

COMMENTARY ON GRAY AND SALSBURY

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These remarks will be brief. Hopefully, they will, in Mr. Haynes' terms, be "a soft spoke." Let's begin by reviewing what these two men -- Arthur Moxham and Elwood Haynes--had in common. Both were idea men -- innovators in their fields. Both were basically staff men; they were experts rather than business entrepreneurs or managers. The fundamental difference between the two was that Haynes was fully aware of his roles and abilities, and Moxham was not.

Pierre du Pont, who knew Moxham and his contributions as well as did any man, clearly remembered his associate as a staff man. As he recalled:

Moxham...was a master of cost sheets and orderly management. He visited his plant frequently and was interested in details. But he was always accompanied by the line man in charge through which every question or recommendation passed. His cost sheets were fascinating to me and I became hopeful that the business (of Du Pont company) could be presented in such a clear manner.

Moxham was indeed an expert in the new methods of modern scientific management, which in the 1890s meant the management of production. He had worked closely with the master -- Frederick Winslow Taylor. Taylor had spent several months at the Johnstown Plant devising and putting into operation a new cost control and accounting systems. And, more than Taylor ever did, Moxham applied his understanding of the principles of production to the formulation of corporate strategy. For example, when he was assisting the three du Pont cousins to create the modern Du Pont company, he offered a brilliant piece of advice; in the spring of 1903 when the old-fashioned cartel was being transformed into a modern giant enterprise, he wrote Coleman du Pont:

I have been urging upon our people the following arguments. If we could by any measure buy out all competition and have an absolute monopoly in the field, it would not pay us. The essence of manufacture is steady and full production. The demand for the country for powder is variable. If we owned all, therefore, when slack times came, we would have to curtail product to the extent of the diminished demand. If, on the other hand, we controlled

only the 60% of it all and made that 60% cheaper than others could, when slack times came we could still keep our capital employed to the full and our product to this maximum by taking from the other 40% what was needed for this purpose. In other words, you could count upon always running full, if you make cheaply and control only 60%, whereas; if you own it all when slack times came you could only run a curtailed product.

This advice was followed by the du Ponts. The final consolidation included about 70% of the nation's black powder and dynamite business. I think the 90% indicated by Professor Salisbury is high. The company did control all the smokeless powder whose market was largely military. If that produce is included then the total percentage of control is higher than the 70%.

Brilliant as this strategy was, it was that of a production man. It made possible a production man's dream of long and steady runs. And as Professor Salisbury has pointed out it was Moxham's concentration on production that did him in. In 1893 his highly rational objective of cutting production costs led to his first failure. From a production point of view the logic of Moxham's proposal for the new first plant at Lorain was impeccable; but from a financial one it was unsound. Moxham never did develop a real understanding of finance. The financial advice he gave to Du Pont was rarely listened to. Pierre and his cousins relied in this area on the advice of another staff man, John J. Raskob.

What Moxham forgot in 1893, and this was a factor that the most astute of the steel producers, Andrew Carnegie, always remembered, was the importance of a continuing cash flow. Carnegie bought new capacity only when he was assured of a large cash flow from his existing operations or investments. Moxham, on the other hand, paid little attention to the implications of a temporary drying up of income. He realized the difficulties too late.

Pierre du Pont, himself, did not fully appreciate the importance of insuring a continuing cash flow until the panic of 1907. At that time the most reputable firm of Brown Brothers in London suddenly cut off the credit that Pierre had long relied upon to pay for nitrates -- the company's basic raw material imported from Chile. From that time on, the Du Pont Company refused to rely on outside sources for any critical amounts of working or fixed capital. It was this lesson of 1907, as well as that of the Spanish-American War pointed out by Professor Salisbury, that Pierre had in mind when he so successfully carried out the negotiations with the Allies to finance and build a huge new smokeless powder capacity in 1914 and 1915.

Unlike Pierre, Moxham failed to learn from experience. So in 1915 he again committed himself and his new company to a massive outlay for funds before he was assured of any income. Again, the result was disastrous.

Moxham's story is then one of a staff specialist who is unable to understand fully the broader requirements of running a successful business. As a generalist, he was weakest in the handling of that most important business function -- finance. His experiences suggest that Professor Salsbury's evaluation: "Once a failure, always a failure" might be modified to read to "Once a staff man, always a staff man."

The basic reason for Elwood Haynes' success was precisely that he did understand this principle. He was a successful research man in metallurgy and machinery at a time when R & D did not yet require a Ph.D. degree, laboratory equipment, and facilities. Moreover, Haynes always made it clear that he had little interest in running a business -- that is in being a line executive. He pioneered in the development of the automobile but spent little time in managing the company established to build and sell the product he had designed. As Professor Gray points out, Haynes was involved in this company only three times -- once when his original partner departed, again when the company's plant suffered from a severe fire, and finally during its liquidation in the 1920s.

Because he devoted so little time to his automobile company, Haynes can hardly be blamed for its lack of success. It failed, as did 90% of its competitors, because its managers did not build an extensive and close-knit sales organization to provide the output necessary to insure the economies of scale and the production and the cash flow necessary to finance plant expansion essential to such economies. In 1910 his company was building only 350 cars annually at a time when Henry Ford and William C. Durant were producing thousands. In 1916, the company's best year, it made 7,000 cars when Ford's annual output was already 740,000 and that of General Motors 195,000. By that date the low volume enterprise in the automobile industry had little chance of competing against the scale economies of the large ones except in very specialized markets. Almost all such firms were critically injured when the short but sharp recession of 1920-1921 brought a sudden drop in demand.

Haynes did better financially on his metallurgical innovations than he did on his automotive ones. He did so because his business involvement was on a smaller scale. His two alloy steels patented in 1912 were still in the developmental stage in 1915 when the company was incorporated. The gross earnings for that year were a small \$48,000. When Haynes and two associates sold the company three years later, all production was still carried on "in a small concrete block building in South Kokomo." Even by the industrial standards of the day, this operation was little more than a pilot plant. Nevertheless, Haynes cashed in on his developmental work precisely at the right time. Because his output went primarily to military products; 1918 remained the company's most prosperous year for almost two decades.

In his developmental work in stainless steel, Haynes was even more sensible. He did not move into production at all. Instead he formed with an innovator of a competing method, a company to patent and license the process. For Haynes then, fame and fortune resulted from developing products

to be commercialized by others. He succeeded where Moxham failed because he fully realized that a staff man should always remain a staff man.

What do these case studies add up to? Do they do more than remind us of the value of the old Greek charge: "know thyself?" What do they say about the value of studying failures?

First, I want to emphasize that business historians have studied failures as well as successes. Until Harold Williamson told us last night, I had not realized it was Cambridge's Professor Postan who accused business historians of their failure to study failure. In answer to Postan's charge, I want to stress that business historians have indeed studied business failures. The subjects of several major biographies failed as brilliantly as they succeed. This is not only true of financiers such as Robert Morris, Jay Cooke, and Samuel Insul; but also those of the nation's best known manufacturers including Henry Ford, William C. Durant, and George Westinghouse. Moreover, studies of successful enterprise must almost by definition examine less successful competitors. The success of General Electric in the early twentieth century requires a look at the failure at Westinghouse; success of Winchester in the 1880s with the failure at Remington; the success of General Motors in the 1920s with Ford's failure in the same years; and Swift's successes with Armour's failure in that same decade. Moreover, to study success and failure within the same industry, within the same firm, and even during the career of a single individual is more valuable than one focused just on failure precisely because comparisons between decisions and actions can be made with some precision.

In fact, I would argue that success and failure can only be analyzed usefully by making such systematic comparisons. This is one reason why Professor Salsbury's paper is more useful than Professor Gray's. By comparing Moxham's activities to those of Pierre du Pont's, Salsbury was able to analyze more clearly the reasons for Moxham's failures. Professor Gray did not make comparisons either to other comparable investors or between different episodes in Haynes' career. So his paper tells us little about the reasons for his subject's success or failure.

Success and failure are not, I would argue, in themselves useful analytical concepts. The story of success and/or failure must be placed in a larger comparative analytical framework if useful generations are to be developed. To be of value even the study of failure must make comparisons to success. The danger of a study of a business failure is that it could become, like Professor Gray's paper, a mere case study. And I think we can all agree that one major task of business history is to move beyond the case study.