

applied to white rats under the artificial conditions of the laboratory when the question is not what happens in the laboratory but what will be the effects in the variable conditions of life."

Instead of finite limits and strict numerical values as indicators of environmental quality, what appears to be most useful are ranges of environmental conditions, which are expected to produce certain predictable results. These multiple boundaries must be defined in such a manner that they can be measured. The method of measurement ought preferable to be applied to the environment, rather than to a biological response, although the effect can be quantified in such terms.

Lest there be any misunderstanding, on this subject, nothing in the foregoing should be construed as a plea for delay pending development of better knowledge or improved technology. As shown in Figure 4, the passage of time and the increase of information from observations and experimentation will provide for changes in the state of knowledge. Initial concepts, and procedures, based on the then available appreciation of the situation may be either confirmed, found to be too conservative, or not stringent enough. Emergence of a whole new technology, or disappearance of some element of the problem may also alter the situation drastically. The actions taken by the military departments in relation to several potential environmental pollution situations, for which well established rules or environmental quality standards were not available exemplify the approaches which can be taken to provide for the public welfare.

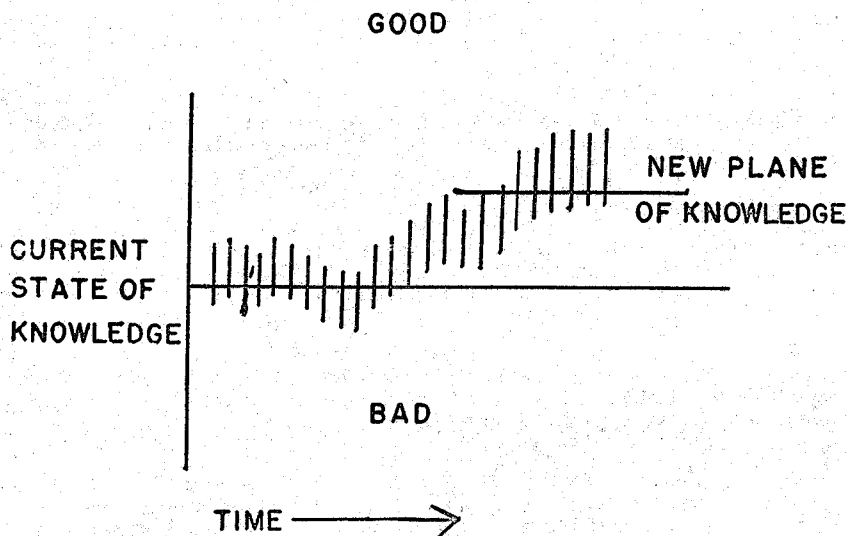


FIGURE 4

Typical of these actions to meet the needs of environmental pollution control, even in the absence of guidelines and standards, are those taken with regard to shipboard waste disposal, and waste from munition manufacturing operations. These represent situations in which both interservice and interagency cooperation has been necessary to a high degree. The Navy, Army, and Air Force alike operate vessels, and the U.S. Corps of Engineers in its Civil Works functions has a number of boats and surface craft on rivers and harbors. The nature of design of military vessels present some problems, and the needs of the dockside situation, as contrasted with open water operations are also different. Close cooperation is being achieved with the Federal Water Pollution Control Agency, and the U.S. Public Health Service to develop the necessary guidance as to performance and methodology.

In the case of the munitions manufacturing waste problem, both the Army and Navy are concerned in their own facilities, and those which are contractor oper-