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THE WHITE HOUSE
WASHINGTON

December 28, 1957



MEMORANDUM FOR THE PRESIDENT

I have the honor to present herewith a brief progress report on the U. S. missile and satellite programs. This report reflects the judgment and views of panels of scientists and engineers which have reviewed the programs at my request. The conclusions which they have reached are concurred in by Dr. J. B. Fisk, who is a consultant to my office, and myself.

The Missile Programs

It is our judgment that technically our missile development is proceeding in a satisfactory manner. Although it is probably true that we are at present behind the Soviets, we are in this position largely because we started much later and not because of inferior technology. Our technological progress in the missile field, in fact, has been impressive.

The so-called failures of flight test vehicles, to which much publicity has been given, are normal and unavoidable occurrences in the development of complex mechanisms, many functions of which can be tested only in flight. A flight test, which to a casual observer appears to have been a failure, provides a great deal of necessary information to the test crew. We shall continue to have such occasional "failures" as long as we pursue a vigorous search for more advanced missiles.

At present, the development programs of the IRBM are moving ahead very rapidly. There have been flights of both the JUPITER and the THOR which were complete technical successes. The regular production of IRBM's is soon to begin. In the immediate future a report will be prepared on POLARIS, the ship-based IRBM. In the development of ICBM's, the progress is also good and the recent successful flight test of the ATLAS gives confidence in the future of this missile. Another more advanced ICBM, the TITAN, is reaching the stage where initial flight testing will begin in 1958. We are confident that the U. S. has ample technical competence in our ballistic missile technical groups to achieve satisfactory operational missile systems at an early date.

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Along with the testing and production of the missiles currently programmed, we must devote major efforts to achieving improved missiles for the future. During the next few years we must emphasize improvement of missiles by the application of technology which has already been achieved through research. For the longer-range future, our basic research and development of entirely new methods and techniques for missiles must be vigorously and imaginatively pursued. We attach great importance to boldness in our planning for these future missiles and the initiation and successful carrying through of fundamental and exploratory work.

The Panel which has reached these conclusions and which continues to pay close attention to our missile program includes the following: Dr. George Kistiakowsky (Chairman); Dr. James McRae; and Dr. Herbert York.

The Satellite Programs

We believe that the presently-planned VANGUARD program, consisting of four additional test vehicle firings, followed by six satellite launching attempts, has only an even chance of success during the year 1958. This is a statement of probability which does not rule out the possibility that there will be a successful launching of a VANGUARD satellite during this period. In the event of a successful launching, further successes will become more probable.

The recent unsuccessful launching of a test VANGUARD system might have been a failure no matter how thoroughly the vehicle had been prepared for an all-out test. The complexity of the vehicle and the limitations of time and quantities which have characterized the VANGUARD program, greatly increased the probability of this failure.

In view of this technical situation and in view of the uncertainties surrounding all such tests, we feel that advance publicity should not be given to test firings.

Fortunately, we have a satellite program as an alternative to VANGUARD. This is the JUPITER-C program of two launchings which the Department of Defense has authorized the Army to take through its agencies, ABMA and JPL.

We believe that each attempt to launch a satellite by the JUPITER-C group has, in terms of probability, an even chance of success, a substantially greater probability than that inherent in the VANGUARD program.

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Because we have confidence in the JUPITER-C International Geophysical Year satellite program, we urge that it be amply supported and encouraged. In a separate communication to the Secretary of Defense we have made specific recommendations as to ways in which this program can be appropriately expanded.

It is our conclusion that there should be no expansion of the VANGUARD program for International Geophysical Year's needs and that additional resources be made available to the JUPITER-C program in order best to insure the successful launching of satellites. Suggestions, for example, have been made for authorizing six more launching vehicles in the VANGUARD program in order to increase the chances of eventual success in the International Geophysical Year. Considering firing schedules and available manpower, we doubt that such a program would be able to contribute much to our satellite program during the International Geophysical Year.

The Panel which has evaluated our satellite programs includes: Dr. Herbert York (Chairman); Dr. George Kistiakowsky; and Dr. Emanuel Piore.


J. R. Killian, Jr.

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