

CHAPTER 13

THE NURTURE OF INVENTION

[607] In our previous chapter on the psychology of invention and discovery and of their achievers, we have naturally included hints as to how things might be better directed. Now to make more explicit and complete our recommendations.

[608] First we ask further study of all these matters concerning the supreme problem, the key to the key-rack, how to invent and discover. Such studies as are being vigorously carried forward only of late, by the National Science Foundation, Air Force, Navy, Office of Education, and others, on the nature and nurture of origination and its creators. We must study to understand much better the working of the mind in these crucial occupations, what sort of people it takes, how to identify them at the earliest date, and what sorts of parents and homes produce them. (§ 600-606). With these last as partial guides the sixth year of age is none too early to begin the tentative identification and increasing protection and care of the future physical scientist or inventor. (To be sure, he might well turn out to be some other kind of scientist, artist or other leader, but these types are precious too and need somewhat similar encouragements.) As we showed in § 605,6 the social status of a future physical scientist's parents, though above average, spreads far down from the top: it was found a third of the time to be blue-collar, and three-fifths lower middle class. Such homes and parents may need⁶⁰¹ much financial help, advice, and encouragement if their son is to be protected from the crushingly heavy, homogenizing influences about him, to become enthused by the glamor and ideals of science, probably foreign to his home even if it be a bishop's or a millionaire's, and certainly foreign to most of his neighbors and playmates. Then he must be led on through about 19 years of increasingly costly schooling, somehow paid for. Considering what we must usually start amidst, and all the difficulties, it takes something of a miracle to create each creative person. Yet this minor miracle must become routine production of thousands of scientists and inventors each year, if we are to meet the demands of efflorescing science, exploding world population, the contest with Communism, and continue the growth rates of invention and its sciences, which raise their output 80% in each decade, and double their inputs (§ 79 and chart 4).

[609] We have spoken (§ 600) of how the boy who is a potential inventor or scientist tends to be bookish, aloof, peculiar, more interested in reading, or collecting stamps or rocks, perhaps, than in sports. He has probably a higher IQ than his teachers, and also an original,

⁶⁰¹ Roe finds that the successful scientists often as boys had hobbies, a room in which to work on them, freedom from after-school jobs, and from bossy parents, and had significant contacts. Anne Roe: *Crucial Life Experiences in the Development of Scientists*; pp. 66-77 of E. P. Torrance, ed.: *Talent and Educ.*, 1958-60.