

Suggestions for computing devices for Navy

Investigate experimentally and theoretically the use of electrical computing devices in gun predictors.

This will include:

- (1) A study to determine the most suitable form of predictor. Among the factors which will be examined are: the form of coordinates to be employed, the nature of the computing elements making up the predictor (e.g., accuracy, range, speed, scale factor, etc.) and the manner in which these elements are coupled together.
- (2) Determination of the most advantageous ways of obtaining the input data for actuating the predictor. This will require a study of telescopic sights, range finding equipment, etc., in order to find the best methods of converting the information obtained from them into suitable electrical signals. The possibility of returning information from the predictor to the sighting instrument in order to improve the accuracy of observation with them, will be considered.
- (3) Investigation of the individual computing elements. An experimental and theoretical study will be made of electrical computing devices suitable for performing the mathematical operations in the predictor. Addition, subtraction, multiplication, division, obtaining a function of two variables, and any other operations which may be required will be included. Alternative methods will be examined.
- (4) Construction of experimental models of the basic computing elements. Working models of the essential elements for performing the mathematical operation in a predictor will be built. This does not imply the construction of a complete predictor. Where it seems advantageous, models of alternative computers will be made.
- (5) A report will be prepared containing a description of the complete electrical predictor which is deemed most nearly adequate to meet the requirements. A schematic diagram of the predictor and its components will be included. If two or more predictors appear to be equally satisfactory, they will be discussed.

(5) *Estimate of next step*
This investigation presupposes complete cooperation of the contracting party (Navy Department), which includes information on known predictors, nature of instruments supplying the data, and the way in which the output of the predictor is to be used. The investigation will not be possible without such cooperation.

It will also be desirable at some point in this investigation to have assigned to this laboratory for a period of two or three weeks a man who is an expert on mechanical predictors.

A priority will be required for the project.

Five men for six months.

\$35,000

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Can only set up thru NDRC.