

TABLE IV
VARIOUS CONDITIONS FOR THE INTRODUCTION
OF NEW TECHNOLOGY

	Replacement	Expansion
Revision of Existing Plant	R — R	R — E
Building New Integrated Plant	I — R	I — E

decision requires the comparison of the total of investment plus operating costs of the OC plant against operating costs *alone* for the OH plant. (Its investment costs are sunk.) Then, to the extent that further investment is required to balance the production line, or possible operating savings are lost through interference at other stages of production, the possibility of a desirable result is lessened. A positive result in the former case in no way guarantees such a result in the latter.

The replacement of existing facilities by a new integrated plant, the I-R decision, could be folly if the only benefit was the savings at the converter stage. These cost savings would have to balance at present value the investment cost of a fully integrated plant (less any, presumably small, incidental savings from newer facilities at other stages). If, however, the whole existing plant were physically aged and thus in need of early replacement, the relevant incremental costs of the decision approximate those of the I-E alternative. (In each case the sunk costs and book values would be relevant only in their impact on the taxes the firm would have to pay.)

A decision to replace existing steel melting capacity in an existing plant or to expand existing capacity by modifying an existing plant, may run into all the possible complications from the interrelatedness of the process with other stages in the chain. Thus it can be extremely complex and can involve wide ranges of relevant incremental investment and operating costs.⁶

We cannot dismiss out of hand (as Adams and Dirlam have done) the possibility that if a firm could increase its output of steel from its existing open hearths by the relatively negligible cost of

6. Obviously, this can work both ways. In the case of Dillingen, conversion was less costly than building a new OC shop, but it might also be sound economics for a firm to achieve a small increment to capacity by adding a new open hearth to an existing OH shop rather than to scrap the whole shop in favor of an oxygen converter installation of desired total capacity, especially if investment funds are limited. In making these statements we disassociate ourselves from any implication that the sunk costs of an earlier investment themselves are relevant for decisionmaking except for their impact on the tax position of the firm.