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Case Study

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Feasibility of Establishing Export-Orientated Leather Footwear Industries in Africa [1/]

prepared by

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CONTENTS

Appendices

I. INTRODUCTION

The aim of starting leather and leather products industries in the developing countries is mainly to obtain added value on the indigenous raw materials. Traditionally the third world countries have been suppliers of the raw hides and skins to the tanning industry of the industrialized countries. This situation has, however, changed in the past decades and it is still in the process of changing. The recent UNIDO "Draft World-Wide Study of the Leather and Leather Products Industries: 1975-2000" established that the developing countries produce currently about 40 per cent of the total global supply of hides and skins, but which they only process partly and in limited quantities to manufactured leather products. The leather and leather products industries consist of several different sectors of which each can build an important industry. Although the basic raw materials, the raw hides and skins, are the common denominator and starting point of the industry, there are several examples that countries with relatively limited raw material sources have managed to build up important leather and leather products industries with major impact on the global leather products trade by using imported raw hides. The ideal situation is, however, if local raw materials are available so that the added value can be introduced from the beginning.

The added value which can be obtained in various stages of production varies, of course, considerably depending on the type and quality of raw hides and skins, the type and quality of the manufactured merchandise and the markets they are distributed to. The following example gives a rough indication of what can be expected:

Raw hides	100 %
Pickled	120 %
Wet blue/vegetable primary crust	130 %
Semi-finished/buffed crust/ready-to-finish	170 %
Leather completely finished	200 %
Footwear and other leather products	400-800 %

The wide variation of the added value in the final stage depends mainly on the quality and fashion aspect of the product and the input of auxiliary materials.

II. CONDITIONS FOR STARTING LEATHER AND LEATHER PRODUCTS INDUSTRIES IN AFRICA

There are a number of reasons why the establishment of export-orientated leather and leather products industries should be considered feasible in the developing countries of Africa.

- Many of the African countries have sufficient quantities of raw hides and skins available to support a feasible tanning industry.
- The leather and especially the footwear and leather products industries are labour-intensive and there is an abundant pool of unskilled labour available. Through modern training methods this labour can be trained relatively quickly and efficiently to required standards.
- The technology and manufacturing process is reasonably simple and can be started on a relatively small scale.
- The general pattern in todays industries in the developed countries is in favour of transferring these labour-intensive industries to countries with a more favourable labour climate.

It must, however, be remembered that this industrial sector will by no means be abolished from the developed countries. Their advanced technology, fashion and marketing intelligence, as well as the established marketing patterns will keep this industrial sector viable for decades to come, and only a certain share of the markets in the industrialized countries will be available for the potential exporters from the third world countries.

As mentioned previously, the leather and leather products industries consist of several sectors and it is impossible in a short study to deal with all of them. This paper is therefore concentrating on the footwear industry only and the case study to be presented deals with the establishment of a footwear factory for export markets.

III. ESTABLISHMENT OF A SHOE FACTORY FOR EXPORTS

1. Planning of a Shoe Factory Establishment

The establishment of a shoe factory needs very careful planning. The plan should include all the main activities from the initial starting-up activities to the commencement of the commercial operations. Such a plan is easiest drawn up as a network planning chart, as per Appendix 1. The main activities should include the following:

- Opportunity study
- Market survey
- Pre-feasibility study
- Selection of manufacturing technology
- Budgetary appropriation
- Engagement of key personnel, technical consultants or know-how partner
- Quotations for plant and equipment
- Selection of equipment and ordering
- Preparation of plant layout
- Construction of building
- Installation of equipment
- Preparation of final samples
- Canvassing of orders
- Preparation of final budget updating feasibility study
- Ordering of materials
- Training of labour
- Commencement of production.

The network planning shown in Appendix 1 is very simple and basic and should be more elaborated in reality. For instance, the machinery and equipment ordering should have its own sub-barchart to time all details such as quotations, orders, delivery time, part deliveries, installation, etc., in great detail.

2. Market Survey

Before going into the feasibility study, technical choices available and dealing with the material, labour and machinery requirements, some remarks are necessary concerning the marketing aspects and how to select

the correct footwear to be manufactured. It is vitally important that a very thorough market survey is conducted, and that prior to making the feasibility study and selection of the machinery an accurate specification of the shoes to be produced is available. There are several examples in this branch where shoe factories have been started in developing countries without giving any thought to the marketing, and after starting the production it has been noted that the machinery selected was not fully suitable for producing footwear according to market requirements and costly and time consuming delays were caused by changes required in machinery, lasts and tooling before a marketable product could be manufactured.

As export marketing requires special skills and knowledge of the markets to be entered, and these skills are rarely available in a developing country, it is essential that the market survey on which the feasibility study and technical choice is based is conducted by competent business people. In many cases it is of advantage that the market survey is subcontracted to a specialized consulting firm.

The market survey should clarify the following points:

(a) The market potential on the export markets, specifying per season:

- the type of footwear (ladies, men's, children's, fashion, casual, etc.)
- the construction of footwear (Goodyear welted, cemented, injected, etc.)
- price brackets
- lasts and fittings
- quality requirements
- material composition
- fashion aspects and design.

This specification should be backed up by samples, illustrations and relating data.

(b) Export channels and distribution:

- buying organizations in the importing countries
- distribution pattern in the importing countries
- commissions to be paid to agents and distributors
- mark-up of wholesale and retail trade.

(c) Import legislation in the importing countries:
- trade agreements
- custom duties for various shoe types
- licence requirements
- possible preference duties from other countries
- special regulations of marking (country of origin, material specification, sizing).

(d) Competition:
- local competition
- competition from other countries.

It must be realized, however, that although the market survey would be conducted by specialized business consultants, it will be very difficult to obtain a clear picture of the world market demand for the type of footwear a newly established shoe factory should manufacture. To be able to conduct a reliable market study on the export markets, the factory's own original samples are needed and prices and delivery times must be quoted. Therefore, a market survey as described above must be regarded as a very rough indication only.

In most cases, when starting a shoe factory, it is essential that a viable local market exists and that as a first phase the local market demand is satisfied. As a second phase the entry to the export market will be studied, prepared and implemented.

To establish a shoe factory for exports only from scratch is rather optimistic and it must be realized that during the initial training period it is impossible to produce merchandise which meets the high demand of the competitive export markets concerning quality, delivery times and profitability. The importers need reliable deliveries and it is useless to begin exports until assurance can be given that deliveries correspond to samples supplied and 100 per cent reliable delivery time.

In the following case study it is assumed that a shoe factory for the local market is already in existence and that the market survey is based on a sample range produced in the factory.

3. Feasibility Study (Appendix 2)

After the market survey has established that export markets for certain types of shoes exist, a feasibility study will be conducted.

For the study the following needs to be determined:

(a) Capital requirements:

(i) Fixed capital:
- plant and machinery
- factory building
- office and staff facilities
- pre-investment studies, training and starting-up cost.

(ii) Working capital:
- materials
- work in process
- finished goods
- accounts receivable
- liquidity

(iii) Production cost:
- material specification
- labour, manufacturing and administrative cost specification
- standard times for direct labour
- cost of goods sold summary

(iv) Selling and administration expenses:
- sales expenses
- advertising
- salaries
- travel
- general expenses

(b) Estimated profit and loss statement:

The feasibility study, which is presented in detail in Appendix 2, is based on the production of 1,000 pairs of ladies medium quality leather shoes of cemented construction in one eight-hour shift. The plant and machinery selected for this purpose represents a fully mechanized factory unit which can be supplied as a "package deal" through internationally known and reputable suppliers.

The main reason why the capacity has been selected to be approximately 1,000 pairs per day is that this is considered to be an economically viable unit where the machine capacities and labour requirements are well balanced. It is mostly the case that large production

factories manufacturing this type of leather shoes are made up of several units like this and each of the 1,000 pairs per day production lines are fitted and specialized for a certain type of shoe construction.

The feasibility study is not based on a real situation. The purpose of it is to show a pattern of how a simple feasibility study can be prepared. The productivity figures, material consumption and prices, as well as the prices of plant and machinery are, however, based on recent quotations and are expected to present a realistic picture.

4. Technical Choices

After the market survey and feasibility study have been completed, the selection and purchase of the machinery and equipment has to be undertaken. As mentioned previously, the case study is based on purchasing a complete "package deal" through a reputable machine manufacturer who can back up his delivery with good service facilities, installation of equipment, training of operators and advisory service for production control, tooling and shoe engineering. A complete list of machinery required for the case study is shown in Appendix 3.

It must now be decided whether the services offered under the "package deal" are worthwhile, as the machinery and equipment purchased through such a deal may be 25-50 per cent more expensive than if the purchase selects machines from several sources and pieces together the most economic choice available.

It is also possible to start up with second-hand reconditioned machinery which can be purchased for about half the price of new equipment. Such machinery, if reconditioned by a reputable company, is almost as good as new and this alternative deserves serious consideration.

In order to assess these alternatives it is naturally required that the purchaser has quite advanced technical know-how and maintenance abilities. If the necessary know-how is lacking, the best choice is to negotiate the most favourable "package deal" or turn-key project, or to enter into a know-how agreement with a foreign manufacturing company. Such agreements should be carefully prepared and it is an advantage if an export marketing deal can be incorporated into such an agreement.

As explained above, the case study is based on manufacturing shoes of a cemented construction. Several other construction methods could be selected depending on the market demand and the type of products needed. A short technical description of the main construction methods is given below.

(a) Cemented construction:

In the developed countries most of the mass-produced leather shoes are manufactured by this method. It is also referred to as "Ago-shoe" or "stuck-on-construction". In most cases the lasting, i.e. the forming of the upper part over a wooden or plastic last and fixing it to the insole, is performed by cement although the heel seat is still mainly tack lasted. The side lasting may also be done by cement, but a ladies shoe with a high heel needs at least some reinforcement tacks on the shank part. The latest lasting machine systems are changing over to a two-machine system with a combined pulling over and lasting machine, performing toe and side lasting in one operation, but the most common and reliable systems are still using three machines for the lasting operation. The sole attaching method by cement demands controlled technology concerning correct cements, drying and activating times for optimum results, and the roughing operation of the lasting allowance must be skillfully performed. Automatic roughing machines can, however, be used for this operation which reduces the skills required to quite some extent.

The direct labour productivity of cemented footwear in the well rationalized West European factories varies from 15 to 30 pairs per operator per day, all depending on the type and work content of the shoe produced. The case study here calculates a productivity of about 12 pairs per operator per day and this capacity should be obtainable with trained labour in two to three years after commencing production.

(b) Goodyear welted:

This bottom preparation method is the most complex and labour and material intensive process. Shoe produced by this method are regarded as the best quality footwear and stands usually in the first

position on the price list. Only a few specialized factories continue to make shoes by this method in the industrialized countries. The productivity of a Goodyear welted shoe is about 5 to 7½ pairs per operator per day in a fully mechanized production.

(c) Force-lasted:

There are two main types of force-lasted shoes, the original moccasin and the California shoe. The moccasin shoes are mainly constructed with a handsewn vamp plug, although there are today new modern moccasin stitching machines available performing the gathering of the vamp and stitching on the plug. The moccasin shoes have either cemented-on or channelled and stitched soles. This type of footwear is very popular in the markets of the industrialized countries, giving a very flexible and comfortable shoe. The California shoes are constructed with a stitched-on insole and the sole and heel edge is covered with a strip of upper leather stitched on to the bottom edge of the upper. This construction method needs relatively limited capital investment and relatively small production space.

(d) Veldtschoen or stitch-down footwear:

This construction method, which for some time was more or less disappearing from modern shoe making, has again gained momentum and many types of footwear are produced by this method. This is mainly due to the fact that modern cement lasting methods have been developed for this type of footwear, thereby rationalizing the process. The sole stitching is performed with rapid sole stitchers with or without a welt, and often a crêpe or microcell sole is attached afterwards by cementing. Typical shoes made by this method include the safari boots and children's T-bar or simple derby shoes. These shoes are often made of heavy leathers and are unlined.

(e) Moulded footwear:

There are two main methods available for the moulded footwear, namely, vulcanized and injection moulded. The upper construction for the cheaper types are usually made either by slip lasting, where an insole is stitched on to the upper and the shoe is then force-lasted over the machine's metal last, or by string lasting

where the upper is formed and lasted over the metal last by pulling a string stitched around the lasting margin. The string lasting operation can be carried out either by hand or by machine. These two methods are mainly used for making shoes of leather substitute materials but are well suited for the production of light suede leather or split leather shoes where the roughing operation can be eliminated. The better types of moulded shoes are usually lasted over a wooden or plastic last by normal lasting machines. After upper roughing, the sole is moulded on by utilizing the same manufacturing last or by pulling the lasted shoe upper over a metal last on the moulding machine, all depending on what type of moulding machine is used. A further possibility is to use the "Injection-82" process which, through a combination of welting and string lasting, makes it possible for the injection of quality welted leather shoes without lasting and roughing operations. This process is developed by a United States company and covered by patents. It is usually offered to manufacturers on a royalty basis with complete technical know-how support.

This is a very brief description of the main types of footwear and Appendix 4 shows some simple diagramps to illustrate the type of footwear described.

5. The Factory Building:

The shoe factory building does not need to be of any fancy construction. Many successful shoe factories operate in very simple environments. It is important to have sufficient floor area, preferably in a one-story building where the work flow can be rationally arranged. The buildings should, however, be neat and well maintained, providing employees with a healthy, well lit and ventilated working room. The work safety and fire hazards have to be considered, and it should be realized that a pleasant working environment influences greatly the employees' work incentive, as a satisfied employee produces better work and stays less absent.

In selecting the site of the new shoe factory building, due consideration must be given to the transport facilities. Especially in the export business this is very important as shortest possible delivery times are

required. Another point to consider is to locate the factory near an adequate labour pool. Many factories in the developed countries have been forced to relocate their production plants from industrial centres where the competition for labour has pressed the labour charges beyond the capabilities of the footwear industry.

It is very difficult to give exact specifications for the floor area needed for different types of shoes. This depends to a great extent on whether the shoe is of a simple design, a fashionable luxury shoe, or a high quality, high price article. The additional factor is the choice of the transport equipment, whether only conveyors should be used or the transport should be carried out by push trolleys, and whether the shoes are "heat-set" or dried and set in normal room temperature. Therefore, the exact requirements of the floor area have to be calculated case by case. It should not be forgotten that possibilities should exist for further expansion if needed.

The following rough guidelines should, however, give some useful indications of the required shoe factory size in the initial planning stage.

Space Requirements

Cemented footwear:

Production pairs/day	500	1000	1500	2000
Space required, m^2/pair	2.50	2.00	1.60	1.50

Goodyear welted:

Production pairs/day	500	1000	1500	2000
Space required, m^2/pair	3.50	3.00	2.40	2.10

California:

Production pairs/day	500	1000	1500	2000
Space required, m^2/pair	2.00	1.60	1.50	1.40

Injection string lasted:

Production pairs/day		1000	2000	3000
Space required, m^2/pair		1.50	1.00	0.90

6. Shoe Factory Organization and Management:

A shoe factory manager does not necessarily have to be an experienced shoe technologist, but he should be knowledgeable in the basic technology of shoe manufacturing and have the administrative ability to deal with personnel problems and supervise the commercial operations of the factory.

The technical manager or the chief production supervisor must, however, be an experienced "shoe man", knowledgeable in all of the various production phases, tooling and shoe engineering aspects, and he must possess extensive knowledge of the footwear materials and components. Such a man may be difficult to find and it takes years to train from scratch.

Another important person in the footwear manufacturing is the shoe designer/pattern cutter. The more fashionable shoes are to be produced, the more important this position becomes. When manufacturing standard types of shoes, the designing aspect is not all that crucial but a good technical pattern man is still needed to ensure correct fitting of the patterns, both in manufacturing and in wear.

To employ suitable persons for these two technical positions in a newly established company in a developing country often requires that an expatriate must be contracted. However, it should be remembered that the sooner a qualified local man is in his position, the better the chances are to control the business.

To train a fully qualified production manager will take a minimum of three to four years and such training should include, in addition to a two-year shoe technical college, a minimum of one year's practical plant training in a well organized shoe factory and at least six months of training by the various machine manufacturers and raw material suppliers.

The shoe designer training is somewhat shorter and in addition to a special shoe designing/pattern making course, which usually takes ten months, the designing trainee should have one year of plant training in a suitable shoe factory.

An example of a shoe factory organogram has been elaborated to fit the case study and it is presented in Appendix 5.

7. The Labour Training:

The labour training requirements in the shoe industry are quite extensive. It must be realized that the quality of the shoe produced depends mainly on the manual skills of the workers and only partly on the machinery and material inputs. The modern training methods of the shoe industry have developed to a great extent and it pays to employ short-term special consultants to carry out initial labour training and start a training system.

In the past the training of a competent sewing machinist for the shoe industry used to take from six months to one year. Today such training can be carried out in a six to eight-week special course, utilizing the skill analysis training system. Most of the other shoe factory operators can be trained in four to six weeks to the level of an experienced operator standard; that is, if correct training procedures and personnel selection methods are followed. Training is, however, a continuous process and it is recommended that a factory should have its own training department and training office to take care of and co-ordinate the training needs.

8. Financing a Shoe Company Plant and Equipment:

The financing of a shoe company, like any other business venture, can be arranged in several different ways. In the case study the financing of the company is arranged partly through private capital and partly through Government loans on low interest rates. The plant and machinery are purchased outright. If only limited capital is available the alternatives of industrial hire purchase and leasing of machinery should be looked into. There are numerous finance houses providing hire purchase finance and it may be possible to lease the machinery, as also the leasing of a building should be possible in most cases. However, these aspects are in general the same as in starting any other industry and not within the scope of this study. It should be mentioned, nevertheless, that according to a SATRA publication: "Financing Shoe Company Plant and Equipment" the cost element of shoe machinery represents approximately 3 per cent of the price of the shoe. (In this study it works out 3.15 per cent if the machinery is fully

depreciated in ten years.) This can be used as a rough guide when checking investment costs.

9. Government Steps to Promote and Encourage Leather and Leather Products Industries for Export

The Government's role in promoting leather and leather products industries for export is a very important one. So as to obtain the maximum possible added value on the available raw materials, the Government should formulate a special policy to encourage the development of this industrial sector. This policy could include some of the measures or a suitable mix of the following suggestions:

- Abolishment of the export of raw hides and skins
- Export duties on raw hides and skins
- Export duties on semi-finished products
- Pioneer status for the leather product industries for exports, including tax benefits and duty free imports of components and raw materials needed
- Government subsidies for export marketing
- Encouragement of joint ventures with foreign participants with guarantee of capital repatriation
- Creation of free trade zones.

Several of these measures have been tried with success in many developing countries. Each country must, of course, after careful study decide which is the most appropriate measure mix under the existing conditions.

IV. CONCLUSION

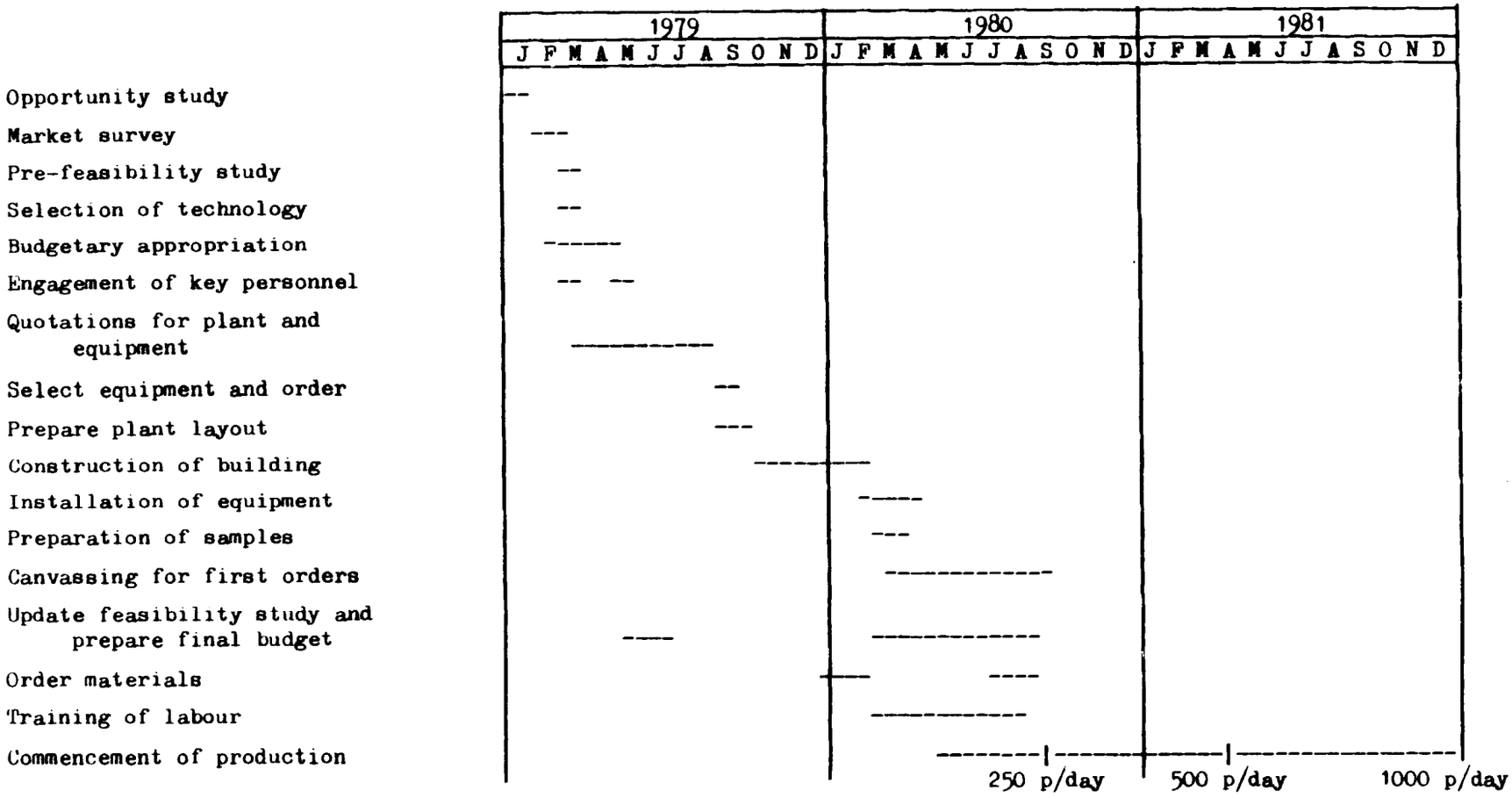
As discussed in this paper, there are several factors favouring the establishment of an export-orientated footwear industry in the African countries. The basic raw material and a large pool of unskilled labour being the corner stones for this development. In order to start an export industry in footwear requires, however, that a viable local market exists and the demand of this market be satisfied first, and that the entry into the export markets will be started only after the factory has the capabilities of producing suitable export products and can offer guaranteed delivery times.

The purchase of machinery through a "package deal" or a turn-key agreement is usually 25-50 per cent more expensive than obtaining the most economic choice by selecting machinery from various firms. But due to the know-how and back-up services offered with such deals, it may in some cases be of advantage to enter into a know-how or a turn-key agreement.

Export marketing is a business which must be built up slowly and only after winning the customers' confidence major sales results can be expected. Anyone starting the footwear business with exports in mind must be prepared for several years hard and determined work, and investments in competent people in marketing, technology, and in training functions before a major breakthrough to export markets can be expected.

APPENDIX 1

NETWORK PLANNING CHART



APPENDIX 2

FEASIBILITY STUDY

(a) Capital Requirements:

	US dollars
(i) Fixed capital:	
Plant and machinery	630,000
Factory building 20,000 sq.ft. at $ 8/sq.ft.	60,000
Office and staff facilities	32,000
Pre-investment cost (market survey, feasibility study)	25,000
Starting up and training	30,000
	877,000
(ii) Working capital:	
Materials	115,000
Work in process, 12 days at $ 4	48,000
Finished goods, 10 days at $ 5.60	56,000
Accounts receivable, 30 days at $ 8	240,000
Cash on hand, 30 days of labour plus overheads	115,500
	574,500
Total investment required	1,451,500
Less own capital	800,000
Capital to be borrowed	651,500

(iii) Production cost:

1. Material specification:

For the production of 1,000 pairs of ladies cemented footwear in one 8-hour shift.

Material	Quantity per pair	Estimated price	Quantity to be stocked	US$ Total
Upper leather	1.4 sq.ft.	1.20	30 days	36,000
Lining leather	0.8 sq.ft.	0.90	"	27,000
Insole	1 pair	0.10	"	3,000
Outsole	1 pair	0.20	"	6,000
Heel + top lift	1 pair	0.45	"	13,000
Other		0.50	60 days	30,000
	Material cost/pair	$ 3.35	Total materials to be stocked	115,000

2. Labour, manufacturing and administrative cost specification:

Direct labour (average $ 1.55/hour) as per list "Standard Times of a Ladies Leather Shoe"

Cutting	$ 0.10	
Bottom stock prep.	0.04	
Closing	0.50	
Lasting + making	0.36	
	$ 1.00	
Indirect labour and social cost	0.50	
Total labour	$ 1.50	$ 1.50
Manufacturing overhead cost (50% of labour)		0.75
Total manufacturing cost including materials ($ 3.35)		$ 5.60
Selling and general administration cost (20% of sales price)		1.60
Profit (10% of sales price)		0.80
	Sales price	$ 8.00

3. Standard times of a ladies leather shoe:

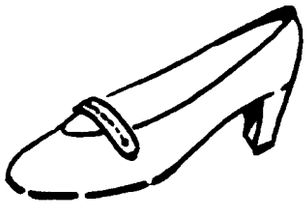
Cutting:	Standard time minutes/pair
Click upper leather, 2 vamps, 2 quarters, 2 tabs and 2 heel covers, total 8 pcs/pair	1.944
Click leather lining 4 pcs/pair	0.823
Click sock lining 2 pcs/pair (leather)	0.419
Click tab lining 2 pcs/pair (Leather)	0.137
Click counter pocket 2 pcs/pair (synthetic) 4 layers	0.175
Click toe puff (thermo) 2 pcs/pair, 4 layers	0.116
Click vamp lining 2 pcs/pair, 20 layers	0.042
Stamp lining, count and bundle	0.151
Stamp sock (trade mark)	0.151
Total cutting	3.958
Closing:	
Skive upper	0.845
Skive lining	0.587
Skive counter pocket	0.140

	Standard time minutes/pair
Skive toe puff	0.140
Ink edge	0.200
Load conveyor	0.686
Close side	0.510
Press toe puff	0.353
Close back seam	0.487
Rub back seam	0.385
Soften for folding	0.130
Machine fold vamp	1.250
Stitch vamp lining and quarter linings	1.100
Cement and fit counter pocket	0.969
Stitch and trim linings	3.000
Hand trim	0.200
Machine fold tab	0.800
Stitch decoration seam on tab	0.640
Cement and assemble lining and tab	1.100
Stitch and trim tab	1.800
Hand trim	0.300
Stitch tab	2.072
Insert trim	0.700
Cement vamp lining	0.500
Total closing	18.894
<u>Sole preparing</u>:	
Manufacturing of complete moulded insole with steel shank, forepart of fibre board, backpart of shank board, manufacturing method: Morbach automatic production line	1.015
Clicking of sheet rubber sole 2½ mm with sole clicker (2 layers), 4" die	0.200
Clicking thermo counter with sole clicker, 4" die (4 layers)	0.074
Sort and bundle components	0.084
Rough, trim, edge ink, split, stamp and cement rubber sole (production line of Ralph Unified type)	0.440
Total sole preparing	1.813

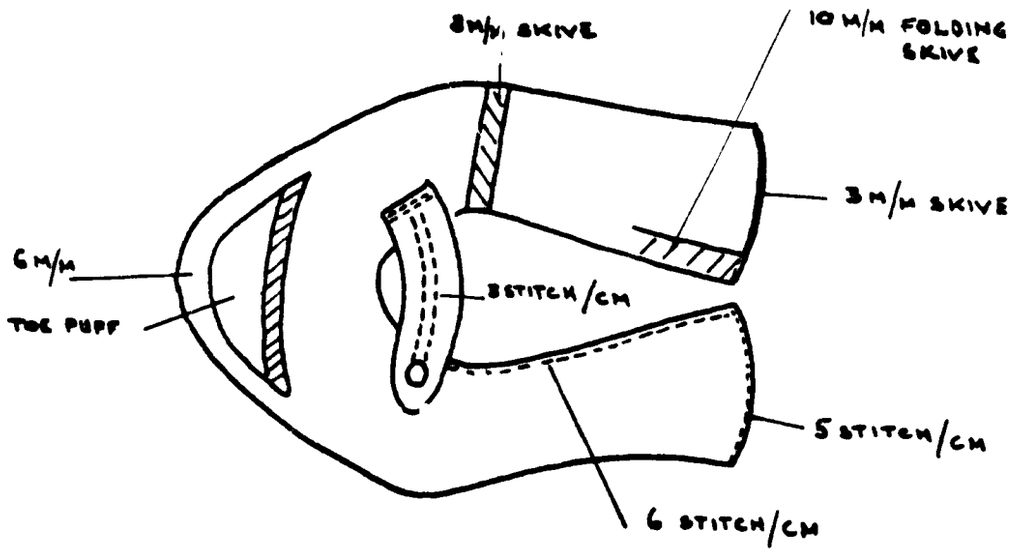
Lasting and making and finishing:	Standard time minutes/pair
Load conveyor	0.300
Staple insole	0.279
Trim and latex insole	0.392
Insert counter (thermo)	0.800
Backpart mould (Omic type 4-station)	0.336
Cement lasting margin	0.400
Toe pull and last forepart	0.797
Side last	0.800
Backpart last	0.400
Heat set	0.250
Toe scour	0.319
Contour press	0.336
Rough lasting margin	0.800
Cement lasting margin and bottom fill (hand)	0.800
Cement sole	0.400
Sole lay and press	0.800
Remove last	0.400
Heel nailing	0.362
Sock and insert cushion	0.800
Clean and repair	1.200
Wrinkle chase and repair	0.340
Iron throats	0.340
Pair and stamp size	0.400
Pack	0.800
Reserve, skilled operations	0.800
Reserve, help operations	0.400
Total lasting and making and finish	14.051

Total standard times for model 52-6873 (as per attached sketch)

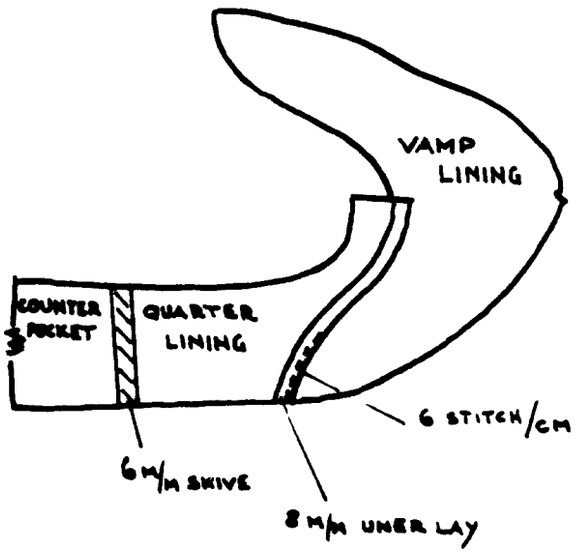
Cutting	3.958	minutes/pair
Closing	18.893	" "
Sole preparing	1,813	" "
Lasting and making	14.051	" "
Total	38.716	minutes/pair



MODEL 52-6873
LAST REINE
SIZES 2-8



upper assembly



lining assembly

Summary of production cost:

	Total US$	Per Pair US$
Materials	837,500	3.35
Direct labour	250,000	1.00
Total material and direct labour cost	1,087,500	4.35
Indirect labour	25,000	
Vacation pay	23,000	
Insurances, workmen compensation	17,000	
Retirement fund	40,000	
Social security	20,000	
Total indirect labour and social cost	125,000	0.50
Manufacturing overheads:		
Supervisor salaries	60,000	
Vehicles maintenance	1,000	
Insurance	4,000	
Amortization	73,000	
Power	20,000	
Tools	7,000	
Spare parts	2,500	
Factory supplies	20,000	
Total manufacturing overheads	187,500	0.75
Total Production Cost	1,400,000	5.60
(iv) Selling and administrative expenses:		
Sales commission	125,000	
Salaries	35,000	
Advertising	60,000	
Travel	30,000	
Total sales expenses	250,000	1.00
Salaries	120,000	
Office supplies	4,000	
Postage and stamps and telephone	10,000	
Subscriptions	3,000	
Fees	8,000	

	Total US$	Per Pair US$
Taxes, licences	2,000	
Office equipment maintenance	1,000	
Miscellaneous	2,000	
Total administrative expenses	150,000	0.60
Total selling and administrative expenses	400,000	1.60

(b) Estimated Profit and Loss Statement:

Sales - 250,000 pairs	2,000,000	8.00
Less discount and claims	60,000	0.24
Total sales income	1,940,000	7.76
Cost of production	1,400,000	5.60
Gross profit on sales	540,000	2.16
Selling and administrative expenses	400,000	1.60
Profit from operations	140,000	0.56
Financial charges on borrowed capital (6% on $ 651,000)	39,060	0.16
Profit before income tax	100,940	0.40

(return on own capital 12.6% before income tax)

APPENDIX 3

MACHINERY REQUIRED FOR THE PRODUCTION OF ABOUT 1,000 PAIRS OF LADIES CEMENTED FOOTWEAR IN AN 8-HOUR SHIFT

Approximate prices are as follows (based on a "package deal" delivery, including installation and initial training cost, excluding local expenses of installations and trainers):

Cutting department, approximately	US$ 104,000
Closing department	116,000
Lasting and making	264,000
Pattern making	25,000
Spare parts for one year normal operation	50,000
Lasts	9,000
Compressed air installation, complete	50,000
Tools and accessories	12,000
Total	US$ 630,000

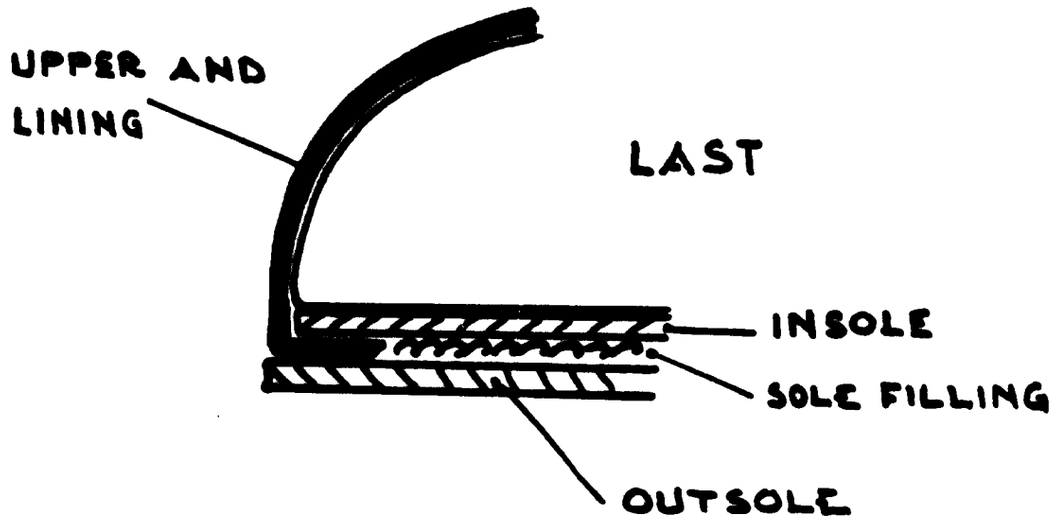
No.	Operation	Machine Description	Approx. Output 8 hrs.	No. of Machines Required
A.	Cutting Department			
1	Click upper leather 8 pcs/pair	Hydraulic cutting machine (13" (33cm) wide beam)	2000 cuts	4
2	Click lining leather, sock and tab lining 8 pcs/pair	Hydraulic cutting machine (13" (33cm) wide beam)	2000 cuts	4
3	Click counter pocket (4 layers) and vamp lining (8 layers)	Travelling head cutting machine	2800 cuts	1
4	Split	Band knife splitting machine	4800 pieces	1
5	Stamp lining	Lining marking machine (fitted to unit bench)	2000 IMP	1
6	Stamp sock (trade mark)	Standard sock stamping Machine	2000 IMP	1
B.	Closing Department			
7	Skive upper leather	Upper skiving machine (fitted to unit bench)		2
8	Skive lining and toe puff	Upper skiving machine (fitted to unit bench)		2

No.	Operation	Machine Description	Approx. Output 8 hrs.	No. of Machines Required
9	Ink edge	hand		
10	Load conveyor (transporter for 40 work places)	No.2 Satra Eatough Closing transporter 40 station		1
11	Close side	Single needle flatbed sewing machine with roller presser, needle and wheel feed		2
12	Press toe puff	Toe puff fusing press		1
13	Close back seam	Single needle flatbed sewing machine with compound feed		1
14	Rub and tape	Taping and seam pressing machine (fitted to unit bench)	1600	1
15	Machine fold vamp and tab	Thermo cementing and folding machine (fitted to unit bench)		2
16	Stitch vamp lining to quarter lining	Zigzag lockstitch flatbed sewing machine		2
17	Cement and fit counter pocket	hand		
18	Stitch and trim linings	Single needle postbed sewing machine with trimming attachment		6
19	Hand trim			
20	Stitch decoration seam on tab	Two needle lockstitch machine, flatbed, for heavy thread		2
21	Stitch and trim tab	Single needle postbed sewing machine with trimming attachment		4
22	Stitch tab	Single needle flatbed machine with compound feed		4
23	Insert trim	hand		
24	Cement and press vamp lining	hand		
C.	Lasting and Making			
25	Load conveyor (transporter for the operations 25 to 44)	Transporter		1
26	Staple insole	Staple fastening machine	800	2
27	Insert counter and condition	hand		

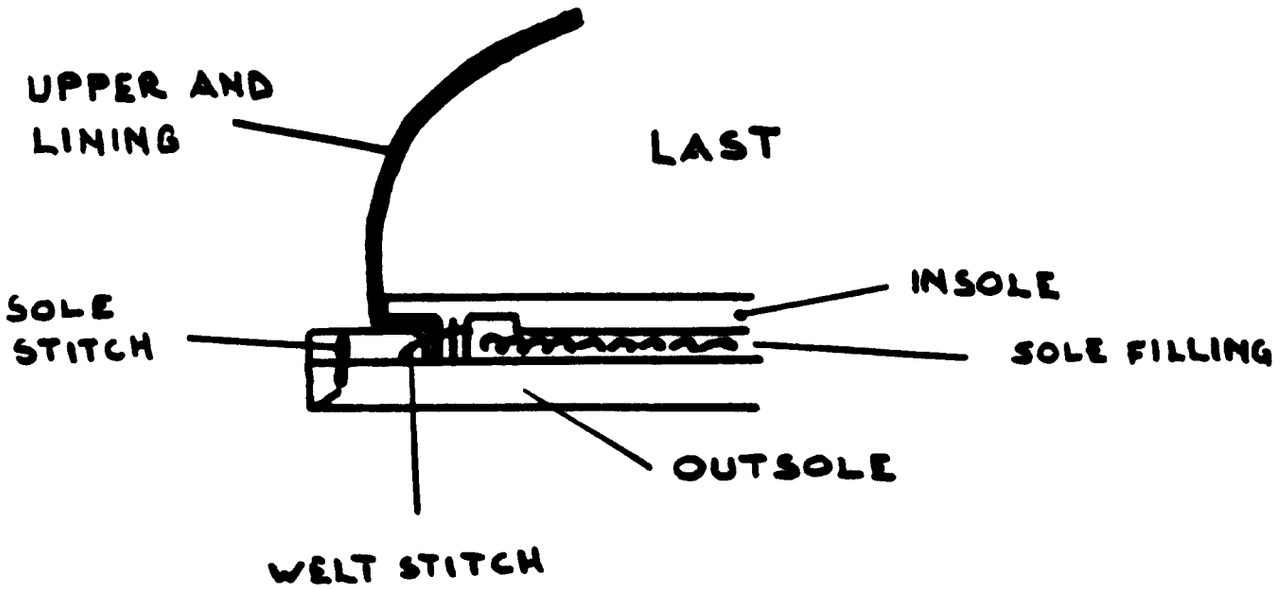
No.	Operation	Machine Description	Approx. Output 8 hrs.	No. of Machines Required
28	Mould backpart	Backpart moulding machine with refrigeration parts	800	2
29	Toe pull and last forepart	Pulling and lasting machine (with optical cap and throat gauge)	700	2
30	Side last	Cement side lasting machine (with tacking attachment)	1500	1
31	Heel seat last	Heel seat lasting machine (fitted for women's work)	1500	1
32	Heat set	Humid HVA setting plant	1500	1
33	Toe scour (filter unit)	Upper roughing and scouring machine with hydromatic dust control unit	800	2
34	Rough lasting margin (filter unit)	Automatic upper roughing machine with hydromatic dust control unit	1000	1
35	Cement lasting margin and bottom fill	Bottom cementing machine with cement supply unit	800	2
36	Cement sole	hand		
37	Dry			
38	Sole lay and press (activate)	Cement shoe heat activating unit with cement sole attaching machine	700	2
39	Slip last	Last pulling machine	1500	1
40	Heel nail	Heel nailing machine	1500	1
41	Insert cushion and sock	Pasting machine	1500	1
42	Clean and repair	hand		
43	Wrinkle chase	Heat blowing machine		2
44	Spray dress	Spray booth		2
45	Pair and stamp size	Sole stamping machine	1200	1
46	Pack	hand		

APPENDIX 4

CEMENTED CONSTRUCTION.



GOODYEAR WELTED



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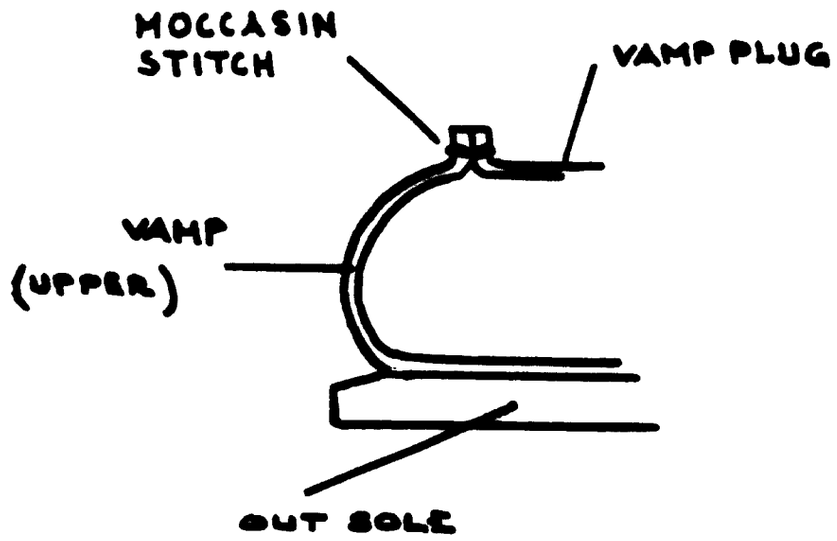

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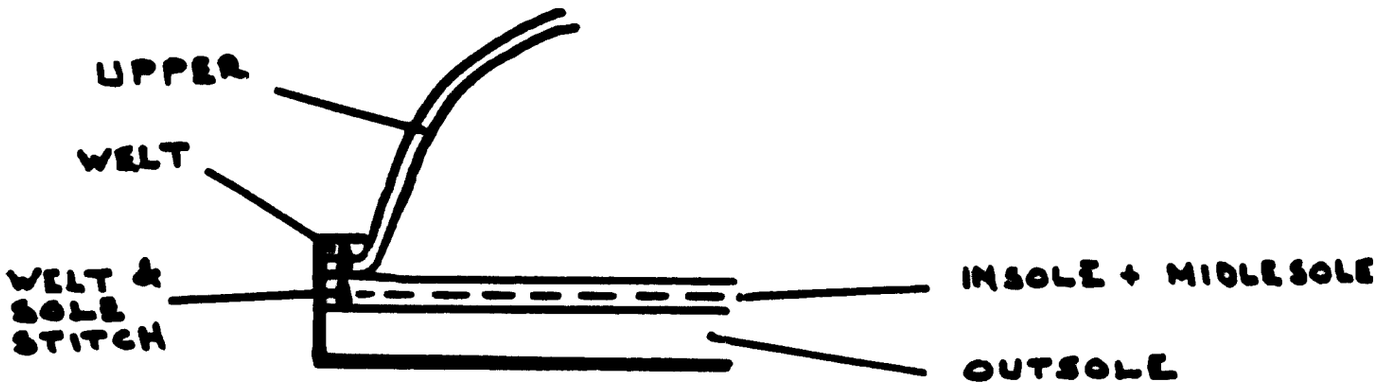
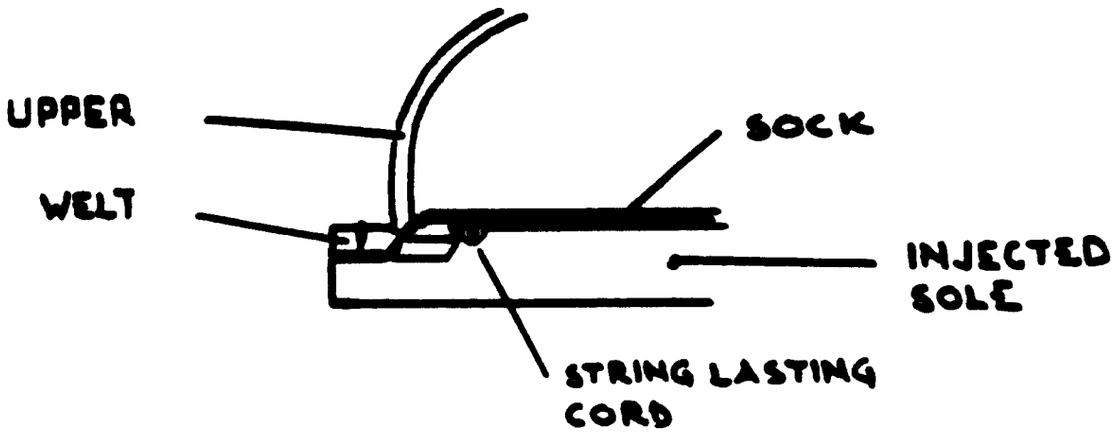
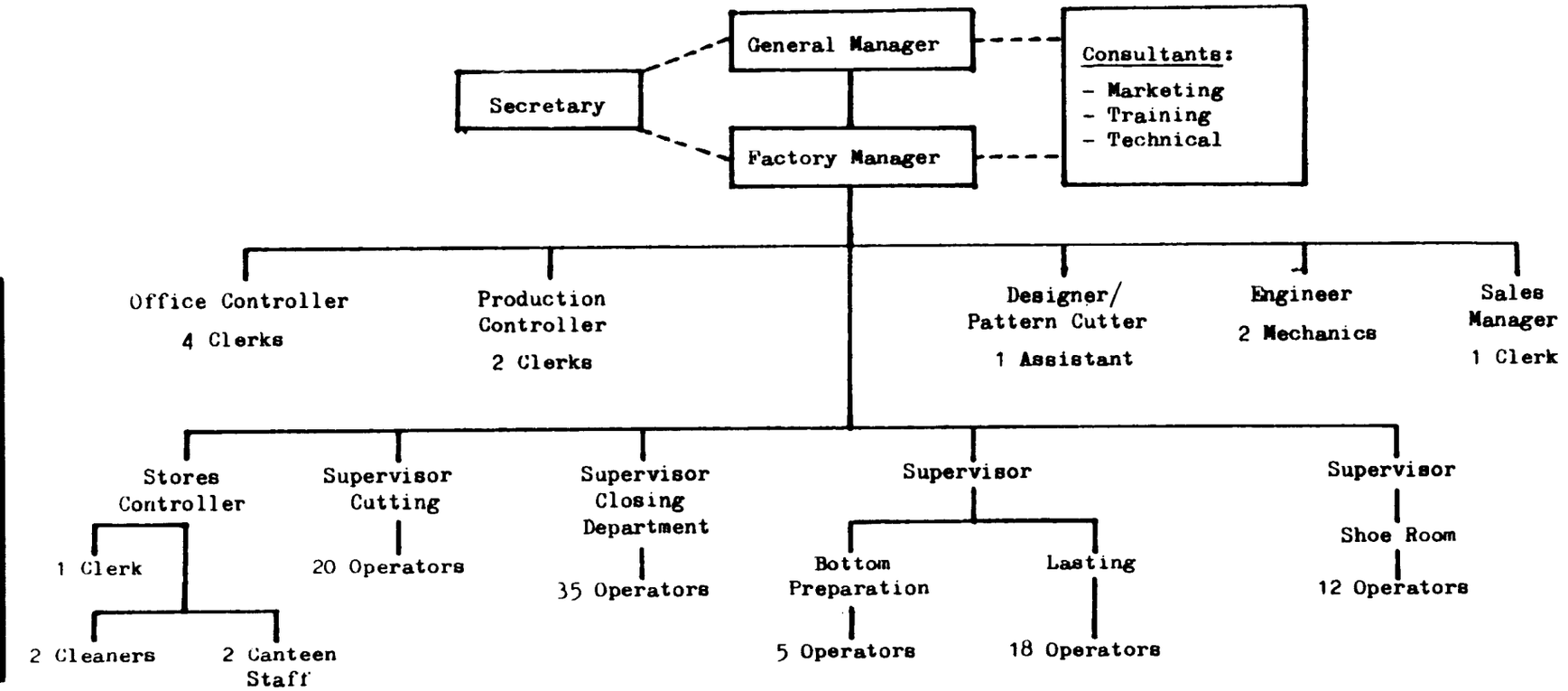


P-82 INJECTED



ORGANOGRAM

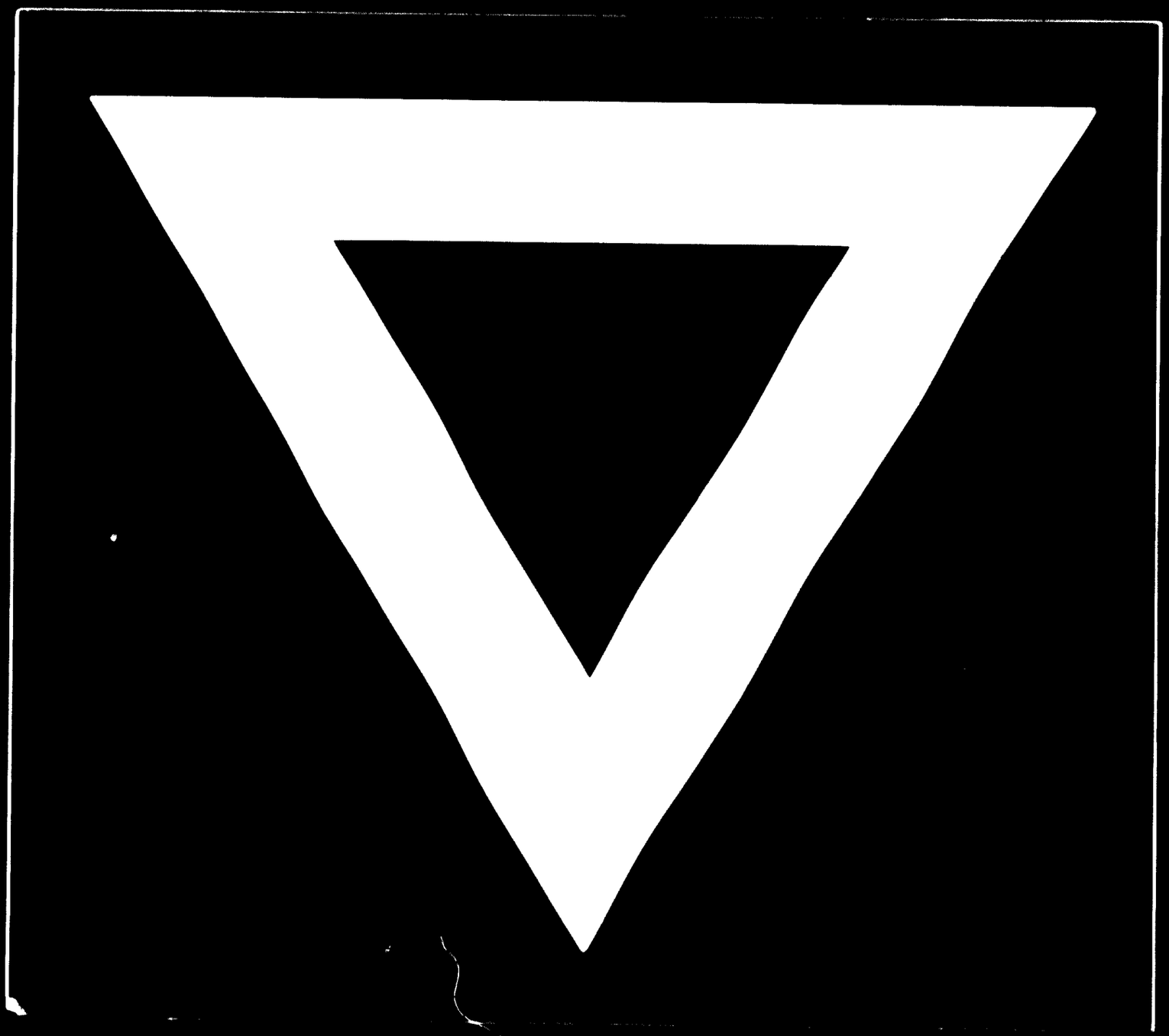


SUMMARY

2	Managers
5	Office and technical administrators
11	Clerks, Mechanics
4	Cleaners and Canteen staff
80	Operators
102	Total Staff

Productivity per operator - 12½/day

C-34



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