

thoroughly, not only among the participating agencies and research groups but also with public officials in the area, before large-scale field operations are carried out.

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Inventions Beg Application

The high level of abstraction employed by Emmanuel G. Mesthene ("How technology will shape the future," 12 July, p. 135), in discussing the ways in which technology will affect the future may have led him to neglect some down-to-earth economic considerations. For example, he writes: "There is nothing in the nature or fact of a new tool, of course, that requires its use . . . but there is a high probability of realization of new possibilities that have been deliberately created by technological development, and therefore of change consequent on that realization." Is there *really* a high probability of application of newly invented tools?

A careful review of the evidence would, I believe, indicate that the probability of eventual application of any invention is, on the average, rather low as many disappointed inventors will testify. Ray Vernon, Tom Schelling, or any of his other economist colleagues at Harvard could have pointed out to Mesthene that invention is not enough: there must also be a mechanism which guarantees that opportunities will be recognized and seized. Knowledge and enterprise must be present. The merits of a new technology to businessmen are related to costs and profits. History is filled with examples of inventions that went without commercial application for years, or were introduced but failed, or were never adopted because market conditions were not propitious. Many patents on new ideas have never been exploited commercially and probably never will be.

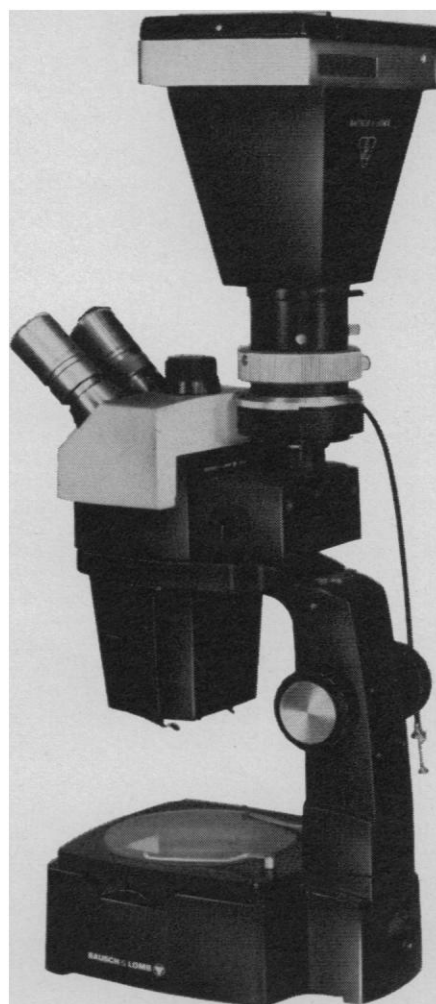
Expanding on Mesthene's borrowed analogy, I would say that a new device may be like a newly opened door which invites one to enter, but the anticipated costs and satisfactions of crossing the threshold are a key factor in shaping one's decision.

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