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CONSTRUCTIVE SCIENTIFIC RESEARCH BY COOPERATION¹

It has been occasionally suggested that one of the reasons for the slow advance of science lies in the fact that scientific research problems are still generally attacked by individuals or by small, local groups of workers influenced by a single individual, rather than by planned cooperation among a number of workers in different institutions. Individualistic research has been characterized, by the late Professor C. E. Bessey, as a kind of guerilla warfare upon the unknown. As in other lines of human activity, it seems highly desirable to outgrow this kind of attack, just as rapidly as the appeal of well-planned campaigns and the desire for a maximum of service to race advancement makes itself felt by scientific workers. Commercial research is now frequently carried on in this way, different individuals being actually paid for studying certain aspects of a broad problem and for bringing their minds to bear upon it in a cooperative way. The more fundamental aspects of scientific investigation and the clearing up of the broader, general principles of science have not usually been approached in this manner; the extremely individualistic methods of the Middle Ages seem still to be in vogue.

This state of affairs in science is sometimes thought to be due to the supposed fact that an investigator can not confine himself to what he starts out to study, but that he is constrained, by the nature of investigation itself, to follow his evanescent interests and caprices wherever they may lead. But the scientific researches undertaken and carried out by large commercial establishments and also, especially, those that were so remarkable furthered by preliminary planning and a division of work,

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