

and the number accepted by 18% to 3.9, for which their compensation went up 111% to \$83 per acceptance. The 12 poorer trainees increased their suggestions but not their acceptances, yet their average reward rose 138%. The untrained remainder did a little worse than before, but their rewards per acceptance were enlarged 18%, perhaps because having such a course in the factory "provides a constant awareness of the importance of creative ability".⁶¹⁸

[619] Nicholson⁵⁵⁹ says that brainstorming has been used also by General Foods, RCA Tube division, U.S. Rubber, and Ethyl Corp. *Business Week*¹⁹³ reported that creativity programs had also been recently given in B. F. Goodrich, Monsanto, Texas Co., Bell Laboratories, du Pont, IBM, Union Carbide, Dow Chemical, and Standard Oil of Ind. Add 3 M's,⁶²⁰ and Westinghouse. Comparing brainstorming with the GE and Gordon programs (§ 593), Nicholson says it is enjoyable, exciting with its wild ideas, useful to wake people up, but disorderly, develops little understanding, and needs to have its proposals carefully evaluated, which is not always done. The GE course "lays heavy stress on a systematic, four-step procedure of definition, search, evaluation, and solution. It stresses the definition of the problem in all possible ways". "Search" means finding all possible ways of solving the problem. Some evaluation takes place during the session, of a member's premises and logic. The procedure is orderly, appealing to engineers, and stresses specialized knowledge. But it has the disadvantage of a poor chance for very radical ideas.

[620] The aim of an inventing group, Nicholson says, and therefore a clue for teaching the art, should be first to avoid the single answer deadlock. We should start with due consideration of many proposed solutions, before settling, as our school books have habituated us, on the presumed one right answer. Suggestion system machinery is devoted to proving that ideas won't work (but does accept a large proportion (§ 138)). Conferences develop endless arguments over whether a particular plan will work. If brainstorming, he says, keep the participants down to 15 or less, do not require ideas to be logical, attack *en masse*, encourage borrowing and adapting ideas, use significant, not trivial problems, but do not promise exploitation of the idea, and fit the method to the objective of the course. Brainstorming aims to develop creative attitudes, the GE course to train skills of development and presentation, and Gordon, to find an utterly novel solution.⁵⁵⁹

[621] More than 40 companies, Nicholson found in 1956, were experimenting with creativity building techniques, including Monsanto, IBM, Kodak, and Union Carbide, beside those above (§ 619). R. Q. Wilson⁶²¹ adds North American Aviation, Boeing, and U.S. Steel. Several reports increased use of suggestion systems in consequence. At least they are building for the future; and they emphasized the needs for *invention* among supervisors and others, of identifying oneself with the company, and of contacting other departments.⁵⁵⁹ Furthermore, engineering courses with some attention to creativity were being offered at MIT, Battelle,⁶²² the University of Pennsylvania, Cornell, Purdue, Rutgers, and many others, wrote Purdy in

⁶²² Battelle Mem. Inst. has been teaching something of invention proper, as a minor part of courses in more conventional aids for its tech. men, 170 memberships a year, also courses that encourage their staff to invent outside their assignments. From correspondence and N 621.