VOCATIONAL SKILL LEVEL AND EDUCATIONAL BACKGROUND IN THE PRINTING INDUSTRY IN BEIRUT

BY

Alfred Zacharia

A thesis presented to the Department of Sociology of the School of Arts and Sciences at the American University of Beirut in partial fulfilment of the requirements for the degree of Master of Arts.

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TABLE OF CONTENTS

LIST OF TABLES

CHAPTER I

INTRODUCTION

Industrial development programs stress two important factors: the human factor, and the material factor. The human factor includes such elements as work effort, personnel, administration, technical knowledge, and experience. The material factor includes prime mover power, machinery, raw materials, and natural resources. The focus of this study is on the human factor. It is concerned with the technical knowledge and socio-educational background of a segment of the Lebanese industrial labor force. It is a pilot study that is intended to lay down the research groundwork for other and larger studies of the same factors, relative to the industrial labor force in general.

Need for Vocational Education. Economic development authorities are not alone in their concern about the need for technical knowledge in underdeveloped societies. The need is increasingly felt by the pioneer industrialists and by the ill-prepared graduates of the educational systems in those societies. One of the foremost complaints of plant managers is that directed toward the prevailing lack of skilled and technical workers. The typical educational programs of Lebanese primary and secondary schools prepare students for academically oriented life adjustments and careers. It is no wonder that so many graduates each year are frustrated and disappointed at finding themselves un-

prepared for the existing and developing economic system. As a result there are multiple candidates for every clerical post; few for any of the skilled and technical positions. Elton Mayo succinctly defines this dilemma in his The Social Problems of an Industrial Civilization,[1] where he distinguishes between two types of knowledge: 'Knowledge about', and 'Knowledge of acquaintance'. Lebanese students are, by and large, getting the 'knowledge about' type of education and are therefore not better prepared for industry than the unschooled ranks of the population. 'Knowledge of acquaintance', if ever acquired at all, is only obtained on a basis of an on-the-job trial and error learning process or through an outmoded and thoroughly diorganized apprenticeship system. Either way, it is always accompanied by tremendous wastage of human and material resources.

This is the problem then: a) Those with an opportunity for educational achievement are motivated toward the traditional economic roles of a changing agrarian-mercantile society. b) Those without educational opportunity are uprooted from their traditional agrarian roles and thrown upon a labor market which is in the control of the relatively unindustrialized mentality of the society's educated group. The culture lag is formidable.

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1 Mayo, Elton, The Social Problems of an Industrial Civilization, Graduate School of Business Administration, Harvard University, Boston, Mass, 1945, p.16. Mayo quotes the concept from a distinction made by William James.

One solution for this general problem is to be realized through the development of vocational industrial education. It is to be hoped that programs of vocational education can be geared to give 'knowledge of acquaintance' not only to students in schools, but also to the many workers already on the job who have never had an opportunity for such learning. Toward this end, significant steps are now being taken in Lebanon. Conferences were held and important industrial leaders and development experts began to coordinate their efforts toward the development of an industrial educational program designed to come to grips with ever-growing and ever-changing industrialization in this society.

One conference on Vocational Education Training for Lebanon held on August 10, 1954 under the auspices of the United States Operations Mission to Lebanon, Education Division, produced a report containing detailed suggestions that met with wide approval and enthusiastic support in vitally concerned Lebanese official quarters.[2] According to this report there are two foremost requirements before any vocational educational development can take place. In the first place it is essential that extensive research be carried on to determine just what Lebanese do to earn a living and then to categorize industry and business in Lebanon into areas that can be logically and economically served by the Government

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2 Suggested Vocational Education Research, Occupational Information Section. Prepared by United States Operations Mission to Lebanon. Education Division, August 10, 1954.

Vocational School System. Once this research is accomplished there must be undertaken an extensive and long term survey having as its central purpose the establishment of elaborate occupational classifications within each of the several industries. For each of these occupational classifications, age, sex, and other personal data on the workers should be gathered. Labor turnover, wage rates, insurance provisions, health benefits, present training methods and facilities, divisions based on skill levels, and many other facts about the current situation should be determined. The outline of the overall survey that is needed in Lebanon provided in the report of this conference points out the many facets into which research must delve and does not underestimate the size of the task.[3]

Focus of this Study The study to be reported herein is in the nature of a pilot study. It is an attempt to develop, test, and demonstrate the utility and practicality of certain research techniques on specific aspects of the larger industrial survey that must be done in Lebanon. This study is limited to a branch of industry which needs machinery and a factory and thus excludes all handicraft and domestic industries. This industry is the Printing Industry within which two sections are to receive attention. These are the Cylinder-Press Section and the Hand-Setting Section. The printing industry was selected for this pioneering study in

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3 Ibid.

Lebanon for several reasons. First, the greatest concern among many industrial development experts is with types of industry that require mass production equipment, relatively heavy capital investment, high degrees of specialization, and therefore, a technically trained labor force. Second, experts in this field of production were sympathetic and available for assistance in research in the printing industry. Third, it is an industrial area that is less apt to be hampered in its expansion by foreign competition than many other areas. Finally, since any industrial survey in Lebanon is essentially a pioneering study, and all data that is needed must be gathered for the first time, efficiency and financial considerations dictated a narrowing of the focus as much as possible.

It may be questioned why two sections were chosen rather than one when taking one section only would have been financially less costly and time saving. The reason for the inclusion of both sections, Pressmen and Hand-setters, was that a clear cut and definite division between job assignments involved in each of these sections is a function of the level of development within the overall industry itself. In Lebanon, where the industry is in its infancy, relatively speaking, considerable overlapping occurs particularly in the smaller plants. Furthermore, the unskilled worker often works in several sections simultaneously in the early stages of his training. To get a better picture of the unskilled worker, it was necessary to involve more than one

section. Moreover, selection of two sections removed certain interviewing obstacles. Often there was difficulty in arranging time for interviewing the respondents. Widening the range of job assignments to be studied increased the chances of finding respondents who could spare the time necessary to answer questions.

One final point needs to be clarified. Technically speaking, this study is not concerned with a skill analysis of individual workers. Skill analysis requires techniques of measurement which are beyond the scope or resources of this survey. The study is concerned with measurement of job levels, or the relative position of a given job along a scale of job difficulty. It was deemed inadvisable to go to the next step in analysis of the amount of skill with which individual workers performed at specific job levels. The study concerns itself only with the fact that a member of the survey sample is employed at, or within, a certain job level. What he does in that level, and not how well he does it, is the main consideration.

With these considerations in mind, the questions that this study seeks to answer may be classified into three groups:

1. What are the several job levels and the technical requirements for each level within the sections of industry analyzed?

2. Who occupies these jobs? Specifically, what is their educational background.

And more generally, what socio-economic patterns characterize their backgrounds?

3. What attitudes and aspirations characterize the opinions of workers in industry: toward their specific jobs, toward vocational education, and toward industrial life in general?

Whether the answers to the above questions can be generalized to other areas of Lebanese industry or not, can only be determined by further research. It is hoped that a method of conducting such research has been successfully designed for this study and that the applicability of that method is demonstrated in the following pages.

CHAPTER II

LEBANESE INDUSTRY

To have an idea about the shortage of skilled and semi-skilled labor supply, and about the present low productivity,[1] a glance should be taken at the growth of industry in Lebanon during the past sixty years. This review divides the time into three periods: 1) Prior to the First World War, 2) Between the end of the First World War and the beginning of the Second World War, 3) During and after the Second World War.

1. Prior to the First World War. By the turn of the century, only ten to fifteen percent of the population of Syria were dependent on industry for their income. In reality this estimate is misleading unless the type of industries involved is understood. With the exception of the urban centers whose people were engaged in trade the majority of the rest of the population was agrarian. The so-called industrial part consisted of an artisan type of work which was done mostly in the home of the artisan. The members of the family and, in a few cases, some hired hands constituted the working force. In Syria and Palestine there were less than one hundred factories having more than fifty workers each, and less than twelve factories employing one hundred workers

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1 Badre, Albert, Industrial Development, Conference du Cenacle, Vol. VII, Beirut, April 16, 1952. pp. 90-113.

each. In the silk-spinning industry, power looms proved unsuccessful due to a lack of skilled operators; this was the only industry in which the factory system was developed to any great extent.[2]

Although favored by its geographical position with regard to contact with western ideas, a primitive technology characterized industry everywhere in Syria. The following are some of the major barriers which held back the growth of industry beyond the primitive level described.

a) The natural resources of the country. Coal and other fuels are not available within the country for use for prime mover-power. Iron is not found in sufficient quantity and the nature of the terrain made the little found in the mountains almost inaccessible.[3]

b) Lack of skilled laborers, mechanics and engineers.[4] The growth of the skilled labor force in the West was gradual. Generation after generation grew up with the slowly but ever-changing technology which moved from relatively simple techniques

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2 Himadeh, Said B. Economic Organization of Syria, American Press, Beirut, 1936. Chapter on 'Industry' by George Hakim, pp.118-122. Syria in this chapter refers to Syria and Lebanon.

3 Ibid.

4 Ibid.

utilizing crude prime mover-power and unrefined resources to the stage of complex technology, delicate machinery, decentralized power systems, etc., of today. It was not so in the Middle East. During this whole period of growing up with industry in Europe, Syria was asleep in an agrarian age. Suddenly, industrialization became imperative, but because of competition with the already industrialized West there was no possibility of beginning a long crescive development such as occurred in the West. Syrian labor was faced with the necessity beginning at the end of the growth process. Communication systems adjusted for a societal organization which was communally and religiously segmented would have to be modernized overnight. This was as impossible as creating a modern skilled labor force out of peasants. The result was that the people gave preferential importance to the old and tried occupations. In agriculture, the worker continued to feel more secure, living with his family and depending on his household for support. In the urban centers, commercial enterprise seemed more promising than industry because of its relative freedom from foreign competition and because of the country's time-honored position on European and Asiatic trade routes.

c) Lack of investment capital. The legal and administrative system under Ottoman occupation, did not provide sufficient security for native or foreign investors. The government had the right to divert successful projects into its own nationalized concessions. Moreover, the religious beliefs, officially

held at that time, did not favor interest on capital and loans.[5]

d) Inadequate taxation. Heavy internal taxes on local production and at the same time the low tariff on foreign goods, did not encourage local industry to develop, thus placing it at a competitive disadvantage with Western production. This competition has been a burden on the infant industries of the Middle East ever since the Capitulations.[6] The policy of the West was to open markets for the products of its own machines. This policy was followed even after World War I, and continued until the mandatory power had no alternative but to change its policy. Bonné, in State and Economics in the Middle East, writes the following, which is pertinent here:

> The Western powers could not reconcile themselves to the emergence of national, i.e. independent industries which would tend to restrict the market for their own export products. Likewise the native owners of vested interests, predominantly land owners and merchants felt themselves threatened by the prospects of industrialization which might affect labor conditions to their disadvantage (wages, labor market, etc.). It was only under the influence of the continued drop in prices of agricultural products which caused great sufferings among the agricultural population that the policy of the official bodies began to relax. When industrialization was regarded as inevitable by the representatives of the Western Powers, they endeavoured to participate in the development at least as suppliers of the production goods (machinery, semi-manufactured

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5 Bonné, Alfred, State and Economics in the Middle East. Kegan Paul, Trench, Trubner & Co. Ltd., London, 1948. pp. 352-353.

6 Hakim, George, op.cit.; Bonné, Alfred, op.cit. p.245.

articles). Also, the native circles which had previously opposed industrialization were in view of its capacity of absorbing the surplus population eventually obliged to give it their approval and began in an increasing degree to take an active share in its promotion. 7

After World War I, many economic, political, and social changes took place. Those industries with primitive methods of production, gave way to modern factories. The decline of the former was accompanied by two events. The first, was the technological unemployment of workers due to the use of machines which needed fewer workers and the fact that the shift from primitive industry to automatic machine industry was not easily adjusted to by many workers. The second, was the modernization of industry. The effects of unemployment, the shutting out of emigrant remittances due to the war years and the depression which followed, the shortage of income from tourists also due to the war and to the new boundaries of new states (or mandates) in the Middle East, and the devastating drop of prices of agricultural products, all combined to lower the purchasing power of the people of Syria. In addition to the reduction of the purchasing power, several other factors brought on a decline of the pre-war industries. First, most of the products of these industries were exported to the neighboring Arab countries. The war as mentioned above changed the political boundaries and thus brought about a growth of national economics in the newly formed states blocking the eastward

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7 Bonné, A., op.cit. p.285.

movement of goods beyond the boundaries of Syria and Lebanon. High protective customs tariffs were also imposed. Second, the depression curtailed the income arising from export of lace to the Americans. Third, social distance between the West and Syria-Lebanon was reduced. The introduction of new articles by the Westerners was accompanied by changes in the modes of living. A Western way of dress was widely adopted. Fourth, European and Japanese producers took measures to meet the rising customs tariffs. The former deflated their currencies while the latter adopted a policy of dumping on world markets its low-priced goods.[8]

2. Between the End of the First World War and the Beginning of the Second World War. It was not until 1924 that the customs tariff on industrial machinery was reduced to encourage home production. In 1926 customs duties were raised on some imported finished products to protect home-made goods of the same kind.[9]

The cheap labor provided by Armenian refugees and under-employed agricultural laborers and the reduction of prices of machinery in the West (as a result of the depression) encouraged some merchants to go into industry in 1930.[10] The following

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8 Hakim, George, op.cit. pp. 122-130.

9 Ibid.

10 Taner, Philip, President of Lebanese Industrialists Society - A series of articles on Lebanese industry in Al-Hayat Newspaper,

tables give an idea of the process of growth during the years 1925-1938, as reflected in fuel consumption and machines imported.

TABLE I

IMPORTS OF FUEL INTO SYRIA [11]

YEAR	COAL, COKE AND BRIQUETTES (IN TONS)	CRUDE OIL (IN TONS)
1925	49,282	1,990
1930	80,106	8,521
1935	98,881	23,640
1936	110,721	21,907
1937	139,393	17,396
1938	141,519	19,626

Beirut, May 6 to 13, 1955. Nsouli, Mustafa, Director General of Ministry of National Economy - Lebanese Heritage from Handicraft to Industry, Conference du Cenacle Vol. VII, Beirut, April 16, 1953. pp. 70-89.

11 Bonné, A., op.cit. p. 301.

TABLE II

IMPORTS OF CERTAIN INDUSTRIAL MACHINERY INTO SYRIA AND LEBANON [12]

KIND OF MACHINERY AND APPARATUS		1934	1935	1936	1937	1938
Total Import of Machinery apparatus and electrical material		2094.4	3830.7	4205.6	5023.4	4747
Including Boilers	a)	64.7	26.9	40.1	42.3	199.9
Textile and parts	b)	123.4	285.5	599.8	1208.4	785.2
Pumps	c)	22.4	42.2	49.0	79.8	66.4
Generators & transformers		57.5	121	150.3	189.9	169.3
Motors		100.4	270.8	190.8	209.5	229.9

a) Figures for the years 1936, 1937, 1938 include also superheaters and steam accumulators.

b) Figures compiled from all items pertaining to textile machinery and their parts.

c) excluding agricultural pumps.

In addition to the above factors the return of some emigrants who brought back some skills to their home country was another factor that caused the increase of the factories in the thirties. Compared with 400 plants of primitive type in 1930, the number in 1939 increased to 900 plants having modern equipment. [13]

12 Ibid. p. 302.

13 Nsouli, Mustafa, op.cit.

3. During and After World War II. During the war years, the Western powers encouraged the development of industries to replace commodities blocked from the Middle East by the restrictions on sea communications.[14] Again the political situation in Syria and Lebanon during 1941 and 1942 barred the opportunities for industrial growth in these two countries while their neighbors flourished. Compared with an increase of 74 new plants in 1940, there was no increase in 1941 and only 28 new ones in 1942. Fifty-five new plants were established in 1944, with a total capital of two million Lebanese pounds. In 1947, the number of new plants was 98, almost double that of 1944, with a capital of 32 million pounds. This last figure, also includes depreciation replacements accumulated during the war years.[15]

In 1946 a report by Sir Alexander Gibb and partners was compiled on Lebanese industry. It concluded that 66 per cent of the population was rural, which fact depicts a continuing agricultural economy. In the absence of natural resources many recommendations for developing industries that would utilize agricultural products were put forth. Food canning plants, cotton weaving industries, cloth and textile factories are among such possible industrial projects. Both agricultural and industrial production had to be improved in order to cope with a population which

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14 Bonné, A., op.cit., p. 302.

15 Nsouli, Mustafa, op.cit.

increased by 16 per cent over the previous five years.[16] The trend is toward one and one half million total population by 1957 and two million by 1967. This increase accompanied by an increase in industry is reflected in an increase in electrical power consumption of 300 per cent (from 28 million to 86 million Kw), over a period of 12 years from 1936 to 1948. An estimate of 220 million Kw for 1955, and 1000 million in 1970 has been projected.[17] Table III shows the increase from 1943 to 1953.

In spite of this sudden increase over the past twenty years, and the millions of pounds invested in industry, development experts complain of low quality of produce and low productivity.[18] The human element which manifests itself in the lack of entrepreneurs and the lack of skilled labor, plays a major role in this lag. This situation is again reflected in the next chapter on vocational education where the limited number of vocational schools is compared with the numerous other educational facilities.

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16 Gibb, Alexander et al, Economic Development of Lebanon, Alexander Gibb and Partners, London, 1948, 'Industry' pp. 127-161.

17 Abdul 'Al, Ibrahim, Our Lebanese Means. Conference du Cenacle, Vol. IV, Beirut, April 25, 1950. pp. 58-74.

18 Badre, Albert, op.cit.
Tamer, Philip, op.cit.
Himadeh, S.B., Our Economic Problems and How to Solve Them - Conference du Cenacle, Vol.VI, Beirut, October 7, 1947, 'Industry', pp. 327-328.

TABLE III

PRODUCTION IN LEADING INDUSTRIES
IN LEBANON FROM 1943 - 1953 [19]

TYPE OF INDUSTRY	NO. OF ESTABLISHMENTS	TOTAL CAPITAL IN THOUSANDS OF LL AT THE YEAR ENDING			VALUE OF THEIR PRODUCTS IN THOUSANDS OF LL.
		1943	1948	1953	
Foodstuffs	779	10850	20432	42377	62000
All Beverages	171	2290	7850	12470	12000
Textiles	128	5500	23783	56000	35000
Dresses and Shoes	41	1000	3000	4000	7000
Wood (furniture not included)	3	a)	848	1200	750
Furniture	214	845	3939	7000	10000
Paper	21	380	386	1100	315
Printing & publishing	128	a)	5217	7000	5300
Leather	104	2468	3425	5500	10000
Rubber	17	b)	340	1300	1700
Chemicals	123	4761	4888	12000	8000
Mining Non Mineral	274	14923	26345	56000	30000
Mining Mineral	47	a)	1424	3000	10000
Machinery & Foundries	88	2000	2112	7000	5000
Electrical Products	7	b)	1670	1500	655
Miscellaneous	42	a)	4591	6500	1000
TOTAL	2187	46217	109050	223947	198720

a) Statistics not available

b) Industry non-existent

19 From unpublished tabulations by Marwan Nasr of material in the files of the Industry Institute of Lebanon.

CHAPTER III

VOCATIONAL EDUCATION IN LEBANON

It is frequently heard that Lebanon is the torch-bearer of education and literature in the Middle East. Special historical incidents and favorable circumstances[1] have given to a majority of the people of Lebanon the privilege of education; either through Government and other national schools, or through the schools founded by the competing missions. The people proved to be intelligent and capable of absorbing the knowledge and languages imparted to them. Yet, the type of education is theoretical and is devoted to preparing students for Government examinations. Even in universities, until the end of World War II, the curriculum was limited to few professions such as: medicine, pharmacy, law, and commerce. As to the other branches of education, it is befitting here to quote a recent declaration by Dr. Najib Sadaka, Director General of the National Ministry of Education.

> We must admit that in general education in our country is taking the tendency toward the theoretical side, and that vocational education is very nearly absent. Therefore this type of education should be reinforced, within possible means, to reduce the over-crowdedness in the traditional branches of education, and to share in the advancement of

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1 Fish, W.B., Geographical Review, Vol.34, dated April 1944, Article on Lebanon, pp. 235-258.

Turbey, H. Vocational Education, unpublished Report in the Files of the Lebanese Ministry of Education. Beirut, November 10, 1954.

the economy of the country, and to maintain social equilibrium.2

The lack of a directed government interest in vocational education, is brought out by a comparison of the growth of government schools of both types of education during the last decade. In 1943, the total number of government schools was 248; in 1954 it was 953, an increase of 280 per cent. In 1943 there was only one government vocational school in Beirut with three minor branches in Sidon, Zahle, and Tripoli. The same number was still maintained in 1954! The foregoing state of affairs is not improved even when a review of the total number of government and private schools in Lebanon is made. In 1954 there were 1870 schools in the Lebanese Republic with enrollments of 248,000 students of which it is estimated that only twenty-five schools had a vocational education curriculum; and these few, had enrollments of less than 2,000 students, that is, less than 0.8 per cent of the total number of students in schools.[3] Of the twenty-five schools that teach vocational education, only nine schools with enrollments of 300 students had programs for teaching technical-mechanical skills.[4] The other 16 had various programs such as: nursing,

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2 Turbey, H., op.cit., quotations from l'Orient Newspaper, September 16, 1953.

3 Figures based on statistics from the Lebanese Ministry of Education.

4 Three of these have training programs for the Printing Industry. A fourth one, the Arts et Metiers in Beirut has decided to import machinery for setting up a printing curriculum.

dressmaking, book-keeping, wireless and radio operation or repair, hotel service, and music.

It was only recently that interest was taken in vocational schools from the angle of industrial development. The Arts et Metiers, which is run by the Ministry of Education, was founded in 1905 with the aim of helping poor boys learn vocations.[5] From the first year that degrees were given (i.e. in 1927) to the end of the academic year 1953-1954, the graduates of Arts et Metiers did not exceed 1,600. Most of these graduates found relatively high positions in government or private establishments.[6] From the pattern of their distribution in the various occupations, it is to be observed that there was no plan by which these graduates might impart their skills to other workers in industry. Such being the status of vocational education in Lebanon today, it is worth searching for the causal underlying factors. Such information may help Lebanon and similarly underdeveloped societies solve their problems characterized economically by the shortage of laborers to work in factories and the lack of means for vocational education.

1. The Shortage of Laborers to Work in Industry. As

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5 Personal interview with the headmaster of the school. Article on Arts et Metiers School, Al-Jarida Newspaper, Beirut, April 13, 1954.

6 Personal interview with Mr. Abdo Al-Usta, President of the Society of the Graduates of the Arts et Metiers. During interview, information was taken from the register of the Society.

stated in Chapter II, the majority of the population lived on agriculture and commerce in the period prior to World War I. The structure of the Lebanese Society was integrated within agricultural and commercial cultural patterns. Cohesiveness in group norms in any society offers resistance to change.[7] W.E. Moore describes this sociological aspect as follows:

> Any Society has some degree of resistance to change, whether the source of the change be internal or external. That resistance arises from the nature of society itself. As a complex organization of interrelated human activities, oriented to certain goals and fulfilling certain functions necessary to its own survival; a society provides more or less adequate answers to the common problems of human existence. To the degree that a particular society approximates the model of perfect integration, the established and normatively sanctioned patterns, for example, socialization, assignment of status, maintenance of order, and production and distribution of goods and services - are internally consistent and self-perpetuating. It follows that an innovation in the organization of production and the means of gaining a livelihood will initially encounter resistence approximately proportional to the integration of the established structure. 8

Compelling events of the war blockade and the reduction of purchasing power of the people drove them to seek alternatives other than agricultural or commercial occupations for making a living. Even after those events, it was difficult for a person to loose his traditional freedom and socially recognized skill by

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7 Moore, Wilbert E., Industrialization and Labor, Cornell University Press, Ithaca and New York., 1951, Ch. II, 'Barriers and Antipathies,' pp. 14 - 47.

8 Ibid. p. 14.

enrolling in an impersonal and unknown system of production.[9] In the previous equilibrium people went on in their ways of living ignorant of industrial alternatives or the skills required for such means of gaining a livelihood. At that time, the economic and emotional security offered by the rural family increased the attachment of the peasant to the land. A special barrier in Lebanon during the Ottoman rule was the fear of conscription of those who came to Beirut. During the aftermath of World War I, the collapse of the primitive artisan industries did not offer enough security and faith in systems under the same literal name. Under such circumstances, those who had to go into industry were from the poorer segments of the population. To this must be added the discouraging influences of low wages, partly a result of the immigration of the Armenian and later the Palestinian refugees. This may explain why the Lebanese upper and middle classes snub the idea of teaching their children to work in industrial occupations up to the present day.

2. Lack of Means for Vocational Education. In avoiding vocational schools for their children, the richer classes deprived this branch of education of indispensable financial support required for the purchase of expensive equipment for technical vocational training. The lack of a skilled generation to teach technical skills was, and still is, manifest. In spite of recent

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9 Ibid. p. 302.

collections of up-to-date statistics about schools and the age composition of the students of Lebanon, no vocational guidance program has been contemplated.[10] All such factors, together with lack of enlightenment programs directed to the middle and upper classes, may be the underlying causes of the present minute percentages of vocational schools and students compared with the large percentages in the academic field of education.

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10 Turbay, H. op. cit.

CHAPTER IV

METHODOLOGY

Purpose of the Study. The manifest low productivity in Lebanese industries,[1] the low efficiency in man-hours, the waste of capital, and inefficient use of raw materials, has caused great concern in industrial development circles.[2] To meet this problem from its human aspect, that is, the shortage of skilled and semi-skilled hands, a vocational education program is envisaged.[3] Yet the building up of such a comprehensive program requires research pertaining to the existing situation and future trends of industrial technical requirements, labor supply, and educational means.[4]

This pilot study attempts to demonstrate methods which will provide information pertinent to the building up of an industrial educational program. It is planned in two parts. Part one deals with job analysis and part two is concerned with the workers who fill those job assignments.[5]

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1 The term industry refers to a singular field of industrial activity of the type that uses machinery and large capital investment for the production of goods.

2 Gibb, A., et al, op.cit; Badre, A. op.cit.

3 See Chapter I.

4 See Report by United States Operations Mission to Lebanon, op.cit.

5 See Chapter I.

Description of Universe. In 1953 a list was prepared by the Lebanese Ministry of National Economy giving: names of firms, amount of capital, and number of workers in each industry in Lebanon. While far from complete or accurate, the list gives an idea about the various types of industries in the country. This year, it is hoped that a new up-to-date list will be completed.

In the absence of accurate information about size of universe, the pilot study was directed toward stressing method, rather than generalization. Lacking data on number and size of establishment, and in the absence of an internal job classification, a random sample could not be undertaken for all industries. With method as the major concern, one type of industry was chosen to illustrate what could be done in some future study of industry as a whole. The limitations of time and funds led to further narrowing of the present study to two sections of one industry within the municipal limits of the city of Beirut. The industry chosen, as mentioned earlier, was the Printing Industry and within this, two sections received attention, the Hand-Setting and Cylinder-Press sections.[6] The following steps were taken:

1. Getting information about the number and size of printing establishments.

2. Carrying out a job analysis.

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6 See Chapter I for reasons for selecting the Printing Industry.

3. Selecting a random sample from the universe of establishments.

4. Constructing an interview schedule.

5. Interviewing.

6. Coding and tabulation.

Description of New Narrowed Universe. The number of printing press establishments within the municipal boundaries of Beirut is 136.[7] About seventy per cent of printing press establishments are located in ecological clusters, the largest one of which is in the Assour section next to Le Grand Theatre. There are four or five other smaller clusters. The remaining thirty per cent of establishments are scattered throughout the city. As for size and uniformity, these plants range from one-man to 112-man operations. Yet, within the Hand-Setting and the Cylinder-Press sections, the work is of uniform type in all the establishments, regardless of size. The work consists of book and commercial printing which include printing invoices, letter heads, circulars, cards, pamphlets, and books. This uniformity had a beneficient effect in facilitating job analysis and sampling.

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7 Information taken from the files of the Lebanese Ministry of Information, March 20, 1955. This number excludes newspaper establishments.

Job Analysis. To compare the occupational levels of skills of different workers, a scale must be devised by which workers can be classified and ranked. Classification is pre-requisite to any possibility of making generalizations about categories of workers. It was possible to carry out job analysis in a few representative establishments whose owners were experts in the printing field and who were at the same time willing to sacrifice time for lengthy consultation by which the overall process involved in printing was explained, described and observed.

The methodology and results of job analysis are reported in Chapter VI, where Lebanese job classifications are also compared with standards prevailing in Western countries.

Sampling. Originally it was intended to select a sample stratified by size of establishment. However, preliminary investigation showed that job specification was uniform regardless of size of establishment. Therefore a simple random sample was selected.

The selection was based on tables of random numbers. A sample of ten per cent (14 establishments) of the universe of establishments was selected, plus, another five per cent for replacement in cases such as non-cooperation, closing down, or where a plant might shift from one type of production to another type, not included in our study. Only two establishments refused cooperation, one on the pretence of too much work, and the other

because of apparent non-interest and suspicion of any type of survey. During the few visits to these two places, the processes of work were observed. They did not differ from the uniform patterns found in other establishments. One printing establishment had to be excluded because it was found to have changed its main type of work from commercial and bookprinting to work exclusively for an Armenian newspaper. One plant was found to have closed down. Another, while still under the same firm name, changed into a book store and publishing house. Replacements were therefore made for these from the five per cent margin selected for this purpose.

The pattern of uniformity of job specification was the same in all except one minor case. This occurred in the largest establishment in the sample, and in the universe (and even in the Middle East) where an assignment typically performed by one man was broken up into two assignments. Even in this case one of the men performed both assignments occasionally.

The total population in each of the two sections of Hand-Setting and Cylinder-Press in the randomly selected establishments, was included. Of the total completed interview schedules, three had to be discarded. Two of these arose when owners insisted that the interviewers should conduct interviews outside the sections under investigation, while they (the owners) were preparing other interviewee candidates. The third discarded interview schedule was one obtained in an establishment which subsequently

refused to cooperate.

From the fourteen presses 97 completed interview schedules were forwarded for coding. To ease the computation of percentages another three interviews were taken from another two printing presses chosen at random.

Interview Schedule. After extensive pretesting in the field, entailing six major draft revisions, a schedule was adopted for use in this study. The schedule appears in its entirety as appendix E. The main points under investigation are presented in the following outline.

1. Personal identification, including: age, sex, address, etc.

2. Childhood background, socio-economic, familial, and residential conditions, fathers' occupation etc.

3. Educational background.

4. Personal work history: job levels and types held and socio-economic mobility.

5. Attitudes and aspirations.
   (a) Toward education
   (b) Toward work
   (c) Toward unions

The results from the schedule permit analysis of variance

in the following important relationships:

1. Occupational level by education
2. Occupational level by age
3. Occupational level by income
4. Occupational level by rural-urban background
5. Occupational level by means of attainment of occupational skill level.
6. Continuity within the same industry and in working career by occupational level.
7. Continuity by rural-urban background
8. Marital status by occupational level
9. Household position or role by occupational level
10. Total household income by occupational level
11. Attitudes toward education by age and by education
12. Attitudes toward work by age and by education
13. Attitudes toward Unions by age and by education
14. Aspirations by age and by education

The percentage distributions on attitudinal data will be presented only. Uniformity of the samples is to be determined by standard deviation measurements in education, age, and income frequency distributions. The difference in educational background between the two categories of skilled and unskilled workers is tested for significance.

Interviewers: number, training, and organization. The interviews were conducted by eight persons: four women, and four

men. Of the eight, four had had previous experiences in interviewing, two with the Economic Research Institute and two on projects conducted by the Sociology Department of the American University of Beirut. Five of the interviewers were presently university students.

Training was carried out in six sessions of an average duration of two hours. Additional coaching was carried out in the field. Training assumed the following stages:

1. At the beginning, explanation of items in the schedule was thoroughly covered.

2. One of the experienced interviewers would demonstrate interviewing technique by asking another experienced interviewer the questions on the schedule. The respondent attempted to demonstrate all the difficultires which may be expected in reality.

3. The non-experienced interviewers then practised in the presence of the experienced ones.

4. Next, actual workers from printing presses were called in, to make a reality test on the ability of the interviewees as well as the utility of the schedule, thus supplementing pre-testing in the field.

5. After this training, the interviewers were

considered ready for the field. For the first six interviews, interviewers were accompanied by the director of this project who coached them and corrected their mistakes. All interviews were made by pairs or larger groups; none were undertaken individually.

Field Work. Appointments were prearranged for the interviewers by the director of the research and his secretary. It was noticed that when a girl interviewer was present, the attitude of the managers was more cooperative than otherwise. However, many difficulties had to be overcome. The foremost problem was unwillingness on the part of owners to sacrifice working time to interviewing. Consideration had to be given to the worker's willingness to give of his non-working hours. An atmosphere of friendliness, coupled with the presence of girl interviewers, facilitated the task. In some instances, groups of workers were taken to visit the American University of Beirut where they were given refreshments. The change of surroundings appeared to produce a helpful influence. Thus, interviewing was made after working hours except in two establishments where the owners became exceptionally interested in facilitating the project. Continuing much of the interviewing to the non working hours, obviously limited the daily output of interviews considerably. The director of the research made it his responsibility to see to it that all interviews

followed the required instructions. The general instructions to interviewers were:

1. To explain well the purpose of this research but only to an extent necessary to satisfy the interviewees and establish rapport. No promises of any nature were to be made.

2. To ask the questions about attitudes and aspirations without discussing them or soliciting an answer by force of suggestion.

3. To fill every space in the questionnaire in order to ensure that nothing was being omitted.

4. Each interviewer carried and worked from a copy of the questions in Arabic so as to ensure uniformity of the wording of questions throughout.

Coding and Tabulation. Coding keys were devised by the director with the assistance of Economic Research Institute experienced coders, and under the advice of a coding expert. A considerable amount of tabulated material is not presented in this thesis but is available for future analysis. As previously indicated, this thesis is primarily concerned with three types of relationships which are: educational backgrounds, and other socio-economic aspects, occupational levels, and worker attitudes.

Costs. It is difficult to estimate the total cost of a project such as this one because it had considerable unpaid assistance and made no charges for supervision or expert consultation. However, a rough estimate should indicate the following indispensable cost items:

1. Salary of research director

2. 310 hours on the Job Analysis Phase involving the expert services of a professional analyst.

3. 225 hours of interviewing.

4. 150 hours of secretarial services.

5. Supplies (paper, mimeographing, etc.)

6. Transportation and sundry field expenses equivalent to approximately one third of the total cost of interviewing.

7. Office facilities and rent.

It is clear from the financial aspect of this pilot project that an overall industrial survey in Lebanon will be a major undertaking.

Time. The research was begun on the first of March 1955.

The preparation of the Job-Analysis took up the whole month of March. During the last week in March and the first week in April interviewers were trained and the interview schedules were pre-tested. Actual field interviewing was begun on the seventh of April. On the twelfth of May the last interview was made. Coding and computations were completed by the Twenty-fifth of May. The final report on the findings was completed and delivered by the sixth of June.

CHAPTER V

TERMINOLOGICAL DEFINITIONS

Before proceeding to describe actual research processes, a few words and concepts should be defined in order to avoid unnecessary ambiguity which would arise through the fact that these words are used in different contexts to convey different meanings. Non-ambiguity is particularly important in this study in regard to the terms defined in the following paragraphs.

Industry. The word 'industry' is generally applied to hand-made as well as machine-made products. Throughout this study the word industry is used in the latter sense and applied only to manufacturing processes wherein machinery is used to produce goods.[1] The term 'industry' refers to a singular field of industrial activity.

Section. The word 'section' is used to signify a group of operations within a specific industry that are distinguished in type and function from other groups of operations within the same specific industry. All the sections added up sequentially yield the final marketable produce.

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1 Although hand-setting is obviously not done by machine it is a step within a larger process which imperatively utilizes machines to finish the final marketable product.

Job. The word 'job' has many overlapping usages. It may mean "the material thing on which work is done",[2] as well as position of employment or amount of work done. All through this study it is used in the following sense only: An operation or group of operations, within a section in a specific industry, that is, or are, assigned to one worker as a responsibility within his regular employment.

Job Level. Is the relative position of a job along the ascendency scale of job difficulty.

Occupation. The word 'occupation' describes and encompasses the total of a worker's activities in his regular employment. It could include one or more jobs.

Skill. "A developed or acquired ability" and "Technical Proficiency".[3]

Skilled, Semi-skilled, Unskilled Occupations.[4] The definitions used in this text for these occupations are those given in the American Dictionary of Occupational Titles.

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2 Webster's New Collegiate Dictionary. Copyright 1953.

3 Ibid.

4 Dictionary of Occupational Titles, Second Edition prepared by Division of Occupational Analysis, United States Employment Service, United States Government Printing Office, Washington, 1949. Vol. II pp. 81, 167 and 319.

Skilled Occupations: This group includes craft and manual occupations that require predominantly a thorough and comprehensive knowledge of processes involved in the work; the exercise of considerable independent judgment; usually a high degree of manual dexterity, and, in some instances, extensive responsibility for valuable products or equipment. Workers in these occupations usually become qualified by serving apprenticeships or extensive training periods.

Semi-Skilled Occupations. This group includes manual occupations that are characterized by one, or a combination of parts, of the following requirements: the exercise of manipulative ability of high order, but limited to a fairly well defined work routine; major reliance, not so much upon the worker's judgment or dexterity, but upon vigilance and alertness, in situations in which lapses in performance would cause extensive damage to product or equipment; and the exercise of independent judgment to meet variables in the work situation, which is not based on wide knowledge of the work field and with the nature and extent of the judgments limited either: a) by application over a relatively narrow task situation or b) by having important decisions made by others. These occupations may require the performance of part of a craft or skilled occupation but usually to a relatively limited extent.

Unskilled Occupations. Manual occupations that involve the performance of simple duties that may be learned within a short period of time and that require the exercise of little or no independent judgment.

Craft. "An occupation requiring skill."[5]

Trade. "A pursuit requiring manual or mechanical training and dexterity."[6]

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5 Webster's New Collegiate Dictionary. Op.cit.

6 Ibid.

Vocation. The general field of economic activity within which persons earn their livelihood.

Work. "Exertion of strength or faculties to accomplish something."[7]

Job Analysis. In every industry certain operations are performed in order to produce a marketable product. These operations rank in a hierarchal order, from the simplest and easiest to the most complex and most difficult. Following established patterns, such operations are classified into three categories: Unskilled, semi-skilled, and skilled occupations. This classification follows their rank along a ladder of difficulty, and hence, the degree of proficiency required to perform them.

Job analysis implies examination of the component operations done within a section of any industry and the classification of those operations into a scale indicating the relative difficulty of performance. Such analysis was an imperative prerequisite in this present study. The evaluation of jobs into a standard scale of job levels is necessary for the comparison of occupations in different industries as related to workers' socio-economic backgrounds. That is to say, generalizations about workers can be meaningful only when comparisons are made between common job level

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7 Ibid.

8 Dictionary of Occupational Titles. op.cit.

categories.

An example may clarify this point. If one hundred men out of eight hundred in the Printing Industry and fifty men out of seven hundred in the Shoe-Making Industry, occupy jobs within the skilled occupational category, and the universe under study is composed of these two industries only, it can be concluded that one hundred and fifty men out of one thousand five hundred (or ten per cent) are occupying skilled positions. In other words, some kind of common denominator must be used and in this case it is the job level.

The usual procedural steps in job analysis may be summarized in simplified form as follows: a) Division of the industry into its different sections. b) Recording operations made within each section in the sequence of their performance. c) Grouping operations under headings which will show the main processes and procedures involved and the requirements which enable the performance of these processes and procedures. d) Placement of all operations recorded in step 2 into a general rank order hierarchy dependent upon degree of difficulty. e) Division of the general ranked scale into three major job-level categories; namely, unskilled, semi-skilled, and skilled occupations. Thus a worker performing any particular activities within a section, can be said to be working within one of the three skill-level categories, depending on where these activities fit in the scale of job difficulty.

The Dictionary of Occupational Titles[9] contains an analysis of every occupation in every industry in the United States of America. Although the machinery which is used to produce a certain article, may be imported from the United States, Europe, or made locally, it is basically identical and follows the same principles of operation as those used in the United States in the same industry. However, the analysis made in the Dictionary of Occupational Titles cannot always be used without reservation on similar industries in other countries. This is due to the fact that the Dictionary's analyses are based upon standardized processes in relatively large plants, whereas plants in countries like Lebanon are characteristically small and less specialized. For instance, in large printing establishments a 'hand-setter' leaves the set form on the stone to be locked-up in the required chase by a "stone-man"; the latter finishes his assignment and leaves the locked-up chase for a "press-man" to take to the press machine and use it. In small printing establishments these processes of locking-up the form are done by the "press-man". In a country where the general size of plant is relatively small, it is expected that job assignments to the "press-man" may combine all these processes.

In constructing a job difficulty scale a job analysis must be made in order to arrive at the specific operations which should be included in an occupational category. The job analysis

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9 Dictionary of Occupational Titles. op.cit. Vol. I

carried out for this study was made in the light of the methods used by the American Dictionary of Occupations and by Dr. Edward MacDonald, in his Unit Reconditioning Shop Project[10] which was performed for the Arabian American Oil Company at Dhahran.

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10 The Unit Reconditioning Shop Project - Methods and standards for upgrading Saudi Arab Employees - Prepared by Richardson, Bellows, Henry & Co. for the Planning Division of the Industrial Relations Department of the Arabian American Oil Company, Dhahran, Saudi Arabia.

CHAPTER VI

JOB ANALYSIS FOR PRINTING INDUSTRY

The job analysis for the Hand-Setting and Cylinder-Press sections was compiled from five printing presses of the type that specialize in commercial work and book-printing. Printing presses which specialize in newspaper work were excluded. In all five presses chosen for this compilation, "Setting" is made by hand and not by machinery, and the printing machines are of the cylindrical type. Results were compared with descriptions in the Dictionary of Occupational Titles[1] and submitted for analytical evaluation to experts in the Printing field.[2]

The analysis followed the procedure explained in the preceding chapter. The shop-headman was interviewed and asked to list all the operations in each section in the sequence of their performance. This was checked immediately after, by attending the daily routine of work for more than one working day in each printing press. It is pertinent to stress here that no factual observation of any process was made before the shop-headman had been

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1 Dictionary of Occupational Titles, op.cit. vol. I.

2 M.S. McCullock of the Middle East College, Principal of Press and Press Training Program; Azar George of Azar Printing Press; Buhayri Issam of Dar Al Ahad Printing Press; Gedeon George of Gedeon Printing Press; Malak Saba of Al-Manar Printing Press.

interviewed and had listed the various steps of the operations. Care was taken to visit the inner workshops of the printing presses and in maintaining a pretence of ignorance about the working processes so that every step would be fully explained by the headman. These precautions were taken in order that the shop-headman should not be inclined to limit listing any processes through the tendency to rely upon the knowledge of the interviewer.

The classification and ranking of operations was arranged in an ascending order according to difficulty of performance. The definition of job requirements was made up with suggestions from headmen, reference to a standard text book on printing,[3] comparison with the Dictionary of Occupational Titles,[4] and instructions from a machine manual.[5]

The following pages exhibit the steps involved and the results obtained. The first step, consisted of construction of a sequential listing of all operations in each of the sections under study; these lists appear as appendices A and B. The second step, involved the grouping of operations under major process and procedural headings.

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3 Polk, R.W., The Practice of Printing. Chas. A. Bennet Co., Inc. Peoria 3, Illinois, U.S.A., 1952.

4 Dictionary of Occupational Titles, op.cit.

5 Manual of Schnell Pressenfabrik G.A. Heidelberg, Germany, 1954.

In the Cylinder-Press section these groupings included, terminology or knowledge of the universe of discourse, cleaning, inking, preparation and machine operation. In the Hand-Setting Section they included knowledge of language(s), terminology and acquaintance, size and measurement, setting and forming. These detailed grouped listings appear as Appendices C and D.

General Definition of the Printing Process. Printing implies applying a piece of paper by pressing it against a form of set characters or any slightly protruding object with the result that an impression is made on the paper of the set characters or slightly protruding object. Because progressive change is going on in printing, several methods are in use today; some are primitive and simple while others are advanced and complex.

The operations that yield the set characters are within the setting section. Advanced methods use automatic machines for setting characters, while hand-setting cannot be dispensed with for commercial setting. In this study the analysis was made for the hand-setting section as it is the type most widely used in the country.

The process of hand setting is carried out by selecting the required characters, or types as they are also called, and arranging them into words, sentences and paragraphs. The required space between letters or lines is maintained by inserting 'spaces' to keep the distance required. When a page is thus set, the set-

ter, who is also called compositor ties it tightly with a thread and leaves it on a table covered by iron or marble flat stone, hence the name, stone-table. When there are pictures (also called blocks or cuts) to be printed with the set types, the setter is to arrange them into form. This is called 'making-up', and the job is assigned to a 'make-up man' in large printing presses. In relatively smaller plants the job is carried out by the Hand-Setter. To set pieces that will make lines on paper, such as invoices or tables, needs great ability. This type of work is called, commercial setting, and is to be distinguished from straight setting, which is the setting of characters into sentences and pages only.

Following the setting, the next operation is to put the set form into a frame that will hold it tightly, and replace the thread. Only then it becomes possible to place the set on the machine. This frame which is technically called the chase is made to fit into its place on the press machine. In large printing presses this job is performed by a special employee called the lock-up man. In the relatively smaller plants the press-man performs this operation. When there is more than one page to be put into the chase the lock-up man should take pains to put them in order of the sequence by which they are to fit in the book. He must also be careful to space the set form inside the chase in such a way that when the paper is pressed against it the right margin is maintained to provide space for binding or for other purposes. To keep the form in place, large spacers, called fur-

nitures, are inserted between it and the chase edge. To make the contents of the chase tight, furnitures which are made from two pieces of iron with adjustable distances between them to act as a wedge are inserted. These adjustable-width pieces are called locks, or quoins, because they are used to tighten and lock the contents of the chase. The adjustment is made by placing a square edged rod, called the key, in a squared hole in the quoin. The hole is the top of a screwing device which turns to separate or connect the two pieces of the quoin; thus tightening furnitures and form by pressing them away toward the edges of the chase or inwardly towards the center of the chase as the case may be.

The press-man is usually in charge of a printing machine into which the chase is attached. Opposite to the place of the chase is another plate (or cylinder) on which the paper is laid, technically called feeding of paper. This plate (or cylinder) moves to press the paper on the characters of the set form. Before the plate presses the paper on the characters, rollers which are wet with ink pass over the characters thus inking them. This kind of press is called Cylinder Press. Other kinds utilize different techniques. Some cylinder presses are automatically fed with paper, others are fed by hand.

The characters are made of lead. With use some characters become a little flattened, thus becoming slightly shorter, and when arranged into the set form and the paper is pressed on them, the impression left is often not uniform. Such a state

necessitates the insertion of thin paper cuttings either behind the shorter characters or behind the paper when it is pressed on them. This is called underlay cutting. The paper cuttings that are inserted behind the form are pasted under it when it is on the stone. Those that are put behind the paper to be printed are pasted on the sheet of paper covering the plate or cylinder. The plate or cylinder, according to the kind of machine in the press, is technically called bed or drum. Covering the bed or drum with paper is called packing. Packing is made to maintain a uniform impression all over the paper to be printed. Usually instructions on the machine give the specifications for the number of sheets to be used for packing, depending on the thickness required because excess packing may damage the types.

The paper to be printed is supplied in the required size, quality and quantity by the paper cutting section. Either the press-man or his assistant get the paper from a table near the cutting machine and load it onto the press-machine. From the press-machine, paper already printed is taken to the binding section.

This concludes the general definitions. Specific definitions will clarify the detailed operations.

Specific Definitions of Operations in the Cylinder-Press Section. The following paragraphs are briefly outlined in Appendix C; they are given herebelow in their complete form.

Terminology. 1) Familiarity with the names of machine parts and processes taking place; such as ink duct, rollers, cylinders, plate, starter, etc. 2) Ability to use the Cicero measure in measuring the size of paper which is to be printed upon in such a way as to adjust the place for the load; ability to tell what sizes of furnitures are to be used. 3) Knowledge of the names of the accessories and locks (quoins) needed to tighten chase.

Cleaning. 1) Knowledge of how to clean machine with kerosene and how to keep it clean. 2) Knowledge of how to empty and clean ink ducts especially when a different color is to be used. 3) Knowledge of how to clean rollers and cylinders thoroughly after loosening them with the wrench and removing them from the press, especially when a different color of ink is to be used. 4) Knowledge of the location of the nipples or holes for lubrication. 5) Ability to clean the form after printing.

Inking. 1) Ability to remove ink from the duct and to fill it with new ink. 2) Exactitude in manipulating ink controls (thumb screws) in order to have a uniform flow of ink all over the surface of the type form, and continuous readjustment of this process while the machine is running. Exactitude in tightening or lossening inking rollers as necessity indicates, in order to obtain an even distribution of ink on form. 3) Knowledge of how to add "thinner" to ink and give it the required degree of consistency. 4) Dexterity in mixing inks of different colors to obtain the desired color and shade.

Preparation. 1) Ability to load paper on the machine and remove printed paper to the shelf for drying. 2) The science of adjusting paper loads in the right place so that the paper will be printed on in the right place as per specification, and adjusting suction for different weights and thickness of various qualities of paper sheets. 3) Knowledge of how to place the chase on the machine and lock it on. 4) Ability to pack the cylinder (drum), with the specified thickness of paper to make uniform impressions. 5) Knowledge in cutting out and pasting sections of proof sheets of a half-tone, cut on another base proof sheet to form a pad which, when attached to a press cylinder (drum) will cause the cut to reproduce the correct half-tone shades in printing. Also knowledge in underlay cutting. 6) Knowledge of how to put the form in the right place inside the chase so as to meet the requirements when the latter is mounted on the machine, level the type with a block of wood and tighten the locks (quoins) with its special key. 7) Knowledge in page-laying (imposition). Laying pages in the proper order so that when printed on a sheet and folded, the printed pages will have proper margins and be in numerical order.

Machine Operation. 1) Ability to start and stop the machine not only at normal times but also in cases of emergency, without the use of the starting handle. 2) Knowledge of how to run the machine with the load and check every few pages at the beginning to ensure that the flow of ink and the pressure are uniform.

3) Knowledge of where the moving parts are to be lubricated from, and checking lubrication while the machine is running. 4) Knowledge of how to tell whether the machine is running correctly as specified under normal working conditions and ability to detect any faulty operation.

Specific Definitions of Operations in the Hand-Setting Section. The succeeding paragraphs depict in full the headings outlined in Appendix D.

Language. Knowledge of how to read and write Arabic, is required. Acquaintance with the Latin alphabet is better, while knowledge of reading and writing of either French or English or both, makes a setter very desirable, particularly because in Lebanon both these languages are in wide usage.

Terminology and Acquaintance. General acquaintance with the processes of the section, knowledge of the names of the pieces called furnitures, spaces and slugs, the locks and tools for locking and levelling, the types, their boxes and places together with types for different languages, the stick in which types are set and the galley in which the set types are placed for the make-up process, the proof machine and its tools, all of which should be well understood.

Size and Measurement. A clear conception of the size of furniture by number is necessary, so that each will be returned to its correct place after cleaning. Definite understanding of the

Cicero scale used for measurement in printing presses and of the different sizes of types and spaces to be used with them, having a good judgment as to aesthetic combination and sense of balance for pages that require different sizes of types are also prerequisites.[6]

Setting. 1) Knowledge of how to select types from the correct place in the box and assemble them together with the correct spaces into lines in the stick and thus make a straight setting. 2) Knowledge, in addition to step one, of how to set the stick according to measurements of copy and to slide lines of the straight setting into the galley. 3) Knowledge of how to correct according to the proof reader's instructions on the copy by taking out wrong types or broken ones and inserting the correct ones. 4) Knowledge of how to set commercial forms by selecting the right lengths of brass rules and spacers to set the columns for account books pages, invoices, and receipts or tabulated material, and holding on to the correct measurements of the copy as a whole. 5) Knowledge of how to run the proof on the proof machine. 6) Knowledge of how to redistribute type into their correct holes in the type-boxes, as to identity and size.

Forming. 1) Knowledge of the correct spaces to be added between the lines. 2) Making up of pages: this operation has two stages of requirements. The first is the making-up of straight set material, which implies arranging such material into pages of

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6 Polk, R.W., op.cit., pp. 182-272.

predetermined length and width, and putting the right spacers and furnitures to form a page; assembling machine-set material with the hand-set material if and when required. Placing page numbers at the top or bottom of pages, placing signatures or identifying lines at the bottom of the pages, and tying up the pages for delivery to the stone. The second stage implies the knowledge of how to arrange the types and cuts into pages and leave the correct spaces between them, divide the types and cuts into columns when necessary, by inserting furnitures or column rules. 3) Knowledge of how to judge that the final form is correct as compared with the measurements of the copy, inner and outer dimensions, and leave the form on the stone.

Grouping Jobs into Occupational Skill Level Categories. The next step consisted of classifying the new carefully defined and generally ranked specific jobs into occupational skill levels.

I. JOB ANALYSIS OF PRESS-MAN'S WORK

A. Unskilled (Trainee) Occupational Level.

1. Terminology. Names of parts and tools for machine operations, names of chase, quoins, keys, slugs and furniture by size and number.

2. Cleaning:

a) Cleaning form after printing and leaving it on the stone.

b) Wiping the machine with kerosene.

c) Lubricating the machine - filling grease and oil pots.

d) Cleaning the ink duct.

e) Cleaning rollers and inking cylinders

3. Putting fresh ink in pot, without having the knowledge of mixing inks.

4. Loading and offloading the paper. (Loading implies putting the paper on loading board as assigned by press-man, without adjusting its position.) (Offloading implies removing the paper and placing it on the shelf to dry.)

B. Semi-Skilled Occupational Level.

5. Starting and stopping the machine.

6. Adjusting the position of paper on the machine and on the receiving board; adjusting suction in automatic feed machines.

7. Adjusting inking cylinders to maintain the same distribution of ink over the length of the cylinder.

8. Dismounting the chase from its position on machine.

9. Loading the chase.

10. Tightening the chase: spacing the form in the chase, levelling with wooden block, and locking.

C. Skilled Occupational Level.

11. Packing the cylinder (drum).

12. Overlay and underlay cutting.

13. Adjusting the flow of ink by manipulating thumb screws.

14. Adjusting rollers occasionally (important); giving the rollers the right pressure when passing over the types.

15. Mixing the right colors and watching ink consistency.

II. JOB ANALYSIS OF HAND-SETTER'S WORK.

A. Unskilled (Trainee) Occupational Level.

1. Reading and writing.

a) Arabic

b) English

c) French

2. Sweeping and retrieving fallen types.

3. Terminology and acquaintance with working processes.

4. Cleaning forms and redistributing furniture.

5. Learning units of measurement.

6. Studying box of types.

B. Semi-Skilled Occupational Level.

7. Using stick, assembling types into lines by selecting the right letters and spaces.

8. Starting straight setting.

9. Redistributing the types.

10. Taking the proof onto the proof machine. (Form already set by skilled setter).

C. Skilled Occupational Level.

11. Forming page of straight setting; looking into original copy and reproducing required form.

12. Sense of balance; choosing the correct and matching size and kind of type from the aesthetic point of view.[7]

13. Making up pages of more than straight setting:

a) Assembling straight settings and cuts into pages by using the correct sizes of furnitures.

b) Laying out pages of books in their numerical order.

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7 Polk, R.W., op.cit., pp. 182-223.

14. Commercial setting.

Application of Scales in This Research Project. The final scales which ensued from all the steps just described were carefully studied by the interviewing team. In the course of subsequent interviews of workers the interviewer analysed the total job assignment content of those scales. In this way the activities of each worker interviewed could be placed or ranked systematically in a standardized pattern.

Exact Placement Rules and Procedures. The worker was asked what operations he performed in his section. The operations were checked on the scale-sheet which accompanied the interview schedule or were written in Arabic to be translated afterwards. The placement of the worker interviewed into any of the three occupational skill-categories was made in accordance with the rank, in the scale, of the most difficult job he performed. That is, if a worker who performed operations included in the skilled occupational level also performed the jobs included in the unskilled occupational level, he was nevertheless ranked into the skilled occupational category.

CHAPTER VII

SOCIO-ECONOMIC BACKGROUNDS AND ATTITUDES

What makes people act as they do and to what degree is behavior predictable are questions to which answers have always been sought in field research. Yet the "enduring organization of perceptions and cognitions about some aspect of the individual's world"[1], which may simply be called the belief of a person, cannot be explained outside the cognitive content of the dynamic field in which the person is participating. The "enduring organization of motivational, emotional, perceptual, and cognitive processes with some aspect of the individual's world"[2], which is called attitude, varies in different frames of reference. In order to devise a program which will be applicable and useful for a particular group of people, it is important to investigate the enduring organization that gives structure and continuity to the personalities of those people. A review of the social world of the individuals in the universe under investigation will throw more light on findings pertaining to their attitudes and beliefs.

In Chapter II, the difficulties faced by owners of industrial establishments in making their enterprises barely profit-

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1 Krech, D., and Crutchfield, R.S., Theory and Problems of Social Psychology. McGraw-Hill Book Company Inc. New York, 1948. pp.150-157.

2 Ibid.

able, and in standing the competition of foreign goods, were reviewed. Economic instability has forced the pioneering industrialist to think of ways by which he might lower the cost of production. Whether by low increments to those workers who advance in skills, or by means of evading payment of compensation, the industrialist has driven the worker indirectly to a similar feeling of instability couched in fear of unemployment. Hostility and distrust between owners and workers in Lebanese industry also arise out of the owners' interference. Workers' respect for management is difficult to maintain when the owner meddles with operations with which he is unfamiliar, or when he nepotistically places any of his relatives in control;[3] workers cannot fail to be aware of the lack of correspondence between the abilities which the ownership class have developed, and the abilities which are actually required in the plant. Thus, owners are impeding the proper training to their workers by these methods instead of enhancing them by placing management and/or foremanship in competent hands.

Furthermore, the physical conditions in many of the Lebanese industries are not too highly conducive to worker morale. In the printing industry most plants are inadequately ventilated, poorly lighted, and clumsily arranged; they are often located in basements. Perhaps some of these conditions help to explain the frequent negative responses received from workers on long service,

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3 Tamer, Philip, op.cit.

or their tendency to discourage their children from accepting employment in printing presses.

Another factor retarding modernization in industry, is the fact that many workers consider themselves potential future owner-operators of firms; a conviction which could not be maintained unless the industry is to remain in its primitive stage of development. In its present stage of low capital investment such ambitions can be realized. A trained press-man or setter can set up his own press, or go into partnership with someone who has a small capital, quite readily. But such personal mobility is possible only because the industry is neither modernizing nor developing in itself. The characteristically small size of plants, many with only a single worker, typically using old machinery, were often observed in the course of this study.

The financial inability of the workers to raise their disputes and grievances with owners in court has contributed heavily to the non-enforcement of the labor law, which, on paper, is an excellent progressive and very modern achievement. This factor is being somewhat mitigated partly by the gradual organization of labor unions, and partly by other groups desirous of promoting the cause of the worker in his struggle with ownership.

The introduction of new types of machinery calling for new skills at a more rapid rate than competent worker-operators can be made available is another factor which constitutes a threat

to many workers' sense of security. From the point of view of management, this unavailability of competent skilled personnel is also one of the most haunting problems. The native workers fear displacement by foreign personnel and thus resist plant modernization. Skilled personnel cannot be attracted to the industry by the owners because of the lack of cooperation given to them by older hands. Both fears are apparently justified. Management would bring in foreign experts if it could pay them; native workers would resist this move with all the power they could wield.

With this brief summary of some of the more generally recognizable needs, goals, and tension points, it is now appropriate to present more specifically, the quantitative data obtained in this survey on worker attitudes, aspirations, and beliefs.

The number of respondents within any grouping can be taken as a percentage of the total population because the total sample is composed of one hundred interviews. Out of the sample, forty-seven are workers in the cylinder-press section (Press-men), and forty are hand-setters, the remaining thirteen perform operations in both sections. These are better known as job-printers. From the sample, sixty-nine hold skilled occupations, and thirty-one hold semi-skilled and unskilled occupations. Workers of both unskilled and semi-skilled categories, were grouped together because their duties encroached on one another. This was observed in the printing presses visited.

The interpretation of the data was grouped into four parts: socio-economic backgrounds, attitudes towards education and training, aspirations, and attitudes toward working conditions.

Socio-economic Backgrounds. Analysis of variance was carried out for the distribution of workers in occupational levels in the printing industry as against: years of education, age, income, number of years in the present firm, childhood residence, and the manner in which skill levels were attained. The first four were tested for differences between the mean of skilled occupations and the mean of the combined unskilled and semi-skilled occupations at a five per cent level of significance. Two more comparisons were made of continuity of employment in this type of industry as against occupational levels, and childhood residence; and a further one between marital status and age. The relationships are interpreted in the following paragraphs which are numbered in the same order as they are presented in the tables shown in Appendix F.

1. Occupational Level by Years in School.

The average number of years in school for workers in the skilled occupational level is 6.29, and that for the combined lower two levels is 6.26. A difference of 0.03 between the two means is not significant at the 0.05 level. This indicates that the occupational level group is not significantly differentiated by the amount of educational experience.

2. Occupational Level by Age.

The average age of those in the skilled occupational category is 29.06 years, while that of those in the combined category of unskilled and semi-skilled occupational levels is 21.45. This difference of 7.61 years is significant at the 0.05 level, which indicates that the number of years spent in work, is a relevant factor in the attainment of skilled occupational levels.

3. Occupational Level by Income.

The average income per week, in Lebanese pounds, of the skilled category is 47.97 and that for the unskilled and semi-skilled combination is 20.32. The difference of 27.65 is significant at the 0.05 level.

4. Occupational Level by Number of Years in Present Firm.

The average number of years spent in present firms for the skilled group is 11.84 as against 5.02 years for the lower levels. The difference is significant at the 0.05 level. This indicates that the longer period a worker remains in the same firm, the more he is apt to progress up the ladder of occupational hierarchy.

5. Occupational Level by Childhood Residence.

According to the data in the three types of childhood

residence, i.e. urban, suburban, and rural, there appears to be no difference in the ability of the urban or suburban as opposed to the rural, to attain skilled occupational levels in the printing industry. Nor is there any evidence of predominance in the unskilled and semi-skilled bracket of any one group over the other.

6. Occupational Level by Means of Attainment.

Eighty-four answered that they had attained their occupational levels by actual practice on the job. Thirteen said that they had gone through some sort of apprenticeship, and only three had attained these levels through vocational education.

7. Continuity by Childhood Residence.

Eighty-six answered that this was the only industry they had ever worked in. Fourteen had worked in other industries. Of the eighty-six mentioned earlier, twenty-six were urban born, 32 sub-urban in origin, and twenty-eight were of rural origin. The group is not notably inter-industrially mobile and this stability is characteristic of the workers regardless of the rural-urban differential in their background. In fact, if there is any difference, it is that stability is greater for rural than it is for urban.

8. Continuity by Occupational Level.

Of the sixty-nine in the higher occupational level, only eight showed industrial inter-mobility. The ratio of six inter-

mobile persons to twenty-five continuous in the lower occupational levels indicates a larger degree of inter-mobility among those levels.

9. Marital Status by Age.

Seventy of the total sample are single. They are thus cross-tabulated because of the socially significant late marriage pattern that characterizes these industrial workers. Ninety-two per cent of the 21-30 years group are not married and this group along with the unmarried 11-20 year old group constitute sixty-six per cent of the total sample.

Attitudes and Aspirations. In order to determine whether age or amount of education are factors influencing worker attitudes, the sample has been divided at approximately the median point in both respects throughout this analysis. For age, the division is made at twenty-five years and reflects a generational basis for differences in attitudes and beliefs. For education, there also seems to be a difference between workers who have not had more education than an elementary certificate entails, and those who have gone beyond this point. The questions numbered from 10-12, deal with attitudes toward education, from 13-20 with level of aspiration, and from 21-28 with attitudes toward present work conditions.

10. Would You Welcome Any Specific Formal Training?

Twenty-seven persons gave negative answers to this question, eleven of whom explained that they had already reached the top. The rest said that they were too old, or had no time to take up any such course. The majority of such answers came from people twenty-five years old and above, and from the majority of those who had had less than seven years of education. Seventy-three answered "yes". Of those, sixty-one expressed the desire to learn skills within the industry. The skills listed most frequently were those pertaining to the operation of the offset machines, automatic setting machines, and skills in mixing colored inks. This shows an awareness of the trend toward the introduction of new machines and of a demand for better quality work. The age of this group is largely under twenty-five. The educational level is largely seven years and above. Only one person, less than twenty-five years of age and having had more than seven years of education, expressed his desire to learn skills which would take him out of the industry. Other curricular desires were mostly concerned with languages and journalistic instruction.

11. Are you Participating in any Training or Educational Activities?

Only four answered affirmatively. One was a teacher at Father Kartabawi's vocational school in his spare time. One was a part-time student of bookkeeping and two were studying languages. The latter three were below twenty-five years of age. Forty-six of those who answered "No" were under twenty-five years of age.

This suggests the applicability of vocational training to a large number of young people. Fifty have had below seven years of education, yet a relatively large group of forty-six have had seven years of education or more.

12. What Do you Consider the Best Type of Training for Work in this Industry?

Forty preferred formal vocational training as against forty-one who preferred "on-th-job-training". Sixteen gave irrelevant answers or none at all. Others answered that success depends entirely on the amount of interest one takes in the work. Twenty-one of those preferring an on-the-job training were below twenty-five years of age; a majority of seven came from the less educated population. Of the forty who preferred formal vocational training, most were twenty-five years old or more, and a majority had had seven or more years of education.

13. Do You Think You Can Get Ahead in This Trade?

Of the sixty-four who answered positively, forty-one said, "Yes, by practice". Again majorities belonged to the younger in age and the better educated. Another highly common answer expressed a faith in "showing interest" in one's work. Of the thirty-six pessimists, most were from the older age groups and the lower educational levels in the sample. Twenty-six of these gave the explanation that they had "already reached the top". Four persons declared that there was no future in this trade: three of

them were of the younger age group and three were in the lower educational level. The remainder gave irrelevant or no answers.

14. In Your Occupation, What Are the Next Successive Steps Up the Ladder of Income Prestige in Your Opinion?

Forty-nine answered "to become more skilled" and thirteen answered "None". Of the forty-nine optimists, thirty were under twenty-five years of age, and twenty-six had had seven or more years of education. Others answered either "to go into business" or "get more pay". The worker-owner group answered "To enlarge the business". Neither age nor educational differentiation appears to have much bearing on one side or the other.

15. What Do You Consider Prerequisite to Obtaining Such Goals for Yourself?

Twenty answered "Vocational education" while seven answered "School education", implying the ordinary academic school system. Twelve other indicated a combination of both vocational and ordinary academic education. These thirty-nine replies favoring more education came dominantly from the lower age groups although they were almost equally divided in educational attainment. Twenty-nine gave as an answer, "more experience". Most of these fell into the younger age groups and the higher educational levels. Six others answered "more pay". Among the non-answering group there were twenty-six persons that have been tabulated in a "does-

not-apply" category. Twenty-one of those were in the higher age bracket and fifteen had had less than seven years of education, this classification may be justified on the grounds that those in the older group felt themselves already adjusted to their present conditions and did not care for further training.

16. If You Were to Choose a Job Again What Would You Choose?

Thirty-two answered that they would choose the same occupation or that they would like to own their own plant. These were mostly of the older age group. Twenty-three of them had had less than seven years of education. Only nine respondents indicated a desire to join a profession. Six of these were under twenty-five years old, and five were in the higher bracket of education. (This level of reality strikingly agrees with results of socio-economic survey of the City of Beirut).[4] Twenty-eight answered "commerce", of whom sixteen were twenty-five years old and above and nineteen had had seven years of education and over. Others indicated preferences for vocations at the same level of income as their present occupations. One only answered "farmer". Five either did not know or gave irrelevant replies.

17. Would You Change Now to the Job You Prefer?

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4 Churchill, Charles W., et.al. The City of Beirut, Dar El-Kitab, Lebanon 1954, p.19.

Forty-seven answered "Yes". Twenty-six of those were twenty-five years of age and under. Twenty-six had had seven or more years of education. Forty-two were entered under "Does not apply" because of the large number who had answered that they would have chosen the same job, in the previous question. The relatively high number who answered "yes", may reflect dissatisfaction with industrial employment and support the view that many workers enter industry on a temporary basis.

18. Under What Circumstances Could Such an Opportunity Arise?

Here the combined number of those who were entered in the table under "none" and under "does not apply" illustrates, by a majority of sixty-seven, the high level of reality among the working classes, especially in countries of low inter-class mobility. Those who said that such opportunity could not arise came from all ages and were fairly equally distributed as to amount of education. The sixteen who answered that such an opportunity depended upon the chance that they would obtain capital investment funds showed no age differentiation. Nine of those were in lower educational group. Nine others felt that additional education would make it possible for them to change their present job. Of those five were under twenty-five years of age: and all nine had had seven years of education and above. Others said that if they could save some money or simply get out of the present job, such an opportunity would arise. Very largely, those positive

levels of achievement. In other words the aspirations of those workers are not beyond the reach of possibility or reasonable expectation.

19. At What Occupation Would You Like Your Eldest Son to Work?

The desirability of professions, government employment, and commerce, is pronounced in the answers to this question. Twenty-nine answered "profession" or "government employment". Seventeen of those were in the twenty-five and above age group, and sixteen from the less than seven years of education level. Twelve answered "commerce"; seven of whom were in the lower age group and seven in the higher educational level. Twenty-two indicated "printing but with advanced skills" or stated "owner of a press". These twenty-two were equally distributed for age and education. Other answers included various manual vocations and ten respondents indicated that they were prepared to leave the decision up to their sons.

20. At What Occupation Would You Like Your Eldest Daughter to Work?

Forty-two answered "dressmaker". They were largely below twenty-five years of age and from the less educated group. Nine answered "housewife". Eleven answered "nurse or midwife", of whom ten were twenty-five years of age and above. Other answers include "let daughter choose", "secretarial work", etc.

Here a certain level of realism is revealed as it was similarly revealed in the question applying to workers' sons.

21. Do You Have any Other Income Earning Activities?

Only eight of the sample answered "yes". Six were of the high educational level, and five were of the lower age group. These included one part-time teacher and the remainder were over-time workers in other printing establishments.

22. What Should the Retirement Age Be in this Occupation?

Forty-six answered "sixty and over". These were mostly of the higher age group and the lower educational level. The lack of old age insurance may be suggested as an explanation of the willingness of the older men to remain working for a longer period of their lives. The thirty who answered "50-54", were, with a majority of four, of the higher age category and the lower educational level. Of the nine who answered "55-59", five were of the lower age and six were of the lower educational level. Other answers estimated that the age of retirement should be between thirty-five and forty-five years only. When asked why, the explanation was invariably: the unhealthy conditions, poor ventilation, and the basement location of the plants. These were largely from the younger age group and the higher educational level.

23. How Old Should a Boy Be Before He Is Allowed to Work in this Occupation?

Sixty-two replies indicated "15-19" as a proper age. The respondents were distributed almost equally in the ducational level. Thirty-three of them were in the twenty-five and over age category. Only four cases answered "under ten" thereby indicating no abhorrence at child labor.

24. How Old Should a Girl Be Before She Is Allowed to Work in this Occupation?

The pattern of answers is similar to that for boys except that none answered "under ten". Reluctance to employ girls in this occupation is indicated by the large number of answers in the "D.N.K." category.

25. Do You Feel That People in Occupations Such As You Are in Have Enough Security?

Fifty-five answered "no", while forty-five answered "yes". Of the former, thirty-one said that insecurity was due to poor pay. These were mostly in the lower age group and showed slight differentiation in educational level. Others complained about late retirement age, irregular work, and lack of labor law enforcement, or poor conditions of work. Of the forty-five who answered "yes", thirteen gave as a reason, "good pay". Differentiation of these thirteen cases shows dominance in the lower age group and the lower educational level. Eleven out of twelve who answered "yes, because of the good compensation", were from the twenty-five and above age category. Others expressed great con-

fidence because of their belief that their specialized skills would always find a ready market. These were mostly of the higher educational bracket.

The number of forty-five optimistic cases is relatively high and deserves attention. It may reflect improvement in working conditions of this industry as well as enforcement of the labor law.

26. What Are Important Measures that Would Make Your Job More Secure?

Fifty-eight expressed the wish for "better retirement compensation" and "better pay". Nine, who were all twenty-five years old and above, answered in favor of enforcement of the labor law and encouragement of labor unions. Seven others favored some elaboration of social insurance sponsored by the government.

27. What Do You Think of Industrial Unions?

This was a very lively issue with the respondents. There are two types of labor unions in Beirut, according to the views of the workers. One is encouraged by the government and the other is not. The discrimination presumably being based on alleged subversive tendencies. Workers were not very explicit about their beliefs. Fifty-nine answered "useful", mostly because "unions fight for workers' rights" and also "raise the prestige of the trade". The majority of these were in the older age group. Of the forty-nine

who answered "not useful", twelve said "they are weak and disorganized", while seven said "there are too many communists". Others showed no interest in, or declared that there was no necessity to join, labor unions at present. Some worker-owners said "the union is good for both workers and owners".

28. Under What Conditions Do You Think Your Industry Has a Promising Future?

Only five answered negatively, i.e. that it "has no future". Ninety-five answered "there is a promising future". Thirty-six of the ninety-five said "under conditions of more capital investment in the business". The majority of these respondents were twenty-five years old and above; twenty-one were in the lower educational bracket. Of the thirty who answered "with increasing national prosperity" and education, seventeen suggested that national prosperity could be attained by raising the educational level of the country as a whole. Others said "improve workers' conditions". "Conscientious effort on the part of the worker" was also expressed by some, particularly in the owner-worker group.

Summary. The four major independent variables under consideration in the preceding analysis of factors associated with occupational status and attitudes were: education, age, number of years in the industry, and income. Statistical tests indicate, at the five per cent level of signficance, that the educational back-

ground was not significantly related to skill level differentiation. The tests for age and number of years in present firm indicate a significant influence on the attainment of skill levels at the five per cent level. The difference in mean income between the higher occupational level category and the two lower ones combined is also significant at the five per cent level. This was anticipated because of the fact that eighty-four out of the whole sample acquired their occupational skill levels by actual on-the-job experience. Only three had reached these skilled levels through formal vocational education channels. Childhood residence appears to have no bearing on the ability to acquire the skilled levels in this industry, nor does continuity in the same industry seem to be affected by type of childhood residence. More inter-industrial mobility was shown on the side of the lower skill levels. The large majority of the sample were unmarried persons between the ages of twenty-one and thirty, which depicts a late marriage pattern.

The nature of the answers to the first group of questions on attitudes reflects eagerness to learn new skills directed toward knowledge of modern techniques. Questions bearing on vocational aspirations reflect a high level of reality for a large majority of the sample. Very few expressed aspirations toward levels beyond their potential means, such as changing their present occupation for one in medicine. The others mostly had expectations of progress within the industry.

Attitudes toward the present state of the industry frequently reflect a condemnation of the poor working conditions. Those who are concerned with the problem of attracting competent workers into industry should take note of this fact. Under the circumstances, those who enter into industrial employment as unskilled laborers do so because of inability to find work in small businesses. The lack of security among some is manifested by a desire to have their children find employment in non-industrial vocations.

Attitudes toward unions indicate that they are a highly controversial issue. Owner-workers and managers are usually opposed to them. Most workers favor them and those who do not either express fear of reprisals by management or state that unions are unnecessary at present.

Workers' complaints about their working conditions whether specifically or generally, are quite frequent and often bitter. They express feelings of insecurity. Many would go into traditional small businesses if they had the chance to begin again. In general they would rather have their children not go into industry. Yet they believe that the printing industry has a promising future provided major changes in working conditions, governmental action and capital investment patterns occur. In the meantime they would apparently rather be making their living in some other fashion and their alternative choices are quite realistic in terms of their means. In short, it may be concluded that the

workers are not particularly well oriented to an industrial technological life organization.

CHAPTER VIII

SUMMARY AND CONCLUSION

In response to a developing interest in the industrialization process which is going on in Lebanon, the study reported in the previous pages endeavored to demonstrate a methodological approach by which certain changes concomitant with industrialization may be analyzed, predicted and planned for. The changes upon which attention has been focussed are those connected with relationship between occupational and educational patterns.

A brief summary of the historical background, existing conditions, trends of the economic structure, and the educational system in Lebanon led to several important observations. With regard to the economic system it can be said that industrialization is a very recent and sudden development having begun rather slowly between the two World Wars and gathering real momentum only as recently as the mid-forties. Up to the present day the major economic emphasis remains in the commercial area rather than in the manufacturing or the food processing field, in spite of the fact that it is widely recognized that industrialization can and must be directed toward the latter field mentioned.

Reasons given for this culture lag included: commercial traditions based on the location of Lebanon on vital world trade routes, recency of independence and an end of Western capitulations, unavailability of natural resources, the low income per capita

and the lack of capital investment, and last but not least, a familistic and communal value system unconducive to personal mobility required by urban industrial development.

The educational system of Lebanon was revealed to be a system heavily dominated by French academic traditions due to the fact that it had undergone its most significant growth during the period of the Mandate. The Latin, Arab, and other educational influences have not been noticeably more conducive to the development of a curriculum designed to meet the needs of an industrializing society. As a result, there are only twenty-five vocational schools in Lebanon; four of which are government sponsored. Only nine offer a mechanically oriented vocational curriculum. The four government sponsored schools are included in those nine. This indicates that the government is aware of the need for this type of training.

This review of the background brought into sharp relief the central and specific problem upon which this research project has been focussed, namely, the relationship between occupational skill level attainment of Lebanese workers and the educational preparation available in this society.

Time, cost, and efficiency factors determined that the approach of this research must be microscopic. Toward this end, the printing industry was selected as the microcosm, and a quantitative sample survey was designed.

Workers in two sections of the printing industry were selected as interviewees. The printing industry itself and the two sections within it, were selected because of their hierarchy of occupational levels based on a variety of operations. The task of describing the hierarchy entailed a job analysis, which implied defining operations, classifying and ranking them on a difficulty scale. The resulting scale was then divided into three major categories corresponding to established usage; namely, unskilled, semi-skilled, and skilled occupations.

Subsequent to interviewing the workers, it was possible to classify them on the job-difficulty scale, thus making possible the interpretation of other data in the light of their occupational level of achievement.

Sampling procedure entailed a random selection of ten per cent from the 136 printing plants in the City of Beirut. Each plant in the sample was analyzed and assessed for a degree of uniformity in its structure and processes. Two major operational sections existing in all plants of the selected sample were chosen. These were the hand-setting and the cylinder-press sections. No further sampling was made since each worker in every one of the two sections was scheduled for interviewing. One hundred interviews were subsequently completed.

The results of this study have been grouped under four categories: educational and other socio-economic backgrounds,

workers' attitudes toward education, their aspirations and their attitudes toward existing work conditions.

The data about the workers in the different occupational skill levels were divided into two: skilled occupational level as one group, and the unskilled and semi-skilled occupational levels combined as the other. The critical ratio test of significance at the five per cent level was applied to the distribution of the workers in the different occupational levels by: education, age, income, and number of years in present firm. No significant difference was shown in the means of the two groups as regards years of education. This lack of relationship is explained by the fact that the vast majority of workers have learnt their trade on the job. Only three of the total sample had had a formal vocational training for the printing industry. Income and number of years in present firm were found to be significantly related to occupational skill level achievement.

The investigation of the urban-rural background differences indicated no significant relationship to occupational continuity in the same industry. However, occupational continuity was greater in the higher skill levels than in the lower. Nor did childhood residence seem to have any bearing on skill level achievement.

Attitudes toward educational needs reflect a realization among the workers of the fact that there is in reality nothing that

can be honestly called a program. Only four workers were currently participating in any educational training activity.

By and large, age and amount of education do not have a very pronounced bearing on attitudes and aspirations of workers. However, where there are majorities, slight and large, on various questions asked, it can be said that the younger and more educated workers consistently tended to be less satisfied with existing conditions, to be more ready to change their occupation, and to place reliance on education and personal ability as the most effective means for personal advancement. With the exception of a few the workers showed very reasonable levels of aspiration. Even in career choices for their children, they were not unrealistic, but tended to select vocations which were within their means of attainment. While almost all respondents were aware of the progress being made in the industry and professed their belief in a bright future for industry, nevertheless in career choices for their children only twenty-two per cent favored industry.

It is hoped that this study has illustrated an adequate way of solving some of the methodological problems involved in research. On the results obtained, effective vocational education planning can be based. However, it is only the methodological contribution that the writer feels can be generalized to the larger vocational educational survey. The content or findings in this report, both, material and attitudinal, if generalizable at all,

are only so to the two occupational sections described for the printing industry in Beirut, Lebanon.

Furthermore, many conditions unique to the situation under which this research was made had a bearing on the specific research design. It is possible that, under different circumstances, other techniques of sampling and other means by which broader universes might be analyzed, would reveal themselves. However, the method used in this study was found to be relatively efficient, practical and successful.

OPERATIONS IN CYLINDER PRESS SECTION

IN SEQUENCE OF PERFORMANCE

1. Spacing form inside chase.
2. Hammering type with wooden block, levelling.
3. Closing chase and tightening.
4. Mounting chase on machine and locking it on.
5. Running machine without load, checking performance.
6. Inking rollers: adjusting uniform inking of rollers, and consistency of ink.
7. Regulating ink flow by adjusting thumb screws.
8. Packing cylinder (drum) to correct thickness.
9. Adjusting position of paper.
10. Loading the paper.
11. Adjusting suction apparatus, for automatic feed machine.
12. Taking first print for final proof, and study for uniform inking.
13. Making overlay-cutting where necessary (underlay-cutting sometimes).
14. Checking final proof before printing.
15. Oiling machine.
16. Running machine with load. Check the printed sheet frequently, careful attention all through.
17. Off-loading and loading paper.
18. Stopping machine.
19. Dismounting chase.

20. Cleaning form with cleaner (benzine, kerosene, or chemicals) while still tightened in chase.
21. Opening chase and tying form with thread.
22. Leaving tied form on stone.
23. Cleaning and maintenance of the machine.
24. Adjusting inking rollers for correct pressure on set types.

APPENDIX B

OPERATIONS DONE IN HAND SETTING SECTION IN SEQUENCE OF PERFORMANCE

1. Receiving original copy.
2. Measuring and spacing the original copy.
3. Choosing types and sizes.
4. Selecting types from boxes and assembling into lines and sentences in stick.
5. Sliding set types from stick into galley and arranging into page form. In case there are diagrams (also called block cuts or cliches), account columns, or tabulation material, arranging them also into form.
6. Tying form and taking proof on proof machine.
7. Delivering proof to proof reader.
8. Correcting mistakes as per correction of proof reader.
9. Taking another proof for the client's approval.
10. Receiving it back and correcting according to client's final instructions. (Note: If more than three mistakes or changes of lines, client must be consulted again).
11. Forwarding form to printer by leaving on stone.
12. Redistributing the types back to the boxes, after form is cleaned and loosened from chase, tied and left on stone by press-man.

APPENDIX C

LIST OF OPERATIONS UNDER GROUP HEADINGS

IN CYLINDER PRESS SECTION

A. TERMINOLOGY

1. Machine
2. Measurement
3. Chase, Accessories and Locks

F CLEANING

1. Machine
2. Ink Duct
3. Rollers and Cylinders
4. Oiling
5. Set-Form after printing

C. INKING

1. Emptying and filling duct
2. Regulating ink flow
3. Consistency of ink
4. Mixing inks

D. PREPARATION

1. Loading and off-loading
2. Adjusting

   a) Position of paper
   b) Suction in automatic machines
   c) Pressure of inking rollers on touching form (occasional and important)

3. Chase mounting on machine
4. Packing of drum
5. Over-lay cutting
6. Chase locking, simple:

   a) Tightening
   b) Spacing form
   c) Levelling

7. Chase locking, advanced:

   a) Tightening
   b) Spacing form
   c) Levelling
   d) Page laying

E. MACHINE OPERATION

1. Starting and stopping
2. Running
3. Checking Oil.
4. Attending performance

APPENDIX D

LIST OF OPERATIONS UNDER GROUP HEADINGS

IN HAND SETTING SECTION

A. KNOWLEDGE OF LANGUAGES

1. Arabic

   a) Spoken
   b) Written

2. French

   a) Spoken
   b) Written

3. English

   a) Spoken
   b) Written

B. TERMINOLOGY AND ACQUAINTANCE

1. Names of Processes
2. Furnitures and slugs
3. Types
4. Stick and Galley
5. Proof Machine

C. SIZE AND MEASUREMENT

1. Learn size of furniture by numbers
2. Learn Cicero scale
3. Learn sizes of types
4. Develop judgment in aesthetic combinations and sense of balance

D. SETTING

1. Words and lines without measuring in stick
2. Straight setting by measuring copy
3. Correcting after setting
4. Setting commercial forms

5. Proof running
6. Redistributing types back in place

E. FORMING

1. Adding spaces between lines
2. Making-up pages

   a) Straight
   b) Straight plus cuts

3. Checking final form and leaving on stone

APPENDIX E

I N T E R V I E W S C H E D U L E

INTERVIEWER INTERVIEW NO. DATE:
TIME:

I Identification and Economic Condition

A. Birth date . . . . . B. Present residence

C. Sex . . . . . 1.- Town . . . . . .
2.- Quarter . . . . . .
3.- Rental rate/month. . . . .
4.- Owned

a) Value . . . . . .
b) Est. rent/month . . . .

D. Marital Status: 1) Single 2) Married 3) Widowed
4) Separated 5) Divorced

E. Nationality . . . . . .

F. Household composition and background

No.	Members of household by relationship	Age	Sex	Major activity or occupation	Income/time
1	Head				
2	Wife				
3	Son				
4					
5					
6					
7					
8					
9	Daughter				
10					
11					
12					
13					
14					
15	Son's Wife				
16					
17	Grand child				
18					
19					
20					
21					
22					
23	In-laws				
24					
25					
26	F. of head				
27	M. of head				
28	Child of 26				

G. Any other contributors to household support from outside (if more than one add on back of this page)

1.- Yes

a) How much in the last year . . . . . .
b) Relationship of Contributor . . . . . .
c) Location of Contributor . . . . . .
d) Occupation of Contributor . . . . . .

2.- No.

H. Any other dependents outside this household? (If any add on back of this page) . . . . . .

1.- Yes

a) Relationship . . . . . .
b) How much per year . . . . . .
c) Location of dependent . . . . . .
d) Condition . . . . . .

2.- No

II. Childhood Residential and Socio-Economic Background:

a) Name and exact location of community . . . . . .
b) Occupation of father . . . . . .

1) Was this his major source of income? . . . . . .
2) If not, what was? . . . . . .

c) Income of household per month . . . . . .

III. Educational History:

A. Languages:	1) Read	2) Written	3) Spoken	4) Understood
a) Arabic	....	.....	.....	.....
b) English	....	.....	.....	.....
c) French	....	.....	.....	.....
d)	....	.....	.....	.....
e)	....	.....	.....	.....
f)	....	.....	.....	.....

B. Educational and Vocational Training (Indicate schools attended giving last first)

	i. Name of School ii. Location of School	Type of School	Years or Grades completed From	 To	Degrees or Certificates Received
1.	i.				
	ii.				
2.	i.				
	ii.				
3.	i.				
	ii.				
4.	i.				
	ii.				

C. Remarks:

IV. Work History

A. Present Job:

1.- Type of work of firm . . . . . .
2.- What is your present specific job? . . . . . .
(give job title and describe duties)
. . . . . .
. . . . . .
. . . . . .
3.- How long have you been on this job? . . . . . .

a) from . . . . . b) to . . . . . .

4.- Why did you select this job? . . . . . .
. . . . . .
5.- Are you a member of a Union? . . . . . .

a) Yes . . . . . b) No . . . . c) Which one? . . .

6.- Salary terms and conditions of employment:

a) Salary: 1) wages/time . . . . . 2) Contract . . .
3) commission . . . . . 4) Maintenance. .
5) Other arrangements . . . . . .
b) Work Hours: 1) Regular . . . 2) Irregular . . . .
3) Overtime prov.rate/hour . . . . . .

7.- Specific skills required: (Mark on tables of Job Analysis)
Here add those not mentioned on table.
. . . . . .
. . . . . .
. . . . . .
. . . . . .

8.- Have you had any promotions in this job? (Write down skills before and on each level of promotion until now)
. . . . . .
. . . . . .
. . . . . .
. . . . . .

9.- Why did you select this type of work? or, How did you happen to get into this type of work?

a) Don't know . . . . Accidental . . . . Nothing else available . . . . . .

b) At the suggestion of . . . . . .

1) voluntary . . . . . 2) compulsory . . . . . .

c) Became interested when . . . . . .
and because . . . . . .

1) voluntary . . . . . 2) compulsory . . . . . .

d) Raised in this occupation which was also the occupation of . . . . . .

1) voluntary . . . . . 2) compulsory . . . . . .

e) Other reasons (specify) . . . . . .
. . . . . .
. . . . . .
. . . . . .
. . . . . .

10.- How have you learnt this trade?

a) On the job? . . . . . .
b) Apprenticeship? . . . . . .
c) School plus apprenticeship? . . . . . .
d) School without apprenticeship? . . . . . .
e) Other (Specify) . . . . . .
f) Conditions of training . . . . . .
g) What stages of training in specific skills did you pass in getting to learn your trade? (List on back of page.)

11.- For how many years have you practiced this trade? (or have been within the printing industry) . . . . . .

12.- Were they continuous?

1) Yes . . . . . 2) No . . . . . .

JOB ANALYSIS TABLE OF PRESS-MAN'S WORK

UNSKILLED (TRAINEE)

1. Terminology:- Names of parts and tools for machine operations, names of chase, locks, keys, slugs furniture by size and number.

2. Clean and Lubricate:-

a) Clean form after printing and leave on stone.
b) Wipe machine with kerosene.
c) Lubricate machine - filling grease and oil pots.
d) Clean ink duct.
e) Clean rollers and inking cylinders.

3. Put fresh ink in pot, without mixing knowledge.

4. Load and off-load paper:
Loading implies lifting lock and putting paper on loading board as assigned by press-man, and locking, (without adjusting paper position). Off-loading implies removing paper and putting on shelf to dry.

SEMI-SKILLED

5. Start and stop machine.

6. Adjust position of paper on machine, adjust receiving board, (adjust suction in automatic feed machines).

7. Adjust inking cylinders to take same distribution of ink over length of cylinder.

8. Dismount chase from position on machine.

9. Load chase.

10. Tighten chase: spacing form in chase, levelling with block of wood and loading.

SKILLED

11. Print cylinder (drum).

12. Overlay and underlay cutting.

13. Adjust quantity of ink on printing by manipulating thumb-screws.

14. Adjust rollers (occasionally and important). Implies giving the rollers the right pressure when passing over the form in chase.

15. Mix right colors and ink consistency.

JOB ANALYSIS TABLE OF HAND-SETTER'S WORK

UNSKILLED TRAINEE

1. Read and write

   a) Arabic
   b) English
   c) French

2. Sweep and retrieve fallen types.

3. Terminology and acquaintance with working processes.

4. Clean forms and redistribute furniture.

5. Learn units of measurement, Cicero scale.

6. Study box of types.

SEMI-SKILLED

7. Use stick, assemble types into lines by selecting right letters and spacers.

8. Start straight setting (Fr. Courant).

9. Redistribute types.

10. Take proof on proof machine (Form already set by skilled setter).

SKILLED

11. Form page of straight setting:
Implies looking into original copy and reproducing required form.

12. Sense of balance:
Implies choosing correct type and matching size and kind of type from the aesthetic point of view.

13. Make up pages of more than straight setting:

a) Implies assembling straight settings and cuts into pages by using correct size of furniture.

b) Laying out pages of books in order.

14. Commercial setting.

B 1. Previous Jobs: (List jobs in order of recency)

i) 1. What job did you have just before the present one? (Give specific title and description) . . . . . .
. . . . . .

2. Type of work of firm . . . . . .

3. How long on job:

a) . . . . . .
b) From . . . . . .
c) To . . . . . .

4. Why did you select that job? . . . . . .

. . . . . .

5. Union Membership:

a) . . . . . .
b) From . . . . . .
c) To . . . . . .

6. Salary terms and conditions of employment:

a) Salary terms (wages/time) . . . . . .

1) Contract . . . . . 2) Commission . . . . . .
3) Maintenance . . . . . 4) Other (specify) . . . .

b) Work Hours:

1) Regular . . . . . 2) Irregular . . . . . .
3) Overtime prov.rate/hr. . . . . .

7. Specific skills acquired on the job usable in present job:
. . . . . .
. . . . . .
. . . . . .
. . . . . .
. . . . . .

8. Why did you leave that job? . . . . . .

9. How long unemployed between jobs?

a) . . . . . .
b) Why? 1) Not available . . . . . .
2) Other reasons (specify) . . . . . .
. . . . . .

(If there is a lapse in time get a description of interim activity).
. . . . . .
. . . . . .
. . . . . .
. . . . . .

10. What were you doing during this time? . . . . . .
. . . . . .
. . . . . .
. . . . . .
. . . . . .
. . . . . .
. . . . . .
. . . . . .
. . . . . .
. . . . . .

B 2. Previous Jobs:

i) 1. What jobs did you have just before this one? (Give specific title and description) . . . . . .

2. Type of work of firm . . . . . .

3. How long on job:

a) . . . . . .
b) From . . . . . .
c) To . . . . . .

4. Why did you select that job? . . . . . .

5. Union Membership:

a) . . . . . .
b) From . . . . . .
c) To . . . . . .

6. Salary terms and conditions of employment:

a) Salary terms (wages/time) . . . . . .

1) Contract . . . . . 2) Commission . . . . . .
3) Maintenance . . . . . 4) Other (specify) . . . . .

b) Work Hours:

1) Regular . . . . . 2) Irregular . . . . . .
3) Overtime prov. rate/hr. . . . . .

7. Specific skills acquired on that job usable in present job:

. . . . . .
. . . . . .
. . . . . .
. . . . . .
. . . . . .

8. Why did you leave that job? . . . . . .

9. How long unemployed between jobs?

a) . . . . . .
b) Why? 1) Not available . . . . . .

2) Other reasons (specify) . . . . . .
. . . . . .

(If there is a lapse in time get a description of interim activity).

. . . . . .
. . . . . .
. . . . . .
. . . . . .

10. What were you doing during this time? . . . . . .
. . . . . .
. . . . . .
. . . . . .
. . . . . .
. . . . . .

B 3. Previous Jobs (First Job)

1. What was the first job you worked in? (Give specific title and description) . . . . . .

2. Type of work of firm? . . . . . .

3. How long on job:

a) . . . . . .
b) From . . . . . .
c) To . . . . . .

4. Why did you select that job? . . . . . .

5. Union Membership:

a) . . . . . .
b) From . . . . . .
c) To . . . . . .

6. Salary terms and conditions of employment:

a) Salary terms (wagers/time) . . . . . .

1) Contract . . . . . 2) Commission . . . . . .
3) Maintenance . . . . . 4) Other (specify). . . . .

b) Work Hours:

1) Regular . . . . . 2) Irregular . . . . . .
3) Overtime prov. rate/hr. . . . . .

7. Specify skills acquired on that job usable in present job:
. . . . . .
. . . . . .
. . . . . .
. . . . . .
. . . . . .

8. Why did you leave that job? . . . . . .

9. How long unemployed between jobs?

a) . . . . . .
b) Why? 1) Not available . . . . . .
2) Other reasons (specify) . . . . . .
. . . . . .

(If there is a lapse in time get a description of interim activity).
. . . . . .
. . . . . .
. . . . . .
. . . . . .

10. What were you doing during this time? . . . . . .
. . . . . .
. . . . . .
. . . . . .
. . . . . .
. . . . . .

B 4. Previous Jobs (Second Job)

1. What was the second job you have worked in? (Give specific title and description) . . . . . .

2. Type of work of firm? . . . . . .

3. How long on job:

a) . . . . . .
b) From . . . . . .
c) To . . . . . .

4. Why did you select that job? . . . . . .

5. Union Membership:

a) . . . . . .
b) From . . . . . .
c) To . . . . . .

6. Salary terms and conditions of employment:

   a) Salary terms (wages/time) . . . . . .

      1) Contract . . . . . 2) Commission . . . . . .
      3) Maintenance . . . . . 4) Other (specify). . . . . .

   b) Work Hours:

      1) Regular . . . . . 2) Irregular . . . . . .
      3) Overtime prov. rate/hr. . . . . .

7. Specific skills acquired on that job usable in present job:
   . . . . . .
   . . . . . .
   . . . . . .
   . . . . . .
   . . . . . .

8. Why did you leave that job? . . . . . .

9. How long unemployed between jobs?

   a) . . . . . .
   b) Why? 1) Not available . . . . . .
   2) Other reasons (specify) . . . . . .
   . . . . . .
   (If there is a lapse in time get a description of interim activity).
   . . . . . .
   . . . . . .
   . . . . . .
   . . . . . .

10. What were you doing during this time? . . . . . .
    . . . . . .
    . . . . . .
    . . . . . .
    . . . . . .
    . . . . . .

V. <u>Other activities</u>

ii) A. Any other income earning activities? . . . . . .

   If yes: 1) What activity? . . . . . .
   2) Time spent . . . . . .
   3) Money/time . . . . . .
   4) Skills required . . . . . .

B. Are you participating in any training or educational activities? . . . . . .

If yes: 1) What activity? . . . . . .
2) Where? . . . . . .
3) Purpose . . . . . .
4) Time spent . . . . . .
5) Money/time . . . . . .

VI. Aspirations and work attitudes

A. Do you think you can get ahead in this trade?

1) Yes . . . . . 2) No . . . . . .
3) If yes how: . . . . . .

B. In your occupation, what are the next successive steps up the ladder of income prestige in your opinion?

. . . . . .
. . . . . .
. . . . . .
. . . . . .

C. What do you consider prerequisites to obtaining such goals for yourself?

1) Vocational education . . . . . .
2) School education . . . . . .
3) Other (specify) . . . . . .
. . . . . .

D. Would you welcome any specific formal training?

1) Yes . . . . . 2) No . . . . . .
3) If no, why? . . . . . .
4) If yes, what? . . . . . .
5) Conditions (sacrifices) Time . . . . . .
Cost/month . . . . . .

E. If you were to choose a job again what would you choose?

i.e. what do you consider the most enjoyable type of work for making a living for a person like yourself?

. . . . . .
. . . . . .
. . . . . .
. . . . . .

F. Would you change to that occupation if opportunity should arise? . . . . . .

G. Could such an opportunity arise? . . . . . .

H. How? . . . . . .

I. At what would you like your eldest son to work? . . . . . .

J. At what would you like your eldest daughter to work? . . . . . .

K. How old should a boy be before he is allowed to work in this occupation:

a) Any age . . . . . b) 15 . . . . . .
c) 16 . . . . . d) 17 . . . . . .
e) 18 . . . . . f) 19 . . . . . .
g) 20 . . . . . .

L. How old should a girl be before she is allowed to work in this occupation:

a) Any age . . . . . b) 15 . . . . . .
c) 16 . . . . . d) 17 . . . . . .
e) 18 . . . . . f) 19 . . . . . .
g) 20 . . . . . .

M. What should the retirement age be in this occupation? . . . . . .

N. What do you consider to be the best type of training and preparation for work in this industry? . . . . . .

O. Do you feel that people in occupations such as you are in have enough security?

1) Yes . . . . . 2) No . . . . . 3) Why? . . . . . .

P. What are important measures that can/or should be taken to make your occupation more secure? . . . . . .

Q. What do you think of industrial unions?

1) Useful . . . . . 2) Not useful . . . . . .
3) Why? . . . . . .

R. Under what conditions do you think your industry has a promising future? . . . . . .
. . . . . .
. . . . . .

APPENDIX F

TABLES ON SOCIO-ECONOMIC BACKGROUNDS, ATTITUDES, AND ASPIRATIONS

TABLE 1

Occupational Level of Workers by Years in School

Years in School	Total	Workers in unskilled and semi-skilled occupations	Workers in skilled occupations
		(a)	(b)
Total	100	31	69
1 - 3	17	5	12
4 - 6	35	10	25
7 - 9	37	14	23
10 - 12	9	2	7
13 - 15	2	-	2

(a) $S.E.M._a$ = 0.46 t = 0.17

$C.V._a$ = 7.3%

(b) $S.E.M._b$ = 0.34

$C.V._b$ = 5.4%

TABLE 2

Occupational Level of Workers by Age

Age	Total	Workers in unskilled and semi-skilled occupations (a)	Workers in skilled occupations (b)
Total	100	31	69
11 - 20	33	18	15
21 - 30	37	9	28
31 - 40	12	1	11
41 - 50	16	3	13
51 - 60	2	-	2

(a) $S.E.M._a$ = 1.71 t = 3.51

$C.V._a$ = 8.0%

(b) $S.E.M._b$ = 1.34

$C.V._b$ = 4.6%

TABLE 3

Occupational Level of Workers by Income

Income per week LL.	Total	Workers in unskilled and semi-skilled occupations	Workers in skilled occupations
		(a)	(b)
Total	100	31	69
1 - 20	22	17	5
21 - 40	33	12	21
41 - 60	28	2	26
61 - 80	18	-	12
81 - 100	4	-	4
101-120	-	-	-
121-140	1	-	1

(a) $S.E.M._a$ = 2.24 t = 7.90

$C.V._a$ = 11%

(b) $S.E.M._b$ = 2.68

$C.V._b$ = 6%

TABLE 4

Occupational Level of Workers by Number of Years in Present Firm

Years in present firm	Total	Workers in unskilled and semi-skilled occupations (a)	Workers in skilled occupations (b)
Total	100	31	69
Less than one	9	7	2
1 - 5	30	14	16
6 - 10	28	8	20
11 - 15	14	-	14
16 - 20	7	1	6
21 - 25	5	-	5
26 - 30	4	1	3
31 - 35	-	-	-
36 - 40	2	-	2
41 - 45	1	-	1

(a) $S.E.M._a = 1.02$ $t = 4.15$

$C.V._a = 20\%$

(b) $S.E.M._b = 1.11$

$C.V._b = 9\%$

TABLE 5

Occupational Level of Workers by Childhood Residence

Childhood Residence	Total	Workers in unskilled and semi-skilled occupations	Workers in skilled occupations
Total	100	31	69
Urban	34	13	21
Sub-Urban	35	13	22
Rural	31	5	26

TABLE 6

Occupational Level of Workers by Means of Attainment

Means of Attainment of Occupational Level	Total	Workers in unskilled & semi-skilled occupations	Workers in skilled occupations
Total	100	31	69
On the job	84	28	56
Apprenticeship	13	3	10
Vocational Training	3	-	3

TABLE 7

Continuity and Non-Continuity in Same Industry

by Childhood Residence

Childhood Residence	Total	Continuous	Non-Continuous
Total	100	86	14
Urban	34	26	8
Sub-Urban	35	32	3
Rural	31	28	3

TABLE 8

Continuity and Non-Continuity in Same Industry

by Occupational Levels

Skill Level	Total	Continuous	Non-Continuous
Total	100	86	14
Workers in unskilled & semi-skilled occupations	31	25	6
Workers in skilled occupations	69	61	8

TABLE 9

Marital Status by Age

Age	Total	Single	Married
Total	100	70	30
11 - 20	33	32	1
21 - 30	37	34	3
31 - 40	12	2	10
41 - 50	16	2	14
51 - 60	2	-	2

TABLE 10

Would You Welcome Any Specific Formal Training?

Answers	Age			Years in School		
	Total	Under 25	25 and over	Total	Under 7	7 and over
Total	100 (a)	49	51	100	52	48
NO: WHY						
Reached Top	11	3	8	11	8	3
Other (b)	14	3	11	14	10	4
D.N.K. or A. (c)	2	-	2	2	1	1
YES: WHAT						
In this Industry	61	35	26	61	25	36
Not in this industry (d)	1	1	-	1	-	1
Other (e)	5	3	2	5	3	2
D.N.K. or A. (f)	6	4	2	6	5	1

(a) Since the sample is one hundred, original data and percentages are the same.

(b) Other includes: "too old", "no future", "experience is better" etc.

(c) Does not know and does not apply.

(d) "offset", "linotype", "colours and art of printing".

(e) Other includes: "journalism", "languages", etc.

(f) Does not know or does not apply.

TABLE 11

Are You Participating in any Training or Educational Activities?

Answers	Age			Years in School		
	Total	Under 25	25 & over	Total	Under 7	7 & over
Total	(a) 100	49	51	100	52	48
Yes	4	3	1	4	2	2
No	96	46	50	96	50	46

(a) Since the sample is 100 original data and percentages are the same.

TABLE 12

What Do You Consider to Be the Best Type of Training and Preparation for Work in this Industry?

Answers	Age			Years in school		
	Total	Under 25	25 & over	Total	Under 7	7 & over
Total	(a) 100	49	51	100	52	48
Academic cert. &/or: on the job:	41	21	20	41	24	17
Academic cert. &/or: Vocational: training	40	18	22	40	18	22
(b) Others	3	-	3	3	2	1
(c) D.N.K. or A.	16	10	6	16	8	8

(a) Since the sample is 100 original data and percentages are the same.

(b) Other includes: "interest in work", "nothing", etc.

(c) Does not know or does not apply.

TABLE 13

Do You Think You Can Get Ahead in this Trade?

Answers	Age			Years in School		
	Total	Under 25	25 & over	Total	Under 7	7 & over
Total	100 (a)	49	51	100	52	48
YES: HOW						
Practice	41	27	14	41	18	23
Studying	3	2	1	3	1	2
Capital (b)	8	5	3	8	5	3
Other (c)	9	4	5	9	5	4
D.N.K. or A. (d)	3	2	1	3	2	1
Now at Top of Skill Level	26	4	22	26	14	12
NO: WHY						
No future in this Trade	4	3	1	4	3	1
Other and D.N.K. or A. (d) (e)	6	2	4	6	4	2

(a) Since the sample is one hundred, original data and percentages are the same.

(b) Answered by worker-owner.

(c) Other includes: "interest in work", "new developments", etc.

(d) Does not know or does not apply.

(e) Other includes: "nothing else", "many before us", "already too old", etc.

TABLE 14

In Your Occupation What Are the Next Successive Steps Up the Ladder of Income Prestige in Your Opinion?

Answers	Total	Age: Under 25	Age: 25 and over	Years in School: Total	Years in School: Under 7	Years in School: 7 and over
Total	100 (a)	49	51	100	52	48
Go in Own Business	7	4	3	7	4	3
Enlarge Business (b)	9	5	4	9	4	5
Become more Skilled	49	30	19	49	23	26
Other (c)	22	6	16	22	11	11
D.N.K. or A. (d)	13	4	9	13	10	3

(a) Since the sample is one hundred, original data and percentages are the same.

(b) Answered by worker-owner.

(c) Other includes: "none", "journalism", "more pay" etc.

(d) Does not know or does not apply.

TABLE 15

What Do You Consider Prerequisite to Obtaining such Goals for Yourself?

Answers	Age			Years in School		
	Total	Under 25	25 and over	Total	Under 7	7 and over
Total	100 (a)	49	51	100	52	48
Vocational Education	20	12	8	20	10	10
Academic Education	7	6	1	7	3	4
Voc. & Acad. Education	12	5	7	12	7	5
Experience & Seniority	29	18	11	29	12	17
More Capital (b)	6	3	3	6	4	2
D.N.K. or A. (c)	26	5	21	26	15	11

(a) Since the sample is one hundred, original data and percentages are the same.

(b) Answered by worker-owners.

(c) Does not know or does not apply.

TABLE 16

If You Were to Choose a Job Again What Would You Choose?

Answers	Age			Years in School		
	Total	Under 25	25 & over	Total	Under 7	7 & over
Total	100 (a)	49	51	100	52	48
Profession	9	6	3	9	4	5
Commerce	28	12	16	28	9	19
Same	32	14	18	32	23	9
Other (b)	26	14	12	26	12	14
D.N.K. or A. (c)	5	3	2	5	4	1

(a) Since the sample is one hundred, original data and percentages are the same.

(b) Other includes "manual vocations", "farmers", "construction", "small shop", etc.

(c) Does not apply or does not know.

TABLE 17

Would You Change Now to the Job You Prefer?

Answers	Age			Years in School		
	Total	Under 25	25 and over	Total	Under 7	7 and over
Total	100 (a)	49	51	100	52	48
Yes	47	26	21	47	21	26
No	11	5	6	11	4	7
D.N.K. or A. (b)	42	18	24	42	27	15

(a) Since the sample is one hundred, original data and percentages are the same.

(b) Does not know or does not apply.

TABLE 18

Under What Circumstances Could Such an Opportunity Arise?

Answers	Age			Years in School		
	Total	Under 25	25 and over	Total	Under 7	7 and over
Total	100 (a)	49	51	100	52	48
Yes Capital	16	8	8	16	9	7
Education	9	5	4	9	-	9
Other (b)	8	5	3	8	5	3
No	21	10	11	21	9	12
D.N.K. or A: (c)	46	21	25	46	29	17

(a) Since the sample is one hundred, original data and percentages are the same.

(b) Other includes: "saving", "working at", "if job is available" etc....

(c) Does not know or does not apply.

TABLE 19

At What Would you Like Your Eldest Son to Work?

Answers	Age			Years in School		
	Total	Under 25	25 & over	Total	Under 7	7 and over
Total	(a) 100	49	51	100	52	48
Profession Govt. Employment	29	12	17	29	16	13
Commerce	12	7	5	12	5	7
Same as father	22	10	12	22	11	11
Other (b)	29	14	15	29	16	13
D.N.K. or A. (c)	8	6	2	8	4	4

(a) Since the sample is one hundred, original data and percentages are the same.

(b) Other includes: "son chooses", "military school", "manual vocations" etc.

(c) Does not know or does not apply.

TABLE 20

At What Would You Like your Eldest Daughter to Work?

Answers	Age			Years in School		
	Total	Under 25	25 and over	Total	Under 7	7 and over
Total	(a) 100	49	51	100	52	48
Housewife	9	4	5	9	4	5
Dressmaker	42	24	18	42	28	14
Midwife or Nurse	11	1	10	11	6	5
Other (b)	26	14	12	26	8	18
D.N.K. or A. (c)	12	6	6	12	6	6

(a) Since the sample is one hundred, original data and percentages are the same.

(b) Other includes: "daughter chooses", "secretarial", "language" etc.

(c) Does not know or does not apply.

TABLE 21

Any Other Income Earning Activities?

Answers	Age			Years in School		
	Total	Under 25	25 and over	Total	Under 7	7 and over
Total	100 (a)	49	51	100	52	48
Yes	8	5	3	8	2	6
No	92	44	48	92	50	42

(a) Since the sample is one hundred, original data and percentages are the same.

TABLE 22

What Should the Retirement Age Be in this Occupation?

Answer	Age			Years in School		
	Total	Under 25	25 and over	Total	Under 7	7 and over
Total	100 (a)	49	51	100	52	48
50 - 54	30	13	17	30	14	16
55 - 59	9	5	4	9	6	3
60 & Over	46	21	25	46	26	20
Other (b)	15	10	5	15	6	9
D.N.K. or A. (c)						

(a) Since the sample is 100 original data and percentages are the same.

(b) Other includes: "any age", "35 to 45".

(c) Does not know or does not apply.

TABLE 23

How Old Should a Boy Be Before He is Allowed to Work in this Occupation?

Answer	Age			Years in School		
	Total	Under 25	25 and over	Total	Under 7	7 and over
Total	100 (a)	49	51	100	52	48
Under 10	4	2	2	4	2	2
10 - 14	22	10	12	22	11	11
15 - 19	62	29	33	62	32	30
More than 19 (b) D.N.K. or A.	12	8	4	12	7	5

(a) Since the sample is one hundred, original data and percentages are the same.

(b) Does not know or does not apply

TABLE 24

How Old Should a Girl Be Before She Is Allowed to Work in this Occupation?

Answers	Age			Years in School		
	Total	Under 25	25 and over	Total	Under 7	7 and over
Total	100 (a)	49	51	100	52	48
Under 10	-	-	-	-	-	-
10 - 14	15	7	8	15	5	10
15 - 19	55	25	30	55	30	25
D.N.K. or A. (b)	30	17	13	30	17	13

(a) Since the sample is one hundred, original data and percentages are the same.

(b) Does not know or does not apply.

TABLE 25

Do You Feel that People in Occupations Such as You Are in Have Enough Security?

Answers	Age			Years in School		
	Total	Under 25	25 and over	Total	Under 7	7 and over
Total (a)	100	49	51	100	52	48
NO: WHY						
Poor Pay	31	22	9	31	15	16
No enforcement of labor law &/or poor conditions	12	3	9	12	5	7
Retirement comes too late	5	1	4	5	4	1
Other (b)	6	4	2	6	5	1
D.N.K. or A. (c)	1	1	-	1	1	-
YES: WHY						
Good pay &/or Regular Work	13	9	4	13	8	5
Labor Law &/or Unions	6	1	5	6	1	5
Compensation	12	1	11	12	6	6
Other (d)	9	4	5	9	3	6
D.N.K. or A. (c)	5	3	2	5	4	1

(a) Since the sample is one hundred, original data and percentages are the same.

(b) Other includes: "capitalistic pressure", "work not regular", "no interest".

(c) Does not know or does not apply.

(d) Other includes: "can find work easily in same occupation", etc.

TABLE 26

What Are Important Measures that Can Be Taken to Make Your Occupation more Secure?

Answers	Age			Years in School		
	Total	Under 25	25 and over	Total	Under 7	7 and over
Total	100 (a)	49	51	100	52	48
Enforce Labor Law &/or Union	9	-	9	9	5	4
Better Retirement Compensation &/or Pay	58	29	29	58	27	31
Other Social Insurance (b)	7	5	2	7	4	3
Other (c)	21	11	10	21	12	9
D.N.K. or A. (d)	5	4	1	5	4	1

(a) Since the sample is one hundred, original data and percentages are the same.

(b) Includes: "free medical care", "free education", etc.

(c) Other includes: "shorter work days", "more pay", "understanding with manager or foreman", etc.

(d) Does not know or does not apply.

TABLE 27

What Do You Think of Industrial Unions?

Answers	Age			Years in School		
	Total	Under 25	25 and over	Total	Under 7	7 and over
Total	100 (a)	49	51	100	52	48
Useful & Reasons						
Get workers' rights	33	14	19	33	15	18
Raise Prestige of trade	16	4	12	16	11	5
Other (b)	5	3	2	5	3	2
D.N.K. or A. (c)	5	3	2	5	4	1
Not Useful & Reasons Work Disorganized	12	6	6	12	5	7
Communist	7	3	4	7	4	3
Other (d)	22	16	6	22	10	12
D.N.K. or A. (c)						

(a) Since the sample is one hundred, original data and percentages are the same.

(b) Other includes: "but not to interfere in politics", "must be efficient", "good for workers & owners" etc.

(c) Does not know or does not apply.

(d) Other includes: "personal", "does not like union".

TABLE 28

Under What Conditions Do you Think Your Industry Has a Promising Future?

Answers	Age			Years in School		
	Total	Under 25	25 and over	Total	Under 7	7 and over
Total	100 (a)	49	51	100	52	48
More Capital	36	14	22	36	21	15
Increased Educational Level of Country	17	7	10	17	9	8
More Prosperity in the Country	30	16	14	30	14	16
Other (b)	5	3	2	5	2	3
D.N.K. or A. (c)	7	6	1	7	3	4
No.	5	3	2	5	3	2

(a) Since the sample in one hundred, original data and percentages are the same.

(b) Other includes: "careful and good work", "chance", "improve worker's conditions" etc.

(c) Does not know or does not apply.

APPENDIX G

STATISTICAL TECHNIQUES

Two texts were consulted as to the statistical procedures to be followed in this research: "The Preparation of Sampling Survey Reports"[1] and Statistics for Economics and Business[2]. Dr. Charles W. Churchill was consulted on the application of the statistical procedures and presentation of the tables in Appendix F. The following formulas have been used:

$$s = \sqrt{\frac{Sf\,x^2}{N} - \frac{(Sf\,x)^2}{N}}$$

s - Standard Deviation.
f - Frequency in Interval.
x - Value of Midpoint of Interval.

$$S.E.M. = \frac{s}{\sqrt{N-1}}$$

S.E.M. - Standard Error of the Mean.
N - Number of Persons in Sample.

$$C.V. = \frac{S.E.M.}{Mean} \times 100\%$$

C.V. - Coefficient of Variation.

$$t = \frac{\text{Difference Between Means}}{\text{Standard Error of the Difference}}$$

where t = Critical Ratio.

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