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ORGANIZATION

REVISION BY

T. J. Costello (see H/S)

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OFFICE OF THE DEPUTY DIRECTOR FOR
SCIENCE AND TECHNOLOGY

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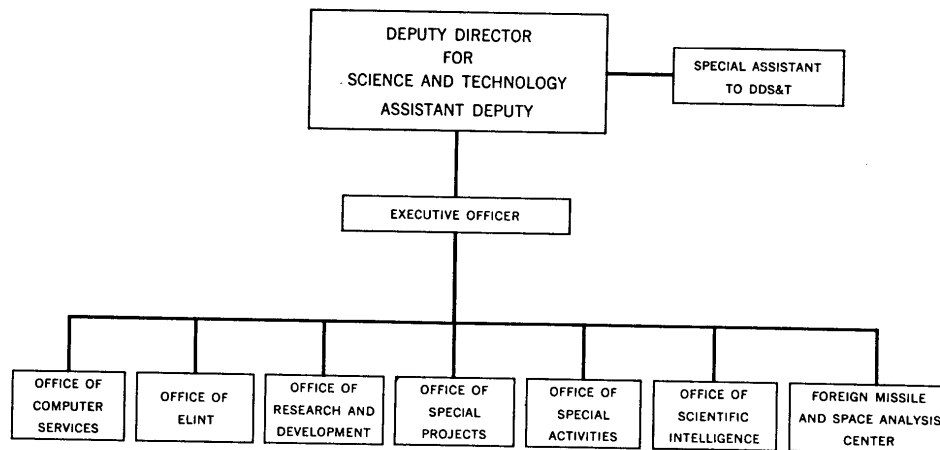
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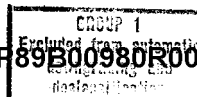
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DD/S&T Organization And Functions

1. When the Deputy Directorate for Science and Technology (DD/S&T) came into being on 6 August 1963, its formation was no accident. It was rather a child of necessity. -- Just another step in the evolutionary process taking place since the days of World War II.

2. It is a truism that war accelerates scientific and technological development -- World War II was no exception. When you stop and think of the scientific and technical advances made since World War II -- it's staggering! From the time that the first atomic bomb was exploded in New Mexico, July 1945, the Intelligence Community has been faced with mounting scientific and technical problems, especially with the Soviet Union. In September 1949, the Soviets exploded their first atomic device and proceeded thereafter to become a nuclear power. In August 1957, the Soviet Union announced the firing of an ICBM. Later that year, in October, the USSR placed the first Sputnik into orbit. The United States followed with its first satellite, Explorer I, on 31 January 1958. Gagarin and Shepard performed their history-making space flights a few years later, and there we were -- in Buck Rogers' twenty-fifth century about five hundred years ahead of schedule.

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3. The pace of scientific and technological revolution has not slowed down but continues to accelerate. Thus, the intelligence network has been pressured more and more to keep abreast of the scientific and technological revolution especially in the USSR, and report quickly and as accurately as possible.

4. We, in the Intelligence Community, have solved many problems of this nuclear, missile, and space age by means of technical collection and analysis. Naturally since the data collected is technical, it requires technical translation and interpretation. In the beginning, the CIA collected it's data on a compartmented basis, by resorting to various units scattered throughout the agency: for example, the Office of Communications, the Office of Scientific Intelligence, National Photographic Intelligence Center (NPIC), the former Development Projects Division (DPD) of DDP, Technical Services Division (TSD), and others. But as the problems multiplied and became more complex, it became obvious that there had to be a coagulation of these parts.

5. The first step in this direction occurred late in 1962 when the Directorate of Research was established. The mission of DD/R was the development and operation of intelligence collection systems. DD/R consisted of the Office of

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Special Activities (OSA), the Office of ELINT (OEL), and the Office of Research and Development (ORD). OSA was formerly the Development Projects Division of DDP, mentioned above; OEL was previously the ELINT Special Projects Division of the Office of Scientific Intelligence; and ORD was the Scientific Development and Research element in this Directorate. The next big step in our development process was the creation of the present Directorate, DD/S&T, about ¹⁰ ~~six~~ ^(Aug 63) months ago. Then DD/R had joined to it's structure, the Office of Scientific Intelligence (OSI), the Office of Computer Services (OCS), and even more recently the Foreign Missile and Space Analysis Center (FMSAC).

6. The establishment of DD/S&T as it now stands reflects generally the top priority given by the intelligence community to determining Soviet scientific and technical capabilities, primarily as they relate to weapons development. In particular, it underscores our Agency's concern with the strategic importance of this phase of intelligence. Thus scientific and technological intelligence within the CIA has been elevated to the same level as economic and political intelligence. And whereas in DD/P the reliance is mostly on human assets to develop and collect intelligence, we in DD/S&T use scientific and technical assets to achieve this objective.

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7. Let's look at DD/S&T and understand what it is and what it is not. -- First, it is an organization having an integrated and organic capability to perform all scientific and technological functions within the spectrum of intelligence. In this organization, we have the Alpha and Omega; we have a capability to generate a collection method or device designed to collect against a gap in our intelligence estimate or analysis of a Soviet S&T development; to conduct the necessary research to test the feasibility of the idea; to further develop and carry through on industrial production; to deploy and operate in the foreign field collection media; to collect the intelligence information; to analyze its meaning; and to accomplish finished intelligence production.

We believe this to be a unique organization and one that:

1. organizes and postures the CIA S&T assets to work with counterpart organizations and other Federal establishments,
2. creates a professional scientific intelligence fraternity within CIA whereby exchange of information can take place without doing violence to conventional concepts of compartmentation, and
3. creates an organizational environment allowing for the career development and utilization in the widest

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horizon possible for scientific and technically-trained personnel.

8. DD/S&T does not include the National Photographic Intelligence Center, the Office of Communications, or the Technical Services Division, and these organizations generally develop technical equipment to meet their specific needs.

(Showing of slide # 1 - - Organizational Chart).

9. The DD/S&T consists of six independent but inter-related components:

- a. Office of Scientific Intelligence (OSI)
- b. Office of Special Activities (OSA)
- c. Office of Research and Development (ORD)
- d. Office of ELINT (OEL)
- e. Office of Computer Services (OCS)
- f. Foreign Missile and Space Analysis Center (FMSAC).

10. The Deputy Director is Dr. Albert D. Wheelon, ~~USAF~~
~~Deputy is Colonel Edward Giller (USAF)~~, Special Assistant is
 and Executive Officer is Mr. John Blake.
 The staff under Mr. Blake provide support for Administration, Plans and Programs, Security, Personnel and Career Management, and respond to immediate problems requiring action and coordination among the components of the Directorate.

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11. The Deputy Director, Dr. Wheelon, is responsible for R&D in scientific and technical fields in support of the Agency. He also works closely with all other government agencies and the scientific community on related intelligence matters. At the bottom of the chart is listed the various components: The Office of Special Activities (OSA), of which the Assistant Director is Colonel Jack Ledford (Air Force), and his Deputy, Jim Cunningham. OSA is responsible for the development and operation of certain highly sensitive collection programs. This component is the largest in our Directorate with about [redacted] and functions as a vital, integrated part of us. We'll examine the manner in which these components operate within the Directorate after a brief look at each of the Offices.

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12. Our other technical collection component besides OSA is the Office of ELINT with a personnel count of slightly more

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[redacted] George Miller is Assistant Director and [redacted] his Deputy. This Office provides support and guidance for collecting, analyzing, and reporting the product derived from Agency ELINT projects. OEL has world-wide technical control of ELINT equipment; it conducts and supervises all R&D required for Agency ELINT [redacted] If we have a requirement for a piece of ELINT equipment on a crash basis, OEL can come up with it.

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13. Another component in the DD/S&T is the Office of Computer Services of which Mr. Joseph Becker is the Assistant Director. Before this office came under the DD/S&T, it consisted of the CIA Automatic Data Processing Staff under the DD/S, and Project CHIVE, a substantial information storage and retrieval effort under the DD/I. These units were brought together to form ^{the} principal computer center for the Agency.

14. Computer activity in CIA is comparatively new. As recently as three years ago, the first computer was brought into the Agency to do payroll and accounting work. Since that time we have five major computer installations in the Agency. They cover the waterfront as far as applications are concerned and represent an outlay of for rental.

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15. With the rapid advances in computer technology and the mushrooming of installations throughout the Agency, it is quite natural that the Director recognized the need for a principal center which would consolidate the Agency's assets in this field and coordinate and guide the overall effort. OCS will perform these functions, in addition to serving the operating needs of it's customers.

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16. The operation of a computer installation is a highly technical business. It requires special skills in systems development, applications, and programming as well as in hardware operation. The personnel strength of OCS is [REDACTED]

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An important purpose in establishing the Office of Computer Services was to solidify hardware and personnel assets and to build a strong cadre of people who are capable of applying machines intelligently to our research and production work. The DD/S&T will provide the technical environment in which this capability can flourish.

17. With the acquisition of the Office of Scientific Intelligence to this Directorate, we were given an offensive and defensive capability in this sphere of intelligence. We had an offensive ability with our two collection offices, OSA and OEL, and with OSI we were given a defensive capability to analyze and produce S&T intelligence as required to support the Agency's responsibilities. The office has [REDACTED] people and the Assistant Director is Dr. Bonald Chamberlain, and his Deputy, [REDACTED] OSI has responsibility for gathering and producing intelligence data on foreign scientific and engineering research; and on the design, development, and performance capabilities of foreign devices, products, equipment,

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and systems. The Office is also responsible for all aspects of foreign intelligence on atomic energy, biological and chemical warfare, and space activities.

18. To this end, OSI is charged with the establishment and maintenance, on the basis of priority national intelligence objectives (PNIO) and other national security requirements, a coordinated program of collection support, research, analysis, and production in these foreign scientific and technical intelligence fields. OSI contributes this data in finished form to national intelligence estimates and surveys, to current intelligence and USIB Committee publications, scientific intelligence reports and periodicals; and provides spot requests as required.

19. OSI helps to coordinate the scientific and technical intelligence activities of other U. S. and friendly foreign agencies to meet the needs of the Director and other officers and offices of the Agency in the fulfillment of their assigned responsibilities, and provides advice to them on methods for improving such interagency cooperation.

20. OSI provides the chairman (except GMAIC), secretariat, Agency representative, and/or support for the Joint Atomic Energy Intelligence Committee (JAEIC), Scientific Intelligence Committee (SIC), the Guided Missile and Astronautics Intelligence

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Committee (GMAIC), and other USIB organizations as required.

21. The Foreign Missile and Space Analysis Center ^{is} the newest element of ^{within} DD/S&T, having just been organized a couple of months ago. * It's Director is Carl Duckett, who was Director of Missile Intelligence at the Army Missile Command, Huntsville, until coming on board here in September.

22. Formation of this Center was decided on ⁴ after an exhaustive study of existing missile and space analysis efforts in the Intelligence Community. * Its primary purpose is to assure that all types of intelligence data collected on a missile or space event is brought together in one organization where it is carefully collated and analyzed as a whole. Prior to the formation of this group, there was no one organization or agency which did a complete analysis job.

23. FMSAC will analyze [redacted]

[redacted] re-

ports, and will produce wrap-up reports on each significant missile or space event. (An additional responsibility is to evaluate each of the many collection systems now in use and provide the Director with the technical assessments on the capability of our collection resources. The importance of this function can be underlined by noting that we have [redacted]

[redacted]

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24. FMSAC is now at a strength of people and expects to increase to . At the moment, it is producing a daily report which is used internally in CIA in preparation of our Current Intelligence Bulletin and as the data base for detailed systems analysis performed in the Office of Scientific Intelligence. These data reports also serve as the mechanism for keeping the Director up-to-date on the Soviet missile and space program.

25. In the near future the organization will start to produce trajectory analysis reports on each major missile and space firing and will distribute these reports to all elements of the Intelligence Community. Within two to three months we hope to achieve the capability of doing detailed wrap-up reports covering all types of data and, again, plan to make these available to the Community.

26. An additional assignment which the Director has given to FMSAC is that of serving as a technical support element to the Guided Missile and Astronautics Intelligence Committee.

This function

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will be
 [should prove] of considerable value in resolving differences as to the interpretation of missile and space data, particularly in those cases where various data sources tend to produce conflicting answers. [I should point out that the Director of FMSAC also serves as Chairman of GMAIC; thus, the procedures for tasking ^{has} [the] organization will be quite simple, and, in most cases, will require little or no paper work.

27. I mentioned earlier that the organization is now at a strength of [] and expects to reach a strength [] by the end of this year. This year's budget is largely in-house cost with some contractual assistance in the trajectory problem. The total organizational budget, including in-house and contractual effort, will be in the order of []

28. Finally, we have the Office of Research and Development which, as I mentioned earlier, was one of the original components of our predecessor DD/R. Then, we had a small nucleus of [] people who were primarily concerned with new applications of existing scientific knowledge to intelligence, and also in advancing fields of scientific knowledge that might have intelligence applications. In DD/S&T the original concept of ORD remains the same, but personnel has about quadrupled and emphasis is on the development of advanced concepts in the scientific field for application¹² to intelligence collection systems.

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29. ORD has no Assistant Director ~~as yet~~, but the functions are divided between two Deputy Assistant Directors:

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[Redacted]

responsible for the Physical Sciences,

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[Redacted]

who is responsible for the Life Sci-

ences. The Physical Sciences include such fields as Optics,

Radio Physics, Physics and Chemistry, and Audio Physics. The

Life Sciences devotes itself to the Biological, Medical, and

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Behavioral Sciences. This Office has conducted such research

as the development of

[Redacted]

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[Redacted]

Another of ORD's research activities

with which you may be more familiar, is the development of a

more efficient polygraph (lie detector) machine. This is a

project which has community-wide interest.

[Redacted]

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FUNCTIONAL DESCRIPTION OF DD/S&T

(Slide No. 2)

30. I mentioned earlier that we would review the functional arrangements in DD/S&T. You will note in the upper left-hand corner of the slide, a Staff which was not referred to in our organization discussion -- the Systems Analysis Staff. This group, headed by [redacted] is primarily operational - it reports directly to me - and concerns itself with reconnaissance collection systems and penetration studies.

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31. In developing a collection system, we in S&T must consider the requirements involved, that is, the intelligence data we are seeking and the availability and feasibility of current assets to answer the problem. In many situations, the proper technical assets do not exist. We then must conduct the exploratory research to design and develop these collection devices with the necessary performance capabilities. Naturally we must keep a tight rein on the cost factor involved and work very closely with outside contractors. Practically all our research and development is contracted out-of-house to commercial firms which have the experience, know-how, manpower, and

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the physical plant necessary to develop such systems. The U. S. Government and this Agency in particular, is not about to compete with private industry which is geared to produce, most efficiently with the least cost, the technical products we need. Thus, the Systems Analysis Staff works closely with our components in examining requirements and conducting the research and preliminary design of the collection asset.

32. At this point, the Office of Research and Development (ORD) will enter the picture and pursue in depth the research aspects of the project. ORD will seek out contractors with the appropriate capabilities to develop and produce the instruments, machinery, techniques, or whatever we need.

33. ORD has panels for consulting purposes, which consist of leading scientists from private industry who are available to cope with detailed technical subjects of national importance. The results of the findings of these panels are also incorporated into our projects and developed by private contractors under our direction.

34. The Office of Special Activities (OSA), which has operational requirements for collections systems,

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coordinates closely with the Systems Analysis Staff and ORD after levying its requirements. From that point, it monitors the development and production of the asset with the contractors until completion. Then it is tested and placed into actual operation.

35. The Office of ELINT (OEL) has the same intra-Directorate relationship in the stages of research, design, and development of a particular system. It often works closely with the other collection component (OSA) to develop equipment which may be used simultaneously on certain type operations. Occasionally, and if circumstances warrant, OEL has the capability to produce a piece of equipment on an in-house basis.

36. Incidentally, the Assistant Director, George Miller, advises the CIA SIGINT Officer, [redacted] (who, as I mentioned earlier, is Special Assistant to the Deputy Director/S&T) in matters of ELINT policy. This is another example of the close-knit organization which has evolved within the structure of DD/S&T.

37. Both OSA and OEL, because they are operational and collection groups, can and do assist greatly in the development of collection systems. Their practical experience and approach which arises from actual use of these

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assets is invaluable in their development and modification. The Office of ELINT not only collects data but performs the data reduction functions which includes preliminary technical analysis. This is fed into operational reports and to FMSAC and OSI for further analysis.

38. The Office of Computer Services is working closely with our other components in developing systems and designing the machines necessary to translate the data collected into literal form and retain it. The computer power we have now in our center, particularly the IEM 7090 large-scale scientific computer, has given us the competence to cope with the great volume of scientific and technical data which must be reduced and thoroughly analyzed.

39. The Foreign Missile and Space Analysis Center (FMSAC) has, as its primary purpose, data reduction and analysis. As I described earlier, this component will take the data collected primarily by OSA and OEL, and include with it all other intelligence data collected on a missile or space event, to produce as complete an analysis of it as can be obtained in our Intelligence Community.

40. The Office of Scientific Intelligence (OSI), which is the old established scientific element in our Directorate, is well equipped to weave into final form

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