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LEBANESE DAIRY COMPANY (BAMBI) - A STUDY

by

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INTRODUCTION

It is the purpose of this paper to present a well described analysis of a selected firm whose general characteristics typify the historic growth, present problems and future prospects of a company of this category in the Lebanon. The organization chosen as incorporating those significant characteristics was the Lebanese Dairy Company. The study takes place against a background of developing national traits and patterns, serious trade deficits and fledgling industrial activities.

This presentation of the Lebanese Dairy Company has been prepared as a pilot study, the results of which are valid not only with regard to the company in question, but also for the majority of firms in this and similar fields of endeavour in Lebanon. In other words, examination of the growth, problems and prospects of the Lebanese Dairy Company would in effect be describing the situations of many like-sized manufacturing organizations in the country. Accordingly, the results of this particular study when applied on a country-wide scale may well reveal the status of local industries in general.

The thesis is divided into three main parts; the first being descriptive and historic. The second part deals with the operational aspects of the company. The final part of the paper is concerned with

the problems and prospects of the firm, and the conclusions and recommendations.

The methods of approach employed in this work are intended, primarily, to isolate those problem areas having to do with production, management, marketing and finance. The establishment and growth of the Lebanese Dairy Company have been described in detail. The firm's problems have been listed and categorized. The resulting conclusions have been drawn and frequently have been found to reflect general existing conditions. The recommendations offered were kept as practical as possible, and were found to be often applicable to both the Lebanese Dairy Company as well as to other medium-sized Lebanese manufacturing concerns.

The techniques and processes employed in the Company's spheres of management, marketing, production and finance will be examined critically and analytically. While so doing, the reader would do well to keep in mind that the locally utilized dairy practices include those borrowed in good faith from the more advanced countries as well as those peculiar to the Middle East in general and to the Lebanon in particular.

CHAPTER I

GENERAL CHARACTERISTICS OF THE LEBANESE MARKET

The Lebanese is historically recognized as a middleman commanding a variety of talents, searching always for an immediate transaction and a quick profit. He switches from one line of business to another with a minimum of inconvenience. Many Lebanese merchants have, quite justifiably, entered the industrial sector but only when it was discovered to be the source of greater profits. There is, therefore, a trend towards industrialization in the country. This movement has been expanding and has generated interest in the field of manufacturing in Lebanon. This has not, however, altered the fact that today commerce is the major income-earning activity of the Lebanese and as an occupation enjoys the highest prestige.[1] Over one-fourth of the aggregate net income of Lebanon is earned in the trade sector, and of this amount, almost two-thirds of the income arises from import, transit and entrepot operations.[2]

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[1]These facts are well brought out by Arthur E. Mills in several sections of his Private Enterprise in Lebanon (Beirut: American University of Beirut, Lebanon, 1959), p. 45, et passim.

[2]Based on figures for 1961, calculated by Paul J. Klat in his article, "The National Income of Lebanon" in Middle East Express, v. 5, April 2, 1962 (Beirut: Economic Press Corporation, S.A.L.).

Trade, then, contributes the largest share to national income, and foreign trade is the largest single contributor. In Lebanon, the income resulting from the services sector is almost twice that of the commodity-producing sectors. This ratio not only reflects the preeminence of foreign trade in the Lebanon but also reveals the comparative weakness of the commodity-producing sectors of the Lebanese economy.

TABLE 1

THE NATIONAL INCOME OF LEBANON
1952, 1955, 1961, and 1963
(L.L. Millions)

Sector	1952	1955	1961	1963[a]	1961 Percentage of Total
Agriculture	216	223	330	334	18.4%
Industry	155	175	218	225	12.2
Construction	48	60	69	72	3.9
Transportation and Communication	45	75	68	70	3.8
Commerce	333	407	468	538	26.2
Banking	50	70	110	148	6.2
Real Estate	98	116	194	290	10.9
Government	64	83	152	215	8.3
Services	106	165	180	201	10.1
Total	1115	1374	1789	2093	100.0%

[a]Figures for 1963 for first six months only and projected for the whole year. Adopted from United Nations, Economic Development in the Middle East 1961-1963. A Supplement to World Economic Survey, 1963 prepared by the Department of Economic and Social Affairs (New York, United Nations, 1964).

Source: Paul J. Klat, "The National Income of Lebanon," Middle East Express, v.5, April 2, 1962 (Beirut: Economic Press Corporation, S.A.L.).

In any commercial discussion of this country, one repeatedly hears of the narrowness of the market. With special regard to the locally produced goods, we would do well to note that the major shortcomings have to do with the quality of the product, the choice of distribution channels, the lack of adequate financing, as well as other factors ranging from poor advertising and other types of sales promotion, to the pricing policies established and adhered to. These factors have in many varied cases proved to be of more importance than the narrowness of the market itself, as is illustrated by the considerable volume of competitive goods which still flow into the country even inspite of existing tariff protection.[3] As a result of these and similar limitations, one may well state that improved product quality, modern marketing techniques and efficient and effective financing, in general, will expand the actual and potential markets for merchandise of Lebanese manufacture, both domestically and internationally.[4]

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[3]The "fact" that the local market is relatively narrow, both in terms of population and purchasing power, does not adequately explain the comparative failure of locally produced goods. It does not explain the large and for the most part successful inflow of merchandise originating mainly in Europe, the United States and Japan. Mills, op. cit., p. 135.

[4]Pointed out by Elias S. Saba in his article "The Country of Free Trade and No Exchange Restrictions," Economic Section, Lebanon 1959 (Beirut, Dar Al Hayat), 1960, p. 25, et passim.

It has been pointed out that Lebanon remains a country in which agriculture follows only trade or commerce in importance and, accordingly, plays a distinguished role in the economy.[5] In fact, agriculture is "the second largest sector of the Lebanese economy generating about twenty percent of the national income."[6] In spite of this, Lebanon continues to import a great deal of its requirements in the way of animals and related products. The volume of such imports is substantial and results mainly from the relatively rugged terrain, limited acreage and semi-aridity of the country which has considerably retarded the evolution of local animal husbandry.[7]

Even the most cursory examination of Lebanon's national income reveals that income from services far outweighs income generated in the commodity-producing sectors. Thus, incomes arising from such areas as trade, finance, communications and summer resorts, are greater than incomes arising from agriculture, industry, mining and construction. Only a small part of the country's national income arises from agriculture much as is the

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[5]Mohammed Diab, "Foreign Trade of Lebanon, 1951-1960," Middle East Economic Papers 1962, Economic Research Institute (Beirut: American University of Beirut. Published by Dar Al Kitab, 1963).

[6]Klat, loc. cit.

[7]Diab, loc. cit.

case in industrial economies. Too small a part of the national income arises from the industrial sector, thus making it difficult for Lebanon to be classified as an industrial country. Nor is Lebanese agriculture as income-producing as in those countries where agriculture is industrialized (such as in Denmark, Finland or Italy). Lebanese agriculture is much less income-producing, relatively speaking, than in predominantly agricultural countries (such as Pakistan, Turkey, Paraguay or Peru).[8]

Our study of a modern, local dairy organization occurs under these circumstances, with the Lebanese Dairy Company presently engaged in fierce competition with other industrialists and merchants in the field, the results of which readily appear to be mostly to the definite advantage of the consuming public. Product range has been expanded; quality improved. Packaging has been enhanced and prices reduced, with mark-ups held to the minimum.[9] This, then, is the situation facing an ever-awakening public whose representatives view with dissatisfaction the uneven distribution of income among

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[8]Quoted almost verbatim from Yusif A. Sayigh, "Lebanon: Special Economic Problems Arising from a Special Structure," Middle East Economic Papers 1957, Economic Research Institute, American University of Beirut (Beirut: Dar Al-Kitab, 1959), pp. 60-71, et passim.

[9]The many other progressive facets of this industry with special reference to the company under study are too numerous to be listed individually at this place, and will be dealt with in the appropriate sections of this paper.

the various sectors of the economy and realize that the case for industrialization is indeed becoming increasingly attractive with tremendous benefits to the nation. Keeping in mind the powerful and usually well established position of the importer-merchant in the local economy, even the most superficial analysis of the Lebanese dairy situation reveals a struggle taking place among the local producers, themselves, as well as between the national manufacturers and the foreign articles, imported and encouraged by the particular agent for that commodity in the Lebanon. This struggle, therefore, is multi-faceted centering around two nuclei, so to speak. On the one hand, we have, as already noted, competition among the various Lebanese dairy producers. On the other hand, we have competition among the different importing merchants. Accordingly, we have two spheres of activities with a strong nebulous interaction occurring between them.

The consuming public may well find itself being offered competing products of local manufacturers and also various imported brands. Each of the parties involved is competing with the other to prove to the consumer the respective superiority of his product. The Lebanese Dairy Company is obliged, therefore, to convince its clients of the supremacy of its product range over not only the other locally-manufactured dairy products, but also over the imported, foreign dry milk which is consistent in quality, sanitary and a comparatively inexpensive milk to prepare.

With these general characteristics serving as a background, we may now proceed to the body of this thesis and the more detailed study of the various aspects of the Lebanese Dairy Company and this firm's products, marketed under the brand name BAMBI.[10] While so doing, it should be remembered that the research done for this paper was completed in 1965, and, accordingly, any changes which tock place thereafter have not been taken into consideration.

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[10]The trade mark BAMBI, and the accompanying gazelle drawing result from the desire of the owner of the Company to have a small, swift and delicate antelope symbolize his organization.

CHAPTER II

HISTORY OF THE COMPANY

General Information

The Lebanese Dairy Company, proprietors of the trade mark, BAMBI, was founded in 1955, by two partners, Messrs. B. Bulos and E. Sinnenou. The founders started with an attempt to introduce into the Lebanon a modern dairy plant capable of producing a high quality product, designed for local consumption, comparable to advanced firms of the same type in Western Europe and the United States. Since its establishment, the Company has been located at the Chiah - Harit Hreik region, where it occupies some 2500 square meters of modern factory space.

Since 1955, the Lebanese Dairy Company rents this plant area from the Light Metal Products, S.A.L. at a monthly rate of L.L.500. The two firms belong wholly to Mr. Badie Bulos, who in 1957 bought out his partner in the BAMBI, Mr. E. Sinnenou.[11] In

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[11] BAMBI pays some L.L.6,000 yearly in rental fees to the Light Metal Products, S.A.L. Since its founding in 1955, then, BAMBI has paid over L.L.60,000 in rent.

In the first five years of its operation, the Company underwent no change of top management. Its general manager, Mr. S. Shehadeh, was entrusted with the complete management of the Lebanese Dairy Company.[12]

To assist the firm in its technical operations, a German expert in dairying was engaged in the latter part of 1955. The combined exertions of Mr. Shehadeh and the German expert resulted in the continuous and considerable improvement of the quality of the products being offered the Lebanese market. Product improvement persisted for several years and the BAMBI saw sales volume of its products enhanced. By 1959, however, it became increasingly clear that a replacement for the German dairyist would have to be secured, as a result of pressure then being exerted by the Ministry of Social Affairs to have a suitably trained Lebanese citizen take over from the foreign expert.[13]

Establishment and Expansion

In its first year of operation, the firm was able to accomplish its objectives as to introducing quality products for

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[12]The BAMBI's general manager from 1955 to 1960 was Mr. Samir Shehadeh, an untrained and inexperienced cousin of the firm's owner. Mr. Shehadeh also installed BAMBI's accounting systems and control and inspection techniques.

[13]In late 1959 a Lebanese citizen, Mr. E. Ailey, assumed responsibility for production operations, until 1963. At present, BAMBI's production manager is Mr. Mohammed Sultani.

the consumption of the Lebanese, but did not enjoy immediate success as to making profit. The first year's activities ended in a loss amounting to L.L.45,000.[14] At its establishment, the total capital investment of the Lebanese Dairy Company totalled approximately LL200,000. After the first year's loss, an enthusiastic drive for efficiency and increased market acceptance tempered the situation somewhat so that the next twelve months of activity scored a smaller loss of L.L.30,000. The end of 1957 revealed a deficit resulting from BAMBI's operations for that year equal to L.L.10,000.[15]

The following table shows that it was not until 1958 that BAMBI began to meet at least its out-of-pocket expenditures. In other words, the first forty-eight months of operation resulted in a net loss to the Lebanese Dairy Company of L.L.85,000.[16] To the owner, the situation called for a change in top management. By the end of 1959, arrangements had been made to replace Mr. S. Shehadeh by his brother, Mr. Halim Shehadeh.[17]

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[14]This figure is presented as a layman's estimate and does not include interest on investment and depreciation expenses. This figure is supplied by BAMBI's bookkeeper. See Table 2 for a breakdown of the latter two expense items.

[15]Ibid.

[16]Ibid.

[17]Mr. Halim Shehadeh had been until his appointment to the BAMBI, assistant general manager, International Traders, S.A.L., Beirut, a company fully owned by Mr. B. Bulos.

TABLE 2

LOSSES RESULTING FROM OPERATIONS OF THE LEBANESE DAIRY COMPANY, FROM 1955 TO 1958, INCLUDING DEPRECIATION EXPENSES AND INTEREST ON INVESTMENT FIGURES - L.L.

End of Period	Losses	Depreciation Expense	Interest on Investment	Total Losses
1955	45,000	20,000	20,000	85,000
1956	30,000	18,000	20,000	68,000
1957	10,000	16,000	20,000	46,000
1958	none	14,000	20,000	34,000
Totals	(85,000)	68,000	80,000	(233,000)

Source: Figures are those of BAMBI, supplied by Mr. H. Shehadeh, general manager, Lebanese Dairy Company, during a series of interviews, July and August, 1965, Chiah, Lebanon.

Starting 1959, and for each year thereafter, the profit picture for the BAMBI improved considerably. The following table shows that no losses took place and the Company's activities were slightly profitable.

No doubt BAMBI marked a considerable improvement in the market, and its position was rapidly becoming more attractive.[18]

[18]Financed in part by the re-investment of most of the firm's profits up to that time. In fact, in order to help meet the necessary expansion requirements and other capital expenditures required to maintain BAMBI's sales momentum and position in the market, working capital was increased by L.L.50,000 in 1960.

TABLE 3

RESULTS FROM OPERATIONS OF THE LEBANESE DAIRY COMPANY FROM 1959 TO 1963 - L.L.

End of Period	"'Net' Income"[a]	Depreciation Expense	Interest on Investment	"'Net' Profit"[f]	"'Net' Profit" % of Capital
1959[b]	35,000	12,000	20,000	3,000	1.5%
1960[c]	50,000	10,000	25,000	15,000	6.0
1961[d]	55,000	10,000	25,000	20,000	8.0
1962[e]	58,000	8,000	30,000	20,000	6.7
1963	64,000	10,000	30,000	24,000	8.0
Totals	262,000	50,000	130,000	82,000	

[a]Both terms and figures so described by BAMBI bookkeeper, Mr. M. Faddoul, as being inclusive of all expenses except depreciation and interest on investment figures.

[b]Inconsistencies in trends during 1958 and 1959 result directly from effects of internal disturbances of 1958.

[c]Increase of interest on investment from L.L.20,000 to L.L.25,000 due to capital increase.

[d]Increase of depreciation expense figures result from the acquisition of additional production machinery and equipment by the BAMBI.

[e]Increase of interest on investment from L.L.25,000 to L.L.30,000 due to capital increase.

[f]Both terms and figures described by BAMBI bookkeeper.

Source: Interviews with Mr. M. Faddoul, Mr. S. Ghosn, sales manager, and Mr. H. Shehadeh, general manager, BAMBI, May, 1965, Chiah, Lebanon.

An accurate indication of BAMBI's increased activity were the firm's yearly production statistics which reveal an increase in the total amount of raw milk used in production from 1955 to the end of 1964, of over 400 percent.[19]

The following table gives a general yearly breakdown of the production figures at the Lebanese Dairy Company and, of course, to some extent indicates the volume of sales. The figures listed are kilograms of raw milk required to produce the desired quantities of milk, laban, lebney and cream for whipping purposes.

TABLE 4

PRODUCTION FIGURES, LEBANESE DAIRY COMPANY, 1955 - 1959

Kgs. of raw milk needed daily for the production of:

Year	(milk + laban + lebney)	(cream)	Total
1955	600	600	1200
1956	800	600	1400
1957	900	600	1500
1958[a]	650	400	1050
1959	1350	600	1950

[a]Reduced production resulted directly from internal, civil disturbances, Lebanon, 1958.

Source: Mr. Halim Shehadeh, general manager, Lebanese Dairy Company, during interviews in May, 1965, Chiah, Lebanon

[19]Raw milk figures are those used in production and are termed "raw milk" as opposed to pasteurized and/or homogenized milk, by BAMBI personnel.

By 1960, with the installation of a new general manager coupled with a forceful sales drive headed by the newly employed sales manager, Mr. Salah Ghosn, the situation improved substantially. Production figures increased, improvements took place both in the quality as well as the presentation of BAMBI's dairy products, consumer education programs were initiated and product comparisons by clients encouraged. An example of this novel momentum and activity was the BAMBI's chocolate milk market position. Since 1955, the BAMBI had produced chocolate milk at a daily rate of not more than twenty kilograms. One month's efforts on the part of the sales department in 1960, increased this figure to 50 kilograms daily, for a sales expansion of some 150 percent. By 1960, the output of the Company assumed new proportions. This is shown in Table 5.

It would be of interest to note that the raw milk figures listed in Tables 4 and 5 may be translated into the appropriate and desired quantities of the various BAMBI dairy products, by the following formula:

103.5 kilograms of raw milk = (a) 100 kilograms of processed milk, or
= (b) 100 kilograms of laban, or
= (c) 30 kilograms of lebney, or
= (d) 7 kilograms of cream
+93 kilograms of skim milk.

By 1960, with the installation of a new general manager coupled with a forceful sales drive headed by the newly employed sales manager, Mr. Salah Ghosn, the situation improved substantially. Production figures increased, improvements took place both in the quality as well as the presentation of BAMBI's dairy products, consumer education programs were initiated and product comparisons by clients encouraged. An example of this novel momentum and activity was the BAMBI's chocolate milk market position. Since 1955, the BAMBI had produced chocolate milk at a daily rate of not more than twenty kilograms. One month's efforts on the part of the sales department in 1960, increased this figure to 50 kilograms daily, for a sales expansion of some 150 percent. By 1960, the output of the Company assumed new proportions. This is shown in Table 5.

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= (d) 7 kilograms of cream
+93 kilograms of skim milk.

TABLE 5

PRODUCTION FIGURES, LEBANESE DAIRY COMPANY, FROM 1960 UP TO JUNE, 1965, RAW MILK

	Kilograms of raw milk needed daily for the production of:					
Year	milk	laban	lebney	cream	chocolate milk	Total
1960	1600	300	100	600	50	2650
1961	1750	550	200	1000	80	3580
1962	1850	650	250	1100	90	3940
1963	2800	700	300	1500	100	5400
1964	2800	700	300	1000	100	4900[a]
1965[b]	2500	600	200	950	80	4330[c]

[a]Slight decrease in production figures due to entry of Tip-Top Dairy Company into the market, beginning 1964, and which almost completely collapsed several months later.

[b]First six months only.

[c]Readily apparent downwards trend in sales (and, therefore, production) due to entry of Lebanese Foremost Dairies Corporation, S.A.L., into the market during beginning 1965.

Source: Mr. H. Shehadeh, general manager, and Mr. S. Ghosn, sales manager, both of whom supplied data from which above table originated, during interviews at plant site, August and September, 1965.

Chocolate milk is, of course, nothing more than processed milk to which has been added a combination of cocoa powder, a stabilizing agent, and in some cases artificial coloring. Thus, for our purpose here, it suffices to say that 103.5 kilograms of raw milk produce 100 kilograms of processed milk, which is the same as chocolate milk; the amount of processed milk which is displaced by the cocoa mixture being too minor to take into consideration.

Of more interest is the fact that only some 7 percent of 100 kilograms of processed milk result in cream. The remaining 93 percent, or 93 kilograms of skim milk may indeed create an unbearable strain on the cost of cream and, accordingly, price this product out of the reach of the average consumer. To avoid this possibility, BAMBI sells this skim milk to dealers engaged in the manufacture of cheese, laban drinks, and the like, for 25 Lebanese piasters per kilogram, a price which is substantially below the cost of the kilo of raw milk, as we shall see later on. Much of BAMBI's skim milk sales go to peddlers who sell milk from door-to-door off the backs of donkeys or from small station wagons. This skimmed milk is mixed with regular milk and sold to those housewives who are under the strong and fixed impression that they are buying untampered milk from small dealers whose sources of supply are "honest" cows, few in number, located on a nearby farm. It is the housewife who usually supplies the receptacle for the milk and severely boils the mixture before consumption, thereby greatly reducing the

benefits resulting from the intake of milk and its allied products, and also reducing the amount of consumption of these products due to the decidedly offensive flavors which result from boiling or cooking milk.

The capital investment of the Lebanese Dairy Company has been increased since 1955 from L.L.200,000 to L.L.250,000 in 1960. In 1962, this amount was enhanced by L.L.50,000 to L.L.300,000, and in 1965 to L.L.350,000. However, the number of employees has not changed except for the hiring of Mr. S. Ghosn as sales manager in 1960. As at June, 1965, the personnel situation of the Lebanese Dairy Company was divided into three main departments, administration, production and distribution, and totalled twenty-one persons.

The distribution activities of the BAMBI are supplied from refrigerated storage centers at the plant site and at the firm's Hamra Street branch outlet. Distribution centers are located in four sales zones, stretching from the Pigeon Rocks to Furn El-Chebak. Five Volkswagon trucks are used for the purpose of transporting products among these centers, the Hamra Street outlet and the factory.[20]

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[20]Other than the four zones described above, BAMBI also caters to two special areas in the mountains which include the more popular summer resorts such as those to be found in the Aley and Bhamdoun vicinity, as well as those in the Broumana - Ba'abdat vicinity. Of the five BAMBI trucks, one is always kept in reserve at the factory, with a driver, to meet with any unexpected demand for the company's products. Further, this spare truck is often called upon to substitute for any vans in need of repairs and for any drivers sick or on vacation.

The products of the Lebanese Dairy Company come in a variety of sizes and packages as the following table indicates.

TABLE 6

SIZES AND PRESENTATION OF BAMBI PRODUCTS, FROM 1955 TO JUNE, 1963, SIZES IN LITERS

Item	1/4	1/2	1	Container
Milk	yes	yes	yes	all glass bottles
Cream	yes	yes	yes	all glass bottles
Laban	no	yes	yes	all pottery crocks
Lebney	despatched from the factory in bulk form and in cans of 15 kilograms and sold to the customer, as requested, and placed in customer's receptacle.			

Source: Interview with Messrs. Sultani and Ghosn, production and sales managers, respectively, Lebanese Dairy Company, August, 1965, Chiah.

Since 1955, chocolate milk has been sold in glass bottles of 1/4-liter size, only. Frequently, special orders were filled for chocolate milk in the one-liter size. Nevertheless, the Company has refused to make the one-liter size an integral part of its presentation for chocolate milk. By June, 1963, BAMBI had prepared itself for a marked shift in consumer demand from glass containers to carton.[21]

[21] BAMBI has the distinction of being the first dairy concern to introduce milk and its allied products, manufactured locally, to the Lebanese market in carton.

Accordingly, in mid-1963, BAMBI commenced to send its dairy products to market in both glass and carton whenever possible. The firm's sales manager has supplied the following statistics which reveal the growing acceptance of carton containers by the Lebanese consumer, for the period commencing June, 1963, and ending June, 1965.

Tables 7 and 8 on the following pages list the sizes and presentations of the various products of the Lebanese Dairy Company.

TABLE 7

SIZES AND PRESENTATIONS OF BAMBI PRODUCTS IN BOTH GLASS AND CARTON CONTAINERS, FOR THE PERIOD FROM JUNE, 1963 TO JUNE, 1965

		- sizes in liters -			
Year	Item	1/4	1/2	1	Other
1963	milk	glass & carton	glass & carton	glass & carton	-
	cream	carton	carton	glass	-
	laban	glass & carton	carton	-	1 liter crocks
	lebney	-	carton	-	In bulk
1964	milk	glass & carton	glass & carton	glass & carton	-
	cream	carton	carton[a]	glass[a]	-
	laban	glass & carton	carton	-	1/2 and 1 liter crocks
	lebney	-	carton	-	In bulk
	choc. milk	glass & carton	-	-	-
1965	. . . . . same as for 1964				

[a]No longer offered by the Lebanese Dairy Company; discontinued since December 31, 1964.

Source: Interviews with Messrs. Ghosn and Yennie, of sales and stores, respectively, at the plant site, during August, 1965, Chiah.

It is of interest to note the various percentages of BAMBI's total sales which are consumed in either glass or carton, as is illustrated by the following table.

TABLE 8

PERCENTAGE OF TOTAL BAMBI SALES IN GLASS AND CARTON CONTAINERS FROM JUNE 1963 TO JUNE 1965

		- Container -		
Year	Item	Glass	Carton	Other
1963	milk	50 %	50 %	-
	cream	1	99	-
	laban	30	40	30 % crocks
	lebney	-	28	72 bulk
1964	milk	24	76	-
	cream	1	99	-
	laban	1/2	75 1/2	24 crocks
	lebney	-	35	65 bulk
	choc. milk	50	50	-
1965	. . . . . same as for 1964			

Source: Interviews with Messrs. Ghosn and Yennie, of sales and stores, respectively, at plant site, during August, 1965, Chiah.

In the preceding pages, then, the general background of the Lebanese Dairy Company has been presented in some detail. Before proceeding with the treatment of the existent situation at the BAMBI, it should be pointed out that in reply to an enquiry, Mr. Shehadeh, General Manager, expressed his concern at the competition posed by the Lebanese Foremost Dairies Corporation and the effect this may have on the Lebanese Dairy Company. There can be no doubt that the new firm poses a very serious threat to the BAMBI's business situation, as it is indeed a modern and efficient plant which is privileged to draw on the mother Company, Foremost Dairies Corporation of the United States, one of the largest and most experienced organizations of its type in the world. The placing of such a reserve of financial strength as well as technical know-how, at the disposal of the Lebanon branch has resulted in an achieved efficiency in both the production as well as the marketing processes of Foremost (Lebanon). This firm's penetration and market coverage far outclass that of BAMBI's. A great percentage of small villages and other areas previously ignored by the Lebanese Dairy Company are now constantly catered to by Foremost. Furthermore, the Foremost organization has elbowed its way into what was previously BAMBI's incontestable domain. Accordingly, not only has the Lebanese Dairy Company's general sales decreased considerably, but also BAMBI has lost such institutional clients as the American University of Beirut, Beirut College for Women, the Phoenicia Hotel, American and other

foreign ships docking at Beirut port, and Spinney's of Gaza which supplies the United Nations' Emergency Forces (U.N.E.F.) in Egypt with dairy products. There can be no real doubt that a fierceful struggle is envisioned in the near future between these two most active concerns in this field. The final outcome remains to be seen but there is no question that very considerable advantages rest with the foreign company (Foremost), as, for example, superior financial resources, world-wide experience and a vast store of technical ability coupled with the most advanced equipment and processes available in the industry. The future of the BAMBI is not rosy nor too secure by any means. Perhaps the brightest aspect of this commercial clash is the fact that the Lebanese Dairy Company is not serenely unconcerned, but rather quite aware of the gravity of the problem. BAMBI's intention is not only to meet its real competition headon, so to speak, but also at the same time to exert every effort to expand the potential and as yet untapped local dairy market.

Pricing Considerations

It becomes necessary at this point to view rather briefly the pricing and profit situations which are existent at the Lebanese Dairy Company. A mere glance suffices to reveal that the high costs of raw materials, and especially raw milk, considerable handling expenses, marketing costs and manufacturing charges, as well as necessarily competitive retail prices have reduced the profitability of BAMBI's dairying operations to the bare minimum acceptable locally, as being

fair return on investment.

The major contributing factor insofar as the Company's manufacturing costs are concerned is the price of raw milk. BAMBI records reveal that one kilogram of raw milk costs the Lebanese Dairy Company forty piasters, delivered to their factory site at Chiah. This firm, by the way, indulges in no activity having to do with the raising and keeping of dairy herds. BAMBI concentrates its purchases from suppliers under contract. These dairy farms are centered around Anjar (Beka'a Valley) and Sour (Tyre), and have benefitted from the technical advice and experience offered by such organizations as the appropriate agencies of the United Nations and the Point Four program (now defunct) of the United States Overseas Mission (U.S.O.M.).

From the production formula previously stated, we know that it takes somewhat more than one kilogram of raw milk to net one kilogram of processed milk, i.e., for each kilogram of "ready" milk, 1.03 1/2 kilograms of "raw" milk are needed. At a per-kilogram rate of 40 Lebanese piasters, BAMBI incurs a raw material cost of 41.4 Lebanese piasters for each kilogram of processed milk made available for sale. The Lebanese Dairy Company sells its pasteurized and homogenized milk and other allied products, to local retailers according to the following schedule:

TABLE 9

SELLING PRICES, LEBANESE DAIRY COMPANY, JUNE 1965

Item			Selling Price to retailer in Lp
Milk	1/4 liter	glass	20
		carton	20
	1/2 "	glass	35
		carton	35
	1 "	glass	60
		carton	70
Laban[a]	1/4 "	glass	17 1/2
		carton	20
	1/2 "	carton	35
		pottery	25
	1 "	pottery	50
Lebney	1/2 kilo	carton	90
	1 "	bulk	150
Cream[b]	1/4 "	carton	100
	1 "	carton	350 to 400
Choc. milk	1/4 liter	glass	20
		carton	20

[a]BAMBI also sells laban in bulk form, i.e., the customer provides the receptacle, for Lp 50 per kilogram.

[b]BAMBI cream in 1 liter cartons is sold from Lp 350 to Lp 400, as determined by several factors as, for example, customer involved, threat of competition, amount purchased, etc.

Source: Statistics made available to the writer by Mr. S. Ghosn, sales manager, BAMBI, during interviews, December, 1965, at Chiah, Lebanon.

It becomes of some importance to glance at the gross margin resulting from the deduction of the cost of milk from BAMBI's selling prices, in order to realize just how large this margin is. A brief costing schedule is presented in Table 10, describing the BAMBI's profit and cost structures, with special regard to raw milk.

A glance at the resulting gross margins allows the reader to realize that in terms of percentages, the cost of the raw milk ingredient constitutes not less than 55 percent of the BAMBI selling prices to retailers; and in some cases, the cost of the raw milk reaches more than 80 percent of the selling price of the dairy product involved. Further treatment of the costing situation at the Lebanese Dairy Company will undoubtedly reveal that the margin available to the manufacturer does not allow too much flexibility in price manipulation. The number of competitors, the degree of competition and the price consciousness of the consumer have delayed any possible price increases by the management of the Company. In fact, the listing in Table 11 emphasizes what is perhaps the most important factor in BAMBI's refusal to increase prices, especially to the retailer: the very close similarity of pricing practices of competing dairyists in the Lebanon.

TABLE 10

GROSS MARGINS, LEBANESE DAIRY COMPANY, 1965, RESULTING FROM DEDUCTING COST OF MILK FROM BAMBI'S SELLING PRICES (IN Lp.)

Item	Kg. or Liter Size		Selling Price to Retailer	Cost of Raw Milk used, @ Lp. 40/kg.	Gross Margins
Milk	1/4	glass) carton)	20	10.35	9.65
	1/2	glass) carton)	35	20.70	14.30
	1	glass	60	41.40	18.60
		carton	70	41.40	28.60
Laban	1/4	glass	17 1/2	10.35	7.15
		carton	20	10.35	9.65
	1/2	carton	35	20.70	14.30
		pottery	25	20.70	4.30
	1	pottery	50	41.4	8.60
Lebney	1/2	carton	90	62.10	27.90
	1	-bulk-	150	124.20	25.80
Cream	1/4	carton	100	155.25	(55.25)[a]
	1	carton	350 to 400	588.19	(239.19)[b] (189.19)[b]
Choc. milk	1/4	glass) carton)	20	10.35	9.65

[a]Not taking into consideration the amount of Lp 81.15, being the selling price of the resulting 3.25 liters of skim milk, at Lp 25 per kilogram or liter.

[b]Not taking into consideration the amount of Lp332, being the selling price of the resulting 13.28 liters of skim milk at Lp 25 per kilogram or liter.

Source: Mr. S. Ghosn, sales manager, Lebanese Dairy Company, during interviews December, 1965, Chiah, Lebanon.

TABLE 11

WHOLESALE DAIRY PRICES, THREE FIRMS, LEBANON, 1965

Item			FOREMOST (All Carton)	DUMIT (Glass & Carton)	KAROUN (All Glass)
Milk	1/4	Lp	20	20	20
	1/2		35	35	35
	1		70	60	60
Cream	1/4		100	100	100
	1		350 to 400	350 to 400	325
Laban	1/4		20	17 1/2	10[a]
	1/2		35	-	-
	1/2	crock	-	-	20
	1		70	-	-
	1	crock	-	-	40
Lebney	1/2		100	90	90
	-bulk-		-	175	140
Choc. milk	1/4		25	-	-

[a]Laban drink.

Source: Results of personal research carried out in three grocery shops, Ras Beirut; 2 shops, Beirut proper; 2 shops Pigeon Rocks area; and 4 shops Beirut suburbs, August, 1965.

Even a superficial study of the foregoing table reveals the price duplication being carried on by the various competing dairy firms in the Lebanon. While it is not uncommon in any field in any given market to find a strong similarity in price structure, usually some substantial differences exist. Further, given a market situation where competitors cannot compete on a price basis, ordinarily it is the quality and distribution of the various products which become the ultimate convincing factors insofar as the consumer is concerned. It is often of tremendous assistance to the public to have the goods being offered for sale, graded or standardized to facilitate selection. Accordingly, when prices are the same, then one would select the better grade product. Given a situation where prices are similar and product quality indistinguishable, then perhaps, service or another contributing factor would constitute the difference. In the Lebanon, insofar as the dairy industry is concerned, prices are in almost every instance exactly the same. Product quality differentiation, as determined by grades or standards, does not in fact exist. The consumer of dairy products, then, is obliged to rely on general impressions and appearances of competing firms' products, experience, rumor, advice and suggestion.

A person interested in securing local produced dairy products will be faced with the following selection of brand names:

1. Foremost 2. Bambi 3. Dumit 4. Karoun 5. Dairy House 6. High Life 7. Tip Top.

The wholesale selling prices of the last three firms are listed in the following table.

TABLE 12

THREE COMPETITIVE BRANDS, WHOLESALE DAIRY PRICES, LEBANON, 1965

Item	Sizes in Liters	Dairy House	High Life	Tip Top
Milk				
	1/4	none	none	Lp 20 carton
	1/2	"	"	30 "
	1	"	"	60 "
Laban				
	1/4	none	17 1/2 (plastic)	20 "
	1/2	17 1/2 (crock)	17 1/2 (crock)	30 "
		20 (carton)	20 (carton)	
	1 (crock)	35	35	none
Lebney				
	1/2 (bulk)	none	none	80 carton
	1 "	125 - 140	125 - 140	140 "

Source: Results of personal research carried out in 3 grocery shops, Ras Beirut; 2 shops, Beirut proper; 2 shops, Pigeon Rocks area; and 4 shops, Beirut suburbs, August, 1965.

Impact on the Industry

This, then, is the general background of the Lebanese Dairy Company. A firm with a comparatively solid history in the Lebanese dairy industry, progressing conservatively, yet insistently towards the betterment of the BAMBI situation. "The BAMBI has no gimmicks, no fancy slogans, no eye-catching packaging. We just sell good products, clean products, made from wholesome milk. We do our job slowly and conscientiously. Our success has been the result of a great deal of plodding and hard work. Our success has evolved with and from experience. For us there has been no short-cuts, no easy remedies, for these we violently avoided, greatly fearing the consequences."[22]

Since its establishment in 1955, the Lebanese Dairy Company prides itself by the fact that it has been the major cause of improvements in the dairy industry. It has actively co-operated with universities, programs and organizations to improve its products. It has invited students, public health officials and other interested bodies to its premises frequently, and has effectively and promptly acted on all constructive and practical criticisms and suggestions.

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[22]Statement made by Mr. Halim Shehadeh, General Manager, Lebanese Dairy Company, August, 1965, and translated from Arabic into English by the writer.

Just what has the BAMBI accomplished, was the query put forward to Mr. Halim Shehadeh, General Manager. "This Company has greatly encouraged the raising and upgrading of modern dairy herds, by posing as one of the chief purchasers of high quality raw milk as far back as 1955. We have co-operated with Point IV and United Nations personnel in listing our milk requirements and contracting for hundreds, and eventually thousands of kilograms of raw milk daily, thereby assuring tentative dairyists of a guaranteed market for their milk. Further, we have struggled mightily to increase the acceptance by the Lebanese of commercially prepared milk, laban and lebney. In some cases the demand for these products was considerably increased, and in other cases, had to be created. For example, we had to convince housewives of the reliability of BAMBI laban, say, and its superiority over the home-produced article. Here we had an existent demand for laban, but had to almost forcibly shift the consumption pattern. In other circumstances, our sales force introduced, and successfully so, a new product, chocolate milk, to a market whose consumers could hardly be considered milk drinkers. By so doing, we not only created a market for chocolate milk, but also increased the number of regular milk consumers.

"I dare say that this firm is the only one which has thoughtfully co-operated with the senior students and staff of the School of Public Health of the American University of Beirut, inviting them for

several weeks at a time, each year for many years. By allowing them to train at our plant and by effectively utilizing their suggested improvements, we boosted the quality of our products and, accordingly, benefitted the consuming public."[23]

Since its establishment in 1955, the Lebanese Dairy Company has faced and overcome many obstacles which, conceivably, would have fazed a less determined firm. In support of this perseverance is the fact that in the last eleven years of operations, the BAMBI has witnessed the decline of many competitive organizations, among them, the El-Hoss Dairy Company (1959), the Super Milk Company (1960) and the Tip Top Dairy Company (1964). "We like to feel as though we're here to stay, and while other companies come and go, the BAMBI remains to offer the Lebanese consumer the best all-around dairy product available locally, either produced commercially or prepared at home with imported milk powders."[24]

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[23] Ibid.

[24] Ibid.

CHAPTER III

PRESENT SITUATION

Labor and Raw Materials

The average working day at the Lebanese Dairy Company can hardly be termed typical of what is usually the case in the country in general. In the first place, each of BAMBI's three main departments reports to work at separate times of the day. Production starts at 4:30 a.m. and in fact the department's manager, Mr. Mohammed Sultani, usually commences somewhat earlier, especially to receive the new day's supplies of raw milk from the various outlying farmers, who prefer this early shipping to avoid damaging raw milk as a result of heat, excessive shaking, dust and dirt.[25] By 6:00 a.m. production is ready to hand over to distribution the initial output for that day,

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[25]Milk often shows the amphoteric reaction; that is, it will give the acid reaction with blue litmus paper and the alkaline reaction with red litmus paper. Almost immediately after it is drawn, milk begins to undergo a change, and within a short time will show a distinct acidic reaction. The degree of acidity increases with the age of the milk. Soon changes begin in the milk constituents and in a comparatively short time, the decomposition is so great that the milk can no longer be used for food. These changes are not due to any instability of the organic compounds in the milk, but to the effects of the various germs that gain access to the milk after it is secreted. P. R. Elliker, Practical Dairy Bacteriology (McGraw-Hill Book Co., Inc., New York, 1949), p. 191.

consisting solely of milk, laban and lebney.[26] Usually, by 6:05 a.m., all of BAMBI's trucks are racing to deliver their merchandise to the various parts of the city. This early delivery is not only desirable but an essential part of BAMBI's distribution technique. In many cases, BAMBI merchandise is found by the retailer on the doorstep of his yet-to-be-opened establishment.

It is not until 8:00 a.m. that the members of the administration report for work. The following, then, is the staggered schedule of working hours of the Lebanese Dairy Company, 1965:

Administration	from	8:00 a.m.	to	5:00 p.m.[27]
Production		4:30		12:30
Distribution		6:00		2:00

Table 13 reveals the various salaries and wages paid to BAMBI personnel by the Company. By so isolating this particular expense, the intention is to compare average total wages and salaries on the one hand, with total production, on the other hand

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[26]Usually, the production of cream and chocolate milk does not take place till around 9:00 a.m., after the bulk of the fastest moving items of BAMBI's product range has been placed in the market.

[27]A one hour luncheon period is allowed, from 1:00 p.m. to 2:00 p.m. Usually, however, work continues right through this lunch break, and BAMBI employees (administration) terminate their working day at around 1:30 p.m.

TABLE 13

SALARIES AND WAGES, LEBANESE DAIRY COMPANY, JANUARY 1965

Name	Position	Monthly Total
Halim Shehadeh[1]	General Manager	1,150
Salah Ghosn[1]	Sales Manager[2]	585
Mounir Faddoul[1]	Accountant	375
Mohammed Sultani[3]	Production Manager	500
Naim Yennie[3]	Store Keeper	315
Anis Bahhous[4]	Dist. Center Manager[5]	385
Six laborers	Production[6]	915
Five driver-salesmen	Distribution[7]	1,825
Total	L.L.	6,050

[1]Administration.

[2]Salary of L.L.585 includes car allowance of L.L.150 monthly.

[3]Production.

[4]Distribution.

[5]Salary of L.L.385 includes average monthly commission of L.L.110.

[6]At L.L.5 per day each laborer or about L.L.152 per month for an average total of L.L.915 per month for the six laborers.

[7]Average fixed salary per driver of L.L.225, monthly, plus total average commission on sales of L.L.700 per month, i.e. L.L.225 x 5 drivers = L.L.1125 plus L.L.700, monthly commission = L.L.1,825.

Source: Mr. Salah Ghosn, Sales Manager, Lebanese Dairy Company, during interviews July, 1965.

for the year 1965, to determine just what percentage of total costs is composed of salaries and wages.

We should remember that the BAMBI has three persons in administration,[28] with six laborers in production and five driver-salesmen in the distribution. All salaries are paid on a monthly basis. Laborers are hired on a per-diem plan which often conflicts with the minimum wage law recently legislated by the Lebanese authorities, of L.L.125 a month. The driver-salesmen are allowed a commission of two percent on net sales. Mr. Anis Bahhous, Manager of the distribution center on Rue Hamra is also allowed a commission, although somewhat smaller, on all net sales emanating from his Hamra Street location. Mr. Salah Ghosn is granted an allowance of L.L.150 per month for his car expenses incurred during his travels on behalf of BAMBI throughout Beirut and other parts of Lebanon in his own vehicle.

The Lebanese Dairy Company, then incurs a total average monthly salary and wage expense of some L.L.6050, and, perhaps, these statistics justify Mr. Halim Shehadeh's statement, that since its establishment, the BAMBI has paid over one million Lebanese pounds

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[28] One of whom, Mr. S. Ghosn, is also included in sales/distribution.

to Lebanese citizens.[29] The production figures available for the first six months of 1965, reveal that the BAMBI is consuming an average 4330 kilograms of raw milk in its daily processing activities. Based on a thirty-day working month, the Company's monthly raw milk needs amount to some 129,900 kilograms. A comparison of the total average monthly salaries and wages with the firm's monthly raw milk requirements results in a salary and wage expense per kilogram of raw milk of 4.65 Lebanese piaster. The following table illustrates the various forms this expense will take when applied to the other products in the BAMBI range.

Before proceeding to work out these cost figures and their relationship with the various dairy products offered by the Lebanese Dairy Company, we should remember the formula by which raw milk weights are translated into respective quantities of dairy goods:

103.5 kgs. of raw milk =	100 kgs. of processed milk, or,	
	100 kgs. of laban, or,	
	100 kgs. of chocolate milk, or,	
	30 kgs. of lebney, or,	
	7 kgs. of cream	
	+ 93 kgs. of skim milk.	

[29]Based on the calculations of Table 13, the figure of L.L. 1,000,000 would seem to be somewhat of an exaggeration; it is probably closer to L.L.800,000. In either case, this fact has been a strong point in BAMBI's favor especially in arguments with governmental authorities to take steps to protect and encourage the local dairy industry. There can be no doubt that BAMBI's repeated requests to have the customs duty on imported milk powders raised, clashed with the interests of the importing merchants who, in all probability, blocked any such move or sign of sympathy on the part of the government.

TABLE 14

SALARY AND WAGE EXPENSES STATED PER KILOGRAM OF DAIRY PRODUCTS, LEBANESE DAIRY COMPANY, 1965

Raw Milk[a]	Processed[b] Milk	Laban[b]	Lebney[c]	Cream[d]	Chocolate Milk[b]
Lp 4.65	4.81	4.81	15.87	71.42	4.81

[a]On the basis of 103.5 kgs.

[b]On the basis of 100 kgs.

[c]On the basis of 30 kgs.

[d]On the basis of 7 kgs., and not including the income resulting from the sale of 93 kgs. of skim milk which would nearly offset the figure of Lp 71.42.

Source: Table compiled by the writer from statistics and other data made available to him through Mr. H. Shehadeh, General Manager, Lebanese Dairy Company, November, 1965, Chiah.

In the hiring of its personnel, the BAMBI relies on no pre-planned policies or selective techniques. Unskilled or semi-skilled labor is employed either from the surrounding neighborhood, or else by simply letting the Company's employees know that the firm is in need of a person to fill a certain position. In actual practice, it is the department head that normally secures the desired employee, and it is not uncommon for the General Manager to tell his sales

chief to hire another driver, for example. It is interesting to note that it is only the unskilled laborers whose turnover at the BAMBI is high. Without exception, at the time of this writing, each and every BAMBI employee, from Halim Shehadeh down to the smallest driver-salesman, has been with the Company for at least five years time.

It is perhaps typical of a firm of this size in the Lebanon that the relations between the various levels of management can hardly be labelled formal. An outsider who spends a little time at the BAMBI plant quickly notices the laxity and informality which exist among the various departments and also among the members of these sections. This is not to say, however, that confusion and ineptitude are apparent in the activities of the Company. Rather, one could state that the length of service of the employees with the Company has more than familiarized each person with his duties and functions and has created a bond of trust and confidence among the various employees.

As no expansion of any size is foreseen by the Company's management, no major personnel requirements need be considered. Insofar as possible replacement of present Company employees is concerned, the management of the Lebanese Dairy Company has been taking no precaution, and feels, perhaps rightly, that a gap caused by sickness or absence can be filled temporarily by other members of

the team, until the person in question returns or is replaced.

Another major contributor to the total cost per kilogram of dairy products, is, of course, as we have seen, the raw materials, especially milk, which go into the processing of the article. Insofar as milk as a raw material is concerned, BAMBI's general manager flatly rejects any implications or innuendoes that his Company employs powdered milk in any method or form.

It is interesting to note that for some peculiar reason, the use of powdered milk by any of the established commercial dairyists is considered to be degrading by all parties concerned. It is the writer's contention that this particular attitude should not be accepted for granted, as a good deal can be said in defense of the imported dry milks, especially as a basic ingredient of the various dairy goods being processed by any dairy company. In support of this statement, the following facts are submitted:

1. Local raw milk supplies vary from supplier to supplier and from day to day even where only one supplier is under contract. In other words, raw milk's quality fluctuates widely, especially insofar as fat content is concerned.

2. Raw milk, available from local farms, oscillates with special regard to cleanliness, bacteria content and, therefore, greater storage qualities.

3. The quantity of raw milk offered to manufacturers varies periodically, and this can become a grave problem, especially if the suppliers or farmers are not under a strict and binding contract.

4. Normally, raw milk is delivered daily to the plant in question. Accordingly, the slightest mishap may well result in reduced or postponed production, or indeed no output at all for that particular period. It is also extremely impractical to store a reserve of raw milk as a result of this solution's sensitivity and readiness to ferment.

In other words, raw milk is subjected to a variety of changes and degradations which can greatly influence the ultimate product from which it is made.[30] Dry or powder milk, on the other hand, is consistent, sanitary, healthy and easily stored. What, then, could be the harm or objection to utilizing the superior advantages of dry powder as a source of raw milk? The apparent reply to this question seems to be the public impression that dry milk does not give the same results as fresh, whole milk. The "fact" that fresh milk products far outweigh the dietary benefits of dry milk products is both dubious and debatable. In truth, it seems to be the case that in Lebanon, any benefits which may accrue as a result of the

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[30]The greatest source of adversely influencing bacteria comes from the animal's body (i.e. the cow), as well as from the milking area, barn, milking equipment, and the like. Attention to sanitation is of the utmost importance, for the end product benefits from lower bacteria count; germ and disease-free cows produce greater yields and milk achieves greater storage qualities. It has been proven, for example, that the difference in the number and activity of bacteria in milk carefully drawn, as opposed to carelessly drawn, can lead to a difference in keeping qualities of from 18 to 24 hours. R. M. Washburn, Productive Dairying (The J. B. Lippincott Co., Philadelphia, Pa., 1922), pp. 3-16.

strict adoption of raw milk in the commercial processing of dairy articles, are well outbalanced by the fact that powdered milk remains consistent in fat content, consistent in bacteria count, and, therefore, storage life, and in many cases is more sanitary than the raw milk equivalent.

For these reasons, it seems a matter of some question as to whether the Lebanese Dairy Company or any of the other dairyists or dairy farms in Lebanon, employ powdered milk, at least to make up any deficiencies in their supply of raw milk, or as a hedge against any unforeseen contingencies. It is not our purpose, however, to list here the various and theoretical advantages of the one milk over the other. The BAMBI, we shall say, employs fresh raw milk as the basic ingredient for the bulk of its output.

It serves our purpose at this time to point out once again that the BAMBI secures its raw milk supplies from a variety of farmers located in the Sour (Tyre) and Anjar (Beka'a Valley) areas. The contributing farms are modern, sanitary and their milk outputs are of a satisfactory level of quality. The raw milk is delivered to the BAMBI plant site at the Chiah each morning between 4:00 and 4:30 a.m., by the supplying dairies, and for each kilogram so delivered and accepted, the Lebanese Dairy Company pays forty Lebanese piasters.

Records made available to the writer reveal that since its establishment, the Lebanese Dairy Company has purchased almost eleven million kilograms of raw milk from Lebanese farmers. The prices paid for this milk varied greatly over the years from about sixty piasters a kilo to a low thirty-six piasters. Taking the most recent cost figure of 40 Lebanese piasters per kilogram, BAMBI officials estimate that their Company has paid more than four and one-half million Lebanese pounds to Lebanese farmers for raw milk.

The Lebanese Dairy Company does not transport raw milk. This is the function of the supplying farmers. The Company does provide large size milk cans for the handling and delivery of the fresh milk supplies. In other words, raw milk intended for the BAMBI is placed into special BAMBI cans, sealed by the farmer at the milking site and then transported to the factory by the farmer. These milk cans hold approximately ten U.S. gallons and are opened by the production manager upon their receipt at the plant, inspected and then either accepted and paid for, or rejected.[31] Any conscientious dairy manufacturer will inspect and control the quality and quantity of his raw milk supplies. The most common and profitable method of adulterating fresh milk is to dilute the solution by the

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[31]Actually, the production manager has no authority to pay the farmers supplying BAMBI with its raw milk requirements, and, rather, signs a payment voucher for the supplier in question, which is honored by the administration, usually at the end of the month.

addition of water. The result of mixing the raw milk with a predetermined amount of water is to increase the amount of milk solution available for sale. Any farmer so inclined will usually add some 25 percent of water to his fresh milk. Accordingly, 100 kilograms of milk add up to 125 kilograms. The farmer's income has increased from L.L.40 to L.L.50, the extra L.L.10 being considered as "net profit", the only expense incurred, other than the relatively minor amount of labor involved, being the addition of twenty-five kilograms of water. The main objection to this dilution of raw milk, assuming, of course, that adulteration is carried on in a sanitary manner, is the resultant sharp reduction of fat content in the milk so abused.[32]

The following table serves to illustrate a normal composition of grade "A" milk:

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[32]A fat content/percentage of 3.5 is normally considered acceptable for Class "A" milk. A fat content/percentage of 3.5 in raw milk (100 kilograms) is reduced to approximately 2.6 by the addition of 25 kilograms of water; this latter reading being completely inacceptable to both the producer and ultimate consumer of the dairy products involved.

TABLE 15

TYPICAL ANALYSIS OF MILK CONSTITUENTS

Water	87.0 %
Fat	3.9
Milk sugar (lactose)	4.9
Casein	2.9
Albumin	0.6
Ash	0.7
Total	100.0 %

Source: B. L. Herrington, Milk and Milk Processing (McGraw-Hill Book Co., Inc., New York, 1948), p. 21.

It must be noted, however, that the percentages of the various constituents of milk vary somewhat in relation to factors such as climatic conditions, breed of cow, feeding, milking habits and sanitary conditions. The following figures reveal the range of variation of the constituents of cow milk in nearly 800 analyses collected from all parts of the world, and which today are considered as a base for comparison with milk test results.

TABLE 16

RANGE OF VARIATION OF CONSTITUENTS OF MILK

Constituent	Maximum %	Minimum %
Water	90.69	80.32
Fat	6.47	1.67
Milk sugar	6.03	2.11
Casein	4.23	1.79
Albumin	1.44	.25
Ash	1.21	.35

Source: Henry H. Wing, Milk and Its Products (The Macmillan Co., New York, 15th ed., 1911); figures compiled from p. 17.

BAMBI personnel also inspect raw milk as to the amount of bacteria present in the solution. One of the major causes of poor keeping qualities in milk and a direct contributor to fermentation and, therefore, souring, is the number of bacteria existent in the fresh milk received.[33] If milk is cooled immediately after drawing,

[33]Major causes of poor keeping qualities of dairy products include (a) abnormal milk originating from internal disorders of the cow (b) unwashed udders of the cow (c) unwashed milkers' hands (d) unwashed milking equipment (e) dusty atmosphere (f) unsterilized and/or faulty refrigeration equipment (g) failure to cool milk properly (h) unsterilized churns (i) unsterilized storage tanks (j) recontamination after pasteurization (k) unsterile bottling operations (l) unsterilized bottles, resulting from faulty washing machines, and (m) holding bottled milk at high temperatures. In other words, failure to cool milk and to clean and sterilize utensils are most important factors responsible for poor keeping qualities, and associated losses due to souring. W. B. Adams, A. J. Amos and others, Food Industries Manual (Chemical Publishing Co., Inc., New York, 1958), pp. 412-415.

to 40° F, very little fermentation will occur. Briefly, then, we can conclude that warm milk actively encourages bacterial action, fermentation, which, in turn, results in drastic changes in the characteristics of the milk, itself. Selective or scientific cooling, accordingly, greatly reduces the fermentation process.[34]

Carton Containers

The following table indicates the position of BAMBI with regard to the value of its glass and carton packaging:

TABLE 17

VALUE OF BAMBI GLASS AND CARTON PACKAGING MATERIAL, 1964

Item	Value at Jan. 1st	Value at June 30th	Value at Dec. 31st	Expenditures
Cartons	22,166.45	67,567.65	14,033.40	45,401.20
Carton caps	7,053.30	3,179.20	6,641.35	2,767.35
Glass bottles	47,483.75	n. a.	40,394.10	9,641.95

Source: Figures supplied by Mr. H. Shehadeh, General Manager, Lebanese Dairy Company, December, 1965, Chiah. The above figures were also adapted from BAMBI financial statements for 1964.

[34]Unfortunately, however, certain germ strains continue to mature even at low temperatures. Cooled milk, then, after several days, usually four at the most, develops unpleasant characteristics and tastes.

Insofar as carton packaging materials are concerned, all indications reveal that the situation for 1965 will remain about the same as for 1964. Figures available for 1965 are for the first six months only, and these in the form of a trial balance, yet the following figures are tentatively posted for expenditure on carton and carton caps.[35]

L.L.	50,455.75	for carton containers
	3,295.09	for carton caps
L.L.	53,740.84	Total proposed expenditure.[36]

Most milk now reaches the consuming public in the Lebanon in one-liter containers, glass or carton, or fractions thereof.[37]

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[35]Figures supplied by Mr. H. Shehadeh, General Manager, Lebanese Dairy Company, December, 1965, Chiah.

[36]Figures based on Trial Balance Sheet, July 1, 1965, and projected for twelve months.

[37]At one time, in the not too-distant past, almost all milk sold in this country was dispensed from large (often up to 20 gallons) cans into containers provided by the consumer, usually the housewife. In more and more countries, and especially to safeguard the health of the public, this method of selling milk is being prohibited, as being unsanitary. Milk containers must be sterile and must also be filled automatically and promptly sealed by machine, immediately following pasteurization (and homogenization when the process is employed) and cooling of the milk. The dairy manufacturer is held responsible for the sanitation of his products. Periodic inspections are carried out by the proper governmental authorities and penalties for merchandise of improper quality can be severe.

Glass bottles are of rather more nuisance, obliging the dairy manufacturer to repeatedly wash, rinse and sterilize these containers after every use, and to charge the retailers for any damaged, broken or misplaced bottles.[38] This laborious deposit system was and, in fact, still is passed on to the consumer, to the annoyance of all parties concerned.[39]

Until the last several years, milk was bottled almost exclusively in glass containers. The facts were that glass was easily sterilized and, accordingly, bottles could be rendered fit receptacles for pasteurized milk, and its allied products. Generally, in the less developed countries, and this has been especially true in the Lebanon, the customer strongly desired to see not only the milk which was being purchased, but also the depth of the cream layer that could always be found on the top of pasteurized but not homogenized milk

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[38]Often, chips and cracks make ideal and difficult-to-destroy breeding places for bacteria and germs. Accordingly, all such bottles are taken out of circulation by the BAMBI.

[39]Milk has traditionally been bottled in sterile glass containers on which retailers paid a deposit against possible damage, breakage or loss of bottles. (The glass bottles remain at all times the property of the Lebanese Dairy Company and are placed at the retail outlets in the custody, so to speak, of the retailers). Retailers sold these milk bottles against a deposit from their customers. Paper or carton milk bottles were introduced to eliminate, mainly, this distasteful system which irked the manufacturer, the retailer and the consumer as well.

bottles.[40] Since the widespread acceptance of homogenized milk,[41] however, single-service, no deposit, no-refund paper containers

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[40]It is interesting to note that paper bottles appeared as far back as 1906. Their initial introduction to dairy markets was hardly encouraging and, in fact, did not gain in popularity until 1935. A paper bottle, for purposes of definition, is distinguished from its glass counterpart by the number of times it is used. A paper bottle is used only once and then disposed of, while, on the other hand, glass bottles can be used for an average of from 20 to 40 times, before it is lost or broken. (These figures were compiled by the author after studying the deposit and refund records of the Lebanese Dairy Company, for the last six years). In the eyes of the manufacturer, therefore, the glass container is much less expensive than cartons (especially as the difference in purchase prices of the two is negligible). This factor of increased expensiveness is offset somewhat by other advantages, among them (a) to the modern, sophisticated consumer, the paper bottle often makes for a more handsome container, (b) weight and, therefore, transport expense, is less. For example, one dozen paper quarts/liters in a carton weigh approximately 12.73 kilograms, while an equal number of glass containers in a wood case total some 29.55 kilograms. (Figures result from actual weight measurements by the writer at the BAMBI plant site).

One great drawback to universal acceptability of paper cartons has been the insistence of some housewives, admittedly declining in number, to see the milk and/or cream layer which is readily visible in glass containers. In the opinion of the writer, there can be no doubt that paper bottles are more sanitary, more practical and less bothersome.

[41]The United States Public Health Service officially defines homogenized milk as ". . .that milk which has been treated in such a manner as to ensure the break up of the fat globules to such an extent that after 48 hours of storage no visible cream separation occurs on the milk, and that the fat percentage of the top 100 c.c. of milk in a quart bottle, or of proportionate volumes in containers of other sizes, does not differ by more than 10 percent of itself from the fat percentage of the remaining milk, as determined after thorough mixing." B. L. Herrington, op. cit., p. 203.

have become more and more generally used.

BAMBI is in a position where, in order to cater to the varied demands of the Lebanese consumer, it is obliged to employ both glass as well as carton containers, especially for its milk, but also for chocolate milk and laban. Generally speaking, the bulk of dairy products sales in carton containers centers in two areas, Ras Beirut and the Pigeon Rocks. The 1964-65 sales records of the Company indicate that the remaining BAMBI sales zone prefer glass bottles. In conclusion, then, one may state that it has been the distinct influence of foreign residents, and especially Americans, who are clustered in Ras Beirut and in the Pigeon Rocks neighborhoods, which has spurred the sales and progressive acceptability of paper bottles. The less exposed Lebanese consumers, such as those residing in other parts of the greater Beirut area, are not as quick to evolve away from glass containers, crockery pots, jars and other less glamorous repositories.[42]

As in any detailed treatment to do with the Lebanese consumer, the analytic researcher finds himself often face-to-face with the smooth blend of sophistication, resulting from Lebanon's

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[42]The above information by Mr. Salah Ghosn, Sales Manager, results mainly from the writer's study of BAMBI's sales records and has been confirmed during the interviews at the BAMBI, August, 1965, Chiah.

Western orientation, and the typical hesitancy to readily accept novelty. Accordingly, a segment of the market exists which is quite eager to purchase its dairy products in carton containers and which considers glass as old fashioned. On the other hand, we have another sector which would much prefer to see the milk, the cream layer, and, thus, definitely desire the glass bottle, accordingly. Old fashioned, perhaps, even passee, but safer, at least to their way of thinking.

Production

Perhaps the most sensitive area of activity insofar as the Lebanese Dairy Company is concerned, is the department of production. For it is here that the quality of the milk and allied products is determined.

Any description of the production flow of the BAMBI would commence at the platform where the production manager of this Company each morning receives the daily raw milk supplies from the various farmers who cater to the firm's requirements. Other than the supervision of production at the Lebanese Dairy Company, another duty of the production head is to personally inspect and pass on the quantity and quality of Bambi's raw milk supplies. It is extremely difficult to over-emphasize the importance of these milk supplies to the activities and business life of the firm. Unlike many other

fields of endeavour, in dairying, once the raw milk has been accepted and injected into the production processes, it becomes almost an impossibility to detect any inconsistencies or faults in the merchandise until the finished product is stored either at the plant or, as is often the case, in the refrigerators of retail outlets. Frequently, therefore, whenever poor quality merchandise has entered the market, it means that inspection at the factory has failed to detect any inconsistencies in the milk during the processing, and that the goods in question have been approved for sale. The unfortunate occurrence which takes place at this stage is that the inferior product reaches, ultimately, the consumer who, in turn, discovers the imperfection of the milk or dairy good. The net result, of course, is disenchantment.

As previously pointed out, bacteria in milk exist as a direct result of the degree of cleanliness surrounding the solution from its source (i.e., the cow), to ultimate consumption, and also from the temperature at which milk is held after drawing from the cow. The following table allows a brief glimpse of the effect of heat on bacterial growth in milk solutions.

TABLE 18

EFFECT OF HEAT ON BACTERIAL GROWTH IN MILK SOLUTIONS

Milk held at Temperature F^{o}	Bacteria Count after 24 hours
32	2,400
39	2,500
41	2,600
43	3,100
50	11,600
55	18,800
61	180,000
68	450,000
86	1,400,000
95	25,000,000,000

Note:

The danger point here is at 55°F; above this reading, heat as evidenced by degrees of temperature, has a marked effect on bacterial growth and hence on keeping qualities.

Source: Adams and Amos, op. cit., pp. 422-28.

After the appropriate tests have been performed on the incoming milk supplies, and the raw milk approved and accepted, the actual production process commences. The raw milk is poured from its sealed 10 gallon cans into a large stainless steel vat capable of holding almost 500 liters, from which it is piped throughout the plant during its processing.[43] The first stage or stop along this pipeline, so to speak, is designed to remove from the milk any and all extraneous matter.

Milk Clarifier

This particular piece of dairy equipment is based on the use of centrifugal force, which has replaced gravity systems of separation. An essential feature of milk clarifiers is a rapidly revolving bowl which contains a series of disks. The bowl is mounted on a spindle underneath the supply tank which holds the milk. Milk enters the bowl through a series of openings at the top known as the distributor. The purpose of the milk clarifier is to remove from the milk solution

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[43] It should be noted at this time that while the analysis and inspection of the raw milk supplies are being carried out, other BAMBI personnel are washing and flushing all the vats and pipes to be used. In other words, each day BAMBI's vats and pipings, all stainless steel, are washed with boiling hot water and chemicals, flushed with boiling water and then rinsed with cool water. Furthermore, all BAMBI water supplies are treated to avoid recontamination or other undesirable effects.

undesirable substances.[44]

The milk clarification stage of BAMBI's production process is not always necessary, as often the milk contains no extraneous matter. All BAMBI raw milk must pass through this process, however; the logic being that it is preferable to be "safe" than "sorry".

Pasteurization[45]

After clarification, milks is passed through pasteurizing

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[44]R. T. Needham, Modern Farm Dairy Equipment (Leonard Hall, Ltd., London, 1952). Interviews with Mr. Sultani, production manager, Lebanese Dairy Company, during August, 1965 at the factory site, Chiah, have also proven helpful in the above description of BAMBI's milk clarifier.

[45]An indication of the vital importance of the process of pasteurization to the dairy industry is revealed in the following quotation:

"Milk for large cities comes from numerous small farms possessing thousands of cows. It is transported to many local milk stations and from there shipped to the markets or cities, from which it is distributed to the ultimate consumer. An enormous number of people are involved in the process and even the slightest negligence or degree of ignorance on the part of any one of them may very well permit dangerous or distasteful organisms to enter the milk supply. The allowing of such 'contaminated' milk to combine with 'clean' milk would result in a greater and greater quantity of infected milk - enough to start a sizeable epidemic. How is it, then, that people in cities buy milk safely and confidently? It is because the consumer knows that immediately prior to bottling, milk is pasteurized and, therefore, made safe and fit for human consumption. This confidence is surely justified, for without pasteurization, few people would dare to consume milk, especially commercially prepared milk, without boiling it first." (Sources: Elliker, op.cit., and Wing, op.cit., p. 77). Furthermore, without pasteurization, milk would definitely not be considered a healthful beverage for general consumption. Without pasteurization, the dairy industry would not have grown to its present size and the public would be deprived of one of its most valuable foods. (For more about Pasteurization, see Appendices Section).

machines to make it safe for human consumption. Milk and milk products are, as we have already seen, pasteurized to make them safe for ultimate consumption. Technically speaking, the pathogenic organisms in a given milk solution are destroyed by the process and keeping qualities are prolonged. Further, these two advantages are achieved without harshly treating the milk and without imbuing the milk with abnormal or unpleasant tastes.

BAMBI pasteurization equipment, ideally, embodies the following characteristics:[46]

1. Effective heating of the milk.
2. Perfect control of the temperature.
3. Uniform cooling.
4. Compactness of form.
5. Facility in cleaning.
6. No pumping arrangements.
7. Impossibility of re-infection during the process.[47]

In general, pasteurization equipment capable of efficiently handling large quantities of milk for commercial purposes are of two basic types:[48]

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[46]Needham, loc. cit.

[47]These seven attributes clearly describe BAMBI's pasteurization equipment, as pointed out by Mr. H. Shehadeh, General Manager, June, 1965, Chiah.

[48]Pointed out by Clarence H. Eckles, Dairy Cattle and Milk Production (The Macmillan Co., Inc., New York, 1952), in several sections of the book.

1. Vat or holding equipment which pasteurizes milk at 145° F., for thirty minutes.

2. High temperature-short time (often described as HTST) or continuous flow equipment which treats the milk that is to be processed at 161° F., for fifteen minutes.[49]

De-odorization

After the milk has been pasteurized, it is passed through a special machine for de-odorization. We have already seen that extraneous matter is removed during the process of clarification. In many instances, it becomes necessary to extract from the milk unpleasant and often offensive odors. It should be remembered that milk easily and readily attains close and strong smells. Further, the smell of raw milk is a direct result of the animal's feed. Accordingly, cows fed on such roughage as green onions, for example, will yield milk smelling of onions. Milk, especially unsealed, in refrigerators will draw the odors of any strong and close-by foods.

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[49] In the first instance (i.e. vat type), milk to be processed is accumulated in a large vat in which it is treated. Each separate batch of milk is pasteurized individually and then transported to the next step of the manufacturing process. Continuous flow pasteurization, however, can effectively treat an unending stream of milk so that no actual stoppage take place. The HTST process is more responsive to the output requirements of larger dairies as it maintains a steady flow of pasteurized milk, ready for piping into the next step or stage of production. Further, the continuous flow method is more readily adaptable to expanding dairy plants, often having varying outputs, as determined, for example, by fluctuating market demand.

De-odorization, then, occurs normally after pasteurization, yet before homogenization, which is the next stage of the production process.

Homogenization[50]

Homogenization is a process designed to reduce the size of fat droplets in milk, i.e., it breaks up the large droplets to form smaller, more uniform ones. By homogenization of its milk and other products, the Lebanese Dairy Company has guaranteed the even distribution of the fat contents throughout the whole milk solution. It follows, therefore, that no "cream layer" exists. In other words, the past practice of holding up a glass bottle of milk and measuring the depth of the cream layer, to determine the milk's quality, may no longer be logically executed by the consuming public.

Filling and Capping

After homogenization, the milk becomes ready for filling or bottling or, and this only rather recently, for cartonning. BAMBI's glass containers are one liter, one-half liter and one-quarter liter

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[50]Homogenization should by no means be thought of as being restricted to milk or its products. The universality of homogenization has been evidenced by its application to cosmetics, salad dressings, mayonnaises, mineral oils, etc. For more information regarding Homogenization, see Appendices Section.

in size. In fact, most milk now reaches consumers in the Lebanon in one liter containers, or fractions thereof, in glass or carton. The bottles are washed and sterilized in machines which, generally, may be of the "soaker" or "jet" type. BAMBI washing equipment is of the "jet" type. In other words, the water and detergents employed are squirted at the bottles through a series of openings, or jets, under pressure. After a preliminary rinse, two detergent treatments follow, with the glass containers being continuously rotated for complete coverage. They are then rinsed with very hot water and allowed to cool somewhat. To help insure virtual sterilization, BAMBI uses nothing but chlorinated water to avoid any possible re-contamination resulting from untreated water supplies.[51]

In its bottling operations, the Lebanese Dairy Company takes every possible step to guarantee that clean and top quality milk is placed automatically into sterile containers in a sanitary atmosphere and under favorable conditions. The carton containers are purchased mainly from Europe, and especially Great Britain. They are shipped from these suppliers in sterile containers, not to be opened until the cartons are to be filled in the bottling room. The cartons, it should be noted, after filling are sealed hermetically by heat treat-

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[51]Elliker, loc. cit. Also, interviews with Messrs. Sultani, Ghosn and Shehadeh, during July, 1965, at the factory site, were helpful in the compilation of the above data.

ment. The caps for glass bottles also come in sterile cartridges from European sources, and are placed in the automatic filling machines only when filling and capping is to take place. In bottling, the milk is delivered from a large filler bowl, located on top of the machine, into each individual bottle by an automatic device which correctly measures the amount of milk,proceeds immediately with pumping the milk into the container as the lip of the bottle or carton is presented to the automatic filling device. As each container is filled, a new one rotates into place to receive its allotted share of milk, and so on until the process is completed. In the case where glass bottles are being filled, capping takes place immediately after filling. Where cartons are being used, heat sealing takes place immediately after filling. In this way, no unopened milk is left to collect germs, to attract flies, or to become less clean.[52]

Casing

It is after the milk is bottled and capped, or cartonned and sealed, that casing takes place. Where glass is being used, the cases in question are heavy wooden ones heavily re-inforced with metal sidings. Where cartons are being employed, a light corrugated cardboard carton is the ideal container, and of course the one that the BAMBI has selected. Casing is done by hand at the Lebanese Dairy

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[52] Ibid.

Company. As the bottles and/or cartons come off the bottling-capping or cartonning-sealing machines, on conveyor belts, two laborers stand at either side of this belt taking the bottles and placing them in wood cases; taking the cartons and placing them in corrugated cartons. The casing takes place on slightly inclined metal chutes on which an ever-increasing number of filled cases or cartons push the preceding ones along onto the trolley conveyances for at least a short stay in cold storage, to reduce the temperature of the processed milk.

Other Operations

Cream Separation

After pasteurization and de-odorization, and when market demands dictate the making of cream for commercial purposes, before the milk is allowed to reach the stage of homogenization, it is diverted to the cream separator machine. Like the milk clarifier, the cream separator is a mechanical device which has replaced gravity systems of separation. An essential feature of centrifugal separators in general, and of the BAMBI's machine in particular, is a rapidly revolving bowl which contains a series of disks. The bowl is mounted on a direct spindle and holds the milk to be treated. Milk enters the bowl through a series of openings at the top of the bowl. Thin films of milk are generated as the whole milk is forced out between the disks. The milk promptly assumes the speed of the bowl which is

from 6000 to 8000 revolutions per minute (RPM's), and cream separation commences immediately. The heavier skim milk is thrown to the outer edge of the bowl and is led off through the skim milk opening at the top. The cream, being lighter in weight, is concentrated in the interior and moves up to the cream outlet near the center of the bowl. Efficient separators will leave in the skim milk less than 0.01 percent of fat.[53]

The remaining skim milk is then shifted out of the production process and sold to dealers of this product, as skimmed milk.

Laban and Lebney Preparation

Before the milk is allowed to reach the process of homogenization, it is diverted to the special room allotted by the production department for the preparation of laban (yoghurt) and lebney (similar to cottage cheese). In this area of activity, much more hand labor is involved. Accordingly, the select workers preparing laban and lebney wear not only the white overalls and high rubber boots, typical of the whole BAMBI work force, but also hair coverings and sterile, transparent gloves. The tools and other instruments employed are vigorously sterilized immediately before each use.

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[53]Needham, loc. cit.; as well as personal observations of the writer and interviews with Mr. Sultani, Production Manager, during August-September, 1965, at the plant site, have led to the above description of BAMBI's centrifugal separation.

Milk, of course, is made into laban by repeated heat treatment. Laban, then, becomes the basic ingredient, so to speak, of the next step in the process, lebney. Lebney evolves from its laban base to which a yeast agent has been added, and is left standing for a rather short time, before being allowed to be sold.

The filling of laban is usually done by hand, ladle actually, into individual bottles, cartons or crockery pots. Normally, this filling is done when the laban has cooled somewhat, but yet still retains some degree of heat, so that it has not "set". Lebney, on the other hand, is filled into bulk containers when cool, yet also by hand, and also by ladle.[54]

Considerations

A brief glimpse at the production priorities of the Lebanese Dairy Company reveals that of the daily total of some 4330 kilograms of raw milk, almost fifty-eight percent goes towards the making of processed milk, twenty-two percent for cream, fourteen percent for laban, five for lebney and, finally, two percent for chocolate milk purposes. Just how much does it cost to produce the various items of the BAMBI product range? How profitable are these operations? Actually what percentage of the total markup is absorbed by produc-

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[54]Results of discussions with Mr. Sultani as well as with the two senior laborers actually preparing BAMBI's laban and lebney supplies, during September, 1965, at the plant site, Chiah.

tion expenses? What is the gross revenue, net of manufacturing costs? The replies to these questions are to be found in Table 19.

A complete schedule of production costs has been composed for the year 1965, as determined from data and figures made available to the writer up to the month of October, 1965. From this listing, which was duly previewed by Mr. H. Shehadeh, General Manager of the Lebanese Dairy Company, several facts were immediately obvious which apparently, had not previously occurred to the BAMBI's management.

In almost every instance where the same product was offered in both glass and carton, the complete cost of the carton container was absorbed by the Company, often increasing Total Production Costs by a minimum of twenty-five percent. Accordingly, it was tentatively decided that BAMBI products in carton would sell for slightly more than the equivalent merchandise bottled in glass. The price of the half-kilogram of laban, in crockery pots, was raised immediately, as one look at the schedule revealed that it was costing the BAMBI more to simply produce this article than it was selling it for. It also became readily apparent that one-quarter liter size milk, in bottles, was the firm's most profitable product, at least from a percentage point of view; the income after production costs, being 39.3 and 28.3 percent, of production cost and selling prices, respectively. The next most lucrative article, again in terms of percentages, was the one-half liter size milk, also in glass bottles, which returned 34.8

TABLE 19

SCHEDULE OF PRODUCTION COSTS, LEBANESE DAIRY COMPANY, 1965 (Lp.)

Item	Liter size	Container	BAMBI selling price	Cost of raw milk	Direct labor	Administrative charges[1]	Over head[2]	Cost of carton or cap[3]	Total production costs	Profit	Profit as a % of Production cost	Profit as a % of Selling price	
Milk	1/4	Glass	20.00	10.35	1.20	0.50	1.50	0.80	14.35	5.65	39.3	28.3	
	1/4	Carton	20.00	10.35	1.20	0.50	1.50	4.20	17.75	2.25	12.8	11.3	
	1/2	Glass	35.00	20.70	2.45	0.50	1.50	0.80	25.95	9.05	34.8	25.8	
	1/2	Carton	35.00	20.70	2.45	0.50	1.50	5.25	30.40	4.60	15.1	13.1	
	1	Glass	60.00	41.40	4.85	0.60	1.50	0.80	49.15	10.85	22.1	18.1	
	1	Carton	70.00	41.40	4.85	0.60	1.50	8.50	56.85	13.15	23.1	18.7	
Cream	1/4	Carton	100.00	86.75[a]	1.20	0.50	1.50	4.20	94.15	5.85	6.2	5.9	
	1	Carton	350.00							0.65	0.2	0.2	0.2
			400.00	328.70[a]	9.85	0.80	1.50	8.50	344.35	50.65	14.7	14.4	12.6
Laban	1/4	Glass	17.50	10.35	1.25	0.50	1.50	0.80	14.40	3.10	21.5	17.7	
	1/4	Carton	20.00	10.35	1.25	0.50	1.50	4.20	17.80	2.20	12.3	11.0	
	1/2	Carton	35.00	20.70	2.45	0.55	1.50	5.25	30.45	4.55	14.9	13.0	
	1/2	Pottery	25.00	20.70	2.45	0.55	1.50	0.50	25.70	(0.70)	2.7	2.8	loss
	1	Pottery	50.00	41.40	4.85	0.65	1.50	1.25	49.65	0.35	0.8	0.7	
Lebney	1/2	Carton	90.00	62.10	7.95	0.70	1.50	5.25	77.50	12.50	16.1	13.8	
	1	"bulk"	150.00	124.20	15.87	0.80	1.50	1.00[b]	143.37	6.63	4.6	4.4	
Choc. Milk	1/4	Glass	20.00	12.27	1.25	0.55	1.50	0.85	16.42	3.58	21.7	17.9	
	1/4	Carton	20.00	12.27	1.25	0.55	1.50	4.40	19.97	0.03	0.2	0.2	

[1]Including salaries and other non-direct expenses.
[2]Including depreciation expenses and interest on investment charges.
[3]As determined by type of container. For pottery crocks, paper covers were used.
[a]After sale of skim milk figures deducted.
[b]This charge being made for wear and tear on BAMBI bulk receptacles.

Source: Figures compiled by the writer with the assistance of Mr. H. Shehadeh, General Manager, from data made available through the courtesy of Mr. Badie Bulos, owner, December, 1965.

and 25.8 percent on production cost and selling prices, respectively. The BAMBI management, also somewhat hesitantly, debated the advisability of continuing with the sale of the one-liter size cream, at 350 Lebanese piasters, as hardly any profit existed after the deduction of production expenses. Surely, therefore, a loss would be incurred after allowing for the other major group of charges, selling expenses. Another product with similar circumstances was found to be the BAMBI's one-quarter size chocolate milk, in carton. Here again, the percentage of return as measured against both the total production cost and selling price figures were discovered to be 0.2 and 0.2 percent, respectively.[55]

Perhpas the final immediate result of the composition of Table 19, was that the General Manager of the firm enthusiastically supported the construction of a similar table for the Sales Department, so that a vivid picture of the operations of that section of the Company could be obtained. Accordingly, the same assistance was offered by the BAMBI's administration when it came time to study the sales and promotional activities of the firm.

This, then, completes our exposition of the Production Department of the Lebanese Dairy Company. Before proceeding further,

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[55]Similarity of the two figures results from rounding, and would be 0.1507 and 0.150, respectively.

it would, perhaps, be of benefit to again note that the seriousness of this section's activities can hardly be overestimated. Take, for example, the bulk of consumer complaints having to do with BAMBI's merchandise. These laments usually are concerned with the shelf life, unpleasant tastes, sourness, extraneous matter and poor general appearance; all of which can be traced back to the efforts of the Production Department.

Management

Simply stated, management consists of those activities undertaken to secure the achievement of pre-determined objectives through the combined efforts of personnel and material. A manager will engage in intelligent decision-making while supporting those decisions through considerable use of the scientific method. The functions of management usually include planning, organization and staffing, actuating work accomplishment and control.

Industrial management deals, of course, with manufacturing concerns and mainly with such factors as labor, raw materials, machines, transportation and markets. Other factors such as credit facilities and extension, warehousing and storage, water supply, climatic conditions and tax legislation, would also be included.[56]

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[56]Adapted from several sections of the book by Edwin H. Spengler and Jacob Klein, Introduction to Business (McGraw-Hill Book Company, Inc., New York, 1955), pp. 129-140.

Insofar as the Lebanese Dairy Company is concerned, the great majority of these activities falls under the control of the respective department heads, but it is the General Manager, Mr. H. Shehadeh, who co-ordinates and directs the total efforts of the several departments of the Company.

In other words, then, it is the chiefs of the various sections of the BAMBI who are responsible for day-to-day operations. The General Manager, however, molds policies while co-ordinating and directing the overall activities of the firm.

Personnel

Were an organizational chart of the BAMBI to be drawn, it would be readily apparent that separate sales and production sections exist with a manager in charge of each. These officers are empowered to direct the affairs of the business within the limits of their respective divisions. For all practical purposes, the type of structure existent at the BAMBI can be termed a line and staff organization, as some advisory functions do exist. The General Manager can call on auditors and legal counsel when in need of such assistance.

Theoretically, it is realized that in order to avoid the danger of over-lapping responsibility and the consequent friction and wasted motion, and to preserve centralized authority while at the same time making use of expert advice for specialized services,

Owner

Auditor - - - - - - - - - - General Manager - - - - - - Legal Counsel

Sales Manager

Production Manager

Accountant

Rue Hamra Center	(1)	Driver Salesmen (5)	Plant Cold Storage	Factory Employees (6)

Figure 1. Line and Staff Organization Chart, Lebanese Dairy Company, July, 1965

the line and staff organization came into being. In other words, the varied responsibilities in a firm are divided carefully to avoid over-lapping and to preserve centralized authority. This is definitely the case where the BAMBI is concerned. It should be noted that the Lebanese Dairy Company is one of several firms owned by the same individual, Mr. Badie Bulos, who divides pools of expert advice among his various companies. Both the auditing and legal counsel functions are retained by Mr. Bulos on an annual

basis.[57] The auditor, then, which advises the Lebanese Dairy Company on its accounting procedures and systems, is also available for consultative purposes with the appropriate personnel of those other concerns associated with the Lebanese Dairy Company.

In practice, the General Manager ordinarily meets with his chiefs of sales and production for periodical sessions during which various problems facing the Company are discussed and prospective decisions aired. The ultimate say, of course, rests with the chief executive who in this case is Mr. Halim Shehadeh. Only in very special circumstances are matters referred to Mr. Badie Bulos, the owner; especially where large amounts of money or investment are involved.

As previously stated, each manager is mainly responsible for the activities of his section. It follows, therefore, that the majority of the day-to-day decisions are made by the department heads. Those items of outstanding importance are discussed by the triumvirate during the periodic meetings.

Just what does the phrase, personnel management, mean to a person of Mr. Shehadeh's caliber, with some theoretical education but more experience, managing a comparatively fair-sized fim It should be noted that, simply, personnel management includes among its aims minimum labor turnover, creation of employee interest,

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[57]The retainers are paid for jointly by the concerns involved, although it is mostly Mr. Bulos' corporations (societes anonymes Libanaises) which employ these services.

loyalty towards the firm and, in general, those factors which will lead to maximum efficiency. It consists of selecting the proper person for the position, employee training, satisfaction and improvement.[58] While agreeing whole-heartedly with this information, the General Manager pointed out that the BAMBI has no personnel department, no scientific selection and placement of employees, no real training programs, except showing new laborers what is expected of them. Further, while no actual figures are kept on labor turnover, it is not too high, for several reasons, such as the "family atmosphere" existent in the Company, the scarcity of jobs in the country, generally, the relatively good pay (especially for the driver-salesmen) and the free afternoons (especially where the firm's laborers are concerned).

Wages, it is realized, are costs that are determined in somewhat the same manner as are the prices of goods. Wage levels for various workmen are determined by a variety of factors, such as education, skill, experience, judgment, reliability, originality, strength, initiative and connections. In the BAMBI, no fixed value is attached to the productive ability of the individual, simply because this Company prefers to equate the salary or wage to the

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[58] Spengler and Klein, op.cit., pp.193-215.

position. In the words of the General Manager:[59]

> "If we hire a person to be a laborer, we know that he is going to be paid about L.L.150 per month, say. Accordingly, he begins at this salary. There is a certain amount of flexibility, however. If he is exceptional, well experienced, sponsored by someone close to the firm, etc., he may get a little more, perhaps up to 10 percent. Future improvement depends on both his behavior and his number of years with the Company."

No collective bargaining exists at the BAMBI. In fact, it is not tolerated, as it may well result in disrupting the "family atmosphere", so often referred to at the Lebanese Dairy Company. According to Mr. Sultani, no unions exist or are encouraged at the BAMBI. In fact, if, after appeal to the management, the worker finds himself dissatisfied, he has one of two courses of action open. He may either quit his job or appeal to the Ministry of Social Affairs if he feels his rights are being ignored. Union membership of BAMBI employees would "interfere with their loyalty to the firm."[60]

Due to limited quarters available to the Lebanese Dairy Company, no recreation areas or cafetarias are established for

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[59]Translated from Arabic into English by the writer during an interview with Mr. Shehadeh at the plant site, July, 1965.

[60]In the words of Mr. Sultani, production manager, during an interview, Chiah, July, 1965. Translated from Arabic into English by the writer.

company personnel, and lunches when eaten are done so either outdoors, weather permitting, or inside the factory area, but not in the production rooms. As the Company does not encourage leisure or laxity during working hours, relaxation on the premises very seldom occurs. Laborers and drivers leave the factory immediately their work is finished; presumably preferring to rest at home. Surprisingly enough, however, a genuine feeling of goodwill and mutual understanding among the workmen as well as the officers of the Company does exist.

This undoubtedly results from the fact that to the average Lebanese worker or employee, satisfaction with employment does not come from pleasant rest rooms, water coolers and other sophistications, so much as from comparatively reasonable pay, good treatment and a special feeling of belonging to the Company. The Lebanese Dairy Company offers rates slightly higher than those prevailing in the community, with standard working hours (forty-six per week) which while beginning somewhat early in the day, do leave the employee a great deal of free time. Further, irregularities in employment do not exist due to, say, seasonal fluctuations. Every worker enjoys vacations, legal holidays (both with pay) and also all other rights listed in the Lebanese Labor Code, including provision for indemnities.

In case of illness, most BAMBI personnel enjoy medical insurance which supports the bulk of sickness expenses as well as loss of income

incurred.[61] In case of occupational or industrial accidents, the Lebanese Dairy Company assumes complete responsibility, providing, of course, that the individual in question was injured while working for the firm, and not during off-hours, for example. To meet this contingency, the BAMBI has taken out industrial and personnel insurance.

Finally, those employees encountering financial difficulties may take advantage of their long years of service with the BAMBI to request emergency loans, and, in some cases, even legal advice.[62] This, of course, applies only to those employees who have been with the Company for years and are well known to the management as being reliable and trustworthy. In the opinion of the writer, it is this last privilege which has created most of the previously described feeling of belonging and loyalty to the Company. Long-time employees realize that in times of crises, they are able to tap the resources of the Lebanese Dairy Company for assistance.

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[61] All employees and laborers associated in any way with Mr. Badie Bulos are offered participation in a medical insurance plan in which a certain minute percentage of salaries/wages is withheld. These amounts are equalled by the Company. Association is voluntary and benefits vary according to circumstances.

[62] Interest-free loans for up to 12 months' time have in some cases amounted to more than L.L.5,000. As BAMBI's lawyer, Me. Nassib Bulos, is annually retained by all Badie Bulos' companies, senior employees are often able to obtain legal advice free of charge.

With the exception of any detailed treatment of the marketing and financial situations at the Lebanese Dairy Company, which are to be presented in Chapters IV and V, respectively, the preceding data describes the present situation at the BAMBI. This presentation has been necessary to provide for the reader a proper background of the Company in question.

CHAPTER IV

MARKETING

Selling and Pricing

The Lebanese Dairy Company, like many other local manufacturers of consumer articles, indulges in the direct marketing of its products.[63] Since, generally, the manufacturers of consumer goods do not usually sell directly to the ultimate consumer, the term, "direct marketing" is ordinarily employed to describe sales by manufacturers to retailers.[64]

The fundamental factors which cause direct marketing are normally three in number:[65]

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[63]The phrase, "direct marketing" implies simply, that the producer undertakes to market his merchandise without benefitting or making use of the services of existent middlemen.

[64]Any confusion resultant from the use of this terminology can be avoided by the addition of a clarifying phrase when necessary - direct to user, direct to ultimate consumer, or direct to retailer. (Recommended by the Committee on Definitions of the American Marketing Association. See the American Marketing Association's Marketing Definitions, Chicago, Ill., 1960, pp. 11-12).

[65]Derived from Rayburn D. Tousley, E. Clark and F. E. Clark, Principles of Marketing (The Macmillan Company, Inc., New York, 1962), pp. 304-308.

1. The desire on the part of the manufacturer to considerably increase sales of his product.

2. The inadequacy of the capabilities of the existent middlemen.

3. The desire, on the part of the purchasers, to buy directly from the plant.

Insofar as the BAMBI is concerned, while the factors described have to some extent influenced the firm's decisions to undertake direct marketing activities, perhaps the single most important element was the fact that no intervening organization existed capable of efficiently and effectively marketing BAMBI products in at least the greater Beirut area. Furthermore, lack of confidence in the then available distributors by the management of the Lebanese Dairy Company certainly obliged this firm to undertake its own sales operations.

At the present time, therefore, BAMBI sells directly to retailers, most of whom are located in the greater Beirut area. It should be noted that the majority of BAMBI sales are to retailers, and that in almost every instance, suggested sales direct to the ultimate consumer have been rejected by the sales manager of the Company.[66] Experience has shown that neighborhood retail shops dislike the distribution of dairy products by the manufacturer on a door-to-door basis in their vicinity. Not only are the retailers'

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[66]Since 1964, sales of BAMBI products direct to ultimate consumers have amounted to less than 2 percent of total sales.

commissions lost but so too is any incidental business which could have occurred. When BAMBI commenced with direct-to-ultimate consumer selling, the retailers involved reacted by completely boycotting BAMBI merchandise. The Lebanese Dairy Company, after several such incidents, decided to suspend further operations in this field, as it could not afford this show of truculence on the part of the retail shops.

At the present time, then, the policy of the firm is to support the grocery stores and sandwich stalls as the best possible sales outlets for neighborhood coverages. Accordingly, door-to-door selling is no longer practised by the Company.[67]

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[67] Competing retailers in the same location have often given rise to a situation which seriously strained their relations with the BAMBI. More than once, and in various sections of the city, the Company has been faced with an ultimatum presented by two or more of the retailers of a given area, in which has been demanded the exclusive distribution of BAMBI products in the neighborhood involved. The alternative of the demand being that the outlet in question would no longer handle BAMBI merchandise. In other words, the Company was to choose among the various stores being supplied, one which would become the sole outlet for BAMBI products in that area. The refusal of the demand for exclusivity would result in the immediate suspension of BAMBI sales in those stores. The sales manager of the Company has termed this type of dealing as outright blackmail: "Whenever this sort of thing takes place, the stores involved are almost exactly similar in size, functions, clientele and turnover. Never has a large respectable store demanded such an unfair right. BAMBI salesmen have been instructed to continue to supply the retailers in question until that time when merchandise is refused. At this time, I, personally, attempt to persuade the retailer to withdraw his ultimatum. When this fails, I inform the shop owner that the very next morning BAMBI salesmen will commence with door-to-door selling in his

Since November, 1964, all BAMBI dairy products are stamped with the date of manufacture, so that it is immediately obvious to the consumer when the goods were produced and released for sale. This arrangement has resulted from the daily arguments which occurred between the retailers and BAMBI salesmen over spoilt or stale merchandise. The retailer would, of course, insist that the goods in question had been delivered that very same morning while the salesman would be equally as adamant in his insistence that the spoiled articles were at least one week old. Much ill-will resulted from these interchanges. With competition getting keener, and to avoid this distasteful situation, the decision was taken to date each article. Accordingly, spoilage complaints are handled simply by glancing at the date of manufacture. Either the merchandise is returned promptly, and the appropriate amount of credit extended to the merchant, or the complaint is not honored.

By so dating their complete product range, the Lebanese Dairy Company did away with almost all the irritation which used to result from the problem of spoilt merchandise. Another result of this decision was a fairly strong selling point, exploited by BAMBI salesmen. Both the actual as well as potential clients of

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neighborhood. In most cases, this is enough to settle the argument, and, frankly, there is very little else I can do." (Source: Mr. S. Ghosn, during interviews with the sales manager at the plant site, Chiah, November, 1965. Translated from Arabic into English by the writer).

the Company could be informed, with a certain degree of confidence and pride, to look at the date of manufacture before purchasing. By so doing, the consumer would be insured of a top quality product, plus guaranteed freshness, for the money spent.

In an interview with a respected authority on retail and wholesale activities in the Lebanon,[68] at the end of 1963, the following statement was made in reply to an inquiry regarding standardized sales methods, and their use in this country:

> "It is very difficult to adopt and remain consistent to a sales policy in this country, as almost every customer has to be treated differently. The best one can do is to determine within which ranges he is to operate."

It was this same sort of answer which was offered by the sales manager in reply to a similar question. In fact, BAMBI's General Manager emphatically stated that the only common sales practice strictly adhered to, was that each and every situation would be studied and acted on, as determined by the circumstances of the individual case, and not as a result of some premeditated policy. In other words, BAMBI employs no actual sales policy in its dealings.

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[68] Mr. Wadih Kaddourah, then sales manager, Messrs. Georges Abou Adal et Cie., S.A.L., Imm. S. Takla, Pl. Debbas, Beirut, December, 1963. Presently, sales and export manager, Middle East Pharmaceutical and Industrial Co. (MEPHICO), S.A.L., Jamhour, Lebanon.

Bases for Pricing

Insofar as the Lebanese Dairy Company is concerned, the primary factor in determining its pricing schedules is the relationship between price and profits. In other words, the main function of price is often simply to secure and maximize profit at the time and points of sale. This attitude is offset somewhat, and fortunately so, by the fact that BAMBI is acutely sensitive to the prices of competitive goods. This consideration does much to limit any possible over-enthusiasm in price setting when ultimate prices are being established.[69]

BAMBI's policy with regard to its retail price structure is as follows:

1. All retail prices of BAMBI merchandise are fixed and are the same throughout the various sectors of the Company's markets.

2. Retailers purchase BAMBI merchandise at certain, fixed costs. No commissions are offered on the retail prices.

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[69] It is interesting to note that the pricing practices of the Lebanese Dairy Company are simple and effective. No complex series of discounts, lists of privileged customers, and other exceptional cases, exist. As indicated, BAMBI's prices are fixed and, ordinarily, no discounts are offered. The Company's prices are easily obtainable and universally applied.

With regard to discounts offered by the Lebanese Dairy Company, it should be pointed out that in its normal, day-to-day operations, BAMBI offers no price reductions, such as quantity discounts or discounts for cash payment, for example. In some instances, local manufacturers will offer special clients a certain percentage of merchandise, free of charge, with every order placed. BAMBI does not offer free merchandise to large customers, no matter the size of the order placed. The Company does not indulge in this type of indirect price reduction. Further, the firm does not practise any serious distribution of free samples, in order to secure new customers, for example.

The exceptions to the above discount policy are as follows:

1. BAMBI retains the privilege of offering reduced prices to educational institutions of considerable size, such as the American University of Beirut and the Beirut College for Women. Both of these schools receive or have received a flat 10 percent discount off the normal selling prices of BAMBI goods.

2. BAMBI has offered special discounts to those clients purchasing for non-Lebanese markets. Where as ordinarily such sales would be considered as export, in the case of the Lebanese Dairy Company they consisted mainly of purchases for U.N.E.F. troops in the Gaza strip by SPINNEY's (1948), Ltd., and were at best temporary.

3. BAMBI does participate in industrial fairs and similar activities where its merchandise is offered free to visitors. In this connection, it should be noted that the Company has sponsored certain community activities, such as local football teams during whose matches, BAMBI products were offered free of charge to audiences.

Other than these price discounts, the Lebanese Dairy Company offers the market no price enhancements.

These are BAMBI's pricing operations. In summary, the reply of the General Manager to an inquiry regarding prices as an instrument of business, should be noted:[70]

> "The only thing I know about our prices is that they are too low. We cannot raise them without creating a lot of trouble for ourselves. On the other hand, the figures and tables currently being composed (for this paper) vividly reveal the necessity of our doing something for some of the articles' prices."

Distribution and Storage

Goods manufactured locally may reach the consumer in one of the following manners, commencing from the manufacturer:

1. To wholesalers. These agents can be either responsible for a particular area, or an exclusive distributor can be appointed for the whole country.
2. Direct to retailers.
3. Direct to consumers.

The larger number of Lebanese manufacturers prefer the distribution of their goods by their own sales organizations.[71]

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[70]Stated by Mr. H. Shehadeh in Arabic and translated into English by the writer. Chiah, December, 1965.

[71]Such as M.O. Gandour (chocolates), Bonjus (fruit juices), Lebanese Foremost Dairies Corporation, S.A.L. (dairy products), and others.

The Lebanese Dairy Company is also similarly inclined. BAMBI adheres to the second approach in the marketing of its goods, i.e. direct to retailers. The Company employs five Volkswagen trucks for the distribution of its merchandise throughout the greater Beirut area. In fact, then, the most simple and direct method of selling, short of door-to-door selling, is utilized. The BAMBI channel of distribution originates at the factory, Chiah, and progresses from this site to the various retailers selling the goods, who, in turn, expose this merchandise to the ultimate consumers. The firm allows no middlemen to intervene between the Company and its retailers. Its sole sales/distribution function is to get the dairy products from the factory to the various retail outlets in and around Beirut.[72]

It has been readily obvious from the start of this study that BAMBI's coverage of the country, as determined by its distribution network, is inadequate. In fact, outside of Beirut and the suburbs, and with the exception of a few large mountain villages, the whole country has remained ignored by the Company.[73] Primarily,

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[72]Even those stores which handle BAMBI goods and which are situated in the mountains are catered to directly by the BAMBI factory.

[73]Large Lebanese cities such as Sidon and Tripoli, for example, have not even been approached or researched as possible new markets for BAMBI merchandise.

three factors have caused this attitude on the part of the Lebanese Dairy Company:

1. The consumption habits of the rural population.
2. The necessary physical facilities for distribution on a national scale.
3. The inadvisability of increasing prices to cover additional transport and other incidental expenses, due to competition from sale of local raw milk off the backs of donkeys or from small station wagons, and also from the easily available and reasonably priced powdered milk imports.

It would appear, then, at least theoretically, that in such a situation, the services of middlemen could be usefully employed. In other words, what has prevented the Lebanese Dairy Company from testing the potentiality of these unfamiliar markets by appointing efficient, local wholesalers, whose refrigerators would serve as strategic stores for continuously renewed BAMBI merchandise. It would be from these agents' depots, and mainly through their efforts and business connections, that sales activity would be carried on. With careful nurturing, a prolonged enhancement of BAMBI's sales situation would have resulted. Unfortunately, these markets remain outside the scope of the Company's distribution capabilities and, indeed, are being cultivated solely by the Foremost organization.[74]

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[74]BAMBI has not presented a logical explanation of this lack of marketing initiative. Both the sales and general managers failed to satisfactorily explain why the advisability of establishing a sales zone outside of Beirut has not been studied. The question, why has not something been done to exploit these large markets? remains unanswered.

In general, in the Lebanon, the storage of merchandise by the retailer usually involves no more space than that available in his shop. The greater number of Lebanese retailers appear to have no real need for larger storing facilities. This is, perhaps, due to the following factors:

1. The high cost of store space, especially in the strategic areas of Beirut, coupled with an aversion on the part of most Lebanese retailers to rent independent storage areas.

2. The proximity of the source of supply, coupled with the feeling that it is the responsibility of the manufacturer to store, handle and supply upon demand, everything other than the immediate needs of the retail shop.

3. The relation of storage space to capital turnover. Lebanese retailers exhibit a hesitancy to invest in "passive" space which does not actively contribute to the firm's operations.

Fortunately, a common increase in the degree of sophistication, especially in Beirut, of Lebanese consumers has virtually guaranteed sufficient refrigerated space in the grocery and sandwich shops encompassed by the BAMBI's sales zones. Most retail outlets take into consideration two factors when determining the size of their orders. Not only is the normal daily consumption of the shop's clientele weighed, but also the amount of cold storage space which can be allowed for BAMBI goods. Frequently, therefore, an exceptionally busy establishment will request that BAMBI's salesman visit and re-stock the store several times a day, as sufficient space cannot be granted to BAMBI, in the outlet's refrigerators, to handle the full day's needs.

The Lebanese Dairy Company at its plant site in Chiah maintains some one hundred and sixty cubic meters of cold storage space, which is more than adequate for the firm's daily needs. On Rue Hamra, at the BAMBI outlet on this street, three large refrigerators also offer more than sufficient refrigeration for what is normally needed. It is from these two depots that the five trucks of the firm are supplied.

Over-exposure of dairy products to high temperatures will, of course, result in the prompt deterioration of the merchandise involved. Fortunately, during the hot season, BAMBI does not suffer from any tangible increase in the number of cutomer complaints, as trips from freezers (either at factory site, Chiah, or Rue Hamra branch) to various refrigerators (retail outlets) are not long enough in distance or time to allow cooled dairy products to overheat. During the summer, supplies of BAMBI goods to the mountains are despatched very early in the morning. As a further precaution against damage from heat, these supplies are wrapped in quantities of ice, to maintain low temperatures and, therefore, product freshness.[75]

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[75]The Lebanese Dairy Company owns no refrigerated trucks.

Advertising and Promotion

For purposes of definition, advertising is described as being any paid form of non-personal presentation and promotion of ideas, goods or services, and demand creation involving the use of written printed or spoken word, pictures, diagrams and symbols.[76] It is known, theoretically, that other methods of demand creation exist. In some fields, for example, manufacturers participate in trade fairs where their merchandise is prominently displayed to the exhibition's visitors. Eye-catching window and counter displays are of great importance at the retail level of sales. Where a minimum of service is available to the customer, such as in super markets, stimulation of sales may occur through the mass presentation of the products. Progress in the creation of demand may be possible through "word-of-mouth" advertising. A large percentage of every day purchases can be traced directly to the satisfaction of the product has rendered to either the ultimate consumer or his friends.[77]

Recently, and especially since the advent of television, advertising and promotional efforts in the Lebanon have increased considerably. Among the media offered to potential advertisers are

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[76]American Marketing Association, op. cit., p. 9.

[77]Adapted from Tousley, Clark and Clark, op. cit., pp. 393-5.

television channels, movie houses, newspapers, commercial journals, billboards, posters, direct mail, car cards, the distribution of advertising specialities, and the like.[78]

Given the product, the medium which would afford maximum exposure of the article to the public is television. Newspapers and periodicals have not lost their attraction to especially the small advertiser due mainly to their comparatively low publicity rates. Local retailers are becoming more and more convinced of the advantages of advertising and, accordingly, have begun to more frequently request that products receive additional exposure via the various advertising media, before being released for sale to the public. Owners of retail outlets have commenced the promotion of their establishments by the placement of ads in newspapers and spot advertisements in cinemas and on television.

It is not the intention here, however, to list more than these details about the several promotional media available to interested parties locally. Insofar as the Lebanese Dairy Company is concerned, no advertising campaign has existed either in 1964 or 1965. Not even the slightest exploitation of the possible benefits of selected placement of ads has been undertaken. BAMBI simply has

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[78]It should be noted that Radio Lebanon is government-owned and does not accept commercial advertising of any sort.

allotted no amount of money for promotional activities. The advertising budgets for 1964 and 1965 did not exceed L.L.300, for each year. This amount is nothing more than a nominal figure listed to deal with any possibly attractive contingencies which might present themselves during the fiscal period.

During 1965, of the various firms engaged in the commercial preparation of dairy products for local consumption, only one, the Lebanese Foremost Dairies Corporation, S.A.L., was engaged seriously in advertising. It is this latter company which the BAMBI views with concern and the conviction that due to Foremost Dairies' activities, serious competitive conditions will present themselves to the Lebanese Dairy Company in the near future.

When presented with this information, the General Manager, while admitting the impressiveness of the data, confessed that insofar as the promotional aspects of BAMBI's selling activities, as well as the firm's relations with the public, were concerned, they were dependent wholly on the personal associations of the various members of the Company's personnel (and this included the owner, Mr. Badie Bulos), whose services and acquaintances were and continue to be readily appropriated to support BAMBI's position in the market.

The sole obstacle to the establishment of an impressive advertising campaign by the management of the Lebanese Dairy Company

is the actual cost involved, especially when measured by the narrow margins of profit available to the firm. Mr. S. Ghosn, Sales Manager, after considerable study of the matter feels that BAMBI should set aside an amount of not less than L.L.15,000 a year, for advertising, promotion and other marketing activities. At the same time, however, as this demand is made, the sales department cannot but realize that the Company is simply unable to afford the expenditure, not even were this advertising expense to be related to favorable results in the future.

In other words, it is the opinion of Mr. Ghosn that a budget of less than L.L.15,000 would be of little, if any, benefit to the firm. Advertising on local television channels, alone, would amount to the following, as determined by two channels' exposure rates, submitted to the BAMBI on request:

1. Thirteen weeks, at 2 1/2 minutes per week, as 15-second "spots". The rate for 2 1/2 minutes = L.L.730. For a total of 13 weeks, L.L.9,490.

2. Thirteen weeks, at 1 1/2 minutes per week, as 15-second "spots". The rate for 1 1/2 minutes = L.L.480. Also to be included are associated expenses per week of L.L.320, plus the cost of program patronage per week of L.L.300. Total per week, L.L. 1,100. For a total of 13 weeks, L.L.14,300.

On the other hand, the following figures tend to verify the contention that the Company cannot undertake such an increase in expenditures. Presently, the BAMBI would have to pay for promotional expenses from net profit figures amounting to some 6

percent of sales. To put it in another way, BAMBI would have to increase sales by approximately L.L.200,000 to cover the cost of a L.L.15,000 advertising campaign. During 1965, the Lebanese Dairy Company sold an average of L.L.45,813.65 per month, for a projected total of L.L.549,764.09, for the year.[79] Could, then, the sales of the organization be expected to increase by almost 37 percent, as a result of a promotional campaign costing L.L.15,000? No such assumption could be logically entertained under the present circumstances.

The problem, therefore, is both vicious and circular. The underlying purpose of advertising is to create demand, and, by so doing, increase sales. Such a situation would greatly benefit the Company especially by enhancing its income or revenue position. The cost of a sizeable campaign is at the present time prohibitive when in all probability it is to be paid from a corresponding increase in sales. Competition in the field is fierce and the contestants well established. BAMBI could advantageously exploit an adept promotional campaign which would undoubtedly support the Company's market stance. The problem would appear to be one of financing the advertising budget, advisedly from a source outside the normal income-generating activities of the firm.

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[79]Total sales of BAMBI for 1965, up to the first of November, amounted to L.L.454,350.48, from which has been deducted the returned sales and spoilages.

Market Volume

No commercial treatment of the Lebanon is complete without mention of the narrowness of the Lebanese market. Normally, this reference is made to three specific factors: population, geographical area and per-capita income.[80]

Just how valid is the oft-repeated assertation ascribing a multidue of various difficulties especially in the field of marketing, to the "fact" that the Lebanese market is small, narrow, and, accordingly, not only are these problems explained away, but also no real future improvement need be anticipated. In other words,

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[80]Insofar as population is concerned, an international periodical ("PARIS MATCH" published by Jean Prouvost Publications -ed.- Paris: October 9, 1965, pp. 74-5), places the inhabitants of the Lebanon, 1965, at exactly 2,151,884: a density of some 150 persons per square kilometer, which is rather high for the Middle East, especially when other neighboring areas are studied.

Geographically, the country is some 120 miles in length and 35 miles wide, located on the eastern coast of the Mediterranean Sea, occupying an area of approximately 10,400 sq. kms., or about 4,015 square miles. It is bordered on the north and east by the Syrian Arab Republic, and on the south by "Occupied Palestine".

Average per-capita income for 1965, approximates $350 yearly, which is quite high for the country, especially when compared to similar figures of neighboring countries (with the possible exception of "Occupied Palestine"). For purposes of comparison, a country like the United States enjoys a per-capita income of $3,050 (1960). Source: James T. Shotwell et al., The World Encyclopedia of the Nations (Worldmark Press, Inc., Harper and Bros., Inc., New York, 1960), pp. 583-91.

does sufficient demand exist to justify a serious attempt on the part of the BAMBI to expand its sales.

There can be little doubt that the total volume of trade in dairy products greatly exceeds the present production of the Lebanese Dairy Company. BAMBI's chief competitor, the Lebanese Foremost Dairies Corporation, S.A.L., for example, uses some 250 percent more raw milk than does the former organization. BAMBI, as has been noted, consumes approximately 4330 kilograms of raw milk in its daily manufacturing processes. Foremost, on the other hand, during the writer's tour of that plant, has been discovered to receive daily for its production requirements 11,000 kilograms of raw milk, and this not including the firm's ice cream output.[81] In fact, not one of BAMBI's respectable contestants, as, for example, Dumit, Karoun, Dairy House, High Life and Tip-Top, consume less than 1,800 kilograms of raw milk daily, or the equivalent in milk powder, and estimates of the total consumption of these commercial dairyists amount to over 27,000 kilograms daily. (Foremost, at 11,000; BAMBI, 4330; Dumit, 3200; Karoun, 2100; Dairy House, 2100; High Life, 1850; and Tip-Top, 1800).

Obviously, then, the demand as well as the possibility of

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[81]Data compiled from interviews with Mr. Nasser al-Amin, Production Supervisor, Lebanese Foremost Dairies Corporation, S.A.L., Khalde, Lebanon, December, 1965.

increasing sales on the part of the BAMBI does exist. What makes this statement so overwhelmingly true is the fact that the BAMBI's consumption of raw milk daily amounts to less than 15 percent of the total 27,000 kilograms, which, in turn, is itself a fraction of the actual figure consumed daily in the Lebanon. Mr. S. Ghosn has indicated that were the sales of dry milk to be added to those of the previously described commercial dairyists, then the BAMBI's share of this would amount to not 15 percent, but rather 5 percent, as powdered milk activity easily triples that of liquid raw milk.

It has been noted that Lebanon's per-capita income exceeds that of most of the neighboring countries. Just what influence does this factor have on the size of the local market with special reference to the dairy industry in general and specifically, the Lebanese Dairy Company. There can very little doubt that, within reasonable limits, income or price changes seriously affect sales of dairy products, as evidenced by the following reportage:

> "Studies of varied United States milk markets have revealed that milk consumption is influenced only slightly by small changes in the retail price or in the income of the consuming public. An excerpt from the results of a detailed investigation of the milk market of Chicago based on the daily sales (of dairy products) to more than 200,000 families leads to the conclusions that:
>
> "Theoretically and actually, an increase in the retail price of milk will decrease consumption while lowering the price will increase consumption. The extent to which price affects demand, however, is frequently overestimated.
>
> "For example, an increase or decrease of one (U.S.) cent per quart (liter) of milk changes the average consumption by less than one percent. It would appear, therefore, that

> the demand for milk (and other allied products) is relatively inelastic. Advances of the retail price by one cent at a time will have very little effect on sales. There is a limit, undoubtedly, beyond which the price cannot be advanced without a sharp reduction in demand occurring."[82]

It is the intention here, therefore, to emphasize that insofar as the Lebanese Dairy Company is concerned, poor sales performance cannot be hidden behind an excuse of "market narrowness". Furthermore, nothing has been said about that large percentage of local consumers who do not purchase ready-made dairy products from such suppliers as BAMBI. This comparatively vast reservoir of untapped sales potential remains, for the most part, ignored by the Company, much to its detriment.

The Consumer

The clientele of the Lebanese Dairy Company is composed of several groups, each with its own income, habits and tastes. BAMBI products, for example, have found ready markets in such diverse parts of the greater Beirut area as the Nahr district and the ultra-residential streets of Ras Beirut and the Pigeon Rocks. Furthermore, the foreign community of the country must also be appealed to, as these residents represent a sizeable percentage of dairy sales,

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[82]Rowland Willey Bartlett, Co-operation in Marketing Dairy Products (Charles C. Thomas, Springfield, Ill., 1931), p. 184, et passim.

especially in those neighborhoods where they are clustered.

Speaking generally, the local consumer, especially in the lower income brackets, remains comparatively unsophisticated about his shopping and the goods he purchases. For the most part, price remains the decisive factor in determining local consumption patterns. Since 1964, studies carried out by Mr. Ghosn, sales manager, on behalf of the Company, have tended to confirm the BAMBI's convictions, based on experience, about its clientele. Insofar as BAMBI products are concerned, statements by each of the firm's driver-salesmen when interviewed separately, strongly indicate that the Lebaneseconsumer is typically suspicious, unwilling to change and reluctant to try new things.[83] The consumer, on the other hand, not being overly sophisticated is uninterested in hearing what is to be said, is easily led and not too discriminating. Further, being easily led, he responds readily to basic stimuli such as bright colors, clever singing commercials, jingles and the like.[84] Finally, it was stated that the Lebanese consumer is a great imitator, definitely impressed by the prestige and popularity any one article enjoys in the market.

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[83]Individual interviews held by the writer took place during November, 1965, at the plant site, Chiah.

[84]This finding may well ultimately result in a change of design and coloring of BAMBI packaging.

Higher income customers, however, are found to pay the strictest attention to such details as sanitation, fat percentage, general appearance, calorie content, container, and the reputation of the manufacturer in the local markets. In fact, BAMBI in an appeal aimed directly at this group of clients, is presently considering the advisability of commencing on a two-pronged attack of the local dairy market. The bases of this attack would be the nutritional value of the Company's dairy products, as well as the introduction of a new range of dairy goods made from skimmed milk, for the weight-conscious consumer.[85]

The following table indicates the nutritive value of milk, as compared to other commonly consumed articles of food.[86]

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[85]Shortly, in conjunction with Mr. M. Chatila of Uncle Sam's and Sam's Self Service restaurants, of Rues Bliss and Jeanne d'arc, respectively, BAMBI will test, in limited quantities, skim milk and laban made from skim milk, in packages so labelled. The intention will be to measure the market potential and possible acceptance of these products.

[86]It should be noted that according to Mr. H.Shehadeh, General Manager, BAMBI's fresh whole milk compares favorably with whole milk characteristics, as listed in Table 20. Mr. Shehadeh bases his statement on periodic tests that BAMBI milk is subjected to at the American University Hospital; in an interview with the writer, December, 1965, Chiah.

TABLE 20

NUTRITIVE VALUE OF COMMON FOODS

All figures per 100 g. or 100 ml.	Calories	Protein (g.)	Fat (g)	Carbo-hydrate (g)	Calcium (mg)	Iron (mg)	Phos-phorus (mg)
Cream cheese	813	3.2	86.0	-	29.6	0.14	44.0
Bacon	509	12.5	49.3	0	13.5	0.9	94.0
Cheddar cheese	423	25.0	33.0	-	810.0	0.57	545.0
Roast Beef	385	21.3	32.1	0	5.8	4.6	237.0
Honey	288	0.4	-	76.4	5.3	0.39	17.0
White bread	241	7.9	0.7	53.7	23.1	1.0	73.0
Eggs	163	11.9	12.3	0	56.0	2.53	218.0
Potato (raw)	87	2.1	-	20.8	7.7	0.75	40.3
Whole milk	66	3.3	3.7	4.8	120.0	0.08	95.0
Apple (whole)	36	0.2	-	9.3	2.8	0.23	6.7
Orange (whole)	27	0.6	-	6.4	31.0	0.25	17.8

Source: W. B. Adams, et.al, Food Industries Manual (Chemical Publishing Company, Inc., New York, 1958), pp. 390-1.

It would appear, then, that BAMBI's future tactics may well include explicit emphasis on such points as nutrition and calorie counts, for the more sophisticated of its clients, as well as more vivid packaging and reconsidered price schedules for the less educated consumer. Further, studies having to do with the acceptability by the market of new products are also to be carried out in the near future. These studies are to be based on a new product line designed especially for those desiring dairy products' wholesomeness, yet weight-conscious; merchandise manufactured from skimmed milk.

There can be no doubt that in order to survive commercially, the Lebanese Dairy Company must continuously progress and seek out those methods which will appreciably increase its sales. In so doing, the consumer must be satisfied. In order to achieve this end, BAMBI's products range must be skillfully designed to incorporate as many pleasing factors as possible and thus appear attractive to the majority of the Lebanese market.

CHAPTER V

FINANCIAL CONDITIONS

New Funds

Briefly, the three major functions of financial management are:[87]

1. Determination of the need for new capital.
2. Obtaining new funds on the best possible terms.
3. Effective utilization of funds in business operations.

Often, demands for additional money are considered as being reflections of working capital requirements. Is this the case with the Lebanese Dairy Company? Did the firm find itself in need of new funds? Has this financial want been determined and the most suitable capital sources located? Have the various and deserving projects been recognized and approved? The management of BAMBI is concerned with its financial requirements and its need to undertake a number of activities, as for example:

1. Increase in working capital needs to meet more numerous day-to-day activities resulting from expanding operations, such

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[87]H. N. Broom and J. G. Logenecker, Small Business Management (South-Western Publishing Company, Inc., Cincinnati, Ohio, 1961), p. 278.

as greater selling expenses and credit extension.

2. Establishment of effective advertising and promotional budgets.

BAMBI, other than financing its projected, increased working capital needs, the stimulation of sales through additional credit extension, and larger advertising budgets, also proposes the following expenditures:

3. Renewal and expansion of the transport fleet in order to increase BAMBI's market coverage.

4. Re-location of the plant site.[88]

TABLE 21

PURPOSES FOR WHICH LEBANESE DAIRY COMPANY WOULD EMPLOY ADDITIONAL FUNDS, IN PERCENTAGES, 1966 & 1967

Year	Working Capital	Advertising and Other	Plant & Equip. Inc. Fleet Renew.	Other, Inc. Credit Ext. Plant Reloc.	Miscellaneous
1966	45	17 1/2	30	7	1/2
1967	55	15	20	9	1

Source: Mr. S. Ghosn, sales manager, Lebanese Dairy Company, January, 1966, during an interview at the plant site, Chiah. Based on Table 9 as presented in National Association of Manufacturer's Financing Small Business, 1955 (National Association of Manufacturers, Economic Series, No. 70, January, 1956, New York), p. 12, et passim.

[88] It will be remembered that BAMBI, for a fee of L.L.500, monthly, rents its present site from Light Metal Products, S.A.L. Both firms are owned by Mr. Badie Bulos.

It appears that the two main items of interest with regard to BAMBI's financial requirements are working capital and plant and equipment, for both 1966 and 1967. It should also be noted that substantial percentages have been suggested for both advertising and credit extension operations.

Insofar as the relative importance of these projects is concerned, plant re-location is without doubt the most pressing problem facing the firm.[89] Before the end of 1966, the Lebanese Dairy Company must vacate its premises to make way for the plant expansion of Light Metal Products, S.A.L. In other words, the BAMBI during this year must rent or build and prepare its new quarters, must adequately stockpile the market outlets to insure sufficiency during the transitional period, and, finally, must effect the move.

Insofar as sales expansion is concerned, it is the opinion of the Lebanese Dairy Company that additional credit allowances as well as considerable advertising and other promotional efforts, would be influential. BAMBI allows its clients a maximum of thirty days to render payment. Ordinarily, the customer has until the end of the month during which the dairy products were purchased, to settle.

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[89]These items will be dealt with in more detail in the appropriate sections of Chapter VI: Problems.

Many grocers and sandwich stalls find this method of payment too demanding and would prefer that the collection period be lengthened. Further, a percentage of the funds which would be allotted to the expansion of credit would be employed to finance a series of discounts designed to increase BAMBI's sales per establishment (and, therefore, its total sales), such as quantity discounts, for example. It is the intention of the sales manager to allow quantity discounts on orders of reasonable size, which would be only slightly greater than what is presently the case. In this way, it is felt that a practical goal would have been established which would serve two purposes simultaneously:

1. Encourage the grocer to expand his sales of BAMBI products by a slight margin, and thereby benefit from the offered price reduction.

2. Increase BAMBI's sales to individual stores and, thus, the Company's total sales; any loss of income resulting from discounts offered to be more than offset by the decreasing per-unit cost, as determined by the increase in output. In other words, a serious method of increasing sales is considered to be the offering of a variety of discounts, notably discounts for larger quantities ordered. This would result in more sales, which, in turn, would result in greater production and, therefore, reduced per-unit costs, which would more than make up for any income lost as a result of these discounts or price reductions.

Ideally, Mr. Ghosn would like this prong of the campaign to be co-ordinated with an effective advertising effort which would enhance BAMBI's image and market position, and justify more enthusiasm on the part of the firm's retailers. The plan, then, is to

provide for comprehensive advertising to create consumer interest and demand. To further attract the consumer, the proposed changes in BAMBI packaging will be effected. New sales and increased total consumption would be expected at the retail level. To help supply more momentum to the activity surrounding BAMBI products, the Company will assist its retailers by granting them larger credit facilities and varied discounts. The result would be that the increased consumption by ultimate consumers would be met by increased orders placed by grocers and offered for sale.

In order to perform as planned and expand operations, BAMBI finds itself in need of larger and newer transport facilities. In other words, for the first time since its establishment, the firm is considering seriously the expansion of its distribution network to cover the large cities and villages of the country.[90]

Finally, this envisioned increase of business would mean additional expenditures on raw materials, production expenses, selling expenses and such general expenses as fuel oil, electricity and water, and interest and other bank charges. New funds would be needed to finance these more numerous day-to-day operations as well as other supplementary, yet unforeseen contingencies.

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[90]The Lebanese Foremost Dairies Corporation have a fleet of more than twenty vans to support their national coverage of the country's markets.

Control (Statements of Account)

Like most Lebanese manufacturing concerns, the BAMBI prepares its financial statements more for Company convenience than to comply with any existent legislation. In other words, the Lebanese Dairy Company presents these statistical accounts to the top management, including the owner, Mr. Badie Bulos, to not only describe the firm's activities during the fiscal period encompassed by the statements, but also as a basis for future planning and decision-making. The fact that the public authorities may well find these listings of tremendous benefit in the preparation of taxation schedules, industrialization policies and other schemes, is only of passing interest to BAMBI.

On the following pages appears a comparative balance sheet of the Lebanese Dairy Company, for the years 1963 and 1964. It is interesting to note that such fixed assets as machinery and equipment, vehicles, furniture and fixtures, et.al., are shown at cost with their respective reserves for depreciation listed among deferred liabilities. In this way not only is the original investment illustrated but also any additional acquisitions in subsequent years, such as, for example, vehicles.[91]

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[91]One conservative school of accounting thought argues that all depreciable assets must be listed with their respective reserves for depreciation immediately below the asset. Other comments on the separation of assets from their reserves for depreciation would seem to indicate that a certain degree of

Any comparisons of the figures listed in the respective statements for the years ending December 31, 1963 and 1964, reveal that the passing of one year's activity had resulted in the following differences:

1. A decrease of L.L.776.92 in Total Current Assets.
2. An increase of L.L.48,479.13 in Total Fixed Assets.
3. An increase of L.L.650 in Total Intangible Assets.
4. An increase of L.L.7,742.60 in Total Current Liabilities.
5. An increase of L.L.14,259.15 in Total Deferred Liabilities.
6. An increase of L.L.26,350.26 in Total Net Worth.

The comparative balance sheets for the periods ending December 31, 1963 and 1964, are to be found on the following pages and describe not only the changes in figures listed but also qualify these adjustments by measuring the statistical fluctuations by percentage readings.[92] In this connection, it should be noted that from December 31, 1963, to December 31, 1964, total assets increased from L.L.301,314.25 to L.L.349,666.46, or by L.L.48,352.21. The same, of course, can be said for total liabilities and net worth, for the same period of time.

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inflation occurs and that assets should not be allowed to enter balance sheet sub-totals at their original costs but rather at their net value after depreciation has been taken into account.

[92]Any discrepancies in percentage figures listed in the comparative balance sheets result from rounding.

LEBANESE DAIRY COMPANY

Comparative Balance Sheet
December 31, 1963 & 1964

Assets

	1964	%	1963	%	+ Increase - Decrease
Current Assets:					
Cash on hand and at banks	12,024.61	3.4	22,351.55	7.4	-10,326.94
Sundry debtors	42,550.83	12.2	51.432.19	17.1	- 8,881.36
Bottles, jars, caps, cartons	63,043.55	18.6	36,187.57	12.1	+26,855.98
Processed mats.	2,306.25	0.7	7,490.25	2.5	- 5,184.00
Finished goods	2,449.30	0.7	7,689.90	2.5	- 5,240.60
Sundry stores	12,000.00	3.4	10,000.00	3.3	+ 2,000.00
TOTAL CURRENT ASSETS	134,374.54	38.4	135,151.46	44.8	- 776.92
Fixed Assets:					
Machinery and Equipment	149,288.40	42.7	116,141.18	38.7	+33,147.22
Vehicles	38,994.95	11.1	29,900.30	9.9	+ 9,094.65
Furniture and Fixtures	6,656.50	1.9	5,316.41	1.8	+ 1,340.09
Crates	11,112.07	3.2	8,571.90	2.8	+ 2,540.17
Cans	3,166.26	0.9	909.65	0.3	+ 2,256.60
Lab. equipment	1,140.75	0.3	860.35	0.3	+ 280.40
TOTAL FIXED ASSETS	210,358.92	60.1	161,879.79	53.7	+48,479.13
Intangibles:					
Key Money (Hamra St.)	3,850.00	1.1	3,500.00	1.2	+ 350.00
Trade Mark Rights	1,083.00	0.3	783.00	0.3	+ 300.00
TOTAL INTANGIBLES	4,933.00	1.4	4,283.00	1.4	+ 650.00
TOTAL ASSETS	349,666.46	100.0	301.314.25	100.0	+48,352.21

LEBANESE DAIRY COMPANY

Comparative Balance Sheet
December 31, 1963 & 1964

Liabilities and Net Worth

	1964	%	1963	%	+ Increase - Decrease
Current Liabilities:					
Due to banks	6,875.30	1.9	4,661.65	1.5	+ 2,213.65
Notes payable	11,112.00	3.2	9,190.00	3.5	+ 1,922.00
Accounts payable	18,908.80	5.5	15,551.85	5.1	+ 3,356.95
Income tax (payable) provision	3,000.00	0.9	2,750.00	0.9	+ 250.00
TOTAL CURRENT LIABILITIES	39,896.10	11.1	32.153.50	10.7	+ 7,742.60
Deferred Liabilities:					
Reserves for Depreciation:					
Machinery & Equipment	89,063.81	25.4	82.687.91	27.4	+ 6,375.90
Vehicles	25,211.73	7.2	19,817.65	6.6	+ 5,394.08
Furniture & Fixtures	2,176.16	0.6	1,782.24	0.6	+ 393.92
Crates	4,297.55	1.2	3,792.50	1.3	+ 505.05
Cans	1,125.20	0.3	927.40	0.3	+ 197.80
Lab. equipment	610.85	0.2	548.70	0.2	+ 62.15
Provision for Staff Indemnity	3,071.25	0.9	1,750.00	0.5	+ 1,321.25
TOTAL DEFERRED LIABILITIES	125,556.55	35.1	111,297.40	35.6	+14,259.15
Net Worth:					
Capital Account	153,890.59	44.0	137.625.73	45.6	+16,264.86
+ Profits	30,323.22	8.7	20,237.62	6.7	+10,085.60
TOTAL NET WORTH	184,213,81	52.7	157,863.55	52.3	+26,350.46
TOTAL LIABILITIES AND NET WORTH	349,666.46	100.0	301,314.25	100.0	+48,352.21

LEBANESE DAIRY COMPANY

Manufacturing Account for the Period Ending
December 31, 1964

			L.L.
OPENING INVENTORY			
Processed Materials	1,173.65		
Cartons	22,166.45		
Caps	7,053.30	30,393.40	
PURCHASES			
Milk			347,211.40
Processed Materials	8,369.60		
Cartons	67,567.65		
Caps	3,179.20	79,116.45	109,509.85
			456,721.25
CLOSING INVENTORY			
-less-			
Processed Materials	2,306.05		
Cartons	14,033.40		
Caps	6,641.35		22,980.80
TOTAL COST OF RAW MATERIALS CONSUMED			433,740.45
-add-			
General Expenses	4,517.20		
Fuel Oil	3,453.85		
Electricity and Water	4,031.10		
Machinery Repairs	5,148.25		
Rental Charges	6,000.00		
Plant Repairs	1,200.00	24,350.40	
Depreciation Expenses-			
Machinery (10%)	14,928.84		
Cans (5%)	316.62		
Laboratory Equip. (10%)	114.07		
Staff Indemnity Prov.	2,195.15	17,554.68	41,905.08
-plus additional yet undefined expenses			27,701.71
COST OF MANUFACTURING			503,347.24

LEBANESE DAIRY COMPANY

Trading Account, as at
December 31st, 1964

Cost of Manufacturing	503,347.24		
Opening Inventory-			
Finished Goods	2,512.05	505,859.29	
-less-			
Closing Inventory		2,449.30	
Prime Cost of Sales			503,409.99
Selling Expenses:			
Sales Salaries	29,517.75		
Sales Expenses	3,263.00		
Motor Vehicle Expenses	18,142.60		
Sales Commissions	4,949.40		
Rent, Hamra St. Outlet	1,000.00		56,872.75
Depreciation Provisions:			
Motor Vehicles, at an annual rate of 10%	2,844.90		
Crates at 5%	555.60		
Provision for Staff Indemnity	3,071.25		6,471.75
NET COST OF SALES			566,754.49
Gross Profit			68,036.60
	634,791.09		
SALES	634,791.09		634,791.09

LEBANESE DAIRY COMPANY

Profit and Loss Statement,
as at December 31st, 1964

Gross Profit b/f			68,036.60
Miscellaneous Income			1,579.30
			69,615.90
Administrative Expenses:			
Salaries and Wages	11,161.25		
General Expenses	9,141.35		
Discount Account	4,942.39		
Postage and Telephones	1,146.55		
Stationery and Printing	2,549.15		
Transport Expenses	4,243.95		
Municipality Taxes	1,327.45		
Publicity and Advertising	300.00		
Interest and Bank Charges	1,060.14		
Depreciation Expense:			
Furniture and Fixtures at 7 1/2%	349.20		
Provision for Staff Indemnity	3,071.25		39,292.68
NET PROFIT		L.L.	30,323.22

The preceding financial statements for the year 1964 include the Manufacturing Account, the Trading Account, and the Profit and Loss Statement, all dated December 31, 1964.[93]

In analysing financial statements of account, a variety of ratios exist, such as the Current Ratio or Working Capital Ratio, the Acid Test Ratio or Quick Ratio, the Productivity of Working Capital Ratio, the Ratio of Sales to Fixed Assets, the Ratio of Accounts Receivable to Net Sales, the Net Worth Ratio, and the Net Income to Net Worth Ratio.[94] In our treatment of the statements of the Lebanese Dairy Company, only a few of these ratios will be applied.

Current Ratio

In order to test, generally, the current financial situation of a given firm, the current ratio is perhaps most frequently employed. In other words, to determine whether the firm can meet its current liabilities as they fall due, is the function of the current ratio test, which is computed in the following manner:

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[93]At the time of this writing, figures for 1964 were the most recent published by the Company, and the only ones made available to the writer.

[94]Arnold W. Johnson, Intermediate Accounting (Rinehart and Company, Inc., New York, 1953), pp. 700-715, et passim.

$$\frac{\text{Current assets}}{\text{Current liabilities}} = (1963) \qquad \frac{135{,}151.46}{32{,}153.50} = 4.2$$

$$= (1964) \qquad \frac{134{,}374.54}{38{,}896.10} = 3.5$$

For a concern whose operations are practically on a cash basis and whose inventories are rather fast-moving, there is a tendency to regard a 2 to 1 ratio as indicative of a satisfactory current position. It should be noted that the current ratio does nothing more than emphasize the liquidity of the current position.[95]

Insofar as the BAMBI is concerned, the situation has deteriorated somewhat from 1963 to 1964, as is evidenced by the reduction of the ratio from 4.2 to 3.5, respectively, for the two years. The implication is that the Lebanese Dairy Company's ability to meet its current liabilities as they mature may have been impaired somewhat, but no actual danger exists, as the firm's ratio is well above what is considered to be the acceptable minimum of 2.0.

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[95] In that type of business where inventories are slow moving and accounts receivable outweigh cash as a basis for operations, then, perhaps, a current ratio of at least 5.0 should be maintained. Ibid., p. 702.

Acid Test Ratio

As a supplement to the Current ratio, credit analysts frequently employ the so-called "acid test" ratio which relates only cash and its immediate equivalents to total current liabilities, as follows:

$$\frac{\text{Cash + Receivables + Marketable Securities}^{96}}{\text{Current Liabilities}} = (1963)\ \frac{22{,}351.55 \\ 51{,}432.19}{32{,}153.50} = 2.3$$

$$(1964)\ \frac{12{,}024.61 \\ 42{,}550.83}{39{,}896.10} = 1.4$$

The cash and cash-equivalent position of the Lebanese Dairy Company is quite comfortable although some apprehension may be experienced at the decrease which took place in 1964, of 0.9. In other words, the BAMBI's ability to meet its current obligations as determined severely by cash and short-term receivables, only, in 1963, was a favorable 2.3. In 1964, this ratio dropped to 1.4, which is somewhat below the 1.7 ratio which is ordinarily considered acceptable.

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[96] Whereas the formula of the Acid Test ratio calls for the inclusion of marketable securities, purists of this test demand that the ratio be made more severe by relating only cash and readily marketable securities to the total of current liabilities. In either case, BAMBI lists no marketable securities in the Assets sections of its balance sheets. Ibid., p. 704.

Net Income to Net Worth

In order to measure the rate of return on invested capital, a ratio relating net income to net worth is employed, as follows:

$$\frac{\text{Net Income}^{97}}{\text{Net Worth}} = (1963) \quad \frac{20{,}237.62}{137{,}625.73} = 0.15$$

$$(1964) \quad \frac{30{,}323.22}{153{,}890.59} = 0.19$$

The above figures reveal that on an investment of L.L.137,625.73, in 1963, the Lebanese Dairy Company returned a net income from operations of L.L.20,237.62, for a rate of approximately 15 percent. In 1964, however, the position improved and on the amount of L.L.153,890.59, net income totalled L.L.30,323.22, or about 19 percent, indicating an improvement of some 4 percent from 1963 to 1964. No real or meaningful figures in the way of acceptable minimums can be offered here, as the adequacy of the rate of return on invested capital is a matter of personal interpretation, for the most part.

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[97] Ordinarily, the net income figure is taken from the firm's profit and loss statement. In our case, however, the figures were obtained from the balance sheets for the periods involved.

Net Worth Ratio

This ratio is computed as follows and measures the rate of earning power on proprietary investment:

$$\frac{\text{Total Net Worth}}{\text{Total Assets}} = (1963) \quad \frac{157{,}863.55}{301{,}314.25} = 0.523$$

$$(1964) \quad \frac{184{,}213.81}{349{,}666.46} = 0.518$$

The slight decrease from 1963 to 1964, of some 0.005 indicates a minute increase in total liabilities at the expense of proprietorship. Better net worth ratios would be interpreted more favorably and strongly imply an encouraging capital position, which, in turn, would reflect on the firm's ability to maintain long-term solvency. For 1963, then, a ratio of 52.3 percent and 51.8 percent for 1964, allow room for much improvement. The fact that a decrease exists, as previously illustrated, tends to highlight long range weakness especially where the Company's capital situation and long-term solvency are concerned.

In any classification of significant ratios, three main categories are ordinarily listed. The first category would include those ratios relating to the analysis of short term solvency, such

as the Acid Test ratio, which tests the capability of the firm to meet current liabilities from cash and/or current assets easily convertible into cash. The second category of ratios relates to the analysis of long term solvency and includes, for example, the Net Worth ratio, which measures, as we have seen, the relative amount of total capital furnished by proprietary interests. The third category of ratios is composed of those which relate to the analysis of operations. This class of relationships includes the Net Income to Net Worth ratio that can be defined as a measure of the rate of earning power on proprietary investment.[98]

In applying these tests and measurements to the Lebanese Dairy Company, it was noted that insofar as the current ratio was concerned, BAMBI scored considerably above average, with 4.2, for 1963, and 3.5, for 1964; the accepted minimum for BAMBI's type industry being a ratio of 2 to 1. The Acid Test ratio again showed the Lebanese Dairy Company again above the average of 1.7, with a 2.3 for 1963. In 1964, however, the percentage dropped to 1.4. The Net Income to Net Worth ratio allowed the reader to measure the profitability of BAMBI's invested capital. For the year 1963, the return on investment amounted to 15 percent, while in 1964, this figure increased to 19 percent. Finally, the Net Worth ratio re-

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[98] Ibid., pp. 711-713.

vealed a basic flaw in BAMBI's long range capital structure and solvency, with a 52.3 percent for 1963, and 51.8 percent for 1964, being well below the average ratio considered acceptable.

In summary, therefore, it can be stated that the Lebanese Dairy Company, on the bases of these tests, is quite well prepared to meet its current liabilities as they mature, and also that the Company enjoys a considerable degree of liquidity of the current position. On the other hand, BAMBI's ability to meet its short term liabilities from solely its cash and cash-equivalents has been seen to be dwindling, and the Company's 1964 scoring of 1.4 is not encouraging. With regard to its percentage returns on investment, the Lebanese Dairy Company has exhibited a net percentage return for 1963, of 15 percent, and for 1964, of 19 percent. Both figures are quite acceptable and the considerable increase of 4 percent which took place between the two periods in question is heartening. Finally, insofar as the long term solvency of the firm is concerned, and its ability to meet long term commitments from capital sources, the Company has revealed a fundamental fault in its equity structure which from all indications is worsening, and which must be remedied if the firm is to be able to face the future in healthy financial condition.

CHAPTER VI

PROBLEMS

The Lebanese Dairy Company like other firms concerned with manufacturing in Lebanon, faces at the present time a varied and complex array of problems, ranging in scope from those of management, finance, production and marketing, to threats posed by competition and possibly disadvantageous developments in the future.

Problems of Management

In discussions with BAMBI's management, the following objectives were listed as generally describing the major functions of management:[99]

1. Organization-	To develop and maintain a sound and clear-cut plan of organization through which management can direct and control the Company.
2. Personnel-	To develop and administer a constructive personnel development and training program designed to ensure that all positions in the Company are filled by fully qualified individuals.

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[99]Adopted from H. D. Shepherd, V. Musselman and E. H. Hughes, Modern Business (Prentice-Hall, Inc., Englewood Cliffs, N.J., 1959), pp. 374-5.

3. Planning-	To formulate well-considered plans and objectives, covering all operations, activities and expenditures, as a basis for authorization, a guide to achievement and a measure of performance.
4. Administration-	To accomplish all functions and responsibilities fully, effectively and harmoniously.
5. Costs-	To keep all costs and manpower at an economic minimum, consistent with essential purposes.
6. Betterment-	To plan, stimulate and develop improvement in methods, products and facilities, keeping abreast of the industry, and to ensure that out-moded procedures and uneconomic facilities are abandoned.
7. Employee Relations-	To make sure that all employees are accorded fair and equitable treatment and that they are inspired to their best efforts.

Insofar as the organization of the Lebanese Dairy Company is concerned, no serious problem appears to exist. The firm's management effectively guides the operations of the Company and while no detailed plan of organization is available, the general policies and objectives of BAMBI are well laid-out and clearly understood by the Company's personnel. It must be pointed out, however, that co-ordination among BAMBI's various policies having to do with production, personnel, marketing and purchasing is at best haphazard, and considerable scope for remedial action is apparent. Much neglect and inattention to policy-making and the formulation of long range plans is in evidence.

The Lebanese Dairy Company like a great majority of Lebanese industrial firms is small. Decision-making, therefore, remains restricted to a very few, and often to a single person, the General Manager. Ordinarily, it is this gentleman who alone decides on such vital matters as production, buying, selling, hiring and firing. Being well absorbed in the Company's day-to-day operations, the General Manager often finds himself with little or no time to reflect on or prepare future policies, and while the opinions of BAMBI's sales and production chiefs may be solicited, the General Manager rather jealously guards the authority invested in him by the firm's owner.

It is difficult to state whether or not short range efficiency is affected as a result of the narrowness of BAMBI's decision-making process. It should be remembered that the Company is a small manufacturing concern wholly involved with a rather specific range of products, with only one process or closely related processes. Accordingly, it is the writer's contention that BAMBI may get along well enough in its present day-to-day operations without such sophisticated tools of management as long term planning committed to paper, expert, full-time research and development, committee sponsored decision-making, and the like.

Perhaps it suffices to state that the Lebanese Dairy Company's organizational objectives are at the present time nothing more than the vague scrutinizing of the firm's strengths and weaknesses, possible

changes in consumer demands and tastes, sources and supplies of raw materials, and the possibility of disadvantageous effects resulting from increased competition, especially of those dairy products manufactured locally. What is called for is not detailed, written plans covering periods of from five to ten years hence, but rather more conscious attention to future action, trends, developments and requirements.

As has been pointed out previously, the Lebanese Dairy Company does not actively comply with any pre-determined personnel policy. Rather, company personnel are requested to assist the management in filling any position which becomes vacant. Accordingly, the sales manager may be requested to secure another salesman-driver, or the production chief asked to hire another laborer. No personnel training and development, therefore, exists or is planned. Vacant posts will continue to be filled by individuals hired for the Company by its various employees.

What about the internal employee relations? What is the Company's attitude towards employee morale, security and discipline? The management of BAMBI has done very little indeed in the field of internal and employer-employee relations. It is a fact that BAMBI's salary and wage scale are somewhat higher than the norm. It is also true that the Company takes interest in its senior employees and has often loaned them considerable sums of money and has made

available to them free legal counsel. Further, BAMBI personnel have been offered participation in a common medical plan which greatly assists the plan member in the payment of doctors' bills, prescribed medication and hospitalization.

The question of fair and equitable treatment does not really present itself. Work is mostly routine and major problems or decisions are handled by the department manager. Seldom does the General Manager find himself obliged to intervene to settle a dispute. When this occurs, however, the General Manager will most always support the department head. Accordingly, other than recourse to the appropriate governmental agencies, the employee must rely on the goodwill and judgment of his section's chief and/or the General Manager. It follows, therefore, that whenever a complaint or suggestion occur, the employee involved may take it to his immediate superior, or, if necessary to the General Manager. It is a matter of extreme difficulty for any of BAMBI's personnel, including the firm's officers, to see the owner, who very seldom visits his Company. It is up to the General Manager to raise certain points during his periodic meetings with the owner, on behalf of BAMBI personnel.

Insofar as administration or execution of policies is concerned, the Lebanese Dairy Company can be said to accomplish all its functions effectively, within certain, reasonable limits. In other words, BAMBI efficiently produces and markets its product

range, fulfills its obligations and discharges its debts and responsibilities. Accordingly, the firm's day-to-day operations are pretty well under control, and hardly vary from period to period. It must be pointed out, however, that formulation of plans and budgets for medium and long range is lacking. It is the writer's contention that with regard to planning and calculated decision-making of medium and long range character, only very slow progress can be predicted. It is a fact that the atmosphere at BAMBI is hardly hospitable to planning, yet it is felt that the desire on the part of the Company to survive commercially in an increasingly competitive market, coupled with an evidently persistent drive for profits will overcome to a great extent,inefficiency resulting from haphazard or ill-prepared decisions made at the executive level of management.

With respect to the advancement of the firm through the improvement of management, administrative methods, planning and execution, it should be noted that these objectives relate closely to deliberately pondered, long range calculations. We have already seen, however, that the BAMBI is not an active, enthusiastic practitioner of future policies composition. Accordingly, very little research and development takes place. Furthermore, little if any effort is exerted towards the promotion of harmonious relations throughout the Company.

No cost accounting techniques are employed at the BAMBI. In fact, very few formal accounting procedures are in force. The individual in charge of the firm's books is nothing more than an untrained bookkeeper whose systems are not only simple and uncomplicated, but also mostly of his own creation. A qualified and capable auditor assists in the preparation of BAMBI's financial statements at the end of the fiscal periods. For the rest of the year, however, the Company's bookkeeper is left to follow his own devices in recording the many transactions carried out by the Company. It follows, therefore, that costs so listed in the records of the Lebanese Dairy Company, may not be exact, and this is especially true of the firm's manufacturing costs. Any attempt, then, to minimize costs would require the calculation of the Company's exact costs, as a base to work from.

It should be noted, however, that the management of the BAMBI has recently taken steps to reduce the costs[100] of, basically, its raw materials. No action, whatsoever, has been taken insofar as manpower is concerned, possibly because of the fact that the question never presented itself to the Company, especially as being a source of savings or costs reductions. In other words, the policy of BAMBI has always been that so many employees are needed to accom-

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[100] The word "costs" is used here to conote invoiced costs.

plish a certain end or produce a certain product, or achieve a certain sales coverage. Only that number of employees were engaged. A reduction in the number of BAMBI personnel would hamper the firm's activities. Increase of the number of employees would result in additional wages unnecessarily. Accordingly, the manipulation of the work force to economize or reduce manufacturing expenses was not considered by the firm's management. The possibility of combining processes, deleting certain uneconomical production activities, and by so doing, reducing the number of required employees, was dismissed as being too complicated and impractical a suggestion. In other words, for the most part, the firm's status-quo insofar as improvement and costing is concerned was found to be satisfactory by the General Manager.

The shortcomings of BAMBI's administration or management may not be such as to impede or unduly delay the activities of this firm at the present stage of its development. They may well become serious obstacles to future growth, however, and as such result in disaster to the Company. Further, the shortage and unreliability of essential Company statistics, an admirable effort to avoid excessive taxation, the lack of training of both employees and officers, the short-term outlook of the firm, a certain passivity of the personnel and other similar defects of organization have adversely affected team spirit. This situation has been com-

pounded by the fact that real authority within the Company is not well delegated and defined, and as a result, a certain degree of confusion exists.

Problems of Finance

It has already been noted that the Lebanese Dairy Company suffers from a lack of systematic, deliberate planning of medium and long range policies. Accordingly, potentially beneficial projects, other than those short-term in nature, have not been seriously studied by the Company's management. It follows, therefore, that BAMBI has no actual inkling of its medium and long range financial requirements. Major considerations which should have been taken into account in the firm's long range planning remain neglected for the most part, and receive little or no attention until developed as an immediate result of the Company's day-to-day operations.[101]

There can be no doubt, however, that the Lebanese Dairy Company is in need of additional finances. As pointed out in Chapter V, Financial Conditions, the required projects are of two types:

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[101] Examples of BAMBI's short-sightedness in this regard are many, e.g.: The management of the firm did not secure the appropriate equipment for the homogenization of its dairy products until obliged to do so by the successful entry of Tip-Top's homogenized products into the local market. Being under-financed, however, Tip-Top was unable to maintain its business activities at its initial level of operation, with a resultant loss of sales.

1. Those plans calling for considerable expenditure on such proposals as the renewal and expansion of the BAMBI's fleet of vans for distribution purposes; and the relocation of the plant site. Neither of these proposals have been prepared for or taken into account by the Company's management except when they could no longer be delayed.

2. Those plans to be financed out of working capital, such as serious advertising and promotional expenditures, increases in payrolls resulting from the need for more employees, and the extension of greater amounts of credit in the market for longer periods of time.

It is apparent that the Lebanese Dairy Company's aggregate need for additional funds and/or bank credit has been growing for the past several years, but has gathered momentum during the last eighteen months. Increased market activity, increased production and the financing of the Company's expansion have been supported by additional capital injected into the Company by the owner, and the firm's profits from operations which have, for the most part, been ploughed back into the organization. A further source of finance of these activities has been the commercial banks with which the Lebanese Dairy Company has opened accounts. The major banking institution with which BAMBI deals is the Intra Bank, S.A., Beirut, which has granted BAMBI an overdraft or line of credit, facilities for the discounting of promissory notes, and the financing of letters of credit for purchases of materials from foreign sources, totalling some L.L.150,000.[102]

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[102] In this regard, it should be noted that the owner of the BAMBI, Mr. Badie Bulos, not only enjoys an excellent reputation in the country, and, accordingly, would find it relatively easy matter to secure funds from a bank in Beirut, but also is one of the founding members of Intra Bank, S.A. This fact may help explain the close co-operation which exists between the Lebanese Dairy Company and Intra

Ideally, the Lebanese Dairy Company would like to increase its capital by L.L.200,000, up to L.L.550,000, in order to carry out those projects which, in the opinion of the Company's management, are essential to the continuation of BAMBI's success in the market. Briefly, the amount of L.L.200,000 would be divided equally between the Company's working capital requirements (i.e. L.L.100,000 for such projects as increased advertising, promotion and credit extension); and such projects as renewal and expansion of the fleet of vans, and plant relocation, would receive L.L.100,000. The Company's management has sufficient plans for the desired funds, but, unfortunately, remains uncertain as to the source of these funds. In other words, while no one at the executive level of the Lebanese Dairy Company debates the fact that additional financing is needed urgently, no one can state with certainty from where these finances are to be secured.

In discussions with the General Manager relating to the financial problems of BAMBI, three possible sources of these needed funds were listed:

1. The owner of the Company.
2. Transforming the BAMBI from a single proprietorship into a partnership and utilizing the new partner(s)' shares of investment.

Bank, S.A. Whether BAMBI would have been granted facilities amounting to almost half of its capital by Intra Bank, were it not that the Company belongs to Mr. Bulos, is a question of some interest which, however, need not concern us at this time.

3. Commercial banks.

The writer's suggestions in this respect, included:

4. The Agricultural, Industrial and Real Estate Bank (A.I.R.E.).
5. Transforming the BAMBI from a single proprietorship into a corporation, or societe anonyme Libanaise.

It is to be noted out that the firm's owner, as a result of investment in varied other enterprises, has expressed an inability to contribute such an amount to the Company's capital, and, in fact, has suggested that the necessary financing be secured from other legitimate sources, without his personal intervention if this is possible. Further, the owner has been insistent that the Lebanese Dairy Company vacate its premises in favor of another of his firms, the Light Metal Products, S.A.L., owner of BAMBI's present site.

Before any decisions could be taken regarding the possibility of inviting new partners to participate in the Lebanese Dairy Company, the approval, of course, of the owner, Mr. Bulos, is necessary. Whereas it would appear that in all probability new partners may be attracted, Mr. Bulos has remained adamant in refusing to dilute his present ownership and control of the Company. It follows, therefore, that not only is it impractical to attempt to seek to secure the necessary funds from new partners, but shareholders as well, in the event that the Company were incorporated. A further objection to the transforming of the BAMBI into a corporation is the great number

of formalities and time involved in so altering the character of the firm. It is estimated that a period of one year is required to incorporate the Lebanese Dairy Company.

Commercial banks in the Lebanon are in possession of tremendous amounts of both time and demand deposits, as is illustrated by the table on the following page. There can be no doubt, however, that Intra Bank, S.A., or any other commercial bank for that matter, will advance or increase the BAMBI's present arrangements and lines of credit past the amounts now agreed to, without the personal guarantee of the owner. Mr. Bulos is understandably hesitant about underwriting the needed funds and feels that the Company's management should be able to settle their own financial problems with the facilities already at their disposal, without straining his already diversified investment schedule and adding to his commitments. It would appear, therefore, that this possibility or potential source of financing should also be discarded, at least until all other probabilities have been exhausted.

The fifth and final suggested source, the semi-government A.I.R.E. bank cannot, unfortunately, be considered as a probable supplier of the required funds. The A.I.R.E. bank, while in a position to encourage local industrial efforts, does so ordinarily when the loans to be granted are to be used for such specific purposes as the purchase of new equipment for manufacturing from abroad.

The Lebanese Dairy Company has been advised of the apparent difficulty of securing funds from the A.I.R.E. bank for such objectives as increased advertising and promotional activity and the extension of greater credit to the market. Furthermore, the A.I.R.E. bank definitely prefers those applicants who own both the land and building which they occupy. This is not the case with BAMBI.

TABLE 22

VOLUME OF BANK DEPOSITS, COMMERCIAL BANKS OF LEBANON, 1963, IN MILLIONS OF L.L.

End of Month	Time Deposits	Demand Deposits	Total Deposits
January	141.3	1101.1	1242.4
February	145.4	1104.1	1249.5
March	144.6	1098.9	1243.5
April	145.6	1114.9	1260.5
May	149.0	1152.8	1301.8
June	152.2	1151.8	1304.0
July	175.3	1184.1	1359.4
August	168.1	1195.7	1363.8
September	169.9	1243.6	1413.5
October	175.2	1262.1	1437.3
November	178.2	1266.3	1444.5
December	184.0	1267.7	1451.7

Source: "Arab Economic Report - General (sic) Union of Chambers of Commerce, Industry and Agriculture for Arab Countries", published by the Permanent Office, General Union of Arab Chambers of Commerce, Industry and Agriculture, February, 1964, Beirut, Lebanon, p. 49.

From the foregoing discussion it becomes readily obvious that no apparent source of financing is available, and that this is the dilemma presently facing the BAMBI. From where are the funds essential to the Company's continued commercial survival to be secured? As this matter had not been accorded the proper amount of scrutiny and preparation, it is presently a most pressing problem. Accordingly, time is of the utmost value, and every day which passes without the proper steps being taken brings the Lebanese Dairy Company that much closer to the brink of disaster, so to speak. As of this writing, no practical solution has presented itself to the Bambi's management. The General Manager simply entertains the rather vague hope that the owner will not allow the situation to continue indefinitely, and will intercede to save the Company as he has done repeatedly in the past.

Before continuing on to the problems facing BAMBI's management in its production operations, it is felt that a brief, general listing of the loans and discounting operations in the Lebanon should be rendered:

TABLE 23

LOANS AND DISCOUNT OPERATIONS, COMMERCIAL BANKS OF LEBANON, 1963, MILLIONS OF L.L.

End of Months	Loans[a]	Discounts	Total
January	862.9	258.1	1121.0
February	870.8	257.1	1127.9
March	872.1	252.6	1124.7
April	874.8	252.4	1127.2
May	882.2	251.5	1133.7
June	812.9	251.6	1064.5
July	816.3	248.7	1065.0
August	812.8	259.6	1072.4
September	833.6	247.7	1081.3
October	841.0	247.0	1088.0
November	842.6	250.9	1093.5
December	831.8	257.3	1089.1

[a]Including governmental loans, but excluding loans extended by the A.I.R.E. bank.

Source: "Arab Economic Report - General (sic) Union of Chambers of Commerce, Industry and Agriculture for Arab Countries", The Permanent Office, General Union of Arab Chambers of Commerce, Industry and Agriculture, February, 1964, Beirut, Lebanon, p. 49.

Problems of Production

It is an evident fact of economics that if dairyists do not receive prices high enough to meet their costs, especially in the long run, production will decrease or, eventually, cease entirely. On the other hand, if prices paid exceed costs by a substantial margin, production will increase and most probably, a larger number of firms will enter the field.[103] In a country of uncertain or changing demand patterns and in which equilibrium has not been attained in the dairy field, such as is the case in Lebanon, while adjustment is taking place a considerable degree of over-production may exist not only generally, but also in most of the individual firms as well. A certain amount of surplus, then, is often carried which may, fortunately, be used to guard against shortages arising from sudden changes in supply and demand of dairy goods locally. It has been the experience of the Lebanese Dairy Company that individual dealers, especially the smaller ones, will shift the burden of such strategic storage onto the manufacturer, depending on the latter to

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[103] It is of interest to note in passing that countries with intensively developed dairy industries are presently enjoying an unprecedented boom in the exportation of these goods. The following article highlights this situation. Under the heading "U.S. Animal Exports": The Agriculture Department (Of the U.S.) has calculated the value of U.S. exports of animals and animal products during fiscal 1964 at $783 million an increase of 29 percent from $605 million of a year earlier. The Department said this substantial increase resulted from larger exports of dairy products, animal fats and red meats. There was also a moderate gain in poultry meat. (Source: NEW YORK HERALD TRIBUNE, International Edition, daily newspaper, Paris, Friday, August 21, 1964, No. 25380).

promptly meet any unexpected deficiencies.

BAMBI's production schedules, therefore, must take into account both historical sales figures as well as allowances for unforeseen market behavior. Insufficient surplus in cold storage, immediately available for distribution to the market, may result in loss of sales, and what is more serious, loss of client. In other words, consumer demand at the retail level is not ordinarily postponable and must be met from BAMBI's stored goods. A call from a retailer for additional BAMBI merchandise will, in most cases, if left unanswered, result in the retailer switching his order to BAMBI's competitors. In this manner, not only is the sale lost, but an opening has been offered to the competition. On the other hand, however, too large a surplus or safety margin of stored dairy products is not desirable and may yield spoilages or the sale of dairy goods with reduced shelf-life.

A major production problem, then, facing the Lebanese Dairy Company is the manipulation of its productive efforts in order to respond promptly to unexpected requests from the market but not by risking the distribution of non-fresh merchandise or spoilage returns. It should be noted that BAMBI's production department relies heavily on the advice and suggestions of the sales force. Sales statistics, for example, have allowed cut-backs in the firm's output during such periods as Lent and Ramadan, when consumption of dairy products in the market falls considerably. The very perishability of dairy products, however, sharply limits any remedial action aimed at

strategically locating sufficient quantities of BAMBI merchandise in order to comply with unexpected increases in demand.

Another problem which confronts the Lebanese Dairy Company, although not pressing yet undoubtedly a serious obstacle to future growth, is the expansion of the firm's present range of products, in order to appeal to a still wider segment of the local market. BAMBI, as a result of financial and technical limitations, is unable to expand its product range to include, possibly, such items as ice cream,[104] whipped cream,[105] concentrated milk,[106] concentrated milk products,[107] cottage cheese,[108] and creamed cottage cheese.[109] Unfortunately, the

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[104]Defined as a frozen food containing cream or butter-fat, flavoring, sweetening and, usually, eggs.

[105]A cream to which has been added a harmless gas to cause whipping. It may also contain sugar and a harmless flavoring and stabilizer.

[106]Concentrated milk is a fluid product, unsterilized and unsweetened, resulting from the removal of a considerable portion of the water from milk. When recombined with water in accordance with instructions printed on the container, the resulting product conforms with the standards for milk fat and solids, not fat.

[107]Concentrated milk products shall be taken to mean and include homogenized concentrated milk, vitamin D concentrated milk, concentrated skim milk, concentrated flavored milk, and other variations.

[108]Soft uncured cheese prepared from the curd obtained by adding harmless lactic acid-producing bacteria. It contains no more than 80 percent moisture.

[109]Prepared by mixing cottage cheese with pasteurized cream, and contains no more than 80 percent moisture.

lack of sufficient funds, equipment and technical knowledge on the part of the production department, prohibit the manufacture of any of these articles by BAMBI. Accordingly, at the present time, the production department is incapable of producing any new dairy products which may be potentially marketable.

Persistent discussion with both the manufacturers and retailers of BAMBI merchandise has allowed the writer to compose a list of the major complaints relating to these products, which may be traced directly to the Company's production department.

1. Ropy milk, or, in other words, the separation of the milk's constituents. Such separation may occur in also those dairy products manufactured from ropy milk.

2. Unusual flavors, ordinarily a result of strange flavors in the raw milk which should have been extracted in the production process.

3. Poor creaming or a meager cream layer, which occurs only in those dairy products which are non-homogenized.[110]

4. Unusual odors, ordinarily a result of poor de-odorizing efforts during the production process.

5. Negligent cleaning of bottles and other containers.

6. Erratic delivery resulting from production break-downs and other delays.

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[110]It is interesting to note that in the Lebanon, the importation of foreign skimmed milk powder is forbidden to the country in general and especially the dairy industry, but is allowed, however, in specified amounts to certain manufacturers such as chocolate producers. Accordingly, contrary to popular opinion, milk products manufactured locally having meagre cream contents do not contain dry skimmed milk as an ingredient.

7. Inconsistency of quality.

Each of these production problems can, fortunately, be overcome by the application of more strict supervision and control techniques of both the raw materials employed as well as the actual manufacturing activity. In this connection, it should be noted that inspection of the BAMBI's final products before refrigeration and distribution is, at best, a most casual proceeding. This fact often impairs the presentation and appearance of BAMBI products much to the detriment of the Company's sales. Accordingly, perfectly good merchandise will remain unsold because of dust on the outside of the milk containers, crushed cartons, improper heat sealing of waxed packaging and similar factors. Sales are lost and, of more importance, the reputation of the products of the BAMBI is hardly enhanced.

From the following table it is apparent that BAMBI is one of over one thousand establishments engaged in the manufacture of foodstuffs in the Lebanon, 1963-'64.

TABLE 24

LEBANESE INDUSTRY CHART FOR 1963-'64

Type	No. of Establishments	No. of Workers	Capital L.L.1,000
Foodstuffs[a]	1,019	6,536	110,871
Soft drinks	208	1,907	28,956
Textiles	172	6,000	86,373
Shoe making	60	627	2,629
Hosiery	214	3,000	16,000
Lumber industry	284	3,800	24,618
Furniture	90	2,350	12,644
Paper	43	466	8,994
Printing press	230	2,222	21,326
Tanneries	120	2,400	10,000
Rubber	38	525	5,220
Chemicals	72	1,100	29,738
Oils	2	934	45,000
Mineral products	762	6,582	47,617
Metal products	69	1,914	6,197
Founderies	231	3,356	48,000
Electrical appliances	27	207	2,700
Bakeries	834	3,650	10,094
Tobacco	1	2,453	76,061
Miscellaneous	980	9,300	107,594
Totals	5,456	59,329	700,628

[a]Including the manufacture of dairy products, defined as being those goods produced from milk or cream including pasteurized and homogenized milk, laban, lebney, cheese, ice cream, and other edible milk products.

Source: BEIRUT INTERNATIONAL, daily newspaper, published by Near East Relations, S.A.L., Beirut, July 9, 1965 issue, p. 5.

As our concern here is with the Lebanese dairy industry, it should be noted that several facts well describe the local dairy manufacturing concerns:

1. A considerable percentage of the industry, with the notable exception of Lebanese Foremost Dairies Corporation, S.A.L., is composed of relatively old firms with small outputs.
2. The main products include pasteurized and homogenized milk, laban, lebney, cream, as well as chocolate milk and ice cream.
3. The raw materials involved are basically fresh raw milk and imported full cream powdered milk.
4. It is an industry which caters almost entirely to local consumption.
5. A considerable percentage of Lebanon's consumption of milk products is supplied directly by farmers and door-to-door peddlers, according to rural methods.

In an industry of this size and type which the Lebanese Dairy Company finds itself, undoubtedly several major obstacles present themselves to the successful marketing of BAMBI merchandise within the country. What are these problems and what effect do they have on BAMBI's present sales and future development?

Marketing problems

It has already been pointed out that the areas of concern, insofar as the marketing of BAMBI products is related, center around increased advertising and promotional efforts, as well as the expansion of credit extended the market, and also the actual physical coverage of the Company's market, severely limited by the size of the BAMBI's fleet of trucks.

A successful marketing program, however, will, of course, include much more than these considerations. For the sake of simplicity, the basic functions of marketing can be reduced to the following:

1. Creating consumer demand and the sale of merchandise.
2. Analyzing the market, i.e. discovering and interpreting consumer wants and consumption patterns.
3. Procuring supplies of merchandise for resale.
4. Risk-bearing.
5. Standardizing and grading merchandise.
6. Financing.
7. Transportation and storing merchandise.

The Lebanese Dairy Company has to a large extent been responsible for the successful creation of consumer demand insofar as commercially-prepared dairy products are concerned. It was, of course, the oldest dairy concern in the country, Messrs. Dumit Brothers and Company, which pioneered efforts in this field. While consumer demand grew in the capital city, assisted by the tastes and consumption patterns of the resident foreign communities, BAMBI failed to not only pace this growth in Beirut, but also to cater to it when other areas of the country commenced to express interest in factory-prepared dairy products.

Growing demand for BAMBI merchandise accounted for increasing

sales, especially during that period when BAMBI's chief competitor was Dumit Bros. and Company. By not satisfying ever-expanding consumer demand, the Lebanese Dairy Company allowed other firms to comfortably enter the field, much to its detriment. Accordingly, BAMBI retains a decreasing percentage of what appears to be a widening market.

BAMBI has, in its experience, seldom succeeded in correctly discovering and interpreting consumer wants, and, in fact, has hardly ever expended any effort on market research and analysis. It follows, therefore, that the Company has been quite slow in introducing innovations, expanding its product line, advertising, increasing market coverage, establishing new and wider channels of distribution, and, in general, maintaining the superior market position which circumstances granted it. In 1964, for example, as evidenced by the following table, some L.L.300,000 were further invested in the production of foodstuffs, including dairy goods, posing additional competition for BAMBI.

TABLE 25

PRINCIPAL NEW INDUSTRIES CREATED IN LEBANON, 1964

Type	Capital Invested in LL.1,000
Foodstuffs	300
Frozen foods	1,000
Mineral waters	2,000
Oils and soaps	2,000
Mineral oils	6,000
Processed oils	1,000
Toilet soap	300
Chemical products	200
Packing	1,100
Paper	6,000
Musical records	150
Iron products	5,500
Safes	750
Chairs	1,250
Pharmaceuticals	500
Spinning and weaving	1,200
Textiles	1,000
Underwear	300
Ready-made garments	2,000
Furniture	2,000
Total	35,800

Source: BEIRUT INTERNATIONAL, daily newspaper, published by Near East Relations, S.A.L., Beirut, July 9, 1965 issue, p. 5.

With regard to the procurement of supplies for resale, BAMBI has, of course, always been eager to supply its sales and distribution department with the appropriate quantity of its existent merchandise. It was more hesitant, however, to follow the suggestions of its sales manager, insofar as the manufacture of new products were concerned, for example. Furthermore, while BAMBI was the first concern to introduce dairy products in paper containers into the Lebanese market, it allowed a period of almost two years to lapse before following the insistent suggestions of the sales manager, in this respect. Additional evidence of BAMBI's inefficient, irresponsive marketing programs, is the fact that despite numerous complaints relating to poor creaming, BAMBI did not acquire homogenization equipment until virtually obliged to do so by the Tip-Top Company. Even though the benefits of dating BAMBI merchandise were repeatedly and forcefully pointed out by the sales department, several years of complaints and resultant ill-will were allowed to pass before the management of the Lebanese Dairy Company agreed to date its production visibly; and by so doing almost completely erased further misunderstanding on this score. Even with regard to risk-bearing, BAMBI remained quite conservative in its outlook. By attempting to minimize the risk involved in its operations to an impractical degree, the Company's management severely curtailed possibly successful ventures, delayed recommended improvements and innovations, limited the functions of its sales and distribution department, and greatly restricted its sales by the insistence on cash-only sales. It has only been recently that

BAMBI's management has come to realize the fact that credit sales need not be risky, and that, indeed, without the extension of credit, BAMBI sales will not increase, but, in fact, decline seriously.

One of the main requests of the sales department has to do with quality consistency in BAMBI products. There can be no doubt that fluctuations in merchandise quality, as determined by raw materials and the production processes involved, have a detrimental effect on BAMBI's sales. More important, however, is the need for co-operation among BAMBI and other local manufacturers and the proper governmental authorities, in order to secure the establishment and enforcement of appropriate grading schedules for all dairy products commercially-prepared in the Lebanon.

The grading of dairy products must take into consideration the following characteristics:

1. Flavor, i.e. taste.
2. Smell.
3. Body, i.e. firmness.
4. Texture.
5. Appearance.
6. Freedom from moisture.
7. Uniformity.
8. Correctness of color.
9. General appearance, i.e. the overall presentation.
10. Fat and other constituents' contents.

Grading will allow the producer to charge more for superior merchandise. It improves consumer-manufacturer relations, as the consumer is ordinarily prepared to meet the higher price for quality goods. Grading entails consumer protection, encourages quality production among manufacturers, disqualifies inferior producers, and provides a legitimate channel of sales for that merchandise of less than top quality. Milk, for example, may be Grade AAA, AA or A, as determined by the above characteristics, and especially fat contents, at suitably varied prices.[111]

Capital is required by the BAMBI, as has already been pointed out, for several purposes: for labor, materials, supplies, inventories, equipment, buildings, advertising and promotion. In the section having to do with problems of finance, this matter was presented in detail. With regard to marketing, however, it should be noted that additional finance would considerably assist BAMBI in increasing its sales not only through advertising and other promotional efforts, greater credit extension, but also by increasing the sales force, the financing of comprehensive distribution of free samples, and similar projects.

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[111] Shepherd, Musselman and Hughes, op. cit., pp. 250-61, et passim.

It is interesting to note that the management of the Lebanese Dairy Company, being confident of the quality of its products, would eagerly embrace the establishment and effective enforcement of proper grading, not only for those dairy goods produced locally, but also the milk powders being imported into the country in bulk form.

The various factors involved in the distribution and storage of BAMBI merchandise have, for the most part, been previously studied in detail. The transportation of BAMBI products has been limited by the size of the Company's fleet of trucks and also by the selection of the channels of distribution of this merchandise. It has been already noted, for example, that such Lebanese cities as Tripoli and Sidon may be supplied with BAMBI goods not necessarily by the existent direct-to-retailer procedure, but perhaps by the appointment of appropriate wholesalers. The Lebanese Dairy Company has refused to consider the possible advantages of altering its present system of distribution, and rather than benefit from the services of middlemen, would prefer to await that time when the expansion of its fleet of trucks becomes possible.

Insofar as storage is concerned, it has been noted that two such areas exist; at the plant and at the Company's branch on Rue Hamra. Again, the establishment of more such points, perhaps at wholesalers in various parts of the country, has been discussed yet not acted on by the management of the firm.

Competition in the field of dairy products in the Lebanon is fierce, especially when it is remembered that this competition occurs on two levels, so to speak. In the first place, there is competition among the country's various manufacturers. In the second place, there is competition among the various agents importing their respective dry milk powders into the country. Finally, there is

competition between the two groups.

Marketing, of course, plays an important role in this situation. As it is, in fact, the culmination of the firm's entire efforts, as much priority as possible should be granted the department involved in the sales and distribution of the merchandise in question. The Lebanese Dairy Company, unfortunately, has, for the most part, done little to assist the sales force in its activities. The firm's management has not renewed and expanded its fleet of vans. It has not, as recommended, widened its present product range. It has not allocated any funds for advertising and promotion. It has not attempted the distribution of free samples on any effective scales. It has not allowed increased credit sales. It has refused to increase its present coverage of the Lebanese market, as recommended, through the appointment of strategic wholesalers, for example. It has rejected suggested, new channels of distribution. It has refused to manipulate its pricing policies as potential sales tools. It has not allowed the granting of such discounts as quantity and cash discounts to encourage the sales of its merchandise. While it is not our intention here to list the various misjudgments committed by the firm's management in the area of marketing, it suffices to state that unless the Company's policies are altered so that more emphasis is placed on catering to and satisfying the demands of the market, little if any progress can be predicted.

Other Problems

It is of importance to note once again that the nature or type of the goods produced by BAMBI is one of perishability. In other words, storage of this merchandise is a matter of grave concern, as large stocks cannot be readily maintained at the factory, nor at the retail outlets. In fact, it is estimated that at the very most, BAMBI can support a refrigerated supply of dairy goods which would satisfy the demands of its clientele for eight days.

Technicians, however, approximate that at the very least it would take some twenty days to relocate the plant, in accordance with the requests made repeatedly by the firm's owner, Mr. B. Bulos. The problem, then, facing the Lebanese Dairy Company is not one having to do merely with the relocation of building and equipment. The question, rather, is what to do with BAMBI's clients and how to supply them during the twelve critical days during transition. To cut off the market from BAMBI products for this period would yield such disadvantageous results that the Company refuses to take such a step. To attempt to re-enter the market after such suspension of sales, would be a most difficult undertaking. Very shortly, however, the owner shall insist that the Company vacate its premises, and as the time limit for this relocation rapidly approaches, the problem becomes most pressing.

Is the BAMBI to simply withdraw from the market for the period

of twelve days or more and hand over its share of the capital city's sales to its competitors? Is there no method which might be employed to continue supply of BAMBI dairy products to its customers? If the Company suspended operations for the twelve days in question, what would its position be on re-entry into the market? These were the main queries being discussed by the management of the Lebanese Dairy Company in an attempt to satisfactorily settle the relocation problem.

A great deal of planning and study has resulted in a tentative suggestion presently under study by BAMBI officers, proposed jointly by the chiefs of production and sales. The recommendation is simply the staggered removal of equipment to previously prepared sites. In other words, the new plant should be so fully readied that the moving would entail nothing more than the placing, positioning and installation of each piece of equipment, in its proper place. Further, the equipment would be relocated in strict accordance to a pre-determined plan, so that the milk-producing machinery would be moved as one unit, the laban-producing machinery as one unit, and so on. Each piece of equipment would remain in production up to the very last minute before removal, and would, upon prompt installation, commence production immediately.

During the period of relocation, distribution of BAMBI products throughout the market would take place from the Hamra Street center, as the plant's cold storage areas would be in the process of dismantling or erection. To the Hamra branch's present refrigerated capacity another

large freezer would have to be purchased, at an estimate cost of some L.L.3,000.

Of course, to keep the two sites operating together during the period of relocation, duplicate equipment must be obtained. Another boiler, for example, for steam and hot water purposes should be purchased. As the present boiler is about eleven years old, however, a new boiler is necessary, and the older unit can be placed in reserve, or stand-by, at the new plant. The management of the Lebanese Dairy Company finds this scheme practical and even economical, especially in the long run. The whole period of relocation, if performed in the manner described, should not take more than six days, and no single BAMBI product will be out of production for more than two days. In this way, BAMBI may well overcome a pressing problem facing other Lebanese manufacturing concerns who do not own their premises, and who might one day be obliged to move to another site.

CHAPTER VII

CONCLUSIONS AND RECOMMENDATIONS

Through several centuries, little if any actual progress occurred in the dairy industry. Until quite recently, for example, knowledge of sanitation and care of perishable foods was negligible. Being almost totally ignorant of refrigeration and because milk spoiled and soured quickly, cows, goats and sheep were driven from house to house and milked on-the-spot. The milk was placed in containers furnished by the customer. The milk was then boiled before consumption to make it safe for drinking and for its use in milk products.[112] As previously pointed out in other parts of this thesis, this procedure was objectionable, to say the least. Cooking or boiling of milk results in changes in the character and in the taste of the milk which are unpleasant to the palate as well as offensive in odor.[113]

It has only been during the last century that the dairy industry

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[112]Pointed out by Eckles, op. cit, pp. 11-18.

[113]"Dairying", Encyclopedia BRITANNICA, 1962 ed., Vol. 6; p. 978, et passim.

has developed to any great extent. In fact, this development has occurred along five major lines which have resulted in the general acceptance of milk and milk products and, therefore, their commercial importance.[114]

1. The factory system of processing milk was inaugurated about the middle of the 19th century, resulting in greater uniformity of the product involved.

2. At about the same time, a method was developed for concentrating milk and sealing it in containers in and under sterile conditions.

3. As previously pointed out, the first milk that was sold in towns and cities originated from the nearby farms. The advent of cold storage not only allowed the milk to be retained for longer periods but also made it possible to transport dairy products for longer distances and, therefore, to larger markets.

4. Better transportation facilities also assisted the expansion of potential markets for dairy products.

5. The wide adoption of pasteurization and the strict enforcement of food legislation (in such countries as the United States) greatly benefited the dairy industry.

Classification

When sifting the data collected on the Lebanese Dairy Company and from this information attempting to evolve accurate conclusions, it was decided that the very first step would be to classify the BAMBI as a small business enterprise, and to define just exactly what is meant by 'small business'.

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[114] Ibid., p. 980.

"Small business" is such a common term that its meaning is often taken for granted. As a general guide to defining this term, Section 203 of the Small Business Act passed by the United States' Congress on July 30, 1953, Public Law 163, defines 'small business' as ". . . one which is independently owned and operated and not dominant in its field of operations." BAMBI, then, has been justifiably classified as a small business enterprise with the following three characteristics which distinguish the Company generally from other types of business establishments:

1. The management of the Lebanese Dairy Company is independent and the manager is free to make decisions according to his wishes or, more accurately, the wishes of his cousin, the owner of the firm.

2. BAMBI is a local firm. The Company's employees live in the greater Beirut area and almost all of the income is derived from local clients.

3. The capital of the Lebanese Dairy Company has been supplied by one person, who is the owner.

It may, with some justification, be argued that in a small country such as Lebanon and especially in local dairy activities, a firm larger than the Lebanese Dairy Company is not called for. It should be noted, however, that were the probable causes of possible failure on the part of the Company to be listed, each cause would be typical of those attributed to small businesses everywhere.

Possible Causes of Failure

1. Inadequate capital.
2. Inexperience and inefficiency of owner/management.
3. Change in competitive conditions unfavorable to the Lebanese Dairy Company.
4. Over buying and/or under-stocking.
5. Unwise credit policy.
6. Inadequate accounting records.

These six causes listed above are offered by the writer as being potentially troublesome areas in the near future of the Lebanese Dairy Company. Other causes of small business failures, generally, which do not necessarily apply in the case of BAMBI are too numerous to be mentioned here.[115]

Capitalization

There can be no doubt that one of the leading causes of small business failures in the Lebanon is under-capitalization. The spasmodic progress of the Lebanese Dairy Company can, in almost every instance, be traced to the lack of the necessary capital at the

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[115]For other causes of business failures see the magazine DUN'S REVIEW, "Why Businesses Fail", March, 1953, p. 66, and March, 1954, p. 81. A detailed discussion of the reasons of business failure is also contained in Chapter IV, A.D.H. Kaplan, Small Business: Its Place and Problems (New York: McGraw-Hill Book Company, Inc., 1948).

required time. The following table reveals the various sources of small business capital as determined by private studies carried out by the writer during the Spring and Summer of 1965.

TABLE 26

SOURCES OF SMALL BUSINESS CAPITAL IN LEBANON (L.L.)

Initial Investment	Personal Savings	Capital Stock	Supplier Credit	Bank Loans
Under 50,000	70%	-	10%	20%
50,000 - 100,000	65	2	13	20
100,000 - 150,000	58	7	15	20
150,000 - 200,000	42	10	15	33

N.B. The above data being incomplete and resulting from an inadequate statistical base should be viewed with caution.

Source: Private studies carried out by the writer during Spring and Summer, 1965.

Bank facilities

Without, therefore, the necessary capital, the Lebanese Dairy Company in its role of a modern manufacturing concern found itself frequently restricted in the various activities it carried on. Almost from the beginning, then, BAMBI relied to an important extent on the facilities granted to it by several Lebanese commercial banks, but mostly Intra Bank, S.A.L., especially for its short-term credit needs. In Lebanon, small businesses are operated to a surprising extent on credit, and the most important source of this financing is the com-

mercial bank. There are several reasons why small Lebanese businesses employ local commercial banks as a source of short-term funds. One is that these banks are willing to lend funds for mainly short periods of time. Avoiding long-term commitments and the resultant shrinkage of liquidity, yet with the desire to place depositors' money in profitable and liquid situations, these banks often compete with one another to provide facilities for Lebanese businessmen. The BAMBI, like numerous other national businesses, enjoys a variety of banking facilities, as for example:

1. Line of credit, or overdraft, up to a specified amount.
2. The discounting of bills (i.e. promissory notes), up to a specified amount.
3. The issuance of letters of credit to foreign suppliers on a deferred payment basis.

In principle, most Lebanese commercial banks offer the following facilities:[116]

I. The issuance of commercial letters of credit, on sight basis or on deferred payment basis (i.e. acceptances).

II. The issuance of overdrafts.

1. Clean (i.e. without collateral)
2. Advances against personal guarantee
3. Secured advances,

a) against bills
b) against shares

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[116] This information on banking facilities has been accumulated by the writer from interviews with bank personnel of two Lebanese banks and one American bank located in Beirut, August, 1965.

i) of the company's portfolio
ii) property of the principals of the company in outside local and/or foreign corporations

c) against real estate
d) against merchandise pledged to and under the control of the bank
e) etc.

III. The discounting of bills.

IV. The issuance of letters of guarantee (usually made out to cover the customs duty on imported goods).

Personnel management

What is Personnel Management? It has to do with planning, organizing and controlling activities that are concerned with securing, training and utilizing employees. It is the goal of personnel management to attain company objectives efficiently and economically, to the best advantage of the employees in terms of capacities, interests and opportunities. Some problems - such as employment, training, transfer and promotion - call for dealing with the labor force as individuals. Others - such as wage policies and workers' morale - call for dealing with the labor force collectively rather than as individuals.

Theoretically, the above definition of personnel management while somewhat general in character, is true. From that section of this paper treating with personnel, we know that in effect, the Lebanese Dairy Company follows no specified personnel policy. Because of this indifference on the part of the management towards its employees,

several trends have been observed:

1. Decline in morale. Morale, as we know, results from the total varied factors which combine to make up the workers' environment. It is a collective characteristic which arises from the state of mind of the group more than that of the individual. Since morale affects efficiency, it is, undoubtedly, a most important factor, which is ignored will ultimately effect harmony and production at BAMBI.

2. Absenteeism. Mainly as a result of low morale, workers' failure to appear for work at BAMBI, either voluntarily or involuntarily, has been increasing.

3. Labor turnover. The rate of change in the labor force at the Lebanese Dairy Company has for long years been of no consequence. During the last several months, however, a notable increase has occurred. It would be incorrect to state that this occurrence results wholly from low morale. More accurately, it would appear that significant increases in the cost of living in Beirut has obliged the average BAMBI worker to search for better wages.

Production

Generally speaking, it is the following characteristics which Lebanese industry, including the Lebanese Dairy Company, should strive to apply, and which are, to a large unmeasured extent, lacking in local manufacturing operations:

1. Mechanization.
2. Reasonably large-scale operations.
3. Standardization of tasks, parts, equipment, etc.
4. Specialization.
5. Research activity in production, marketing, product, etc.

The Lebanese Dairy Company studiously avoids the purchase of fully automatic equipment. Like many of its counterparts, this firm prefers semi-automatic type machinery, whenever practical, and relies on "cheap" labor to complete the functions of the non-automatic machinery. The underlying logic is simply economy. There can be no doubt that the initial purchase price of fully automatic equipment is higher than that of the semi-automatic. In many cases, however, the long run operations of the firm should be taken into more serious consideration which may justify the purchase of the more expensive machines. Secondly, it is argued by apparently knowledgeable Lebanese industrialists that local workers are not "cheap". Either they are as highly paid as some European workers, such as those of Italy, or their indifference, inefficiency and ignorance make them too expensive to retain.

To increase sales to a marked degree so that the production base could be increased in order that the per-unit cost could be reduced, was the argument presented by the writer to the BAMBI's General Manager during an interview, September, 1965. The proposed increase in sales to be secured by a variety of methods, viz. covering more of the Lebanon than just selected parts of the capital city, more credit extension to the market, some advertising and other promotional activities. While BAMBI's management ardently desired increased sales, they could not, unfortunately, grasp the definite necessity to run their plant along reasonably large-scale lines.

Standardization at the Lebanese Dairy Company is almost non-existent. The equipment is from a variety of manufacturers in a variety of countries. So, therefore, are the parts. In fact, even BAMBI's products, procedures and processes do not conform to uniform patterns. Accordingly, it is impossible to specialize the handling of each step in a process and, perhaps, to reduce costs through quantity purchases, for example, of raw materials, spare parts and the like. Further, even labor is unspecialized at the Lebanese Dairy Company. In order to keep the labor force at a minimum, drivers, for example, drive, sell, collect money, give receipts, take orders, and two of their number, being mechanically inclined, are responsible for the upkeep of the whole BAMBI fleet. The two laban 'experts' at the plant also fill milk bottles and cartons, load the trucks, wash down the machinery and plant and help place the day's production in cold storage. Specialization, as we know, refers to the narrowing down of the area of a person's labor, and is one of the chief characteristics of modern production. We are not, however, impractically advocating over-specialization which has in some instances in the more advanced countries been carried too far, with a resultant loss of workers' efficiency, interest and morale.

Lebanese industrialists, generally, including BAMBI's management, have yet to recognize the importance and necessity of research into the fields of not only production but marketing as well. Of eight small manufacturing concerns interviewed (see footnote no.71)

not a single plant had budgeted any money whatsoever on any type of research, even though companies of the more advanced countries of the world continue to appropriate larger and larger sums of money for research and development.

Purchases and inventory control

The expenditure on raw materials by the Lebanese Dairy Company is one of the firm's largest cost items. This, undoubtedly, is true of most if not all Lebanese manufacturing concerns. In the case of the BAMBI, however, on-the-spot observation allows us to conclude that in order to prevent loss, waste and perhaps even minor thefts, materials and especially finished merchandise must be brought under more strict, continuing control.

If effective control is to be exercised, the BAMBI must allocate, primarily, the responsibility for making purchases to one person. This purchasing agent must acquaint himself with the purchasing policies or routines which the Company follows. The Lebanese Dairy Company does not, in effect, maintain any such policies. Of more importance, however, is that in purchasing for the BAMBI, quite often the person purchasing is not familiar with the plant's needs nor the materials being secured. In order to buy intelligently, it would seem that the purchasing agent must be familiar with the manufacturing processes employed by the Company and with the ultimate uses for which materials are being bought. He must also be able to distinguish among

the different qualities available and determine just what qualities will suffice. Further, he must definitely be aware of new products, improvements and possibly acceptable substitutes.

Since enough materials and finished goods must be kept on hand to keep both production and marketing moving smoothly, the problem of storage of raw materials and finished merchandise is of critical importance to the Lebanese Dairy Company. Sufficient storage facilities must be provided by BAMBI management for the following categories of essential goods:

1. Raw materials which enter directly into the production process, such as raw milk, syrups, preservatives and the like.
2. Packaging materials such as glass bottles, cartons, and caps.
3. Storage must also be provided for incidental materials such as cleaning fluids, oils and parts.
4. Finally, cold storage in adequate volumes must be made available for the finished dairy products.

What should be remembered by the management of the Lebanese Dairy Company is the fact that storage is an important cost to their firm, as an appreciable amount of money is invested in the various items listed, and for which storage is or should be provided. Further, the labor costs for handling these materials should be measured and recognized as a legitimate and considerable expense. BAMBI's management is faced with a vital storage problem which, unfortunately, it does not seem to be able to cope with over-successfully. The problem

of properly balancing among several factors, such as keeping sufficient stocks on hand to assure a continuous flow of production and, accordingly, a continuous flow of sales; purchasing in sufficient quantities to secure the most attractive prices and discounts; and keeping investment in these materials to the bare, practical minimum. In other words, if the BAMBI is to avoid shortages, if its production and its sales are to be kept moving and avoid periodic stoppages resulting from shortages, and if investment in materials is to be kept to a minimum, the Company's management must exercise firmer control over its materials and supplies, and gear these factors to sales and/or changes in market demand for their products.

Marketing

"Not purchasing power but purchases, and not production but consumption, are the ruling factors of our (U.S.) economy . . . . Only as a consuming nation can we remain a producing one. We are a nation that consumes its way to property, prosperity, security and freedom. Moreover, we are compelled by the dynamic character of economic relationships to continue to do so at an ever-increasing rate".[117]

No one can state with certainty what the average Lebanese consumer's ultimate consumption will be in any field, including dairy

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[117]Paul Mazur, The Standards We Raise (New York: Harper and Brothers, Inc., 1953), p. ix.

products. Accordingly, no justification of persistently under-evaluating the potential benefits of marketing functions by BAMBI management can be based on such arguments as "narrow market", "limited purchasing power" and "unsophisticated consumers". In other words, the Lebanese Dairy Company tends to avoid any serious consideration of increased marketing activities on their part and bases this decision on the "facts" that the market is a small one, consumers are ignorant, lacking real purchasing power, etc. The term, 'marketing', to the Lebanese Dairy Company, implies nothing more than the physical distribution of the goods. That is to say that the dairy products are manufactured at the plant by the production department and then handed over to the sales section where they are marketed; which, in fact, means sent to the market.

For simplicity's sake, the various functions of marketing can be reduced to the following areas:

1. Creating consumer demand through advertising and sales promotion and in effect selling merchandise.
2. Analyzing the market - revealing consumer wants.
3. Procuring of supplies for resale.
4. Risk-bearing resulting from the purchase and sale of merchandise and the extension of credit.
5. Standardizing and grading merchandise.
6. Financing.
7. Transporting and storing merchandise.

Undoubtedly, the most important functions of marketing are to create consumer demand and then to sell the goods (or services) desired. It is exactly these two functions which the Lebanese Dairy Company almost totally ignores. The selling function is the very basis of marketing, i.e. the act of convincing potential consumers to buy the offered article, in this case BAMBI dairy products. It is more than physical delivery of merchandise and taking orders for goods. It is a calculated, imaginative approach to a challenging situation.

It is the opinion of the writer that the surest way of securing the desired response on the part of the consumer or, more accurately, the retailer is through personal contact by trained BAMBI salesmen. Although advertising can create the demand for BAMBI's products, this effort must be supplemented with competent salesmen who can make forceful, on-the-spot presentations. Interviews with the General Manager and sales manager of the Lebanese Dairy Company have led this writer to the conclusion that the Company is definitely production-oriented. This outlook coupled with the lack of available funds will undoubtedly delay any serious BAMBI marketing activity for some time to come. In fact, even the writer's suggestion that BAMBI secure the services of effective wholesalers to enter previously ignored areas such as Tripoli and Sidon, was pigeon-holed by the Company's management for "the time being". Yet, the Company is actively studying and even preparing for substantial expenditures in the firm's production department without fully determining and exploiting its potential, market-wise.

Accounting

There can be no doubt that a business enterprise catering to as many clients as the Lebanese Dairy Company depends largely on accurate accounting records for success in its varied transactions. A complete accounting of all BAMBI's business activities, such as the Company's purchases, sales, the receipt and disbursement of cash, money due and money owed, and expenses, is essential. Unfortunately, while BAMBI's accounts and records can be termed adequate, they are by no means complete. Occasionally, the firm's books are inaccurate, such as is the case insofar as clients' deposits against glass breakage with the Lebanese Dairy Company is concerned. Because of the complexity of the situation, BAMBI's bookkeeper was simply unable to keep track of the various deposits to be credited, the credits to be made when the bottles were returned, and the amounts to be deducted against breakage.

It is realized that, generally, among other things, accounting is a tool of management. As the Lebanese Dairy Company expanded and became relatively more complex in its operations, the need for scientific accounting records became more important in deducing actual costs, expenses and profits. The dairy industry in Lebanon, especially since 1964, has been the scene of keen competition among the various manufacturers and the importing merchants of dry milk. This competition has reduced the profit margin of the Lebanese Dairy Company drastically, to the point where efficiency, specifically in management, is vital to

the continued existence of the firm. Carelessness, indifference and neglect in not only keeping records but also in their interpretation and analysis can be determined as nothing less than definite signs of incompetence in BAMBI's management. Efficient management must have at its disposal accurate, adequate and up-to-date records. As BAMBI's executives are constantly struggling with problems involving the prices of raw materials, costs of labor, overhead, sales and production volumes, they cannot rely on guesswork, no matter how well grounded; their decisions must be based upon facts, correctly interpreted and organized.

Other Problems

In the opinion of the writer, other than the areas already studied, the following factors may well prove troublesome to the Lebanese Dairy Company as this firm strives to maintain its quality production, its position in the market, and its harmonious relations with BAMBI personnel.

Production

Future production problems, insofar as the BAMBI is concerned, would center around the following:

1. The need to re-locate the plant from its present site at the Chiah.
2. Increased government control and restrictions especially insofar

as sanitation and quality are concerned.[118]

3. Inefficient use of factory floor space.

4. Limited refrigerated storage capacity in view of the contemplated increase in production.

5. Poor water supply in terms of both quantity and quality. In other words, BAMBI's water supply is not sufficient to meet its production requirements, and the high percentage of foreign bodies necessitates its continuous filtration and chlorination.

6. Lack of modern manufacturing auxiliary equipment such as conveyor belts, fork lifts and the like, to assist in materials movement.

7. Confusing and non-specialized use of manpower.

8. Total dependence on public utilities, especially electricity. Electrical power at the BAMBI oscillates considerably; often, during storms, it is cut out. The installation of a small generator would allow more self-sufficiency.

9. Poor "housekeeping" or cleaning procedures which increase the possibility of foreign matter entering into the milk or dairy product, undetected.

10. Inability to increase production both in terms of quantity and variety due to the lack of needed capital for investment in equipment.

The Lebanese Dairy company may well face future marketing problems arising out of the following factors:

1. Incomplete routes and zones.

2. Indifference insofar as the securing of new customers is concerned.

3. Present inability to instigate home delivery due to the resultant ill-will of store owners.

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[118] BAMBI's plans to produce dietary milk products such as skim milk, have been blocked by government legislation which prohibits the importation of skim milk powder except for certain industries such as those dealing in chocolates, for example.

4. Inconsistency of products' quality.

5. Considerable volume of spoiled merchandise which must be returned by the Company. Because no alternative uses for this returned merchandise has been studied by BAMBI, the full cost of these goods is borne by the Company.

6. Indifference towards possible areas of production expansion, such as ice cream, cheese, flavored milk drinks, fruit, yogurt, etc.

7. Lack of advertising and other promotional efforts.

8. Inadequate financing.

Most probably, personnel problems to be faced by BAMBI would result from the following:

1. Low basic wages, especially when related to persistent increases in cost of living.

2. Restricted commissions resulting from lack of new sales.

3. Dim future prospects for promotion.

4. Increased awareness of personnel of benefits of unions, bargaining power, strike threats, etc.

Our first recommendation, resulting from this study of the lebanese Dairy Company, would, of course, center on what is perhaps the single most important factor in the production of milk and allied dairy products - the raw and/or powdered milk. Taking BAMBI at its word, and assuming that no powdered milk enters their production processes, we focus on the alternate raw material, fresh milk.

Any study of raw milk must commence on the dairy cattle farm. As this is somewhat outside the scope of the thesis, our comments shall be general and brief. Technically, it is realized that there

are three major factors affecting dairying or the raising of cattle for dairying purposes in the Lebanon. These three factors have to do with soil fertility, cattle improvement and farm organization.[119]

I. The Soil Fertility Factor

A) Restoring the soil fertility
B) Maintaining its fertility
C) Effective crop rotation
D) Extending the green fodder season
E) More exploitation of wild grasses in the country

II. The Cattle Improvement Factor

A) Scientific cattle improvement
B) Crossing of cattle strains
C) System of crossing cattle strains
D) Increased use of purebred stock (which does not necessarily imply, however, increased expenditure on pedigree stock)
E) Special care in calf-raising

III. The Organization Factor

A) Method of keeping cattle
B) Concentration and specialization at the farm
C) Organization of sale

1. Organization of the internal market
2. Adequate refrigeration
3. Grading
4. Specializing
5. Opening up foreign markets
6. A technical and scientific department
7. A public relations department

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[119] Source: Private studies by the writer, including readings from several agricultural unpublished writings on the Middle East; interviews with agricultural experts; and reference to recommendations made by various United Nations' teams in the area.

This first recommendation, having to do with raw milk, is of vital importance to the Lebanese Dairy Company, as inconsistencies in its quantity or qualities directly and adversely affect BAMBI's finished products, to the detriment of the Company's position in the market. Ideally, perhaps, it would be argued that it is in the firm's favor to raise its own cows under supervised conditions. Practically, however, such a feat would be outside the capabilities of the Company, both technically as well as financially. Accordingly, in order to ensure the quality of its raw milk supplies, BAMBI must rely on more strict testing procedures before accepting the offered milk.[120]

The second general recommendation in connection with this study of the Lebanese Dairy Company concerns these activities involved with advertising, promotion and merchandising, and includes follow-up visits by competent BAMBI salesmen, the distribution of sample products and the creation of goodwill at the retailers' level and at the consumers' level as well. In the opinion of the writer, this type of promotional activity will benefit the Lebanese Dairy Company, the Company's retailers and the Company's ultimate consumers.[121]

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[120] For a more detailed study of the various tests capable of determining the sanitary condition of raw milk see the Appendices section of this thesis.

[121] For a more detailed listing of the benefits of such promotional activity see Dairy Plant Management by Paul H. Tracy, George D. Armerding and H.W. Hannah (New York: McGraw Hill Book Co., Inc., 1958).

Promotional Benefits to the Lebanese Dairy Company

1. Helps sustain the present market position of BAMBI.

2. Explains BAMBI's products' merits and advantages to the consuming public.

3. Establishes goodwill for the Company, as well as prestige for the Company's products.

4. Helps level off peak periods of consumption, and, therefore, production.

5. Maintains closer contacts with BAMBI's customers.

6. Assists in lowering costs by encouraging sales volume, and, therefore, production.

7. Acquaints non-consumers with the BAMBI name and brand.

8. Helps establish new items on the market, if and when the Lebanese Dairy Company ever reaches this stage.

9. Informs customers of product improvements and changes.

10. Helps maintain good public relations.

11. Helps secure new dealers for BAMBI products not only in existing territories but in new areas as well.

12. Helps secure the position of existing dealers and encourages their increased consumption of BAMBI products.

Promotional Benefits to BAMBI's Retailers

1. In general, advertised goods especially in Lebanon, can be handled with less hesitancy.

2. Advertised BAMBI products would enjoy a higher turn-over at the retail outlet.

3. Generally, in the case of advertised merchandise, the responsibility for the products' quality rests more with the manufacturer than with the retailer.

4. Insofar as the retailer is concerned, there are fewer problems involved in the handling of advertised goods as usually quality is standardized by the manufacturer.

5. Advertised merchandise, in general, lends prestige to the retail outlet, as well as to the other brands carried by the retailer.

6. Well promoted articles lessen the burden on the retail shop by making it less necessary to carry too many other brands.

7. Finally, when a manufacturer's product range is advertised the retailer can usually expect more assistance from the manufacturer or his agents, in the way of promotional aids, free samples and the like.

Promotional Benefits to the Consuming Public

1. Advertising and other promotional efforts are often of educational benefits to the public.

2. Generally, advertised brands are more reliable, leading to purchases with more confidence.

3. In the case of advertised goods, the consumer is no longer dependent on the reliability of dealers who are involved in the sale of the merchandise.

4. Advertising, by increasing general sales can reduce the manufacturer's costs. This saving is frequently passed on, at least in part, to the consuming public.

5. Finally, advertising and promotion support entertainment and educational features, of interest to the public, in such media as newspapers, journals, magazines, television, and the like.

In the opinion of the writer, the following important factors are recommended to the attention of the Lebanese Dairy Company, especially in this firm's future consideration of merchandising its dairy products:

1. Personally, it is felt that while the trend today in Lebanon is towards the sale of dairy products in food stores and specialty stores, the milk route, or door-to-door delivery of dairy products remains an unexploited and potentially important outlet for BAMBI's milk and allied goods.

2. Insofar as BAMBI's future sales outside the greater Beirut area are concerned, distributors or wholesalers will be, perhaps, the only successful means of enlarging the Company's present sales territories.

3. No matter the type of channel of distribution decided on by BAMBI, advertising, other promotional efforts and visits by trained salesmen will play an important role. Some of the more successful promotional media and functions would include television, newspapers, magazines, store banners and displays at points of sale, premiums and/or prizes offered after a specified amount of purchases, consumer contests (such as milk-drinking contests among school children, for example), letters direct to consumers, regulated tours of the plant site, and the like.

4. It is further recommended that the Lebanese Dairy Company place more emphasis on its products' appearances. Packaging is of tremendous importance in appealing to the consumer, and, accordingly, should be neat, attractive, practical and convenient. In heat-sealing the waxed carton of milk, BAMBI employees often apply too much heat thereby charring the upper fold of the container, resulting in a poor appearance. BAMBI's one-quarter liter of laban, in carton, is quite difficult to open and often results in torn cartons, spilled laban, and ill-will on the part of the consumer.

5. It is also recommended that BAMBI more seriously study methods to encourage quantity purchases by the ultimate consumer at the point of sale by making available to the public such quantity containers as BAMBI milk in one gallon jugs, for example, or a "six-pak" of BAMBI products including, perhaps, such a variety as two one-quarter containers of milk, one of chocolate, two of laban and one of lebney. Both of these quantity articles can be offered at attractive prices, thus offering quantity at a quantity discount.

6. BAMBI should, it is recommended, stress the following

characteristics:[122]

a) BAMBI dairy products are nutritious.
b) BAMBI dairy products are health foods.
c) BAMBI dairy products are not necessarily fattening.
d) BAMBI dairy products are essential for the diets of all age groups.
e) BAMBI dairy products are generally and easily available.
f) BAMBI dairy products are an inexpensive source of nourishment.
g) BAMBI dairy products are convenient to serve and need no preparation.
h) BAMBI dairy products are produced, processed and distributed by the Lebanese Dairy Company, a highly specialized and modern firm, and under accurate and scientific control, and under rigid sanitary conditions.

Finally, as the integrity and dependability of the Lebanese Dairy Company will play an important role, insofar as consumer acceptance is concerned, and because we estimate that a considerable percentage of the Lebanese consuming public is capable of responding to advertising which is well thought out and presented, it is recommended that BAMBI secure for itself an appropriate slogan. Slogans of dairy products, generally, are divided into three categories.[123]

1. Those that describe the nature of the product and its advantages to the consumer.

   Example: "Carnation Instant Nonfat Dry Milk Solids" (Carnation milk powder - U.S.A.)

2. Those that mention the product to be used.

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[122] Ibid.

[123] Ibid.

Example: "If it's Borden"s it's got to be good"
(Borden's dairy products - U.S.A.)

3. Those aimed at preventing substitutes.

Example: "Reach for the bottle protected by the silver seal"
(Beatrice milk - Great Britain)

Perhaps, something like "BAMBI - never varies" or "BAMBI - always fresh, always healthful" would serve the purpose. The importance of the slogan is to achieve in the mind of the consumer an identity with the manufacturer and to establish firmly the integrity and dependability of the concern, the Lebanese Dairy Company.

These are the recommendations which result from the study of the Lebanese Dairy Company, a firm chosen as being typical of a great number of similar-sized manufacturing concerns in the Lebanon. Undoubtedly, numerous other conclusions and recommendations could have been drawn. It has been the intention from the very first, however, to limit this study's deductions and suggestions to those of a practical nature and logically within the capabilities, financially, technically and otherwise, of the Company. We have, for example, concluded that some territories outside of the greater Beirut area were being ignored by BAMBI's marketing efforts. As an initial step, accordingly, it was recommended that BAMBI secure effective wholesalers in Tripoli and Sidon, as this was the more practical solution to the problem, rather than suggesting, for example, that BAMBI secure the extra vans, salesmen-drivers and storage facilities, involving

thousands of Lebanese pounds, to directly service the ignored areas, themselves.

In such countries as the United States and Great Britain, national dairy foundations such as the American Dairy Association, promote the nutritive and sanitational aspects of the particular country's dairy products to the benefit of not only the local dairy industry but also to those retailers involved in the sale of such merchandise, and the ultimate consumers, as well. Industry-wide advertising efforts, or co-operative marketing of the pooled merchandise of the various local manufacturers in the Lebanon has not been recommended because in the opinion of the writer these present a variety of problems which could not easily be overcome. Nor has it been suggested that government protection of local industry be secured. An increase in the customs duty on imported milk, for example, would render to the local dairy industry an important advantage. Again, because of the numerous problems involved, this recommendation, in the opinion of the writer, can be termed impractical as being almost impossible to achieve.

Often, in highly competitive situations involving numerous firms of similar situations, merger is recommended as being an attractive way to consolidate and enhance the market position of the new, larger firm. In the case of BAMBI, two possibilities exist, viz. merger with another local dairying concern, or an arrangement

with a large, foreign organization. In 1964, with the approval of the owner of the Lebanese Dairy Company, the firm's general manager attempted to interest the Dumit Brothers Dairy Company in combining the efforts of both firms. BAMBI's tentative offer was firmly rejected, and no other action was taken by BAMBI along these lines. At the present time, the Lebanese Dairy Company is discussing with a large British dairy manufacturer the possibility of their investing in the BAMBI, and supplying the Company not only with much needed capital but also additional equipment and technical knowledge.

The recommendations listed are easily within the grasp of the Lebanese Dairy Company, and have been discussed in detail with the firm's General Manager and also with the sales and production managers. None of these three company officers found a single recommendation or conclusion as outlined in this Chapter to be false, impractical, theoretical or presumptuous, even when asked repeatedly to comment along these lines by the writer. In fact, the three managers agreed decidedly that their Company and their Company's consumers could not but benefit from the conclusions drawn and the recommendations made.

APPENDICES

APPENDIX I

PASTEURIZATION AND HOMOGENIZATION

Sterilization[124]

Heat was discovered to be the only available and practical agent for the destruction of germs already present in milk. The destruction of germs in milk, or any solution, through a heat medium, is known as sterilization. Absolute sterilization is hardly a gentle process, and to be attained a fluid must be subjected to temperature of from 212° to 240° F., for one hour on each of three successive days. This will not only do away with any active germs or bacteria which may be present in the solution, but also any spores as well. A lower temperature, 175° to 212° F., will kill actually growing germs, but even at this heat, chemical changes occur in the milk which give rise to flavors known disagreeably as "boiled" or "cooked". In order to overcome the germs, spores as well as the adverse effects of heating at such high temperatures, another more gentle process known as pasteurization is employed.

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[124] E. Foster and Others, Dairy Microbiology (London: Macmillan and Company, Ltd., 1958).

Pasteurization[125]

The process of pasteurization was discovered by Louis Pasteur, initially for use with wines and beers. Pasteurization differs greatly from sterilization even though the two terms are often confused. The former process differs from the latter in the degree of heat used and, in fact, may be termed partial or incomplete sterilization. Pasteurization and sterilization, then, are definitely not the same. The latter requires the complete destruction of all forms of life, negative cells and spores. Sterilized milk is either heavily and continuously boiled, or treated to high temperature under pressure. Milk so treated is no longer palatable to most people, especially as a result of undesirable flavors. Such severe treatment of milk is unnecessary for most purposes.

Pasteurization, on the other hand, is a much milder process which renders milk safe but not sterile. In other words, the milk after pasteurization becomes fit for general consumption, but not completely rid of all forms of life. Pasteurization destroys all pathogenic nonspore-producing bacteria, but it does not destroy all the bacteria in milk, nor does it normally destroy all those bacteria which produce lactic acid.

The destructive influence of heat on bacteria and germs life

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[125] Ibid.

depends both on the degree of heat applied and the length of time to which the germs are exposed to this heat. A large number of germs are killed at temperatures ranging from 133° to 140° F., while others are destroyed at from 150° to 165° F. Destruction at these latter temperatures include germs of all the ordinary ferments and most of the germs of specific diseases, including that of tubercle bacillus. Since the tubercle bacillus is the disease most likely to be present, milk is ordinarily considered to be safe from disease germs when it has been pasteurized at 149° F., for 30 minutes, 155° F., for 15 minutes, or 167° F., for 10 minutes. These temperatures have become to be regarded as standard pasteurization temperatures. Milk may be heated to 167° F. without developing a "boiled" taste, providing it is cooled immediately afterwards. It is, therefore, possible to make milk quite safe, and avoid a "cooked" taste. To do this, apparatus must be available to rapidly cool milk from pasteurization temperatures to 50° F., or below. Milk carefully pasteurized, as described above, will remain sweet and wholesome 36 to 48 hours longer at ordinary temperatures, than milk which has not been pasteurized but which has been sterilized.

The question of successful pasteurization, then, depends on the means of raising the milk in a relatively short time to the required temperatures, holding it at that level for from 10 to 20 minutes, and then cooling it rapidly to 50° F., or below. The ideal pasteurization machine, therefore, would embody the following characteristics:[126]

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[126]Needham, op. cit.

1. Quick, uniform and perfect heating of the milk.
2. Perfect control of the temperature.
3. Quick and uniform cooling.
4. Compact form.
5. Ease of cleansing.
6. Absence of pumping arrangements.
7. Security against re-infection during the process.

Finally, for best results when employing the pasteurization process, it is essential that the raw milk be as fresh and free from fermentations as possible, to begin with. In general, any conditions which make milk of better quality for manufacture also make it of better quality for consumption. The following examples support this statement, which, while being true of the dairy industry in particular, cannot be generalized to apply to all industries.[127] High quality milk:

1. Is determined by its composition, and is secreted from healthy cows, as a result of good feed, clean stables, and the like.

2. Is treated so that the fat does not readily separate from other solids, and does not readily undergo fermentation.

3. Must be clean and de-odorized by aeration or machinery specially designed for this purpose.

4. Must have disagreeable flavors, and the like, totally withdrawn.

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[127] Ibid., p. 92.

TABLE 27

THE PERCENTAGE OF U.S. CITIES OF DIFFERENT SIZES IN WHICH AT LEAST HALF THE MILK WAS PASTEURIZED

Size of Cities	1930	1940	1950	1961
500,000 and over	100.0	100.0	100.0	100.0
100,000 - 500,000	96.4	100.0	100.0	100.0
75,000 - 100,000	84.6	98.4	100.0	100.0
50,000 - 75,000	77.8	96.0	98.7	100.0
25,000 - 50,000	80.4	94.2	96.4	100.0
10,000 - 25,000	55.4	55.4	89.1	97.6
under 10,000	25.0	76.6	83.3	94.1

Source: Based on figures compiled from Henry S. Ayres, U.S. Department of Agriculture, Bulletin 342, 1952, New York. Herrington, op. cit., p. 169. Also adapted from "Dairying", Encyclopedia Britannica, 1962 ed., Vol. 6; p. 978, et passim.

Homogenization

Homogenization is a process designed to reduce the size of the fat droplets in milk, i.e. it breaks up the large droplets to form smaller ones. Homogenization should by no means be thought of as restricted to milk or its products. Its universality has been evidenced by its application to cosmetics, salad dressings, mayonnaises, mineral oils, and similar products.

The sale of homogenized milk was first started in the Quebec province of Canada, where it gradually gained in popularity as many consumers found that homogenized dairy products not only tasted better, but also appeared more uniform. Furthermore, no mixing or shaking was necessary before use.

Large scale homogenization of milk on a commercial basis has been studied and found to increase basic costs by approximately 1.3 to 1.4 cents per quart of milk, in the United States.[128] This increase, however, has been somewhat offset by the considerable advantages which accrue to manufacturers employing the process. Homogenization may well eliminate consumer complaints about unpleasant flavors. Accordingly, it will encourage consumption and even possibly attract new customers. Furthermore, complaints having to do with poor creaming, poor cream layers, cream plugs, blue skim milk, and the like, are severely curtailed. Homogenization may increase the sale of cream as a separate item, as cream cannot be removed from homogenized milk, the way it is in non-homogenized milk for use in, say, American coffee.

Homogenization, however, also suffers from several drawbacks whose disadvantageous effects on market acceptance of homogenized products have continuously been decreasing. These disadvantages include:

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[128]Pointed out by Eckles, loc.cit.

1. Unsold milk becomes infinitely more difficult to salvage, or to separate, especially when intended for use in other dairy products, as, for example, the local practice of using unsold milk in the manufacture of laban and/or lebney.

2. Often, especially in the under-developed markets, consumers demand non-homogenized milk, especially to see the depth of the cream layer.

3. For the dairy company, the slightest market demand for either the homogenized or the non-homogenized milk, often results in the processing and distribution of both.

Homogenization, then, is designed to break up the large fat droplets. If that were simply all which was accomplished, it would be of very little or no importance indeed, as very few, if any, consumers measure the size of fat globules in their milk. The practical importance of this process if due to the other changes which occur as a result of this treatment. Homogenization:

1. Influences cluster formations of fat.

2. Makes casein more easily coagulated by the action of alcohol, heat, providing that fact is present during the process.

3. Retards undesirable flavors and odors.

As we have already seen, homogenization's application is not restricted to milk, solely. The effect of this process on various other dairy products is briefly described, as follows:

1. Cream: Homogenization makes cream more viscous, richer and smoother to the taste, and, therefore, more pleasing to the customer. It also prevents layering of skim milk or the separation of skim and heavier milk, cream, in the same container.

Housewives seeing the skim milk layer may complain, not realizing that cream normally contains much more skim milk than fat. Homogenization, then, will prevent the separation of cream and skim milk and preserve the goodwill of the customer. On the other hand, homogenization of cream makes it difficult or even impossible to whip. Housewives who exhaust themselves trying to whip homogenized cream may make all future purchases of dairy products from another dealer. Also, homogenization of cream renders it more easily coagulated by heat. If the cream curdles when poured into hot coffee or tea, for example, the housewife is likely to believe that the cream is sour because she knows that sour cream will coagulate when heated.

2. Evaporated Milk: This item is homogenized to retard creaming in the can. In other words, without homogenization, the layer of cream formed during weeks of storage could not be dispersed by ordinary shaking.

3. Milk Powder: Whole milk that is to be dried is often homogenized in order to prevent fat from spreading when the powder is finally dissolved in warm water. The application of this process to milk powder retards the development of flavors and other unpleasant characteristics in the milk powder during storage.

4. Ice Cream: Almost all ice cream is homogenized before it is frozen. This allows ice creams more viscousness and smoothness. Accordingly, it becomes more pleasing to the taste, as both characteristics are pleasing to the customer.

5. Bottled Milk: The homogenization of bottled milk has become rather common. It prevents creaming, unnecessary stirring to meld milk and cream layers. Housewives, especially in not-so-developed areas, may be found to be reluctant to accept a bottle of milk if no cream layer is visible.

By way of summary, the official definition of homogenization is presented as defined by the Public Health Service of the United States:[129]

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[129] Henry H. Wing, Milk and Its Products (New york: The Macmillan Company, Inc., 1911), p. 203.

"Homogenized milk is milk that has been treated in such a manner as to ensure the break up of the fat globules to such an extent that after 48 hours of storage no visible cream separation occurs on the milk, and that the fat percentage of the top 100 c.c. of milk in a quart bottle, or of proportionate volumes in containers of other sizes, does not differ by more than 10 percent of itself from the fat percentage of the remaining milk, as determined after thorough mixing."

APPENDIX II

BABOCK TEST FOR FAT MEASUREMENT AND OTHER DAIRY TESTING PROCEDURES

The Babock Test

There are several methods of measuring the amount of fat in milk solutions. These tests and their results are of great interest to dairyists especially to determine the amount of fat existent in the raw milk supplied to the dairy plant. Grade "A" milk, for example, according to legislation enacted in most modern countries of the world is classed or defined mainly on the basis of its fat content, which, in turn, is a direct derivative of the amount of fat available in the raw or unprocessed milk supplied to the dairyist.[130]

When performed efficiently the Babock Test is not only an acceptable commercial test for fat in milk, it is in fact the best testing device available and, accordingly, is the standard test in the dairy industry. Fat is concentrated in the Babock Test for sampling

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[130] Randal Whitaker in his "Recommendations for the Standardization of the Method of Determining the U.S.P.H.S. Index of Homogenization of Milk", published by the International Association of Milk Dealers, in the Association's Bulletin No. 36 : 67-81, of 1944, New York, states: "Milk products prepared either directly or indirectly from milk must contain no less than 3.25 percent fat which is the legal percentage of fat required for whole milk in the market."

by chemical action, heat and centrifugal force. To a milk solution is added an acid which mixes with the milk sample and commences immediately to dissolve all milk solids (other than milk fats). By so doing, the fat is allowed to coalesce and rise easily to the surface of the milk solution. Thus, by the use of chemical action it is possible to effectively isolate the fat contents of a given milk sample.

The introduction of the acidic solution into the milk sample creates heat. Heat, in turn, encourages the separation of fat from the surrounding milk water. The process does not completely occur, however, until the third agent, centrifugal force, is employed. By taking advantage of the high specific gravity of the acid[131] and the comparatively low specific gravity of fat,[132] centrifugal force prompts a total separation of fat and water in the milk sample.

The Babock Test makes available to dairyists a means by which the efficient, practical and accurate measurement of the fat content of their raw milk supplies can take place. It is only by controlling and inspecting the raw milk that dairy manufacturers can determine the quality of the ultimate product. Were not the Babock Test available, or a similar testing device, dairyists would be obliged to rely

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[131]The acid employed is usually sulphuric, basically, and has a specific gravity of 1.430.

[132]The specific gravity of fat is 0.900.

entirely on the integrity of the dairy farmers supplying the raw milk.[133]

The Ether Extraction Method[134]

Another milk-fat-testing technique designed to result in milk-fat measurement is the Ether Extraction Method. In this process, the fat is dissolved from a milk sample by ether. The ether quickly evaporates and the remaining fat is weighed. This method is more efficient than the Babock Test but less practical and more costly. The procedure of fat extraction by the use of ether is also known as the Roese Gottlieb Method and is the official method for the measurement of fat content in milk solutions of the Association of Official Agricultural Chemists, of the United States.

The results of the Ether Extraction Method are sometimes employed as a standard to determine the accuracy of the Babock Test. Normally, dairyists have no real need for such exacting measurement results and the Babock Test suffices their purposes.

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[133]The above data on The Babock Test as a device for measurement of fat content in milk solutions has been compiled from Every F. Goss' Techniques of Dairy Plant Testing (Iowa State College Press, Ames, Iowa, 1953), pp. 51-55, et passim. Also referred to were the "Provisions of the Agricultural Code and Regulations Relating to Licensed Testers, Technicians, Samplers and Weighers" of the California State Department of Agriculture, published by the California State Department of Agriculture, Sacramento, California, 1959.

[134]Ibid.

Homogenization Index[135]

Homogenization efficiency is generally measured by observing the size of the fat globules in the milk sample under study. Ordinarily, the procedure is as follows:

1. The fat globules are prepared on a slide, and then measured by a microscope capable of magnification of fat globules one thousand times.

2. The actual index used for measurement purposes is the number of fat globules two microns in diameter which would equal in volume the volume of all fat globules over two microns in diameter found in five random samples or fields. The nearer zero the index is, the more efficient is homogenization. If no globules over two microns existed in the testing, then the homogenization index would be zero.

Foreign Matter[136]

A check list of probable sources of foreign matter in milk and milk products includes:

1. Coat of the animal.

2. Dust from the air.

3. Dust or dirt in the utensils.

4. Unclean or corroded cans, containers, equipment and the like.

5. Undue movement during transport.

6. Improper water lines during plant processing.

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[135] Ibid.

[136] Ibid.

7. Animal life such as insects and rodents entering the milk after it is drawn.

Lactometer[137]

The lactometer is a special hydrometer for milk which determines the specific gravity of milk or, in other words, its density compared with water.

Legislation usually defines milk in terms of a certain minimum percentage of fat and of solids, non-fat, often called serum fats. Milk containing less than the legal requirements is prohibited from being sold to the public as pure milk.

Adulteration of milk is often accomplished by skimming, i.e. the removal of fat from the milk solution. Watering is another form of adulteration which lowers the fat content of milk. Usually, however, considerable amounts of water must be added before the fat itself falls below the legal requirements (ordinarily, 3.25 percent).

Lactometer readings, as determined by the Herrington formula, dictate that milk found to contain added water in the amount of:

1. Less than -4.0 percent is considered skimmed.
2. Between -4.0 and -1.5 percent is suspected of skimming.
3. Between -1.5 and +2.0 percent is normal.
4. Between +2.0 and 5.0 percent is suspected of watering.

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[137] Ibid.

5. More than 5.0 percent is watered.[138]

Methylene Blue and Resazurin Tests[139]

Other than the composition of milk, another important factor to consider is its sanitary quality. Although some tests reveal a little about the cleanliness of milk, they do not describe the whole story of sanitation. The number of bacteria in milk tell much about how carefully the milk has been prepared, and especially how well it has been cooled. In order, however, to determine the number of bacteria directly by bacteriological methods a trained bacteriologist is required to carry out expensive and time-consuming tests.

Fortunately, bacterial activity in milk can be determined without counting bacteria and it is their activity which not only harms the milk solution but also reveals their presence. The Methylene Blue and Resazurin Tests are ideal for the detection of bacteria in milk as they are both easy to manipulate as well as inexpensive.

Briefly, the method is as follows:

> To each test tube of sample milk one milliliter of methylene blue solution is added. Since the test measures the bacterial activity, the number of bacteria present must be large enough to bleach the dye - especially in a short time. Just how many bacteria are present cannot be known.

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[138]"Adulteration of Milk by Lactometric Methods", an unpublished thesis by Ole M. Ystgaard (Ames: Iowa State College Library, 1950).

[139]Goss, loc. cit.

When the sample milk discolors quickly, however, it is due to the presence of a large number of bacteria which unerringly indicates the poor quality of the milk in question.

The American Public Health Association Standard Method of determining the quality of milk on the basis of the Methylene Blue Test is:

1. Class I: Excellent Not decolorized in eight hours.
2. Class II: Good Not decolorized in less than eight hours but not less than six hours.
3. Class III: Fair Not decolorized in less than six hours but not less than two hours.
4. Class IV: Poor Not decolorized in less than two hours.

As the milk supply improves, the dairy plant operator looks to the Resazurin Test as a successor to the Methylene Blue Test, although both are dye reduction tests. The Resazurin Test is more sensitive than the Methylene Blue Test and is more suited to high quality milk supplies in that:

1. It supplies more information about milk supplies in one-fourth the time needed by the Methylene Blue Test.
2. It gives better results, especially when bacteria present in the milk sample are few in number.

The results of the Resazurin Test are as follows:

1. When color reduction is both rapid and prompt, then many actively growing bacteria are present in the milk.
2. When color reduction is slow, over four to six hours incubation, then few bacteria are present.
3. When reduction is slow at first but rapid as the test progresses, then many bacteria are present but are in a resting or "lag" stage.
4. When reduction is rapid at first but followed by slow reduction, then either the milk is old or there are many bacteria which may not be active towards resazurin.

APPENDIX III

DIVERSE ECONOMIC DATA

TABLE 28
ITEMS ENTERING INTO THE COST OF A QUART OF MILK DELIVERED TO HOMES IN NEW YORK CITY, 1962

Item	U.S. Cents per Quart
Paid by dealer at plan	12.55
Government subsidy (to be deducted)	0.66
Farm-to-plant expense	0.63
Freight to city	1.53
City plant expense	1.82
Bottles and caps	0.66
Selling and delivery	12.10
Administration	0.84
Product losses and expenses	0.41
Tax on profits	1.05
Profit after taxes	0.69
Total price to consumer	31.59

Source: Adapted from L. Spencer's "Agricultural Experiment, No. A.E. 548", in Cornell Agriculture Experiment Station Economics Bulletin (Cornell University Press, Ithaca, N.Y.), 1964.

TABLE 29

MODEL FOR CALCULATING ANNUAL COSTS AND RETURNS ON A PER COW BASIS IN A DAIRY OPERATION, 1961

Investment:			
a) Cow			$ 350.00
b) Building, housing, feeding and milking			450.00
c) Equipment			200.00
			1,000.00
Interest on investment @ 5%	50.		
Depreciation:			
a) On cow at 3 1/2 years and $150 salvage value	57.		
b) On building, 30 years	15.		
c) On equipment, 10 years	20.		
Taxes on cow, building & equipment	25.		
Insurance on cow, building & equipment	3.		
Veterinary fees and medication	8.		
Breeding fees	6.		
Labor: care of cow and milking	80.		
Bedding: one ton per year	20.		
Feeding @ 2 1/2 ¢ per lb.:			
a) To maintain one cow of 1200 lbs.	80.		
b) To produce one calf per year	11.		
	375.		
c) To produce 6,000 lbs. of 4% (fat) milk	48.		
		423.	
d) To produce 9,000 lbs. of 4% (fat) milk	78.		
		453.	
e) To produce 12,000 lbs. of 4% (fat) milk	110.		
		485.	
f) To produce 15,000 lbs. of 4% (fat) milk	145.		
		520.	

Source: Richard F. Davis, Modern Dairy Cattle Management (Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1962), p. 229.

TABLE 30

PROJECTED ANNUAL PROFIT AND COST OF PRODUCTION FOR A COW PRODUCING AT VARYING LEVELS, 1961

Item	Income	Cost of Production[a]	Profit
a) 6000 lbs. of milk @ 4.7 ¢ per lb.	282.00		
b) 0.9 calf, annually	20.00		
	302.00	423.00	(121.00)
a) 9000 lbs. of milk @ 4.7 ¢ per lb.	423.00		
b) 0.9 calf, annually	20.00		
	443.00	453.00	(10.00)
a) 12000 lbs. of milk @ 4.7 ¢ per lb.	564.00		
b) 0.9 calf, annually	20.00		
	584.00	485.00	99.00
a) 15000 lbs. of milk @ 4.7 ¢ per lb.	705.00		
b) 0.9 calf, annually[b]	30.00		
	735.00	520.00	215.00

[a]See Table 29, for complete break-down of these production costs.

[b]Calves from herds at this level of production frequently bring premium prices, thus explaining the increase from $20 to $30.

Source: Richard F. Davis, Modern Dairy Cattle Management (Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1962), p. 230.

TABLE 31

EXAMPLE OF LEGAL STANDARDS FOR MILK, THE UNITED STATES, 1961

State	Total Solids	Fats
District of Columbia	12.5%	3.5%
Georgia	12.0	3.5
Iowa	12.5	3.0
Maine	12.0	3.0
Massachusetts	13.0	3.7
Michigan	12.5	3.0
Minnesota	13.0	3.5
New Hampshire	13.0	-
New Jersey	12.0	-
New York	12.0	3.0
Ohio	12.0	3.0
Oregon	12.0	3.0
Pennsylvania	12.5	3.0
Rhode Island	12.0	2.5
South Carolina	11.5	3.0
Vermont	12.5	-
Washington	11.0	3.0
Wisconsin	-	3.0

Source: Figures compiled from Davis, loc. cit.

TABLE 32

AVERAGE DATA FOR MOST POPULAR INDIVIDUAL BREEDS IN ENGLAND AND WALES

Breed[a]	% of Herds	Average Yield per Lactation[b]	Weight of Mature Cow[c]	Type
British Friesian	37.2	4,507	12-13	Dairy
Ayrshire	17.3	3,932	11	Dairy
Dairy Shorthorn	13.7	3,643	12-13	Dual purpose
Guernsey	9.1	3,442	10	Dairy
Jersey	8.0	3,342	8	Dairy
Red Poll	2.4	3,502	12	Dual purpose

[a]It should be noted that the Ayrshire breed predominates in Scotland and that the dual-purpose type animals (shorthorns) predominate in Northern Ireland.

[b]In kilograms (kgs.).

[c]In hundred weights (CWTs.) = 112 lbs. or 51 kgs.

Source: The above data has been compiled from E.L. Crossley, ed., The United Kingdom Dairy Industry, prepared under the auspices of the XV International Dairy Congress, on behalf of the United Kingdom Dairy Association (London: Richard Clay and Company, Ltd., 1959).

TABLE 33

AVERAGE FREEZING POINTS OF MILKS

	Freezing point °C.
Ass	- 0.524
Cow	- 0.544
Dog	- 0.573
Goat	- 0.583
Kangaroo	- 0.518
Llama	- 0.599
Mare	- 0.572
Sow	- 0.573
Human	- 0.542

Source: Herrington, op. cit., p. 24.

TABLE 34

U.S. CIVILIAN CONSUMPTION OF FLUID MILK AND CREAM (MILK EQUIVALENT TO CREAM)

Year	Pounds per capita
1930	351
1935	335
1940	343
1945	442
1950	533
1955	605
1960	664

Source: United Nations Food and Agriculture Organization, Yearbook of Food and Agricultural Statistics (New York, 1961).

TABLE 35

TEMPERATURE CONVERSION

Scale	Water Freezes	Water Boils	Degrees Difference
Fahrenheit	32°	212°	180°
Centigrade	0°	100°	100°

Source: Chemical Engineers' Handbook, 1st ed., edited by John H. Perry (London: McGraw-Hill Book Co., Ltd., 1964).

TABLE 36

WEIGHT (MASS) EQUIVALENTS

Measure	Pounds	Kgs.	Grams
Pound	1	0.4536	453.59
Kilogram	2.205	1	1000
Gram	0.002205	0.001	1

Source: Ibid.

TABLE 37

TYPICAL PERCENTAGE VALUES FOR THE COMPOSITION OF DIFFERENT FORMS OF DRIED MILK

Constituents	Dried Whole Milk	Dried Skim Milk	Dried Cream
Fat	26.5	1.0	65.1
Protein	27.8	38.0	13.4
Lactose	37.6	50.0	17.9
Ash	6.1	8.4	2.9
Moisture	2.0	2.6	0.7

Source: Adapted from The Grading of Dry Whole Milk (by the American Dry Milk Institute, Chicago, Ill., 1957).

TABLE 38

SEVERAL GRADES OF MILK POWDER RECOGNIZED BY THE AMERICAN DRY MILK INSTITUTE

Grade Described	Bacteria per Milliliter
Premium grade	less than 15,000
Extra grade	less than 15,000
Standard grade	less than 50,000
Below grade	no specification

Source: Ibid.

AMOUNT OF PRODUCTION

New Zealand, by the latter half of the twentieth century was the most intensive dairy country in the world, as determined by the milk production per-capita yardstick. Other countries with high per-capita production were Denmark, Ireland, Netherlands, Finland, Australia, and Switzerland. The United States led in the total production of milk, butter, cheese, canned milk and dried milk. The Federal Republic of Germany and France were second and third, respectively, in the total production of butter, taken as a separate class of dairy products, while the Netherlands and the Federal Republic of Germany ranked second and third respectively in the total production of canned milk. European countries produced approximately 40 percent, and North America 25 percent, of the total world supply of milk. In 1956, of a world production of almost 260,000 metric tons, 89 percent was cow's milk, 6 percent buffalo milk, 3 percent goat's milk, and 2 percent sheep's milk.[140] The distribution of the varied milk production by regions is listed in the following table.

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[140] Figures adapted from Yearbook of Food and Agricultural Statistics, United Nations, Food and Agriculture Organization, Vol. II, Part I; 1963.

TABLE 39

REGIONAL PRODUCTION OF MILK DURING 1961,
IN 000 METRIC TONS

Region	Cow	Buffalo	Goat	Sheep
Europe	109,800	200	2,800	1,700
North America	64,900	-	-	-
Latin America	18,200	-	800	-
Near East	7,300	1,200	2,100	3,100
Far East	14,200	13,000	1,100	-
Australia and New Zealand	11,800	-	600	500
Africa	6,000	-	300	-

Source: United Nations Food and Agriculture Organization, Yearbook of Food and Agricultural Statistics, Vol. II, Part I, 1963.

New Zealand, Denmark, Australia, the Netherlands, and the United States were the major exporters of butter and cheese. The Netherlands led in condensed milk exports. The United States in milk powder export sales. Argentina in casein, and the United Kingdom, until then a principal importer of dairy products, became an exporter of condensed milk, in the second half of the twentieth century.[141]

[141] Ibid.

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