

SUMMARY EXPLANATION OF ORGANIZATION CHART

1. The NALS would have as its primary mission the coordination of the national effort in the various areas of the science of language, both practical and theoretical, on the basis of the five substantive divisions given in the chart, plus one service division.

2. In certain fields it would have an operating responsibility whenever this procedure would be deemed more effective than the assignment of specific research and development projects to selected academic institutions.

3. It would provide for interfellowships to permit the assignment for 1 year or more of top specialists who would be working with the NALS in specific research or development projects.

4. The Advisory Board would be made up of five recognized scholars or authorities in the five substantive fields who would function as regular consultants.

5. The Executive Board would be made up of the divisional directors under the chairmanship of the Executive Director.

6. A Supervisory Board could be made up of five executives from academic institutions or learned associations who would be appointed on a rotating basis. The Supervisory Board would also include two members from the Government.

7. It is estimated that when in full operation the NALS would have a staff of from 300 to 500 persons. The preliminary budgetary estimate is of the order of \$15 million per annum, half of which would be for internal operations, and the remainder for external projects, based on contractual grants.

8. The first measure to be taken if the project meets with approval would be the appointment of a small planning staff under the direction of the future Executive Director, who would review and present a more complete and rigorous proposal for legislative consideration. The planning staff would arrange to have the advice of five recognized authorities specialized in diverse areas within the purview of the proposed Academy, who presumably would become the future Advisory Board.

X. CONCLUSIONS

1. The hearings on mechanical translation vividly out the importance of a mechanical translation system to the overall intelligence and scientific effort of our Nation. With the advent of such a capability, a new approach will be taken by all segments of our culture to the reading of foreign documents. Truly, a capability of translation in reverse—that is, English into foreign languages—will open up new vistas and avenues for the exchange of cultural, economic, agricultural, technical, and scientific documents that will present the American way of life to people throughout the world.

The pursuit of this research and development program on mechanical translation is a must and should be vigorously continued to insure an early capability on a national effort.

2. There are a number of approaches being taken to solve the research problem. These were listed as statistical, systematic, empirical, objective, and subjective. The definitions of these approaches may be partially overlapping. All approaches are valid and should be pursued so that the Nation will benefit from an early interim capability while waiting for the long-term research to provide a highly accurate system.

3. The equipment oriented program of the Air Force provides a unique tool for the checking out of the complex fully automated system of input, logical processing, and output. This program provides for the inclusion of modification derived from other research as the results are made known to the overall mechanical translation family. It is now time for the mechanical translation research community to start combining the good features of the several programs and come up with the best workable program for the first application.

4. There is a need for this field. It is a field that will eventually make a significant contribution to the national effort.

5. The research in this field is a predominant one. It is a field that will lead to the establishment of a national research program.

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4. There are many government agencies conducting research in this field. With so many agencies working in this field it will eventually make coordination of the total effort more complicated, and lead to the possibility of duplication in some areas.

5. The National Science Foundation, although participating in this research program on mechanical translation, is not assuming the predominant leadership role that is expected of the Foundation. Greater effort could be made by the National Science Foundation in establishing a coordinated program, managing more of the diversified programs, and generally directing the national effort.

6. The Georgetown University proposal for a National Academy of Language Sciences along the line of the National Institutes of Health has considerable merit. This is indeed a steppingstone toward the solution of the language barriers that confront our Nation in international relations. One segment of such an academy would be devoted to the national program of mechanical translation.

7. The most promising long-range program for mechanical translation is Army-financed research at the National Bureau of Standards. There was almost complete agreement that this method of syntactical analysis would produce the best readable translation as far as sentence structure is concerned.

8. In the Department of Defense all three services have their own programs. The effort in the DOD could well be centered in one service, with the requirements of the other services met by the responsible agency.

9. There are apparently sufficient funds allocated by all Government agencies to maintain a satisfactory rate of progress in this field of research.

10. A national center for machine translation will be required in the near future. The national center could well have branches in specific areas throughout the world, but the center would be the overall coordinating agency for translation. Exceptions for intelligence and military necessity will undoubtedly be made.

11. An eventual national machine translation production program will most likely be operating on a full-time basis. A special-purpose computer, designed for translation and not including the other costly benefits of an all-purpose computer, will be desirable.

12. An early production program, on a limited scale, as proposed by Georgetown, is an excellent approach. The determination, at an early date, of a limited machine translation with postediting will provide the scientific community with a sample of things to come. The value cannot be assessed as there are insufficient data available. This in turn justifies the limited production so that comments can be received from the users and the value of such a limited capability subsequently assessed.

13. The committee is very pleased with the present effort of manual translation of Russian documents, periodicals, and books now being accomplished by the CIA and other Government agencies. The CIA is to be congratulated for such an outstanding contribution to this field of intelligence collection.