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CHAPTER IX

METHODS OF STABILIZING PRODUCTION OF TEXTILES, CLOTHING, AND NOVELTIES

By N. I. Stone

General Manager, Hickey-Freeman Company

I. PREVENTION OR REDUCTION OF SEASONAL FLUCTUATIONS

Our investigation has shown that no manufacturing concern has been able to grapple effectively with the problem of cyclical disturbance of business which has not first learned how to deal successfully with seasonal fluctuations in the demand for its products.

Several of the methods used for overcoming cyclical fluctuations are an outgrowth of, or are supplementary to, the policies developed for the purpose of securing steady production from one end of the year to the other in spite of seasonal ups and downs in consumers' demand. Seasonal fluctuations recur with fair regularity from year to year and the statistical and other information required to guide the business executive is less complex and more easily secured than that needed in connection with cyclical fluctuations. For the same reasons, the business technique which must be gradually built up and adjusted to the many phases of a manufacturing enterprise—labor, production, buying, financing, merchandizing, and selling—in order to secure continuous production, cannot be made equal to the task of coping with the comparatively uncertain, irregular, and less easily foreseen cyclical fluctuations unless it has first mastered the fairly regular and frequently recurring seasonal fluctuations.

For these reasons an analysis of the successful methods in vogue for preventing losses and hardships caused by cyclical fluctuations of business must include and indeed begin with a presentation of the means developed for preventing or minimizing seasonal fluctuations in production.

Causes of Seasonal Fluctuations.—Seasonal variations in demand are caused chiefly by climatic conditions which on the one hand determine a great many of the consumers' demands such as for warm or light clothing, fuel, ice, etc., and on the other, influence directly a great many processes of production such as agriculture, building construction, water transportation on rivers or harbors subject to freezing, etc. They are also caused by custom, such as the demand for flowers at Easter, for jewelry, toys, and other "holiday goods" at Christmas, for fire works on July 4, etc.

Each of these trades, which is directly influenced by seasonal demand, in turn affects other industries from which it derives its raw materials, and the intermittent flow of the earnings of the millions of workers who are engaged in all of these industries lends a seasonal aspect to all industries which supply the personal wants of these workers.

Wastefulness of Intermittent Production.—The intermittent consumers' demand causes seasonal ordering of goods on the part of the distributor—retail and wholesale; in turn the manufacturer, in his anxiety to attain the maximum rate of turnover for his current investment, concentrates his production within the shortest possible period of time preceding date of delivery. The presence of a reserve of unemployed workers in "normal" times permits of an intermittent system of production under which weeks and months of involuntary idleness are succeeded by periods of intensive work with long hours and overtime.

That the effect of such a method of production is hurtful to the human factor in industry and injurious to society is obvious. It destroys regular habits of industry; it impairs the health of workers who are driven for part of the year to the extremes of intensive effort during long hours succeeded by periods of idleness and frequently of dissipation. It undermines good citizenship on the part of a large element of the electorate. It results in large loss of potential wealth to the country as a whole through failure to use labor power and industrial equipment.

Apart from the social injury which intermittent production causes, a broad view of the ultimate interests of the individual manufacturing concern discloses the disadvantages of intermittent production and the gains that would flow from continuous operation. This is especially true of plants having a large overhead expense, a considerable part of which is in the nature of fixed charges which cannot be eliminated while the plant is temporarily shut down. These overhead charges are a total loss. Business men now recognize the wastefulness of a large labor turnover, the expensiveness of training new help, and their inefficiency and resultant high cost, even when hired at comparatively low wages. The increased cost of production during the period of "tuning up" a plant to its state of efficiency, is an item familiar to every industrial engineer and plant manager. Added to these is the loss of the more capable and ambitious workers who drift away during periods of idleness to more steady occupations unless held by the inducement of higher rates of wages than would be necessary to satisfy them under steady employment. Finally there is the lowering of the morale on the part of the labor force under conditions of uncertainty.

These considerations have prompted a small but growing number of concerns to devise means for keeping plants in continuous operation despite the intermittent consumers' demand. The methods described

below have been developed in one or more of the plants of the following concerns within the industrial field covered by this chapter:

Dennison Manufacturing Company	Framingham, Mass.	Manufacturers of paper products and stationery supplies
Joseph & Feiss Company	Cleveland, Ohio	Manufacturers of men's clothing
Printz-Biederman Company	Cleveland, Ohio	Manufacturers of women's suits and coats
Hickey-Freeman Company	Rochester, N. Y.	Manufacturers of men's clothing
Brown & Bigelow	St. Paul, Minn.	Manufacturers of advertising novelties
Guiterman Brothers	St. Paul, Minn.	Manufacturers of men's wear
Cooper Wells Company	St. Joseph, Mich. and Albany, Ala.	Manufacturers of hosiery
Fort Wayne Corrugated Paper Company	Fort Wayne, Ind.	Manufacturers of paper products
Waldorf Paper Products	St. Paul, Minn.	Manufacturers of paper products

Methods of Reducing Seasonal Fluctuations of Production.—The methods which have been devised to secure greater continuity of production are:

1. Spreading delivery of orders over a large part of the season instead of delivering the entire order at the opening of the season. This has been found feasible by the clothing houses mentioned above. In the case of "holiday goods" such as the Dennison Manufacturing Company is producing, which must be delivered complete because of the shortness of the selling season, success has been achieved by

2. Inducing retailers to place their orders long in advance of delivery. To quote the Dennison Company:

> Originally paper box production was exceedingly seasonal. Orders would not come in in any large number until late in the summer, and then there would be a painful rush of work until Christmas. As a result of modified sales policies, however, we now secure a considerable number of our holiday orders in January, and even get a fairly large proportion of orders for Christmas delivery in November and December of the preceding year. Similar results have been accomplished in the crepe line.

The same is true of the other "Christmas goods" manufactured by the company such as cards, seals, etc.

3. Inducing retailers to accept deliveries well in advance of the season, through deferred dating or special discounts. The certainty of having the goods on hand when they will be needed is in itself a considerable inducement to the retailer in complying with this plan.

4. Interdepartmental orders. Where the nature of the goods manufactured is such that the products of one department are used by another, the planning of interdepartmental orders a long time in advance of

actual need, enables the producing department to schedule its production in such a way as to do most, if not all of the work, when there are no outside or seasonal orders on hand.

5. Developing one or more staple products on which the plant can be kept busy between seasons. A minimum amount of such staples may have to be manufactured at all times. But their chief advantage is that they make possible

6. Manufacturing to stock. This can be done with a fair degree of safety only if the conditions called for under (5) have been developed. The practice has its obvious limitations in the financial resources of the manufacturing concern. The more the staples manufactured to stock approach the ideal combination of a high labor and low material value, the better they will lend themselves to the purpose of keeping the plant busy when orders are low.

Conspicuous instances of the policy described under (5) and (6) are to be found in the case of the Dennison Manufacturing Company, the Hickey-Freeman Company, and the Joseph and Feiss Company. These three companies are cited because of the variety of products they represent. The Dennison Company manufactures tags and other paper products. The Hickey-Freeman Company manufactures the highest grade of ready-made men's clothing. The Joseph and Feiss Company manufactures one of the lowest-priced lines of men's clothing. Yet each has been able to follow this policy successfully.

7. Developing a standard of excellence in the grade of product manufactured and educating the retailer and the consuming public to a realization of this excellence through proper coordination of production, merchandizing, advertising, and selling.

A good illustration of this policy is to be found in the case of the Printz-Biederman Company of Cleveland, Ohio. Although manufacturing an article in which style is the determining factor, this company follows the rule of "selling what it makes" as against the ordinary opportunistic policy known in the trade as "making what you sell."

Months in advance of the selling season this company selects and orders its cloths, determining the number and kind of garments it wants to make the following season in order to keep its plant at capacity production. Then it instructs its designers to make the necessary models. As soon as these are approved by the firm, quantity manufacture is begun before any orders have been solicited from customers. Through years of consistent maintenance of this policy the company has inspired its retailers with confidence in its judgment, the reliability of its promises, and the value of its merchandise. Its salesmen in different territories are given their respective quotas which they are expected to dispose of and which they usually do sell. In this they are helped not a little by the act that the goods of the company are sold under a trade mark which is

known among the consuming public through national advertising. While occasionally the firm may lose on a model and be obliged to sell at a loss, in the long run it has been eminently successful in maintaining production for fifty-one weeks in the year, one week being devoted to plant repair during which the workers enjoy a vacation with pay.

The only serious setback the company has experienced was in connection with the great cyclical depression of 1920–1921. How such difficulties can be guarded against is shown below in discussing the prevention of cyclical fluctuations of business.

8. The transfer of surplus help from one operation to another or from one department to another. This practice presupposes adequate training of the working force to enable employees to do more than one operation.

Such are the principal means which have been successfully employed by concerns like those mentioned, engaged in highly seasonal business. Their chief value apart from the immediate gain of steady operation of the plant is that they develop the habit and the capacity for planning ahead. This is what constitutes the bed-rock foundation on which rests the entire technique of eliminating or reducing cyclical fluctuations in individual business enterprises.

II. PREVENTION OR REDUCTION OF CYCLICAL FLUCTUATIONS

Two sets of remedies are open to private business for mitigating the effects of cyclical disturbances: one, constructive, aims at finding a market for its products in spite of the general depression; the other, preventive, seeks to avoid the pitfalls of over-expansion and to minimize the consequent losses of depression. The first set includes proper merchandizing and selling policies; the second, proper purchasing, construction, financing, and credit policies. These policies have been developed by the Dennison Manufacturing Company to a greater extent than by any of the concerns investigated in the textile, clothing, and novelty industries.

Merchandizing.—Merchandizing may be regarded as the pivotal activity in securing the continuous operation of a manufacturing plant. Its function is to study the needs of the consumer and to adapt the products of the company to those needs; it seeks to find new uses for these products and directs the publicity efforts of the advertising department to the task of educating the consumer in those uses; it inspires the selling force to follow up the gains won by this publicity work and to consolidate the newly won positions in the public favor by pushing the distribution of these products; it conducts research work which frequently results in the creation of new products and plans and directs the activities necessary to develop a consumer's demand for a product which he has never known before. It is the supreme coordinating factor among the produc-

tion, selling, and advertising departments. It helps to remind the production department that it is not a self-sufficing entity, and that it can only survive if it serves the wants of the consumer. It artfully guides those wants to maintain the production of the plant at full capacity.

Elasticity of Demand.—All products may be divided into two classes: Those intended for the direct use of the consuming public, and those used in productive processes. The marketing of the former is governed as a rule by conditions of elastic demand, that of the latter by conditions of inelastic demand. To illustrate: When prices of clothing rose to an unheard of extent at the height of prosperity in 1920, the consumer stopped buying; when the depression which began in the fall of 1920 caused the flooding of all markets with clothing at retail prices which did not cover the cost of production, the clothing was absorbed by a public suffering from the effects of that depression. Even in staple foods, the demand for which is the least elastic of all articles of consumption, an unusually high price will lead to the use of substitutes and a correspondingly low price will cause a marked increase in sales. In the case of articles of apparel and personal adornment or household furniture or ornamental objects, the demand is extremely elastic and as the saying in the trade goes, "any amount can be sold at a price."

On the other hand with articles used in production the demand is generally inelastic, except within narrow limits. For example, when industry was booming, manufacturers of machine tools could not supply the demand at any price; when the industrial depression set in, "you could not give them away," to quote Mr. Du Brul, Secretary of the Machine Tool Manufacturers' Association.

The reason for this is not far to seek. When a concern is busy and behind with its deliveries, it will add new machinery even at a high price because the element of machine depreciation entering into the cost of a manufactured article is insignificant; on the other hand, the owners of an idle plant, who are suffering a daily loss in fixed charges, can not be tempted to add to their idle machinery, no matter how attractive the price of the new machinery may be. It is obvious that the policies of marketing to be followed in these groups of products must be different, and that the manufacturer of an article subject to inelastic demand has a more difficult problem on his hands.

Creation of New Products.—We have noted the successful application of the policy of selling at cost or thereabout in the case of an elastic-demand article like clothing as a means of keeping a plant busy in off seasons. This policy degenerates into a stampede of price slaughter at a time of general depression such as set in during the latter part of 1920. Such price cutting can be used as a desperate makeshift to "get out from under" accumulated stocks, but not as a means of keeping a plant busy. When there is no demand or an insufficient demand for the products of the

company to keep its plant busy, the only alternative to a shut-down is the placing of new articles on the market. When faced by such conditions, the concerns engaged in the manufacture of articles subject to inelastic demand are at a disadvantage. Their recourse is to turn to a machine or tool which will greatly reduce production costs as compared with the old machine or tool, or to turn to an article of personal consumption, to the manufacture of which their plant can be easily adapted.

In any event the development of the new product should not be deferred until the moment when the depression has set in. It is at this point that a well organized merchandizing department conducting aggressive researches will demonstrate its usefulness.

Most concerns make the error of placing their new products on the market as soon as they have been developed. This policy is justified only if the demand for the existing product is inadequate to keep the plant busy. Even then care should be taken to ascertain whether the appropriation for publicity necessary to introduce the new product would not result in an equal volume of business if spent in additional sales promotion of the old product. The latter course has its obvious advantages: if successful, it means manufacture on a larger scale and, therefore, as a rule, at a reduced cost of production; it presents fewer and simpler problems of distribution and selling and for these reasons is preferable.

Quite different is the case when a depression sets in and the old consuming constituency is no longer able to absorb the customary quantity of the existing product. That is the psychological moment for placing the new product on the market. To be ready for prompt action, all work of preparation must be done in advance; that is to say, during the period of prosperity, when the existing plant facilities may be strained to the utmost to meet the current demand for the old products. In other words the research department must always be working and scheming ahead of the plant and must have its own facilities for work which may seem superfluous in the eyes of the production department.

The product having been perfected on its technical side, the merchandizing department must seek to develop all possible uses for it in an experimental way. Then a plan of publicity including advertising, demonstration, and any other means found appropriate must be worked out ready to be launched at a moment's notice.

To illustrate: While the Dennison Manufacturing Company was turning away orders for their products at the height of prosperity in 1919–1920, the company developed two new products, one a crepe paper hat for festive parties, the other the use of sealing wax as a plastic material for objects of art and adornment. At the time these products were developed, the company was the largest producer of sealing wax in the country and one of the largest makers of crepe paper, which it had originated. To have put the new products on the market would have

required new buildings and machinery. Nearly everybody at the time was making such extensions, competing for the labor, materials, and equipment of the building industry and causing prices already inflated to soar still higher. Not so the Dennison Company.

A study of statistical reports on the state of business in the United States, convinced the management that the industrial and financial structure of the country was top-heavy and that expansion at prohibitive cost at that time would be dangerous. The new products were quietly put away for a rainy day. In January, 1920, the entire selling force was called together and told that prosperity was at its peak, that a break was expected within four to eight months, and means were discussed for meeting the coming emergency. One of the steps decided upon was the placing of these new products on the market as soon as the break should come. All arrangements were made to expedite the production, marketing, advertising, and selling of the new products. Seventy-five thousand letters to customers were written, signed, and required only the insertion of the date to be ready for mailing. When the break came, the plans went through without a hitch, with the result that the company sold more crepe paper and sealing wax in 1921 than ever before.

In the case of articles prepared for trade use, which have an inelastic demand, appropriate steps were likewise taken to get new orders. Thus, to quote Henry S. Dennison:

> We have found, for example, that customers who would not buy ordinary tags were willing to buy when we made up some new, attractive design which especially appealed to them.

Advertising.[1]—When business depression sets in, the cry goes out to "reduce your overhead." Business experts counsel it, trade papers admonishingly repeat it, banks insist on it, company presidents order it, and plant executives ruthlessly apply the pruning knife. One of the first items of overhead to go by the board is advertising.

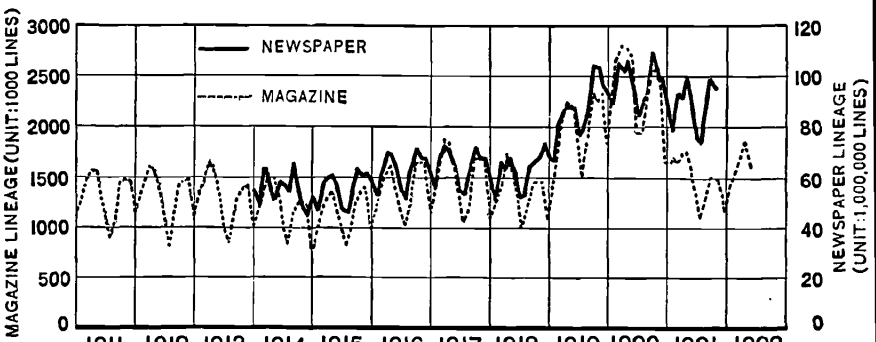
The following charts show the variations in the volume of advertising during the course of the last business cycle. Chart 19 shows the monthly fluctuation of newspaper and magazine advertising.[2] It shows a striking

[1] For information on the subject of advertising, the writer is indebted to James O'Shaughnessy, Executive Secretary of the American Association of Advertising Agencies; Stewart L. Mimms of the J. Walter Thompson Co., and H. L. Roth of Hoyt's Service, Inc.

[2] The newspaper data cover the monthly volume of advertising from 1914 to 1922 in one hundred and nine newspapers published in twenty-three leading cities. The original figures were obtained from *Editor and Publisher*, Jan. 28, 1922. The magazine data have been compiled by *Printers' Ink* since June, 1911, and cover the principal weeklies and monthlies having a national circulation. Both forms of advertising are measured in agate lines.

seasonal fluctuation occurring with great regularity year after year. Each year shows no less than two peaks and two depressions: first, a slight

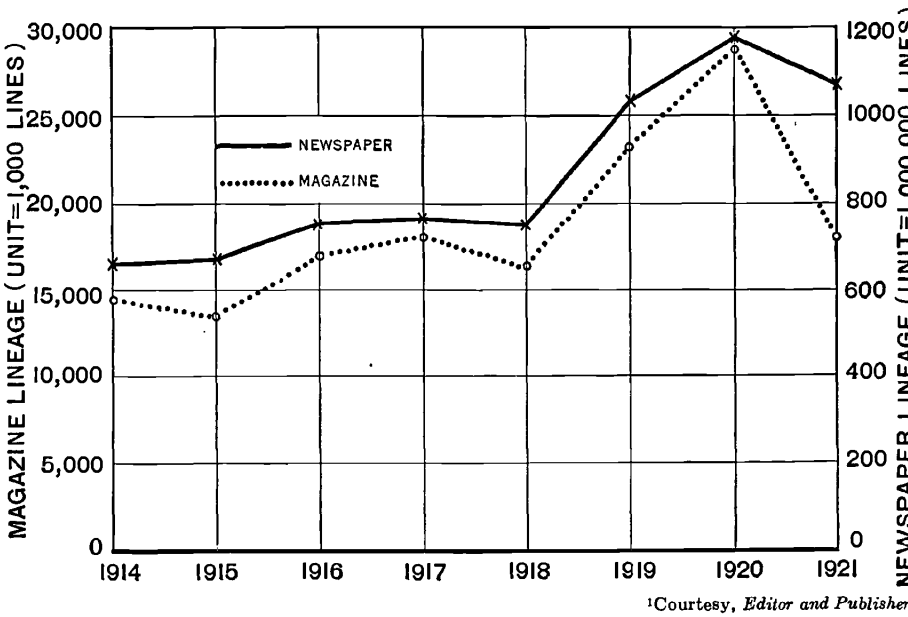
CHART 19.—MONTHLY VOLUME OF NEWSPAPER ADVERTISING[1] IN 23 CITIES AND OF MAGAZINE ADVERTISING IN THE UNITED STATES.



[1]Courtesy, *Editor and Publisher*.

depression in the early winter months followed by a recovery in the spring; the midsummer months invariably show a great falling off in advertising

CHART 20.—ANNUAL VOLUME OF NEWSPAPER ADVERTISING[1] IN 23 CITIES AND MAGAZINE ADVERTISING IN THE UNITED STATES.



[1]Courtesy, *Editor and Publisher*

and the autumn months a recovery. As will be seen from the chart, magazine and newspaper advertising have the same seasonal character.

Chart 20 shows the changes in the annual volume of newspaper and magazine advertising with the changing phases of the business cycle.

The falling off in the volume of advertising in 1914 and 1915, its rise during the war years, the check in 1918, the phenomenal rise in the prosperous period of 1919 and 1920, and the serious decline in the depression of 1921, are clearly shown by the chart.[1]

A tabulation of all advertisers spending more than $10,000 per annum on magazine advertising, prepared annually by the Statistical Bureau of the Curtis Publishing Company, shows that in 1921, when the volume of magazine advertising fell off 37 per cent from that of the previous year, out of 2,247 such advertisers, 1,507 or about two-thirds reduced their advertising expenditure, while 740 or about one-third maintained the same appropriation or even exceeded their appropriation for the preceding year.

A questionnaire sent out to those who increased their advertising in 1921 in the face of a falling market, designed to bring out the results of such a policy, brought replies from 265 firms. Only 146 of the replies, however, were sufficiently definite to lend themselves to tabulation on the first and most important question as to whether the volume of sales increased or declined in 1921 as compared with 1920. Of these 146 firms, 67 reported a falling off in the volume of sales ranging from 6 to 82 per cent, while 68 reported an increase in sales ranging from 5 to 100 per cent over 1920, and 11 maintained the same volume of sales.

These figures, while interesting, cannot be regarded as conclusive. In the first place, there was a great increase in advertising rates in 1921, some of the firms reporting increases of as much as 100 and 200 per cent. Mr. O'Shaughnessy, Executive Secretary of the American Association of Advertising Agencies, estimates the average increase in the cost of magazine advertising at 20 per cent. The increased appropriation by most of the firms in question did not, therefore, mean an increased amount of advertising space. In some cases the additional appropriation was sufficient to maintain the same space, in others it did not suffice to do so. In only a minority of instances was the appropriation sufficiently increased to result in increased advertising.

[1] It is interesting to observe that newspaper advertising declined only 9 per cent from 1920 to 1921 as against 37 per cent for magazine advertising. This is due to the different character of advertising in the two fields. Merchandise advertising in magazines emanates chiefly from manufacturers, while that in newspapers comes chiefly from local stores. The store is in a different position from the factory. The latter depends for its sales on its salesmen, the advertising being regarded merely as a means of creating a favorable atmosphere for the salesman's efforts, while the store depends chiefly upon advertising to "move" its merchandise in volume. Newspapers moreover carry a much larger proportion of advertising other than that of merchandise than magazines. Help and situations wanted, amusements, real estate, and similar items of advertising are less affected by industrial depression than manufacturers' merchandise advertising.

In the second place, 1920 was an unusually favorable year, when orders were placed on an inflated basis in the expectation that only a part of the orders would be delivered. Few concerns could hope to maintain the same volume of sales in 1921. A falling off in sales in all such cases does not, therefore, indicate a failure to be charged to advertising. In many cases the reduced sales in 1921 as compared with 1920 actually represent an increase over the last normal year preceding 1920. Third, lines catering to the farmer as a producer could not possibly maintain their volume of sales, with the farmer's purchasing power cut to a fraction of what it was in 1920. Fourth, many of the replies to the questionnaire refer to the fact that merchants were overstocked in 1920, carried their surplus stocks over into 1921, and bought less freely for a time—a decline in orders which advertising could not prevent. These advertisers report a gratifying increase in 1922, which they credit to the increased amount of advertising done in 1921.

On the other hand, the reports of increases in sales cannot all be credited to increased advertising in 1921, since other important factors affected the results. For example, certain lines of business were benefited by the incipient revival of the building industry and the consequent increased demand for building materials.

Bearing in mind the recurring phases of the business cycle, what should be the policy of a manufacturing concern which normally sets aside a certain amount of money for advertising? To this, as to many other questions which have been discussed here, the Dennison Manufacturing Company contributes the most considered judgment. It advocates a normal annual appropriation for advertising. Instead of expending the appropriation actually year by year, however, this company believes in spending it sparingly in good years, when orders are plentiful, and accumulating the savings from the appropriations of the preceding years to be spent during the depression, when increased selling efforts must be made to maintain the volume of business.

This policy seems not only sound and in harmony with the general policy of trying to flatten out the curve of the business cycle, but it seems also to be within the means of most of the concerns which do national advertising.

Selling.—What has been said about advertising applies with equal force to other items of selling expense, including salaries of salesmen. Instead of following the usual course of maintaining the selling force at its highest point in times of prosperity and reducing it to the limit during depression, the Dennison Company again reverses the process. One of the steps taken to meet the coming depression, when the company foresaw it months in advance, was the hiring and training of new salesmen, whose number had been allowed to run down during the pros-

perous period through not filling vacancies. By the time the depression was on, the sales force had been raised about 60 per cent. The company's business had amounted to $10,475,000 in 1919 and increased to $15,195,000 in 1920. In 1921 it declined to $12,800,000, but when the reduction in the average price per unit is taken into account, the net decline in volume of business was only 5 per cent.

Regulating Inventories.—*Losses through Depreciation of Inventories.*—One of the largest items of loss sustained by manufacturing concerns in the break in 1920 was the shrinkage in the values of inventories. The continuous rise in prices for a long time preceding the break, which forced conservative buyers to pay higher and higher prices each time they came into the market for additional supplies, coupled with slow and uncertain deliveries of supplies on the one hand and with pressure from customers for deliveries of finished goods on the other, swept nearly everybody into a mad scramble of buying. When the break finally did come, the depreciation of inventories shook the foundations of many a strong house and seriously affected nearly every house.

It is at this point that constant study of the course of the business cycle becomes imperative for any house which prefers intelligent guidance to blind and dangerous guessing. By familiarizing himself with the course of cycles in the past and following the current reports, the business man can gage with a fair degree of accuracy what phase of the cycle general business conditions of the country are in at any given time.[1]

The Cycle as a Guide to Buying.—The business man who watches the cycle will become extremely cautious when a boom develops and buy only enough to keep his plant busy. In fact, he will begin to put on the brakes before activity becomes intense, reduce his volume of purchases, and some time before the peak has been reached gradually work off his inventory until it is reduced to the absolute minimum necessary to operate his plant. When the break finally occurs it will find him with practically no inventory to write down, as the supplies he has on hand can be worked off in a very short time on the remaining unfilled orders. After business is on the downward grade the well-informed executive will continue to be conservative in his purchases, first, because of his smaller requirements and secondly, because of the expectation of still lower prices. As the bottom is neared he will become more liberal in his purchases, increasing still more on the upward grade after the turning point has been passed while prices are still below normal.

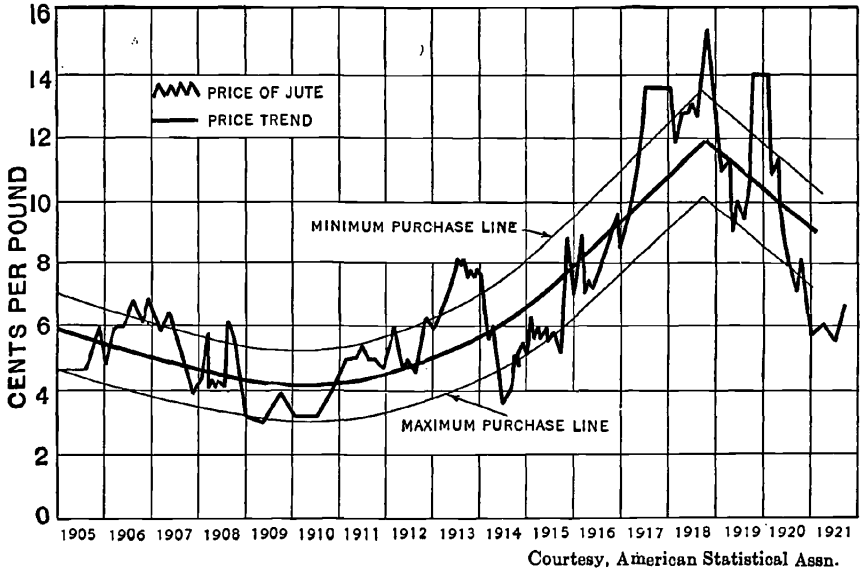
The theoretical presentation of such a policy is of course simpler than its practical application. In practice, questions will arise as to whether the critical points marking off the ebb and flow of business have

[1] See Chap. XX.

actually been reached. Hindsight is clearer than foresight and the rule can not work to perfection. A practical working rule has been developed by the Dennison Manufacturing Company which is illustrated in Chart 21. The actual purchases of the company vary "according to the position of actual prices relative to the three lines" in the chart. To quote Mr. Dennison:

The minimum purchase line represents the smallest we dare carry for current needs and the maximum purchase line represents the most that we consider it wise to invest in inventories. Suppose, for instance, on a certain material that

CHART 21.—JUTE PRICES.



Courtesy, American Statistical Assn.

our standard quantity to order is six weeks' supply. If prices are below the line of secular trend we may buy up to twelve weeks' supply, but if prices are above the line of secular trend we may buy not more than two weeks' supply. We make no attempt to gauge the actual turning point, because we believe that it is impossible to hit it exactly.

As a matter of fact, when the price of copper was very low, the company put in a two years' supply of the metal at a large saving. Similar charts should be kept for every important commodity which a manufacturing concern is using in its processes.

Watching Inventories.—The complete utilization of price curves will be impossible without a thorough control of inventories. This implies, in the first instance, the keeping of accurate and up to date statistics of raw materials and finished stock. The inventory, however, is not affected by purchases alone. The stock of raw materials is constantly

drawn upon to keep up production. The stock of finished goods is added to by production and reduced by shipments. Hence the necessity of a thorough and unified control of production and sales through the merchandizing department.

Complete control of production must be maintained at all times and it must be planned at least a season and, if possible, a year ahead. The production schedule should be laid out in conference between the merchandise manager and production executives, assisted by the planning department. The production schedule is usually based on the sales during the preceding year with such percentage of estimated increase of sales added for the ensuing year as previous experience justifies. In this connection, charts of sales by the company in previous years showing the effect of the general business cycle on the volume of business of the company taken in conjunction with charts of current general business showing probable trend of business in the near future, should be utilized.

If sales fail to keep up with the production schedule, it is the business of the merchandise manager to go after the sales department. The only alternative to increased sales is a downward revision of the monthly or weekly production schedule before the stock of finished goods has accumulated beyond the limits of safety. If sales exceed production, the schedule must be revised upward, provided manufacturing facilities are available for the purpose. The only other alternative is to refuse new orders.

These adjustments of production schedules up or down must, of course, be made in conference with all the department heads concerned and with a view to avoiding changes in production schedules which would result in idle machinery and unemployment on the one hand or excessive overtime or serious delay in deliveries on orders on the other hand.

Cancellation of Orders.—In industries in which cancellation of orders is permitted, this factor must be constantly borne in mind in gaging the size of the inventory at different phases of the cycle. This is another point at which it is especially important to watch the cycle. A chart should be constructed covering the history of the company as far back as available data will permit and showing the cyclical fluctuations in the volume of business and the amount of cancellations each year. The percentage of cancellations at different phases of the cycle should then be ascertained and used as a guide in placing orders for materials from year to year.

Goods on Order.—It goes without saying that in estimating inventories, goods on order and en route must be added to goods on hand. The relation between these items varies with each passing phase of the cycle. In busy times, there is always more or less freight congestion on railways and steamship lines, and the execution of orders is comparatively slow, the two factors combining to cause delay in deliveries. There is,

therefore, a tendency to order a larger supply than would be necessary with prompt deliveries.

As business begins to slacken, freight congestion disappears and the execution of orders becomes more prompt, with the result that there is a very marked rise of inventories on hand. If to that be added a slower consumption of supplies because of diminished orders, the overstocked condition of the plant becomes still more aggravated.

The factor of variable rates of delivery at different points of the business cycle must therefore be taken into account when placing orders for supplies.

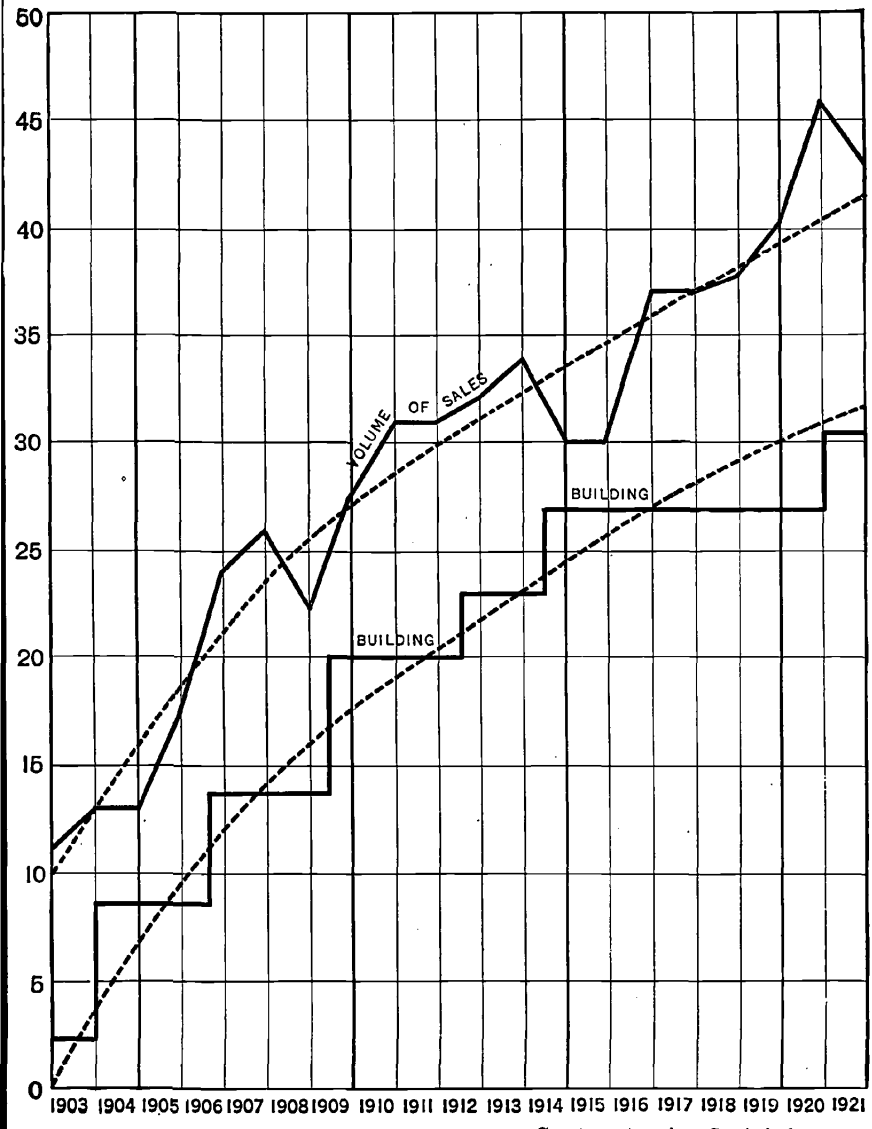
Plant Extension.—The rules which guide the buying of supplies can be made to apply with equal success to the problem of when to build plant extensions and add new machinery. The call for more facilities usually comes after the period of prosperity has been well under way or has largely spent itself. As it takes time to plan new buildings and still more time to execute the plans when there is scarcity of labor and materials, and since there is additional delay in equipping the new buildings with machinery, the extension is apt to be completed when the need for it has largely passed owing to a downward swing in the cycle. A new source of loss is then added in the form of increased fixed charges on buildings and equipment acquired at top-notch prices.

Chart 22 illustrates the method followed by the Dennison Manufacturing Company to guide it in its plant construction. This chart of past accomplishment, taken in conjunction with the charts of current business to gauge the outlook for the near future, furnishes a guide which has enabled the company to avoid the pitfalls of building at the crest of the wave on the one hand and waiting too long for new buildings and thereby being forced to turn away business on the other. The future requirements are estimated for several years in advance to cover the period of an entire cycle as shown by past experience. Then, when cost of construction and prices of machinery are below the secular trend, the company anticipates its requirements by building a little beyond the line of normal growth, thus avoiding the necessity of building more than a minimum when costs are above normal.

Financing.—The financial difficulties which a business gets into when the slump sets in are due to two causes: First, the losses caused by depreciated inventories, unremunerative prices, and idle plant; second, the lack of ready cash due to the tying up of funds through over-extension at the crest of the cycle. The means of preventing the former set of difficulties have been already discussed. The cash problem will be largely eliminated as a consequence of meeting the other difficulties. The point to be made here is the same that has been made in discussing goods on order: Namely, that neither the absolute amount of cash and other quick assets nor its ratio to current liabilities can be regarded as fixed, as is the usual

custom with business men as well as banks. The ratio will differ with the phase of the cycle. On the upswing expenses will increase and this increase will precede the increase in income by many weeks, sometimes

CHART 22.—BUILDING PROGRAM AND COURSE OF SALES.



Courtesy, American Statistical Assn.

months. The ratio of cash to liabilities required to do business properly is, therefore, much greater at that time than in the downward course of the cycle. While bank loans are more readily available in the prosperous

phase of the cycle, rates of interest are much higher and add to th already high cost of doing business. The Dennison Manufacturing Com pany estimates its cash requirements over a period of years coverin the probable duration of a cycle in order to guide it in its dividend an reserve policies as well as in other matters affecting the cash position o the company.

Credit Policy.—The usual attitude of business concerns is to scrutiniz very closely in bad times the credit rating of customers and to be mor liberal when business is good. The policy has logic behind it. Whe business is poor and collections slow there are more failures than usua and the weaker concerns are the first to go to the wall; on the other hand in good times there are fewer failures, the risk is smaller and the credi department can afford to be lenient. This logic is sound from a short range point of view.

The Dennison Manufacturing Company looks at this question as o all others from the long-range viewpoint of the cycle as a whole. I flush times when orders begin to tax the capacity of the plant and it i realized that some business has to be unavoidably lost through slo deliveries, the company feels it is in a better position to scrutinize th credit standing of its customers and weed out those who will probably b among the first to feel the pinch of bad times when the turn in the cycl comes. On the other hand, when times are poor and the plant is hungr for orders, the company, without relaxing its scrutiny of the customer' credit standing, is willing to take greater chances. As Mr. Dennis says,

> We expect, of course, a bigger ratio of loss in depressions, but so far as possibl we want that loss to result from orders taken when they are needed, rather tha from orders taken months before, manufactured on overtime pay, and in conflic with orders for good pay customers.

Mr. Dennison points to the results obtained from following this policy since the last period of prosperity. During the depression from September, 1914 to August, 1915 the company's ratio of losses to sales was 0.52 per cent. In the prosperous year of 1920 they were 0.04 per cent. During the year of depression in 1921 they were only 0.14 per cent. The company was thus able to keep its losses very low though following its novel policy.

III. PRIVATE VERSUS GOVERNMENT EFFORTS TO COPE WITH THE BUSINESS CYCLE

Such are the main features of a constructive policy which private business has evolved in an attempt to adapt itself to the fluctuations of the business cycle. In the chapters of this book which are devoted to the discussion of government policies and financial devices, these policies

are described as policies intended to control the business cycle. Their adoption would undoubtedly have the effect of modifying the business cycle by reducing the extremes of its alternate swings toward inflation and depression.

No such claim is made for the individual business policy outlined in this chapter. All that the individual business firm, no matter how large it may be, can hope to accomplish is to *adapt itself* to the course of the business cycle, so as to take advantage of the variations in prices and in volume of business, instead of being a helpless victim of what have seemed until now blind, unfathomable, and uncontrollable economic forces.

While the complete utilization of the policies outlined may not be feasible for any but the large industrial corporations, at least a partial realization of the program is open even to concerns of moderate size. The study of reports of business forecasting agencies and the compilation of the price tables and charts does not call for an elaborate staff.

While it is true that a single business corporation cannot materially affect the course of the business cycle, a fairly general adoption of the program outlined in this chapter, by concerns of medium and large size would tend to have that effect. When it is remembered that out of a total of 290,105 concerns engaged in manufacturing and mining, 1,019 concerns or 0.4 per cent employing 1,000 or more workers each, give employment to more than 26 per cent of all the wage-earners employed in these industries and that 2 per cent of the plants employ more than 53 per cent of all the workers in these industries, the tremendous aggregate power which this comparatively small number of concerns could exert in modifying the business cycle will become apparent. Apart from the direct effect which they would exert as producers, their immense purchasing power as users of the products of other industries, coupled with the purchasing power of their employees as consumers, would have a great steadying influence on the demand for the products of industries and concerns which might not be taking any initiative or making any conscious efforts to adapt themselves to the business cycle. The cumulative power of private initiative can thus be made a powerful factor in seconding governmental efforts to control the business cycle.