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THE MITRE CORPORATION

Lexington

Massachusetts

1-20 28 November 1958

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1. Introduction

This memorandum describes the background leading to the formation of The MITRE Corporation, its present status, the areas of work in which it is presently engaged and in which it will engage during the next few years, how it is organized, and the tentative budgets for its operation during the remainder of Fiscal Year 59 and for Fiscal Years 60 and 61.

2. Background

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When the Air Force decided to form the Air Defense Systems Integration Division (ADSID) to coordinate the planning, programming, and implementation of the air defense mission system, it was generally recognized that ADSID would require the services of a competent technical support contractor. USAF investigated this matter thoroughly, interviewing industrial organizations and organizations engaged in the technical support of the Air Force in one way or another. As a result of this investigation, it was concluded that at the present time, the technical people in Lincoln Laboratory who are engaged in planning the SAGE System and the ancillary systems which operate with it, represented the most competent available group to form a nucleus for the technical support to ADSID.

Accordingly, in a letter from Secretary Douglas to Dr. Stratton, MIT was asked to provide this support through Lincoln Laboratory. After consideration of this request, MIT answered to the effect that they recognized the particular competence of Lincoln Laboratory in this field and would arrange to have Lincoln Laboratory provide this support on an interim basis. However, MIT also stated that they felt that this systems engineering type effort was not an appropriate one for MIT to render on a continuing basis and that additional competence would have to be secured. MIT proposed that the support should ultimately be given by a separate non-profit organization, and agreed to sponsor such a corporation and support it until it could operate independently. They also agreed to accept an Air

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Force contract for ADSID support and to sub-contract this support to the new corporation as soon as the new organization could assume the tasks involved. As a part of the agreement, it was planned that the bulk of the Lincoln Laboratory people engaged in ADSID support would be transferred to the new corporation as rapidly as possible and that the new corporation should seek a direct contract with the Air Force as soon as this could be arranged, thus separating it completely from MIT.

The MIT proposal was accepted by Secretary Douglas and is documented by an exchange of letters between his office and that of Dr. Stratton.

3. Present Status

At the present time the technical support to ADSID is being furnished jointly by Lincoln Laboratory and MITRE. The MITRE Corporation is operating under a letter of intent from MIT. MIT now has a contract from the Air Force for this work and The MITRE Corporation is conducting its portion of the work under subcontract to MIT.

The principal technical people directing the ADSID support work have been transferred to The MITRE Corporation. The bulk of the remaining Lincoln Laboratory technical people engaged in this work will be transferred to The MITRE Corporation by 1 January 1959. At the present time about 200 people in the technical staff of Lincoln Laboratory and The MITRE Corporation are engaged on a full-time basis in the ADSID support and about 400 non-staff technical people are also so engaged. In addition, about 200 additional staff people in Lincoln Laboratory are providing part-time support to the ADSID task.

The supervisory portion of the MITRE organization is detailed in the Organization Chart shown on Table 1. There are now 74 employees in The MITRE Corporation, and by 1 January 1959, it is estimated that this figure will be increased to about 580.

A Board of Trustees has been formed to direct and support the activities of the Corporation. Its Chairman is H. Rowan Gaither, Jr. and the Chairman of its Executive Committee is William A. Webster. A complete list of the Members of the Board follows:

Prof. Luis W. Alvarez	Associate Director of the Radiation Laboratory, University of California
Lloyd D. Brace	President, First National Bank of Boston Trustee, MIT
Franklin R. Collbohm	President, The RAND Corporation and Chairman of the Board of Trustees System Development Corporation
Charles A. Coolidge	Attorney, Boston, Massachusetts
H. Rowan Gaither, Jr.	Chairman of the Board of Trustees, The RAND Corporation and Chairman, The Ford Foundation
William T. Golden	Trustee and Member of the Executive Committee, System Development Corporation
Dr. Lawrence R. Hafstad	Vice President in Charge of Research General Motors, Technical Training Center, Detroit, Michigan
C. W. Halligan	President, The MITRE Corporation
Edwin E. Huddleson, Jr.	Trustee, The RAND Corporation, Trustee and Member of the Executive Committee, System Development Corporation, and Attorney, San Francisco
James McCormack, Jr.	Vice President in Charge of Sponsored Research, MIT
Dr. Julius A. Stratton	Chancellor and Acting President, MIT
Robert C. Sprague	Chairman of the Board of Trustees and Treasurer, Sprague Electric Co., Trustee, MIT
William A. Webster	Executive Vice President, New England Electric System, and Trustee, The RAND Corporation

4. Scope of The MITRE Corporation's Technical Support

In order to describe the scope of The MITRE Corporation's work it is convenient to discuss it in terms of "line jobs" and "support jobs". The line jobs are the functional areas of effort which will exist in most of the specific tasks that will be undertaken. The support jobs cover the effort which will be carried on in support of the line jobs. Table 2 lists the line and support jobs and shows the average number of staff personnel who will be engaged in each of them for the second half of FY 59 and for FYs 60 and 61.

It will be helpful to categorize the MITRE effort in another fashion - that is, by listing the specific tasks in which the Corporation is now engaged or will engage during the next two years. The principal tasks are:

1. General improvement of the SAGE System.
2. Systems Engineering Support to the 216-L (Ground Environment) Office.
3. Integration of the 100 Series Interceptors - the 101, 102, 104, 106, and 108.
4. Integration of Bomarc "A".
5. Integration of Bomarc "B".
6. Planning for the Introduction of the Solid State Computer (FSQ-7A).
7. Integration of the Time Division Data Link (TDDL).
8. Planning for the development and integration of the Counter-Counter measures (CCM).
9. Integration of Mark 10 SIF.
10. Integration of Mark 12.
11. Planning and integration of Airborne Early Warning and Control (AEW&C).
12. Integration of frequency diversity (FD) radars.
13. Integration of AICBM facilities.

14. Integration of NIKE.
15. Integration of HAWK.
16. Planning and integration of the new NORAD Combat Operations Center.
17. Integration of warning systems such as the DEW Line and its extensions, Mid Canada Line, European Warning Nets, BMEWS, etc.
18. Integration of anti-satellite surveillance and weapons systems.
19. Integration of the SAC Control System.
20. Integration of the Air Traffic Control System with the Air Defense Mission System.

It should be made clear that the line and support functions listed earlier apply as appropriate to these specific tasks, and in fact to any tasks which The MITRE Corporation will be asked to undertake. A table showing the allocation of these personnel to the specific tasks listed above is available in the preliminary FY 60 Budget estimate prepared by The MITRE Corporation and dated 6 November 1958.

5. MITRE Budget

A condensed summary of the estimated MITRE budget for the last half of FY 59 and for FYs 60 and 61 is shown on Table 3. In this summary the normal operating expense is given as related to the average number of staff people engaged in the work. It should be understood that the annual cost per staff member in this tabulation includes the cost of the non-technical support personnel.

The tabulation of Table 3 also lists the extraordinary expense, which includes support not directly related to staff personnel.

6. Limitation in the Present Scope of the ADSID/MITRE Effort

ADSID is an Air Force organization and while its charter authorizes it to plan the Air Defense Mission System, this planning is limited

in an authoritative sense to planning the parts of the system which are an Air Force responsibility.

The complete Air Defense System includes of course, elements which are not an Air Force responsibility, such as, NIKE, NIKE-ZEUS, picket ships, etc. These elements must be planned and integrated into the air defense system in their proper relationship to other elements in the system if maximum efficiency per dollar is to be obtained. ADSID and MITRE can help to plan and integrate such non-Air Force defense elements by cooperating with the other services but to the extent that this cooperation is imperfect the results will be imperfect.

Accordingly, limiting the scope of the ADSID/MITRE effort to Air Force elements of the system will tend to limit the effectiveness of their planning and integration efforts. It would seem to be highly desirable, therefore, that some arrangement be set up to permit planning all of the elements of the system by a central organization. This result can probably be achieved in any of several ways and the choice of organizational pattern will probably have to await the solution of the current problems associated with the re-organization of the Department of Defense.


C. W. Halligan

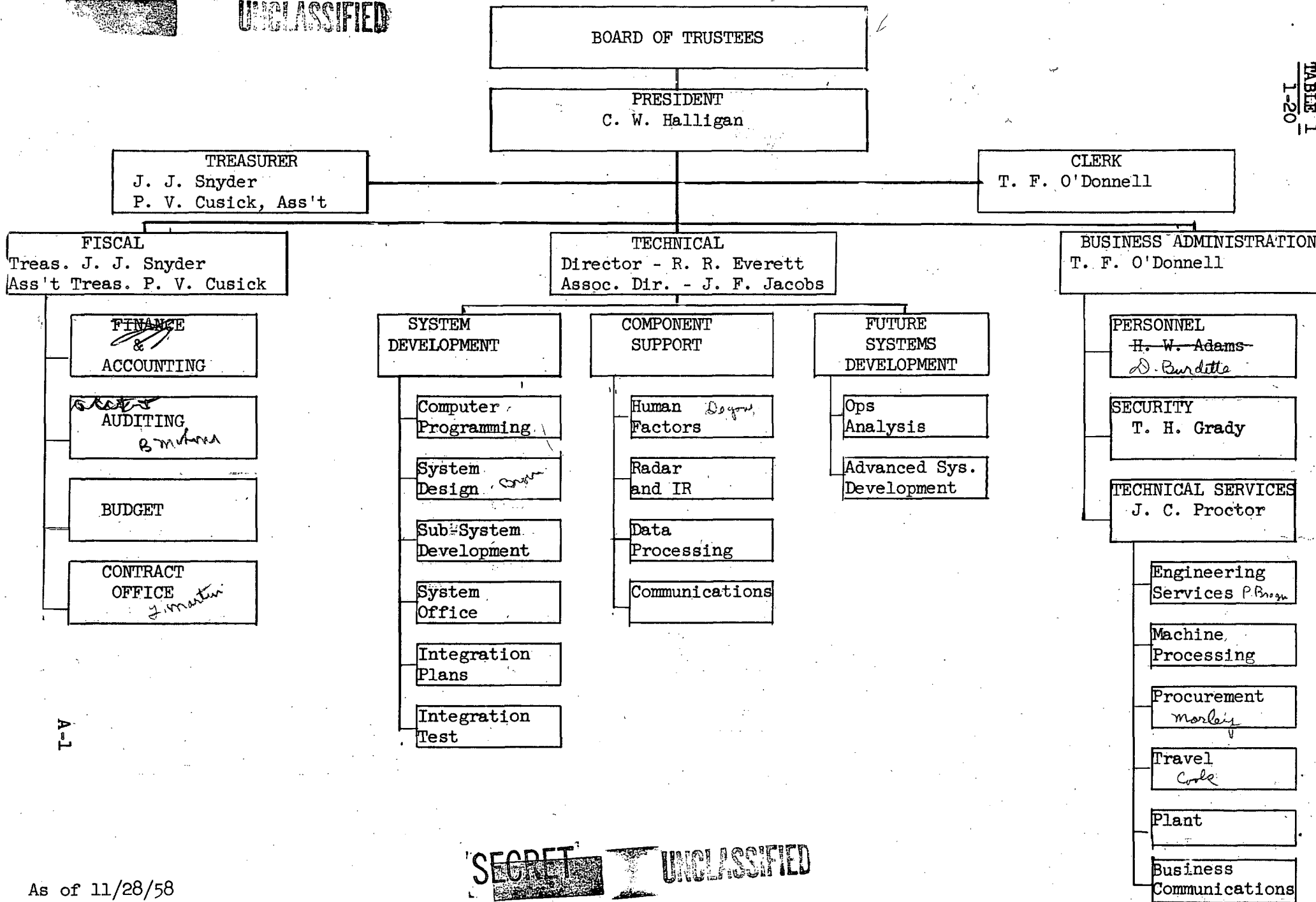
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ORGANIZATION CHART

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TAB 1
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1-20

THE MITRE CORPORATION
Lexington Massachusetts

TABLE 3

Total 59 - 20+M

<u>BUDGET</u>	Second Half <u>FY 59</u>	<u>FY 60</u>	<u>FY 61</u>
Normal Operating Expense			
237 Staff - 295	3.5		
466 Staff - 30K		14.0	
578 Staff - 31.5			18.2
Extraordinary Expense			
Line Accounts			
Subcontract Support	3.0	5.0	4.0
Other Extraordinary	1.0	3.1	3.5
Support Accounts			
709 and Card Machine			
Rental	1.2	1.9	3.0
ESS	0.9	1.7	1.8
Data Processing	0.5	1.0	1.5
Radar and IR	0.9	1.8	2.5
Communications	0.2	.2	0.3
	7.7	14.7	16.6
Electronic Stock, Office Supplies, Furniture, etc.	1.5	1.5	2.0
MITRE Bldg. Maintenance	0.8	1.6	2.0
	13.5	31.8	38.8
Management Fee at 10%	1.1	3.2	3.9
	14.6	35.0	42.7

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