

### XXXIII. STROBOSCOPIC RESEARCH

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#### RESEARCH OBJECTIVES

The goal of the work with electronic flash is twofold. First, there is an intense desire to know more about the fundamental processes that occur in flash lamps so that faster, brighter or special lamps can be designed for all sorts of performance. Second, there is an unending demand for electronic flash sources to help obtain data and radiation for all kinds of research and production problems. To properly design the flash equipment, the designer must go into the problem at hand so that he can obtain useful important data in an efficient or accurate manner.

For several years there has been intense interest in the laser device. We are furnishing flash lamps that are specially designed for good optical coupling to the ruby crystal.

There is also interest in photographing small, high-velocity particles such as those that will be encountered by space ships. The duration required for this photography is approximately  $10^{-8}$  second. Some work has been accomplished with such a short flash, and further work is under way.

For more than ten years we have worked on many applications of electronic flash-lighting equipment to underwater research with partial financial help from the National Geographic Society and interested individuals. This work has been greatly stimulated by the addition of a pressure-testing facility in Room 20D-009, M. I. T. We have assisted with the photographic devices for both existing bathyscaphes, and we have helped with the design of new photographic gear for the French bathyscaphe that was built for ultimate depth of 37,000 feet.

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