Scientific Business Forecasting[1]

Methods Used by a Philadelphia Concern and Resulting Benefits

I. By J. L. STONE
Head of Statistical Department, Henry Disston & Sons, Philadelphia

II. By S. L. KEDERSKI
Statistical Department, Henry Disston & Sons, Philadelphia

I. By J. L. STONE

WHAT Mr. Taylor said of scientific management in general, we may say of forecasting in particular. It "does not necessarily involve any great invention, nor the discovery of new or startling facts. It does, however, involve a certain combination of elements which have not existed in the past, namely, old knowledge so collected, analyzed, grouped and classified into laws and rules that it constitutes a science."

Back in the slump of 1921, our orders somewhat resembled a tennis game. A high lob had been shot up. The stroke for that lob started in 1916. In 1920 the ball, or our orders, reached its zenith and started rapidly to descend, striking ground, or the bottom of our depression, in June of 1921, rebounding like a tennis ball with almost the same rapidity with which it had descended.

In 1921 our factory and shop organization had been pruned to the limit and the wheels of our industry were scarcely revolving. Those wheels, once they had been slowed down, were very difficult to speed up again. A lot of our skilled shop hands had scattered out on farms or wherever they could get a job and were hard to locate. New men had to be broken in at great cost, machines reconditioned, more clerks hired, and so, after this emergency stop, our wheels were locked for a while.

We all know the cost which all this involved, the hardship on shop and office employees. Had we slowed down a little sooner and produced more for stock, knowing the rapidity with which our orders would recover, a great deal of money could have been made and saved and a lot of hardship avoided. But we did not know that business would bound up again so rapidly—because we were not forecasting. That experience convinced me that there ought to be some way to avoid such a condition again. Being in charge of the Statistical Department and having all the records available, I decided to study them with this thought in view.

About the same time I became interested in the Harvard Economic Service and particularly in Harvard methods, reduced our own figures to cycles by the method of standard deviation, and discovered how closely they correlated with Harvard curves. That was encouraging for it showed outside figures available to check against. In revenue that seemed fairly simple but in quantity figures it seemed hopeless, in view of the number of articles manufactured, some 20,000 items in saws and tools and manufactured steel. We have six manufacturing branches in the United States, two in Canada, and one in Australia.

The 20,000 items we manufacture are divided into four classes: Shelf or Hardware goods which are sold through jobbers to hardware stores; Mill goods which go to saw mills and wood working industries; Machine Knife business which goes to the same market as the Mill goods and is a direct selling proposition; and Milling saws, the metal cutting saws, also a direct selling line. I am not giving our organization this publicity for advertising purposes, but to show you that your business is "no different" and that no matter how varied your line and marketing may be, your problem can be solved and usually in quite a simple way. One thing that was a help (while I am still blowing our own horn) is that ours is entirely a quality line. We have no second quality goods, which tends to simplify marketing and distribution problems.

The next step we took was to try to find a leader in the four groups just mentioned which could represent each group fairly accurately. In this we were

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fairly successful, and very lucky in finding one line of saws which was a good thermometer and barometer of the whole organization. (See Figure 1 for a comparison of our Alpha orders and total sales revenue.)

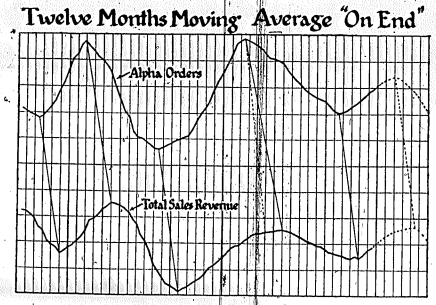

Figure 1

We then discovered we had an excellent forecasting curve for the various forecasting services on the market, leading them by, on the average, three months, the coefficient of correlation being about .9. This correlation held until about the middle of 1924 when manufacturing fell off as you remember and consumption held up fairly well. We are one of the leaders in the business cycle; that is we are one of the first to advance and decline. Having discovered that we were leading in the race over the rolling and hilly course of the business cycle with no pace setter ahead of us, we, the Statistical Department, decided that since we had no service on the outside to show us the course in this race, we had better study our own growth, marketing and distribution before boldly rushing to the next hill of prosperity on the race track of business.

Fortunately I had been in the employ of Henry Disston & Sons for some years and had always been interested in our past growth and general history. Moreover, we have quite a few very old employees, some of whom have worked with our founder, Mr. Henry Disston. From these men and our records, I had a pretty good knowledge of what had happened in the past. Such an intimate knowledge of one's organization and history I consider a big help in forecasting. These can always be supplemented by valuable data on competition and your own growth against competitors, available at Washington or state capitals. If you are large exporters considerable information is available on that subject also.

So, I should say, knowing your own history and business, then knowing nearly as well all other industries that affect your own, is the ground work for forecasting. The man responsible for the forecast will not have much time to read the Saturday Evening Post in his evenings; he will have to do much other reading to keep himself up to date on general economics. In our organization we have five people in the Statistical Department, including one man who spends practically all his time at work similar to that of a librarian, reading and clipping magazines, following up books that may be of value, noting at what library they are available should they not be of sufficient immediate value to purchase. This work is very important and helpful. The mass of general and specific information he secures is naturally of great value in forecasting, for reference and checking.

As examples of the sort of information we have available, I might mention the stand and location of all standing timber by kinds and pin maps showing location, size and kind of saw mills, hardware stores and jobbers, by states. We have also done some field work and made a good many studies on distribution. Our export salesmen have cooperated very nicely in sending in books and circulars on whatever country they may be in; in that way we have accumulated quite an export library at practically no cost. This is a help in export forecasting as one must know the economic condition of a country in making a forecast for it. It also helps to interest the salesmen in this kind of work. Merely asking their opinion on general conditions is likely to bring us too optimistic a statement. Of course Production, Expense and Sales Records and Charts constitute the rest of the Statistical Department's tools for making our forecasts.

Having studied our own field and history, we next made intensive studies of general statistics such as New Building, Textiles, Pig Iron and the various other data available on general business. These studies showed, as had our comparisons with the Harvard curves, that we were moving in a general way with business—sometimes ahead, sometimes in lag. Eventually we made our own business curve or demand cycle and reported monthly to our executives on business and the prospects in view, but this did not seem to be putting the forecasts to very practical use. They were interesting, no doubt, but their actual value was hard to demonstrate. Just when I was endeavoring to see