

An important special case is inventions, especially in communication, that are barred by custom over which no authority is asserted, so that invention here is practically prohibited for centuries.

[20] Our 16 different institutions for the support of invention are measured as to their respective financial outlays for it, as mentioned, the real contribution of the freelance and the minor, personal firm being proved very small, around 2%. The merits, limitations, and best fields for each of the institutions are taken up in chapter 10. A new institution is proposed in chapter 11, which the author reasons would avoid almost all the shortcomings of the existing systems, and support invention much better than ever before, with unlimited funds, and guidance for social welfare, yet with direction by businessmen, through licensed, nonmonopolistic, semipublic trade associations, which would acquire universal membership through gaining control of all the good patents, through being granted them on better terms than to non-cooperating inventors. Thus, all the best inventions could be used by as many producers as ought to, combating monopoly. There would be no royalty tax on novelty, whatever laboratories were most suitable would be used, and unorganized and foreign inventors would be fairly dealt with and encouraged according to their merits, by these associations with public spirit and ample funds. The associations would enjoy unlimited funds to support invention and research, because their membership dues would be simply passed on to the consumers on all goods novel or old, produced by the industry, as with other business expenses.

[21] Finally, our last two chapters take up the nature and nurture of invention, chiefly through the attention to their psychology, intensely cultivated of late through our Government. With the related questions of how to make scientific discoveries and successful innovations in all fields, this problem of *how to discover* may well be called the most important problem in the world; because in solving it we unlock all the doors to progress, in every direction. While citing the findings of hundreds of recent researchers, attention is centered on the ambivalence of knowledge—how for the baffling inventions the inventor both needs to be informed on all the prior attempts and available facts, and on the other hand is undone by this knowledge, which tends almost ineluctably to lead his mind along stale paths. Various escapes from this dilemma are discussed.

[22] In the final chapter the claim is made that although most of our inventions must come from engineers, the undergraduate engineering curriculum, and the older, typical life scheduling for engineers, are grievously anti-inventive, teaching distaste for the word *inventor*, and barring all exercise of the inventive faculty until middle age, by which time it is likely stultified for good. Our best remedy were to learn better about the many traits found to characterize creative talent (for invention and other fields) at early age, protect the boy who is a potential discoverer from the crushing, homogenizing tendencies around him, give him special schooling, especially in the case of engineers, and deliberately teach him the art of Invention.