelligence reporting responsibilities of ORE were in apparent conflict (or so it seemed to Machle and others) with the overall reporting responsibilities of the fledgling OSI which was anxious to establish an image as a strong producer in the eyes of intelligence consumers. In the nuclear energy field, particularly, OSI feeling ran high. Under the

* See Annex I for a series of organization charts whenever significant changes occurred.

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strong leadership of the redoubtable Herbert I. Miller, using such means as the control of Restricted Data documents* and others, OSI maintained its hold on nuclear intelligence. Also in the field of in-depth intelligence research, ORE was performing analyses that at times appeared to OSI to reach too far back into the R&D phases of weapons systems development, clearly an OSI responsibility.

It may be well to consider for a moment such questions as: what constitutes scientific intelligence, at what point does it cut off and economic or military intelligence take over, and what if any are the distinctions between scientific intelligence and technical intelligence? Within OSI the "guardhouse lawyers" were inclined in these early days to take a rather broad and all-inclusive view of the scope of scientific intelligence. Broadly put, it could cover any development in foreign science and technology which could pose a threat, immediate or eventual, to U.S. national security. In another sense, scientific intelligence was held by some to encompass any application of science and technology

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* The statutory responsibility for control of designated types of atomic energy information under the Atomic Energy Act was assigned to OSI under an agreement with the Atomic Energy Commission. Dissemination of such material hence came under OSI control.

to the intelligence process, be it collection or analysis. Obviously, the bounds of the latter concept were almost limitless and well-nigh unmanageable in practice. To some extent, however, both views were implemented, or at least attempts were made at implementation, in OSI operations.

The second question, that concerning the cut-off point in the scope of scientific intelligence, was of considerable concern to OSI and to those producing intelligence on production of military goods and on military capabilities. Such terms as "research and development" were too ambiguous to afford clear-cut lines of demarcation. Many weapons are modified or "developed" throughout their life history and each modification may involve a good deal of science and technology -- in other words "research and development". The British evolved the notion that scientific intelligence would be concerned with technological developments through the stage at which a prototype item is produced, stopping short of the serial production phase. For want of something better, OSI tended to adopt this concept as well but it was frequently found necessary to bolster the understanding with a specific agreement with ORE on a given field. For a young and prerogative-conscious, but not yet very capable, OSI such specific agreements were perhaps the best solution.

OSI's view on the third question was, of course, of primary interest to the departmental intelligence agencies. In their zeal to confine OSI's attention to non-military fields, it would have been of considerable assistance to them to be able to exclude OSI by definition backed by a directive. This was essentially what they succeeded in doing in DCID 3/4 as will be seen. The DOD concept was that scientific meant <u>basic</u> science and technical meant <u>applied</u> science. Since a military weapon is patently an application of science, they considered themselves to be exclusively responsible for coverage of applied or technical intelligence. OSI, in their view, should be confining its attention to basic science, medicine, and scientific resources not obviously related to a military weapon or weapon system. OSI, of course, wanted a broad interpretation of the "scientific" part of scientific intelligence. The DOD view prevailed in the preparation of DCID 3/4, the directive that so severely circumscribed OSI's activities. OSI was a long time in undoing this bit of semantic skull-druggery, foisted upon an acquiescent Agency management, that rather completely obscured the statutory responsibilities of the DCI and CIA.

For its part ORE was perturbed by the OSI monopoly on nuclear energy intelligence and made unsuccessful attempts to carve its way into this field. Again using the Restricted Data control mechanism and others, Miller succeeded in fending off ORE. In ONE the fact that the important annual NIE on the Soviet nuclear energy program was drafted in OSI, approved by the Joint Nuclear Energy Intelligence Committee, and presented directly to the Intelligence Advisory Committee without ONE/BNE participation became an increasingly irritating thorn-in-the-side. Despite occasional attempts by Sherman Kent to have the responsibility shifted, it was not until 1965 that ONE assumed the drafting role on the annual nuclear energy NIE.*

Another internal issue, the one that ultimately led to Machle's resignation, concerned the responsibility for the collection of scientific

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* See Annex II.

intelligence information. No doubt aided and abetted by the old hands in the Nuclear Energy Division (NED), Machle quickly realized the importance of information inputs to the accomplishment of the OSI mission. In the summer of 1949 he made two trips to Europe to survey collection possibilities [redacted] Armed with some first-hand information, he returned to take on OSO in a struggle to have the OSI charter broadened so as essentially to include the responsibility for the collection, as well as analysis, of scientific intelligence information.

3.3(h)(2)
6.2(d)

Several months of lively debate and jockeying for position at Machle's level, and lower levels, culminated in the preparation of "white papers" on both sides. Machle, in his, made the point very forcefully that without information to analyze OSI was completely unable to produce the finished intelligence expected of it. The answer, he said, lay in giving OSI a far greater voice in the selection and guiding of operations. The matter made its way to Admiral Hillenkoetter who made his decision in February 1950. The OSO charter was upheld and, because of his deep personal involvement in the struggle, Machle resigned from the Agency effective 1 March 1950.

Among Machle's moves in his attempt to solidify the OSI position in collection was one that stemmed from his 1949 European trips mentioned above. [redacted]

3.3(h)(2)
6.2(d)

3.3(h)(2)
6.2(d)

While the intra-Agency struggle for position was in full sway on the CIA front in Washington, the DOD was manifesting growing concern about OSI's incursions into what it regarded as its preserve -- weapons intelligence. Machle met the increasing DOD attempts to circumscribe OSI's activities in this field by invoking the DCI's statutory responsibilities for coordination. In 1949 the first DCID governing coordination in the scientific and technical intelligence field was drafted in OSI. This directive reflected OSI's concept of its role as that of planning, supporting and coordinating U.S. scientific intelligence with the assistance of the other agencies of the Intelligence Advisory Committee (IAC). The directive was approved as DCID 3/3 by the IAC on 21 October 1949. Among its provisions was the establishment of a Scientific Intelligence Committee.** The first SIC Chairman was the CIA member, Willard Machle. This first attempt to

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* See Annex III.

** See Annex IV.

implement a rather literal interpretation of the CIA charter barely outlived Machle's short stay in the intelligence business.

More or less embattled on all fronts, Machle's brief service in CIA saw only the first faltering steps in the creation of an effective OSI. Hampered by serious deficiencies in the information inputs and in the caliber of its personnel and beset by opponents inside and outside of the Agency, OSI could by early 1950 show little outside the nuclear field that could be said to represent progress.

III. The Chadwell Period, 1950-55

In February 1950 H. Marshall Chadwell from the New York Office of the Atomic Energy Commission became Assistant Director, OSI. In sharp contrast with Machle, who had a distinct flair for intrigue and behind-the-scenes activity, Chadwell was by nature mild-mannered and conciliatory. He was in many respects well chosen for the role of peacemaker. As he took office in 1950 CIA began a massive build-up in response to the requirements for intelligence in support of the Korean War effort. Because of the many implications this conflict held for Soviet and Chinese Communist weapons development programs, and hence the demand for more S&T intelligence the OSI T/O [redacted] 6.2(d) in 1951. This level was in realism well beyond OSI's ability to recruit and train analysts. Hence, the Office found itself poorly staffed to produce intelligence and at the same time keep its rather precarious hold on a viable mission. For, in the heavily military atmosphere of the time, the DOD was likewise building up its technical intelligence strength -- and increasingly challenging CIA's right to engage in military, and especially technical, intelligence production.

It was perhaps inevitable that a series of head-on clashes should occur between OSI and the DOD forces led by the Joint Intelligence Committee (JIC) of the JCS. At DOD insistence the IAC in early 1952 created an investigative group, headed by Loftus Becker (then DDI of CIA) to review the scientific and technical intelligence scene and make recommendations on the apportionment of responsibilities in this field. Many meetings of the review group were held during the spring and summer of 1952 as OSI and the other participating organizations argued for their views on the proper split of responsibilities.

The result was a new directive, DCID 3/4 dated 14 August 1952. This directive rescinded DCID 3/3 and replaced the SIC with a Scientific Estimates Committee (SEC). In an annex it set forth by disciplines the primary responsibilities of CIA (OSI) and those of the military departmental agencies. The SEC, unlike its predecessor, was to confine its attention to the coordination of contributions to NIEs and was in effect barred from otherwise participating in the business of the member agencies. The many subcommittees of the SIC in fields of military interest, put together under OSI prodding over three years of arduous negotiation, were wiped out. By terms of the Annex to DCID 3/4, OSI was assigned responsibility essentially only for intelligence on the basic sciences, medicine and scientific resources. The military member agencies were assigned primary responsibility for the characteristics of military hardware and precursor developments in applied science (the "technical" in technical intelligence). Even in the nuclear energy field OSI lost ground with the assignment of equal responsibility to all member agencies.

DCID 3/4 was a stunning reversal for OSI. No other single event had a more traumatic effect on

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OSI in its formative years, and the righting of this "wrong" -- as it surely was in OSI's view -- consumed more of its energy in the next five years than did any other single issue.

If this view of the impact of DCID 3/4 on OSI seems extreme, one must consider the atmosphere then prevailing. Intelligence was not yet a widely admired calling nor were consumers yet convinced of the integrity of intelligence estimates or their producers. Technical collection means had not yet reached the stage of sophistication permitting spectacular results. The US was at war with Communist forces in Korea. Thus, many pressures faced OSI and the threat to the achievement of its plans, represented by DCID 3/4, was taken with perhaps more than normal seriousness. OSI was literally being excluded from many fields of highest interest to policy-makers. The loss of support which it was feared would result might well mean the end of the Office in its infancy. The immediate effect of DCID 3/4 was a drop in morale of grave proportions.

Only in the nuclear energy field did OSI have much to show for its efforts in the early 1950's. To understand the feeling in OSI in these times it is necessary to back up in history for a moment. Shortly after its transfer to CIG (later CIA) in 1947, the Nuclear Energy Group (later Division) became responsible for the issuance through the Joint Nuclear Energy Intelligence Committee twice yearly of an estimate of Soviet nuclear weapons development progress. By mid-1949 the estimate stated NED's belief that the first Soviet atomic test could occur no earlier than mid-1951 and more probably not until 1953. Hardly had the mid-1949 estimate been delivered to its consumers than the Soviets tested JOE I in August 1949. Shaken to its roots, NED and OSI looked long and hard at ways of obtaining and analyzing information.

One result, described in some detail earlier, was the frontal attack on OSO by Machle for its failure to provide raw information.

3.3(h)(2)
6.2(d)

3.3(h)(2)
6.2(d)

[redacted]

It has already been noted in foregoing pages that OSI faced a serious problem in recruiting competent staff members in its early years. More than any other single factor -- save perhaps for the obvious public relations value of influential scientific friends -- this dearth of staff scientists caused the management of OSI to turn to the U.S. scientific community for support. The number of consultants gradually increased until by the mid-fifties a sizeable group of eminent U.S. scientists had an informal, if not formal, connection with OSI.

Perhaps the most dramatic example of consultantship was the formation of a group known as the Boston Scientific Advisory Panel (BSAP). Late in 1950, one of OSI's consultants in the Boston area (Stanley P. Lovell) proposed to Chadwell that a group of cleared and knowledgeable scientists in that area be banded together to form a "Boston Cell". According to him, these men shared a concern about the inadequacies of U.S. scientific intelligence and would be willing to serve their country in support of OSI. The offer was accepted and in early 1951 BSAP began to meet at intervals with Chadwell and his top people. [redacted] 3.3(h)(2) 6.2(d) During the first few years all BSAP members were given consultant status and BSAP itself served a useful function in evaluating information and acting as a sounding board for OSI finished intelligence output.

In time, however, a number of influences began to work against the BSAP operation. Its members were of course much in demand in Washington and elsewhere and it became increasingly difficult to assemble enough of them at any given time to make a meeting worthwhile. The burden on OSI from presenting briefings on very involved subjects was considerable. In return OSI received little useable consultation (for obvious reasons when one considers the sketchiness of the evidence and the complexity of the problem against an exposure time of two or three hours!). OSI interest began to wane. By more or less mutual consent the intervals between meetings stretched. After a final meeting in 1959 the BSAP died a quiet death.

In later years it became popular in OSI to speculate about the BSAP and its worth to OSI. By any measure the public relations benefit came foremost for, it should be noted, the first three Presidential Scientific Advisors (James R. Killian and George B. Kistiakowsky -- President Eisenhower, Jerome Wiesner -- President Kennedy) were interested and active BSAP members. That this fact had more than incidental significance may be deduced from the knowledge that Killian was the first Chairman of BSAP and was still active in its affairs when President Eisenhower named him the first Special Assistant to the President for Science and Technology in November 1957. Both Kistiakowsky and Wiesner retained their interest in OSI throughout their tours in office.

In the early 1950s OSI's involvement in another of its principal fields of activity, ELINT, began in earnest. This story deserves treatment at such length that it can be told fully only in an annex.* The account here will therefore be brief. In the still-short history of U.S. scientific intelligence it may be said that the development of few fields has been accompanied by more pulling and hauling, internal and external to CIA, than that of ELINT. Beginning with a conflict over a definition of the term (was it to be "ELectronic INTercept", suggesting a narrow concept, or "ELectronics INTelligence", connoting a field as broad as electromagnetic radiation itself?) and carrying through to a struggle over what agency should process what product of what field operation, the partisans of ELINT waged the conflict at all levels of government.

Though ELINT began with British attempts to use signals intelligence to understand and frustrate German weapons systems of WW II, active U.S. involvement in the field began in earnest somewhat later. While not involved with what we would now call ELINT,

* See Annex V.

the story of this challenging field of intelligence may be said to have begun with SovBloc jamming of Voice of America broadcasts (as well as those of BBC) in the late 1940s. Efforts of the Western Allies to broadcast behind the Iron Curtain were being frustrated and there was mounting official concern over the blunting of one of the few Cold War weapons in use by the U.S. There were also ominous implications for the viability of U.S. long-haul military communications in the event of war. On 31 March 1950 the IAC established an ad hoc committee to review matters and make recommendations for a course of action to be presented by the DCI to the NSC. As Exhibit One on the subject of the difficulty of obtaining agreement on an ELINT matter, it may be recorded that the ad hoc IAC committee did not report to the IAC until 28 February 1951 and its recommendations were never effectively implemented thereafter.

Despite this uncertain beginning, the place of ELINT in scientific intelligence took shape under the urging of such men as Ralph Clark, who left JRDB and joined OSI in late 1949 [redacted] 6.2(d)
For several years after its establishment, the Agency had no direct part in electronic intercept. Quite

early, however, these men recognized the value of electronic intercept contributions to intelligence on Soviet electronics. Unofficial but close working level contacts were established and maintained with the elements of the Department of Defense that dealt with diverse aspects of electronic intercept to ensure that all intercept products were available to the Agency and that the best intelligence use was made of them.

Early in 1951 OSI was convinced that ELINT (now clearly defined as electronic intercept) was one of the most effective intelligence sources on Soviet electronics and that the value of its contributions to national intelligence fully warranted active support of intercept efforts by the Agency.

A progressive build-up of substantive ELINT competence took place within the

3.3(h)(2)
6.2(d)

Agency, both at the Headquarters and abroad. By 1953 the Agency was involved in ELINT deeply enough to warrant an Elint program of its own, and an Agency Elint Task Force was established to formulate a suitable Agency-wide plan. On 29 May 1954 the first Agency Elint program was approved by the DCI. Thus, by the time the first US national Elint policy was formalized in NSCID # 17 of 16 May 1955, the Agency was ready to join the national Elint community as a full-fledged partner.

Since the early Agency ELINT projects and actions were sponsored and supported by OSI, the Office became the first focal point for Elint activities of the Agency. It retained this role until 1962 when a separate Office of Elint was established within the newly formed structure of the Directorate of Research, later the Directorate of Science and Technology.

OSI's organization during the Chadwell period resembled in many respects a college faculty and consisted of the following Divisions: Biology, Chemistry, Physics and Mathematics (later Physics and Electronics), Medicine, Nuclear Energy, Scientific Resources, Scientific Analysis, and

Applied Science. In addition, there were staffs for Intelligence Production, Operations, and General Services. The result was not only violence to good management concepts regarding span of control by the head of an organization but also a considerable blurring of responsibilities caused by inherent over-lapping of scientific disciplines with their applications to weapons systems. Such organizational weaknesses contributed little to OSI's battle strength in dealing with DOD attacks.

The foregoing remarks about organization, basic as was the effect of the latter on OSI's position, should be amplified. Applied Science in the OSI lexicon was a cover name for weapons system analysis. Applied Science Division (ASD) analyzed developments in aircraft, submarines, antisubmarine warfare, ballistic and cruise missiles, ground weapons, and air defense -- all topics that DCID 3/4 cited as primary production responsibilities of the DOD. OSI justified the ASD effort on the grounds that such work was required to provide proper staff support to the DCI in his coordination role. In later years it became known as 'keeping the Services honest' in their intelligence estimates.

The coverage of Biology, Chemistry, and Physics and Electronics Divisions represented a dichotomy between basic and applied science. Thus, biological warfare became the preponderant and biological sciences the lesser concern of Biology Division, CW the dominant and chemical research the minor interest of Chemistry Division, and ELINT/electronics intelligence the primary and basic physical research the secondary concern of Physics and Electronics Division. OSI was in effect covering the basic sciences as called for in DCID 3/4 with its left hand but using its stronger right hand to cover areas assigned by DCID 3/4 to the military agencies.

Medicine Division's problems centered around the fact that it too was performing BW analysis (albeit on the medical aspects) at the time DCID 3/4 was enacted but was having difficulty in defining and producing intelligence on other portions of its mission. Thus, the Division was not only in disagreement with the Army Chemical Corps and the Office of the Surgeon General about its production responsibilities but was struggling with the essential infeasibility of producing finished intelligence from a miniscule supply of usable information as well. Despite a rather strong recommendation for more medical intelligence by the so-called Hawley Committee in 1948, precisely what was called for was not defined explicitly and uncertainty as to its mission continued to harass MD for many years.*

From its earliest days OSI could claim preeminence in at least one field other than nuclear energy intelligence. That field was electronics intelligence. Such men as Ralph Clark, before his nearly total diversion to ELINT, [redacted] early in the game provided 6.2(d)
the nucleus of analytical strength around which to build a capable staff. [redacted] 3.3(h)(2) 6.2(d)
At first electronics intelligence was combined organizationally with physics, mathematics and even geophysics intelligence but its relative rate of growth in importance led to its being assigned as the sole business of an Electronics Division in 1955. As

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* See Annex VI.

time went on electronics intelligence became increasingly involved with defensive systems, such as air defense and anti-missile systems, and in 1962 Electronics Division became Defensive Systems Division.*

In consequence of the wide divergence of views about Soviet scientific capabilities (were they midgets or 10 feet tall?), a good deal of OSI effort went into studies of the Soviet educational system, the numbers of graduating scientists and engineers, and their utilization. Almost alone among OSI divisions, the Scientific Resources Division (SRD) lived in comparative harmony with the DOD intelligence agencies. Its products were well received and during the early 50's there was little outside competition in its field of coverage. Increasing awareness of the Soviet build-up in scientists and engineers led to a full-dress briefing of the NSC on this subject in October 1953. Perhaps the high point of SRD's life was reached in June of 1954 when Allen Dulles used as his commencement topic at Columbia University "Soviet S&T Manpower" with text supplied by SRD. With this speech and the declassification of much

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* See Annex VII.

information as its aftermath, the problem increasingly slipped into the public domain. More and more scholars and research institutes took on the problems of numerical and qualitative assessment of Soviet scientific and engineering manpower. SRD's once preeminent position declined. [redacted]

3.3(h)(2)
6.2(d)

Eventually about forty able young college graduates, generally with bachelor level training in the Arts and Sciences, were recruited and given [redacted]

3.3(h)(2)
6.2(d)

SAD published a number of such [redacted] studies", as they came to be called, and contributed a good deal to the growing fund of knowledge on Soviet S&T capabilities. Inexorably, however, the impingement on the other OSI divisions increased as

3.3(h)(2)
6.2(d)

[redacted] and as SAD analysts dug deeper and deeper into collateral. Gradually the more capable of them were recruited by the other divisions and SAD's output diminished. In its little more than three years of productive existence SAD contributed much, if largely only as a training ground for OSI analysts. It finally passed out of existence in the general reorganization of OSI in 1955-56. 6.2(d)

A general lack of cohesiveness in OSI became increasingly apparent in the early 50's. By 1953 the question of programming the Office production activities as a means of reducing overlap and increasing the output of relevant finished intelligence was being extensively discussed at the management level in OSI. Chadwell first commissioned Ralph Clark to organize an effort on this problem and some work was accomplished in late 1953 and early 1954. For many reasons, not the least of which was Clark's ever-growing preoccupation with ELINT matters, the effort bogged down in the sheer complexity of conceptualizing a common matrix for so many fields of potential intelligence interest.

Finally, in mid-1954, Chadwell became convinced that an Office-wide program offered the best chance of strengthening OSI's position in the community. He directed that an accelerated effort be initiated under the Intelligence Production Staff (IPS). Progress was difficult amidst the prevailing confusion for, among other things, an IG inspection was in progress and all levels of OSI were involved in testimony and discussion of OSI's multitudinous problems. Finally, in June 1955, the first OSI Production Program was sufficiently advanced to be presented for Chadwell's consideration.

The significance of this early programming effort and its favorable effect on Office unity (though some may dispute the latter assertion) may be inferred from the fact that many of the concepts first developed then persist in 1968. The essential elements of the plan were a statement of "Critical Scientific Intelligence Objectives" to define and establish research and production goals, an annual program or listing of research projects to serve as guideposts in the fulfillment of the goals, and the establishment of an OSI Intelligence Board to review substantively proposals for the research program and drafts of finished intelligence.

[redacted]

HANDLE VIA
TALENT-KEYHOLE-COMINT
CONTROL SYSTEMS JOINTLY

The programming efforts served to highlight two intelligence problems that were particularly perplexing and persistent in the early 1950s -- did the Soviets have an active offensive BW program and what progress were they making in the development of guided missiles? An organizational experiment was attempted in 1954 in an effort to correct the rather bleak intelligence picture on these subjects; namely, teams of analysts were assembled from various divisions and put under a team leader. These groups were known as Task Force Able on BW and Task Force Baker on guided missiles. The former was headed by Frank L. Campbell, the latter by Miller.

Unfortunately, neither Task Force produced startling new conclusions after several months of intensive work.* They did, however, serve to pull together what was known up to the moment and to teach OSI management lessons of lasting significance. The lessons, simply stated, were that (a) the banding

3.3(h)(2)
6.2(d)

together of analysts was not a panacea for overcoming gaps in critically needed information and (b) the technique tended to produce serious managerial strains which virtually foredoomed the effort to failure. The key issues in the management problem were the divided loyalty of the analyst between his Division and the Task Force, the uncertainty of the analyst with respect to his fitness rating if he should please his Task Force leader but antagonize his Division Chief, and unwillingness on the part of Office management to give complete authority to the Task Force leaders during the exercise. It is significant that no comparable efforts, even approaching Able and Baker in scope, have ever been attempted in OSI since.

The effort to systematize the programming and production of OSI's intelligence output focussed attention on still another facet of the intelligence process -- the publication of results. Before 1954 finished intelligence issued in a variety of forms and successive reports may or may not have resembled each other in format, style or even cover. The establishment of the OSI Intelligence Board created a mechanism not only for the review of substance but form as well. It was not long before moves toward standardization, even beautification, occurred. The need to convey judgments in terms understandable to laymen became more and more clear as did the need for stating views convincingly. A publication philosophy began to develop under the critical impetus of the IB.*

It can be seen from what has been said that a good many of the present day characteristics of OSI began to take form in the Chadwell period. The staff was acquiring experience and becoming more confident of its abilities. Information to analyze was still woefully short in many fields but OSI was doing something about it by encouraging the development of collection schemes in more and more areas. Still, the general impression of OSI in those days could best be described as incoherent -- a few strengths, some weaknesses, too many frustrations. Many of its problems stemmed from the inability of its leaders to pull the team together and give greater purpose to its efforts.

IV. The Scoville Period, 1955-62

The cumulative weight of external pressures from DOD and internal confusion and weakness eventually made reorganization and strengthening imperative.

*See Annex VIII.

TOP SECRET

A critical I. G. report of early 1955 recommended new leadership and thorough overhauling of the OSI structure. [redacted] and Dr. Herbert Scoville, then Technical Director of the Armed Forces Special Weapons Project, became AD/SI in August 1955. Philip G. Strong and Karl H. Weber became his deputies for collection (DAD/C) and production (DAD/P), respectively. 6.2(d)

In early 1955 several of the senior members of OSI (chiefly George Horkan, the Executive Officer, and Weber), acting largely on their own initiative because of the critical need, drafted a revamped organization chart and presented it to Scoville shortly after his arrival. Upon his approval it was put into effect in October 1955. Primary goals of the reorganization were to strengthen the production capability of the office through the establishment of stronger foci for the analytical work and to reduce the number of persons reporting to the AD/SI so as to free him for such important external chores as coordination and briefings on intelligence findings.

In its essentials the reorganized structure consisted of two major groupings called areas (Technical

Sciences and Fundamental Sciences). Although the concept called for a chief for each of the areas, only the Fundamental Sciences Area was established as such and provided with a chief (Dr. Donald F. Chamberlain who later became AD/SI). The branches of FSA were Biology, Chemistry, Physics and Mathematics, Geophysics, Scientific Resources, and Special Projects. The allotted T/O was [redacted] positions. The mission of FSA was to provide the intelligence on basic scientific developments and scientific resources that lie at the root of foreign ability to conceive and develop modern weapons systems. 6.2(d)

As noted above, the Technical Sciences Area never materialized. Instead, five of the former divisions were retained: Nuclear Energy, Guided Missiles, Medicine, Applied Science, and Electronics. Wherever possible, applied subject matter (such as BW and CW) was not assigned to FSA but was placed in the appropriate "hardware" division. The Nuclear Energy Division was essentially unchanged except for a slight increase in size. In delivery systems intelligence, however, the ballistic missiles portion was split away from the aircraft and naval weapons coverage and established as a Guided Missiles

Division as evidence of Soviet progress in missiles mounted. Medicine Division was little affected except for loss of that B/CW work with little or no medical implications which was transferred to ASD. The Electronics Division was formed from the former Physics and Electronics Division and took on a decided applications cast with increased emphasis on ELINT and electromagnetic warfare.

With its internal structure improved and strengthened, OSI turned to the job of eliminating DCID 3/4 in earnest. Staff studies and white papers poured forth. In these, OSI expressed its belief that the arbitrary exclusion of OSI from weapons intelligence in DCID 3/4 was counter to CIA's basic statutory responsibilities. It was argued that limiting OSI to the production of basic scientific intelligence made it impossible for CIA to coordinate S&T intelligence activities in a broad, national sense or to advise and make recommendations to the NSC on intelligence matters relating to the national security. Strict adherence to DCID 3/4 would prevent OSI from discovering gaps in the national intelligence picture arising from deficiencies in the departmental agencies, as required of CIA by law.

Early attempts to argue the OSI position were not conspicuously successful. For example, the Clark Committee Task Force of the Commission on Organization of the Executive Branch of the Government (Hoover Commission), with considerable coaching by OSI it should be noted, recommended in May 1955 that DCID 3/4 be revised so as to reestablish the SIC and permit effective interagency coordination in S&T intelligence. Unfortunately for OSI, these recommendations had little immediate effect on the intelligence community beyond adding a certain amount of fuel to the fire.

It was not until several years had passed, during which the debate flared at times in the IAC under one heading or another, that a general overhaul of DCIDs was undertaken and DCID 3/4 came under review. In 1958 the IAC and the U.S. Communications Intelligence Board (USCIB) were merged into the new USIB and the NSCIDs and DCIDs were drastically revised. In this general flux, DCID 3/4 was superseded by DCID 3/5 (New Series), the SEC was abolished and a rechartered SIC was established.

The language of the two directives points out the change in direction with abundant clarity:

> DCID 3/4 -- The SEC should "integrate scientific and technical intelligence, as and when required, for the production of national intelligence" and "concentrate on the integration of intelligence opinion (other than that for which the JAEIC is responsible) as and when required for the purposes of national intelligence, and only incidentally assist in the coordination of production of other intelligence in scientific and technical fields." In its Annex DCID 3/4 delineated fields of primary concern for CIA and the military agencies.
>
> DCID 3/5 (New Series) -- The SIC shall "foster, develop and maintain a coordinated community approach to problems in the field of scientific and technical intelligence (except for atomic energy and guided missiles and astronautics intelligence), to promote interagency liaison and to give added impetus and community support to efforts of individual agencies."

The insufferable Annex to DCID 3/4 was rescinded. The SIC - SEC - SIC struggle had its parallel in the attempts to establish an interagency guided missiles intelligence committee. In the early 1950's the guided missiles account was handled by subcommittees or working groups of the SIC/SEC. The obviously increasing importance of guided missiles intelligence only stiffened the opposition of the DOD agencies to OSI's work in this field. Having little success in preventing such work, however, the representatives of these agencies undertook to prevent CIA from establishing a coordinating committee under the IAC -- reasoning very likely that agreeing to such a committee was tantamount to agreeing that CIA had a role in this field after all. By 1955 the battle was in full sway.

Feelings ran high. The IAC first asked the SEC in June 1955 to consider the problem of coordinating guided missiles intelligence. The SEC duly reported back that it could with proper strengthening take on the job itself. This suggestion proved to be popular with few, even in CIA. Thereupon, the IAC established a review committee in July 1955 to attempt once again to find acceptable terms for a coordinating mechanism. Predictably, the report of this ad hoc survey committee which called for CIA participation in a community-wide coordination effort could not be accepted by the DOD members of the IAC.

Dulles' next move was to take the issue to the Secretary of Defense as the penultimate step before requesting the NSC for a ruling. In his letter to Secretary of Defense Wilson, the DCI made it plain that the obstructionism of the DOD members, with the lone exception of the Air Force representative, was preventing the establishment of suitable means for improving intelligence in this most important of subjects. In a triumph of great significance to the still-young CIA, on 9 January 1956 the Secretary of Defense in no uncertain terms supported the DCI and snuffed out the opposition of the dissident IAC members. Thus was the Guided Missiles Intelligence Committee (GMIC) born on 31 January 1956 when the IAC approved a new Annex D to DCID 3/4.

Interagency coordination in the atomic energy intelligence field was characterized by somewhat less of the pulling and hauling that typified coordination of the other elements of S&T intelligence. Perhaps because authority for U.S. atomic energy activities was lodged in the AEC, not the DOD, representatives of the latter were more often consumers than producers of intelligence with a notable exception or two.

The first of the coordinating groups in atomic energy intelligence was the Joint Nuclear Energy Intelligence Committee (JNEIC) which operated in the 1947-49 period under Directive No. 9 of the National Intelligence Authority. With the establishment of the SIC in 1949, the JNEIC became the Joint Atomic Energy Intelligence Committee (JAEIC) and for a period of about three years (1949-1952) operated as a working group under the SIC (per DCID 3/3). With this exception JAEIC has existed as an independent committee under the IAC or USIB. Its authority in its field has been well nigh absolute. It survived a very critical review of its functioning at the time of the first Soviet nuclear test in August 1949 - an event that JNEIC had just pronounced unlikely to occur until mid-1951 at the earliest and more likely to occur two years thereafter.

Until the mid-1950's JAEIC was in fact the sole drafting body of one of the most important of the NIEs, that dealing with the progress of the Soviet nuclear weapons program. The procedure was for JAEIC to draft and coordinate a paper which was then submitted to the IAC for approval, by-passing the ONE/Board of National Estimates route taken by all other NIEs. In consideration of the fact that to that time the Soviet program was predominantly in a research and development phase, the JAEIC sinecure did not appear unreasonable to the operating heads of the intelligence community.

Though Sherman Kent (Chairman, BNE) had first raised questions about the propriety of JAEIC's responsibility for the NIE in 1953, it was not until December 1955 that the IAC approved a modification of the JAEIC charter. The procedure for handling the

Soviet atomic energy NIE was regularized and at the same time JAEIC was relieved of responsibility for intelligence on delivery systems "other than on the nuclear warheads or nuclear propulsion systems associated therewith." When the new series of DCIDs was issued in January 1959, the JAEIC charter was reissued as DCID 3/3 (New Series) and made to correspond with those of the GMAIC and SIC. As OSI is the component providing the bulk of the support to JAEIC and its operating officials, the atomic energy thread is inextricably woven into OSI. This story is told in greater detail elsewhere.*

Amid the general flux of directives and changing missions that characterized the first half and middle of the decade of the 1950's, it would be easy to miss the very significant improvements in collection and analysis that began to take place. During this time OSI began to mature as an organization. The maturation was reflected in the increasing sophistication of its products and its growing influence in the community as the battle of prerogatives with the DOD subsided.

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* Annex II, "OSI and Atomic Energy Intelligence".

[redacted]

OSI and CIA were being pushed to do more about scientific intelligence by such external bodies as the Technological Capabilities Panel (TCP), convened in 1954. The TCP was organized by the Scientific Advisory Committee (SAC) of the Office of Defense Mobilization as a result of a meeting of SAC with President Eisenhower on 27 March 1954. The President was greatly concerned about the rapid increase in Soviet military strength reflected among other ways by their successful thermonuclear weapon test in August 1953. His fear of surprise attack was real and through SAC he sought to enlist the aid of US scientists in minimizing the danger. Dr. James R. Killian (BSAP chairman) was appointed director of TCP and such men as Edwin Land and Edward Purcell served on it. On one of the subpanels was Herbert Scoville who was by a not-so-strange coincidence to become AD/SI about a year later.

The charge to TCP was to make recommendations for greater use of the nation's scientists and scientific resources in determining the realities of the Soviet threat to the U.S. The heavy involvement of U.S. intelligence was arranged through CIA, specifically OSI. The TCP report of 14 February 1955 came down hard on the need for improvement in intelligence and pointed out some directions to follow:

[redacted]

> ". . . . we can use the ultimate in science and technology to improve our intelligence take."
>
> ". . . . the really cute tricks are so close to the frontier of scientific knowledge that they remain unsuspected for months and even for years. A research program producing a stream of new intelligence tools and techniques would be invaluable."

Much of the thrust of the report was aimed at research and development. In its recommendations for an intelligence research laboratory the TCP was in effect advocating the establishment of a DD/R or DD/S&T some seven years before the fact. When Killian as head of the President's Foreign Intelligence Advisory Board convinced McCone in 1962 to establish a DD/R, he was merely following through on the TCP recommendations.

The importance to OSI of the TCP exercise was that for almost the first time top-flight US scientists were asked to support intelligence activities not as judges of its products but as innovators of collection and analysis schemes. The influence of TCP members, and their willingness to commit their own time and to enlist the aid of their fellow scientists, provided a good deal of the push needed to get new activities underway.

One of the schemes that the TCP strongly supported, the U-2, was then barely under development. By mid-1955 the top officials of OSI were made aware of this fact. As the moment of operational readiness neared, OSI was asked to perform vulnerability studies of the aircraft in the hostile Soviet environment to be penetrated. Under Scoville's leadership OSI was very much a part of the picture. (Earlier, Miller had left OSI to become the "ramrod" on the development team under Richard Bissell). By reason of this involvement at an early stage, OSI was better prepared than it would otherwise have been for the onslaught of photographic evidence that this remarkable collection platform began to provide in 1956. It is safe to say that no other body of intelligence information had so immediate and widespread an effect on OSI's substantive efforts.

That this sharp increase in evidence came when it did was fortuitous. Growing concern about Soviet thermonuclear weapons delivered by Bison heavy bombers or ballistic missiles began to be reflected in more and more demands for detailed estimates of Soviet capabilities. In early 1957 another subject began to turn up with increasing frequency in speculatory articles about the future of science -- earth satellite vehicles (ESV). The pros and cons of investment in such seemingly impractical experiments were being debated in the public press and scientific literature. In June 1957 OSI went on record in a Congressional briefing with notice that the Soviets could at any time thereafter launch an ESV. When in fact Sputnik I burst on the scene on 4 October 1957, however, neither OSI nor government leaders had foreseen the tremendous impact this Soviet accomplishment was to have on the whole question of U.S. investment in science and defense preparations.

More than any Soviet achievement since their first thermonuclear device of 1954, Sputnik I dramatized the resurgence of Soviet scientific - and military - capabilities. There was even a good deal of extrapolation by US defense experts of Soviet ICBM capabilities on the rather meager base of their first ESV experiment. Not since the investigation into causes of the Pearl Harbor disaster that led to the creation of CIA in 1947, perhaps, had so much soul searching into the strengths and aims of the U.S. been carried on.

The effect on OSI of the lively debates and discussions in Congress, Administration circles and the public press was an immediate rise in the requests for briefings and estimates on Soviet S&T capabilities. For almost the first time most components of OSI were stirred to produce papers, support for briefings, and newly scheduled NIEs, or to present their findings to a variety of consumers. The effect on OSI morale was generally salubrious. It was stimulating to most analysts to find that the products of their labors were at last sought after and found applicable to problems of national importance. Scoville responded vigorously to these demands and with great drive and determination supervised the preparation of many important studies and contributions to estimates. As time went on, he became more and more frequently the Agency spokesman in technical fields at White House Staff and congressional levels.

Among the many official groups to be extensively briefed by the DCI, the DD/I, or the AD/SI in the 1958-59 period was the Senate Preparedness Committee, chaired by then Senator Lyndon B. Johnson. The Committee was much concerned about the apparent U.S. gap in numbers of scientists and engineers being graduated and a possible disparity in ICBM capabilities, not to mention the lag in space exploration which the CIA-adduced evidence indicated. There can be little question that OSI - and the Agency - benefitted from this opportunity to show its wares.

In a more subtle way the extensive exposure of the analytical side of the Agency led to changes of lasting significance in the qualifications demanded of those who were to perform the increasingly complex and scientifically-grounded tasks of collection and analysis. The U-2 was only the first in a succession of intricately engineered platforms that could collect in a short few hours enough information to tax the analytical resources of the Agency and Community for months thereafter. Advances in the [redacted] followed 6.2(d) photography so that the need for scientists and engineers in the intelligence business rose steeply. No longer could generalists do many of the tasks now imposed on OSI. Amid a general stimulation of requirements for scientists and engineers in the U.S., OSI was hard put to recruit and retain enough qualified personnel in the early 1960's to do the job. The aftermath of Sputnik was to a large extent a big headache for OSI in personnel recruitment.

In the late 1950's OSI found itself providing leadership in the technical collection field as well as in analysis. The Collection Staff, the staff arm supervised by Philip G. Strong as DAD/C, was engaged in developing the information requirements behind a number of schemes for collection systems. Through his association with such groups as the Air Force Scientific Advisory Board, Strong was in a position to obtain advance knowledge of new proposals and to influence their development to some extent. Perhaps because it housed one of the larger groups of scientists/engineers in intelligence, OSI throughout its history has been extensively involved in collection support. This story is told in more detail elsewhere.*

Satellites were not long to be just objects for analysis. When the adaptation of the ESV to intelligence collection began in the late 1950s, OSI began preparing for the product, Scoville established a small group, known as Project GUARDMOUNT under Sidney N. Graybeal, to consider how requirements for

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* See Annex III.

the exploitation of the anticipated photography could be organized and fulfilled by the National Photographic Interpretation Center (NPIC). This bit of foresight paid off. OSI was well prepared to make the transition from the modest flow of U-2 photography to the deluge of Key Hole.

With the increasing technical complexity of weapons systems and the rapid expansion of world-wide science - the direct result in many respects of the coming of age of computers and data handling systems - there came a noticeable change in the demands on intelligence to up-date its methodologies in both collection and analysis. The possibilities that opened up for new approaches to old problems in intelligence had their impact on organizational features in CIA.

After some months of study for Mr. Dulles, upon the urging of the President's Foreign Intelligence Advisory Board, Scoville submitted a plan for the establishment of a new directorate in 1961 to be called the Deputy Directorate for Research. The plan was accepted in its principal features by the new DCI, Mr. McCone. On 19 February 1962 Scoville was himself appointed DD/R. The mission of the new

Directorate was to provide a focus for the technological activities of the Agency other than those housed in the Technical Services Division of DD/P, the Offices of Communications and Security of DD/S, and OSI then of DDI. In its first few months of existence, the DD/R consisted of little more than a staff component and the ELINT Staff which had been transferred to it from OSI.

The fledgling DD/R that Scoville had put together was no sooner established than its struggle for position in the Agency and Community began. While the DCI gave it control of the now-compromised U-2 assets of the Agency and a toe hold in ELINT, little else was forthcoming without a knock-down-drag-out battle, either within or outside the Agency and very often both. In June of 1963 a disillusioned and disheartened Scoville resigned from the Agency and Colonel Edward B. Giller, USAF, became Acting DD/R.

The period of more than six years during which Scoville directed the Office can be described as the time of coming-of-age of OSI. Although a number of organizational ideas, procedures and concepts for fulfilling the OSI mission had their genesis before his arrival, it remained for someone with

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his enthusiasm and energy to get OSI moving. He convinced Robert Amory (DDI) and Dulles of the need for scientific intelligence and obtained their support. When the time came for OSI to be up front before the White House and Congress, Scoville himself was ready and his subordinates were motivated to back him up. Few in OSI, then, would dispute the fact of his imprint on the Office and its products. If one lesson was learned from these years it was that if OSI was good enough in its job, no one could successfully dispute its right to be doing it. Effective DOD opposition that had so typified the opening of the decade of the 1950s was virtually non-existent at its close.

V. The Wheelon Period, 1962-63

Dr. Albert Wheelon of Space Technology Laboratories replaced Scoville as AD/SI in June 1962.*

As the DD/R was suffering its growing pains, Wheelon was revamping OSI - it may be said in his own image. A very keen and dynamic theoretical physicist in his own right, Wheelon was very demanding of his newly acquired colleagues. The gradually increasing stress on staff personnel with strong

*Weber was Acting AD/SI from February to June 1962.

backgrounds in the physical sciences and engineering, mentioned earlier, was accentuated still further almost overnight. He established training programs in telemetry analysis, primarily for analysts in missiles, space, and nuclear intelligence. He dug deeply into the question of the adequacy of the source material available to OSI and spent countless hours discussing, and all but inventing, new ways of increasing the flow of new data. Eventually he began to challenge the collectors to do better.

Shortly after Wheelon's EOD with CIA, the issue of the chairmanship of GMAIC flared again. It will be remembered that up to this time GMAIC had been chaired by a DOD representative. When Colonel Earl MacFarland, who had been Chairman for four years, was reassigned by the Air Force in 1962, the fight for the chairmanship between CIA and DOD was on again. Although the precedent laid down by Mr. Dulles in January 1956, as part of the price of peace with DOD on the establishment of GMAIC, called for a DOD chairman, CIA now for the first time had a candidate with rather overpowering qualifications in Wheelon and he was duly appointed. Both the internal resources in OSI and the Community mechanism of GMAIC were under his control. Not without strain and heartbreak, it may be said, he began a forced draft modernization of the staffs, the methods and the products of both.

In the midst of this Wheelon-initiated flurry of remodeling the Cuban missile crisis broke. He, as the Chairman of GMAIC, and many members of the Ballistic Missile and Space Division, spent long hours at the National Photographic Interpretation Center (NPIC) poring over U-2 photographs of Cuban landscape in search of Soviet missiles. A parallel effort was manned by JAEIC under Chamberlain's leadership. This able support to the Kennedy Administration was acknowledged in well deserved commendations.

Wheelon's tenure was little more than a year. Yet his effect on OSI in that short time was rather surprising. His emphasis on strong technical qualifications among staff professionals has been maintained ever since. His insistence on relevance in OSI publications set standards that are still being followed. His persistent demand for scientific integrity in analytical approach, though difficult for the generalists to embrace, certainly had lasting effects on the quality of OSI finished intelligence. These gains were not achieved without cost, in the form of considerable uneasiness and worry on the part of his subordinates, but their existence is undeniable.

VI. The Chamberlain Period, 1963 --

When it became apparent in the spring of 1963 that Dr. Scoville's tenure as DDR was not to last long, Wheelon emerged as a rather logical candidate for the DDR job. In August 1963 he replaced the Acting DDR, Colonel Giller. Dr. Donald F. Chamberlain, who began his career with OSI in 1955 as Chief of the former Fundamental Sciences Area and later became Chief of NED, replaced Dr. Wheelon as AD/SI at this time.

Only then was it made known that, as part of the understanding between McCone and Wheelon that led to the latter's acceptance of the DDR assignment, OSI was to be transferred from the DDI to the DDR (renamed the DD/Science and Technology). The move of OSI to the DDS&T meant not only its translocation but also a substantial reorientation of its relationship to other Agency components. Throughout its history OSI had been aligned in the Directorate of Intelligence alongside the other finished intelligence components (ORR, OBI, ONE, OCI). It took many years of persistent effort to establish productive working relationships with these offices, occasionally with the personal involvement of the DDI himself. Many in OSI were concerned about the effect on these arrangements that a crossing of directorate lines might have, especially considering the rather open antipathy between the then DDI and the new DDS&T. A good deal of back room discussion of the merits of the shifting of OSI to the DDS&T took place (and still goes on some five years later).

Other changes began to occur. It will be remembered that, because of the strangeness of science and technology to many collectors, OSI had built up a rather unique collection support capability consisting of such elements as a Collection Staff for liaison and requirements purposes, [redacted]

3.3(h)(2)
6.2(d)

The process of paring OSI down continued. A total [redacted], in addition to those already 6.2(d) mentioned, was removed from OSI to finance new components of the DDS&T such as the Office of Research and Development (ORD), Special Projects Staff (OSP), Foreign Missiles and Space Analysis Center (FMSAC), and others. The most significant of these, in terms of eventual effect on OSI was FMSAC. The process began modestly enough with the transfer of [redacted] 6.2(d) from OSI in 1963 soon after Wheelon took over as DDS&T. This small beginning was followed in two years (October 1965), however, by the transfer of the entire Ballistic Missiles and Space Division (BMSD) of OSI [redacted] to FMSAC which was then 6.2(d) elevated to Office status.

These reductions dropped the OSI T/O [redacted] 6.2(d) in FY 1962 [redacted] at the end of FY 1964. As a con- 6.2(d) sequence, on-board strength exceeded authorized T/O for the first and only time in OSI's history to that point. There ensued a determined effort toward early retirement and out-placement of surplus individuals that successfully removed the excess personnel. OSI could take small consolation in the fact that considerable dead wood was pruned away during this enforced reduction in strength.

The large scale shifts of personnel and reduction in T/O exerted a rather unsettling effect on OSI professionals and led to a higher than usual attrition rate in the early days of Chamberlain's tour of duty as AD/SI. By 1965 OSI was once again in the familiar position of being understrength in professional personnel. A shift from RIF to recruitment thus became necessary.

As the general uneasiness in OSI began to subside in 1965, the afore-mentioned transfer of BMSD to FMSAC was announced by Wheelon to be effective 25 October 1965. With it went a substantial portion of the truly national level subject matter of S&T intelligence. To OSI's problems of learning to work across directorate lines with erstwhile colleagues in the DDI were added the problems of coordinating S&T intelligence relating to ballistic missiles and space intelligence across office lines.

Reductions in size meant reductions in budgets. Wheelon in his short tenure as AD/SI had projected an external analysis program that rose to the [redacted] 6.2(d)
level in five years. Though he succeeded in selling the concept to CIA planners, federal economy moves overtook the plan before it could be implemented to

[redacted]

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any great extent. Hence, in Chamberlain's first year or two he was forced to manage with less external contract money than seemed likely to be available at the start of his tenure.

As can be seen from the foregoing account, the first two years or so of Chamberlain's directorship of OSI were rather discouraging. The loss of personnel and ceiling positions meant less freedom to look into potential new fields of interest and necessitated hard looks at the scope of subject matter to be covered with fewer personnel. Similarly, careful review of external contract programs was required as the OSI budget leveled off. A general tightening up of operations was called for.

A series of moves was initiated by Chamberlain to enable OSI to live within its personnel and budget limitations. Perhaps the most basic was a painstaking examination of the priorities attached to the numerous areas of coverage for which OSI was for one reason or another responsible. A substantial reduction of coverage in geographical and topical areas for which significant customers were not readily identifiable was achieved. This review had many ramifications. For example, in some instances personnel could be shifted so as to bolster coverage of important topics that were too lightly studied.

Another product of the review was a comprehensive redirection of the external contract program. Low priority projects were dropped and projects of intermediate priority were reduced in scope. Major projects of high priority were given a larger proportion of OSI's external contract dollar than before as the total number of projects dropped. A conscious, and largely successful, effort was made to improve the monitoring of contractor performance by OSI project officers. The net effect of the review of the external contract program, which was actually a gradual process spread over several years, was to make more effective use of the investment and raise the caliber of the contribution by contractors to OSI's production of finished intelligence.

OSI's response to a declining T/O was a critical look at the qualifications of its personnel and a concerted effort to increase the caliber of the technical staff when filling vacancies. Recruitment of the best college graduates was emphasized. In the 1965-66 and 1966-67 academic years particularly programs of assistance to field recruiters were laid on.

Selected OSI staff members went into the field to work with recruiters, tell them about OSI's needs, and assist in conducting the interviews. The number of applicants rose sharply and the best of these good candidates were concentrated upon for eventual hiring. This recruitment effort was highly successful and achieved the desired result of upgrading the level of competence of OSI technical personnel as a whole. The roster of prospective branch and division chiefs was immeasurably strengthened by the addition of sizeable numbers of alert, young scientists and engineers.

The availability of fewer people to do the scientific intelligence job caused a reexamination of sources and methods. The premium on finding the most productive source to supply the most meaningful information increased. The process of shifting from the traditional intelligence approaches involving people and places to technical data from intricately engineered and complex collection devices, set in motion during the late stages of Scoville's tenure and accelerated by Wheelon, was of necessity pushed still further by Chamberlain. It was patently in OSI's best interest to work with collection organizations on requirements and objectives and the development of the DDS&T concept brought OSI into a support role vis=a-vis those designing and operating collection devices and programs. The relative reliance on such technical sources increased [redacted] 3.3(h)(2) 6.2(d) While OSI remained an all-source shop, the inputs from technical collection schemes increasingly out-weighed those from traditional sources.

Like many other facets of OSI's operations, collection support became increasingly relevant -- despite the loss of the OSI Collection Staff to the DDI. The simplest explanation for this apparent anomaly is that with fewer people in the requirements system one was required to call his shots more carefully and to be as efficient as possible in the use of support groups such as the Collection Guidance Staff. Then, too, direct working relationships with DDP divisions, always a preferred modus operandi in OSI, were encouraged as a way of cutting out needless intermediaries and conserving time.

One such arrangement, that with FE Division, is worth citing as an example of highly beneficial collaboration. Beginning in 1965, periodic meetings between the management levels of FE and OSI have been held at which selected topics are reviewed for the purpose of facilitating the understanding of important S&T requirements and selection of the most likely collection operation to satisfy them. These meetings feature briefings by both parties. As time has passed, representatives of FMSAC and other DDS&T offices have participated but the emphasis remains on OSI's interests. Earlier attempts to establish a somewhat similar program with SR Division dwindled away after the first two or three sessions. In 1968 an ex-OSI officer was returned to OSI from CGS (now Information Requirements Staff), and assigned the task of improving OSI relationships with DDP generally.

Specialized collection support has always been a part of OSI operations but one arrangement is worth singling out for somewhat greater treatment than the others. This is the relationship between Defensive Systems Division (DSD) and the Office of Special Activities (OSA). This relationship began with the U-2 operations in 1956, as has already been mentioned. A handful of selected OSI officers prepared vulnerability assessments on the U-2 operating in a Soviet environment

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for the Developmental Projects Division (DPD), the operating component. When Scoville became DDR, he charged OSI with providing the same sort of support to the continuing U-2 and follow-on operations which were subsequently taken over by OSA. Largely on the basis of a reputation established in this work, in 1967-68 DSD was requested by the National Reconnaissance Office (NRO) to do a comprehensive study of a number of systems operated under NRO aegis (Project Off-Grade).

A continuing problem in OSI, alluded to in earlier pages, is that of presenting timely intelligence in a form most useful to the consumer. A number of experiments have been tried in the never-ending search for the best format. One such experiment began in the summer of 1964 when a five-day-a-week publication, known as the SURVEYOR, was inaugurated. At first purely an internal CIA organ, the SURVEYOR was an attempt to cull selected items of recognizable significance (up to a total of 5 or 6) from the daily flow of raw information and publish a gist and comment on them for the information of appropriate officials. The SURVEYOR caught on quickly and became an important outlet for S&T intelligence. With occasional improvements it is in 1968 distributed widely in daily and weekly form at two levels of classification to both domestic and overseas recipients. At Chamberlain's insistence the Scientific Intelligence Digest (SID) has been strengthened to maintain its place as the primary monthly issuance from OSI. Some fifty-odd Scientific and Technical Intelligence Reports (STIRs) complete the roster of series-produced OSI publications. This family of publications represents probably the highest level of productivity ever achieved in OSI in terms of timeliness and pertinence to the needs of policy makers.*

Perhaps because of preoccupation with intra-CIA matters, OSI came through a period that might have seen another round of prerogative battles with the Defense Intelligence Agency (DIA) with very little perturbation. When the DIA was established in 1963, there was some concern in OSI that the struggle over the division of S&T intelligence responsibilities, still fresh in the memories of many OSI officers, might be repeated. The problems of getting organized and establishing a working relationship with the Service intelligence agencies appear to have so occupied DIA, however, that few quarrels have been

* See Annex VIII "OSI Publications"

engaged in with CIA and none of consequence to OSI. In JAEIC and SIC only minor difficulties have arisen that are attributable to DIA and the general functioning of these two committees as of 1968 has been as smooth as at any time in their history. Both have been remarkably successful in recognizing and accommodating the needs of the participating agencies, notably DIA.

3.3(h)(2)
6.2(d)

This account of the history of OSI was completed in its present form at the end of 1968. As the year ended, the early phases of reading in a new administration were being implemented by the intelligence community, the Agency and OSI. Mr. Nixon had made known his intention of reinstituting the National Security Council procedures for review of national policy issues, forecasting the direct involvement of intelligence considerations in the workings of the NSC machinery. Moves toward cutbacks in resources for intelligence purposes were well underway. OSI proposes to do an annual addendum to this review of its history in order periodically to record the most significant events, activities and trends in its existence.

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ANNEX I

Personnel, Budget, Organization

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ANNEX I

Personnel, Budget, Organization

I. Personnel Trends

The rise and fall of OSI personnel ceilings are shown in the curves in Figure 1. Several interesting features of these curves should be enlarged upon. The first is that, except for a brief period in 1963-64, OSI's on-board strength has never exceeded its ceiling. The disparity was particularly large in the days of rapid build-up in the early 1950s. Note also that T/O and ceiling have been essentially identical except for the 1952-57 period. The 1963-64 over-staffing was caused by the transfer of slots to newly established offices of the DDS&T before provision for all incumbents could be made.

A second interesting feature is the period of T/O increase from 1955-57 followed by a nearly stable level from 1957-62. This may be termed the Scoville influence for it was OSI's development under his regime that convinced CIA management to invest so heavily in scientific intelligence. The decline in 1962 and thereafter is simply a reflection of the establishment of the Deputy Directorate for Research (later the DDS&T) and the subsequent process of using OSI as the source of slots and personnel to man newly created components of the new directorate. Except for the decrease of [redacted] positions 6.2(d) to form the ELINT Staff (later Office of ELINT) of the DDR which took place in Scoville's brief tenure as DDR, the remainder of the pruning occurred in the Wheelon era, as follows:

1963 - [redacted] 6.2(d)

-

1964 -

1965 -

-

There have been no mass reductions since 1965.

To some one of the painfully typical features of OSI has been its recruitment problem. The on duty curve illustrates the point rather aptly. Until 1968, except for the brief period in 1963-64 already accounted for, OSI has always been below strength. The reasons have varied somewhat over time but the persistent ones throughout OSI's history have been (a) a general deficiency of scientists and engineers in the face of strong demand, (b) some inherent drawbacks in processing requirements, notably those associated with security, and (c) the chronically non-competitive government salary structure. In very recent times better recruitment procedures, better definition of intelligence problems and hence job requirements, and better salary scales have enabled OSI to be at strength and to have reasonable prospects of remaining there.

II. <u>Budget</u>

As to the OSI budget, little need be said to supplement the information of Figure 2. It will be noted that management support, chiefly salaries, has always formed the major portion of the budget. The outlay for external assistance, however, is seen to increase rather graphically beginning in about 1958. Though the reasons for the increase are explained fully in Annex IX "OSI's External Assistance Programs," suffice it to say here that 1958 marks the beginning of true appreciation of what could be done to further fulfillment of the OSI mission through this means and this was largely the influence of Dr. Scoville. [redacted]

3.3(h)(2)
6.2(d)

The undulations during the past eight years have been caused by funding with year-end money followed by deletion from the succeeding year's budget, a practice successfully avoided in the past few years. One final comment is that it has only been in recent years that OSI has been fund-limited to such an extent as to hinder its meeting its intelligence obligation.

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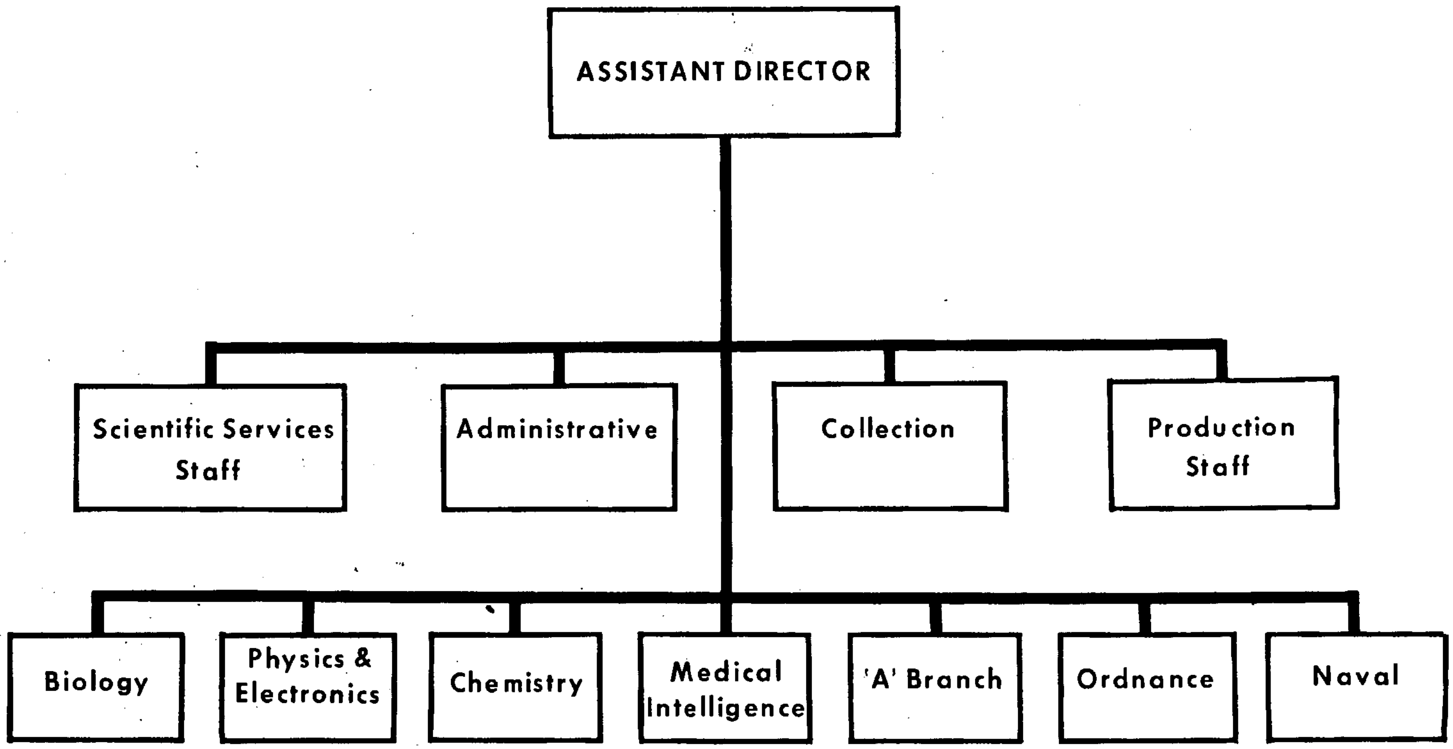
January, 1949



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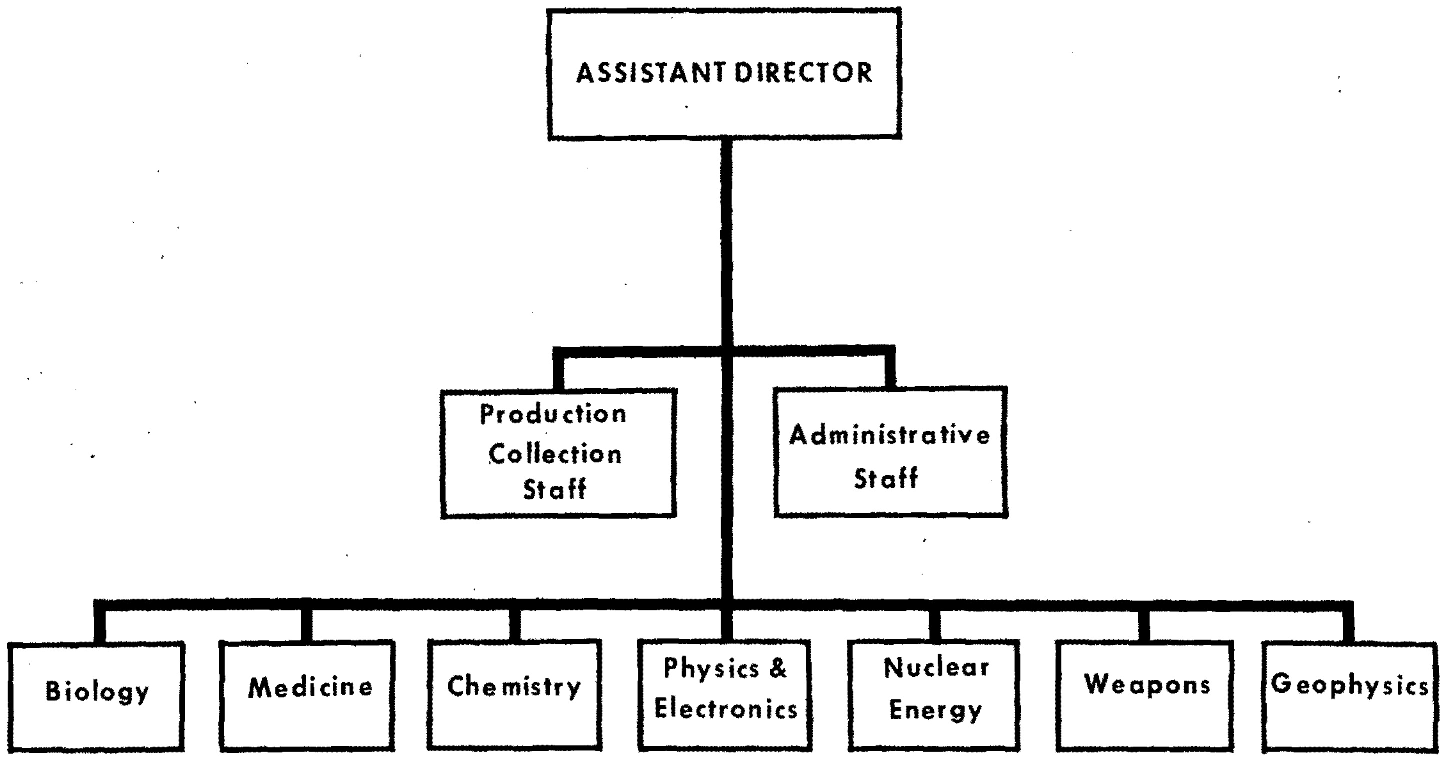

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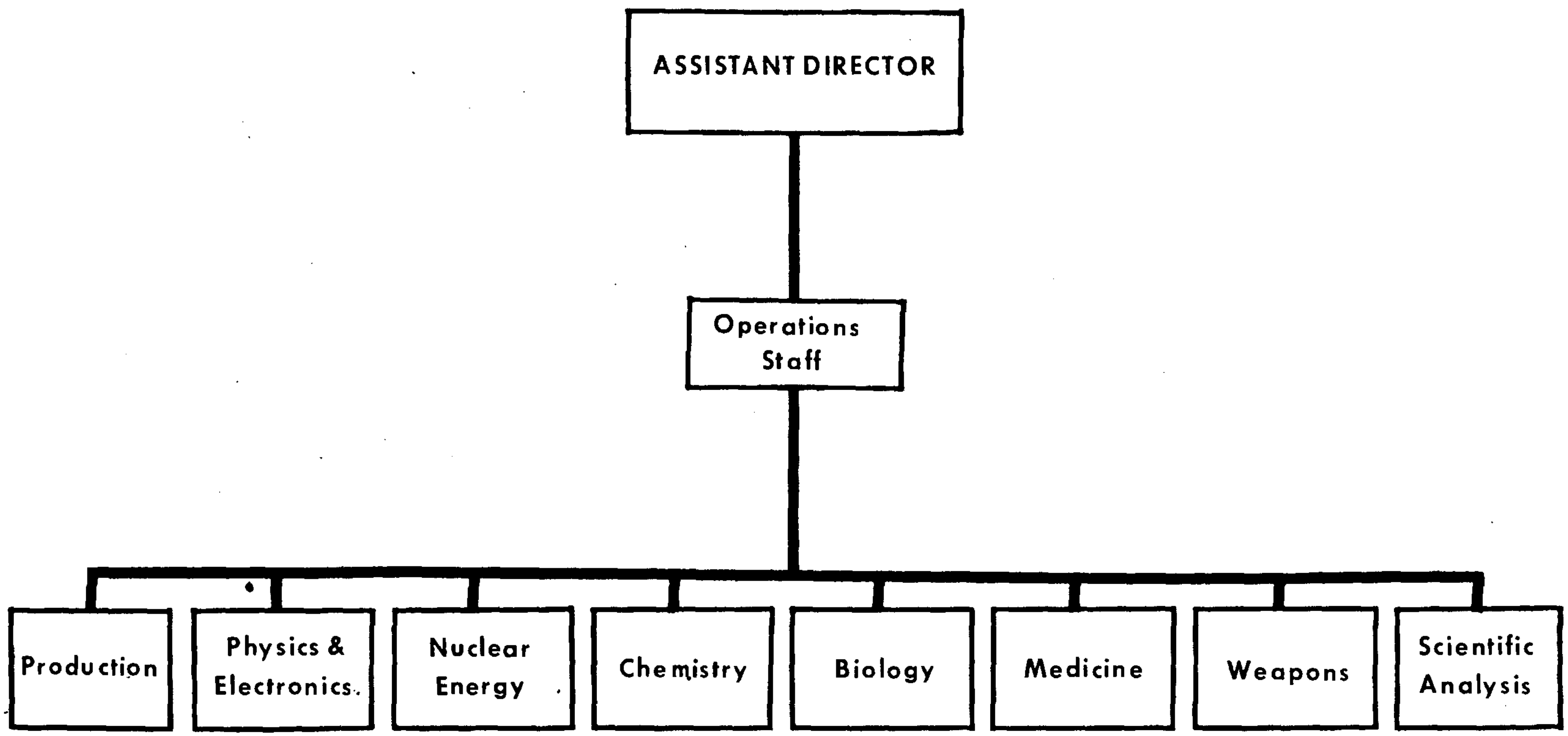

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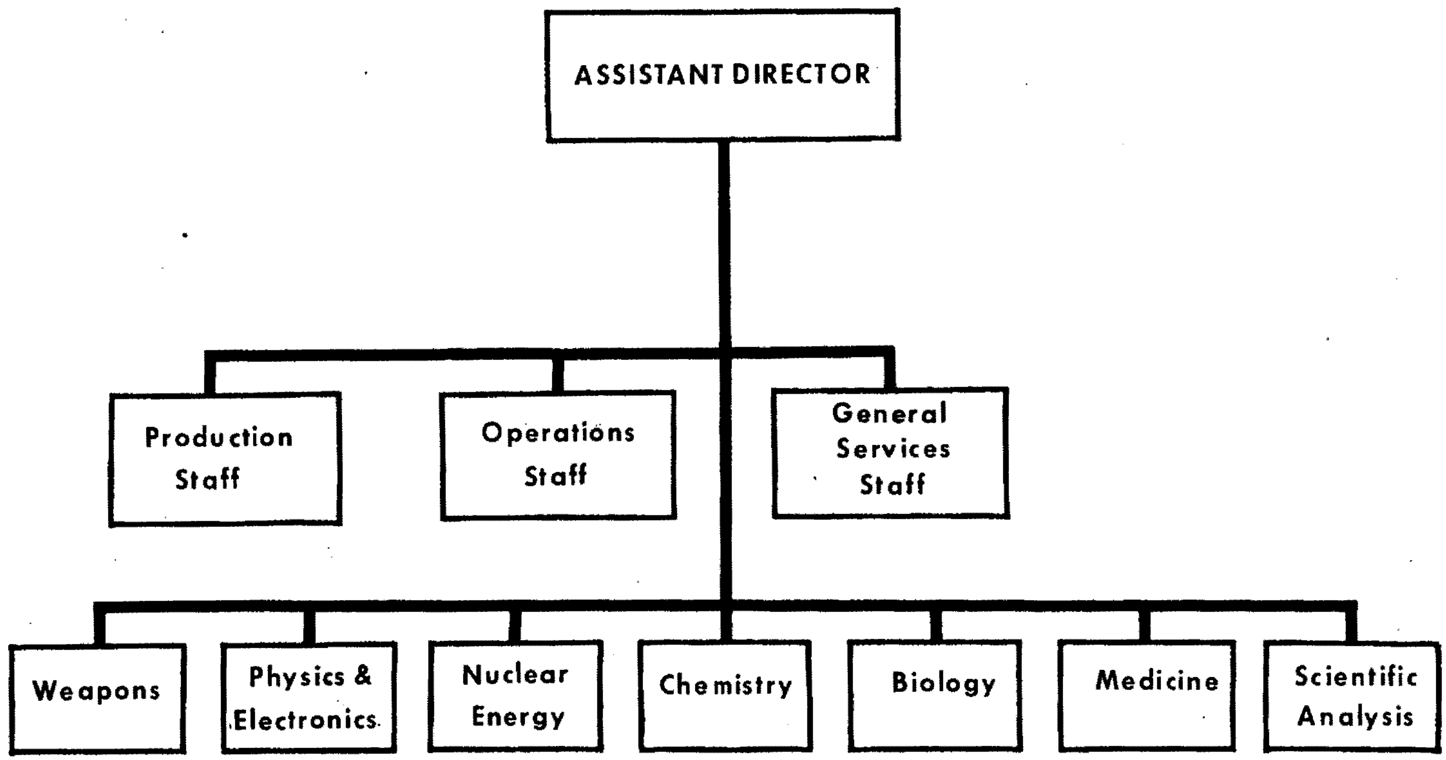

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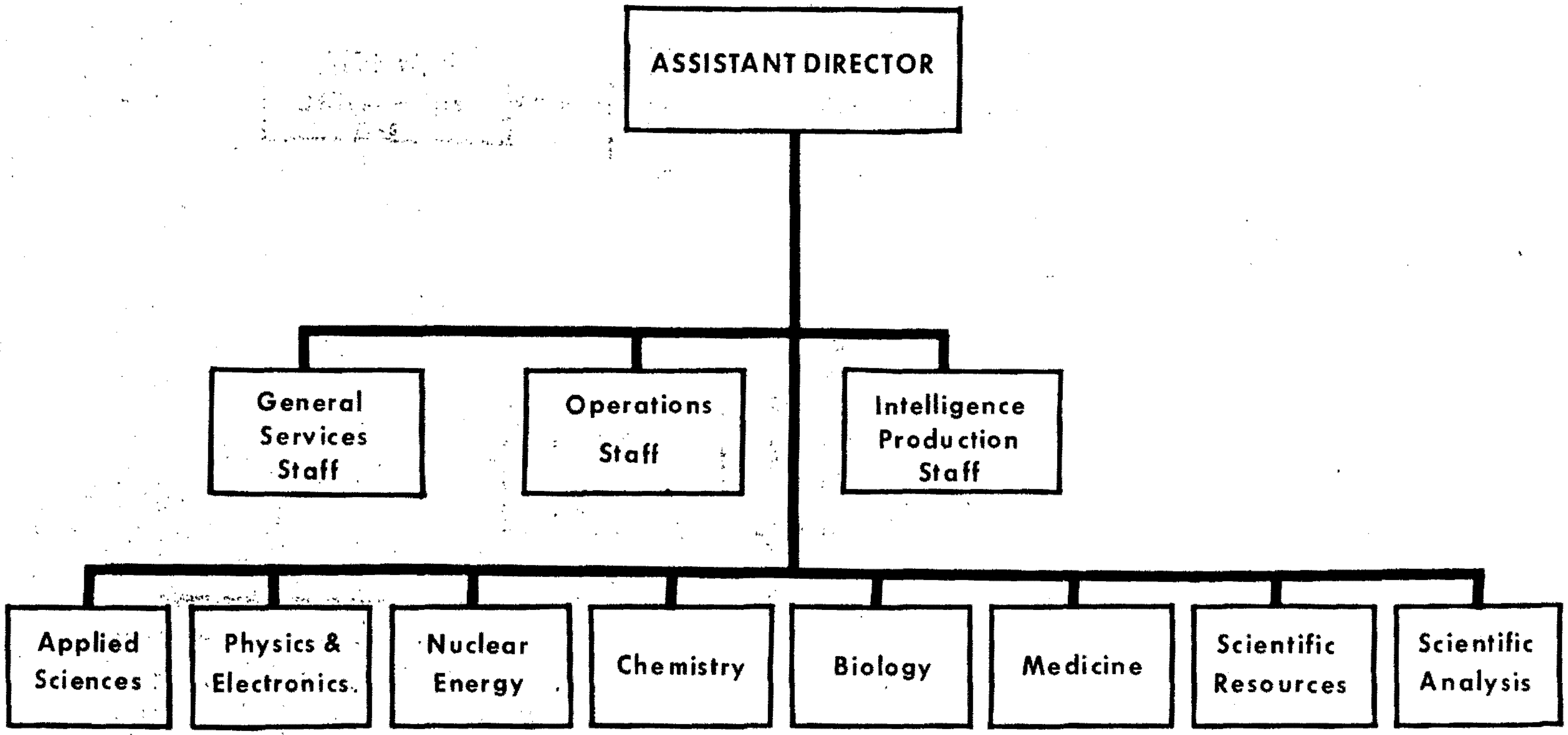

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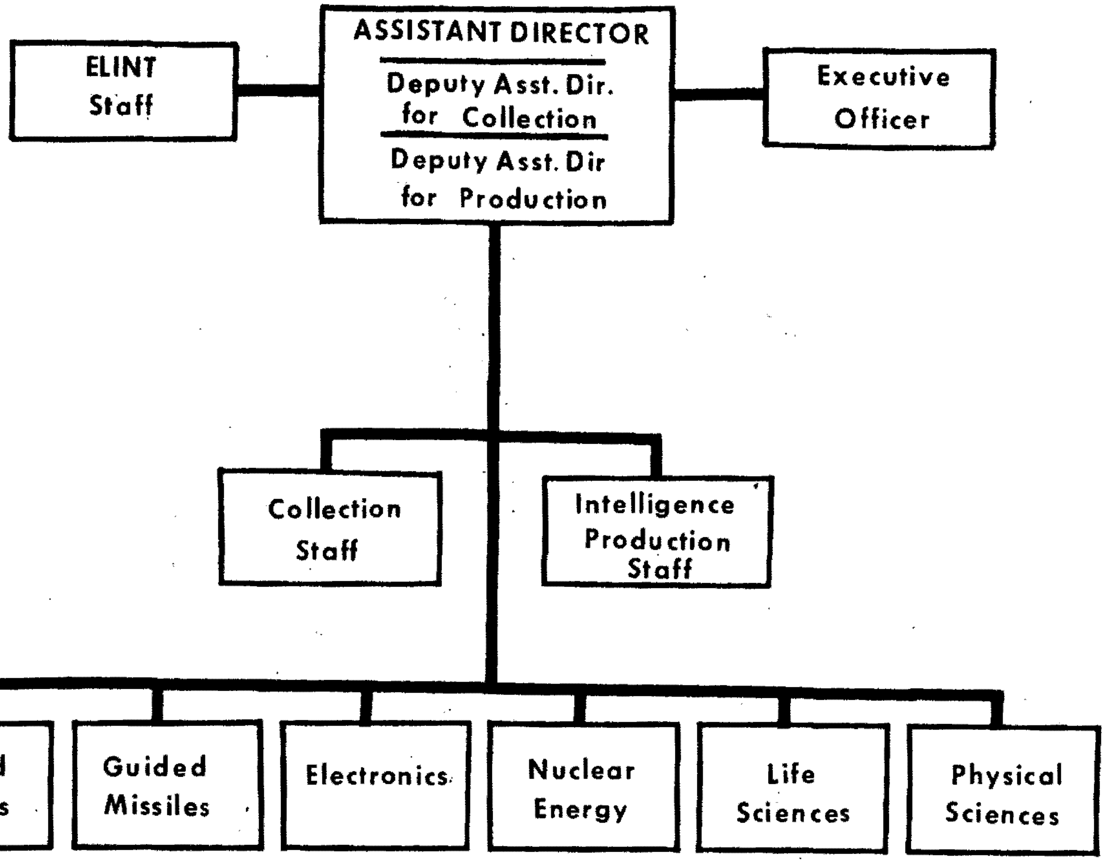
November 1959



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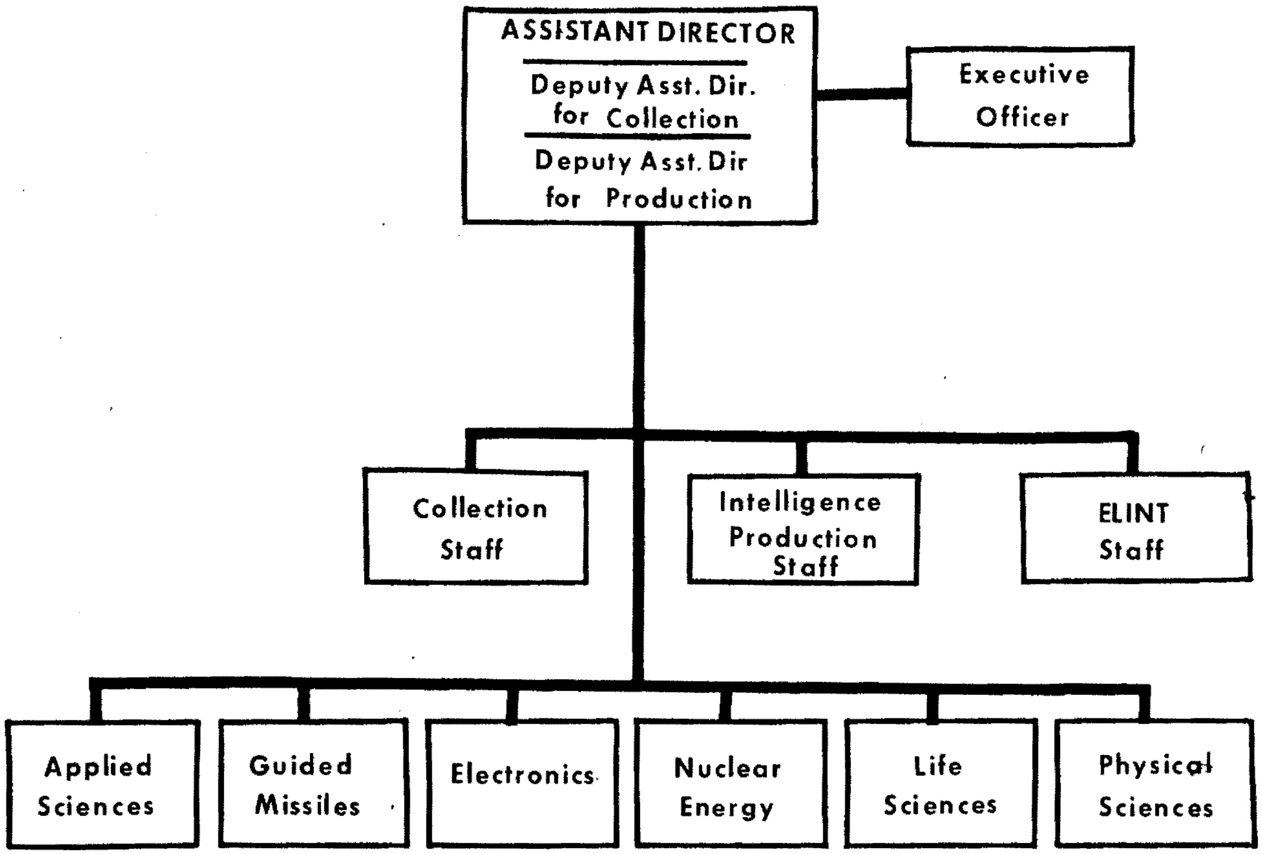
January 1960



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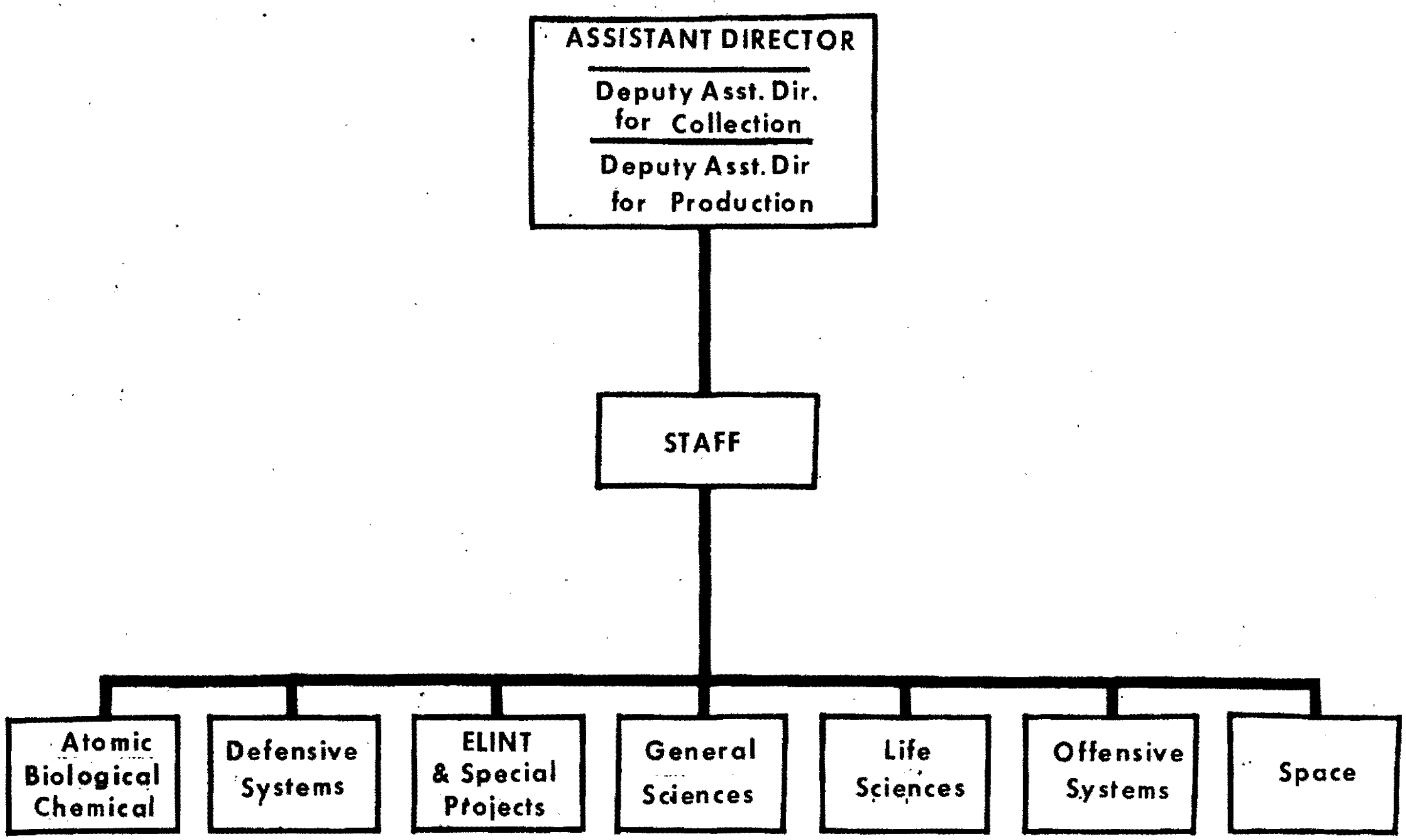

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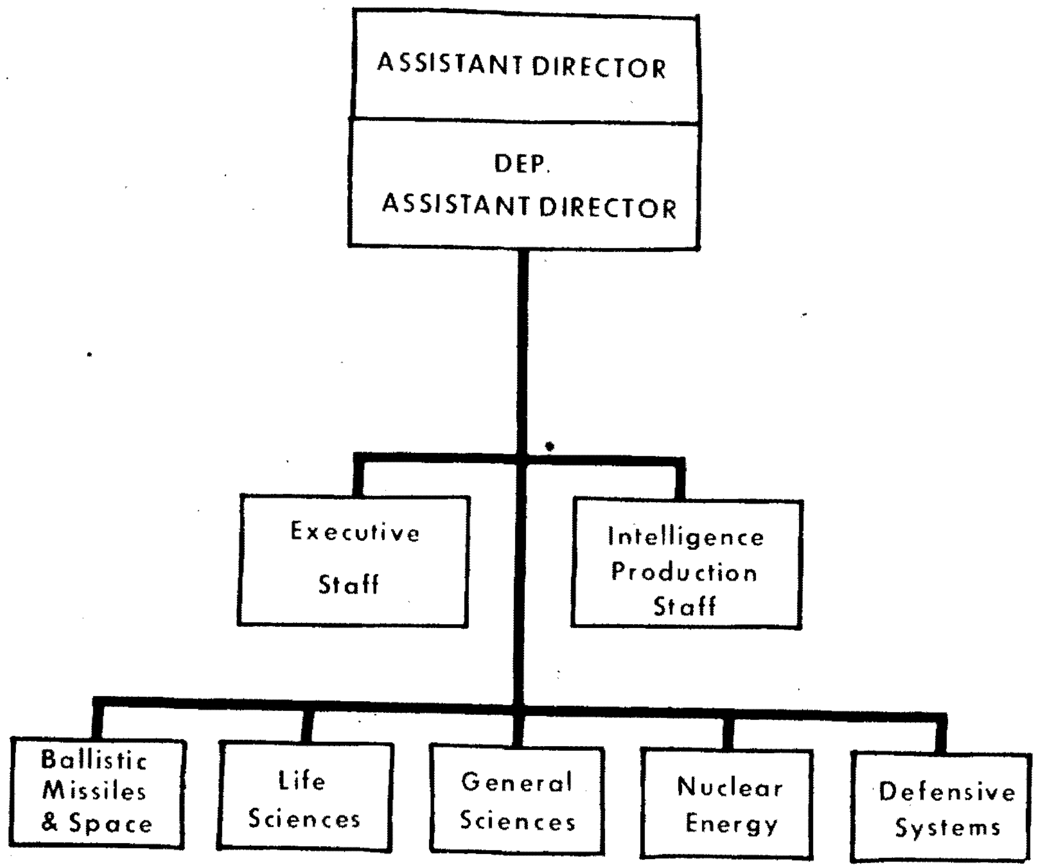
October 1964



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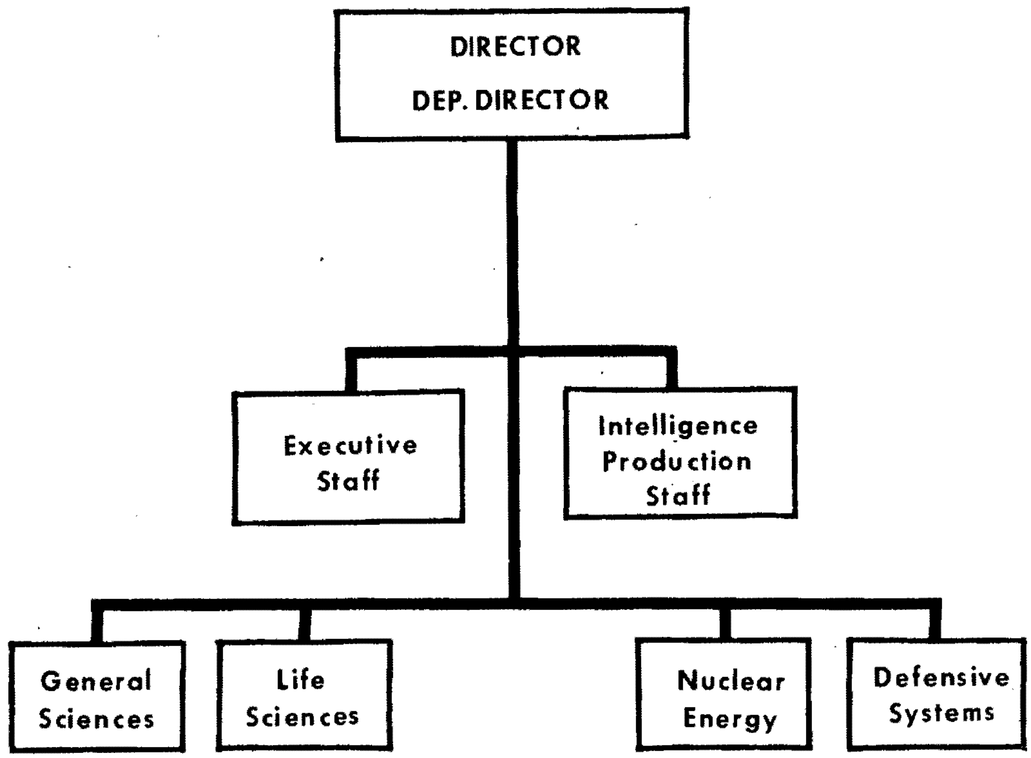

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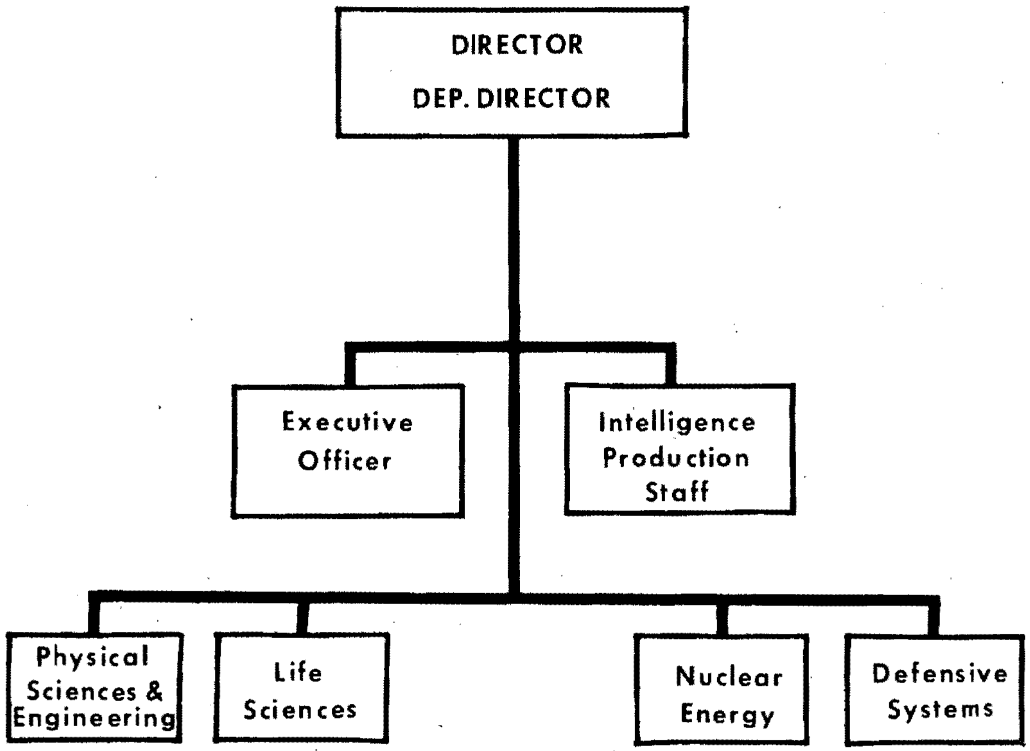
July 1967



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6.2(d)

6.2(d)

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ANNEX II

OSI and Atomic Energy Intelligence

including the

Joint Atomic Energy Intelligence Committee

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ANNEX II

OSI and Atomic Energy Intelligence including the Joint Atomic Energy Intelligence Committee

I. Atomic Energy Intelligence in the Manhattan Project 1944-1946

Atomic Energy Intelligence in the U.S. had its beginnings in the Manhattan Project. In early 1944 General George C. Marshall, Army Chief of Staff, directed General Leslie Groves, Director, Manhattan Engineering District, (MED) to establish the necessary organization within the District to cover foreign intelligence in the atomic energy field. The intelligence unit that was formed, as part of the MED Security Office, followed the prevailing practice in MED of being tightly compartmented and isolated from other governmental organizations due to security regulations. For the most part it concerned itself with an exhaustive counter intelligence-espionage effort. The main reporting function was accomplished directly to and by General Groves, personally.

In May 1945 the intelligence unit was separated from the Security Office and began to function directly under General Groves. During World War II the concentration of effort was on Germany. Near the end of the war the emphasis shifted to activities and scientists with atomic energy knowledge who were Soviet or might

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be brought under Soviet control. Thus, the USSR began to supersede Germany as the prime target for intelligence exploitation.

Operation ALSOS was a major Manhattan Project intelligence operation as the war in Europe came to an end. ALSOS teams manned by scientific personnel and given priority assistance by the field forces, moved into Germany with and in some cases ahead of the combat forces. Their dual objectives were to determine conclusively how far the Nazi atomic effort had progressed and to seize German atomic facilities, records, and key scientists. These objectives were accomplished. By the fall of 1945 it became clear that the Soviets were successfully pursuing the same objectives in the German sector occupied by Soviet troops.

Apart from the MED effort, the Office of Scientific Research and Development during World War II carried out as part of its duties a general study of the scientific literature to isolate names, locations and activities of all scientists in the Axis countries. This effort

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aided in developing bombing targets and revealing sources of military information. Additionally, some effort was expended on the USSR, and this material provided a valuable tool when the intelligence community turned its attention to the USSR after the war.

Although rigorous security measures and special classifications instituted by the Manhattan Project largely prevented the flow of information, intelligence components outside the Project became aware of the significance of uranium, Norwegian heavy water and other materials of atomic energy importance. Also, almost overnight, with the US explosion of nuclear bombs and the publication of the Smyth report, the subject of atomic weapons was no longer taboo. Thus the COMINT people, who did not have the necessary AE clearance, suddenly found that some Soviet communications traffic began to be very meaningful, traffic which had heretofore been handled on an essentially unwitting basis. At the same time overt newspapers, magazines, books and speeches rapidly began to expand the flood of AE information.

During the 1946-1949 period the intelligence organizations of the military services and other governmental departments, because of their departmental requirements, concerned themselves with their parochial interests in atomic energy intelligence. As a result, intelligence information and estimates emanated from a number of organizations. Although there was some working-level liaison, the interchange of raw atomic energy information and evaluations was spotty and sporadic at best and widely divergent estimates of foreign atomic capabilities appeared. The task of intelligence analysis was greatly complicated by the countless and persistent rumors concerned with atomic weapons and detonations in the USSR. Each required thorough analysis and had to be evaluated against a growing body of information, including an effort to discount a Soviet inspired propaganda campaign.

Until its deactivation in 1946, the Manhattan Project was the focal point for an effort to exploit the potential for remote detection of unique tell-tale radioactivity emanating from atomic energy plants as well as supporting activities in Germany and German-controlled areas. The interest in remote detection

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was amorphous with little or no organization. A steady flow of suggestions were self-initiated within the Manhattan Project. General Groves kept a personal file on detection possibilities, but presumably preferred not to pursue these in any way that might divert the scientific effort of the Project from the primary objective of producing atomic bombs.

As early as 1943, however, there was specific Manhattan Project interest in aircraft air sampling and other detection possibilities. It is not clear whether the concern was over potential health hazards from Manhattan Project operations or purely the development of technical knowledge on the behavior of released radioactivity or the development of detection techniques for targeting purposes.

Detection instrumentation and related techniques for analysis proved to be controversial subjects. Some scientists felt that devices on hand were adequate or would require little modification, an attitude which contributed to a feeling that long-range detection could be essentially a low-budget operation. Others felt that considerable and costly research and development effort was essential and a matter of urgency. Still others

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believed that the capabilities of instruments at hand or likely to be developed were so uncertain in this new field as to raise grave doubts about the potential value of a long-range detection effort.

By early 1946 long-range detection began to break away from tight Manhattan Project control and to move toward a specific program which was officially established in a year later. [redacted]

3.3(h)(2)
6.2(d)

II. The Beginning of CIG-CIA Involvement

A new factor of major consequence was the 1946 legislation that created the Atomic Energy Commission to take over from the Manhattan Project the direction and operation of the US atomic energy program. The AEC Chairman, David Lilienthal, insisted from the outset that AE intelligence should be in the AEC. He never became reconciled to the eventual location of the AE responsibility in CIA and remained a vocal and acid critic of the AE intelligence effort.

In early August 1946 General LeMay, Deputy Chief of Staff for Research and Development, Army Air Force, forwarded to the Intelligence Coordination and Planning

Staff (ICAPS) a memorandum noting that the AF was engaged in air sampling experimentation. He proposed the initiation of a world-wide system of various means for detecting a foreign atomic explosion. In September General Samford wrote the Director, CIG about the LeMay proposal and suggested that the matter be considered a proper subject for CIG supervision and coordination.

General Hoyt Vandenberg, Director, CIG, addressed a memorandum to General Groves in late September outlining the needs of the CIG for information on foreign atomic explosions and proposed that CIG coordinate interdepartmental activities for acquiring the information. General Groves was reluctant to accept the proposal since the new AEC was shortly to take over Manhattan Engineering District. In early October, General Vandenberg and the Acting Chief of ICAPS met with General Groves to review the proposal. On 30 December 1946, General Groves responded to General Vandenberg's memorandum emphasizing the need for improved detection hardware and improved communications. He expressed his beliefs that, if the US atomic energy program was not to remain under the military as seemed to be a foregone conclusion, weapons development and the intelligence aspects of atomic energy should not be turned over to the AEC. General Groves and Secretary of War Patterson had just concluded a compromise with AEC Chairman Lilienthal providing that the AEC would be merely a participating agency in coordinated atomic energy intelligence.

On New Years Day 1947 Secretary of War Patterson wrote the Chairman AEC that it was his understanding that the Manhattan intelligence personnel and files were to be transferred to the CIG. This action took place on 25 February 1947. In mid-March the CIG notified ICAPS and the Service Chiefs that the MED Group was now integrated within the CIG and would function as the [redacted]

3.3(h)(2)
6.2(d)

III. <u>The First Atomic Energy Detection System</u>

On 14 March 1947 General Vandenberg in a memorandum to War, Navy, the AEC and the Joint Research and Development Board urged the prompt establishment of a committee to formulate an over-all long-range detection plan. This special committee produced its report in June 1947. On 30 June, Admiral Hillenkoetter, who had succeeded General Vandenberg as Director, CIG sent the other four agencies the committee report requesting their comments or concurrence with the conclusions and recommendations of the committee.

The Joint Research and Development Board favored the National Science Foundation or some other non-military agency for detection responsibility. The Armed Forces Special Weapons Project felt it should have the responsibility for analysis and evaluation rather than the Army Air Force. The AEC concurred in the report, noting only that the long-range system should be assigned to a single agency. The Secretary of War's concurrence included a statement that the Army Air Force would assume the long-range detection responsibility. The Secretary of Navy concurred with the report and also the responsibility assignment to the Army Air Force. Two days before the latter became a separate Service, General Eisenhower issued a directive that assigned it the over-all responsibility for the program but provided neither priority nor funds. Two days later the Air Force assigned the detection program to the Deputy Chief of Staff, Materiel where it became the Long Range Detection Division.

Following the Eniwetok tests, AFOAT-1 established an Interim Surveillance Research Net to design and plan a detection system rather than itself become an operational network. A major element was routine air sampling by Air Weather Service (AWS) aircraft already engaged in programmed flights from Guam to the North Pole area. AWS was also responsible for operating the associated ground-level sampling equipment. A second element was a network of acoustic stations operated by the Army Signal Corps. The Coast and Geodetic Survey provided seismic data from its dispersed US-based stations and various contacts with foreign stations. The Naval Research Laboratory undertook to develop a radio-chemical analysis of rain water samples and to build several large scale collection stations. All surveillance reporting was funneled into a Data and Analysis Center set up by AFOAT-1 in Washington. Late in 1948 the Signal Corps installed a second acoustic station in Hanau, Germany, joining the first that had been established in Frankfurt earlier. As a result of these actions a minimum detection network was in being before JOE-1 and provided a valuable shake-down period for collecting and handling data.

The critical problems of funding of research and the related role of the Joint Research and Development

Board rapidly became evident. Although the AF was assigned titular responsibility for the long-range detection program, they could control certain flights and utilize other assets at hand only so far. The balance of the program rapidly became bogged down in the many uncertainties and ambiguities of jurisdiction, prerogatives and bureaucratic interplay. Not only was the JRDB involved as a focal point but in varying ways at different times the Joint Chiefs, the Services and their Secretaries, the new echelon of the Secretary of Defense, the AEC, Bureau of the Budget and CIA were also involved.

For the next two years the controversy over funding, program guidance, research, and scope of activity was waged among the Agencies. It was not until the aftermath of JOE-1 that some resemblance of a coordinated detection program began to emerge.

IV. National Intelligence Authority Directive No. 9 and the Establishment of Joint Nuclear Energy Intelligence Committee

During the time that the special committee was preparing its report on long-range detection, the National Intelligence Authority issued its Directive No. 9 on 18 April 1947. This Directive was designed to establish once and for all the authority of the CIG to assume the intelligence function formerly held in the Manhattan Project and to regularize the coordination of all intelligence related to foreign atomic energy developments including collection, correlation, evaluation and dissemination within the Government.

By May 1947 three estimates on the Soviet AE program had been issued by the Manhattan Project and the Nuclear Energy Group in CIG. Some Agencies took issue with the conclusions in these estimates and were highly critical of the handling of AE intelligence. The NEG had sought coordinated views of all interested agencies through an informal inter-agency group but was hampered by the fact that the participants were permitted to speak only as individuals and not for their agencies. Concurrently, the AEC Chairman forwarded to the National Intelligence Authority for action a report prepared for the AEC by Admiral Souers. The report contained specific criticism of the assignment of AE intelligence to the CIG and recommended that the AEC establish an intelligence component headed by a director who would become a permanent member of the Intelligence Advisory Board. The NIA saw no conflict with its Directive No. 9 and thus concurred in the recommendations. However, some very basic elements of conflict remained as far as Chairman Lilienthal was concerned and he related his misgivings to Mr. J. Edgar Hoover. About a year later Chairman Lilienthal pursued the matter again with Mr. Hoover, telling him that unless things improved he "thought the President ought to consider some drastic changes in the set-up."

On 7 August 1947, Senator B. B. Hickenlooper, Chairman of the Congressional Joint Committee on Atomic Energy, requested the Secretaries of Defense and State, the Attorney General and the Chairman of the Atomic Energy Commission to provide a combined judgment as "to the earliest date by which any nation, without our aid, may be expected to produce its first atomic bomb," Secretary of Defense Forrestal referred the request to the Central Intelligence Group as a matter falling under its coordinating responsibility. The various Agencies continued to complain and discuss the handling of intelligence. A 3 October 1947 memorandum to the DCIG, from the Chief, NEG noted his concern with the Souers AEC report that implied that CIA was incapable of evaluating AE intelligence. He also reported that the Department of State was not supplying incoming AE information and that the AEC was not forwarding information, although it was now a full-fledged member of the IAB, and it was not responding to CIA draft papers. The Chief, NEG, feeling that CIA personnel could no longer work effectively in view of the withholding of essential information and the aggressive moves of other agencies into intelligence, recommended a high-level determination of responsibility.

As a result, the Director of Central Intelligence initiated on 6 November 1947 under National Intelligence Authority Directive Number 9, the establishment of the Joint Nuclear Energy Intelligence Committee (JNEIC).* The CIA was to furnish the Chairman and the permanent staff of the Committee. The proposed membership of representatives from the Departments of State, Army, Navy and Air Force, the Atomic Energy Commission, the Research and Development Board and the CIA. The action by the Director of Central Intelligence stated that the JNEIC was established "to assist in guidance of collection agencies in this field and to conduct detailed evaluation of all resulting information." Thus, the JNEIC became the first interagency scientific committee within the intelligence community.

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* Lt. Col. L. E. Seeman, Chief, Nuclear Energy Group, was designated Chairman, JNEIC, and served until March 1949. Just before this, on 1 January 1949, the Scientific Branch, ORE became the new Office of Scientific Intelligence (OSI). The Nuclear Energy Group was designated the Nuclear Energy Division (NED) of OSI. Upon Lt. Col. Seeman's departure in March 1949, Lt. Col. W. K. Benson became Chief of the Nuclear Energy Division and assumed the Chairmanship, JNEIC.

In the spring of 1948, when it was thought that the tight security and other characteristics of the Soviet AE program put a particular premium on covert operations, the Nuclear Energy Group was transferred to the Office of Special Operation (OSO). This action added burdens to the security classification problems and further removed the Group from its original point of attachment in the Scientific Branch, ORE.

Under the National Security Act of 1947 the CIG became the Central Intelligence Agency. Upon the reorganization of CIG into the newly formed Central Intelligence Agency the responsibility, functions and personnel of the Nuclear Energy Group were transferred to the Office of Reports and Estimates (ORE). This action brought together the nuclear energy intelligence activities with all other scientific intelligence responsibilities into one component, the Scientific Branch of ORE.

A reply to Senator Hickenlooper's request was sent on 15 December 1947. He then requested that a further report be made on or before 1 July 1948 or earlier if any substantial change in the situation took place.

Although the AEC concurred in the coordinated estimate sent to Congress on 15 December 1947 in reply to Senator Hickenlooper, Dr. Fine and Dr. Shercliff of the AEC in January 1948 sent a memorandum to the Staff of Senator Hickenlooper's Committee stating that the CIA report was "seriously misleading." In April 1948 the AEC re-emphasized to the committee its reservations regarding the CIA report. Thereupon, Senator Hickenlooper wrote that he was "in a state of confusion as to whether or not we (the Committee) have any reliable information on the question involved." He added "I am truly concerned that the various agencies have apparently not been able to make a coordinated examination of this question and to present the Committee with a reliable and satisfactory evaluation thereof."

From this time on the JNEIC proved to be the mechanism for coordinating AE intelligence. The Committee began in 1947 its semi-annual estimates on the Soviet Atomic Energy Program. With its semi-annual estimate dated 1 January 1950 the Committee initiated the practice of obtaining the approval of the Intelligence Advisory Committee before publication. These semi-annual estimates continued until 1952 when the estimate was made annually. The Committee retained the sole responsibility for the preparation and publication of the Soviet estimate until 1965 when responsibility for it was placed in the Office of National Estimates mechanism. The National Intelligence Survey program has also been supported by the Committee with appropriate contributions on atomic energy matters. The Committee has also sponsored scientific and technical intelligence collection programs. Although the Committee has itself had no collection responsibilities, it has provided significant guidance and assistance to the collectors. The responsibility for collection has remained with the individual agencies represented on the Committee. Detailed responsibilities for the production of atomic energy intelligence were specified in Annex C to DCID 3/4 in 1956, later revised in the new series, DCID 3/3 dated 23 April 1965.

V. <u>JOE-1 and its Aftermath</u>

In 1948 the Air Force Materiel Special Weapons-One, which had responsibility for long-range detection, became AFOAT-1 (Office of the Assistant for Atomic Energy, Deputy Chief of Staff, Operations, USAF). Secretary of Defense Forrestal issued a memorandum in mid-1948 specifically calling for "a fully operational routine surveillance," system to be installed by January 1950. The Research and Development Board, the focal point for many problems of the long-range detection system, concluded on the other hand, despite

Mr. Forrestal's memorandum, that a fully operational surveillance system could not be achieved before mid-1953. In spite of all the problems that beset AFOAT-1 it was responsible for the detection of the first Soviet nuclear test conducted on 29 August 1949.

A special Panel meeting under the Chairmanship of Vannevar Bush was called on 19 September to evaluate the data collected. On 20 September the Chairman of the Military Liaison Committee of the AEC reported to President Truman the results of the analysis and details of the information collected. At 1100 hours on 25 September, Mr. Truman briefed the Cabinet and released a public statement that the USSR had conducted a nuclear explosion.

On 29 September the DCI called for the convening of an ad hoc committee "to consider recent atomic developments," to examine the atomic energy estimate producing process and the overall atomic energy intelligence situation. A report was to be submitted to a Special Committee of the National Security Council.

In early October 1949 the JRDB requested the JCS to re-evaluate its guidance on atomic energy surveillance, giving consideration to both detection and Soviet rates of production. At this late date the JRDB had concluded that an extensive research and develop-

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ment program would be necessary. Concurrently, the JNEIC submitted to the Director of Central Intelligence through the Intelligence Advisory Committee mechanism a memorandum on the need for mission reorientation and for technical collection to support that mission.

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The DCI endorsed the memorandum to the JCS, which in turn referred the matter to the Military Liaison Committee. In January 1950 the Committee advised the JCS of its recommendations on the "predominating consideration" in atomic energy surveillance.[2/] On 20 January the JCS approved the Committee's recommendations and charged the Air Force with establishing, operating and maintaining a surveillance system. The JCS specified that the Research and Development Board was to monitor the development of scientific means for determining rates of production. Although later the AEC was formally charged with the development of such means, as a practical matter this became a cooperative effort in which the NED of CIA and the JAEIC have continued a major role in initiating and monitoring advanced technological developments.

VI. The Establishment of the Joint Atomic Energy Intelligence Committee

DCID 3/3 of 28 October 1949 established the interdepartmental Scientific Intelligence Committee (SIC). At its first meeting on 21 November 1949 the SIC disestablished the JNEIC and formed the Joint Atomic Energy Intelligence Committee (JAEIC) as a working committee of the SIC.[3/] This action was a change in name only and did not affect the membership or functions and responsibilities of the Committee.

The ad hoc committee established by the DCI in September 1949 presented its report on 9 June 1950. The report was a comprehensive and realistic summary of the intelligence collecting and producing mechanisms then in existence. The committee formulated eight specific recommendations. These recommendations included the establishment of priority for collection, maintaining and actively supporting the technical surveillance systems, rotation of technical intelligence personnel to overt collection activities abroad, augumentation of personnel of the Armed Forces Security Agency, direct and continuous consultation between groups concerned with collection, and the consolidation of certain NSC directives to simplify interlocking committee structure and eliminate unanimous consent. These were reviewed by the IAC and specific comments on each were forwarded to the DCI. A summary of the Committee report and the IAC comments was made by the DCI to the National Security Council.

Some changes had already been made, others were undertaken immediately and others took place over a period of years. The most significant effect was more [redacted] 6.2(d) The JAEIC approach to the AE intelligence problem, endorsed by the IAC, resulted in NED becoming the continuing focal point. The atomic energy intelligence experience of many personnel in the NED that dated back to the Manhattan Project, the integration of AE intelligence in a comprehensive scientific intelligence program, and the direct access to assets of CIA were coupled with the JAEIC as a going operation. Through this mechanism representatives of other agencies could bring to bear specialized agency capabilities and interest without duplicating the working level research of the NED. It is substantially on this basis that AE intelligence has continued ever since.

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In the aftermath of JOE-1 atomic energy information was clearly established in the highest priority category for intelligence collection and analysis. Under the direction of Lt. Col. Benson, the Nuclear Energy Division provided the impetus for collection programs and the beginnings of developmental programs and techniques that were to prove to be significant assets in later years.

AFOAT-1 was able to provide additional collection stations in foreign countries. Research and development proceeded with some proposals that would lead to solving the formidable security surrounding the Soviet atomic energy program. [redacted]

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Soviet nuclear testing in the early years from 1949 to 1952 increased the pressure on the Intelligence Community for information on production, stockpiling and delivery systems. Every effort was expended to exploit each source in an effort to penetrate the Soviet AE program. From the various programs, results begin to show, leads were developed, bits and pieces of information begin to fit together. [redacted]

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VII. The Webster Panel

The JNEIC (later JAEIC), was the sole coordinating body and producer of all National Estimates on the Soviet AE Program from 1947 to 1965. Although individual agencies represented on the JAEIC performed analysis of AE information and coordinated the results within the JAEIC framework, there was some feeling that an impartial review should be made of the work of JAEIC and the national estimates being produced. As a result, in 1951, a panel of consultants was established by the DCI. The panel was to assure that the best possible intelligence estimates were being made on the Soviet AE program and to advise the DCI (and initially the IAC, later USIB) on the value of analyses done and the pertinence and validity of the conclusions reached in the estimates. This panel became known as the Webster Panel, so named after its Chairman, Mr. William Webster, then Executive Vice President of the New England Electric Company. The panel has remained in existence since 1951. Its responsibilities were expanded in 1965 to include the work done on estimates concerning the Communist Chinese Atomic Energy Program and at that time its name was changed to the Director's Nuclear Intelligence Panel.

VIII. <u>Progress in the Early Fifties</u>

Upon the reassignment of Lt. Col. Benson in January 1952, Herbert I. Miller became Chief, NED and Chairman of the JAEIC. On 14 August 1952, DCID 3/4 reconstituted the JAEIC as an independent committee of the IAC.

The German scientists and engineers whom the Soviets had taken to the USSR for work in their AE program were being returned to Germany. The flood of information as a result of interrogations, conducted by NED personnel and members of other intelligence services 6.2(d)
provided the corner stone for analysis of the Soviet program.

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It was also during this time that unique analytical techniques were attempted.

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Because of the tight security and sensitivity of many of the programs initiated under Mr. Miller's guidance, strict compartmentation developed within OSI and the Agency. The Atomic Energy Act of 1954, under which clearances for AE information came under tighter administrative control throughout the Government, compounded the compartmentation. Since Miller was responsible for Restricted Data information within the Agency, he was able to isolate the NED, its people and information from the rest of the Agency. Since RD clearances required his personal approval, he was able to limit the flow of information and gain personal control of all AE intelligence. The result was that Miller at times operated his Division outside the purview of his immediate superiors and maintained a direct channel with the DCI. [redacted]

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IX. <u>DCID 11/1</u>

To insure coordinated Intelligence Community information on foreign nuclear explosions, the responsibility for evaluation, dissemination and control of information on all foreign nuclear explosions was assigned to JAEIC in DCID 11/1 dated April 1953, revised in 1954, 1955 and 1956, and reissued as DCID 1/6 in 1958.

X. The Period From 1955 to Date

In August 1955, Miller was reassigned to an important role in the development of the U-2 reconnaissance system. Dr. Frank Valenti became Chief of the Nuclear Energy Division. At about the same time, Dr. Herbert Scoville, Jr. became Assistant Director of OSI and was designated Chairman of the JAEIC. Under the direction of Scoville, a new era in the handling of atomic energy information and method of operation of the NED began. An expansion in terms of personnel took place and the cross feeding of information and normal lines of command were reinstituted.

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Genetrix was the beginning of a significant analytical technique that was to carry through to the U-2 collection program and overhead photography of today. [redacted] 3.3(h)(2) 6.2(d)

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During the 1956-60 period, with the aid of U-2 photography, Soviet AE installations in the Urals and in the Far Eastern USSR were observed and analyzed with more conclusive results. [redacted]

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Beginning in the fall of 1961 and through the fall and winter of 1962 the Soviets conducted their most extensive series of nuclear tests.

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In August 1962 Chamberlain was designated Chairman, JAEIC vice Scoville. Soon thereafter the JAEIC assumed a major role in providing intelligence support during the Cuban missile crisis. The JAEIC met in almost continuous sessions around-the-clock issuing intelligence summaries and briefings for the DCI.

In August 1963, Chamberlain was named Director, OSI and Mr. Wallace F. Howard was designated Chief, NED. The period from 1964 to 1968 has been marked with improvement in analytical techniques and further expansion of collection efforts. [redacted]

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With the signing of the Nuclear Test Ban Treaty in 1963, more attention was given to methods of monitoring nuclear tests. [redacted]

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As this chapter on OSI's role in atomic energy intelligence comes to a close at the end of 1968, OSI continues its dominant role in this field. Its position within the community, vis-a-vis the other intelligence agencies as well as the USIB, is well established. The principal topics of interest are monitoring of nuclear testing under the Test Ban Treaty, proliferation of nuclear weapons capabilities among Nth countries, details of the Communist Chinese nuclear program, and new techniques of analysis and collection to be applied to atomic energy intelligence.

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REFERENCE LIST

1. [redacted] 3.3(h)(2) 6.2(d)

2. Military Liaison Committee Memorandum to the JCS, JCS 1942/14, Jan 1950.

3. Scientific Intelligence Committee Minutes of Meeting on 21 Nov 1949.

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Excerpts from Minutes of JAEIC (JNEIC) Meetings, 1947-1968.

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Annex III

Collection Support Activities of OSI

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Annex III

Collection Support Activities of OSI

I. INTRODUCTION

U.S. efforts to obtain needed information on foreign scientific and technical R&D can be traced to World War II days and the foreign intelligence activities of the Office of Strategic Service (OSS) and the Manhattan Engineering District (MED). In 1944-45, after determining that existing intelligence organizations (G-2 and ONI) were unable to satisfy its needs for information on foreign AE developments, the MED fostered special overseas collection operations by the OSS, briefed field commanders and staffs, and assigned a few selected military officers to overseas theaters -- for the purpose of improving the collection of AE-related information. [redacted]

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With its establishment OSI assumed responsibility for the formulation of requirements for the collection and exploitation of scientific intelligence information and endeavored to insure receipt of all materials necessary for the fulfillment of production requirements. At the same time, however, OSO and its Technical Guidance Staff (TGS) continued its activity in the planning and conduct of operations aimed at the gathering of scientific intelligence information.

II. EARLY INVOLVEMENT IN COLLECTION OPERATIONS

Of the various categories of intelligence supplied to the highest government levels in the late 1940s-early 1950s, scientific intelligence was considered to be the weakest. The importance of scientific intelligence, especially atomic energy intelligence, was recognized in all quarters. Organizations specifically concerned with the collection and production of S&T intelligence were established, staffed and funded. But, the fact remained that without high quality information, the required intelligence was not being produced.

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[redacted] Efforts to secure published scientific information were hampered by the lack of sufficient competent representation abroad. In addition, the scientific information that was coming into Washington was not sufficiently organized so as to permit readily the evaluation of deficiencies and the preparation of explicit requirements and continuous guidance for overseas collectors. Except for the development of systems for the detection of foreign nuclear activities and its limited success in the procurement of publications containing information on Soviet scientific developments, the US intelligence community efforts to acquire information on science and technology in the USSR were clearly inadequate.

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A. <u>OSI-OSO Conflict</u> -- The lack of rapport between the top echelons of OSI and OSO during the late 1940s-early 1950s contributed significantly to the failure of the Agency to plan, develop, and carry out effective collection operations aimed at major S&T intelligence targets. On the one hand, OSI endeavored to establish the philosophy within its Office and CIA that the scientific and technical analyst should be in the closest possible contact with those controlling the sources of information.

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OSI viewed its position as that of coordinator of all scientific intelligence requirements wherein the OSI analyst in each field would know the community needs and would provide clearly stated requests for needed information directly to the collectors.

OSI believed that direct contact with the collectors was necessary to the fulfillment of its responsibilities for S&T intelligence and very much in harmony with reports being prepared in the early 1950s by committees assigned to review Agency operations. For example, the Eberstadt Committee reported in 1950 that "vigorous action is imperative to improve all facilities for evaluating and stimulating the collection of scientific intelligence. Outside the field of atomic energy, this must be done by increasing the authority and support given to the official responsible for scientific intelligence within CIA."[1/] On the other hand, the OSO scientific and technical group and the S&T group which served to advise OPC on scientific matters including R&D activities both operated independently of OSI and effectively frustrated the attempts of the AD/SI, Dr. Willard Machle, to bring about a coordinated and integrated scientific intelligence effort.

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OSI relations with the covert side of the Agency were at their lowest ebb in 1950. The Office's continuing disagreement with the scientific and technical group in OSO, the Technical Guidance Staff, over responsibility for collection support becomes significant not only because of the resultant resignation of Dr. Machle but, more importantly, because of the resultant decisions which affected the direction and quality of support to S&T information collection operations during ensuing years.*

Dr. Machle adopted the position that OSO be directed to collect scientific and technical information in accordance with the importance of that information to national security, and that OSO be made to conduct its operations in accordance with priorities determined jointly by OSI and ORE. In addition, he urged that OSI be permitted to participate in the planning, initiation, and review of collection projects

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and that the objectives of all S&T-related projects be subject to the final approval of the AD/SI. Also, to enable OSI to provide the necessary support to collection operations, he favored the transfer of TSG functions and personnel to OSI.[2] Mr. Robert A. Schow, the AD/OSO, on the other hand, held the position that TGS was an effective organization, and that OSI had not properly and completely exploited it as a channel for furnishing appropriate S&T intelligence guidance. He did not believe that the transfer of TGS to OSI would result in any practical solution of the problem of lack of coordination. The AD/OSO stressed that OSI and its predecessor organization have never made available to

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ship was a carry over from the period when NED personnel were a part of OSO. In addition, relations with OPC were of the most tenuous nature, and only a limited liaison relationship with the Technical Guidance Staff was maintained. OSI knowledge of the responsibilities and organizational structure of the various units in OSO, OPC, and TGS, and vice-versa, was so limited that few requests for OSI support were received during this period. [redacted]

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C. <u>Nuclear Detection</u> -- At the end of World War II and with the emergence of the USSR shortly thereafter as the prime U.S. intelligence target, the need for information on Soviet atomic energy developments became highly significant. [redacted]

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III. CENTRALIZED COLLECTION SUPPORT EFFORT

A. Organization

The lack of well-defined production goals and plans made it difficult for OSI to carry out its responsibilities for collection support in the early 1950s. The independent actions taken by individual analysts together with the lack of centralized control over the various functions which contributed to that support were major limiting factors. Many analysts, while highly qualified in their specialized field of science or technology, were not schooled in the proper procedures for requesting and obtaining information. They often made their needs known in broad statements in highly technical language and failed to discriminate between what was requested and what was already known.

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With experience and under the firm direction of its chief, Philip G. Strong, the Operations Staff gradually became more effective in contributing to the formulation of policies and procedures concerning Office collection support matters. In 1954, the Requirements Branch and the Operations Staff were combined into a single collection staff, thus placing for the first time in one unit under single direction those individuals in OSI most concerned with the day-to-day support to collection. A program of indoctrinating analysts in the preparation of requirements,

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B. Programs

Throughout its existence, OSI has recognized the necessity of providing support to S&T information collection operations. It generally has devoted considerable time and effort in support of pertinent activities conducted by [redacted] State Department, (3.3(h)(2) 6.2(d)) and other organizations having S&T-related collection capabilities. High-quality scientific information, as compared to other information of intelligence interest, has always been in short supply. This can be attributed to the inaccessibility of the many significant and sensitive S&T targets, especially in the USSR and Communist China; the relative lack of interest and competency on the part of many collectors (why collect the hard-to-get S&T information when political and economic information is more readily available); [redacted] 3.3(h)(2) 6.2(d)

OSI has always considered all likely methods for the collection of worthwhile S&T information

including the use of human resources, [redacted] 3.3(h)(2) 6.2(d)
[redacted] photography, and other technical collection methods. In attempts to improve the collection of S&T intelligence information, the OSI support has taken many forms. Written materials consisting of both specific and general requirements, scientific intelligence collection aids, target briefs, evaluation, and the like have been prevalent.

Of particular note were the evolution of a more useful approach for making known its intelligence information requirements to the collectors and the continual efforts of the OSI Collection Staff to improve the collection requirements and information evaluation processes. Until the late 1950s, OSI devoted considerable time and effort to the preparation and dissemination of general or guide-type requirements. Such requirements were prepared on a variety of S&T subjects of interest to OSI. They were most comprehensive and replete with broad statements; also, they were directed toward all possible collectors but tailored to the capabilities of no specific organization. While the general requirements served to educate many collection-associated intelligence officers, they were not suitable for serving on highly qualified, special-type sources. Also, they required considerable time to prepare and review and usually became outdated very quickly. By the late 1950s and especially during 1960-62, the Office recognized the futility of general requirements and gradually eliminated their use in favor of specific requirements which were better tailored to the capabilities and opportunities of the potential collectors.[12/]

In addition to influencing the preparation of more meaningful requirements, the Office, through its Collection Staff, instituted procedures for monitoring collector progress toward satisfying OSI requirements, terminating requirements that became outdated and worthless, and insuring that responses to Office requirements were indeed responses and not merely the reporting of low-grade information of little value to the Office. Also, in the area of information evaluations the OSI Collection Staff strived to motivate Office analysts to be responsive to requests for high quality assessments. The Staff's personnel were successful in reducing the amount of duplication involved in Office preparation of evaluation reports as well as in bringing about a more healthy attitude on the part of the analysts toward the necessity for good evaluations. No completely satisfactory procedure for evaluating collection programs has emerged during the past 20 years. Hence, each collector regularly calls upon his consumers for assistance in determining the worth of his activities. Collectors vary in the quantity of information they wish evaluated, frequency of reviews, and in the evaluating criteria to be followed. In view of the diversity of OSI's responsibilities and the many collection programs upon which it is dependent, its analysts have expended considerable effort and time in recalling, reviewing, and assessing multiple collection activities. 13/ 14/

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during the 1950s in the development of the still-existent USIB Committee concerned with critical collection problems. While it is not practical to discuss all Office collection support programs, some of the more significant programs with which OSI was closely associated are discussed below.

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V. TECHNICAL COLLECTION

The paucity of Soviet military R&D-related information available from human sources and open literature and the low potential of agent operations for providing high quality scientific and technical information forced OSI from its beginning to be very much concerned with technical collection programs. The OSI interest in many such programs often was more than that of a consumer of raw intelligence. As an office continually concerned with the need for improving its scientific intelligence estimates in a variety of fields, successive OSI chiefs directed Office personnel to assist fully in the development of those collection projects having a potential for providing worthwhile S&T intelligence information. OSI willingly compiled and made available information on target areas as well as participated in the development of pertinent information requirements. In addition, Office specialists -- electronic engineers, mathematicians, physicists, and others -- participated extensively in reviewing proposed collection projects; contributing to the development of such projects through participation in technical discussions, meetings, and visits to contractor and military R&D facilities; and assisting in the establishment and operation of certain projects through visits to operational sites.

OSI guidance and support to the development of technical collection methods during the 1950s and early 1960s, as natural and logical functions of the Office, were substantial. Its personnel had become increasingly competent in a wide variety of fields pertinent to the production of S&T intelligence. Also, no single organization responsible for all R&D on potential collection systems existed in the Agency to exclude OSI's participation in collection systems development. [redacted] 3.3(h)(2) 6.2(d)

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* See TAB A for an account by P. G. Strong of his involvement in the [redacted] and early space program.

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The need for a CIA component responsible for all Agency research and development of collection systems -- long recognized by OSI -- began to be realized in 1962

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with the establishment of the Directorate for Research and the appointment of Dr. Scoville as its deputy director. As AD/OSI and Chairman, JAEIC, Dr. Scoville had been intimately involved since the mid-1950s with Office support to the development of collection programs and associated equipment and systems. He was especially aware of the overlapping interests and duplication of effort among the multiple Agency components then participating in the development of various collection systems. OSI recognized that certain aspects of S&T intelligence problems, namely information on the policy, plans, research, and early design stage of Soviet weapons systems could not be acquired readily by technical means. However, the increasing success of certain technical collection means in providing information which permitted OSI to follow the developmental stage of certain Soviet military R&D strongly influenced the AD/SI to bring about a more effective Agency mechanism for handling future CIA research and development of such systems. In 1963, the Directorate for Research was renamed the Directorate for Science and Technology and assumed the additional responsibility for S&T intelligence production. The transfer of OSI to the Directorate was consistent with the position long held by OSI directors that the responsibilities for S&T intelligence collection and production should be integrated and exercised by one individual and component for maximum results.

OSI has actively supported the Technical Services Division of the Plans Directorate in assessing S&T intelligence objectives and assembling technical data pertinent to the use of special instruments for collection. In addition, the Office has maintained an even closer relationship with the Office of Research and Development since its establishment in the Directorate of Science and Technology in the early 1960s.

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The close Office relationship with ORD which has developed during the past five years has permitted OSI to contribute more effectively than in the past to the research and development of worthwhile equipment and systems.

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SOURCES

1. Memo for DCI from AD/SI, 7 Feb 50, S.

2. Memo (draft) for EO/SI from AD/SI, undated, S.

3. Memo for AD/SI from AD/OSO, undated, S.

4. Memo for AD/SI from Chief, Ops Staff/SI, 29 Nov 53, S.

5. Memo for DD/I from Chief, IPS/SI, 21 Jun 54, S.

6. [redacted] 3.3(h)(2) 6.2(d)

7. File Memo for AD/SI, 19 Mar 52, TS.

8. OSI Report, History of OSI, 1 Jan 49 to about May 52, 9 May 52, TS.

9. IG Report, Survey of OSI, 3 Dec 54, TS.

10. Memo for AD/SI for Chief, Ops Staff/SI, Review of Operations Staff, 29 Oct 53, S.

11. Memo for EO/S&T from AD/SI, Proposed Increase in OSI Ceiling, 27 Aug 63, S.

12. Discussion with Former Collection Staff/OSI Member, [redacted], 28 Aug 68, S. 6.2(d)

13. Ibid

14. Discussion with Former Collection Staff/OSI Member, [redacted], 30 Sep 68, S. 6.2(d)

15. Working Folder Prepared by CS/SI, [redacted] undated (about 1957), S. 3.3(h)(2) 6.2(d)

16. Memo for DCI for AD/SI, [redacted], 19 Aug 60, S. 3.3(h)(2) 6.2(d)

17. [redacted] 3.3(h)(2) 6.2(d)

18. [redacted] 6.2(d)

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19. Memo for Acting Chief, NED/SI from Henry S. Lowenhaupt, 13 Dec 65, S[redacted] 6.2(d)

20. Discussion with NED/SI Member, Henry S. Lowenhaupt, 25 Sep 68, S.

21. Memo for DD/I for AD/SI, <u>Semi-Annual Report to Hull Committee</u>, 9 Apr 59, TSC.

22. [redacted]

23. 3.3(h)(2) 6.2(d)

24.

25. [redacted] 3.3(h)(2) 6.2(d)

26.

27.

6.2(d)

28. Memo for AD/SI from C/IPS, <u>Accomplishments</u>, 17 May 55, S. 3.3(h)(2)

29. [redacted]

30.

31.

32. Memo for C of S/USAF from DCI, 29 May 54, TS[redacted] 6.2(d)

33. Discussion with Former Collection Staff/SI Member, [redacted], 26 Aug 68, S[redacted] 6.2(d) 6.2(d)

34. Discussion with Former Collection Staff/SI Member, [redacted], 30 Sep 68, S[redacted] 6.2(d)

35. [redacted] 6.2(d) 3.3(h)(2)

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CIA's Part in the Initiation of the U.S. Space Program

[redacted]

The idea of a vehicle in space orbitting the earth had for many years been a favorite topic for science fiction writers and the subject of at least cursory study by scientists of many countries. Following World War II and the advent of the V-1 and V-2 rockets, the science of rocketry came of age and particularly in the U.S. and USSR vast amounts of money, time and energy were allocated to the development of long-range missiles. Concurrent with this increased emphasis came more serious and concentrated work by a number of scientific and technical groups on concrete studies not only of possible earth satellite vehicles (ESV's) but also of what such vehicles could do to justify their large expense and what would be world reaction to such an accomplishment. In 1950 and 1951, the Rand Corporation published a series of studies on the subject which received close attention in OSI the focal point of CIA interest in this field. These included among others:

The Satellite Rocket Vehicle: Political and Psychological Problems

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Annex III/Tab A

A Satellite Rocket for Reconnaissance

Inquiry into the Feasibility of Weather Reconnaissance from a Satellite Vehicle

Over the next two or three years, active study work toward creation of an earth satellite system went forward in both military and civilian organizations. The AD/SI designated the DAD/C and his staff to monitor this effort and its implications for and applications to Intelligence. Initially, [redacted] assisted the 6.2(d)
DAD/C and close working relations were established with DOD, ONR, the National Science Foundation, State, National Academy of Sciences, the American Rocket Society, Redstone Arsenal and others concerned in this field. By mid-1954, definite proposals had been developed nationally including: ONR's Project SLUG, to put an inert body with dipole or corner reflector into earth orbit (later renamed Project ORBITER); a proposal by the American Rocket Society to the National Science Foundation; Werner von Braun's Project "Alabama" using a Redstone missile with Loki clusters on the second and third stages; and Project MOUSE (Minimum Orbital Unmanned Satellite of the Earth) by Dr. Fred S. Singer, Professor of Physics, University of Maryland. The U.S. Air Force was

considering possible use of its developing Atlas missile in such an application. Besides its potential use for reconnaissance purposes, it was realized that major scientific advances could be made in such fields as meteorology, geodesy, radio communications, biology, astronomy and others. It was, however, apparent that, before any such project would be initiated and financed in necessary amounts by the government, a vast amount of disbelief and inertia at the top level of government must be overcome--informal discussions normally brought the reaction "That's for Buck Rogers." By coincidence, planning for the International Geophysical Year (IGY 1957-8) was at that time going forward rapidly both in the United States and abroad and it occurred to the OSI working group that this would provide an ideal sponsor for the first U.S. attempt at an earth satellite vehicle launching.

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[redacted] It was now apparent that interest both in the government at senior working level and in the scientific community in an ESV program had not only developed to a high point but also was being well coordinated both within government and with the scientific community. It was also equally evident that the effort would get nowhere if the policy level of the government was not brought in, convinced of the feasibility and desirability of such a project, and finally stimulated to action to get it started and literally

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off the ground. Based on past experience, it seemed to the OSI group that the best approach to top level approval would be through Mr. Richard M. Bissell, Jr., Special Assistant to the DCI for Plans and Coordination. Therefore, in early August 1954, discussions were held [redacted] Bissell's staff. 6.2(d)

Later that month, Mr. Bissell was briefed in detail, expressed very favorable interest and recommended that the necessary papers for Presidential consideration be prepared jointly by his staff and the OSI group. It was agreed that Bissell's office would assume responsibility for coordination with State while liaison with Defense and the scientific community would be continued by OSI. It was understood that a completely solid case would have to be prepared and informal top level support gained in advance to insure ultimate success for the proposal. It was agreed that, if he approved the initial papers, the DCI would take the matter up with the Secretary of State, with Mr. Robert Cutler, Special Advisor to the President, and with the Secretary of Defense. In the meantime, DAD/C initiated discussions with Mr. Donald Quarles, Assistant Secretary of Defense for Research and Development and other Defense officials to secure their support.

On 15 September 1954, there went forward to Mr. Dulles, DCI, a memorandum signed by Mr. Bissell with a staff study of the then comparable U.S. and USSR technical capabilities for launching an ESV which stressed the keen Soviet interest and also emphasized the enormous psychologic advantage to the nation first in space. An accompanying draft letter to President Eisenhower recommended that a national requirement be established for the development of an ESV in conjunction with the IGY; and that a select scientific group under the Scientific Advisory Committee of ODM render an official decision on the feasibility of the project, and implement this decision, if favorable. It was suggested that these actions be implemented by Presidential Directive. At that time, it was contemplated that the National Science Foundation would be the responsible agent with the Department of Defense as its executive agency for the development of actual hardware and for the launching hoped for by 1957.

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As matters developed in the ensuing months, however, discussions at top levels of the government brought the project into the purview of the Operations Coordinating Board and of the National Security Council which would be the senior instrument to advise the President and express his decision. Concurrently, the Office of Secretary of Defense referred the matter for advice to his Coordinating Committee on General Sciences. Similarly, a new American Rocket Society proposal to the National Service Foundation went to the IGY National Committee whose conclusions were to be referred by NSF to the OCB. Both of these actions brought strong support for the ESV proposal. Shortly thereafter, the Technical Capabilities Panel of the President's Science Advisory Committee recommended to NSC that intelligence applications of a small ESV warranted an immediate such program, and the Joint Chiefs of Staff endorsed the idea, provided that work on the small scientific satellite did not impede development of a large surveillance vehicle for military reconnaissance purposes. There was general agreement on the major advances that

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could be made in scientific research as well as in the fields of military communications and missile development. A very real stimulus was given to the program by a Soviet announcement on April 16, 1955 of the establishment in the USSR Academy of Sciences of a "permanent, interdepartmental commission for interplanetary communications" and by our own estimate that a group of Russia's top scientists was working on a satellite program. This latter belief was based largely on analysis of Soviet technical literature and a number of Russian articles and broadcasts dealing with space travel. The Soviet Academy had already announced in September 1954 the establishment of the Tsiolkovsky Gold Medal to be awarded every third year for outstanding work in the field of interplanetary communications--the Soviet all inclusive term covering the entire scope of exoatmospheric and outerspace research.

On May 27, 1955, the President approved the National Security Council policy paper NSC 5520, "U.S. Scientific Satellite Program." This called for initiation of a program to develop the capability of launching a small scientific satellite by 1958, with the understanding that the program would not prejudice continued research directed toward large instrumented satellites for additional research and intelligence purposes. It should be endeavored to have the launching take place under international sponsorship, such as the IGY, in order to emphasize its peaceful purposes--provided that such auspices were so arranged that U.S. freedom of action in the field of satellites and related programs was preserved and such programs not be impeded; that security of U.S. classified information, such as launching techniques, would be protected; and that there be no implication of a requirement for prior consent by any nation over which the satellite might pass in its orbit and thereby did not jeopardize the concept of "Freedom of Space." The President directed implementation of NSC 5520 by all appropriate executive departments and agencies of the government, under the coordination of the Secretary of Defense in consultation with the Secretary of State and the Director of Central Intelligence.

It is interesting to note that on May 17, 1955 prior to issuance of NSC 5520, Governor Nelson A. Rockefeller (Special Advisor to President Eisenhower) wrote to James S. Lay, Jr. (Executive Secretary of the NSC), "I am impressed by the psychological as well as by the military intelligence advantages of having the first successful endeavor in this field result from the initiative of the United States, and by the costly consequences of allowing the Russian initiative to outrun ours through an achievement that will symbolize scientific and technological advancement to peoples everywhere. The stake of prestige that is involved makes this a race that we cannot afford to lose." These were prophetic words.

While the main thrust of the OSI and Bissell effort had been aimed at an eventual U.S. reconnaissance system, the psychologic aspects had not been lost sight of and considerable study and intelligence research had been devoted to Soviet, U.S. and World probable reaction. Past reactions gave some indications of what might be expected. In December 1948, Secretary Defense Forrestal, in his Report on the Unification of Services, made reference to the possibility of an "atomic satellite vehicle" which brought forth such world press comments as "Will America possess Moons of War?"; "Will the Elbe frontier be defended from the Moon?"; and Liberation (a French pro-Communist paper) characterized the statement as part of a "campaign calculated to terrorize the peoples." The New Times, in late 1949, referred to "the mad man Forrestal's idea of an earth satellite as an instrument of blackmail."

These and many other expressions of concern over the military implications of earth satellites made it seem imperative to our government that any publicity of our intention to launch such a vehicle should clearly and unequivocally state the civilian and peaceful intentions and control of the program. It also seemed advisable to start informing the public long in advance of the actual launching, thus making it possible to establish the "peaceful" and non-destructive nature of the satellite. Toward this end, the OCB established the Ad Hoc Working Group on Public Information Aspect of NSC 5520, chaired by Dr. Alan Waterman, Director of NSF with representation from State, Defense, CIA (DAD/C/OSI), USIA, and the White House. This group was charged with drawing up an appropriate announcement of U.S. plans to launch an ESV and develop the procedures by which such an announcement would be made. The procedure finally agreed upon was two-pronged--the initial public break of the plan to be made at the sixth annual Congress of the International Astronautical Federation (IAF) in Copenhagen in late July 1955, the second through a much more detailed outlining of the plan in a letter from Dr. Joseph Kaplan, Chairman of the U.S. IGY Committee to

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Professor Sydney Chapman, President of the (international) Special Committee of the IGY to be made public immediately thereafter at the meeting of the latter in Brussels. [redacted]

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29 July 1955

The White House announced today that plans by this country are going forward for the launching of small, unmanned earth-circling satellites as part of the U.S. participation in the International Geophysical Year which takes place between July 1957 and December 1958. This program will, for the first time in history, enable scientists to make sustained observations in regions beyond the earth's atmosphere.

The President has expressed his personal gratification that the American program will provide the scientists of all nations this important and unique opportunity for the advancement of science. Additional information

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on the earth satellite is being made available today by the National Academy of Sciences and the National Science Foundation.

The world reaction was tremendous as it was realized that a totally new era had opened. U.S. scientific prestige rose immeasurably. On 3 August, the following cable was received by [redacted] "President Eisenhower has asked me to extend his thanks to you for your cordial message received today relating to the announcement of the satellite vehicle project in conjunction with the International Geophysical Year . . . . . (signed) Sherman Adams, the Assistant to the President." Concurrent with the Copenhagen and Brussels announcements, the White House statement was given to the Press here as were the joint detailed ammouncement by the National Science Foundation and the National Academy of Sciences and a press release from the Department of Defense, all stressing the peaceful scientific purposes of the project. 6.2(d)

EPILOGUE

A number of factors and considerations affected the subsequent history of the space program. First, the psychological impact of the announcement to be maintained by the U.S. required actually being first in space. As it turned out, few at the top-level of government had any real concept of the world wide public impact of the first successful earth satellite launching and no amount of forewarning changed this situation. Second, the U.S. was committed to a "peaceful scientifically-oriented" effort. At this time, a committee, under Dr. Homer J. Stuart was constituted by the Department of Defense to develop the actual plans for the program. Three projects were considered by the committees: an NRL proposal based on the Hermes rocket; the Air Force proposal based on the Atlas missile; and a joint Army-Ordnance-ONR (Air Branch) project using the Redstone missile. The Stuart Committee reviewed these not primarily from a political or psychological warfare viewpoint but rather as to which would provide the most valuable research tool for the least money. Time was a secondary factor! Emphasizing the peaceful aura to be maintained, the committee essentially vetoed the use of all three as having too much military implication and instead the Navy, which was given responsibility for technical development and overall management of the program, established Project Vanguard under a contract with the Martin Company--in essence, a program to "reinvent the wheel." Progress on Vanguard was slow and fraught with problems and failures. Meanwhile, OSI was receiving continuing evidence of a major space effort by the Russians and in the Spring 1957, while Vanguard was still faltering, OSI warned that the USSR might well orbit a vehicle by October or November of that year. On October 4, 1957, Sputnik I was launched--as anticipated by the Intelligence Community, a massive shock to the American people, the Administration and the Western World.

In the Spring of 1954, Kelly Johnson of Lockheed Aircraft Corp. presented to the Air Force, a design (CL 282) for an advanced reconnaissance aircraft. The proposed design was studied by the Air Force and rejected on a number of grounds i.e., single engine for over-water flight, wing landing factors, not multiple purpose, etc. This rejection disturbed a number of senior civilian officials of the Air Force in view of the existing need for some craft of this category and in early summer, Garrison Norton, Special Assistant to the Secretary of the Air Force, telephoned DAD/C/OSI to arrange a meeting on the subject. Present beside Norton and Strong was Frederick Ayers, Special Assistant to Trevor Gardner, Assistant Secretary USAF for R&D. The peculiar design characteristics of CL 282 - long-range and extreme high altitude capabilities - were discussed in the light of the US reconnaissance requirements and it was decided that Strong should take the matter to Richard M. Bissell, Jr., Special Assistant to the DCI for Plans and Coordination, as the best point for positive action. This was done by DAD/C and received a favorable and interested reaction from Bissell who asked if Strong could get for Bissell two top-flight scientists to advise on the matter. Dr. Edwin Land of Polaroid and Dr. James Baker, an optical physicist of Harvard who were co-members with Strong on the Air Force Scientific Advisory Board, were contacted and agreed to meet with Bissell. This was the start not only of the U-2 program (new designation of CL 282) but also of a long series of "Land Panels" which served the Agency and the country as advisors on many advanced intelligence techniques and problems.

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The Directorate of Science and Technology
Historical Series

The Office of Scientific Intelligence, 1949-68

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OSI-1

THE OFFICE OF SCIENTIFIC INTELLIGENCE, 1949-68

VOLUME TWO ANNEXES IV, V, VI, AND VII

by

Karl H. Weber

June 1972

Karl H. Weber
for Carl E. Duckett
Director
Science and Technology

HISTORICAL STAFF
CENTRAL INTELLIGENCE AGENCY

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Annex IV

The Scientific Intelligence Committee and The Scientific Estimates Committee

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Annex IV

The Scientific Intelligence Committee and The Scientific Estimates Committee

I. The First Scientific Intelligence Committee

National Security Council Intelligence Directive Number 3 (NSCID # 3) dated 13 January 1948, dealt with the production of intelligence and the coordination of intelligence production activities within the intelligence community. Scientific intelligence was of course a part, and an increasingly important part, of this problem. To deal with the scientific intelligence field the Intelligence Advisory Committee (IAC) in October 1949 approved the issuance of Director of Central Intelligence Directive Number 3/3 (DCID 3/3).[1/] This Directive, dated 28 October 1949, established the Scientific Intelligence Committee (SIC), a permanent interdepartmental body to "plan, support and coordinate the production of scientific intelligence as it affects the national security."

DCID 3/3 provided that the chairman of the SIC should be a representative of CIA with members from the three military departments, the State Department, and the Atomic Energy Commission. The SIC was "to establish its own methods of procedure and meet on matters pertaining to scientific intelligence" but the determination of the scope of this field was left up to the SIC.

DCID 3/3 was drafted in OSI during the summer of 1949 and, understandably enough, included many of Machle's* concepts of proper roles for CIA and OSI in the national intelligence picture. It was a very sweeping document and put OSI at the hub of U.S. scientific intelligence activities in the broadest sense. Its coordination through ICAPS (Interagency Coordinating and Planning Staff), the staff level of the IAC, was characterized by bitter debates on the intended functions of CIA and OSI. The military representatives were extremely apprehensive of CIA intentions in respect to military intelligence. (These apprehensions later led to the establishment of the Becker Committee and the eventual drastic reduction in the scope of SIC functions.) The DCID authorized permanent and ad hoc working committees in specific substantive fields, terms of reference for which were to be established by the SIC. These working

* Willard Machle, the first AD/SI who led OSI from January 1949 to February 1950.

committees of the SIC were given considerable responsibility in formulating national requirements, preparing interdepartmental production plans, allocating production assignments, and evaluating collection activities.[1/]

In addition to its other responsibilities, the SIC was given the unique task of establishing liaison with the Research and Development Board (RDB) in order to ascertain intelligence requirements of RDB so that scientific intelligence could be used by the Board in formulating its plans. This link between scientific intelligence and military research planning on a national scale did not hitherto exist. This assignment to the SIC stemmed from the failure of the military intelligence agencies to meet RDB's needs for intelligence support. With all its organizational and growing pains, the SIC was unable to concern itself sufficiently with this responsibility. Undoubtedly, however, the RDB support responsibility was one of the reasons why the military departments initially agreed to the establishment of the SIC.

Very early in its existence the SIC undertook to define scientific intelligence, delineate areas of particular interest and establish committees to handle these areas.[2] Priority was accorded to atomic energy, biological warfare, chemical warfare, electronics in warfare, guided missiles, aircraft, undersea warfare, and medicine. Other areas of intelligence concern were other new weapons, basic physical sciences, new equipment and material, geophysical sciences, navigation, and scientific resources. Having delineated the areas of interest, the SIC established joint committees to handle certain fields. Thus, atomic energy was covered by the Joint Atomic Energy Intelligence Committee or JAEIC, biological warfare by the JBWIC, chemical warfare by the JCWIC, electronics by the JEIC, guided missiles by the JGMIC and medicine by the JMSIC.

The establishment of the committees and the delineation of areas of interest were all approved by the SIC in November 1949 soon after the SIC began to function. In June of 1950, the establishment of committees on aircraft (JACIC) and antiaircraft (JAAIC) was agreed. The fields of undersea warfare and ordnance were also recognized as important fields at that time but further investigation was felt to be necessary before the establishment of committees in these fields. It is interesting to note here that these two fields were almost exclusively within the realm of responsibility of single departments; namely, Navy for undersea warfare and Army for ordnance. The issue of the "intrusion" of other agencies, notably CIA, into what was considered to be the unique concern of a single agency or department later became one of the key points of controversy that tumbled the SIC.

Of the various working committees, only those on atomic energy matters and medicine had State Department and Atomic Energy representation. The members of the other working committees were solely from CIA (OSI) and the three military departments. It was apparent that these working committees were handling fields of interest that were for the most part military in nature.

Trouble was not long in coming. The Army member of the SIC in February 1951 questioned the activities of and justification for the working committees. The first question he raised was whether the working committees were aiding the military services in scientific intelligence, since the working committees were devoting their energies to the preparation of SIC studies in fields of departmental concern and, with the exception of the NIS program, were not greatly involved in support of the national estimate program.

The second question raised by the Army member was whether the SIC actually had authority to form working committees which dealt with matters exclusively within the competence of the military agencies. Such a question, he maintained, could be resolved only by the IAC and not by the SIC.

As a follow-up to these questions, the Army member at the March 1951 meeting moved that five of the working committees be abolished. The Air Force member moved that the remaining committees be studied to determine whether or not they also should be abolished. No action was taken at this meeting, but at the April meeting a vote on the abolishment of the committees was taken. The three military members voted for and the three other members opposed the motion. The Chairman then ruled that, because of the divided vote, the matter would be referred to the DCI, pursuant to DCID 3/3.

The subject of working committees came up next in July 1951. The SIC agreed to abolish the aircraft and the antiaircraft committees following assurances from the military services that these fields would receive full coverage within the Department of Defense.

In August 1952 the subject of the abolishment of the working committees was discussed in the IAC and minutes of that meeting were presented to the SIC. It was the contention of the DCI, General Smith, that the SIC could not abolish working committees by its own action but could recommend such action to the IAC. By this time the position of the military services was that the SIC was infringing upon areas which they felt belonged exclusively within their purview.

In the January 1952 SIC meeting the Air Force member reported the formation within the JIC of a Joint Technical Intelligence Subcommittee (JTIS). At the next SIC meeting in February 1952 the Army member announced the formation of working groups within JTIS in the fields of guided missiles, biological warfare, chemical warfare, and military electronics. He presented a statement asserting that unnecessary duplication existed between these working groups and the SIC working committees and moved that the SIC recommend to the IAC that its working committees in those fields be abolished. There is no record on the action taken by the SIC on this move. It is apparent, however, that the Chairman of the SIC, Dr. Chadwell, brought the matter to the attention of the DCI because the latter referred the matter to an "Ad-Hoc Committee to Survey Existing Arrangements Relating to the Production of Scientific and Technical Intelligence" headed by Loftus Becker, then DDI. The last meeting of the SIC was held in April 1952.

The Becker Committee held a series of meetings in the summer of 1952. Finally, at the 14 August 1952 meeting of the IAC the recommendations of the Becker Committee were adopted in the form of DCID 3/4[3/] of that date. The Scientific Estimates Committee (SEC) was established in place of the SIC which was abolished.

II. The Scientific Estimates Committee

DCID 3/4 sharply curtailed the functions of the SEC as compared with the SIC. Further, it attempted to delineate the interests of the DOD and CIA in the scientific and technical fields.[3/] In essence, the DOD was made responsible for intelligence on research and development in military material and equipment and CIA was responsible for coverage of fundamental research in basic sciences, scientific resources, and medicine. The SEC was designated as the coordinating mechanism to integrate the material but only when necessary for national intelligence purposes. It was only incidentally to assist in the coordination of other production and was directed to do so by stimulating and guiding inter-agency liaison and working-level conferences. DCID 3/4 removed atomic energy matters, which were previously included in the substantive area of the former SIC, from the purview of the SEC and placed then under the newly created Joint Atomic Energy Intelligence Committee.[3/]

Membership on the SEC was the same as that of the former SIC except for the addition of a JCS member. The Chairman, however, was to be elected by the members annually whereas under the SIC he was to be the CIA member and to be appointed by the DCI.

The primary business of the first meeting of the SEC in September 1952 was to elect John B. Routh of CIA (OSI) as the Chairman. It was at the second meeting the following month that the fight between the military and the civilian sectors of the SEC resumed. While it appeared that the military had won their point in restricting the production of scientific intelligence by the SEC, the Committee's responsibility in stimulating and guiding inter-agency liaison was subject to widely varying interpretations. Moreover, DCID 3/4 left the SEC with considerable stature by reason of its responsibility for contributions for national intelligence purposes. This provision thus embraced contributions to NIE's which were becoming increasingly important as the final word on intelligence for the policy makers and planners.

Questions soon arose because of the dual responsibilities and overlap of areas of interest in the fields of medicine which the SEC undertook to delineate. Solution of the problem was postponed by establishing an ad hoc medical conference to integrate the medical intelligence contribution to NIE-65 "Soviet Bloc Capabilities" which was then being prepared. Later that year another ad hoc conference was established to integrate a contribution to NIS-15 "Switzerland". From then on, the SEC established ad hoc committees to prepare contributions to NIS's and NIE's when the need arose. Thenceforth, the SEC's main activity was almost entirely the production of contributions to NIE's and NIS's. This pattern was different from that of the SIC which had devoted a considerable amount of time to the production of studies in selected scientific fields.

The SEC did, however, publish annually a catalog of studies which were planned and produced by the member agencies in the scientific and technical fields. In addition, it attempted to guide collection activities by publishing a list of S&T priority objectives based upon the national priorities list. By way of more specific collection guidance, it undertook to supply requirements to the Returnee Exploitation Group in Germany.

Since the publication of studies or reports by the SEC was barred by DCID 3/4, the Committee resorted to another course of action; namely, to have such studies become NIE's. The first attempt was made in a biological warfare study. It was first published as an SEC Estimate (SEC 2/54) with the hope that it would then be used as the basis for an NIE. However, the IAC concluded that the SEC Estimate fulfilled any requirement for such a study and that a separate NIE was therefore not needed. In 1956 the SEC undertook a study on Soviet Science and Technology. This time the terms of reference were prepared in conjunction with ONE and no SEC Estimate was planned. The final result in which JAEIC and others shared was NIE 11-6-56, "Capabilities and Trends in Soviet Science and Technology".

The guided missile field became increasingly important in terms of national security in the mid-50's. More and more Soviet successes in the field became evident. With advances in the yield-to-weight ratios of nuclear warheads the ICBM became a real national threat. The SEC at first endeavored to handle intelligence coordination in this field through an ad-hoc guided missile subcommittee. The limitations in intelligence production activities placed upon the SEC by DCID 3/4, however, inhibited effective effort, however, and the desire in the community to establish a separate USIB guided missile committee grew. A proposed DCID 3/6 that would establish such a committee was reviewed by the SEC in June of 1955. The SEC concluded that it could itself accomplish the objectives and perform the functions called for in the draft DCID 3/6. Because there was dissension within the Committee, however, recommendations were sent to the IAC. The dissidents included OSI. The IAC established the Guided Missile Intelligence Committee (GMIC) on 31 January 1956.[3/]

Of the three scientific committees of USIB (SEC, JAEIC, and GMIC), the SEC was unique in that its charter prevented it from producing intelligence studies. Notwithstanding the charter, the SEC in its fifth annual report to the IAC listed as an objective of the coming year the proposed production of detailed studies to provide papers in support of national intelligence responsibilities. While there were no objections to this proposal on the part of the IAC, the SEC members themselves were unable to reach any agreement on the means to produce such studies. This impasse and the lessening of friction in the S&T intelligence community made it apparent that a new DCID on scientific and technical intelligence was needed to give the SEC the freedom and latitude enjoyed by JAEIC and GMIC.

In June 1958 the Chairman submitted to the Committee a draft DCID 3/2 covering the Production of Scientific and Technical Intelligence. In July the draft was approved by the SEC and submitted to the officials who were coordinating new drafts for all three S&T committees as part of a general overhaul of the IAC structure. In February 1959, DCID 3/5 which established the Scientific Intelligence Committee (SIC) to coordinate scientific and technical intelligence (except for atomic energy and guided missiles and astronautics) was approved.[4/] The new SIC was given a charter very similar to that of the original SIC and the restrictions of DCID 3/4 were lifted.

III. The Second SIC

The new, or second, SIC was the third interdepartmental committee in the field of scientific and technical intelligence. It had the same membership as the previous SEC, except for the addition of representatives from the Department of Defense and the National Security Agency. The civilian membership consisted of representatives from CIA, State and AEC; the military members were from DOD, JCS, Army, Navy, Air Force and NSA.

Subsequent to the issuance of DCID 3/5 in February of 1959 the same DCID was revised somewhat and reissued in July 1963 and in April 1965.[7/] Essentially the only change was the rewriting of the membership section to permit the military services to continue as members. This was necessary since DIA had become the sole military representative on USIB and had DCID 3/5 remained unchanged in this respect the DIA would have become the sole military representative on the SIC. As it now stands each military service has a member on the SIC, in addition to the DIA, giving the SIC a greater range and variety of viewpoint on military matters. How long this will continue remains questionable since it appears that eventually the DIA would prefer to be the sole military spokesman on the SIC.

At its first meeting in March of 1959 the SIC considered draft terms of reference for Subcommittees in Electronics, Biological and Chemical Warfare, and Medicine. Previously USIB, at its 24 February 1959 meeting, had approved the establishment of these three subcommittees.[5] These terms were approved by the SIC in April 1959.[6]

In addition to its contributions to the NIE program, a continuation of the main activity under the SEC, the SIC initiated its own interdepartmental studies in the substantive fields of electronics, biological warfare and chemical warfare. It also investigated the feasibility of studying Soviet activities in anti-submarine warfare and anti-missiles. In the latter field a joint SIC-GMAIC working group was established in October 1961 and later expanded to include representation from JAEIC. Its assignment was to provide an answer to a USIB request on the "Intelligence Aspects of the Soviet ABM Program." The joint SIC-GMAIC anti-missile working group was not successful, probably because of questions of overlapping jurisdiction, and it was discontinued in the spring of 1962.

One of the goals for the SIC set by its Chairman in the early 1960s was to do a better coordination and planning job on the production of S&T intelligence in the community. The annual index put out by the SEC was dropped since it was simply a bibliography and reflected past action. At various times, such attempts have been made to obtain concerted effort in future project planning but have met with little success, primarily because of the weakness of the "allocation by agreement" principle which has to govern such matters. Nevertheless, the concept of allocating production tasks among the participating agencies so as to make greatest use of available assets continued to remain an objective of the Chairman.

In January 1963 the Chairman cited the need for a review of the SIC mission. While the members agreed that there should be greater emphasis on new kinds of weapons systems, there was less agreement that the SIC should set up working groups in such areas as -- scientific resources, aircraft performance, ASW, basic sciences, research methods, ground weapons, industrial technology, and automation. Again, the objection cited was the organizational problems in DOD, especially the organizing of the S&T effort in DIA. It was agreed that further consideration of this matter would be postponed until DIA was fully established and operating.

The subject of working groups came up from time to time during 1963 to 1965. Some progress was made on less outrightly military subjects such as scientific resources and molecular biology. In military matters, however, the DOD members showed their historical reluctance to admit civilian participation, even in the form of working groups. Finally, however, when the Board of National Estimates criticized the SIC for failure to coordinate the community estimates of aircraft performance characteristics, the Air Force member reversed his previous stand and supported creation of an aircraft working group under the SIC. Thus, the Aircraft Working Group was established with an Air Force representative as its Chairman in 1966 and shortly thereafter a Submarine Working Group, under Navy chairmanship, was formed.

Thus, by early 1966 the working groups and subcommittees of the SIC as they now stand had been chartered. During the 1966 and 1967 period the SIC met with the Chairman of each group to review its charter and activities and to determine the suitability of its activity. Objections of the military members of the SIC have largely been overcome and all working groups are supported by all the member agencies.

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The primary substantive effort of the SIC has been devoted to the production of contributions to national estimates and the production of two all-encompassing S&T studies on "Soviet Military Research and Development" and "Communist Chinese Science and Technology." Both of these studies have been used as a basis for NIE contributions on the USSR and Communist China. Contributions from JAEIC, GMAIC, and EIC, as well as the SIC sub-groups, were used in compiling the studies which have become standard reference works in their fields.

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APPENDIX 1

SCIENTIFIC INTELLIGENCE COMMITTEE

Organization as established by DCID 3/3 of October 1949:

Chairman

Shall be a representative of CIA

Members

State
Army
Navy
Air Force
Atomic Energy Commission

Joint Committees

JAEIC (AE)
JBWIC (BW)
JCWIC (CW)
JEIC (Electronics)
JGMIC (Missiles)
JMSIC (Medicine)
*JACIC (Aircraft)
*JAAIC (Anti-aircraft)

* Added in June 1950 and abolished in July 1951.

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SCIENTIFIC ESTIMATES COMMITTEE

Organization as established by DCID 3/4 of August 1952:

Chairman

Elected by members annually

Members

CIA
Joint Staff
State
Army
Navy
Air Force
Atomic Energy Commission

Ad Hoc Committees

Formed to prepare various contributions to NIE's and NIS's

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SCIENTIFIC INTELLIGENCE COMMITTEE

Organization as established by DCID 3/5 of February 1959:

Chairman

Designated by DCI

Members (representatives of USIB)

CIA
State
Army
Navy
Air Force
Atomic Energy Commission
National Security Agency
Joint Staff
Office of Secretary of Defense

Subcommittees

Electronics
BW/CW
Medicine

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SCIENTIFIC INTELLIGENCE COMMITTEE

Organization as of January 1968 (under DCID 3/5 of 23 April 1965)

Chairman

Designated by DCI

Members

CIA
State
DIA
Army
Navy
Air Force
AEC
NSA

Subcommittees

Electronics
BW/CW
Medicine

Working Groups

Aircraft
Submarine
Scientific Resources
Priorities

APPENDIX 2

Chairmen of the Scientific Intelligence Committee

OCT 1949 - MAR 1950	Dr. Willard Machle, CIA/OSI
MAR 1950 - AUG 1952	Dr. H. Marshall Chadwell, CIA/OSI
AUG 1952 - JUN 1954	Mr. John B. Routh, CIA/OSI*
JUN 1954 - FEB 1959	Dr. Karl H. Weber, CIA/OSI*
FEB 1959 - Present	Dr. Karl H. Weber, CIA/OSI

* SEC

EXEC. SECRETARY (CIA)

Dr. Karl H. Weber 6.2(d)	NOV 1949
[redacted]	JAN 1950
Cdr. R. J. Williams	JAN 1951
Cdr. R. J. Williams	JAN 1952
Mr. Herbert I. Miller	JAN 1953
6.2(d) [redacted]	JAN 1954
	JAN 1955
	JAN 1956
	JAN 1957
	JAN 1958
	JAN 1959
	JAN 1960
	JAN 1961
	JAN 1962
	JAN 1963
Mr. Gale S. Stringham	JAN 1964
Mr. Gale S. Stringham	JAN 1965
Mr. Gale S. Stringham	JAN 1966
Mr. Gale S. Stringham	JAN 1967
Mr. Wilton E. Lexow	JAN 1968

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[redacted]

NSA MEMBER	JCS MEMBER	OSD MEMBER
	Col. John D. Tolman	
	Col. Orin H. Moore	
	Col. Orin C. Bjornsrud	
	Col. Orin C. Bjornsrud	
	Col. Orin C. Bjornsrud	
	Capt. George H. Carter	
Dr. Abraham Sinkov	Capt. George H. Carter	Dr. Leslie A. Rutledge
Mr. William D. Wray	Cdr. R. E. Rader	Dr. John P. Gigrich
Mr. William D. Wray	Lt. Col. Dennis L. Barton	Lt.Col. Franklin Shaw
Dr. Daniel M. Dribin		
Dr. Daniel M. Dribin		
Dr. Daniel M. Dribin		
Mr. John Monroe		
Mr. John Monroe		
Mr. John Monroe		
Mr. John Monroe		

[redacted]

[illegible]MBERSHIP AT BEGINNING OF EACH CALENDAR YEAR (1950-1969)

NAVY MEMBER	AIR FORCE MEMBER	AEC MEMBER	
[illegible] H. C. Lawder	Lt. Col. John C. Marchant	Dr. Malcolm Henderson	
[illegible] H. C. Lawder	Lt. Col. John C. Marchant	Dr. Malcolm Henderson	
Cmdr. H. C. Lawder	Lt. Col. John C. Marchant	Dr. Malcolm Henderson	
Cmdr. H. C. Lawder	Col. John G. Eriksen	Dr. Malcolm Henderson	
Capt. C. L. Gilbert	Col. Charles F. Gillis		
Capt. C. L. Gilbert	Col. Charles F. Gillis		
Capt. C. L. Gilbert	Lt. Col. Arthur E. Justice		
Lt. Cdr. Walter B. Tukey	Lt. Col. George H. Wilson		
Cdr. Robert E. Barnhart	Col. Willis B. Sawyer	Dr. Charles Reichardt	
Cdr. Felix Caracciolo	Col. Richard B. Hibbert	Dr. Charles Reichardt	
Capt. Charles A. Stay	Col. Robert M. Lawson	Dr. Charles Reichardt	I
Capt. Charles A. Stay	Mr. Jonathan H. Gilmore	Dr. Charles Reichardt	M
Capt. Charles A. Stay	Mr. Jonathan H. Gilmore	Dr. Charles Reichardt	M
Capt. Charles A. Stay	Lt. Col. Marvin M. Glass	Dr. Charles Reichardt	I
Capt. Charles A. Stay	Lt. Col. Marvin M. Glass	Dr. Charles Reichardt	I
Cdr. J. L. Thornton	Lt. Col. Marvin M. Glass	Dr. Charles Reichardt	I
Cdr. J. L. Thornton	Lt. Col. Marvin M. Glass	Dr. Charles Reichardt	M
Cdr. J. L. Thornton	Maj. Donald E. Paxton	Dr. Charles Reichardt	M
Lt. Cdr. William Lynch	Maj. Donald E. Paxton	Dr. Charles Reichardt	M
Dr. James M. McCullough	Maj. Donald E. Paxton	Dr. Charles Reichardt	M

STATE MEMBER	DIA MEMBER	ARMY MEMBER	
Mr. Philip G. Strong		Dr. Louis Woodruff	Cn
Mr. Philip G. Strong		Dr. Louis Woodruff	Cn
Mr. A. Sidney Buford, III		Dr. Louis Woodruff	Cn
Mr. A. Sidney Buford, III		Dr. Louis Woodruff	Cn
Mr. Howard A. Wiedemann		Col. Sherburne Whipple	Ca
Mr. Howard A. Wiedemann		Col. Lyman D. Bothwell	Ca
Mr. Howard A. Wiedemann		Col. Lyman D. Bothwell	Ca
Mr. Howard A. Wiedemann		Col. E. M. Postlethwait	Lt
Mr. Howard A. Wiedemann		Col. Howard P. Persons	Co
Mr. Howard A. Wiedemann		Col. Howard P. Persons	Co
Mr. Howard A. Wiedemann		Mr. Douglas Cruikshank	C:
Mr. Howard A. Wiedemann		Mr. Douglas Cruikshank	C:
Mr. Howard A. Wiedemann		Mr. Douglas Cruikshank	C:
Mr. Howard A. Wiedemann		Mr. Douglas Cruikshank	C:
Mr. Howard A. Wiedemann	Col. Dennis L. Barton	Col. Lamar G. Carter	C:
Mr. Howard A. Wiedemann	Col. Hugh Winter	Lt.C. Walter Twineham	Co
Mr. Howard A. Wiedemann	Col. Hugh Winter	Lt.C. Walter Twineham	Co
Mr. Howard A. Wiedemann	Capt. William M. Pugh	Lt.C. Graham Sibbles	Co
Mr. Howard A. Wiedemann	Capt. William M. Pugh	Col. Gilbert Collins	L
Mr. Howard A. Wiedemann	Col. William B. Graham	Mr. William E. W. Howe	D:

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DATE	CHAIRMAN (CIA)	CIA MEMBER
NOV 1949	Dr. Willard Machle (SIC)	Mr. Ralph L. Clark
JAN 1950	Dr. Willard Machle (SIC)	Mr. Ralph L. Clark
JAN 1951	Dr. H. Marshall Chadwell (SIC)	NONE
JAN 1952	Dr. H. Marshall Chadwell (SIC)	NONE
JAN 1953	Mr. John B. Routh (SEC)	Mr. Ernest J. Zellmer
JAN 1954	Mr. John B. Routh (SEC)	Mr. Ernest J. Zellmer
JAN 1955	Dr. Karl H. Weber (SEC)	Mr. Ernest J. Zellmer
JAN 1956	Dr. Karl H. Weber (SEC)	Mr. Ernest J. Zellmer
JAN 1957	Dr. Karl H. Weber (SEC)	[redacted] 6.2(d)
JAN 1958	Dr. Karl H. Weber (SEC)	
JAN 1959	Dr. Karl H. Weber (SEC)	
JAN 1960	Dr. Karl H. Weber (SIC)	
JAN 1961	Dr. Karl H. Weber (SIC)	
JAN 1962	Dr. Karl H. Weber (SIC)	Dr. Donald F. Chamberlain
JAN 1963	Dr. Karl H. Weber (SIC)	NONE
JAN 1964	Dr. Karl H. Weber (SIC)	[redacted] 6.2(d)
JAN 1965	Dr. Karl H. Weber (SIC)	
JAN 1966	Dr. Karl H. Weber (SIC)	
JAN 1967	Dr. Karl H. Weber (SIC)	
JAN 1968	Dr. Karl H. Weber (SIC)	Dr. Julian C. Nall
JAN 1969	Dr. Karl H. Weber (SIC)	Dr. Julian C. Nall

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REFERENCES

1. DCID 3/3 dated 28 October 1949 (C)

2. SIC 5/1 of 30 November 1949 (S)

3. DCID 3/4 dated 14 August 1952 (S)

4. DCID 3/5 effective 3 February 1959 (S)

5. Extract from USIB Minutes # 26 of 24 February 1959 (S)

6. Terms of Reference for SIC Subcommittees in Electronics, Biological and Chemical Warfare, and Medicine, 2 April 1959 (S)

7. DCID 3/5 effective 25 July 1963 and DCID 3/5 effective 23 April 1965 (S)

8. Minutes of Meetings, 21 November 1949 to December 1968

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In submitting the program to the Director for approval, AD/SI recommended that the Director approve only FY 1955 estimates promptly, and approve the estimates for FY 1956 and 57 only in principle. He further recommended that actual execution of the programs for FY 1956 and FY 1957 be considered as a part of normal Agency and office budgetary planning cycles. The first operational program of the Agency, as submitted, was approved by Mr. Dulles, DCI, on April 16, 1955.

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Annex VI

OSI's Role in Medical Intelligence

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Annex VI

OSI's Role in Medical Intelligence

Medical Intelligence is concerned with the effect of health conditions upon a nation's capability for international conflict. It includes in addition to consideration of the character, incidence and distribution of diseases (and their effect on manpower, military operations, and domestic economic capability), other aspects of health and medicine as they have a bearing on the interrelationships of man and his environment. Specialized concerns of medical intelligence are related to scientific, technical and economic intelligence. Included therein is information on aeromedical, bioastronautic, biomedical and environmental matters which may have a significant influence on foreign capability.

I. Early Development - The National Picture in 1948

In 1948 the Armed Forces were sharply reminded of an existing bleak picture in medical intelligence in the US through a "Report of the Subcommittee on Medical Intelligence of the Committee on Medical and Hospital Services of the Armed Forces". This report, familiarly termed the "Hawley Report", represented a response on 2 June 1948 to the Committee's order for an inquiry into the status of medical intelligence in the military services. The report found that the Medical Intelligence Branch, Office of the Surgeon General of the Army, was the only "going concern" in 1948 worthy of the title of "organization". This unit was short in personnel, space and facilities. Its activities and output therefore were limited and "failed to meet acceptable requirements by a great margin". Of three essential elements in medical intelligence (epidemiological intelligence on a geographic basis, research and development intelligence, and field combat intelligence) this Branch was found to be deficient in the latter two.

The Report flatly insisted that medical intelligence was essential to the nation, that it must be centralized in one organization to serve all military departments, that it should be placed at a high echelon (preferably within the Office of the Secretary of Defense) and that it should have close working relations with many agencies.[1]

At an interview in 1947, CIA representatives advised the Hawley Committee of the medical intelligence interest of the Scientific Branch, Office of Research and Estimates,

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CIA. [redacted]

Official uneasiness over intelligence shortcomings continued after publication of the Hawley Report. Another Committee, the Committee on the National Security Organization (known as the "Eberstadt Committee") was particularly concerned about the Nation's inadequacies in the fields of scientific and medical intelligence. It asserted in November 1948 that medical intelligence in the government was virtually non-existent. The Committee recommended that the Research and Development Board and the Central Intelligence Agency, as a joint undertaking, establish immediately within one or the other agency, an efficient and capable unit to collect, collate and evaluate scientific and medical intelligence in order that existing glaring deficiencies in this field be promptly eliminated.[2/]

II. Establishment of Medical Intelligence in OSI

While awareness of the serious deficiency in national medical intelligence was clearly evidenced by the Hawley and Eberstadt reports, no definitive federal action took place except in CIA. Dr. Willard Machle, who became the first Assistant Director of the Office of Scientific Intelligence on 1 January 1949 played a key role in the establishment of an OSI Division for the production of medical intelligence. In addition to his role as Director of CIA's scientific intelligence program, Dr. Machle was a physician with a keen personal interest in meeting the nation's intelligence requirement in his professional field. He first established a position for a physician in the Biology Branch of OSI. Thus, medical intelligence has been a part of the explicit responsibility of the Office of Scientific Intelligence since its establishment. The first medical intelligence officer, Clark H. Yeager, M.D., was a physician who possessed an extensive background of foreign service in Asia, Africa and Latin America as a staff member of the Rockefeller Foundation and the Office of Inter-American Affairs. He became Chief of the Medical Branch and, finally in November 1949 of the Medicine Division, OSI. Dr. Machle requested Dr. Yeager to organize a program for an effective medical intelligence unit.

The Task of Coordination

In his response to Dr. Machle's request, Dr. Yeager identified the principal task in medical intelligence to be the establishment of coordination of medical intelligence activities of all the federal agencies concerned. Believing that the National Security Act of 1947 had failed to give the DCI sufficient authority to execute his coordination responsibilities, Dr. Yeager attempted by personal diplomacy to fulfill CIA's role of coordination despite the absence of any formal authority over other intelligence agencies. His early consultations with Service representatives led to the assignment of a senior naval medical officer to the Office of Naval Intelligence. In 1949 he established a regular schedule of visits by this officer to the Medicine Division for the purpose of collaboration and coordination. In 1949, an Air Force Medical Intelligence Officer, on duty in the Office of the Secretary of Defense, was actually working at a desk in the MIB/OSI during a major portion of his duty hours as a collaborator.[4/]

In 1949, no Army medical officer was assigned to the Intelligence Division of the War Department. The Medical Intelligence unit of the Preventive Medicine

Division, OSG of the Army was then engaged in the compilation and production of epidemiological data which it published in technical bulletins. As noted above, the Hawley Report criticized the medical intelligence value of this organization. Nevertheless, since the unit represented Army medical intelligence, regular visits to CIA by its Chief were also firmly established by the Chief, MD/SI. Furthermore, with the creation of the interdepartmental Joint Medical Sciences Intelligence Committee (JMSIC), under the Scientific Intelligence Committee in 1949, a medical officer was assigned to G-2, Army, and this officer became the regular member of JMSIC for the Army.[5/]

The medical intelligence officer of OSI also established liaison in 1949 with officers of Camp (Fort) Detrick to coordinate medical intelligence interests with the intent of fostering centralization of medical intelligence in CIA.[4/]

__Evolution of Organizational Structure of the Medical Intelligence Division__

__Initial Structure__ - On 1 January 1949, the Office of Scientific Intelligence was established from elements of the already-existing Scientific Branch of the Office

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of Reports and Estimates.

<u>Formal Branches</u> - The areas of substantive responsibility of the Medicine Division/OSI were set down in October 1950 in a formal statement of the organization and functions of the Office. This statement is a reflection of Dr. Yeager's concepts at that time as supported by Dr. Machle and his successor, Dr. Chadwell. For MD/SI the areas were: [7/] [8/]

A. Medicine in its broad sense as it bears upon attacks on the health and efficiency of man, including research and development in the fields of medical science, the distribution and character of diseases as they may influence planned operation, domestic affairs; climatological, psychological and physiological aspects as they bear upon the interrelationships between man, his environment, equipment and tasks, and the medical aspects of atomic, biological and chemical warfare;

B. Manufacture, import and export of pharmaceutical and biological products, medical equipment and supplies;

C. Organizations, facilities, personnel and other resources in these fields.

The Division had three Branches in 1950: 3.3(h)(2) 6.2(d)

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Navy and Air Force Medicine.

At this time (1950) the separate Biology Division of OSI emphasized developments in biology, with explicit reference to offensive biological warfare. 7/

In response to the gaps noted in the Hawley and Eberhardt reports, medical field and combat intelligence was an area of emphasis in the Division as were all aspects of medicine in relation to the armed forces. Stress was placed on epidemiological intelligence; i.e., the distribution and character of diseases of man and animals as these may influence domestic affairs, planned operations or national security. No change was made in the area of interest of the Biology Division/OSI, except to re-emphasize that BW was of special interest to it. The Biology Division study of R&D in pure and applied biology explicitly excluded human and veterinary medicine, which was regarded as the province of the Medicine Division.

Re-Assignment of Military Medicine

In 1951, the Medicine Division was reorganized into two Branches, General Medicine, and Physiology and Epidemiology. The eradication of the Military Medicine Branch presaged the enactment of DCID 3/4 in 1952 which assigned military medicine to the Services.[9/]

The exclusion of military medicine in Division activities is directly attributable to DCID 3/4 (14 Aug 52) "Production of Scientific and Technical Intelligence," which lists in Annex A the responsibilities of the departments of the Department of Defense in the field of medicine intelligence, as follows:

> ". . .k. Military medicine, including:
>
> (1) Medical aspects of civil defense in the USSR;
>
> (2) Medical vulnerabilities of men and animals to BW agents, and capabilities for medical defense of man and animals against BW agents."

Because of excellent teamwork and cooperation which existed among members of the medical intelligence community at the working level, the Division was able to rely on the military for support in its areas. Coverage of aviation, field, shipboard and submarine medicine was handled exclusively by the Army, Navy, and Air Force for NIS and other production. Responses to M/SI requests for contributions of intelligence pertaining to military medicine were very satisfactory and M/SI believed the afore-mentioned allocation of production responsibility to be entirely suitable. The Division was relied upon within OSI to contribute estimates on k(1) and k(2) (see indented quotation above), even though these were allocated to the Department of Defense, because the Division had the analytical competence to do so.[7/]

Prior to DCID 3/4, work was also being done by the Medicine Division in basic research on BW and CW. Further, the Division covered Soviet offensive and defensive BW in veterinary medicine. With the enactment of DCID 3/4, primary responsibility for BW and CW intelligence was also assigned to the military Services.

Ultimately (in 1955) the Army Chemical Corps established the Chemical Corps Intelligence Agency which then developed a staff of rather mediocre caliber to cover BW-CW intelligence.[10/]

In 1953, in accordance with emphasis on the Division's responsibility for S&T intelligence and divorce from BW intelligence, the Medicine Division reorganized its forces into four Branches: General Medicine, Biochemistry and Pharmacology, Epidemiology and Veterinary Medicine. The Division continued its interest in the medical aspects of BW and CW and, in addition, the Veterinary Medicine Branch was concerned with both aspects of BW.

<u>National Intelligence Surveys Role</u>

The Division was reorganized in 1955 into two Branches: Basic Sciences Branch and Estimates and Survey Branch. This realignment reflected the OSI orientation toward basic sciences, and the assignment of BW and CW, including veterinary medical aspects, to the Applied Sciences Division. It also reflected the re-assignment of responsibility for the National Intelligence Surveys, Sections 45 to OSI from the Department of the Army.

The NIS has been described as a substantially successful area of Agency activity. This production is scheduled by the Office of Geographic and Basic Intelligence and also by the Intelligence Production Staff of OSI.[11/]

The fundamental principle of the NIS program, as laid down in NSCID No. 3, is the allocation of production and maintenance responsibilities to those agencies which are best qualified by reason of mission, production capability, and primary interest. The Life Sciences Division -- and its medical intelligence officers in the Division since its foundation -- have made substantial contributions to the preparation of Sections 7, 17, 45 and 76 of the National Intelligence Surveys. In 1967, medical intelligence officers were contributing primarily to the preparation of Section 7 of the NIS; Sections 17 and 76 were discontinued.

Responsibility for the Section 45 of the NIS rested originally with the Army and on 29 March 1948 the Surgeon General of the Army was given the task of its production. On 5 April 1954, the Army requested that the responsibility be reallocated, and it was assigned to the Medicine Division/OSI. The Medicine Division requested an increased T/O to enable it to perform this work. When the T/O increase was not forthcoming, the Division turned to external support

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BW-CW De-Emphasized

In 1955 in response to recommendations of the Inspector General, the Chemistry and Biology Divisions minus their applied sciences components were merged with the newly created Fundamental Sciences Division, OSI. A CW-BW Branch was established in the newly created Applied Sciences Division and made responsible for the surveillance and coordination of community intelligence activities in these critical areas of technical intelligence. The production of intelligence on CW-BW was generally considered to be the responsibility of the military departments. For this reason, Agency responsibilities in these fields were primarily directed at the surveillance and coordination of intelligence rather than at research and production. The latter activities were to be engaged in only at the request of the IAC Agencies or to the extent necessary to fill clearly defined gaps in coverage.

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Stability of the Division

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This led to a modification of the OSI T/O. In October 1959 the Medicine Division was renamed the

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<u>Control Sciences, Biocybernetics</u>

Division concern with Soviet emphasis on behavioral sciences led to the establishment of [redacted] within the Medical Branch of LSD. [redacted] to the DDI (Robert Amory) on Soviet activities in this area was the foundation for establishment of the Control Sciences Branch in LSD in 1961 to study biocybernetics intelligence. At that time the Division regrouped into three Branches: Medicine Branch, Biology Branch and Control Sciences Branch. [redacted] in 1964, the Branches were renamed Medical Sciences Branch, Biological Sciences Branch, and Control Sciences Branch. This re-emphasized the priority interest of the Division in basic sciences. Also in 1964 BW responsibility was transferred from the ABC Division/SI to LSD/SI. It was first attached to the

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Medical Sciences Branch and later in 1965 to the Biological Sciences Branch which was renamed the Biological Sciences/BW Branch.

Bioastronautics

A bioastronautics group was established in the Medical Sciences Branch in 1965 to underscore the rapidly increasing importance of intelligence on the Soviet space program.

BW-CW Responsibility Assumed

In January 1967, the Life Sciences Division was again reorganized and a BW/CW Branch was formed, [redacted] 6.2(d)

[redacted] The primary objective of this reorganization was to reorient and focus LSD interests and coverage on those aspects of the life sciences which are of strategic intelligence significance. Also, by combining the BW and CW efforts, more efficient use of manpower and more effective support to the Scientific Intelligence Committee on BW/CW matters were expected. 20/

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III. Production of Intelligence in the Life Sciences

A Massing and Analysis of Data

In 1949 in the absence of an acceptable medical intelligence program outside OSI/CIA, the Medicine Division initiated its program with a tremendous effort to establish a data base. [redacted] Documents available from governmental and non-governmental sources which contained medical information on the USSR or international health were perused and coded [redacted] briefings and debriefings were conducted, and files were inaugurated on personnel, facilities and subjects of priority interest: additional reports were received in response to these activities. Work was intense; the simultaneous creation and exploitation of a data base led to initiation of production of finished reports

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Scanning of published reports for the period of the 1950's demonstrates that the establishment of the level of Soviet medical science was accomplished. Production reports emphasized coverage of substantive areas, e.g., treatment of mass casualties, ionizing radiation, fermentation, microbiology, hematology, immunochemistry, immunology, basic aeromedical problems, toxicology, medical sciences in the various countries of the Soviet Bloc. Research and development in medicine and allied sciences -- physiology, biochemistry, medical microbiology and biophysics -- were carefully analyzed and reported. Medical intelligence officers fulfilled the essential task of getting to know the USSR and reflecting this knowledge in published reports and oral briefings for policy makers, federal scientists and law makers, and for the American scientific community which required information about the USSR.

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Synthesis

As noted above, medical intelligence production had recorded developments in information in two areas in the 1950's: Soviet efforts in space medicine and in attempts to control human behavior. While analysis of subject matter lost none of its essential role, it was now becoming possible to synthesize a picture of Soviet programs. 24/

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Cybernetics

Key LSD papers on Soviet cybernetics were also characterized by the synthesis approach. In 1957

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[redacted] was initiated to study research on human behavior in the USSR. This research identified the first Soviet attempts at cybernetic conceptualization of mechanisms of behavior.

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[redacted] Another was the publication of Intelligence Memorandum No. 0757/64, "The Meaning of Cybernetics in the USSR", 26 February 1964 by the Directorate of Intelligence and the Directorate of Science and Technology. Finally, the Division published its synthesis of the Soviet cybernetics program through 1963 (OSI-RA/65-2, 5 Jan 65) "The Features of the Soviet Cybernetics Program through 1963" (OUO). This synthesis revealed cybernetics in the USSR as a science which includes the sequence of operations which can most efficiently produce desired effects in the behavior of complex systems. The Soviets have defined cybernetics as the science of control of

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complex dynamic systems in man, machines and society. Their cybernetics program had been initiated in 1959 and has grown to considerable size. The study reported that the Soviets expect cybernetics to provide eventually full automation of the industrial base, a technology for the optimal control of the economy, and a methodology for adapting men and social institutions to the revolutionary form of industry they anticipate for the 1970s.

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Strategic Intelligence Production

Production in the period from 1964 on reflects the qualifications of LSD medical intelligence officers to participate in long-range, high-level foreign policy intelligence. They had been able to discern Soviet programs (e.g. the man in space program and the cybernetics program) even while those programs were in the process of forming in the USSR. A major activity now was monitoring and reviewing the performance of the USSR and estimating what it would do and when it would do it.[27/]

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Foreseeing the growing menace of Communist China, division officers are placing priority emphasis on medical intelligence on China. Coverage of Communist China has included public health, medical practice, medical training, medical research, and military medicine as they pertain to China's political, economic, and military development. Production reports indicate that the life sciences have continued to play a major role in China's development as the regime attempts to balance its political strategy of expanding world influence against its internal fight to survive infectious diseases and the consequences of its population explosion.

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[redacted]

d. <u>Soviet Agricultural Sciences</u> 6.2(d)

Life Sciences Division has utilized [redacted] 6.2(d) [redacted], to assist in the compilation of research summaries in the USSR on (i) soil sciences, (ii) cereal grains research and, (iii) new agricultural chemicals. His work (1958 to 1961) contributed to Division SIRs and a Monograph on Biology.

e. <u>Cybernetics</u> 3.3(h)(2) 6.2(d)

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IV. The Medical Intelligence Subcommittee of the Scientific Intelligence Committee

Efforts [redacted] 6.2(d) of OSI, to establish interagency coordination reached fruition within the Joint Medical Sciences Intelligence Committee, a subordinate unit of the Scientific Intelligence Committee (1949-1952).

The progress of the Interdepartmental Medical Intelligence Committee, currently (1968) termed the Biomedical Intelligence Subcommittee of the SIC, is delineated below and in Figure 1. It must be pointed out that in the early years of the Joint Medical Sciences Intelligence Committee the absence of a major program in medical intelligence in any of the major member agencies other than CIA placed the burden of a large part of the work of the Subcommittee upon CIA. The JMSIC Chairman and Secretary were furnished by CIA and to the present day OSI furnishes the Chairman and Secretariat of the Subcommittee. A Scientific Intelligence Committee (SIC) meeting in

1963 revealed the major contribution of OSI's medical intelligence unit to the Subcommittee: in that year, fourteen years after the founding of JMSIC, its Chairman was again forced to point out to the Chairman, SIC that the Services Members of the SIC Medical Intelligence Subcommittee did not have adequate resources available to them and therefore could not carry out their medical intelligence research responsibilities in the Subcommittee. The burden of support continued to rest on LSD/OSI.[32/]

The Scientific Intelligence Committee (SIC) was established 28 October 1949 by DCID 3/3. The SIC in turn established six subcommittees one of which was the Joint Medical Sciences Intelligence Committee (JMSIC). The Chief/Medicine Division/OSI was appointed Chairman of JMSIC. The membership of JMSIC was made up of representatives of Army, Navy, Air Force, State Department, Atomic Energy Commission and CIA and of any ad hoc members which JMSIC designated. On 14 August 1952, DCID 3/4 abolished SIC and replaced it with the Scientific Estimates Committee (SEC). Termination of SIC automatically discontinued the existence of its subcommittees, among which was JMSIC.

At a special meeting on 1 October 1952, the newly-created SEC established a Medical Intelligence Working

Conference (MIWC) on an ad hoc basis for a period of six months. The MIWC membership was the same as that of the JMSIC. In addition, through the coordination efforts of the Chief, Medicine Division, OSI, meetings were attended now by representatives of the Office of the Assistant Secretary of Defense (Health and Medical), the Federal Civil Defense Administration and the Public Health Service. At the end of the six month period, the MIWC automatically ceased to exist but the personnel of the committee still continued regular informal meetings until December 1955. The Federal Civil Defense Administration's representative ceased to attend these meetings when its medical section was moved to Battle Creek, Michigan.

Need for the coordination activity of the Chief, Medicine Division, OSI was emphasized by the Service representatives on the MIWC. The members of the informal group constituting the former MIWC called to the attention of the SEC the fact that, although the group had no official status, it had continued to function informally to serve a demonstrated need of its member agencies. These members expressed their strong conviction of the value of the professional intelligence collaboration provided. On December 1955, the SEC established the SEC Ad Hoc Medical Intelligence Subcommittee (MIS) for a six month period terminating 29 June 1956. The departmental membership remained the same as that for the former JMSIC and MIWC plus the addition of a representative of the Joint Intelligence Committee of the Joint Chiefs of Staff. The SEC *Ad Hoc* MIS was given the specific task of preparing a report on gaps in intelligence on the Sino-Soviet Bloc. After this, the MIWC continued to work as an informal group. On 17 October 1956, it was activated as the *Ad Hoc* SEC Medical Intelligence Working Group.[33/34/]

DCID 3/4, dated 3 February 1959, established a Scientific Intelligence Committee (SIC) to coordinate scientific and technical intelligence activities of the government. On 2 April 1959 the SIC issued "Terms of Reference for the SIC Subcommittees in Electronics, Biological and Chemical Warfare, and Medicine". The Medical Intelligence Subcommittee (MIS) resumed official status with publication of these terms. Terms of Reference for the MIS set forth in 1959 by the SIC for the MIS contained these specific responsibilities.[34/ 35/]

1. provision of a forum of exchange of S&T information for intelligence purposes related to the national security;

2. recommendation of S&T intelligence objectives within the overall national intelligence objectives and indication of their relative priorities;

3. evaluation of the effectiveness of collection and production efforts toward meeting national scientific and technical intelligence objectives, identification of deficiencies and possible remedies for the SIC;

4. participation in the preparation of contributions to national intelligence estimates and interdepartmental intelligence reports as directed by the SIC;

5. direction of attention of the SIC to outstanding foreign advances of concern to U.S. intelligence and the R&D community.

Although a Subcommittee in Biological and Chemical Warfare was also established by the SIC the MIS was historically expected to maintain cognizance of the medical aspects of BW and CW -- and of AW through its AEC Member -- (Note: at BMIS-23, SIC relieved BMIS of responsibility for defensive BW). Membership of the MIS was the same as that of its precursors. The 1959 Terms of Reference for MIS have never been superseded and are in effect at present (1968). In 1964 the MIS was re-titled the Biomedical Intelligence Subcommittee (BMIS) to reflect more completely the coverage by the Subcommittee of both the biological sciences and medical sciences, its surveillance of R&D advances in these fields and world-wide epidemiological trends. Further, to reflect advances in Soviet and world cybernetics, a separate SIC Memorandum gave responsibility for Control Sciences, including Cybernetics, to the Medical Subcommittee. OSI's Life Sciences Division is playing the major national intelligence and coordinating role in this area, and LSD is furnishing the chairman of a bio-cybernetics working group of the Subcommittee. 36/ 37/

Figure 1 outlines the development of the Medical Intelligence Subcommittee from 1949 to 1968.

Year	Committee Name	Parent Committee
1949-1952	JMSIC (Joint Medical Sciences Intelligence Committee)	SIC (Scientific Intelligence Committee)
1952-1953	MIWC (Medical Intelligence Working Conference)	SEC (Scientific Estimates Committee)
1953-1955	*Ad Hoc* MIWC	None
1955-1956	Ad Hoc MIS (Medical Intelligence Working Group)	SEC

1956-1959	Ad Hoc MIWG (Medical Intelligence Working Group)	SEC
1959-1964	MIS (Medical Intelligence Subcommittee)	SIC (Scientific Intelligence Committee)
1964-1968	BMIS (Biomedical Intelligence Subcommittee)	SIC

Figure 1. Development of Medical Intelligence Committees/SIC

While the 1959 Terms of Reference of the Subcommittee are still in effect, strengthening of these Terms has been suggested by two Chairmen: (i) in June 1963, Chairman, MIS, submitted a detailed draft of MIS responsibilities as recognized by the Chairman of the MIS Task Force for Study of MIS responsibilities; (ii) in 1964, Chairman BMIS, submitted strengthened Terms of Reference with a view to acquiring effective manpower for the agencies represented in the BMIS. The SIC indicated that it preferred to make no changes in the 1959 Terms but re-affirmed its understanding that the Subcommittee's established Mission and Functions give it sufficient flexibility to fulfill its responsibilities.[38/] [39/]

The medical intelligence work of OSI, through its Life Sciences Division (and LSD's predecessors), has occupied the central stage in the intelligence community. The Division has been the only member of the Subcommittee with a staff to accomplish the work of support to the Subcommittee. Selected examples of the accomplishments of the Subcommittee indicate that LSD's staff work has achieved coordination of life sciences intelligence and has been, in effect, the highest level producing entity dealing with medical intelligence in the intelligence community.

A. <u>Preparation of Contributions to National Intelligence Estimates</u>

1. This activity has been accomplished by preliminary preparation of draft estimates within the Medical Intelligence Division in OSI and subsequent coordination of the drafts with individual Committee Members. The list of estimates so coordinated is long: this work is described in Minutes of the Meetings. A selection of recent Estimates includes the following:[40]

   a. "Soviet Air and Missile Defense Capabilities Through Mid-1970," NIE 11-3-64

   [redacted] 6.2(d)

   c. SIC Study, "Science and Technology in Communist China Through 1970"

   d. 11-14-65, "Capabilities of Soviet General Purpose Forces"

   e. 11-3-65, "Soviet Capabilities for Strategic Air and Missile Defense"

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g. NIE (12-75), "Eastern Europe and the Warsaw Pact" ("Eastern European Military Capabilities")

2. The BMIS through its Chairman (who is the Chief of Life Sciences Division, OSI) has established permanent Working Groups within the Subcommittee with SIC approval to achieve coordination of life sciences intelligence activities in the community: The Chairman foresaw eventual preparation of estimates assigned to the Subcommittee by these Groups. The Groups now working are:

a. Environmental Sciences Working Group. (This Group, at first known as the Bioastronautics Working Group, has prepared a contribution to NIE 11-1-67 which was then coordinated in BMIS)

b. Molecular Biology Working Group (This Group has updated the Estimate of Science and Technology in Communist China (BMIS-35,36,37)

c. Global Epidemiology Working Group (This Group now publishes the Status Report on the Incidence of Infectious Diseases)

d. Bio-cybernetics-Behavioral Sciences Working Group is being organized (1967)

B. <u>Exploitation of East-West Exchanges</u>

1. Basic Support

Collection of life sciences intelligence information has been fostered through Subcommittee support of East-West Exchanges. This support has included briefings and debriefings, preparation of requirements, suggestion of names of personnel to participate on Exchange Teams, identification of installations and locations to be visited, identification of scientists visiting the US or foreign scientists worth visits in their homelands. The Subcommittee has conducted a briefing on the Exchange Program (BMIS-5) for its own Members. [redacted] 3.3(h)(2) 6.2(d) Selected examples of Exchanges aided by the Subcommittee include the following:

U. S. Virology Team	(9 Apr 56)	
Radiology Exchange	(12 May 58)	
Polio Exchange	(12 May 58)	
Women Physicians	(12 May 58)	
Biochemistry	(22 Jun 59)	(MIS-3)
Mental Retardation	(30 Apr 62)	(MIS-47)
Hospital Systems	(BMIS-3,4)	
Physiological Development of the Child	(BMIS-3,4)	
Hyperbaric Systems	(BMIS-15,16)	

Others are described in Minutes of MIS-70, 71, 77, 78, 79, 80, and 81. Efforts have been initiated

(1967) to program a "Man-in-the-Sea" Exchange Team for the forthcoming Exchange Protocol.

2. Current Support

A regular item on the Formal Agenda of MIS Meetings in the East-West Exchange Program. The LSD/OSI Member of the Subcommittee prepares and distributes to its members at each meeting a report entitled "East-West Exchange Notes" (OUO). These notes direct attention to current or projected Exchange visits of Soviets to the US and American Scientists to the USSR.

C. Exchange of Information on the Incidence of Infectious Diseases

1. The Subcommittee has regularly published each month a Status Report on the Incidence of Infectious Diseases. This report has presented in graphic form news of disease outbreaks throughout the world reported during the time period since the last scheduled meeting of the BMIS. The Global Epidemiology Working Group of the BMIS assumed responsibility for its preparation in 1966. Disease outbreaks which are reported through channels classified higher than OUO are announced orally at each Meeting and are recorded in BMIS minutes. The "Status Report" thus serves as a device to communicate to all Member Agencies, including HEW and NIH, current information on diseases occurring throughout the world.

Members have paid tribute (MIS-73) to the amount and quality of information on epidemics made available in the "Status Report." The value of the Committee meeting as a central point for information on infectious diseases has been noted by the Members (MIS-71, 78, 79).

Individual MIS Members regularly supplement the formal Status Report with oral reports of information received in their respective agencies. An analysis of the El Tor cholera outbreak in the Far East was presented at an MIS Meeting (MIS-80) by the HEW representative.

A portfolio of Global Epidemiology Maps has been assembled for background source material support in the preparation and utilization of the <u>Status Report on Infectious Diseases</u>. The portfolios have been prepared in looseleaf format so that additional maps can be inserted as needed and maps exchanged as indicated (BMIS-11).

The material used in the <u>Status Report</u> is elaborated by LSD/SI and presented each month with pertinent, additional higher-classified information in the <u>Scientific Intelligence Digest</u> under the title

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D. <u>Exchange of Fundamental Science Information</u>

1. Report on Subjects of Substantive Medical Intelligence Interest.

Coverage of fundamental science areas of intelligence concern has been effected within the Subcommittee by the use of formal and informal reports and seminars to the Members. These reports emphasize pertinent substantive areas, intelligence collection, and coordination of activities. Selected coverage has included:

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2. Inauguration of Intelligence Orientation Seminars.

The Chairman established a program of seminars on intelligence and intelligence-associated activities to be conducted within the Formal Agenda of the Meetings. Seminars have included:

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[redacted]

E. Identification of Intelligence Objectives and Priorities

At its first meeting in April 1950, the JMSIC undertook the coordination of general medical requirements (JMSIC). In subsequent meetings it identified countries of primary importance to medical intelligence (JMSIC-3, 6 July 50) and listed priorities in general order of importance (JMSIC-7, 1 Sep 50).

3.3(h)(2)
6.2(d)

3.3(h)(2)
6.2(d)

[redacted]

F. <u>Publications of BMIS</u>

1. The BMIS has undertaken the publication of reports under a BMIS cover sheet. These reports are devoted to topics of interest to a broad circle of readers in addition to those in the intelligence community. [redacted]

3.3(h)(2)
6.2(d)

3.3(h)(2)
6.2(d)

[redacted]

3.3(h)(2)
6.2(d)

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HANDLE VIA
[redacted] TALENT-KEYHOLE-COMINT
CONTROL SYSTEMS JOINTLY

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~~TOP SECRET~~

3.3(h)(2)
6.2(d)

HANDLE VIA
[redacted]-TALENT-KEYHOLE-COMINT
CONTROL SYSTEMS JOINTLY

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3.3(h)(2)
6.2(d)

HANDLE VIA
[redacted]TALENT-KEYHOLE-COMINT
CONTROL SYSTEMS JOINTLY

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3.3(h)(2)
6.2(d)

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HANDLE VIA
[redacted]ALENT-KEYHOLE-COMINT
ONTROL SYSTEMS JOINTLY

HANDLE VIA
[redacted]-TALENT-KEYHOLE-COMINT
CONTROL SYSTEMS JOINTLY.

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TAB A

HISTORY OF LSD/SI

31 Dec 1948 — Establishment of OSI:

The already existing Scientific Branch of ORE was separated from ORE. It acquired Office status and was given the name Office of Scientific Intelligence (OSI).

3.3(h)(2)
6.2(d)

[redacted]

mid-1949

NOV 1949

NOV 1950

1951

1953

3.3(h)(2)
6.2(d)

1955

1956-1958

Dec 1956

Jan 1957

Oct 1959 — The Medicine Division was named Life Sciences Division with three Branches (At that time the Biology Branch of FSD/SI was transferred to the Life Sciences Division):

3.3(h)(2)
6.2(d)

Oct 1960

Fall 1960

3.3(h)(2)
6.2(d)

Jan 1961

Sep 1963

Jan 1964

Jan 1964

Jul 1964

Feb 1965

3.3(h)(2)
6.2(d)

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Jan 1967

[redacted] HANDLE VIA
[redacted]ALENT-KEYHOLE-COMINT
CONTROL SYSTEMS JOINTLY

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TAB B

FUNCTIONS OF LIFE SCIENCES DIVISION/SI

The following functions of the Life Sciences Division have existed, with some refinements since publication of R SI 1-131 "Organization", 21 Oct 59, Revised 20 Sep 61: "Statement of Missions and Functions, Chief, Life Sciences Division" (S).

A. Research and Production

(1) Obtain data [redacted] in relation to:

3.3(h)(2)
6.2(d)

(a) Foreign research, development and trends which specifically influence the health and efficiency of man including space medicine; nuclear medicine; the understanding and control of human behavior; medical aspects of civil defense; biochemistry, pharmacology, radiobiology, microbiology, pathology, physiology, biophysics, and clinical medicine.

(b) International health problems and practices including organization and administration, personnel, facilities, training incidence, prevention and treatment of diseases and technical aid, including bilateral and multilateral activity in the health field.

(c) Foreign research, technology and trends in biological sciences including molecular biology, microbiology, genetics, radiation biology, physical, chemical, and mathematical biology; marine biology, astrobiology and astrobotany; and agricultural sciences related to food potential (Veterinary medical sciences are -- 1967 -- part of the responsibility of LSD, while agriculture has been given a lower priority.)

(d) Theoretical technical and applied aspects of the control sciences in the SovBloc including:

1) Scientific efforts to generate theory concerning the regulatory mechanisms which control complex biological , technical and/or social systems or organization, and involve problem-solving, decision-making and other aspects of information processing in natural processes.

2) Technical and engineering efforts to model physically the systems generated by the control theorists including self-optimizing behavior, mechanical translation, information transference, processing, retrieval and storage, and automatic control.

3) The application of control concepts, schemes and devices to the regulation of living organisms, technical complexes and social processes. Applications may concern brain-programming in the New Soviet Man, the creation of a self-optimizing, automated, industrial-economic base and weapon-system control.

(e) In addition, the Life Sciences Division provides the chairmanship and secretariat of the Biomedical Intelligence Subcommittee of the Scientific Intelligence Committee and, since 1967, of the BW/CW Subcommittee.

(2) In accordance with long-range and fiscal year intelligence research and production programs and objectives, develop, schedule and conduct all-

source research in the assigned sciences and fields, and produce the following types of intelligence for review by the Intelligence Board and approval by the AD/SI where required:

(a) Contributions to National Intelligence Estimates and National Intelligence Surveys, and critiques of contributions by other agencies.

(b) Scientific Intelligence Reports, Scientific Intelligence Memoranda, Scientific Intelligence Digest items and Scientific Intelligence Research Aids.

(c) Special estimates, reports, briefings and debriefings for internal OSI use and in response to requests by other offices and agencies.

(d) Current intelligence items for OSI publications and for support of the AD/SI.

(3) Coordinate intelligence research and production with other OSI divisions, other Offices, agencies and groups, including participation in working groups, such as the Biomedical Intelligence Subcommittee and the BW/CW Subcommittee of ~~the~~ Scientific Intelligence Committee , in order to delineate areas of

responsibility, to fill gaps in intelligence research and production, to exchange information and to provide scientific and technical intelligence support.

(4) Advise and assist the Production Staff in developing OSI programs and objectives for intelligence research and production, and programs for the coordination of scientific and technical intelligence research and production.

(5) Assist the Staff in scheduling and allocation of intelligence research and production responsibilities and in the dissemination of finished intelligence.

(6) In collaboration with the Staff, advise OCI in the development of intelligence indicators and in evaluating current intelligence.

(7) Initiate external projects and proposals for the use of consultants in support of division activities relating to intelligence research and production for approval by AD/SI, assist the Administration Branch in developing proposals for external projects and administer and supervise execution of such approved external projects, preparing reports to the AD/SI as required.

(8) Compile information in assigned fields on the scientific and technical intelligence research and production activities of other offices and agencies and make recommendations for improvement as appropriate.

B. Support of Collection:

(1) Assist the Office in establishing collection priorities and in development of long-range and fiscal year programs for support to collectors [redacted] 3.3(h)(2) 6.2(d)

(2) Develop proposals relating to new and improved techniques and systems for collection and collation of scientific and technical intelligence and information, coordinating and collaborating with other divisions, Offices and agencies as required.

(3) Collaborate in the preparation of recommendations regarding utilization of existing sources of information [redacted]

3.3(h)(2)
6.2(d)

(4) Initiate external projects and proposals for the use of consultants in support of division activities relating to support of

collection for approval by the AD/SI, assist Administration Branch in developing proposals for external projects and administer and supervise execution of such approved external projects, preparing reports to the AD/SI as required.

(5) Develop collection requirements, target briefs, priorities lists and reading guides, and conduct necessary liaison with collectors to expedite fulfillment of requirements.

(6) Compile information in assigned fields on the collection activities of other offices and agencies and make recommendations for improvement as appropriate.

In January 1967, the Life Sciences Division was reorganized. Four branches were formed for the following functions:

(a) The Biomedical R&D Branch [redacted]

3.3(h)(2)
6.2(d)

(b) The Strategic Medicine Branch [redacted]

(c) The Cybernetics and Behavioral Sciences

Branch, [redacted]

3.3(h)(2)
6.2(d)

(d) The BW/CW Branch [redacted]

3.3(h)(2)
6.2(d)

TAB C

3.3(h)(2)
6.2(d)

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3.3(h)(2)
6.2(d)

3.3(h)(2)
6.2(d)

References

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3.3(h)(2)
6.2(d)

Annex VII

OSI's Electronics Intelligence Role

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6.2(d)

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Annex V

OSI and ELINT

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3.3(h)(2)
6.2(d)

Page

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Annex V

OSI and ELINT

I. CIA and US Electronic Intercept Community

3.3(h)(2)
6.2(d)

[redacted]

services and to prepare Summary Reports published and disseminated by the Joint Chiefs of Staff at approximately 10-month intervals. Twenty five copies were normally printed for distribution in the US; three copies were made available [redacted] 3.3(h)(2) 6.2(d)

[redacted]

3.3(h)(2)
6.2(d)

3.3(h)(2)
6.2(d)

[redacted] his competence and experience and thus raised considerably the overall competence and effectiveness of the Subpanel. In addition he became a channel of communication between the Subpanel and the [redacted]

3.3(h)(2)
6.2(d)

Thus, virtually from the start of its activities, the Subpanel benefited from [redacted] experience and products. In fact, the Subpanel was the first post-war [redacted] group which had access to the [redacted] and which integrated this material into intelligence products available to the [redacted] intelligence communities.

3.3(h)(2)
6.2(d)

3.3(h)(2)
6.2(d)

3.3(h)(2)
6.2(d)

Since the Subpanel was a Joint Chiefs of Staff organization operating in the area then considered to be the exclusive responsibility of the military services, CIA was not a partner to Subpanel activities and had no representative on Subpanel meetings. The Agency interest in [redacted] the Subpanel were recognized, however, and CIA was placed on the distribution list for Summary Reports.

3.3(h)(2)
6.2(d)

The Reports were of keen interest to OSI whose electronic specialists were aware of the value of

3.3(h)(2)
6.2(d)

[redacted] contributions to intelligence [redacted]. In order to make the best use of these contributions in their intelligence work, the OSI specialists were also keenly interested in the means, methods and procedures used by the Subpanel to arrive at the products published in the Summary Reports, as these were the best indicators of validity, reliability and accuracy of the products. Informal but close working level contacts were established, therefore, between OSI and Subpanel members, including

3.3(h)(2)
6.2(d)

[redacted] and were maintained throughout the life of the Subpanel. These contacts proved of benefit to both sides. On several occasions OSI was able to assist the Subpanel with specialized equipment and technical support. Later, in the Korean War, when the timely importance of the Subpanel products became high, several OSI electronic specialists worked closely and effectively with Subpanel members on a number of intelligence problems raised [redacted]

3.3(h)(2)
6.2(d)

On the other side, [redacted] information which OSI specialists were able to derive from their contacts with Subpanel members provided OSI with a sound appreciation of US [redacted] programs, facilities, activities and products which proved of considerable value in determining the Agency decision of 1951 to support the [redacted] program.

3.3(h)(2)
6.2(d)

An additional benefit to the Agency, which accrued from cooperation of OSI personnel with the Subpanel on items of mutual concern, became apparent early in 1952 when a full-time Joint [redacted] Analysis and Evaluation Group was considered by the Joint Electronic Warfare Panel and the Services as a replacement for a part-time Joint Signal and Evaluation Analysis Subpanel. Although there was no unanimity of opinion among the Services on the required organizational structure, functions, methods of operations and procedures, all Services agreed that the new organization should be "jointlyssupported by the Army, Navy and Air Force, with technical assistance from CIA". When it became apparent that no agreement was possible between the Army and the Navy on one side and the Air Force on the other, because of the Air Force position that the proposed organization be responsible for intelligence on enemy electronics, including the production of joint estimates of enemy equipment capabilities, the Army and the Navy proposed the establishment of Joint Army-Navy Electronic

3.3(h)(2)
6.2(d)

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Countermeasures Signal Analysis and Evaluation with CIA participation. Accordingly such organization was formally established on 1 August 1952, with its quarters at the Naval Security Station. CIA agreed to participate and support the new Army/Navy organization and assigned two specialists from the Physics and Electronics Division, OSI.

3.3(h)(2)
6.2(d)

The official name of the new organization was classified secret. It was long and clumsy, and its acronym, [redacted] was awkward. In addition it still referred to ECM, when in fact it was [redacted] 3.3(h)(2) 6.2(d) [redacted] which was involved. Therefore an official clear title of "Army-Navy Electronic Evaluation Group", or ANEEG, was recommended for convenience and, after some discussion, accepted.

It was ANEEG, thus, that brought CIA into the US electronic intercept community in mid-1952. The Agency has remained a member of this community since, with steadily increasing weight, posture and authority.

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HANDLE VIA
[redacted] TALENT-KEYHOLE-COMINT
CONTROL SYSTEMS JOINTLY

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Annex VII

OSI's Electronics Intelligence Role

I. Physics and Electronics Division and SIE-5

Upon the establishment of OSI on 1 January 1949, responsibility for electronics intelligence was placed in the Physics and Electronics Division (PED) under Dr. Albert Stone, who left the Agency in December 1949. Most of the effort in PED in the first year or so of its existence was concentrated on the recruitment of analysts who began to appear in the early part of 1950. In June 1950 6.2(d) the new chief of the Physics and Electronics Division reported on board.

3.3(h)(2)
6.2(d)

*See Annex III, "Collection Support Activities of OSI".

HANDLE VIA
[redacted]-TALENT-KEYHOLE-COMINT
CONTROL SYSTEMS JOINTLY

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The personnel of the P&E Division until the spring of 1950 numbered [redacted] 6.2(d) With the arrival of newly hired analysts, representing a significant increase in strength, those portions of the Division devoted to electronics were organized into an Electronics Branch (concerned with radar and other noncommunications systems) and a Communications Branch. The new personnel had been selected on the basis of their technical backgrounds as related to the subject matter for which they would be responsible and they had no, or at most in one or two cases a little, intelligence experience. Thus, their first task was to become familiar with intelligence and its methods and materials.

Much of the year which followed was devoted to such jobs as insuring that the library had a suitable classification system for electronics subjects so that information could be represented by subject. The classification system had beenccompiled by personnel who knew the logical subdivisions from an electronics standpoint and was very detailed. OSI analysts were placed in the position of having to request a whole category, e.g., radar, rather than a specific subcategory, e.g., fire control radar, in order to insure that they obtained the desired information. Such detail was not identified in the reports or the reading panels were unable to recognize the classification. As time passed and experience was gained, the electronic analysts helped improve the system with key-word lists for the reading panels.

It was generally known in technical circles that the Soviet capabilities during World War II were primitive and that a considerable variety of US [redacted] 3.3(h)(2) 6.2(d)

3.3(h)(2) 6.2(d)

[redacted] electronics equipment had been provided to the USSR under the lend-lease program. Mindful of this and the great strides made in the US [redacted] 3.3(h)(2) 6.2(d) 3-4 years prior to the end of World War II, the electronics intelligence analysts sought in vain for signs of similar Soviet progress throughout 1950 and well into 1951. All they could find was evidence that lend-lease and captured [redacted] equipment wa 3.3(h)(2) 6.2(d) use besides the primitive Soviet World War II designs, one of which -- the Dumbo or P-3 -- did not achieve extensive deployment until the very late 1940s. Though this produced a frustrating situation for the analyst, it was not devoid of benefits because he was forced to learn his task of research, use of the library facilities, and preparation of requirements to try to improve the information he was receiving.

There were hints of Soviet progress, such as the display of jet interceptors carrying AI radomes as early as the 1949 air show, but it is perhaps fortunate that during the primary learning period in OSI through 1950 to mid-1951 the Soviets had not produced much themselves.

Several events took place after the middle of 1951 which were to have long-term effects upon the electronics efforts in OSI. These were the appearance of the first Soviet [redacted] (Token or [redacted] the beginning of work on the first community-wide estimate on Soviet air defense capabilities (SIE-5), and the convening of the first electronics intelligence conference [redacted]

3.3(h)(2)
6.2(d)

3.3(h)(2)
6.2(d)

Sparked largely by OSI because of its dissatisfaction with Air Force assessments, the Office of National Estimates undertook the first of the long series of air defense estimates, SIE-5, in 1951. While the original impetus had come from differences in estimates of fighter aircraft capabilities, the debates in the preparation of SIE-5, and ultimately the footnotes taken by the Air Force, centered on electronics matters. OSI was heavily involved in the preparation of the estimate and at least one electronics analyst worked full time for nearly a year on it. SIE-5 was undertaken in 1951 but was not completed until late 1952.

The TOKEN radar, once discovered, [redacted] 3.3(h)(2) 6.2(d) while this estimate was in preparation. The appearance of the TOKEN marked the emergence of a "modern" ground controlled intercept (GCI) capability and, as SIE-5 progressed, almost daily changes to the text raised the number of sets deployed. Four footnotes to the text of SIE-5 were taken by the Air Force. [redacted] 3.3(h)(2) 6.2(d) Events showed, before the expiration date of SIE-5 in 1954, that the OSI analysts were justified in the estimates they had advocated.

One of the problems in the life of the OSI analyst also surfaced during the SIE-5 sessions; namely, that although he could argue on equal terms with the military representatives, the ONE chairman serving as an umpire, he did not have the option of taking a footnote disagreeing with the text or conclusions of an estimate should that be necessary. The reason is simply that the estimate is the "DCI's estimate". Fortunately it seems that ONE personnel responsible for the estimates over the years have come to recognize the omniscience of OSI analysis or OSI analysts have been unusually persuasive. At any rate it is difficult to find an instance of significance where an estimate failed to incorporate sufficient of the OSI electronics analysts' view for the differences to be least reconcilable.

One outgrowth of OSI participation in SIE-5 was that, when the Becker Committee was meeting in early 1952 to attempt to resolve conflicts in responsibilities between CIA and the military agencies, Dr. Sherman Kent (AD/ONE) supported the view that the DCI needed the independent support of OSI on military capabilities of a technical nature. Thus, at least OSI's foot remained in the door of military technical intelligence.

i.e., military intelligence. In 1952 the old SIC structure with its Joint Electronics Intelligence Committee was abolished pursuant to recommendations of the Becker Committee and the Scientific Estimates Committee was formed. The SEC was chartered in such a manner that there no longer was a mechanism for bringing the community together in the field of electronics, except at those times when an estimate contribution had to be prepared.

Two things happened to fill the void. First the Military Electronics Working Group (MEWG) was formed within the Joint Chiefs of Staff (JCS) structure and CIA was encouraged to have an "observer" on it. Second, the "Friday afternoon coffee" meetings, wholly informal monthly gatherings, began in [redacted] 6.2(d) office. At these sessions, attended by the primary electronics specialists of the military departments, mutual problems and cooperation were discussed on a community-wide basis. These two organizations, one formal and the other informal, continued throughout the SEC period from 1952 into 1959. Detailed current intelligence exchange, preparation of DOD papers, and the development of the electronics nickname system took place in the MEWG while matters concerned with national intelligence estimates, Elint activities and the [redacted] electronics conferences were handled at "Friday afternoon coffees."

3.3(h)(2)
6.2(d)

It was intended at the 1951 and 1952 [redacted] electronics conferences that these conventions should be held annually. Early in 1953 it was decided, however, that an Elint conference would be held [redacted] instead of an electronics conference, largely because of the situation developing from CIA provision to the [redacted] At the 1954 conference, the question of a suitable interval between conferences was discussed. It was decided that too much had transpired in the two years between 1952 and 1954 for proper treatment but that it was doubtful that sufficient would occur in one year to justify a conference. As a good compromise, an interval of about 18 months was decided upon and these conferences have since been held every 18-20 months.

3.3(h)(2)
6.2(d)

In 1954 a [redacted] guided missile conference was held, also [redacted] immediately following. Thus,

3.3(h)(2)
6.2(d)

missile analysts could come early and attend the electronics conference and electronics analysts could stay on and attend the missile conference. This situation, despite its advantages, has not been repeated because of differences in the nature, purpose, and scheduling of the two groups.

Among internal OSI electronics activities in the 1952-54 period, active support of collection activities [redacted] continued especially with the [redacted] In addition Elint support and coordination were carried on and electronics specialists were on the scene to participate in these activities. [redacted]

3.3(h)(2)
6.2(d)

3.3(h)(2)
6.2(d)

3.3(h)(2)
6.2(d)

Early in this period, a group of P&E Division analysts was assigned the task of gathering, collating,

3.3(h)(2)
6.2(d)

and analyzing the available intelligence material on Soviet electronics research [redacted] 3.3(h)(2) 6.2(d) [redacted] The objective was to examine Soviet [redacted] 3.3(h)(2) 6.2(d) items. This effort continued for several years and was formalized organizationally in the Technical Services Branch of P&E Division in 1955. Unfortunately, because of limitations in the available information, TSB was never able to live up to its promise.

Many important developments in Soviet electronics kept the Electronics Branch busy collating and analyzing new information in 1953-54. 3.3(h)(2) 6.2(d) [redacted] expiration of the period covered by the air defense estimate (SIE-5) led to the formulation of a new estimate. For several years analysts of the electronics branch were at loggerheads with representatives of the military, chiefly the Air Force, over estimates of the detection range of aircraft by Soviet radars. In general during this period, the CIA assessment gave the Soviets greater capability than was granted by the Air Force.

Special Elint responsibilities assigned to OSI in the spring of 1954 resulted in the designation of an Elint Staff Officer (Ralph Clark) and the formation of an Agency-wide Elint Advisory Committee to coordinate the efforts of the DD/I, DD/P, and Office of Communications. Shortly before the organization of the EAC, another committee was organized with [redacted] as chairman to bring the various components of the Agency together on telecommunications matters. This committee, called the Interoffice Telecommunications Advisory Committee (IOTAC), was deeply involved in the problem of Soviet jamming of VOA broadcasts and the implications such a capability could have for radio communication circuits in the

6.2(d)

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same frequency band. IOTAC was also concerned with [redacted] 3.3(h)(2) 6.2(d)

In the spring of 1955, OSI formed the Guided Missiles Division from what had been a branch in the Applied Sciences Division. Although GMD's main concern was on ballistic missiles and space activities, some effort was devoted to surface-to-air missiles. But it was the Electronics Division that provided the most exciting development in surface-to-air missile intelligence of the time period.

As World War II ended the Soviets took [redacted]

3.3(h)(2)
6.2(d)

HANDLE VIA [redacted] ALENT-KEYHOLE-COMINT CONTROL SYSTEMS JOINTLY

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Toward the end of 1953, [redacted] 3.3(h)(2) 6.2(d) [redacted] unusual road networks being built at various locations around Moscow, usually in a unique "herring bone" grid configuration. The locations, not the configurations, of these grids made them suspect as SAM sites. Late in 1954, [redacted] 3.3(h)(2) 6.2(d) large bunkers at roughly the same locations and one report indicated that the bunkers bore a specific 3.3(h)(2) 6.2(d) relation to the grids. [redacted] varying descriptions of large objects in motion at the bunkers. Though a number of photographs were provided, they were too indistinct to be useful. 3.3(h)(2) 6.2(d) Finally a set [redacted] was brought to the Electronics Division in September 1955 by photo interpreters of ORR. These photos provided the basis for an analysis of the device, which had been nicknamed YO-YO, and three weeks later a report of the analysis was published in a "Provisional Scientific Intelligence Report".

The PSIR carried several warnings besides the word "provisional" that its conclusions were tentative and based on little hard information. Such caution probably was justified because the report indicated a completely new approach to SAM system design, including a different guidance concept (track-while-scan) and the capability to operate simultaneously against multiple targets with multiple missiles. Understandably enough, the intelligence community was most reluctant to accept the OSI study. The Technical Advisory Committee on Electronics of the Assistant Secretary of Defense for R&D, however, recommended that a mock-up of the system based on the OSI report be undertaken. This work was begun by the Army in March 1956. In the fall of 1956, a year after the original OSI report, one of the returning [redacted] electronics specialists 3.3(h)(2) 6.2(d) was being interviewed at REG described the YO-YO as an item on which he had been engaged. He along with others provided a great mass of intimate technical detail on the system, called B-200 by the Soviets. After this turn of events, the community had no difficulty accepting the OSI report. In one of those rare occurrences in the life of an intelligence analyst, the PSIR proved to be sufficiently accurate that there was never a real need to revise it.

OSI was reorganized in the autumn of 1955. The effect on the P&E Division was to move the fundamental science aspects to other divisions and to recognize the great activity under way in the electronics field itself. The division was redesignated the Electronics Division and [redacted] remained its chief. There were five branches: Technical Services, Electronics, Electromagnetic Warfare, Elint, and the Technical Processing*. This reorganization did not materially change the electronics activities but it did make them more managable from an organizational viewpoint.

6.2(d)

The fourth electronics conference was held in Washington, D. C. in the spring of 1956 and by this time the [redacted] contribution had reached a meaningful level. It was about this time that the planners on the [redacted] applied solely to the electronics conference for several years before it was picked up by [redacted] conferences in other substantive areas. By the time of the 1956 conference, substantive Soviet developments had reached the point where it was necessary to restrict the scope of the conference topics and this was done. Instead of covering everything, only the most important topics

3.3(h)(2)
6.2(d)

3.3(h)(2)
6.2(d)

3.3(h)(2)
6.2(d)

* TPC was the detachment working at ANEEG on Elint analysis. It was downgraded to a section in the Elint Branch in 1958.

were included on the agenda, and by this time the principle that the conference was to insure working-level specialists an opportunity to exchange views was firmly established.

IV. Special Collection Projects

3.3(h)(2)
6.2(d)

Several special collection schemes began to produce results in 1956. Not necessarily in chronological order they were GENETRIX, [redacted] and the U-2. GENETRIX was a photographic program consisting of camera-carrying high altitude, free balloons drifting over the USSR. While the photos provided no electronics information, the tracking of the balloons by the Soviet air defense system did. Just which radar types were accomplishing the tracking had to remain a matter of speculation, however.

3.3(h)(2)
6.2(d)

The [redacted] material was the output of the famous wire-tapping operation in which a tunnel had been run underground from West Berlin to East Berlin. Taps were placed on many telephone wires, including those of the air defense system. Even though the operation lasted somewhat less than a year, the tremendous volume of material scooped up in that time required years to exploit. [redacted]

3.3(h)(2)
6.2(d)

3.3(h)(2)
6.2(d)

3.3(h)(2)
6.2(d)

3.3(h)(2)
6.2(d)

During 1957 and early 1958, a Task Force was established within the Electronics Division to try to

[redacted] 3.3(h)(2)
6.2(d)

[redacted] Although this project was to be a joint undertaking with the Air Force, the Air Force dropped out shortly after work started -- much to their regret later when the report appeared. Personnel from the Directorate of Intelligence/Strategic Air Command at Omaha did participate in the research for the study, primarily by working with a CIA team [redacted] 3.3(h)(2)
6.2(d)

[redacted] This approach, which was suggested by OSI, proved to be uniquely successful. As a result of this experience, when DI/SAC established the Air Defense Center at SAC headquarters about a year later, the technique had been developed farther to form the basis of the Center's operation. 3.3(h)(2)
6.2(d)

[redacted]

HANDLE VIA
[redacted] TALENT-KEYHOLE-COMINT
CONTROL SYSTEMS JOINTLY

3.3(h)(2)
6.2(d)

[redacted]

3.3(h)(2)
6.2(d)

Late in 1957, the [redacted] conference was held [redacted] On this occasion a two-day, pre-conference session with limited attendance was held to [redacted]

3.3(h)(2)
6.2(d)

3.3(h)(2)
6.2(d)

3.3(h)(2)
6.2(d)

[redacted]

V. Events of the Late Fifties

3.3(h)(2)
6.2(d)

[redacted]

In the late summer of 1958 and again in mid-1959, analysts from the Electronics Division worked at some length with personnel of the WSEG (Weapons Systems Evaluation Group of the Institute for Defense Analysis) to provide a study that evolved into a WSEG briefing of President Eisenhower [redacted] 3.3(h)(2) 6.2(d)

3.3(h)(2) 6.2(d) The [redacted] electronics conference was held in January 1959 for the first time 3.3(h)(2) 6.2(d) [redacted]. Another feature of this conference was the inclusion of a specific group of sessions on related [redacted] matters. 3.3(h)(2) 6.2(d) At previous conferences, 6.2(d) [redacted] had insured that one Agency person from ORR attended, both to provide an informal [redacted] input as well as to balance the 3.3(h)(2) 6.2(d) [redacted] which included an 3.3(h)(2) [redacted] representative. Before the 1959 conference, the 6.2(d) [redacted] counterparts had 3.3(h)(2) 6.2(d) wished to hold a conference, but it was decided that a meeting would be unnecessary if space were allowed on the 3.3(h)(2) 6.2(d) [redacted] agenda for a more complete treatment of [redacted] 3.3(h)(2) 6.2(d) matters.

Following the merger of the Intelligence Advisory Committee and the US Communications Intelligence Board to form the USIB in 1958, the SEC was abolished in February 1959. The SIC which superseded it was organized so as to include, as one of its subcomponents, the Electronics Subcommittee or SICELSUBCOM, and

6.2(d) [redacted] was its chairman. The MEWG was also 3.3(h)(2) 6.2(d)

abolished, and its activities and files were taken over by the SICELSUBCOM, as well as [redacted] responsibility for assignment of nicknames for electronics equipment. Thus, the SICELSUBCOM became a formalized mechanism to bring the electronics intelligence community together to deal with such matters as estimates, conferences, exchange of information on current intelligence developments, and nicknames. 3.3(h)(2) 6.2(d)

[redacted]

3.3(h)(2)
6.2(d)

[redacted]

In the late summer of 1959, a group was formed under the Elint Advisory Committee to consider the Elint research and development needs of the Agency. It was called the Elint Research Advisory Committee (ERAC). A representative of OSI from the Electronics 3.3(h)(2) vision sat on the ERAC and in 1960 he recommended 6.2(d) that a project [redacted] be undertaken. [redacted]

3.3(h)(2)
6.2(d)

HANDLE VIA
[redacted]ALENT-KEYHOLE-COMINT
CONTROL SYSTEMS JOINTLY

TOP SECRET

3.3(h)(2)
6.2(d)

[redacted] This program was pursued, and, although it was diverted several times to acquire information needed for operational support to other agency collection efforts, it has been in operation for nearly a decade and has produced useful data on a number of important Soviet radars.

3.3(h)(2)
6.2(d)

[redacted]

In the summer of 1959 the [redacted] wa 3.3(h)(2) 6.2(d) observed in East Germany. As in the case of the [redacted], the Electronics Division produced a paper, this time a Scientific Intelligence Memorandum, describing on

3.3(h)(2)
6.2(d)

[redacted]

6.2(d) Late in 1959 [redacted], Chief of the Electronics Division, established a position at the division office level for a senior analyst to work on technical problems and be divorced from administrative responsibilities. Under the title of Special Assistant, this analyst could review technical problems, advise analysts in the various branches and undertake special tasks as needed.

VI. [redacted] Electronics

3.3(h)(2)
6.2(d)

[redacted] This mission, which was undertaken on the suspicion that the Soviets were engaged in an [redacted] 3.3(h)(2) 6.2(d) before. The Hen House, Hen Roost, [redacted] became important items for [redacted] -- not to mention speculation -- for years to come. Late in 1960 a multidiscipline task force was formed in OSI under the Electronics Division to investigate the [redacted] 3.3(h)(2) 6.2(d) missile question. Analysts from other divisions, such as Fundamental Sciences, Nuclear Energy, and Guided Missiles were nominated to work on the problem with the Electronics division people. The [redacted] Task Force continued to exist for about a year, ending in October 1961 when OSI was reorganized and the move to the new headquarters building took place. The work of the [redacted] Task Force was heavily concentrated on the electronics items in evidence and among these, the Hen House radar, because the electronics items were identifiable [redacted]

3.3(h)(2)
6.2(d)

Approved for Release: 2022/03/01 C00629785

3.3(h)(2)
6.2(d)

[redacted]

On 1 May 1960 a U-2 piloted by Gary Powers failed to return from a mission over the USSR. Much effort was expended by analysts of the Electronics Division working with DDP/DPD in attempting to assess the available information to determine what had happened. This activity continued off and on through the board of inquiry chaired by Judge Prettyman, and included review of the Soviet trial records. It was not until Powers was returned in 1962 that he provided information which finally established in the minds of the analysts that his U-2 had been shot down by a surface-to-air missile, the SA-2.

3.3(h)(2)
6.2(d)

The seventh [redacted] Electronics Conference was held in Washington, D. C. in June of 1960. It w[redacted]

3.3(h)(2)
6.2(d)

VII. The Systems Approach

In mid-1961, the Elint Branch of the Electronics Division and personnel of the office of the Elint Staff Officer were placed in a new division, Elint and Special Projects Division. This move took the Elint analysis laboratory and the processing of Elint data out of the Electronics Division.

In the late summer and early fall of 1961, a major reorganization of OSI was planned and it was put into effect on the occasion of the move into the new headquarters building in October of 1961. The reorganization established a "system" orientation rather than an organization based upon scientific disciplines. Thus the Electronics Division was abolished and the electronics analysts were scattered among the "systems" divisions. Those concerned with defensive systems, e.g., SAM guidance, Electromagnetic Warfare, ABM system, and fighter radars remained in the Defensive Systems Division while those concerned with ballistic missiles went to the Offensive Systems Division, space specialists to the Space Division, and those concerned with research and electronics components and materials went to the Physical Sciences Division. The Elint Branch and its laboratory facilities which had been transferred earlier to the newly formed Elint and Special Projects Division remained in OSI until it moved to Office status (Office of Elint) under the Deputy Director for Research when that position was established. [redacted], who 6.2(d) had been chief of the Electronics Division, became the first chief of the Defensive Systems Division and remained in that position until July 1962 when Mr. Ernest J. Zellmer became the Chief of DSD.

6.2(d) [redacted] remained as Chairman of SICELSUBCOM and its secretariat remained in DSD.

Initially DSD had four branches: Air Defense, Antiballistic Missiles, Electronics Warfare, and Antisubmarine Warfare. Electronics specialists were placed in each of them, the greatest number being assigned to the Air Defense Branch. As time passed, OSI shifted its organization and the Foreign Missiles and Space Center (FMSAC) was formed as a new office under the new Directorate of Science and Technology. To FMSAC went both the ballistic missiles and space problems while cruise missiles and all aircraft reverted to the Defensive Systems Division. Changes in DSD organization also occurred so that Electronic Warfare was combined in the Air Defense Branch and a new Aircraft and Cruise Missiles Branch was formed.

3.3(h)(2)
6.2(d)

The eighth [redacted] Electronics Conference was held [redacted] in April 1962. Highlights of its included

3.3(h)(2)
6.2(d)

[redacted]

3.3(h)(2)
6.2(d)

3.3(h)(2)
6.2(d)

[redacted]

The Air Defense Branch of DSD was organized into technical and geographic areas of concern. One of the latter included the Cuban area and, when the Cuban crisis developed in October 1962, the Branch was in a good position to describe and assess the

3.3(h)(2)
6.2(d)

[redacted] capabilities. During those critical weeks electronics and other specialists put in long hours assessing information on the latest developments and aiding the various

3.3(h)(2)
6.2(d)

groups reporting to the policy level. [redacted]

 3.3(h)(2)
6.2(d)

[redacted]

While the old Electronics Division for a number of years had been involved in providing support to collection programs of the Agency, a significant upsurge occurred in this activity in 1962 when the Defensive Systems Division was called upon to evaluate the risk to collection platforms as a function of individual mission routes and to assess the results on an individual post-mission basis. This became an especially critical activity when a mission was lost. The prime emphasis was on the electronics of

[redacted]

3.3(h)(2)
6.2(d)

and its anticipated effect, and assessments of the risk due to fighters, SAMs, and AAA. In addition a far more detailed analysis of the capabilities of Soviet radars than had been before was initiated primarily in the anticipation of an improved collection capability. This work continued for four or five years and even led into the machine simulation of various, Soviet weapons systems chiefly but not exclusively SAMs. 3.3(h)(2) 6.2(d)

In the [redacted] much effort was being directed toward the analysis of [redacted] 3.3(h)(2) 6.2(d) was immediately recognizable although the positive association took some time. Through 1962 and 1963 the available information on [redacted] 3.3(h)(2) 6.2(d) sketchy though it was, allowed system postulations [redacted] 3.3(h)(2) 6.2(d) Much more detailed data resulted from these intercepts and it became possible over the months that followed to determine the type

3.3(h)(2)
6.2(d)

[redacted] employed as well as the fact that the signals did originate with the Hen House, as opposed to the Hen Roost. In some quarters this conclusion was not completely accepted until some years later when the Hen Roost was torn down and the signals continued.

In February 1964 the Dog House, [redacted]

3.3(h)(2)
6.2(d)

[redacted] Once discovered, it was found that the first of the roads leading into the area was under construction in the spring of 1962. Signals from the Dog House were first obtained in 1967. In 1968 a reexamination of the [redacted]

3.3(h)(2)
6.2(d)

[redacted] taken together with the characteristics of the intercept receivers in use, established that the Hen Roost had been the prototype or feasibility model for the Dog House. This was good intelligence analysis and was done by an OSI analyst.

Another facet of the [redacted] was the attention being given to the [redacted]

3.3(h)(2)
6.2(d)

[redacted] These had appeared [redacted] through various stages of completion and had shown up around

3.3(h)(2)
6.2(d)

[redacted] beginning in mid-1962.

3.3(h)(2)
6.2(d)

3.3(h)(2) 6.2(d)

Thus with the [redacted] the Dog House, Hen Houses, and the [redacted] 3.3(h)(2) 6.2(d) (which hadn't been completely ruled out as yet) system postulations were being put forward, albeit speculative, for [redacted] concepts. 3.3(h)(2) 6.2(d)

Other activity [redacted] indicated a still different system under way. It was taken to be a [redacted] 3.3(h)(2) 6.2(d) Thus, much effort was devoted to the capabilities of the Fan Song [redacted] 3.3(h)(2) 6.2(d) [redacted] itself and whether it could do the job. The end result was the conclusion that it could not.

3.3(h)(2) 6.2(d)

As deployment got under way at [redacted] 3.3(h)(2) 6.2(d) [redacted], efforts to find a suitable [redacted] [redacted] were emphasized based chiefly on the results of the earlier Hen House study. When no Hen House construction was found nor any other suitable acquisition radar for the [redacted], a disquieting voice 3.3(h)(2) 6.2(d) suggested that perhaps the original premise (that the

3.3(h)(2) 6.2(d)

[redacted] system was an [redacted] was in error. Needless to say, this was far from a popular suggestion with DOD intelligence analysts. When the [redacted] 3.3(h)(2) 6.2(d) system, on which work had been suspended, was converted to what eventually became the [redacted] the 3.3(h)(2) 6.2(d) possibility of an error was reinforced though the acceptability of this conclusion was no greater than before.

3.3(h)(2)
6.2(d)

[redacted]

3.3(h)(2)
6.2(d)

[redacted]

If a lesson is to be learned from this particular episode it seems to be that when the development of a system fails to fit a hypothesis in some significant way, the hypothesis itself must be reexamined. The analyst must stand ready to reexamine his evidence as it accumulates and to reform his conclusions as the evidence changes avoiding the temptation to force fit evidence to a predetermined conclusion. The 3.3(h)(2) 6.2(d) [redacted] example is not the only one OSI has encountered.

3.3(h)(2)
6.2(d)

The 10th [redacted] Electronics Conference was held in Washington, D. C. in May 1965 and chaired by 6.2(d) [redacted] who had succeeded [redacted] 6.2(d) as chairman of the Electronics Subcommittee of the SIC. For the first time, the conference was held on an [redacted] 3.3(h)(2) 6.2(d) basis 3.3(h)(2) 6.2(d) [redacted] Prior conferences had been convened after a two-day pre-conference session at which time such materials were discussed, a procedure that was awkward and raised problems during the regular conference. The papers and their treatment at this conference were beginning to reflect the systems emphasis the need for which had been voiced at the 1963 conference.

[redacted]

3.3(h)(2)
6.2(d)

In mid-1965 a set of the handbooks on the SA-2 system became available, although a couple had appeared in the fall of 1964. Work had been under way for some time using the computer facilities of the Agency to develop a method and models for vulnerability studies of proposed collection systems. This acquisition provided a considerable boost in the analysis of the SA-2 system and led to refined assessments of its capabilities.

By mid-1965 the installations at [redacted] 3.3(h)(2) 6.2(d)

3.3(h)(2) 6.2(d)

which had been thought to be [redacted] installations were being converted to the SA-5 system. Nevertheless the argument about the system and the SA-5 system continued to rage in the community, the association of air defense radars notwithstanding.

[redacted] 3.3(h)(2) 6.2(d)

Throughout this period the intelligence community was falling into an analysis trap. With two prominent views being voiced as to whether the [redacted] 3.3(h)(2) 6.2(d) or the SA-5 system had ABM capabilities, the analysts who believed that they did not were placed in the position of having to prove that the systems could not cope or else ipso facto the estimate of ABM capabilities would seem to stand -- despite the fact that the proponents of the ABM role admitted that the parameters which had been estimated were usually maximized in favor of their position. Since key items, chiefly the electronics, were seen indistinctly, the analyst was in no tenable position to disagree on the basis of hard information. Similarly attempts to find errors in the calculations of the other side were fruitless since the sums were usually done correctly. It constituted a victory when at long last the estimate put up both possibilities without choosing. Later the estimate carried the OSI position with half of the community taking exception.

3.3(h)(2)
6.2(d)

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3.3(h)(2)
6.2(d)

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HANDLE VIA
[redacted]LENT-KEYHOLE-COMINT
CONTROL SYSTEMS JOINTLY

~~TOP SECRET~~

3.3(h)(2)
6.2(d)

~~TOP SECRET~~

HANDLE VIA
[redacted] TALENT-KEYHOLE-COMINT
CONTROL SYSTEMS JOINTLY

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The Office of Scientific Intelligence, 1949-68

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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

Karl H. Weber

June 1972

6.2(d)

for Carl E. Duckett
Director
Science and Technology

HISTORICAL STAFF
CENTRAL INTELLIGENCE AGENCY

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Annex VIII

OSI Publications

CONTENTS

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.

6.2(d)

6.2(d)

[redacted] Under these various headings, OSI began the production of needed scientific intelligence. In its quest to provide the broad inter-disciplinary 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.

<u>Types of OSI Reporting and Division of Effort</u>

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 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 com~~it~~mitments 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 Interdepartmental Committee on International Security; and with other organizations of the Government concerned with science and technology. Shortly thereafter, t 3.3(h)(2) 6.2(d)
use of consultants to aid in Office planning was instituted. [redacted] established the over-all program which was to include as components the "Basic programs" and the "Consumer Programs" discussed above.

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]

6.2(d)

[redacted] the Chief of the 6.2(d)

Intelligence Production Staff was given the responsibility of advising the Assistant Director in developing plans, policies, and procedures for intelligence research and production. He was to prepare recommendations for the OSI long-range research and production, current intelligence, NIE and NIS programs in accordance with national intelligence objectives and national security requirements and programs for review and recommendation by the Intelligence Board and approval by the Assistant Director. 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 Chief of the Intelligence Production Staff 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

Research Program was prepared for work to be performed in FY-1956. Yearly production programs have followed. [redacted] which was revised and made more specific in August 1960, stated that a long-range intelligence research plan will be prepared and maintained as the basis for the annual development of the Office production program for the fiscal year. The plan will be composed of intelligence research areas each of which will encompass a relatively broad segment needed to fulfill Office obligations and designed to remain valid over several years. It further stated that an Office program for the production of scientific intelligence was to be prepared annually and issued at the beginning of each fiscal year. The Intelligence Board was made responsible for reviewing the Long-range Research Plan and the yearly Production Programs. These programs were also reviewed throughout the intelligence community, various governmental organizations, and even by foreign intelligence units and their comments were incorporated into future plans. 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 DAD/P indicated that while "there is no feeling on the part of the AD/SI that ATIC statements of requirements

6.2(d)

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

3.3(h)(2)
6.2(d)

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.

3.3(h)(2)
6.2(d)

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.

3.3(h)(2)
6.2(d)

[redacted]

3.3(h)(2)
6.2(d)

[redacted] By 1963, interest in China had expanded to include Chinese missile developments. At that ti 3.3(h)(2) 6.2(d) it was estimated that [redacted] the office manpower was devoted to China, more because of the paucity of information than to lack of interest. Interest in China has continued to grow as evidenced by the formation of the OSI China Committee and the establish 3.3(h)(2) 6.2(d) of a Branch in the Physical Sciences and Engineering Division. The number of reports increased from [redacted] Nevertheless the continuing shortage of information has precluded OSI from providing as complete an intelligence picture on China as desired.

3.3(h)(2)
6.2(d)

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, particularly [redacted] with some publications on BW/CW developments in the mid-East.

Additional information on OSI depth research by geographic area is given in the chart in the subsection on depth production.

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

3.3(h)(2)
6.2(d)

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 Physical Sciences and Engineering Division 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 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.

3.3(h)(2)
6.2(d)

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	60	Contributions prepared for the use of the DDI, ONE, and OSI. Finished NIEs are distributed widely to US Governmental agencies and departments

3.3(h)(2)
6.2(d)

TOP SECRET

Publication	No. of Copies	Recipient
Contributions to NISs	20 of each contribution; 450 printed copies	3.3(h)(2) 6.2(d) [redacted]
Contributions to SEC Estimates	Approximately 200	
Contributions to SEC Reports	Variable	
Scientific Intelligence Report	Approximately 130	
Provisional Scientific Intelligence Report	130	
Scientific Intelligence Research Aid	130	
Scientific Intelligence Collection Guide	250	

HANDLE VIA
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TOP SECRET

Publication	No. of Copies	Recipient
Scientific Intelligence Digest	180	[redacted] 3.3(h)(2) 6.2(d)
Scientific Intelligence Memorandum	8-12	
Electromagnetic Warfare Brief	45	
Epidemiology Bulletin	56	
Special Supplement to the Scientific Intelligence Digest	75	

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. [redacted]

3.3(h)(2)
6.2(d)

3.3(h)(2)
6.2(d)

In the early 1960's, an attempt was made to increase the distribution of OSI publications, especially the SID, to leading US scientists. Consequently, copies of the SID were made available to selected US scientists through the facilities of the Office of Operations. This cumbersome mechanism fell into disuse after several years as most of these scientists were not sufficiently interested to make special visits to the field offices to read the SID and the field office personnel were unwilling to visit these men each month.

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.

3.3(h)(2)
6.2(d)

E. <u>Processing and Printing of OSI Publications</u>

The editorial work and the processing of OSI publications* have been the responsibility of the Intelligence Production Staff (IPS) since the establishment of the Office. Until 1963, OSI depth research

*And certain FMSAC publications.

publications were generally set by linotype by the Printing Services Division (PSD) and the more current and ad hoc publications were generally typed on multilith mats by IPS for subsequent processing by PSD. In 1963, Justowriter machines were purchased in order to ~~ap~~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 PSD 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 IPS which was then given to PSD 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 PSD, was returned at PSD's 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.

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

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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.

3.3(h)(2)
6.2(d)

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 Intelligence Production Staff, 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]

3.3(h)(2)
6.2(d)

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 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:

	Soviet Bloc	China/Asian Satellites	Other
1965	1155	376	665
1966	812	300	422
1967	954	287	385

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. The table following gives actual figures by OSI Divisions and by FMSAC.

	PSED	DSD	LSD	NED	FMSAC (BMSD)
1965	726	344.4	496.8	306	538
1966	520	217.2	411.6	240	145

Distribution

The Daily Surveyor began in June 1964 with a distribution of 35 copies only within CIA. By February 1965, slightly more than 100 copies were being disseminated. By November 1967, 161 copies were being disseminated -- all within CIA [redacted]

6.2(d)
3.3(h)(2)

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 NED, by the IPS Surveyor Officer, and by the Chief/IPS. No coordination 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.

The Weekly Surveyor is published in two classifications, Secret and all-source. Distribution of the Secret Weekly began with about 325 copies and is now 449 copies; the all-source version began with a distribution of 85 copies and is now 144. [redacted]

3.3(h)(2)
6.2(d)

The two versions of the Weekly Surveyor are prepared from items selected from the Daily

Surveyor by the Surveyor Representatives and with the approval of the Chief/IPS. These items are fully coordinated within CIA prior to publication in the Weekly.

C. <u>Scientific Intelligence Digest</u>

<u>Background and Philosophy</u>

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 6.2(d)
[redacted] The basic Bulletin publication was prepared at the secret level and a top secret supplement was also published; originally both were issued irregularly. 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) 433 items were submitted for publication in the Digest of which only 285 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.

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* Items published in the SID.

CY 1951 -- 127
CY 1952 -- 285
CY 1953 -- 262
CY 1954 -- 208
CY 1955 -- 354
CY 1956 -- 332
CY 1957 -- 248
CY 1958 -- 289
CY 1959 -- 332
CY 1960 -- 298
CY 1961 -- 271
CY 1962 -- 349
CY 1963 -- 248
CY 1964 -- 329
CY 1965 -- 230
CY 1966 -- 143
CY 1967 -- 145

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 Intelligence Production Staff 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 IPS 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 valuable intelligence was not reaching all of the appropriate consumers. A system was thus set up whereby members of IPS 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 IPS 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 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.

Since its inception the SID has been published at the Secret level. By early 1952, a Top Secret supplement was being published when appropriate current information was available -- approximately every two weeks. An additional top secret supplement was begun in September 1965.

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 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] once a high-priority target o 3.3(h)(2) 6.2(d) Office, receives little attention now. 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. Very little about [redacted] has been i 3.3(h)(2) 6.2(d) ed in the Digest.

<u>Review Procedures</u>

The SID article undergoes multiple review. With the exception of articles prepared by certain OSI divisions during 1955 and 1956, articles submitted to the IPS for publication in the SID have undergone review 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 IPS, the articles are coordinated with other Agency Offices (OEL, OBGI, OER, ORD, and OSR) 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 BMSD was transferred from OSI to become the basis for FMSAC, the then Deputy Assistant Director, Mr. Brandwein, 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.

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 Digest has steadily continued to grow in readership. Very early distribution figures are not available but by 1956 the Secret SID was printed in approximately 230 copies, each issue consisting of approximately 12 pages. In June of 1958, 301 copies of the secret version were disseminated and 91 of the top secret supplement. By July 1959, the secret version had increased to 344 and the supplement to 102. 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.

3.3(h)(2)
6.2(d)

3.3(h)(2)
6.2(d)

D. <u>Scientific and Technical Intelligence Reports (Brief)</u>

<u>Background and Philosophy</u>

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.) [redacted]

3.3(h)(2)
6.2(d)

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. The first Brief was published on [redacted] and was entitled [redacted]

3.3(h)(2)
6.2(d)

3.3(h)(2)
6.2(d)

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.

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 6.2(d) in the SID by virtue of their subject matter have been published through the Brief mechanism because of classification and control restrictions [redacted].

HANDLE VIA [redacted]-COMINT CONTROL SYSTEMS JOINTLY

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. Coverage by geographic area by year since 1963 is given below.

3.3(h)(2)
6.2(d)

1963

1964

1965

1966

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. Classification of Briefs by subject since 1963 is given below.

3.3(h)(2)
6.2(d)

1963

1964

1965

1966

1967

HANDLE VIA [redacted] CONTROL SYSTEMS JOINTLY

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. [redacted]

3.3(h)(2)
6.2(d)

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 Intelligence Production Staff 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] 3.3(h)(2) 6.2(d)

F. <u>OSI Publication Through the OCI Mechanism</u>

Shortly after the formation of the Office of Current Intelligence, OSI was charged [redacted] 6.2(d) 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). The first recorded item for the CIB prepared by OSI was entitled [redacted] and app 3.3(h)(2) 6.2(d) in the [redacted] issue of the CIB. By September 3.3(h)(2) 6.2(d) 1952, [redacted] charged the Assistant Director/ 6.2(d) OSI with providing all-source current scientific and technical intelligence as required by the Assistant Director/Current Intelligence and other offices of CIA. OSI was to make evaluations and conduct research at the request of OCI. The responsibilities were not limited to D/SI's area of primary production responsibility but a constant surveillance was to be maintained across the entire scientific and technical intelligence spectrum. OSI was to conduct such intelligence research and produce such intelligence reports as were required to supplement the intelligence produced by other agencies.

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 Intelligence Production Staff requested the Physics and Electronics Division 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. (See following table for sample data on OSI submissions and coordinations in the CIB, CIWR, and CID.)

	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.
FY 1951	6							
FY 1952	11			9			2	3
FY 1953	12	16		9	3		9	15
FY 1957	29	18	14	24	14	24		
FY 1958	50	45	25	47	17	43		
FY 1959	49	45	18	51	16	80		
FY 1965	24	128	0	11	4	79		
FY 1966	2	129	½	10	3	80		

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

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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."

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. A comparison of results from 26 April 1965 to 26 June 1965 with the corresponding period in 1964 is shown below:

CIB Items	1964	1965
Items prepared by OSI but not published	--	5
Items prepared by OSI and published	5	7
Joint OSI-OCI items	0	8
OCI items coordinated with OSI	18	23
CIWR Items		
Items prepared by OSI and published	0	1
Joint OSI-OCI items	-	1
OCI items coordinated with OSI	11	19

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

	Joint Preparation	Coordination*
1965	1	21
1966	1	31
1967	1	15
1968	1	17

One of the most important joint memoranda with OSI participation was a CIA memoranda published jointly with the Office of Strategic Research (OSR) on the Tallinn Missile. It was published in August 1967. More of this type of current joint publication is expected as the lines of substantive responsibility between OSI and OSR frequently merge.

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.

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

3.3(h)(2)
6.2(d)

[redacted]

[redacted] This very sensitive publication, prepared in October 1968, was distributed on a limited basis to high-level governmental officials. Three CIA Offices, the Offices of Scientific Intelligence and Strategic Research and the Foreign Missile and Space Analysis Center, took part in the preparation of this paper which was also reviewed by the Joint Atomic Energy Intelligence Committee of USIB. The procedence set by this type of well-coordinated interdepartmental intelligence probably will lead to the production of further reports on topics of equal importance.

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]

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6.2(d)

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, i.e., "Summary of the Soviet Atomic Energy Program to Mid-1957." Throughout this early period, all of the major estimates relating to nuclear energy dealt with Soviet capabilities, no other country having made sufficient progress to report.

Throughout this early period, JAEIC operated with "well nigh absolute authority" in respect to atomic 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. Meetings with the Office of Research and Reports (ORR) lead to agreements that, while OSI was responsible for all aspects of atomic energy intelligence [redacted] ORR 6.2(d) support in the field of economic intelligence was needed for those national estimates dealing with the Soviet atomic energy program and that ORR, after having gained the requisite familiarity with atomic energy programs, would produce for OSI comprehensive costing estimates of the Soviet atomic energy program.

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. One of the earliest

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of these was NIE-66, "Probable Developments in Argentina," which was published in June 1952. As nuclear energy capabilities of non-Soviet countries developed and expanded, so too did the production of nuclear estimates on these countries. Thus, at present, major estimates devoted solely to nuclear energy or including a major section on nuclear energy are produced

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6.2(d)

The primary OSI support for the production of nuclear energy estimates has been from the very beginning the Nuclear Energy Division 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 Nuclear Energy Division 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. <u>Estimates Other than Nuclear Energy</u>

Since the establishment of OSI, it has been Office policy to render strong support to the production of 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 Intelligence Production Staff in close conjunction with the SIC Secretary also provided by the IPS. The Estimates

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 IPS. 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 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.

<u>Planning</u>

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.

<u>Subject and Area Coverage</u>

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. [redacted] This increasing coverage is shown in the chart below:

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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] the Office of Scientif 6.2(d) Intelligence was made responsible for establishing and maintaining, on the basis of national intelligence objectives and other national security requirements, the Agency intelligence research and production program in the field of scientific and technical intelligence. In order to meet these responsibilities, OSI has since its establishment conducted in-depth research leading to the publication of approximately 1100 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. The first OSI report was actually published immediately before the formal establishment of the Office. It was a memorandum entitled, "Soviet Capabilities to Wage Biological Warfare," published in December 1948. This report and the many others that followed shortly thereafter were in many cases prepared 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.

Much of the early OSI reporting was done periodically. [redacted]

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Other early periodic reporting included the "NED Weekly Executive Summary," published in January 1950.

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,

6.2(d)

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
OSI	.29	.54	.52	.37
GSD	.63	.76	.55	.43
LSD	.26	.96	.16	.85

FY	64	65	66	67
DSD	.25	.54	.73	.37
NED	.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.

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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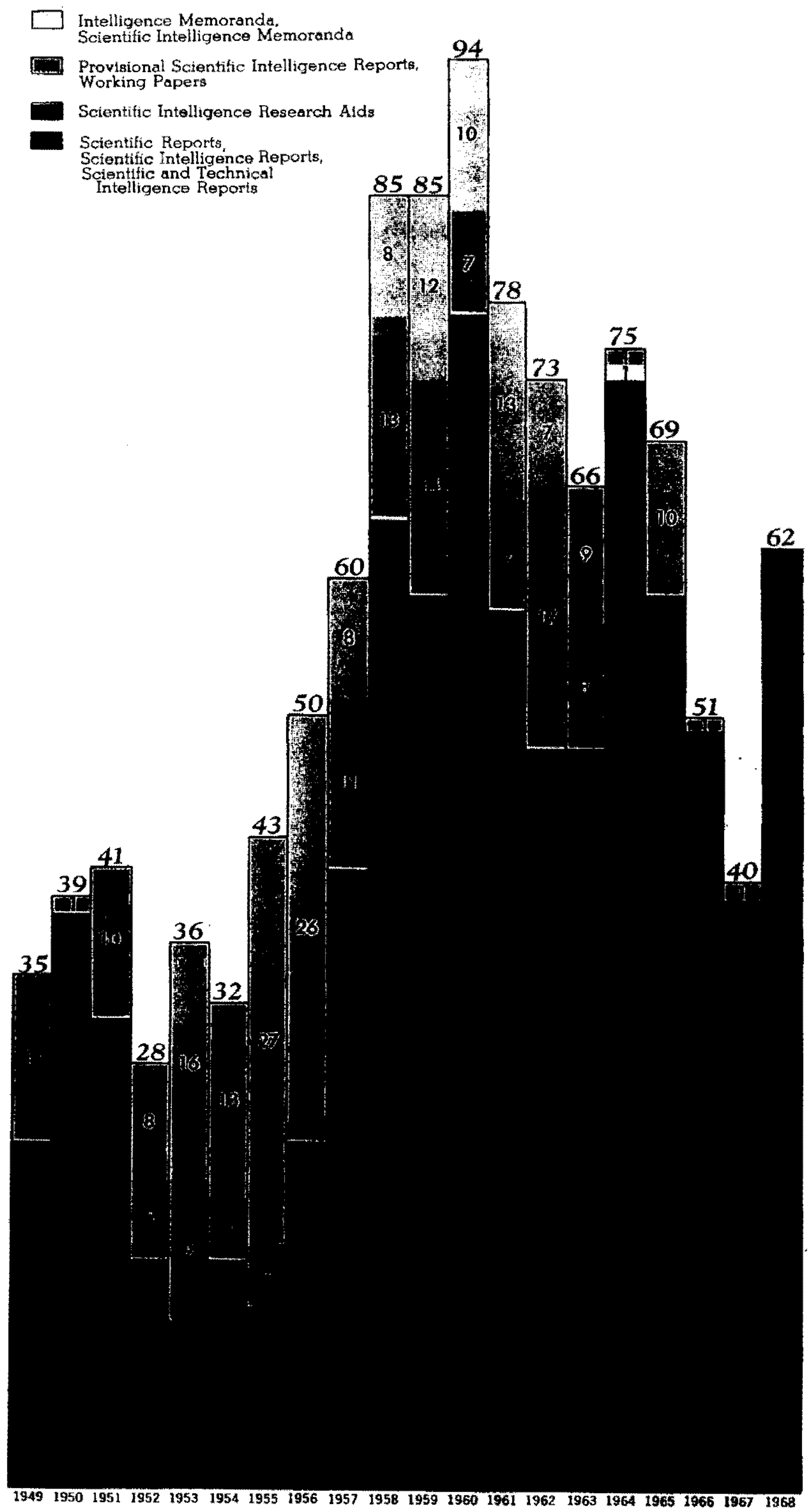
OSI Depth Research Publications by Type of Publication



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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. [redacted]

3.3(h)(2)
6.2(d)

3.3(h)(2)
6.2(d)

[redacted]

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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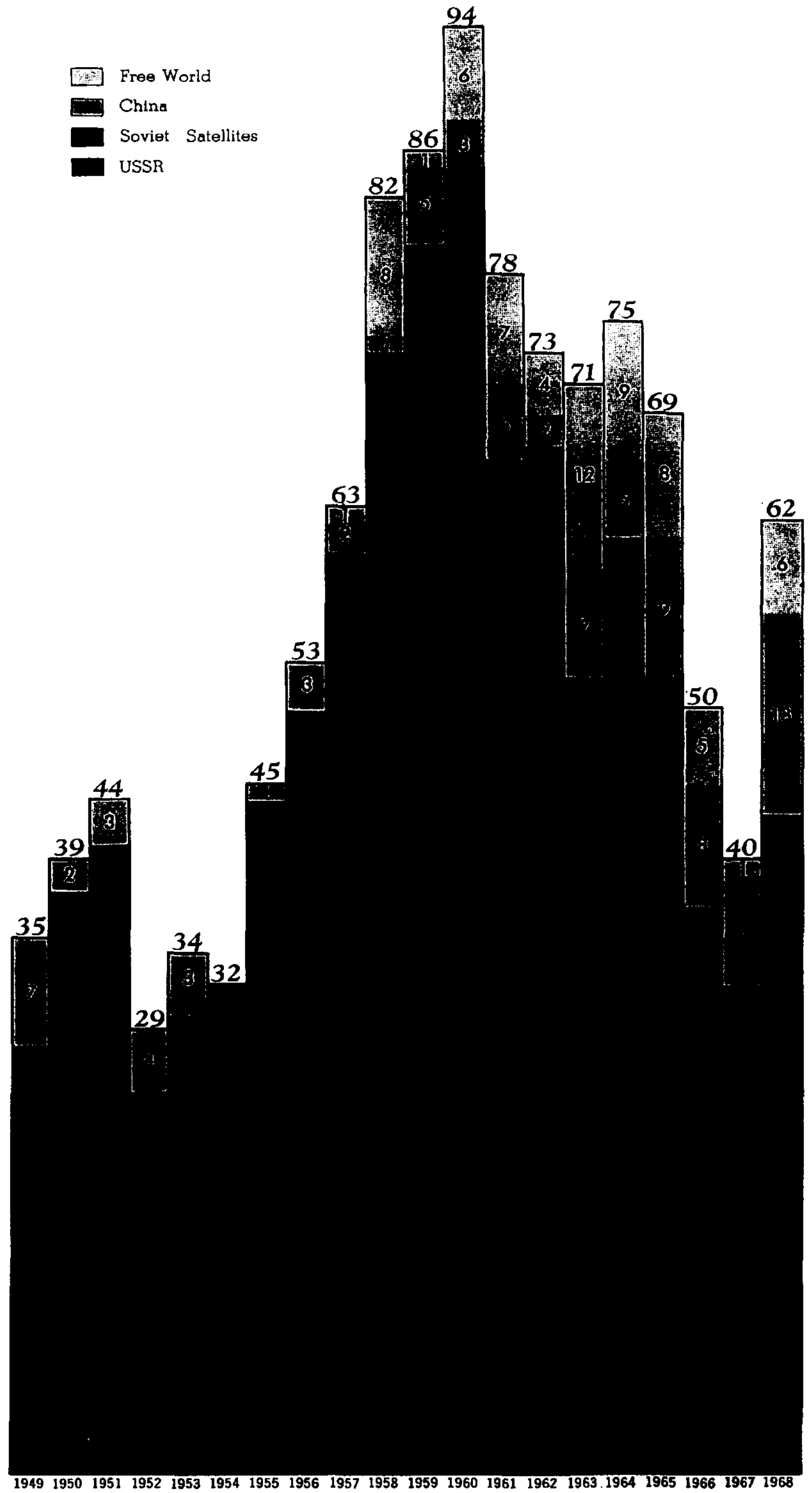
OSI Depth Research Publications by Geographic Areas



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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.

3.3(h)(2)
6.2(d)

3.3(h)(2)
6.2(d)

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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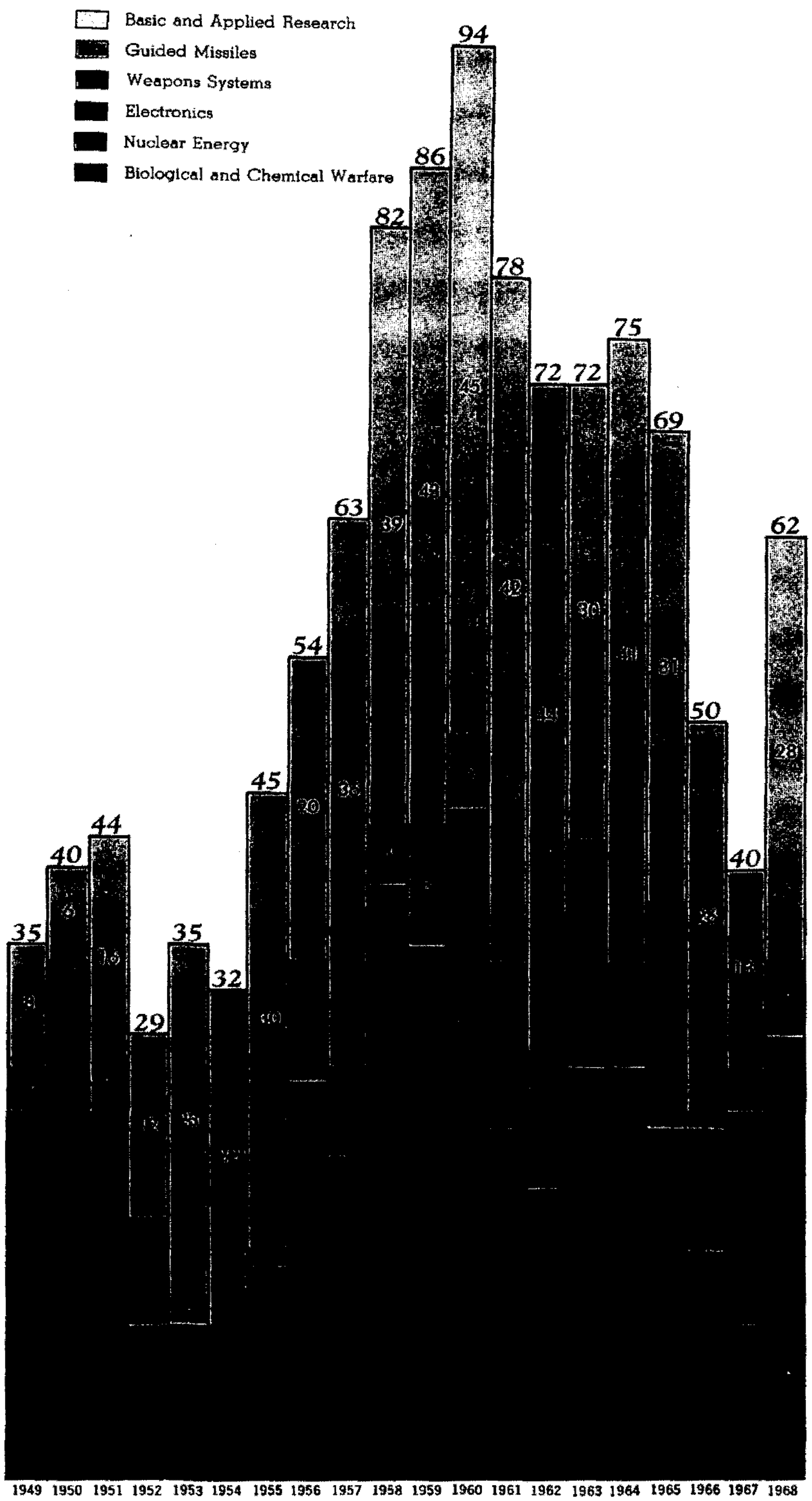
OSI Depth Research Publications by Subject Area



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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 the Ballistic Missiles and Space Division 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 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. A so-called Office Estimate, entitled "Long-range Capabilities of the Soviet Union in Major Scientific Fields, 1957-67," which included monographs on eight major scientific fields, manpower and policy, and control of science was a major effort in this area. 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. An entire division devoted to this area was established in 1961, but was shortly thereafter merged with the group covering ballistic missiles. Publications in this area, however, never comprised a large 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, the WSEG (Weapons Special Evaluation Group), [redacted] About 130 3.3(h)(2) 6.2(d) copies of each of these publications were printed in 1954. [redacted] 3.3(h)(2) 6.2(d) This dissemination of the 3.3(h)(2) 6.2(d) subsequently broadened except in the case of certain limited distribution papers. Only about 8 to 12 copies of the SIMs were produced in the early 1950s.

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. By 1960, for example, 151 copies of collateral reports were disseminated [redacted] 3.3(h)(2) 6.2(d)

3.3(h)(2)
6.2(d)

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 Intelligence Production Staff 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 IPS 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]

3.3(h)(2)
6.2(d)

3.3(h)(2)
6.2(d)

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] 6.2(d) 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 Intelligence Production Staff 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 Intelligence Production Staff for editing and coordination as part of the SEC (SIC) secretariat. A so-called preliminary review 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 General Jesmond D. Balmer. It was found that the NIS program had evolved into a highly formalized, 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 Balmer Committee 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 Balmer Committee's 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 USIB-D-51.1/8, 23 August 1963, had a considerable effect on OSI's role in the NIS.

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]

3.3(h)(2)
6.2(d)

[redacted] 3.3(h)(2) 6.2(d)

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] 3.3(h)(2) 6.2(d)

The Intelligence Production Staff handles the coordination of the Section 7 through the SIC secretariat. IPS edits the contributions from both OSI 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 Medicine Division of OSI on 1 July 1955. As of FY 1967, the Defense Intelligence Agency assumed responsibility for all Section 45's

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

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 the Applied Science Division, OSI, The Department of Agriculture and the Defense Intelligence Agency.

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 Nuclear Energy Division 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 Nuclear Energy Division 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 NED, 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 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 Biographic Register and a subsequent review of the substantive material included on each scientist.

VI. <u>Miscellaneous Defunct OSI Publications</u>

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]

3.3(h)(2)
6.2(d)

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

3.3(h)(2)
6.2(d)

[redacted] 3.3(h)(2) 6.2(d)

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 6.2(d) Briefs, were originally issued irregularly but became a regular biweekly publication by 1957. [redacted] 3.3(h)(2) 6.2(d) [redacted] The Monthly Rep

3.3(h)(2)
6.2(d)

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]

3.3(h)(2)
6.2(d)

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 Guided Missiles Division 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.

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6.2(d)

3.3(h)(2)
6.2(d)

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6.2(d)

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6.2(d)

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3.3(h)(2)
6.2(d)

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6.2(d)

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CONTROL SYSTEMS JOINTLY

TOP SECRET

Annex IX

OSI's External Assistance Program

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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 Dr. Wallace Brode, then head of the Scientific Branch/ORE, and a few members of the scientific world who already had an interest in fostering the development of scientific intelligence. These included Dr. Vannevar Bush,[1/] Dr. Samuel Goudsmit 6.2(d) 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. In January 1950 he reached an agreement with Mr. Lyman Kirkpatrick, then head of the Contact Division, to take over a pool of 6.2(d) that had been built up by the Contact Division.[3/] The actual transfer did not take place, however, until September 1950, after Dr. H. Marshall Chadwell had taken over as the head of OSI.[4/] After a few months of work [redacted] 3.3(h)(2) 6.2(d) it became apparent that many were not the most appropriate ones for OSI work [redacted] 3.3(h)(2) 6.2(d) [redacted] This exercise, nevertheless, caused OSI to think about external assistance and pointed up the desirability of having available a pool of specialists from outside the Agency. 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] 3.3(h)(2) 6.2(d) [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] 6.2(d)

[redacted] 3.3(h)(2) 6.2(d)

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] who 6.2(d) was asked to do this job, was familiar with the latest machine systems available for information handling purposes and attempted to apply this knowledge to OSI problems.[7] He worked with Dr. Malcolm Pratt, Chief of the Chemistry Division, Dr. Clark Yeager, Chief of the Medicine Division, and Dr. James Andrews, Chief of the Office of Collection and Dissemination. The result of this effort was a machine card system in which analysts of the Chemistry and Medicine Divisions abstracted and coded information on machine cards, 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. <u>Use of Consultants by OSI</u>

Most OSI consultants have been recruited either from industrial organizations, [redacted] 6.2(d) or from universities, [redacted] Roughly equal numbers 6.2(d) 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. In 1952 the list of OSI official consultants contained [redacted] Ten years later, a similar list contained 6.2(d) [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.[10/] The availability of specialists in the Atomic Energy Commission and its contractors has been particularly important in the development of nuclear energy intelligence in OSI.[11/] Through interagency cooperation NASA specialists at Langley Field have been very helpful [redacted]

3.3(h)(2)
6.2(d)

Examples of other Government agencies that have provided consulting assistance are the National Environmental Satellite Center and the National Bureau of Standards.[10/]

OSI has used consultants both as individuals and in groups or panels. Some have been big names in the U.S. scientific world, such as James Killian, Lloyd Berkner, George Kistiakowsky, Jerome Wiesner, and Charles Townes. Others have been lesser known but highly competent specialists. 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 policymakers. 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 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 composition of the panel changed from time to time, but usually included 12 to 15 leading scientists from the Boston area. [redacted]

3.3(h)(2)
6.2(d)

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. Particularly important were three men who became Special Assistants to the President for Scientific Affairs: James D. Killian, George B. Kistiakowsky, and Jerome B. Wiesner; each of these men had his first contact with OSI through the BSAP.[14/]

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.[15] 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] 6.2(d) 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 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.16/ A panel of four experts [redacted] 6.2(d) 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 throu[redacted] 3.3(h)(2) 6.2(d) IB approval.17/ At that time there was little information on Soviet missiles [redacted] 3.3(h)(2) 6.2(d) As a result the assessments of the Soviet missile threat varied widely among the various intelligence agencies involved with the estimate. Against this 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.[18/]

The success of the use of the [redacted] panel in 6.2(d) 1954 led to the establishment of a permanent panel of consultants on guided missile matters. In 1958, the panel became the "select panel" for the DCI. It was also referred to as the "Hyland Panel", since Lawrence A. Hyland (by that time, an executive vice president of Hughes Aircraft Co.) was named chairman, [redacted] 6.2(d) At one time, the panel included Rear Admiral W. F. Raborn, later the DCI, and A. D. Wheelon of STL (TRW), later the DDS&T. 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.[14/]

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. The panel included Dr. Howard P. Robertson, Dr. George Haller, Dr. James Fiske, Mr. William Webster, and Dr. Lloyd V. Berkner.[20/] In later years, the group became a regular panel which, until 1966, was chaired by Webster, executive vice-president of the New England Electric System. The panel was of value in "selling" annual estimates, after performing a minimum review of the OSI draft. "Webster Panel" 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. Webster, in the meantime, has retired from the panel, which is now (1968) chaired by Louis H. Roddis, President of the Pennsylvania Power Company.[11/]

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), it is clear that contracting has played an important role in the affairs of OSI almost from its beginning.

The growth of the contracting program was quite rapid during the late 1950's and early 1960's, topping [redacted] 6.2(d) Because this latter level resulted from the use of extra funds that became available late in the fiscal year [redacted] 6.2(d) Then began a steady growth in contract funding that continues to the present. [redacted] 6.2(d) reflects the transfer of major OSI missile and space responsibilities with associated external support funding to the Foreign Missiles and Space Analysis Center (FMSAC), rather than a break in the growth curve. By the end of FY 1967, OSI obligations for contract support had reached [redacted] 6.2(d) (See Table I).

It is difficult to classify the contracts that OSI has sponsored over the years, because there have been so many and the types and objectives have been so diverse. Keeping in mind that Office objectives have shifted over the years, one can obtain a rough idea of how the total OSI effort in external contracting to 1968 has been allocated from the following table. The breakdown is by subject or type of activity and does not necessarily correspond to the responsibilities of particular OSI divisions:

3.3(h)(2)
6.2(d)

3.3(h)(2)
6.2(d)

[redacted] 3.3(h)(2)
6.2(d)

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 Physical Sciences and Engineering Division 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. <u>Review and Coordination of OSI Production</u>

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.

An extensive program of these studies was started under Dr. Herbert Scoville, Jr., beginning about 1956. Dr. Scoville felt that it was necessary to have a series of "state-of-the-art" papers which, taken together, would establish a "base line" for examining current and future Soviet scientific and technical advances.[22/] This program was to be accomplished by both internal and external research, analysis, and writing. The bulk of this work was in the physical sciences and engineering area, but some was also in life sciences and in areas directly supporting weapons intelligence. The rationale for external work rested on the principle that OSI could not have 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.

Contracting for academic-type evaluations began seriously in FY 1957, during which about [redacted] was allotted for about a dozen projects. 6.2(d)
Such contracting reached its peak during the years 1960-1963, during which there were [redacted] 6.2(d)
"State-of-the art" funding in later years declined. As projects became more and more oriented toward direct support of weapons systems intelligence, attention shifted increasingly to industry where the expertise in weapons design lay. Considering all funds spent on contracts in the area of physical sciences and engineering, the following breakdown gives a general idea of how these funds were spent.[21/]

[redacted] 3.3(h)(2) 6.2(d)

[redacted] 3.3(h)(2) 6.2(d)

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. The largest share of the money spent on contracts in these areas of scientific intelligence [redacted] 6.2(d) was for contracts with various types of industrial R&D firms. A rough tabulation shows that there were [redacted] 3.3(h)(2) 6.2(d) ny of these firms had only one OSI contract, but some were repeated for several years. [redacted] 6.2(d) for example, has had a long series of yearly contracts to evaluate Chicom electronics. Other contractors that have received multiple contracts include [redacted] 6.2(d)

About [redacted] percent of the money went to [redacted] universiti 6.2(d) 6.2(d) or facilities related to or established by universities.

[redacted] 6.2(d)

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. 10/ 21/

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 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.[21/]

One of these studies is of particular interest because it illustrates some of the difficulties caused by differences in orientation between intelligence analysts and members of the academic community.

3.3(h)(2)
6.2(d)

[redacted] 3.3(h)(2) 6.2(d)

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.

[redacted] 6.2(d) 3.3(h)(2)

3.3(h)(2)
6.2(d)

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.

3.3(h)(2)
6.2(d)

[redacted] 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. 21/ 3.3(h)(2) 6.2(d)

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 exc 3.3(h)(2) 6.2(d) for those on the USSR and Communist China.21/

OSI has spent about [redacted] for NIS, with [redacted] of this money being used to pay for the life sciences and health portions and about [redacted] for other scientific and technical portions. Although contracting for NIS work began in 1951, only about [redacted] tota 3.3(h)(2) 6.2(d) was spent through 1956. Up to that time the NIS effort was essentially an internal one with contracting limited mostly to subjects in which it was felt that external area expertise was needed. Beginning with 1957, there was an increasing emphasis on having this work done outside to free OSI analysts from these low priority duties.21/ Currently, (1967-68) this program is costing about [redacted] per year, a large po 3.3(h)(2) 6.2(d) going to [redacted] and to [redacted] 23/

6.2(d)
6.2(d)
6.2(d)
6.2(d)

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). Contracting in the ELINT and EMW fields was particularly complex because OSI had responsibilities in these areas for initiating and monitoring projects that were apparently not funded by OSI or carried as OSI projects. Some of these projects were managed by OSI personnel in fulfillment of a National Security Council Directive which charged the Agency with the production of EMW intelligence and for which funds were provided outside the OSI administrative framework. At the same time, significant amounts of OSI contract funds also went into ELINT and EMW.[24]

6.2(d)
3.3(h)(2)

Approved for Release: 2022/03/01 C00631091

[redacted] 3.3(h)(2) 6.2(d)

[redacted] Although its significance was not self-evident at the time, some of the pioneering work in the ELINT field represented by OSI contracts, helped to gain experience which served as a basis for later work in ELINT after that area of intelligence became the responsibility of a separate Office.[21/] 3.3(h)(2) 6.2(d)

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 under new, separate CIA offices as well as under other U.S. agencies. The results of these efforts will be dealt with in other history sections, [redacted]

3.3(h)(2)
6.2(d)

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]

3.3(h)(2)
6.2(d)

6.2(d)

[redacted] are examples 6.2(d)
of firms possessing the required technical experience. All of these have been used, as well as others.

[redacted]

3.3(h)(2)
6.2(d)

[redacted] 3.3(h)(2) 6.2(d)

Such direct release of contract reports was most unusual. Intelligence agencies generally disseminate only revised contract products that have been reworked to overcome contractor bias and information gaps. OSI could avoid the delays and manhour costs of reworking because it dit not have to be concerned about present U.S. military policies and because the [redacted] products were of high quality, 6.2(d) The project manager, Dr. A. D. Wheelon (later AD/SI and DD/S&T in the Agency), exercised outstanding quality control over contract reporting during the early years of the relationship and [redacted] 6.2(d) has provided strong continuity on the technical side. Thus [redacted] analyses have stood up under close tech- 6.2(d) nical scrutiny during interagency disputes. 18/ [redacted]

3.3(h)(2) 6.2(d)

The relationship of OSI with [redacted] clearly demon- 6.2(d) strated the value of bringing technical competence available in U.S. industry to bear directly on intelligence problems when the right conditions can be found. Efforts to replicate the [redacted] arrangements 6.2(d) for coverage of other aspects of missile/space intelligence had mixed results. For example, a project [redacted] 6.2(d) 3.3(h)(2) was allocated in FY 1962, produced generally disappointing results. In the opinion of [redacted] 6.2(d) a former chief of the Ballistic Missiles and Space Division of OSI, this experience reflected no lack of technical competence on the part of the contractor, but rather the contractor's failure to appoint a strong manager and strong supporting experts for the project in contrast to the effective management of the [redacted] contract. 18/ There was a similar experience 6.2(d) with [redacted] having to do with 6.2(d) anti-ballistic systems analysis. The [redacted] 6.2(d) group, meanwhile, somewhat chastened by its earlier experience, has undertaken a new project for OSI in FY 1968. [redacted] 6.2(d)

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. With respect to work on analysis of anti-ballistic missile systems and air-defense missiles, [redacted] continues 6.2(d) to contribute heavily to OSI output. As OSI analysts are becoming more sophisticated in the methods that originated with [redacted] however, they are gradually 6.2(d) moving beyond the earlier state of dependence on this contractor and are beginning to think in terms of new approaches and new contractors.[12/]

In the area of signals analysis, [redacted] performed 6.2(d) some very good work. One of the most important contributions was the analysis of Soviet signals from [redacted] 3.3(h)(2) 6.2(d) analysts first identified the [redacted] signals. Although 3.3(h)(2) 6.2(d) OSI is still dependent on [redacted] for analysis of missile 6.2(d) systems, it has become less dependent on [redacted] for 6.2(d) signal analysis and has turned more to the [redacted] 6.2(d) [redacted] which has been 6.2(d) outstanding in the field of signal analysis. The definitive work on the [redacted] has been done by [redacted] In addition, from the October 1962 nuclear [redacted] they discovered the [redacted] signal and made a tie between [redacted] and [redacted] radars. This project is a joint enterprise, the cost being split by OSI with the Office of Elint. 12/

3.3(h)(2) 6.2(d) 6.2(d) 3.3(h)(2) 6.2(d) 3.3(h)(2) 6.2(d) 3.3(h)(2) 6.2(d) 3.3(h)(2) 6.2(d)

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) and the Air Force Technical Applications Center (AFTAC) provided OSI with the best available expert knowledge both from among their own specialists and from AEC contractors. 11/

External OSI projects in this area of intelligence during the 1950s consisted to a large extent of literature research. [redacted] 3.3(h)(2) 6.2(d)

[redacted] 3.3(h)(2) 6.2(d)

A rapid increase in contracting for nuclear energy intelligence work has taken place in the last five years (1963-1968), with expenditures in FY 1968 approaching the [redacted] This increas[redacted] 3.3(h)(2) 6.2(d) been motivated by several factors. [redacted] 3.3(h)(2) 6.2(d) 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.[25]

3.3(h)(2)
6.2(d)

3.3(h)(2)
6.2(d)

[redacted]

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 under [redacted] Chief, Support Staff, 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

6.2(d)

for approval by him and to higher headquarters.[26/] In 1955 a major reorganization of the Office (discussed elsewhere) shifted responsibility for both internal and external programming of intelligence production to the new post of Deputy Assistant Director for Production (DAD/P), an office held for many years by Dr. Karl H. Weber. Under his guidance, the Office developed and published a Long Range Plan, which set out objectives, work patterns, and priorities for all areas of Office responsibility. By mid-1956 the first fiscal year program that tied internal and external Office research and collection activities together had been completed. It was based on funding and manpower allotments and grouped projects by type (report production, collection support, and NIS support), priority, division, and topic.

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 to [redacted] projects and began to impose an 6.2(d) 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. [redacted] 6.2(d) for example, completed a wide variety of tasks under one contract. 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.[28/]

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. Assistant directors could only approve projects [redacted] 3.3(h)(2) 6.2(d)
or less, and the Deputy Director for Intelligence (DDI) only those [redacted] or less. All larger 3.3(h)(2) 6.2(d)
projects (in some years, half or more of them) as well as the overall OSI external support program had to be approved by the Agency's Project Review Committee (PRC), made up of the Deputy Director of Central Intelligence and other deputy directors of the Agency. The PRC hardly had time to become familiar with all projects it had to review, thus elaborate justifications (staff studies and multi-page forms) became standard practice in requesting the approval of most projects, even though many of the details presented had no bearing on the approval itself and required much time to gather and write up. 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.[27/] The Director/OSI is now (as of 1968) authorized to sign off on contracts [redacted] Although many current contracts are for more [redacted] they are fewer in total number; thus, despite the fact that more money per year is being spent for contracting (at least through FY 1967), the administrative burden does not appear to have increased.

3.3(h)(2)
6.2(d)
3.3(h)(2)
6.2(d)

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 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.

In 1965 an "OSI Working Party on the Future Threat," led by [redacted] studied and discussed 6.2(d) what OSI should do to improve its consideration of this problem. The group's final report recommended, essentially, the renewal of efforts on the types of studies done in the 1950s, which though they had not really satisfied the need, appeared to be the best that could be done. At the same time, the group's report also stressed the importance of long-range threat forecasting and the increasing need to do more to cope with it. Following the [redacted] report, two 6.2(d) analysts in the General Sciences Division (Dr. Herbert C. Rothenberg and [redacted]) 6.2(d) were assigned to study the methodologies being used in industry and government to see if any were adaptable to future threat forecasting. These analysts consulted leading scientists and industrial research specialists throughout the country. The recommendations resulting from these efforts led to the formation, in June 1967, of the Future Threats Branch in the Physical Sciences and Engineering Division, under [redacted]. 6.2(d)

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 Rothenberg [redacted] recommendation 6.2(d) 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. One of these methods -- PATTERN (acronym for Planning Assistance through the Evaluation of Relevance Numbers) -- seemed particularly suitable. A small firm specializing in this method was contracted to train members of the Future Threats Branch in the philosophy, theory, and techniques of PATTERN and to assist them in adapting it to the future-threat intelligence problem. To meet these objectives the contractor [redacted], beginning in February 1968, 6.2(d) regularly with Branch members who, for the purpose of this project, formed an interdisciplinary operations-research type team. Emphasis until the present (October 1968) has been placed on the construction of a decision tree to model the decision alternatives and criteria facing Soviet leaders in selecting weapons systems for the future. The "tree" will provide a systematic framework for correlating the subjective judgments of a large number of experts and specialists; these judgments are to be expressed numerically, allowing for the correlation to be done with computer assistance. 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

FY 1950

[redacted]

6.2(d)
3.3(h)(2)

FY 1951

[redacted]

6.2(d)
3.3(h)(2)

FY 1952

[redacted]

6.2(d)
3.3(h)(2)

6.2(d)
3.3(h)(2)

FY 1953

6.2(d)
3.3(h)(2)

6.2(d)
3.3(h)(2)

FY 1954

6.2(d)
3.3(h)(2)

FY 1955

6.2(d)
3.3(h)(2)

6.2(d)
3.3(h)(2)

FY 1956

6.2(d)
3.3(h)(2)

[redacted]

6.2(d)
3.3(h)(2)

FY 1957

[redacted]

6.2(d)
3.3(h)(2)

6.2(d)
3.3(h)(2)

6.2(d)
3.3(h)(2)

FY 1958

6.2(d)
3.3(h)(2)

6.2(d)
3.3(h)(2)

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6.2(d)
3.3(h)(2)

HANDLE VIA
[redacted] TALENT-KEYHOLE-COMINT
CONTROL SYSTEMS JOINTLY

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6.2(d)
3.3(h)(2)

FY 1959

6.2(d)
3.3(h)(2)

TOP SECRET

6.2(d)
3.3(h)(2)

HANDLE VIA
[redacted]ALENT-KEYHOLE-COMINT
CONTROL SYSTEMS JOINTLY

TOP SECRET

6.2(d)
3.3(h)(2)

FY 1960

6.2(d)
3.3(h)(2)

HANDLE VIA
[redacted] TALENT-KEYHOLE-COMINT
CONTROL SYSTEMS JOINTLY

TOP

Approved for Release: 2022/03/01 C00631091

[redacted]

6.2(d)
3.3(h)(2)

HANDLE VIA
[redacted]ALENT-KEYHOLE-COMINT
CONTROL SYSTEMS JOINTLY

6.2(d)
3.3(h)(2)

[redacted]

6.2(d)
3.3(h)(2)

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6.2(d)
3.3(h)(2)

TOP SECRET

6.2(d)
3.3(h)(2)

FY 1961

6.2(d)
3.3(h)(2)

HANDLE VIA
[redacted]ALENT-KEYHOLE-COMINT
CONTROL SYSTEMS JOINTLY

TOP SECRET

6.2(d)
3.3(h)(2)

6.2(d)
3.3(h)(2)

[redacted]

FY 1962

6.2(d)
3.3(h)(2)

[redacted]

6.2(d)
3.3(h)(2)

6.2(d)
3.3(h)(2)

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FY 1963

6.2(d)
3.3(h)(2)

6.2(d)
3.3(h)(2)

6.2(d)
3.3(h)(2)

FY 1964

6.2(d)
3.3(h)(2)

6.2(d)
3.3(h)(2)

[redacted]

6.2(d)
3.3(h)(2)

FY 1965

[redacted]

6.2(d)
3.3(h)(2)

6.2(d)
3.3(h)(2)

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6.2(d)
3.3(h)(2)

6.2(d)
3.3(h)(2)

FY 1966

6.2(d)
3.3(h)(2)

6.2(d)
3.3(h)(2)

6.2(d)
3.3(h)(2)

FY 1967

6.2(d)
3.3(h)(2)

6.2(d)
3.3(h)(2)

HANDLE VIA
[redacted] KEYHOLE-COMINT
CONTROL SYSTEMS JOINTLY.

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6.2(d)
3.3(h)(2)

[redacted]

FY 1968

6.2(d)
3.3(h)(2)

[redacted]

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6.2(d)
3.3(h)(2)

[redacted]

Approved for Release: 2022/03/01 C00631091

TABLE I

OSI Funding of External Support

3.3(h)(2)
6.2(d)

REFERENCES

1. Memorandum of 5 Feb 51, H. Marshall Chadwell (S)

2. Two Memoranda of 9 Jan 50, Willard Machle (S)

3. Memorandum of 19 Jan 50 (S)

4. Memorandum of 22 Sept 50, H. Marshall Chadwell (S)

5. List of OSI Consultants, 1950 (S)

6. Draft OSI History, 1952 (S)

7. OSI contract files: [redacted] (S) 6.2(d)

8. Memorandum, 23 June 52, H. Marshall Chadwell (S)

9. "Listing of Current OSI Consultants and Panel Members", 13 April 62

10. Notes for OSI History, submitted by Herman Croom (S)

11. Interviews with Herbert Scoville, Jr., on 11 Jan 68 and Henry Lowenhaupt, on 3 July 68 (S)

12. Interview with [redacted] 28 June 68 (S) 6.2(d)

13. OSI Consultant files, BSAP minutes

14. Interview with [redacted] 18 Dec 67 6.2(d)

15. OSI consultant files, minutes of OSI Scientific Advisory Panel on Unidentified Flying Objects

16. Memorandum of 20 Mar 54, Marshall Chadwell (S) and Memorandum of 2 July 54 (S) Allen W. Dulles

17. OSI consultant files, Project Baker (OSI contribution to guided missile estimate 11-6-54) (S)

18. Interview with [redacted] 18 June 68 (S) 6.2(d)

19. OSI consultant files, "Hyland Panel" (S)

20. Memorandum of 19 Aug 52, H. Marshall Chadwell (S)

21. Based on a review of individual OSI contract files

22. Interview with Herbert Scoville, Jr., on 11 June 68 (S)

23. SI/Admin current records - 1965-68 (S)

24. Interview of [redacted], 1 April 68 (S) 6.2(d)

25. Interview of Henry S. Lowenhaupt, 3 July 68 (S)

26. SI/IPS File "External Projects Advisory Board" (S)

27. Interview of [redacted] 17 Jan 68 (S) 6.2(d)

28. Memorandum of 8 Feb 57, Herbert Scoville, Jr., (S)

29. Chart provided by OSI Budget Officer

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] 3.3(h)(2) 6.2(d) 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] 3.3(h)(2) 6.2(d)

OSI has had personnel actually working in NSA spaces [redacted] and senior [redacted] 3.3(h)(2) 6.2(d) 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 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

3.3(h)(2)
6.2(d)

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. The earliest effort in this field related to the [redacted] 3.3(h)(2) 6.2(d)

A small group attached to the Manhattan District Project's Washington Liaison Office had the responsibilities for intelligence relating to the [redacted] 3.3(h)(2) 6.2(d) weapons program from 1943 until February 1947. With the formation of the Atomic Energy Commission at that time the group was transferred to CIA's predecessor, the Central Intelligence Group. This predecessor of OSI's Nuclear Energy Division was originally a staff reporting to the Director of the CIG. It was first assigned to the Office of Research and Estimates, went briefly in 1948 to the Directorate for Plans, and finally to the Office of Scientific Intelligence of the Directorate of Intelligence when the office was formed on 1 January 1949.

[redacted] 3.3(h)(2) 6.2(d)

3.3(h)(2)
6.2(d)

[redacted] 3.3(h)(2) 6.2(d)

[redacted] Throughout this period NED personnel worked COMINT processors to devise new means of exploiting whatever was available. This cooperation continues.

The Applied Sciences Division of OSI also became involved in assisting NSA in exploiting COMINT relating to the testing of [redacted] weapons systems, new 3.3(h)(2) 6.2(d)
[redacted] 3.3(h)(2) 6.2(d)
[redacted] One of the most significant aspects of this cooperation was the request in late 1954 from General Ralph Canine, Director of the National Security Agency, that CIA lend [redacted] head of 6.2(d)
the Missiles Branch of ASD. [redacted] requested by 6.2(d)
name, acted as a consultant to a "fusion group" at NSA concentrating on the [redacted] 3.3(h)(2) 6.2(d)
intercepted from radio circuits serving the [redacted] 3.3(h)(2) 6.2(d)
[redacted]

[redacted] brought to his NSA assi[redacted] 3.3(h)(2) 6.2(d) t years of 6.2(d)
experience in U.S. missile programs as well as four years of intelligence experience with OSI. [redacted]

[redacted] the existence of [redacted] 3.3(h)(2) 6.2(d) missile program and gave the intercept community some general ideas about searching for Soviet missile telemetry signals.

U.S. intercept sites [redacted] 3.3(h)(2) 6.2(d) By the 1954 - 1956 time period, when [redacted] was on loan to NSA, 6.2(d) the NSA exploitation of COMINT from [redacted] 3.3(h)(2) 6.2(d) had permitted the identification of communications relating 3.3(h)(2) 6.2(d) to the [redacted] 6.2(d) was sent by NSA [redacted] 3.3(h)(2) 6.2(d) the spring of 1956. He was told about intercepts by operators [redacted] of unidentified [redacted] 3.3(h)(2) 6.2(d) signals in the [redacted] part of the spectrum. Such intercepts dated back to 1954. 3.3(h)(2) 6.2(d) [redacted] 3.3(h)(2) 6.2(d) 6.2(d) realized that this was compatible with the 16-channel telemetry system described [redacted] 3.3(h)(2) 6.2(d) were careful never to reveal the carrier frequency at which the [redacted] 3.3(h)(2) 6.2(d) system was intended to work.

HANDLE VIA
[redacted]TALENT-KEYHOLE-COMINT
CONTROL SYSTEMS JOINTLY

[redacted] contributions to the identification of the Soviet missile telemetry intercepts were aided by a fortuitous change in the location of a periodic [redacted] reported their intercept of [redacted] signals which [redacted] had identified as suspect Soviet missile telemetry. Personnel of the [redacted] site [redacted] were in attendance. Having had this unusual opportunity to hear about this signal, [redacted]rsonnel recorded similar signals five days later. Thus, an OSI staff employee, on loan to NSA, provided the spark which started the successful monitoring of Soviet missile and space vehicle telemetry.

6.2(d)
3.3(h)(2)
6.2(d)
3.3(h)(2)
6.2(d)
6.2(d)
3.3(h)(2)
6.2(d)
3.3(h)(2)
6.2(d)

[redacted] assignment to NSA ended in the fall of 1956 after this and other notable contributions to the SIGINT exploitation of the Soviet missile program. During his assignment he had also been the first NSA representative to the Guided Missiles Intelligence Committee (later known as the Guided Missiles and Astronautics Intelligence Committee). His prediction of the [redacted] made

6.2(d)
3.3(h)(2)
6.2(d)

while on loan from OSI to NSA, was finally confirmed in 1964. His career at CIA continued to be related to the missile and ELINT problems until his resignation in 1962, [redacted] 3.3(h)(2) 6.2(d)

Even in the early days of the Soviet missile program OSI made arrangements to keep abreast of the available COMINT on the subject. The secure telephone connections between CIA and NSA were few then, so [redacted] then of the Applied Systems 6.2(d) Division, OSI, drove to NSA one day a week in 1955 and 1956 to confer with NSA analysts studying COMINT relating to Soviet missile firings. [redacted] was 6.2(d) especially useful in this role because of his prior dealings with NSA and its predecessors.

The NSA-OSI cooperation in the missile intelligence effort did not end with the work of [redacted] 6.2(d) [redacted] Another OSI employee, Mr. Ernest J. Zellmer, 6.2(d) was requested by NSA and his tour at Fort Meade was extremely productive, benefiting the entire intelligence community. Zellmer was loaned to NSA during the period when a real understanding of [redacted] was 3.3(h)(2) 6.2(d) accomplished. He was assigned to NSA beginning in July 1957 to recommend how best to attack the [redacted] 3.3(h)(2) 6.2(d) He began as chief of a group of 10 people known as GENS-03.

After a year's study the group recommended that certain NSA activities previously conducted in separate organizations be combined. For example, COMINT relating to activities of the [redacted] were processed in separate elements of NSA which had little communication with each other. These and other elements were reorganized into the [redacted] 3.3(h)(2) 6.2(d)

Mr. Zellmer's assignment to NSA from July 1957 to July 1961 embraced such events as [redacted] 3.3(h)(2) 6.2(d) During this assignment he instituted many concepts new to NSA to cope with a new intelligence problem. For example, he made arrangements for analysts in his organization to levy collection tasks directly on overseas SIGINT collection sites. This practice still prevails at NSA, but only for the [redacted] 3.3(h)(2) 6.2(d) problem. His organization was first concerned with the analysis of communications related to the various [redacted] 3.3(h)(2) 6.2(d)

3.3(h)(2)
6.2(d)

But, in 1959 his organization also acquired responsibility for telemetry analysis. Because this was such a new field Mr. Zellmer arranged for support by external contractors. Among the contractors was

3.3(h)(2)
6.2(d)

One notable contribution to the intelligence community under Mr. Zellmer's direction was the arrange-

3.3(h)(2)
6.2(d)

to be set up between the overseas intercept sites and NSA headquarters. [redacted] 3.3(h)(2) 6.2(d) It is believed that in some instances 3.3(h)(2) 6.2(d) the data were processed by NSA computers prior to [redacted] 3.3(h)(2) 6.2(d) so that the CIA/NSA contractor could also process the data for its needs.

The unique concepts Mr. Zellmer introduced at NSA a decade or so ago have stood the test of time. They are still in use at NSA and serve the entire intelligence community effectively.

Another area of early collaboration between OSI and NSA (and its predecessors) dates back to the spring of 1950 when Scientific Analysis Division of OSI was formed. A basic function of this division was to improve OSI [redacted] during 6.2(d) period in which the office was being built up to strength. Personnel of this division were not only specialists in various scientific disciplines, but were also language specialists (mainly in Russian). They worked in Arlington Hall Station (then the location of NSA's predecessor organization, Armed Forces Security Agency) with AFSA analysts [redacted]. The 6.2(d) fruit of their work was a greatly increased use of [redacted] in OSI publications. As NSA and OSI both matured the need for this division diminished and its personnel moved on to other important jobs in the intelligence community. 6.2(d)

[redacted] 3.3(h)(2) 6.2(d)

As the importance of foreign missile and space programs increased it became evident that [redacted] analysis would be an important tool of the scientific intelligence officer. OSI initiated a program of training its personnel, first from the Guided Missile Division, later from other divisions as well. In the winter of 1962 NSA provided a training course for a selected list of OSI analysts from the Ballistic Missiles and Space Division, the Defensive Systems Division, and the Life Sciences Division. 6.2(d)

By 1964 it was apparent that scientific intelligence involved so much technical collection managed by NSA that closer liaison was necessary between OSI and NSA. Dr. A. D. Wheelon, then the Deputy Director for Science and Technology, and Dr. Donald F. Chamberlain, Director of Scientific Intelligence, decided that an OSI substantive analyst should be assigned to perform a liaison function between OSI and NSA. [redacted] 6.2(d) was selected from the Ballistic Missiles and Space Division as the first such liaison officer.

One of the more recent instances of cooperation between the two organizations involved a study, conducted by the Defensive Systems Division, of the [redacted] Contractor person- 3.3(h)(2) 6.2(d) nel working for DSD were allowed to work in NSA spaces with NSA analysts to gain a clearer understanding of the problem. This is highly unusual, but the resulting studies were important to many segments of the intelligence community.

[redacted] 3.3(h)(2) 6.2(d) became matters of concern to the intelligence community again in 1964, as a result of developments in U.S. weapons programs. Both OSI and NSA, and contractor personnel recalled and restudied all available information on these [redacted] 3.3(h)(2) 6.2(d) Thanks to good working relations, NSA and CIA analysts, and CIA contractor personnel kept each other abreast of their work, so that the clearest understanding of these events could be achieved.

Similarly, CIA studies of the [redacted] 3.3(h)(2) 6.2(d) have involved joint collection and analytic efforts between OSI and NSA.

Other areas of OSI-NSA interaction have involved ELINT [redacted] intelligence. These relationships are covered in the annexes devoted to those topics. 3.3(h)(2) 6.2(d)

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