Better Scheduling for the Engineer's Life

[635] It is a law of nature, human as well as animal nature, that instincts must be exercised *when they appear*, not first years later, if they are to obtain fullest development. And it is an axiom of education that youth is the best time to learn to do things, by doing them, every sort of thing that does not require the greatest experience or prestige. The instincts, whatever they may be, that express themselves in curiosity, discovery and invention, begin in infancy, and can be fully developed by the day a young man receives his B.S. in Engineering. In recent years, to be sure, with the great growth of invention laboratories and of graduate study, he may well go on to a job or graduate school that will exercise more or less well his inventive faculty. But a generation ago, when the present leaders of the engineering profession were getting their start, and still in too many cases, the usual life schedule for engineers has been utterly prejudicial to invention. After the anti-inventive education, above described, his first jobs have usually been bossing a gang of workmen, or drafting,[637] testing, sales, teaching, or journeying to the ends of the earth to carry technology to Hungryland. In short he was given every simple, monotonous, hard or disagreeable job that the older, married engineers on top didn't want for themselves. So he scarcely had a chance to invent, unless perchance in Designing, until he was 30 years old or so. By that age, and with such a counter-inventive start in college, his instincts or disposition and capacity to invent, would be largely stultified for good.

[636] It is no sufficient rebuttal of these charges, to say that nonetheless most of the engineering inventions have been made by engineers. They *had* to do it, whether eager, fitted, and clever or not—for there was no one else to do it. Who but an engineer could plan a power plant? Our contention is not that anti-inventive education and job scheduling entirely destroy inventive capacity, but that they have gravely weakened it.

[637] Again we quote some writers who ought to know: Julian W. Feiss of Kennecott Copper wrote in 1957,[639] "Scientists and engineers are frequently assigned to routine industrial tasks that are better filled by technicians. One large aircraft plant, not long ago, employed in excess of 100 recent aeronautical engineering graduates on routine drafting. [Hoarding of engineers has been reported, in hope of getting contracts.] One imaginative and able young man in this position told me that he had been inking tracings for more than a year; he had graduated at the top of his class in aeronautics.

[638] "Dean J. Douglas Brown of Princeton University wisely states, 'No level of pay will satisfy a man of talent who feels that his time is wasted.' The practice of routine transfers from job to job 'To see all aspects of the company's operations may be sufficiently frustrating to cause resignation unless an effective teaching program parallels each job.' "

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[637] "Young engineers usually spend from 2 to 4 years doing drafting work. . . . This type of drudgery, professional engineers contend, could easily be done by technicians," but these "are in extremely short supply", with only 16,000 new ones trained a year, half the number of engineers. Faltermeyer, N 638.

A survey of engineers in 1946 indicated that among those who had entered the profession in 1944 ff., median age 25, 15.5% were in design, 11% in development, and 6% in research and safety eng., a total of 32.3% with a good chance at invention. Those who had entered before 1940, median age 36, were 37% in invention, etc., and of the whole profession 31.7% N 638.