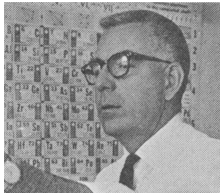




## A TIME FOR STUDY



Evolution is often difficult to perceive while in progress, particularly if the rate of change is slow. We tend to focus on the present, the recent past, or at most, the time spans of our own memories. Yet, when we pause and look at something with more historical perspective than usual, we can observe changes that we have lived through without realizing their significance at the time—permanent changes that were thought to be temporary, changes that materialized so subtly that it is hard to pinpoint their origins, changes for the better that were criticized at first, changes once lauded but now deplored, and so on.

For many readers, the method of carrying out research may be one example of something that is drastically changing without our being fully aware of the magnitude or the irreversibility of the process occurring. It is true that attention is being given to certain aspects of such change. The proper role of the National Laboratories has, in the past few years, received some public airing and more private study. More recently the funding of research, including the extent appropriate and the proper distribution, has been the subject of much public concern, and the present trends have been viewed with admirable alarm by a wide spectrum of commentators. Yet, both of these examples are but parts of the whole.

If we reflect on the manner in which research is performed, we may approve or deplore the changes that we see, depending upon our particular philosophy. We may feel that the pinnacle of true research was achieved in the basement of the physics building decades ago when now-legendary geniuses, armed only with string and sealing wax, conceived experiments elegant in their simplicity and deduced laws now bearing their names. Or we may feel that the pinnacle of elegant research remains to be achieved, perhaps by interdisciplinary teams of investigators armed with future computers capable of imitating the human brain in its ability to generate original thought. Whatever our view, one thing should be clear: Even though the possibility of elegant string-and-sealing-wax discoveries may continue as long as there are geniuses and human individuality, big research by integrated teams and large machines is also here to stay.

The present modus operandi, in the pursuit of research, evolved without any overall plan. To be sure, many of the aspects of present-day research were well planned, but each plan was circumscribed, and its effect on the whole was not necessarily anticipated in advance. As a result we have a large number of various types of organizations engaged in some activity having to do with research. Research is performed at universities that use it as a means of attracting good teachers and students, as an aid to the learning process, and/or as a means of receiving financial support. It is performed at companies that recognize how profit is affected by experience, knowledge, and quality of staff and how research contributes to all three. It is performed at privately endowed and government-sponsored laboratories, for various reasons. Support for research comes from private endowment funds, universities, profit-making companies, and the federal and state governments.

If research is going to become more, rather than less, complex and if the present state of affairs is so conglomerate, perhaps now is the time to study the overall problem in order to determine whether continued evolution without overall direction is desirable or whether planned attack is preferable. Is the present duplication of effort that is inevitable in the present system tolerable? If competition for funds is considered healthy, is the present method of competition desirable? Does recognition of the value of seeking truth for truth's own sake preclude a conscious direction of effort toward solving those problems that appear more likely to offer, in addition to truth, some practical application in the not-too-distant future?

We submit that now is indeed the time for such a study, that the research people themselves are the best ones to make the study, and that their professional societies are the best means of implementing it. Therefore, we urge the American Nuclear Society to take the lead and propose to her sister societies a cooperative undertaking intended eventually to recommend a course of action that hopefully would be agreed to by each of the organizations that are in some way involved in the pursuit of research. If professional scientists can agree on a solution, they ought to be able to effect it.

*Louis G. Stang, Jr.*