ng a new drug can be long, complex, and costly

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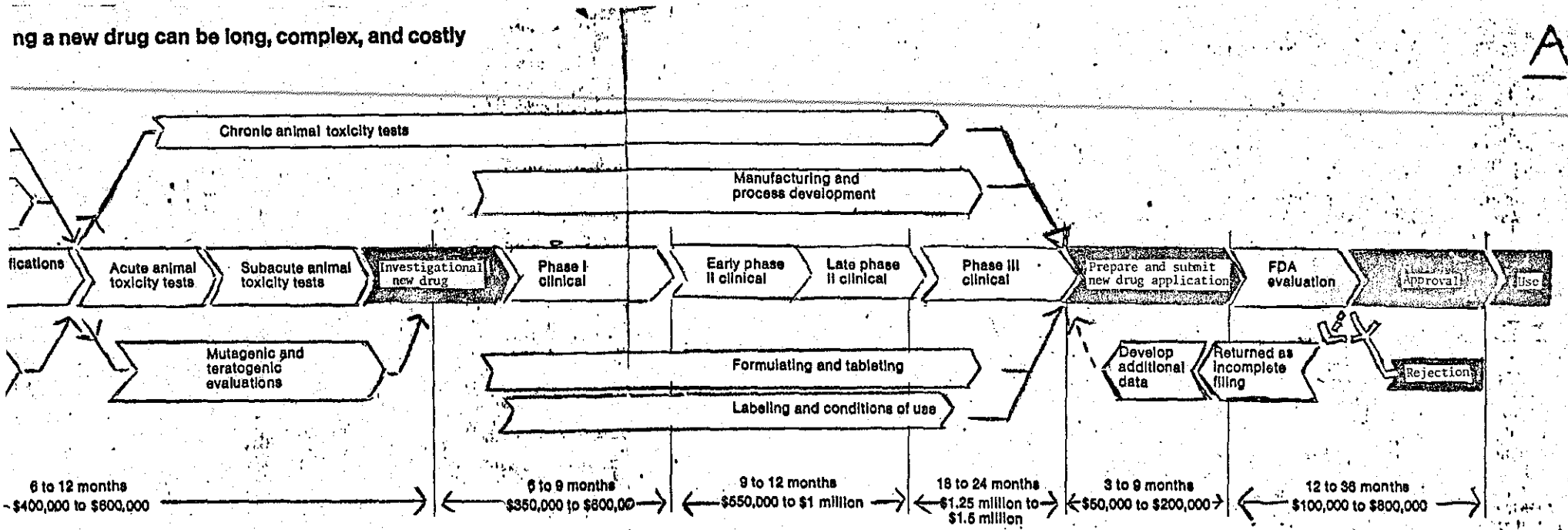

to find, develop, and
est be only indicative.
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sease being targeted,
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others that consume much effort. The diagram, moreover, does not show the feedbacks of information that can occur between any parts of the sequence. These can suggest modification of work done earlier or even lead to completely new starts, thus making worthless many of the results already accomplished, at least insofar as they can be used for winning approval for marketing the product. The times and costs also are merely indicative. They are based on estimates made by Harold A. Clymer, former vice president of SmithKline Corp., in 1971. If the diagram were extended back to the very beginning of the search, the period required might be lengthened by two to six years and costs increased anywhere from $500,000 to $10 million. Costs, moreover, certainly have increased greatly in the past half dozen years as a result both of inflation and tightened requirements for data to support new drug applications to the Food & Drug Administration. For example, Merck chairman John J. Horan recently estimated that a minimum of seven to 10 years and an average investment of $20 million to $30 million is needed to carry a promising new compound, once it has emerged from research, through the development testing, and approval process and into the market.