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151

TABLE OF CONTENTS

	PAGE
1. POPULATION AND PRODUCTION IN INDIA, 1920-1932. By PROFESSOR P. J. THOMAS, M.A., B. LITT., D. PHIL.	93
2. KĀTYĀYANA AND THE MITĀKSHARA LAW OF STRIDHANA. By C. VENKATA DEEKSHI- TULU, B.A., M.L.	103
3. URINARY CALCULUS—A PROBLEM IN PHYSIOLOGICAL CHEMISTRY. By S. RANGANATHAN, B.A., M.SC., A.I.I.SC. ...	127
4. UNIVERSITY NOTES	139
5. REVIEWS OF BOOKS—	
1. The Making of the State. By M. RUTHNASWAMY	143
2. The Cambridge Shorter History of India. By H. H. DODWELL	148
6. SUPPLEMENT—	
THE HAND-LOOM INDUSTRY IN SOUTH INDIA, II. By K. S. VENKATARAMAN, M.A., B.L. (<i>Sir Parasurambhau College, Poona</i>) ...	77



POPULATION AND PRODUCTION IN INDIA, 1920-32.¹

By P. J. THOMAS, *Professor, Madras University.*

THE increase of 10.5 per cent in the population of India between 1920 and 1930 has created considerable uneasiness in many quarters. The author of the Census Report, 1931, views it with alarm and this is shared by a large number of publicists. Mr. R. W. Brock, formerly the Editor of *Capital*, made the following statement at a meeting of the East India Association in 1932 :—‘So far as the official figures indicate there has certainly not been any increase in India’s agricultural and industrial production, in any way proportionate to the increase of her population, and the only possible inference appears to be that there has been a fall in the average income and therefore the average standard of living.’² This startling statement challenges a statistical examination of the problem.

There is one serious difficulty in accurately estimating production in India. Not less than 70 per cent of the people are dependent on agriculture, but the available statistics of agricultural production are hardly reliable, as they are based on a very imperfect system of crop forecasts. The forecasts of crop outturn in India are based on (1) area under cultivation; (2) the standard of normal outturn per acre; and (3) the condition factor or the annavari estimate. The figures of area are supplied by the Revenue Department, and are fairly reliable except in the permanently settled tracts of Bengal, Bihar and Orissa, and parts of the United Provinces. The standard outturn is ‘the average yield on average soil in a year of average character’. The outturn figures are deduced from crop-cutting experiments, but in most provinces such experiments have not been systematically carried out, and in some they have not been undertaken since 1919; and although in the meantime considerable increase in the area under improved varieties of crops has taken place, the figures adopted in 1919 are still used for estimating crop yields. The worst link in the chain is the annavari estimate which is submitted by the village patwari. The annavari represents the relation of the crop reported on to the normal crop per acre, but it is based on guess-work.

The result is that year after year, the crop forecasts made have proved either an under-estimate or an over-estimate, generally the former. In the case of two crops—cotton and

¹ I am grateful to Dr. A. L. Bowley and Mr. Sundararama Sastri for help in regard to the method and the tables.

² *Asiatic Quarterly*, 1932, p. 440.

jute—it is possible to test the forecasts by a post-mortem examination. Such a test showed that in both cases the forecasts had been under-estimated. In the case of cotton, the difference is 17 per cent and in the case of jute, 18.6 per cent. The annual average production of cotton for ten years, was 5,380,000 bales, but the post-mortem examination showed that it was 838,000 bales less than the actual crop of those years. In the case of jute, the divergence has been even wider. In a single year (1922) the difference came to 52 per cent. (The forecast was 47.37 million bales; but the actuals came to 64.36 million bales). The area under improved crops has been increasing at a rapid pace during the decade 1920-30; from 2,507 acres in 1920-21, it rose to 12,016 acres in 1930-31. It is true that such under-estimation has made the statistics rather defective as commercial information, but the error is 'systematic', and as we are here dealing with only 'relatives', it does not affect the result tangibly.

The position in respect of industrial production is slightly better, because although there are no recorded statistics of production in unorganized industries, the statistics of production in the organized industries are fairly accurate, within certain limits. In the case of textiles (cotton and jute), we have statistics for a fairly long period, and for iron and steel, sugar, coal, paper, etc., we have complete statistics for the last decade. The publication, from September 1933, of the *Monthly Survey of Business Conditions* has greatly improved our knowledge of production in the chief organized industries, but we have still only a hazy knowledge of unorganized industries, which employ the great majority of our industrial population. Hence the need for a comprehensive economic survey, as recommended by Dr. Bowley and Mr. Robertson.

The progress of industrial production has been rapid since the War. The advance has been phenomenal in sugar and large in cement and in iron and steel. The value of organized industrial production today may be between one-third and one-half of that of primary products. The progress has been even more rapid since 1929.

Four statements and a graph to illustrate them are given below. The first two deal with agricultural production (chief crops) and the next two deal with industrial production (chief industries). The period taken for the analysis is the 12 years from 1920-21 to 1931-32. The average of the estimated pro-

duction (both agricultural and industrial) during the years 1920-21 and 1921-22 is taken as the base. On this basis the relatives of the several commodities for the successive biennial periods are calculated. The general or composite index number of production for each biennial period is a weighted average of the relatives, the weights being proportional to the values of the several commodities. Throughout, the price per unit of the commodity is taken as constant. For all agricultural commodities the average wholesale prices in the years 1920-21 and 1921-22 (base period) are taken as the prices per unit. As prices for all the industrial products for the base period are not available, those of the prices which are given in the *Indian Trade Journal* (cotton yarn, piecegoods, jute bags and gunny cloth, and sugar) are taken for that period, and the rest are standard prices recommended by the Tariff Board. These prices are only a means to get the weights, and slight variations in weights do not alter the composite index number to any material extent.

In Tables I and III average estimated production and value of each commodity are given; and in Tables II and IV, the relatives with the respective weights assigned to each commodity are given. The formulae used in calculating the composite index number are :—

1. Weighted arithmetic mean.

$$100 \times \frac{\sum p_0 q_1 \times \frac{q_1}{q_0}}{\sum p_0 q_1}$$

p_0 price per unit of the commodity in the base year.

q_0 production of the commodity in the base year.

q_1 production of the commodity in the given year.

2. Aggregative type.

$$100 \times \frac{\sum p_0 q_1}{\sum p_0 q_1 \times \frac{q_0}{q_1}}$$

3. The Median.

The weighted arithmetic mean is the biased II type of Fisher (refer Fisher's *Making of Index Numbers*). In Appendix II, Art. 8 of the same book it is pointed out that for the arithmetic mean this is the best system of weighting, because the upward bias possessed by the average has to be counteracted by a downward bias in weighting. As for the aggregative type, it is pointed out by Fisher that the two types differ very little and hence, for the sake of convenience in calculations the given formula is chosen.

TABLE I
Agricultural Production (Quantity and Values)
(Average of two years)

Commodity	Average Price per Unit in 1920-21 and 1921-22 (base period)	1922-23 and 1923-24		1924-25 and 1925-26		1926-27 and 1927-28		1928-29 and 1929-30		1930-31 and 1931-32	
		Quantity	Value (Crores of Rs.)	Quantity	Value (Crores of Rs.)	Quantity	Value (Crores of Rs.)	Quantity	Value (Crores of Rs.)	Quantity	Value (Crores of Rs.)
Rice (millions of tons)	Rs. 9 per cwt.	31	538	30.9	556	29	504	31.5	567	32.6	587
Wheat (millions of tons)	Rs. 9-1-0 per cwt.	9.9	179	8.8	159	8.4	152	9.5	172	9.2	167
Sugar-cane (millions of tons)	Rs. 55 per 500 lbs.	3.2	79	2.8	69	3.3	81	2.7	67	3.6	89
Tea (million lbs.)	Rs. 0-9-3 per lb.	343	20	369	21	392	23	418	25	392.6	23
Cotton (million bales)	Rs. 50-9-0 per cwt.	5.2	94	6.2	112	5.5	100	5.5	100	4.6	83
Jute (million bales)	Rs. 300-6-0 per ton.	8.3	45	10.5	57	10.1	55	10.7	58	5.7	31
Linseed (thousand tons)	Rs. 12-6-0 per cwt.	568	14	551	14	377	9	351	8	394	10
Rapeseed (thousand tons)	Rs. 11-6-0 per cwt.	1179	28	1065	26	922	22	1002	23	1014	24
Sesam (thousand tons)	Rs. 15-4-0 per cwt.	463	14	467	14	479	14	430	13	495	15
Groundnuts: nuts in shell (millions of tons)	Rs. 13-4-0 per cwt.	1.2	24	1.8	36	2.4	48	2.9	58	2.9	58
Indigo (thousand cwt.)	Rs. 415-9-0 per cwt.	44	2	25	1	15	1	14.5	1	12	1
Coffee (million lbs.)	Rs. 59-3-0 per cwt.	22	2	26	3	35	4	33.5	4	33	4
Rubber (million lbs.)	Rs. 78-0-0 per cwt.	13	1	18	2	25	3	27.5	3	22	2
Jowar (millions of tons)	Rs. 6 per md.	5.8	95	5.6	91	5.9	96	6.3	103	6.6	108
Bejra (millions of tons)	Rs. 6-5-0 per md.	2.3	41	2.1	37	2.5	44	2.0	36	2.7	48
Maize (millions of tons)	Rs. 5 per md.	2.1	29	1.8	25	2.1	29	2.2	30	2.35	33
Gram (millions of tons)	Rs. 7 per md.	4.9	94	4.1	78	3.6	69	2.9	58	3.6	69
Barley (millions of tons)	Rs. 10-4-0 per cwt.	3.0	62	2.6	54	2.4	50	2.4	48	2.4	48

TABLE II
Agricultural Production—(Index Numbers)
Base: Average of 1920-21 and 1921-22 = 100

Commodity	Average of 1922-23 and 1923-24		Average of 1924-25 and 1925-26		Average of 1926-27 and 1927-28		Average of 1928-29 and 1929-30		Average of 1930-31 and 1931-32	
	Index	Weight	Index	Weight	Index	Weight	Index	Weight	Index	Weight
Rice	102	40	101	41	95	37	103	42	107	42
Wheat	121	13	107	12	102	12	116	13	112	12
Sugar-cane	128	6	112	5	132	6	108	5	142	6
Tea	111	1	119	1	127	2	135	2	127	2
Cotton	130	7	155	8	138	8	137	7	115	6
Jute	177	3	223	4	215	4	228	4	121	2
Linseed	161	1	153	1	107	1	99	1	115	1
Rapeseed	117	2	105	2	91	2	99	2	100	2
Sesam	103	1	104	1	106	1	96	1	110	1
Groundnuts	120	2	180	3	240	4	290	4	290	4
Indigo	80	...	45	...	28	...	26	...	22	...
Coffee	105	...	124	...	167	...	160	...	157	...
Rubber	118	...	164	...	228	...	250	...	200	...
Jowar	89	7	86	7	91	7	97	8	102	8
Bajra	100	3	91	3	109	3	87	3	117	3
Maize	91	2	78	2	91	2	96	2	102	2
Gram	111	7	93	6	82	5	66	3	82	5
Barley	107	5	92	4	86	4	86	3	86	3
Weighted Arithmetic Mean	...	111	112	113	113	111	111	113	116	116
Aggregative type	...	109	107.4	106	106	102	102	106	112	112
Median	...	100	106	108	108	101	101	101	115	115

TABLE III
Industrial Production (Average of two years)

Commodity	Average price in base period.	1920-21 and 1921-22	1922-23 and 1923-24		1924-25 and 1925-26		1926-27 and 1927-28		1928-29 and 1929-30		1930-31 and 1931-32	
		Quantity	Quantity	Value (Crores of Rs.)	Quantity	Value (Crores of Rs.)	Quantity	Value (Crores of Rs.)	Quantity	Value (Crores of Rs.)	Quantity	Value (Crores of Rs.)
*Cotton yarn (millions of lbs.).	Rs. 1-8-0 per lb.	677	661.5	74.55	790.3	88.91	808	90.9	741	83.36	916.5	103.11
Cotton cloth (millions of yards) ...	Rs. 0.4 per yard	165.6	1713.5	68.54	1982.0	78.48	2324	92.96	2116.5	84.66	2651.5	106.06
Jute bags (millions) ...	Rs. 0.46 per bag	438.3	365.5	16.81	419.4	19.29	437	20.06	480.4	22.10	478.2	22.00
Jute cloth (millions of yds.) ...	Rs. 0.2 per yard	1314	1187.5	23.75	1402.5	28.05	1482	29.64	1560.5	31.21	1461	29.22
Sugar (thousands of tons) ...	Rs. 470 per ton	74.3	84.4	3.97	79.4	3.74	120.4	5.62	105.0	4.94	189.9	8.93
Coal (millions of tons) ...	Rs. 9 per ton	186.5	19.4	17.46	21.1	18.99	21.7	19.53	23.0	20.70	22.8	20.52
Cement (thousands of tons) ...	Rs. 53 per ton	112	193.0	1.03	321.	1.71	512	2.71	555	2.95	555	2.95
Paper (Do.) ...	Rs. 464 per ton	29	25.0	1.16	27.1	1.26	33.0	1.53	39.1	1.82	39.1	1.82
Pig Iron (Do.) ...	Rs. 34.5 per ton	339.6	454.9	1.57	876.3	3.02	1021.3	3.52	1116.5	3.85	1085.5	3.75
Steel (Do.) ...	Rs. 180 per ton	119.2	131.3	2.36	284.0	5.11	394.5	7.11	344.0	6.19	442.0	7.96

* As we are here comparing the growth of industrial activity at different periods, the question of double counting does not arise.

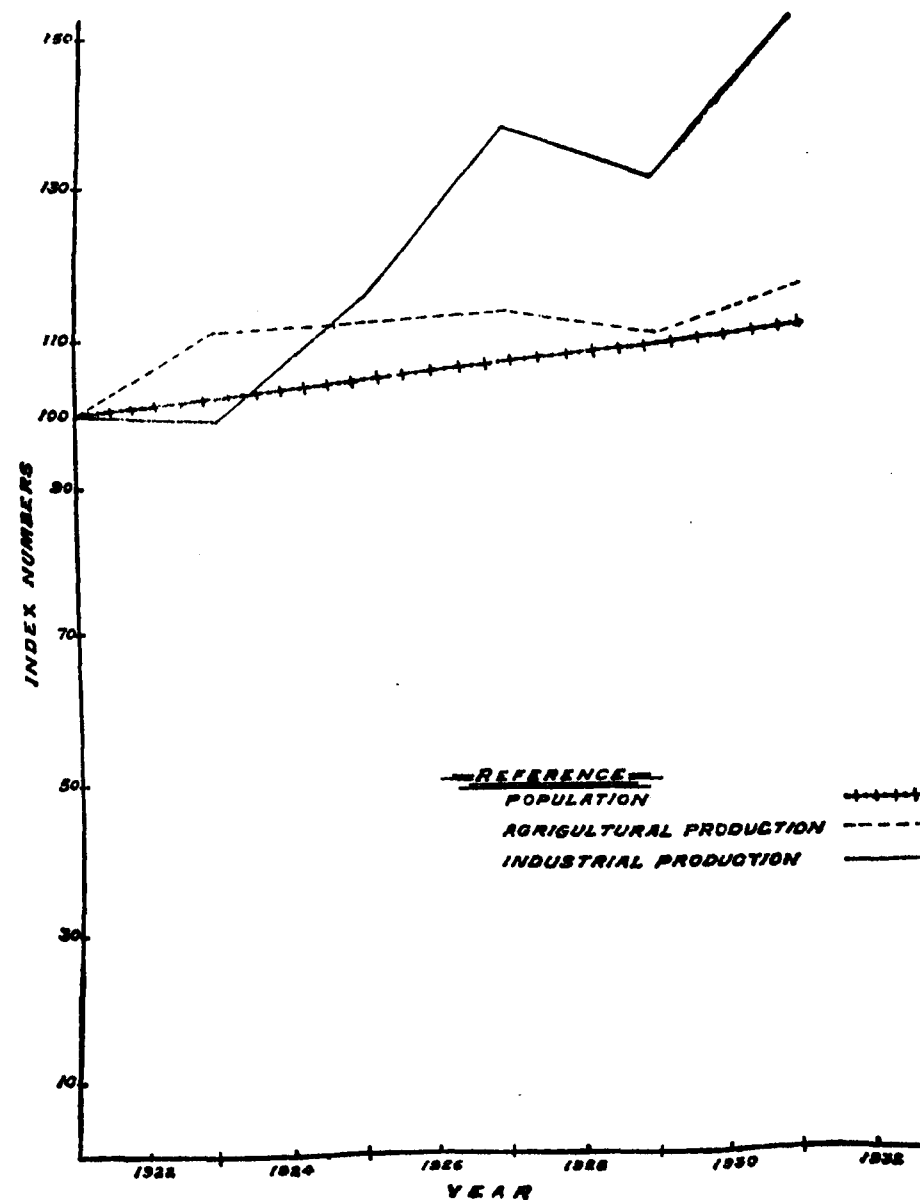


TABLE IV
Industrial Production: Index Numbers
Base: Average of 1920-21 and 1921-22 = 100

Commodity	1922-23 and 1923-24		1924-25 and 1925-26		1926-27 and 1927-28		1928-29 and 1929-30		1930-31 and 1931-32	
	Index No.	Weight	Index No.	Weight	Index No.	Weight	Index No.	Weight	Index No.	Weight
Cotton yarn	97.5	35	103.5	36	119.5	33	109.5	32	136	34
" cloth	103.5	32	118.5	31	140.5	34	128.0	32.5	161	35
Jute bags	83	8	96	8	100	7	110.0	8	109	7
" cloth	89	11	107	11	112.5	11	118.5	12	112	9
Coal	104	8	113	8	116	7	126	8	122	7
Sugar	114	2	107	1.5	162	2	141	2	256	3
Steel	110.5	1	238	2.0	331.5	3	289	2	320	1
Pig Iron	129.5	1	258	1.0	301	1	329	1.5	371	2.5
Cement	172.5	1	286.5	1.0	457.5	1	485.5	1	504	1
Paper	86	1	93.5	0.5	114.0	1	134.5	1	138	0.5
Weighted Arithmetic Mean	99		115		137		130		151	
Aggregative type	98		111		128		122		144	
Median	104		110		130		131		149	

In result, we obtain the following indices of population and production during the period:—

	1920-21 to 1921-22	1922-23 to 1923-24	1924-25 to 1925-26	1926-27 to 1927-28	1928-29 to 1929-30	1930-31 to 1931-32
Population ¹	100	102	104	106	108	110.4
Production ²						
(1) Agricultural	100	111	112	113	111	116
(2) Industrial	100	99	115	137	130	151

It may be clear from the above that agricultural production has kept pace with population, and that industrial production has increased much faster than population. In the decade 1920-30, population increased by 10.5 per cent., but this is abnormal for India, seeing that in the three previous decades, population increased only by 2.5, 7.1 and 1.2 per cent., respectively. The increase of population between the biennial periods 1920-21 to 1921-22 and 1930-31 to 1931-32 had been 10.4 per cent, but agricultural production increased by about 16 per cent. and industrial production by 51 per cent. during the same period. The slow growth of agricultural production is due largely to the declining demand for cereals, especially dry grains, which are being supplanted by rice and wheat. India formerly exported large quantities of wheat, but today most of it is consumed at home. Thus some classes at any rate have raised their standard of living. Considering the limited scope for the expansion of rice cultivation, it is likely that India will have to depend increasingly on imported rice in future.³ However, there is a large compensating factor in the steady growth of industrial production.

A decade, even twelve years, is far too short a period for correlating population and production. The thirty years between 1900 and 1930 may provide better scope for such a correlation. Full statistics of industrial production for the period are not available, and therefore only cotton yarn, piece-goods, jute cloth and gunny bags, and coal are taken, but the

¹ It is assumed that population increased uniformly from year to year.

² Indices worked on the Weighted Arithmetical Mean.

³ See *Madras Census Report* (1931) I, p. 47.

figures for agricultural production are fairly complete. The following table gives quinquennial indices of population and agricultural production, worked out by Fisher's weighted aggregate index method.

Period	Population	Agricultural production	Industrial production
1900-01—1904-05	100	100.0	100
1905-06—1909-10	104	103.0	142
1910-11—1914-15	107	123.5	187
1915-16—1919-20	103	124.5	255
1920-21—1924-25	109	120.0	251
1925-26—1929-30	113.5	129.0	289

Population increased by 19 per cent. between the two censal years 1901 and 1931, but if we compare the first and last quinquennia, as in the case of production, the increase is only 13.5 per cent. Thus, when population increased by 13.5 per cent. production increased by 29 per cent. The index would be much higher if we take the arithmetic mean; for the production of several commodities increased enormously during the period. Groundnuts, for example, increased from 93,000 tons to 2,466,000 tons, i.e. 2,500 per cent. Industrial production has also increased rapidly; the annual production of cotton textiles increased from 500 million yards in 1900 to 2,654 million yards in 1931-32. Hardly any pig iron was made in 1900; but 1,085,000 tons of it was made in 1931-32.

Thus, whatever period we may take, there is no indication that population has outstripped production. It does not mean that India is not overpopulated. It may, or may not be; that is a different question, and I do not propose to deal with it here. All I can see from the statistical study carried out is that if India was not overpopulated in 1900—and that is the view of some—it is not overpopulated now. Production has been keeping pace with population; and in some lines—e.g., industry, commercial crops—it has increased at a much more rapid pace than population. And this progress has been kept up during the world depression—and that is a significant fact.

KATYAYANA AND THE MITAKSHARA LAW OF STRIDHANA*

C. VENKATA DEEKSHITULU, B.A., M.L., Advocate.

I

THE law of Stridhana as it is now administered in the Mitākshara provinces is not the Sanskrit law on the subject but a distorted version of it. Certain misconceptions have now become part and parcel of the law, as a result of an omission to look into the history of its development, and an incorrect exposition of Sanskrit writings on the subject. There is a fallacy current among the judges of the British Indian Courts and text-writers on Hindu Law that Stridhana is defined by Sanskrit Lawyers on a basis of enumeration, and that a woman acquires a heritable proprietorship only in those items of property which are specifically mentioned by one or other of the sages as falling within that group. The view of Vigñānēśwara that the term Stridhana is etymological and not technical in its import has not been accepted, and the other commentators of the Mitākshara school have been either misunderstood or misinterpreted so as to fit in with the prevailing view. And, instead of recognising, as it should have been done, that all property obtained by a woman is taken by her for an absolute and heritable proprietorship, a distinction which has no textual basis at all is introduced, and a line is drawn between heritable and non-heritable proprietorship.

Thus the law relating to the proprietary capacity of women came to be dominated at the present day by the rule of enumerated categories on the one hand, and non-heritable proprietorship on the other. Neither of them either individually or taken together gives a solution of certain difficulties which arise in the administration of the law from day to day. They have created problems instead of solving them, and introduced needless complexities into the simple and straightforward Sanskrit law on the subject. The idea that an item

* Part of the work done as a research student in Hindu Law in the University of Madras during the years 1930-32.

of property can be classed as Strīdhana if only some sage has mentioned it as such, leaves the nature of certain types of property in the hands of a woman unaccounted for; but this difficulty did not become apparent until recently because, the vacuum thus created was almost filled in by the rule of limited estate and reversionary succession, borrowed from the *Dāya-bhāga* and imported into the *Mitākshara* system by the early European judges. As a consequence, the term Strīdhana is at the present day used in contradistinction to 'limited estate', and important items of property which would otherwise have come under Strīdhana, are placed in this category.

It is this idea of a limited estate that led to the rejection of *Vigñānēśwara's* view that Strīdhana is etymological and gave a wrong perspective obscuring the proper import of the term. From the earliest times Strīdhana had nothing but an etymological significance in Hindu Law. Originally, a woman could not acquire property for herself independently of her husband or protector; but gradually the rule was relaxed in her favour by allowing her a few special modes of acquisition like gifts at the time of a marriage, or other festive occasions. As time advanced the number of these modes gradually increased. But from the beginning, where a woman was allowed to take any property for herself, it was regarded as her own, both for purposes of enjoyment and inheritance. In order to distinguish this property from that belonging to the joint family or to the husband, it was declared to be impartible and referred to as Strīdhana, it being the property of women. Strīdhana literally means woman's property, and since the earliest times it had no other significance. There is absolutely no question of its denoting something technically called so, because of this history of the development of the law. Excepting, of course, the *Dāya-bhāga*, at no time did Hindu Law recognise two different types of property in the hands of a woman, or admit of the heirs of someone else succeeding to the same. If a woman was allowed to take a certain property she enjoyed it for herself, subject if need be, to certain limitations on her powers of disposal; but on her death it always passed on to her own heirs, and there was no question of reversionary succession.

This origin of the term Strīdhana is lost sight of by those

who speak of enumerated categories and the technical nature of Strīdhana. No doubt, the *Smritis* speak of certain classes of property as constituting Strīdhana, but they never define it as including those only. The enumeration lost its significance, if it had any, very early; and it was made a means of enlarging the scope of woman's property but not a method for its restriction as at the present day. Whatever be the ways in which a woman came across different items of property they were equally regarded as her own, and there was no distinction between property which was gifted by a father or inherited from a husband. The one was regarded as her property no less than the other, and on her death both of them passed to her heirs according to the special rules of succession laid down for that purpose.

The Sanskrit law of woman's property is thus extremely simple in its nature. There was no question of technical or *Pāribhāshika* Strīdhana. The term Strīdhana always meant what it signified ordinarily, and as the position of women advanced, its scope widened. Long before the age of *Vigñānēśwara*, woman came to occupy the same position as man with regard to her powers of acquisition, except, perhaps, for one or two prohibitions based on her position in Hindu Society. The question as to how she took this property never presented itself to the minds of the Sanskrit legists because, the idea of a life-estate as we now understand it was unknown to Hindu Law until *Jimūtavāhana* introduced it. The Sanskrit legist regarded it as her own, and to him there was no possible alternative as at the present day.

II

THE above are the inevitable conclusions which cannot be avoided on a careful study of the Sanskrit writings on the subject. The ideas of limited estate and reversionary succession are so dexterously woven into the body of the present law, that one finds it extremely difficult to take a detached view and believe that they are foreign notions. But if we for a moment are able to forget the existence of these ideas, it becomes easy for us to realise that the term Strīdhana can only have an etymological significance. What then would be the nature of property inherited by a woman from her

husband? There is only one solution, and we would immediately and unhesitatingly answer that it is Strīdhana or woman's property. Remove the doctrine of limited estate from the scene of Hindu Law, and then the doctrine of technical nature of Strīdhana necessarily vanishes with it. For these reasons I would first deal with this idea of a limited estate as we now know it and try to establish conclusively that Hindu Law down to the time of Jīmūtavāhana knows nothing of it. The question of a limited estate being thus shut out, I would then trace the development of the law on the subject and show how it reached its culmination in the statement of Vignānēśwara that Strīdhana is etymological in its import and not technical. I would lastly point out how the other writers of the school like Mādhava and Dēvanna Bhatta fully realised the implication of the Mitākshara statement of the law, and closely followed it in their expositions of the subject.

The modern doctrine of limited estate has a two-fold aspect of general non-alienability and reversionary succession. Of these the second is the really important one because, inalienability in one form or another is the general policy of the Dharma Sāstras; and hence in discussing the law on the subject greater stress will have to be laid on the latter. The Hindu Law down to the time of Jīmūtavāhana and the Mitākshara system in particular knows nothing of this idea. We are not concerned here with Jīmūtavāhana's school of thought since it is an innovation and a departure from the general law. The earliest indication of the idea of a limited estate in Hindu Law is the following text of Kātyāyana.

अपुत्रा शयनं भर्तुः पालयन्ती व्रते स्थिता ।

भुञ्जीतामरणात् क्षांता दायदा ऊर्ध्वमाप्नुयुः ॥

It means that the sonless widow preserving unsullied the bed of her lord shall enjoy with moderation, and that the Dāyādas take it after her. This verse is nothing if not ambiguous. It does not state what is it that is to be enjoyed by the widow, nor does it mention what goes to the Dāyādas, or who these Dāyādas are. It may be a simple direction to the widow who under the Hindu Law is required to lead a life of abstinence, that she should not waste the property of her husband, or even

of herself, and even admitting that it imposes a restraint on her power of alienation, it carries us no farther. The Dāyādas referred to may be the heirs or coparceners. The Smritichandrika says that it refers to coparceners and not to heirs. Then again, there is nothing to point out that the heirs are not her heirs but those of her husband; and authority is not wanting to show that the text may after all refer to the Strīdhana property of the woman herself.

No inference in favour of the existence of a limited estate can be drawn from the fact that the text ordains moderate enjoyment of the property. It is the general policy of the Dharma Sāstra to see that property is preserved for the needs of the members of the family, and alienation is permitted only in cases of necessity. There was always a prohibition against extravagance. Not only a female proprietor, but even a male owner was prohibited from alienating property which was his in the fullest sense of the term, and which on his death undoubtedly passed on to his heirs. The following text usually attributed to Vyāsa clearly indicates the position taken up by the Smritis.

ये जाताः येऽप्यजाताश्च ये च गर्भे व्यवस्थिताः ।

वृत्तिं ते त्वभिकांक्षन्ति न दानं न च विक्रयः ॥

Or again take another text of the same Rishi.

स्थावरं द्विपदं चैव यद्यपि स्वयमर्जितम् ।

असंभूय सुताम् सर्वांश्च न दानं न च विक्रयः ॥

This shows that the rule of non-alienability extended even to the self-acquisitions of a man as apart from property which has come into his hands from his ancestors. It cannot be said for a moment that these texts deny the heritable proprietorship of a man in his property. No doubt, there is a prohibition against a sale or gift in the first verse; but it does not make the person any more a life-estate holder entitled only to the enjoyment of the usufruct of the property. The underlying idea is a prohibition against extravagance and improper alienation in order that the property may be conserved for the family needs; and there is no implication of a life-estate as in the English Law.

In the light of these remarks the text of Kātyāyana which is supposed to indicate the existence of a life-estate in Hindu Law may now be examined in detail. The text says that the sonless widow is to enjoy the property with moderation till her death. (क्षान्ता आमरणात् भुञ्जीत). From the word क्षान्ता no adverse inference can be drawn against her powers of enjoyment for the reasons stated above. If a male proprietor himself is asked not to dispose of his property, much more so a woman who is required to be under the protection of somebody and who is very little experienced in such matters. The words cannot, therefore, be understood to limit her estate as we would now have it. They are a mere prohibition against immoderate enjoyment and disposition for purposes not in the interests of the family.¹ The word भुञ्जीत also does not lend itself to the interpretation that only the usufruct is to be enjoyed and not the corpus, for the word carries the sense of enjoyment, or भोग and this can be either of the property itself, or of its yield.² Moreover the text itself is affirmative and not negative. It is not proper to give it a meaning which will have to be read into it and thus take away the rights of the widow. Granted that the text ordains moderate enjoyment of the property, how does it follow that she is

¹ This interpretation is made possible by taking the words क्षान्ता and भुञ्जीत together. But there is the possibility of a different interpretation which is very much removed from any idea of a restriction on the powers of enjoyment of the widow. The word क्षान्ता may go with the word अपुत्रा itself instead of the verb, and then the verse would mean that the widow being patient or forgiving (towards insults perhaps) should enjoy the property till her death. Indeed, the *Smritichandrika* in one connection interprets the word क्षान्ता thus: दायधिकारोत्तरधनविनियोगप्रतिबन्धं सहमाना.

² Cf. the following text of Devala.

वृत्तिभरणं शुल्कं लाभश्च स्त्रीधनं स्मृतम् ।

भोक्त्रो तत्स्वयमेवेदं पतिर्न हि त्यनापदि ॥

Here the word भोक्त्रो which comes from the same root as भुञ्जीत (viz. भुज्) is used to indicate that the woman is the absolute and complete owner of the property, and that she alone and not her husband is entitled to enjoy it.

denied the power of alienation. To say that she is to enjoy the property is one thing, and to deduce from it that she cannot alienate it is an entirely different thing.

If thus the direction in the text in regard to moderate enjoyment of the property fails to lend any support to the existence of a life-estate, much less does the reference to Dāyādas indicate any idea of reversionary succession to the property in the hands of a woman. As has already been remarked, the use of the word Dāyādas is very ambiguous, and to interpret it as heirs of the husband would be to do violence to the construction. It may be that the Dāyādas referred to are her own heirs who take after her the property in her hands. We are supported in this view by the following considerations.

Except Jīmūtavāhana and his school no other commentators have understood the text to refer to reversionary succession. The Mitākshara does not refer to the text at all, and what the *Smritichandrika* says on its interpretation leaves no doubt that the mind of the Mitākshara scholars was far from any idea of reversionary succession. The following Sanskrit passage is quoted from the *Smritichandrika*. This is what Dēvanna Bhatta says in connection with the widow's right of succession to her husband.

यदपरमुक्तं कात्यायनेन, अपुत्रा शयनं भर्तुः पाकयन्तो व्रते स्थिता ।
भुञ्जीतामरणात् क्षान्ता दायदा ऊर्ध्वमाप्नुयुरिति । क्षान्ता दायधिकारोत्तरधन-
विनियोगप्रतिबन्धं सहमानेत्यर्थः । तदविभक्तदशायां रक्षणभरणासमर्थेषु
कार्यान्तरनिमग्नेषु वा श्वशुरादिषु पत्या स्वयमेव जीवनार्थमुपात्त अविभक्तद्रव्य-
विषयं । विभक्तद्रव्यविषयत्वे वृद्धमन्वादिवचनविरोधापत्तेः । रक्षणादिसमर्थेषु
श्वशुरादिषु अविभक्तधनग्राहिषु सत्सु तैरेव गृहोत्तधनैः भरणं कार्यः ॥¹

He understood the text to refer to property given to a woman for purposes of maintenance from the joint family estate. She is to maintain herself out of it and what remains after her death perhaps reverts to the joint family. It does not therefore, according to him refer to inheritance by the widow, nor

The *Smritichandrika* on succession to the estate of a sonless person.

does it point to any reversionary succession. It is unnecessary to mention that the view of Dēvanna Bhatta is entitled to great weight.

A reference to Kautilya's Artha Sāstra in this connection is of great importance. There is a Sūtra in that work which is word for word almost the same as Kātyāyana's text, and which throws much light on its interpretation. It is given below :

अपुत्रा पतिशयनं पालयन्ती गुहसमीपे स्थिता स्त्रीधनं वा आयुः
क्षयात् भुंजीत । आपदर्षं हि स्त्रीधनं ऊर्ध्वं दायार्दं गच्छेत्¹ ॥

Here the doubt about that which is to be enjoyed by the widow is solved. The Sūtra refers to Strīdhana, or woman's property, (whatever it may mean) and not to property inherited from the husband. And even in the case of Strīdhana she is to enjoy it as long as she lives. The next few words which say that woman's property is intended to be utilised in times of difficulty (आपदर्षं हि स्त्रीधनं) show that it is meant to be enjoyed with moderation and not wasted at will. The general tenor, however, of Kautilya's discussion is to restrict and control woman's free power of alienation over her property. He defines the term Strīdhana later on as वृत्तिरावश्यकं वा स्त्रीधनं², and it may be translated as meaning that maintenance and ornaments are woman's property.

The word भुंजीत occurs here also, and it does not seem to be intended to say that she is to enjoy the usufruct alone and not the corpus. It only means that there should be no waste because the property is आपदर्षं or intended as a protection against calamities. As regards the question who the Dāyādas are, there is no place for any doubt here; the Strīdhana property cannot go to any one except her own heirs. Hence it is clear that Kautilya also did not intend the words to refer to a life-estate or reversionary succession. This Sūtra is so similar to Kātyāyana's text that it lends support to the view that Kātyāyana's text too could not have referred to reversionary succession.

¹ Kautilya's Artha Śāstra, Book III, ch. 2.
² Ibid.

I have so far endeavoured to examine the external evidence available in aid of the proper interpretation of the text in question. But what about Kātyāyana himself and the important light which he throws on the correct understanding of this text? The verses of the sage play no mean part in the law of woman's property, and just like the text now under discussion there is another important text with which I will deal at length later on. It refers to Strīdhana and runs thus :

प्राप्तं शिल्पेस्तु यद्विस्तं प्रोया चैव यदन्यतः ।
भर्तुः स्वाम्यं सदा तन्न शेषं तु स्त्रीधनं स्मृतम् ॥

It says that the husband has dominion over property acquired by mechanical arts, or by gift of affection from a stranger. But all other property, all the rest of it whatever it may be, in the hands of a woman is termed Strīdhana. If really woman could have had two sets of property in her hands, one which is her Strīdhana strictly so called, and another which she is to enjoy for life and pass it on to the heirs of the original propositus on her death, it is difficult to understand why Kātyāyana should have made so sweeping a statement as that contained in this verse. He is positive that the rest of the property in the hands of a woman excluding the two items mentioned in the first line of the verse, is her Strīdhana. He says it is traditionally known to be such, and there is no dispute about it for he is emphatic, the expression used being शेषं तु स्त्रीधनं स्मृतम्. It is, indeed, difficult to get over this statement if we credit Kātyāyana with a knowledge and a recognition of the principles of a life-estate and reversionary succession in the other verse. The fact is that Kātyāyana had no such idea at all; and he was only laying down a rule of moderate enjoyment in that text.

III

BEFORE proceeding to deal with the history of the development of the law of woman's property, it is necessary to pause a little and turn our attention to another aspect of the subject. Just as the question of a limited estate has been examined from the point of view of Sanskrit authority in the previous section, the idea that an item of property can be Strīdhana

if only it is one of certain enumerated categories may be dealt with similarly in the present section. The view seems to have for its starting point the text of Manu on the six-fold nature of Strīdhana. Manu is the earliest of the metrical Smṛiti writers and his views on any topic have a far-reaching effect. Though sage after sage who succeeded Manu enlarged the scope of woman's property, and commentator after commentator pointed out that the enumeration of six types was intended as a prohibition against a smaller number, but not against the inclusion of a greater number of items, still this enumeration idea has not lost its hold on the modern mind. The irony of it all is that Manu himself is not properly understood.

The idea of enumerated categories is of importance today in relation to property inherited by a woman from her husband, or son and other male relatives. Such property is excluded from Strīdhana on the ground that it is not an enumerated item, and that, as such, it stands on a different footing from Strīdhana proper. But Manu himself made no such distinction and according to him inherited property was not distinguished from Strīdhana proper. The Manu Smṛiti does not provide for a life-estate and reversionary succession, and certain texts occurring in it can be explained only on the basis of inherited property being regarded as Strīdhana and taken by a woman for a heritable proprietorship.

The Manu Smṛiti is not only the oldest of the metrical Smṛitis but also contains references to times which the author himself must have regarded as the dim old past. There is a verse of Manu viii, 416 which is nothing but a floating tradition referring to the proprietary incapacity of women in such remote ages.

भार्या पुत्रश्च दासश्च त्रय एवाधनाः स्मृताः ।
यस्ते समाधिगच्छन्ति यस्यैते तस्य तद्धनम् ॥

As the Manu Smṛiti distinctly recognises the right of a wife to acquire property for herself in certain well-known ways, this verse can only refer to a far remote period when the wife like the son in the Roman Law had no right to acquire property for herself independently of the person to whose

authority she was subject. The reference to Bhārya was not intended to lay down any rule as to coverture based on the legal identity of the husband and the wife. Even from the earliest times women in Hindu society were required to be under the protection of somebody, and wifehood was the most ordinary state in which a woman proprietor was generally found. Naturally a girl could not acquire property on account of her tender age, and therefore the power to do so was usually contemplated in the case of a wife. The term Bhārya here bears an Upalakshana significance. This is illustrated by another text of Manu ix, 3 :

पिता रक्षति कौमारे, भर्ता रक्षति यौवने ।
रक्षन्ति स्थविरे पुत्राः, नखी स्वातन्त्र्यमर्हति ॥

It shows how a woman was required by law to be under the protection of somebody throughout her life, and how since the beginning of adolescence she was subject to the control of her husband throughout the period during which she may ordinarily be expected to acquire property.

But this absolute incapacity of women to acquire property for themselves became obsolete even by the time of Manu, and he himself must have felt that the origin of the rule was lost in the mists of antiquity. He mentions six modes by which a woman could acquire property for herself: Manu ix, 194.

अध्यय्याबाह्निकं दत्तं च प्रीतिकर्मणि ।
भ्रातृमातृपितृप्राप्तवद्विधं स्त्रीधनं स्मृतम् ॥

It might be said that this as an exception to the rule regarding the proprietary incapacity of women and thus we may avoid any possible conflict between the two. In this view the enumeration contained in the text assumes some importance and lends support to the idea that Strīdhana consists of certain specific categories of property. But this is not the proper way of looking at the text, and the problem does not admit of any such easy solution. The Manu Smṛiti recognises the right of certain female heirs to inherit to their male relations.

The following verse is a clear authority on the right of inheritance of the mother and the father's mother. Manu ix, 217 :

अनपत्यस्य पुत्रस्य माता दायमवाप्नुयात् ।
मातर्यपि च वृत्तायां पितुर्माता धनं हरेत् ॥

If there are only six modes of acquisition of property available to a woman, it is difficult to reconcile the recognition of this right of inheritance with that rule. The only possible explanation is that when Manu speaks of Strīdhana as consisting of six types, he was only mentioning the traditional exceptions to the traditional rule about the proprietary incapacity of women. Neither in the verse about the incapacity of the wife and others, nor in the text on the six-fold nature of Strīdhana does Manu lay down a rule of law. The words used by him on both occasions have a special significance. In the one he says अधनाः स्मृताः, and in the other स्त्रीधनं परिकीर्तितम्. Both the स्मृति and the परिकीर्तन can only refer to a tradition and not to the law laid down by Manu. It is certain that even in those early days the law of Strīdhana started its expansion beyond the six-sided limit, and that inherited property came to be looked upon as any other item of woman's property. It would otherwise be extremely difficult to determine the nature of such property. At the present day we easily turn round and say that it is taken for a limited estate. But there is no reference to this idea of a limited estate anywhere in the Manu Smṛiti; and it is generally admitted that it is a much later idea in Hindu Law. Thus, if property inherited by a woman from her son is taken for a heritable proprietorship, it follows without any difficulty that property inherited by a widow from her husband was taken in the same way. What else can such property be except Strīdhana, unless we say its nature is indeterminate?

It is therefore clear that the enumeration lost its significance even in the days of Manu; and that Strīdhana was etymological and not technical in its nature. Whatever property the woman was allowed to acquire, she took it for a heritable proprietorship. It is not necessary in this connection to examine how other Smṛiti writers dealt with this

idea. Indeed, none of them except Manu says anything about the number of categories of property that come under Strīdhana; they only enumerate certain other items also as constituting it. It is Manu alone that seems to limit their number; and the misconception that Strīdhana is to be defined by enumerated categories owes its origin to this text of Manu to a great extent. The fact that some sages have mentioned items other than these six as constituting Strīdhana is sought to be used to show that they were only adding to the number of six mentioned by Manu. But it is clear from what has been said above that Manu himself must have attached no significance to the enumeration of six items by him. More than that, it must be deemed that he allowed women to take a heritable proprietorship in items of property which are in no way similar to these six and which form the bone of contention at the present day. Thus, the idea of defining Strīdhana by enumerated categories is as fallacious as the idea of a limited estate being known to the Mitākshara system of law.

IV

A word might be said in this connection about the results that follow from a rejection of the present day ideas about the limited estate and the technical nature of Strīdhana. Though, to a certain extent, I have dealt with them independently of each other, they are really supplementary and each derives its support for its existence from the other. The idea that Strīdhana is technical and that it forms one of two classes of property belonging to a woman is founded on the principle of a limited estate, which on the death of the intermediate owner passes on to the heirs of the original propositus. If this idea of reversionary succession is eliminated, the distinction between the two classes of property vanishes. It is therefore clear that they stand or fall together and that we cannot have the one without the other. When once these ideas are thrown overboard, certain difficulties which have arisen in the administration of the law at the present day would disappear; and the Law of Strīdhana becomes exquisitely simple and very favourable to women.

It would be enough if I give a few instances for this

purpose. For example, what is the nature of property earned by a prostitute? Do such earnings form a limited estate, or do they rank as her Strīdhana? It is nowhere stated in the Smritis or the commentaries that they form an item of Strīdhana; nor can they be considered to be a limited estate by any stretch of our imagination because, there is no possible person to whom we can trace reversionary succession with respect to such property in her hands. The present law therefore gives no direct solution to the problem. But under the pure Sanskrit law the answer is extremely simple, it is property earned by her and it is therefore her own. You cannot escape the fact that it is her property which she is to enjoy while she lives, and which on her death passes on to her heirs. Or again, take another instance. What are we to do with a treasure trove found by a maiden?¹ It might be said that the case of a prostitute was perhaps even then governed by custom; but this problem does not admit of any such way of escape. Here too, there is no specific enumeration in favour of its inclusion, and there is no possibility of tracing reversionary succession, if she chances to die before marriage. Such instances might be multiplied by referring to the case of a mother who receives a share on partition and dies before her husband, or to a maiden who receives a similar share and dies before marriage. In all these cases we are confronted with the same difficulty, and the idea that Strīdhana is technical consisting of certain enumerated categories lands us nowhere. These and other difficulties are occasioned by the doctrine of a limited estate and they necessarily vanish with it. The only question which it would then be necessary to determine is whether women can acquire property in a particular way; and if this is answered in the affirmative, there being no restriction on her capacity, the property would be taken by her with all the rights and incidents usually attached to full proprietorship, and on her death she would pass it on to her own heirs.

At the present day we say that a particular item of property which a woman is entitled to take by law is not her Strīdhana because, there is an alternative present before us in the form of a limited estate, however inadequate it may be. But if that

¹ Under the Hindu Law a treasure trove does not go to the king.

insufficient alternative too is taken away, we will be constrained to regard all properties in the hands of a woman as belonging to the same category and as constituting her Strīdhana. Woman may acquire property by inheritance, or on partition. She may stumble over a treasure trove; she may receive a gift; or she may purchase property. But in all such cases it cannot be any thing else except her own, and on her death it follows the line of succession specially laid down for property in her hands. Of course, there might be restrictions on her power of alienation and the law might say that in certain cases she is subject to the control of her husband. But this does not any the less detract from her ownership; and as Vignānēswara exclaims there might be dependence, but how does it conflict with the capacity to acquire property:

(अस्तु पारतन्त्र्यं, धनग्रहणे तु को विरोधः).

V.

THE same conclusions result from a study of the history of the law of woman's property from the earliest times. The term Strīdhana in Hindu Law had always an etymological significance and never a technical one. It meant nothing more or nothing less than what it indicates at first sight: woman's property. The extent of such property might be limited; it may consist of a few items or it may cover as wide a range as the law knows; but it always meant property which a woman obtained as her own; and succession to it is governed by the rules laid down in the chapter on Strīdhana. As the proper interpretation of the term Strīdhana has at the present day led to some confusion, it is advisable to use as far as possible the expression woman's property as its equivalent.

There are two terminal points which give us an idea of the area of development of the law during the age of the Dharma Sāstras. The starting point is the text of Manu about the proprietary incapacity of a wife, a son and a slave, quoted already.

भायी पुत्रश्च दासश्च त्रय एवाधनाः स्मृताः ।

यत्ते समधिगच्छन्ति यस्यैते तस्य तद्धनम् ।

It has already been pointed out that the use of the term wife here has only an illustrative significance as relating to women in general and not to the wife alone. The text does not refer to a legal identity between the husband and the wife during coverture, but indicates a general disability only; and the son, the slave and the wife are classed together because, they represent the three chief types of subordinate members in a patriarchal family. Starting with this proposition that a woman is absolutely incapable of acquiring any property, the law advanced gradually through its being relaxed in the case of a few specified items at first, and reached a stage in the end when Strīdhana came to be defined not by enumeration but by exclusion, and, but for one or two special exceptions, woman came to stand in the same position as man with regard to her powers of acquisition of property.

The other terminal is furnished by a text of Kātyāyana which also has been quoted in another connection. It runs thus :

प्राप्तं शिल्पैस्तु यद्विद्धं प्रीत्या चैव यदन्यतः ।

अर्तुः स्वाम्यं सदा तत्र शेषं तु स्त्रीधनं स्मृतम् ॥

This text is clear evidence to show that all property obtained by a woman except the two prohibited items is her own irrespective of the way in which it is acquired. It is not a rule laid down by Kātyāyana, but the recognition of an existing right, and just as Manu mentions one tradition he mentions another. Kātyāyana says: शेषं तु स्त्रीधनं स्मृतम्. The rest is regarded as Strīdhana, it is traditionally known to be the property of a woman and there is no gainsaying it. The exception of wealth obtained by mechanical arts, or as a gift of affection from a stranger, serves to prove the completeness of the expansion of the law on the point. The two exceptions are not arbitrary in their nature but are directed by the sound public policy of Hindu Law. The word Silpa translated as mechanical arts is explained as अश्वेदिकविद्या or लौकिकविद्या i.e. non-scriptural learning, viz. singing, dancing, painting, sculpture, etc. The Hindu idea is that on marriage all the capacities of a wife are hypothecated to her husband; and she

is required not to travel beyond the orbit of household duties and constant attendance on her husband. As Vaidikavidya (i.e. the study of the Vedas) was not available to women, they could not acquire property by their learning as men did; nor could they do so by mechanical arts because, that would conflict with their duty towards the husband and the household. Similarly the prohibition against accepting gifts from a stranger was to avoid temptation and to preserve conjugal fidelity and peace in the household. The intention was to obviate the possibility of domestic discord; and the woman being generally confined to the house, there is neither occasion nor necessity for her to receive a gift from a stranger. The Hindu Law-givers achieved their object not by a direct prohibition, but in a more telling way, by declaring that property obtained by violation of the rule goes to the husband and not to the woman herself.¹ Thus the law of Strīdhana passed through three phases; it began by a negation, and gradually developed by enumeration till it reached the final stage and ended by exclusion as indicated by Kātyāyana. By the end of the Smṛiti period, therefore the law had shaken itself free from all shackles and there was very little difference between the range of property of a woman, or that of a man. Kātyāyana emphatically declares that all other property excepting the two items was regarded as her own.

Dēvala and Kātyāyana are two of the minor prophets and traditionary revelation may be said to have come to a close with the latter. The last mentioned text is therefore, of special importance. Two centuries after Kātyāyana we enter upon the age of commentators with Asahāya, Viṣwarūpa, and Mēdhātithi at its head, and Vigñānēśwara as its brightest luminary. Kātyāyana, it may therefore be seen is very close to Vigñānēśwara; and as I will point out later he says almost what Vigñānēśwara says on the topic of Strīdhana. But before taking up the question of Vigñānēśwara's statement of the law, it is necessary to rapidly glance through the various stages of its development prior to his day.

In this connection it should be stressed at the beginning

¹ The idea of Kātyāyana is confiscation, but this seems to have changed later on. There is evidence to show that the text was construed as meaning that it lays down a restraint on alienation without the husbands' consent.

that neither in the Sūtras, nor in the Smritis do we come across anything like a definition of Strīdhana, as we now understand the term definition. Nobody including Viṣṇānēśwara ever attempted a definition; all that they do is to state a proposition, or to mention the various items which in their own day were recognised as constituting the property of women.

Following the accepted chronology Gautama¹ comes first. He refers to Strīdhana in general, but does not tell us what it consists of. He makes a special mention of Sulka however, and lays down a separate rule of succession for it.

Baudhāyana² is more enlightening and he mentions the mother's jewels, and Sāmpardāyika, or traditional property. Vasiṣṭha³ speaks of the mother's परिधान as equally divisible among the daughters, and this is usually understood to mean nuptial presents; but it may also mean household utensils or furniture. Lastly Āpastamba⁴ remarks that the furniture in the house and ornaments belong to the wife, and points out that according to some the wealth which she may have received from her relations goes to her. I am purposely leaving out Viṣṇu in this connection because, his antiquity is not undoubted. Taking stock of the position so arrived at, it is clear that the Sūtra writers included in woman's property her ornaments, the household utensils, the wealth given by relatives, the Sulka and the Sāmpardāyika or traditional property.

Coming down to the period of the Smritis, there are four important texts on the subject found in Manu, Yāgñavalkya, Dēvala and Kātyāyana, and a few other texts of Nārada and Vyāsa. Manu's text on the six kinds of Strīdhana has already been mentioned and it runs thus: Manu ix, 194.

¹ Gautama Sūtras xxviii, 24 स्त्रीधनं दुहितृणामप्रदानामप्रतिष्ठितानां च ॥
Do. xxviii, 25 भगिनी शुल्कः सोदर्याणामूर्ध्वं मातुः ॥

² II, 2, 3, 43. मातुर्लकारं दुहितरः, सांप्रदायिकं कभेरन्यद्वा ।

³ XVII, 46. मातुः पारीगर्ह्यं स्त्रियो विभजेत् ।

⁴ II, 6, 14, 9. परिभांडं गृहे अलंकारो भार्यायाः ज्ञातिधनं चेत्येके ॥

अथन्यथावाहनिकं दत्तं च प्रीतिकर्मणि ।

भ्रातृमातृपितृप्राप्तं वद्विधं स्त्रीधनं स्मृतम् ॥

I have already explained that this text could not have been intended by Manu as a rule of delimitation either in regard to the number or the nature of the items to be included in woman's property. The word स्मृतम्¹ is of great importance, it means that the verse is not an ordinance of Manu but the statement of a tradition. These items are remembered or recognised as forming woman's property. This is not however an exhaustive list, and they are only some of the items that go to constitute woman's property.

The next and the most important text in the law of strīdhana is that of Yāgñavalkya, II, 143 & 144.

पितृमातृपतिभ्रातृदत्तमथन्युपागतम् ।

आधिवेदनिकार्थं च स्त्रीधनं परिकीर्तितम् ॥

बन्धुदत्तं तथा शुल्कमन्वाधेयकमेव च ॥

This is very comprehensive, but a detailed examination thereof will have to be left for another occasion. It is enough if the word 'Ādya' in the text is merely pointed out for the present.

Then follows a text of Vyāsa which gives us a glimpse of the rapid development of the law on the subject and indicates clearly the tendency towards further expansion.

विवाहकालं यत्किंचित् वरायोदित्य दीयते ।

कन्यायाः तद्धनं सर्वं अविभाज्यं च बन्धुभिः ॥

It lays down that whatever property is given to the bridegroom intending the benefit of the bride, goes to her alone and is indivisible by the relatives.

The next Smṛiti of importance is that of Dēvala.

दृष्टिराभरणं शुल्कं कामश्च स्त्रीधनं स्मृतम् ।

भोक्त्रो तत् स्वयमेवेदं, पतिर्नर्हत्यनापदि ॥

¹ The difference between a mere statement and a rule of law may be gathered by comparing this expression with others of a different type occurring in the Smṛiti, viz. मनुरब्रवीत् or इत्याह भगवान्मनुः which indicate that Manu himself is laying down the law.

Though the emphasis here is on the second half of the verse, still excepting Sulka all the other items refer to new modes of acquisition. The 'Bhōga' referred to in this text is not enjoyment but ownership. The word लाभ¹ is of special importance here and it has been variously interpreted. It probably means any other property obtained by a woman by way of finding a treasure trove, or as a gift or otherwise. The लाभ referred to here is similar to the शेषं तु स्त्रीधनम् in Kātyāyana's text; and this shows how we are gradually approaching the residuary definition. Dēvala is also the first person to class वृत्ति, आमरण and शुल्क as Strīdhana at one and the same time.² Prior to him Vyāsa had stated that an amount not exceeding two thousand Paṇas is to be given to a woman from the inheritance; and commentators quoting another Smṛiti text generally understood it as an upper limit for one periodical payment, in that one cannot be forced to give more than that amount at any one time. But if property is given to a woman in lieu of maintenance for a number of years, neither this limit of two thousand Paṇas nor the exclusion of immovable property obtained. Perhaps in such cases prior to Dēvala's time the unexpended portion, if any, went to the family estate. But Dēvala says that it should be classed as her own property going to her heirs. The classification of Sulka as woman's property may be understood to mean that just as Vyāsa had laid down that any property given to the bridegroom intending the benefit of the bride goes to her alone, similarly property given to the bride's parents for her use is her own property.³

These different texts show how the Dharma Sāstra law

¹ Cf. Manu X, 115. सप्तविंशतिगमा धर्म्याः दायो लाभः क्रयो जयः ।

प्रयोगः कर्मयोगश्च सप्तप्रतिग्रह एव च ॥

and लाभो निष्पादेः मैत्र्यादि लब्धस्य च—Kullūka.

² Cf. Kautilya. वृत्तिराबन्धनं वा स्त्रीधनम् ।

शुल्कमन्वाधेयमन्यद्वा बान्धवा हरेयुः ।

³ Cf. Manu. कृतिभ्यो द्रविणं दत्त्वा कन्यायै चैव शक्तिः ।

In later days the importance seems to have shifted on to what is given for the benefit of the girl herself.

advanced step by step and how starting with a small beginning woman's property came to assume large proportions. After Dēvala comes Kātyāyana and the importance of his texts on the question of woman's property cannot be over-estimated. Prior to him woman's property stood to a certain extent on a basis of enumeration; but in his day it changed to one of exclusion. He does not tell us what it consists of, but draws pointed attention to what is excluded from it. This text has been referred to in another connection and its importance explained in part. But before further dilating on it, it is necessary to notice another important aspect of women's property.

So far, in tracing the development of the law I have not touched upon the question of inherited property, but purposely left it to the last on account of its special importance. The answer to the question whether Hindu Law recognised any distinction between etymological and technical Strīdhana turns principally upon the attitude of the law towards the nature of inherited property. We may now take up sage by sage and examine what each of them has to say on the point.

Gautama recognises the right of a sonless wife to inherit to her husband in the following passage.

xxviii, 21. पिंडगोत्रर्षिसंबंधा रिक्तं भजेरन्,
स्त्री चानपत्यस्येति । बीजं वा लिप्सेत ।

He also says that Strīdhana devolves on the daughters but does not define its nature. As he takes occasion to mention a special line of devolution for Sulka, what else can become of this inherited property except that the daughters take it? Āpatsamba similarly admits the right of the daughters to inherit, and Vishṇu says that mothers shall receive shares proportionate to their son's shares, and so shall unmarried daughters.

Coming to the Smritis the position of Manu has been explained already. Yāgñavalkya it is well known, admits the right of inheritance of a wife, mother and daughter. He also allows a wife, mother and unmarried daughter to take a share on partition.

What then is the nature of property which a woman takes by inheritance, or on partition? What else can it be but a heritable proprietorship? There is no trace of the idea of a limited estate down to the time of Kātyāyana at least; and all the available evidence goes to show that it is a Dāyabhāga doctrine propounded for the first time by Jimūtavāhana. The conclusion is inevitable that during the Smṛiti period such property was regarded as her own and that it devolved on her heirs when she died. This is further illustrated by the fact that Yāgñavalkya definitely lays down a rule that in a Jivdvibhāga a father's wife is entitled to a share in case she received no Strīdhana, (i.e. any separate property bestowed on her):

II. 115. यदि कुर्यात्समानं शान्पण्यः कार्याः समांशिकाः ।
न दत्तं स्त्रीधनं यासां भर्ता वा श्वशुरेण वा ॥

and what is to happen in case she is given some separate property is left to be inferred from another text:

II, 148. अधिविभक्तियै दद्यादाधिबेदनिकं समम् ।
न दत्तं स्त्रीधनं यस्यै दत्ते त्वर्थं प्रकीर्तितम् ॥

This is clear evidence that even Yāgñavalkya viewed Strīdhana as etymological. The share on partition ranked in his eyes with her separate property as we now understand it, and the same must necessarily have been the case with inherited property.

If we now look at the text of Yāgñavalkya on Strīdhana the importance of the word 'Ādya' in it becomes clear. The word was not at all intended to satisfy the exigencies of meter, but was purposely used to indicate the comprehensive nature of woman's property and to avoid the difficulty of a long enumeration. Yāgñavalkya even, is only mentioning a tradition about woman's property; and it would be extremely difficult to understand the nature of inherited property according to him, but for that word 'Ādya' occurring in the text.

It is thus clear that from the Sūtra age onwards property inherited by a woman became absolutely her own and was heritable by her heirs only. The distinction originally was

not between limited estate and technical Strīdhana as we now know it, but between joint family estate or divisible property on the one side and non-partible or अविभाज्य property on the other. Strīdhana is one type of 'Avibhājya' property which could not be touched by the coparceners; and hence the topic of woman's property is usually dealt with in the Dāyabhāgaprakarana in connection with partition. With the progressive development in law, more and more items became indivisible as constituting woman's property, and there was nothing either in reason or in law against including inherited property in this indivisible type.

Kātyāyana was therefore representing the prevailing opinion of his day when he stated that all property in the hands of woman, excepting the 'Silpa-prāpta' and the 'Pṛitidatta' of a stranger, is considered to be her Strīdhana. Enumeration being no longer feasible it gave place to the principle of exclusion, and any property which is not specifically excluded came to be regarded as Strīdhana. Thus by the end of the Smṛiti age the law regarding woman's property reached the limit of its expansion. Revelation came to a close at about the time of Kātyāyana, and after him there are no more sages; but we come across scholars whose only claim is that of interpretation of the Sūtras and the Smṛitis. Among them the first place belongs by consensus to Vigñānēśwara, and the next section is devoted to an examination of his views.

(To be continued.)

URINARY CALCULUS
A
PROBLEM IN PHYSIOLOGICAL CHEMISTRY¹

BY

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PART I

INTRODUCTION

THE whole of the author's work, dealt with in this thesis, was carried out in his capacity as Chemist on Col. McCarrison's staff and under his guidance. I desire to make it clear that it only forms part of Col. McCarrison's pioneer investigations on 'stone'. I take this opportunity of expressing my grateful thanks to him for so kindly permitting me the use of the material collected by him in the course of his epidemiological and experimental investigations on 'stone'.

Urinary calculi are concretions formed under certain conditions in the urinary tract, kidneys, ureters and bladder, and they are respectively known as renal calculi, ureteral calculi and vesical calculi. They are made up of one or more of the sparingly soluble substances present in the normal urine, possibly associated with a binding substance which gives the concretions their rigidity and hardness. It is a matter of common observation that even urine from a normal, healthy person shows under the microscope numerous crystals, like uric acid and urates, triple phosphate and calcium oxalate. But there are circumstances under which the self-same crystals, instead of being excreted as loose, non-coalescent entities in the urine, are retained in the urinary tract and give rise to calculi, a malady so well recognised by clinicians from the earliest times. The variety of circumstances under which such calculus formation arises, the mechanism of its formation and the rationale of its prevention, form the subject matter of the present thesis.

¹ Prize-thesis for the Maharajah of Travancore-Curzon Prize, 1932.

Needless to add, they are problems of the greatest physiological importance. The conjoint efforts of the physiologist, the pathologist, the surgeon and the bio-chemist have brought us today considerably nearer the solution of this problem in physiological chemistry. However, there still remains much leeway to be made.

Though essentially to be treated from the aspect of physiological chemistry, it will not be out of place to include a short historical account of the subject and its relation to environmental factors, with particular reference to India.

HISTORICAL

The history of urinary lithiasis dates back almost to the dawn of civilisation. The symptoms and treatment of the disease are described fairly accurately in the ancient medical writings. Of the ancient Hindu writings, the Rig Veda and Atharva Veda describe the malady and its treatment. The varieties of calculi, their physical and chemical characters, and treatment are lucidly described in Charaka Samhita (vi, 26, 21) and Sustrutha Samhita (ii, 3, 4-6).

Stone in India and the Influence of Environmental Factors¹

McCarrison¹ found, from statistics collected during the three years 1926 to 1928, that roughly 1 in 10,000 of the population of India suffered from stone. But the actual incidence is likely to be far greater, for what with conservatism, illiteracy and the fatalistic concept of life coupled with the sparse distribution of hospitals obtaining in India, only a fraction of the victims seek medical relief and it is this fraction that is indicated by the above figures. There are districts in India where the incidence of stone per 10,000 of the population is almost nil, like Colaba (Bombay), and Malabar (Madras) to places where the incidence is as high as 438 in Dera Ghazi Khan (Punjab). The 'stone-area' of India extends from Sind, the North-West Frontier Provinces and the Punjab into the western parts of the United Provinces. The prevalence of the disease gradually diminishes as one passes eastwards towards Bengal and Assam;

¹ McCarrison (1931): *Brit. Med. Jour.*, June 13th, 1931, Vol. I, p. 1009; *The Veterinary Journal*, 87, No. 9, p. 411.

likewise it diminishes towards the south and south-east until in the southern parts of the Bombay Presidency, Mysore, Hyderabad and Madras, the malady is relatively rare (McCarrison).

Stone is not related in any conspicuous way to the physical features of the country, though it was observed that the relatively higher incidence of stone occurred in soils of Post-Tertiary period. As regards climatic influences, it is noticed that in areas where there is a great disparity between summer and winter, and between day and night temperatures, stone is more frequent than in areas where the climatic conditions are more equable (McCarrison).

Analysis of a series of cases of stone randomly distributed over the whole of India shows that the percentage incidence of stone runs parallel with the percentage distribution of the population of the major communities of India. But it is often lightly said, of course with no statistical evidence in support, that Mahomedans are more subject to the disease than the Hindus (McCarrison).

A consideration of the nutritional influences reveals that in passing from the wheat-growing districts to the rice-growing areas, there is a gradual decrease in the incidence. The inference is irresistible that stone may in some way be associated with the cereal forming the staple article of the diet. This association of the cereal with stone is not absolute, for there is at least one glaring exception in the rice-eating Manipuris (in Assam) among whom stone is as common as in the wheat-eaters of either Punjab or North-West Frontier Provinces or even commoner (McCarrison).

EXPERIMENTAL

Though stone has been recognised from earliest times, much experimental work has not been done till almost a decade or two ago. The reasons are obvious; stone is not the result of a single mechanism at fault, but is the result of a variety of factors operating in the urinary tract. The difficulty of controlling the factors—the physiological variables in stone production—in human beings has remained insurmountable. Hence, the experimental production of stone in lower animals under rigidly controlled conditions is a desideratum. This achievement was luckily possible in 1926, when through the indefatigable

researches of McCarrison and Fujimaki, stones were experimentally produced in albino rats through faulty diets. It is only at this stage that stone came to be conceived as a nutritional disease, caused by one or more deficiencies in the diet, chief of which has been found to be a deficiency of the fat-soluble vitamin A. McCarrison's experience tells him that there are two factors in the causation of stone: *positive* factors, like excess of lime in the diet and some unrecognised agent present in whole cereal grains; and *negative* factors, like deficiency of vitamin A and imbalance of mineral salts.

Though McCarrison and Fujimaki succeeded, almost at the same time but independent of each other, in experimentally producing stones through deficient and faulty diets, there was one fundamental difference in their investigations. While Fujimaki produced stones by means of synthetic and artificial diets, McCarrison attained the same end with greater precision through faulty diets in common use by the people of India.

PART II

CHEMICAL COMPOSITION OF HUMAN STONES

The initial success that attended the experimental production of stones in rats through dietaries in common use in India suggested to Col. McCarrison the collection through a questionnaire of human stones from hospitals all over India with definite medical and dietetic history of each case. His chief aim was to correlate the composition of the stones with the diet, as also to find out the predisposing dietetic or other factors responsible for stone formation, if any. In all, 226 stones were collected from all over India: 221 were vesical and 5 were renal. The stones collected varied in weight from almost a few milligrams to over hundred grams. Naturally, the methods of chemical analysis must differ, in the case of small stones, from those employed for the comparatively bigger ones. They were divided into two: Macro-methods of analysis and micro-methods of analysis. The mean composition of the 221 vesical stones is given in Table I. For details of methods adopted and results of analysis of individual stones, reference may be made to the *Indian Journal of Medical Research*, 1929, xvi, p. 1036, and 1930, xvii, p. 1037.

TABLE I

Showing the mean composition of the 221 vesical stones

Constituent	Mean per cent	Standard deviation	Median per cent	
Moisture ...	7.2	8.7	3.7	} as percentages of the dry stone
N ...	17.9	11.0	19.7	
P ₂ O ₅ ...	6.9	10.8	3.3	
CaO ...	14.9	11.9	11.4	
MgO ...	2.0	3.4	indeterminate	
C ₂ O ₃ ...	14.0	13.2	8.6	

The results of analysis of individual stones show that the stones tend to have either a great deal or very little of nitrogen, and stones with an average amount are less common. In other words, stones tend either to be urate or non-urate, though the majority of stones have some uric acid or urates in them.¹ The results also reveal the following associations between the constituents:—

(a) Stones with a large amount of phosphate have a large amount of moisture in them and urate stones have but little.

(b) Nitrogen is negatively associated with all the other constituents, indicating thereby that it exists in some form uncombined with either Ca, Mg, etc., presumably as uric acid.

(c) The association of oxalates with calcium is very marked and its association with other constituents is negative or at best insignificant, showing that oxalates exist as calcium oxalate.

(d) Magnesium is markedly associated with phosphates and less negatively associated with nitrogen than the other constituents, indicating that magnesium exists as magnesium ammonium phosphate.

CLASSIFICATION OF STONES

The stones were classified into urate, phosphate and oxalate stones and mixtures of these. Amounts of phosphates and oxalate less than 1 per cent were neglected, and the Murexide test was used for deciding if stones with only a little nitrogen were to be classed as containing some urate or not. The results of

¹ Newcomb and Ranganathan (1930): *Ind. Jour. Med. Res.*, xvii, p. 1037.

classifying the 221 vesical stones divided according to the provinces from which the stones came, are shown in Table II (Newcomb and Ranganathan, 1930, *Ind. Jour. Med. Res.*, xvii, p. 1037).

TABLE II

	U	P	O	UP	UO	PO	UPO	Total
N.-W.F.P. ...	4	1	2	4	11	2	7	31
Punjab ...	4	0	1	5	9	0	5	24
United Provinces ...	2	0	0	4	23	5	10	44
Central Provinces ...	0	0	1	0	2	2	2	7
Bengal ...	0	0	1	1	0	2	2	6
Assam ...	2	0	2	3	22	3	33	65
Ajmeer-Meerwara ...	0	0	0	1	1	0	0	2
Madras ...	0	1	1	0	0	4	0	6
Bombay ...	1	0	0	1	8	4	11	25
Bihar and Orissa ...	1	0	0	0	1	0	1	3
Nepal ...	0	0	0	0	0	0	2	2
Hyderabad ...	1	1	0	1	1	1	1	6
Total ...	15	3	8	20	78	23	74	221
Per cent. ...	6.8	1.4	3.6	9.1	36.3	10.4	33.4	...

U - Uric acid.
P - Phosphate.
O - Oxalate.

It will be seen from Table II that only 26 stones out of 221 (11.8 per cent) consist purely of one substance. The rest consist of mixtures of which a mixture of urates and oxalates is the most common. In 187 of the stones (84.6 per cent), some urate was present, in 120 (54.3 per cent), some phosphate, and in 183 (82.8 per cent) some oxalate. A mixed stone is the usual thing.

THE KIDNEY STONES

Of the 226 stones received in connection with the above investigation, only five were kidney stones. The proportion must not be taken as an accurate index of the actual incidence of the two kinds of stones in India. Since the above was primarily an investigation on stone in the bladder, kidney stones may not have been sent. It does, however, reflect the common observation that in India stone is very much more prevalent in the bladder than in the kidney (Newcomb and Ranganathan, 1930, *Ind. Jour. Med. Res.*, xvii, p. 1037).

The five kidney stones form a class apart not only in their origin and physical characters but in their composition as well. They are all essentially calcium oxalate stones. In only one (stone No. 94) was any urate present and in that but little. Their chemical composition is given in Table III. So far as can be judged from the five specimens, the composition of the Indian kidney stones is not different from that of those of other countries.¹ They are distinctly different from bladder stones.

TABLE III

Stone Number	N	P ₂ O ₅	CaO	MgO	C ₂ O ₃	Age
110	0.6	0.8	33.8	0	45.9	43
151	0.9	0.7	34.9	0	37.0	12
53	0.9	4.7	36.6	0	35.3	29
154	1.4	12.8	37.7	1.6	35.5	25
94	5.5	0.7	30.7	0	44.8	30
Means	1.9	3.9	34.5	0.3	39.7	28

Diagnosis of the Composition of a Stone by Inspection

Many a surgeon is labouring under a misconception that a good guess can be made of the composition of a stone by a mere visual inspection. Such diagnosis may be easy if it were to consist of only one constituent. Knowing the composition of stones, as revealed by the chemical analysis, an attempt was made as to how far visual inspection could be an aid in understanding the composition of stones. It was observed that the diagnosis of the composition of a stone from its appearance is of very little value (Newcomb and Ranganathan, 1930, *Ind. Jour. Med. Res.*, xvii, p. 1037).

The Nucleus of Urinary Calculi

Statements in the literature regarding the composition of the nuclei of urinary calculi are conflicting. Thus, Langen²

¹ Benjamin Moore (1911): *Brit. Med. Jour.*, vol. i, p. 787.

Rosenbloom (1915): *J.A.M.A.*, vol. lxx, 161. } Quoted in *Nutrition and*
Kahn and Rosenbloom (1912): *Ibid.*, vol. lxx, 2252. } *Diet in Health and*

² Langen (1929): *Meded. v. d. dienst. d. Volksg. in Nederlandsch Indie*. (Foreign Edition), xviii, No. 2, p. 315. } *Disease* by McLester (1931).

states that 'nuclei are built up of calcium, phosphates and magnesium. Besides, organic ingredients are regularly found in them, sometimes still recognisable leucocytes and chemically traces of blood. In the nucleus of the stone, we found only now and again small quantities of oxalates and of urates; in the outer layers of the stone, however, these substances are often found in great quantities and they form the chief ingredient with respect to structure and consistency of the fully developed bladder stones. Especially the composition of the nuclei is very much the same in both kinds (i.e. both stones from human beings and those obtained by animal experiments), while the layers enveloping the nucleus, which have developed afterwards, show more differences'. Iwano¹ believes that the composition of 'the nucleus is of great importance with regard to its (the stone's) formation' and that it (the nucleus) has a distinct relation to the age of the patient. 'Uric acid and urate nuclei appear', he says, 'much more at advanced age, while phosphate nuclei occur most frequently in persons of ages from 30 to 60 years and far less in young persons. Oxalate nuclei are formed most frequently in persons between the first and the fifth decennium'. Gideon Wells² considers that in all pathological concretions including urinary calculi, 'there must first be a nucleus of some substance different from the substance that is to be deposited, and which is most frequently a mass of desquamated cells but may consist of clumped bacteria, masses of mucus, precipitated proteins or a foreign body of almost any sort'. Contrary to the above, Hampton Young³ observes that the nucleus is usually a solidified agglomeration of the same salts of which the calculi are composed and forms the core. Lastly, Shattock⁴ after an exhaustive study of the microscopic structure of urinary calculi, has shown that a nucleus of cells or other organic material is, at least in uric acid calculi, extremely rare; the centre being almost always a primary crystalline deposit from a super-saturated solution.

The present investigation into the chemical composition of

¹ Iwano (1923): *Jour. Biochem., Japan*, iii, pp. 67-82.

² Gideon Wells (1925): *Chemical Pathology*, p. 505.

³ Hugh Hampton Young (1927): *Modern Medicine*, Osler and McRae, 1927, v, p. 691.

⁴ Shattock (1911): *Proc. Roy. Soc. Med. (Path. Sect.)*, iv, p. 110 (quoted by Gideon Wells, *Chemical Pathology*, 1925, p. 513).

the nucleus was undertaken to ascertain how far the above statements applied to the nuclei of the 226 stones in Col. McCarrison's collection. Considerable difficulty was experienced in finding the nucleus: firstly, because it did not always exist in the centre of the stone, though a centrally situated nucleus with several concentric layers around it is a common arrangement; second, because of the varying size of the nuclei which may range from a tiny point to a fairly large mass weighing as much as 70 mgs.; third, because of the absence of a nucleus in some stones. Of the 226 stones, there were 61 whole stones and 165 crushed ones. A cross-section passing through the centre was made in the whole stones. The cut surface was cleaned and examined under a hand magnifying lens. Only twelve stones were found to have prominent nuclei large enough to admit of a micro-chemical analysis; in the remaining 49 whole stones, the nuclei were either indistinct or not bigger than a tiny speck. The prominent nuclei were scooped out carefully and a complete quantitative analysis made on them. The results of the chemical analysis are shown in Table IV. Table V shows the chemical composition of the stones from which the nuclei were separated.

TABLE IV

Showing the chemical composition of nuclei

Nucleus of stone number	Moisture per cent.	As % on moisture-free sample						CO ₂	Murexide Test	Ammonia	Weight of nucleus in mg.
		N.	P ₂ O ₅	CaO	MgO	C ₂ O ₃	Insoluble ash				
8	4.1	3.6	1.6	14.6	0	22.7	32.0	0	++	-	14.5
20	3.1	9.0	0.8	28.8	0	47.0	0	0	++	-	16.0
25	1.1	32.7	Trace	6.3	0	7.7	0	0	++	-	28.4
28	0.7	34.2	Trace	1.3	0	1.2	0	0	++	+	40.8
29	0	34.5	Trace	1.6	0	3.2	0	0	++	+	45.5
46	1.1	34.0	Trace	Trace	0	2.8	0	0	++	+	37.8
61	3.2	1.6	0.9	40.5	0	43.2	0	0	+	0	18.6
95	0.3	33.5	Trace	4.4	0	5.3	0	0	++	+	39.9
139	1.2	21.7	0.8	15.0	0	17.8	0	0	++	+	50.4
150	2.8	34.0	0.9	4.4	0	7.4	0	0	++	+	14.2
163	4.0	33.5	1.8	10.4	0	...	0	0	++	+	9.9
187	0.9	0.5	4.1	39.7	0	41.6	0	0	+	0	77.7

TABLE V

Stone number	Moisture per cent.	As % on moisture-free sample								CO ₂	Ammonia	Murexide Test	Weight of stone in gms.
		Ash	Insoluble ash	Soluble ash	N.	P ₂ O ₅	CaO	MgO	C ₂ O ₃				
8	14.4	63.5	34.8	28.7	4.0	10.2	12.3	5.9	13.6	0	0	+	11.0
20	9.3	37.2	0	37.2	14.2	11.0	20.4	+	16.7	0	0	++	34.0
25	1.5	2.8	0	2.8	30.3	0	2.5	+	3.0	0	0	++	25.0
28	1.4	0.2	0	0.2	32.9	0	0.2	0	0	0	0	++	11.0
29	3.6	3.7	0	3.7	31.3	1.6	0.7	0.7	0	0	0	++	30.0
46	1.2	1.1	0	1.1	32.6	+	0.3	0	0	0	0	++	10.6
61	3.4	38.0	0	38.0	0.7	+	36.0	+	44.5	0	0	++	40.0
95	1.9	1.0	0	1.0	32.9	+	0.9	0	+	0	0	++	27.0
139	8.6	18.6	0	18.6	23.8	6.9	7.9	3.7	7.5	0	0	++	66.0
150	36.4	63.0	+	63.0	11.2	37.6	1.8	22.6	0	0	0	++	11.2
163	2.7	27.8	0	27.8	12.8	3.9	22.4	0	24.6	0	0	++	41.0
187	2.2	...	0	...	1.4	9.4	33.7	2.6	26.4	0	0	+	14.0

(The stones were analysed by macro-methods.)

It will thus be seen from the above tables that the nuclei, though appearing homogeneous under the magnifying lens, were not composed of any one single substance. Phosphates occurred only in traces, while urates and uric acid, and oxalates formed the chief constituents of the nuclei. Seven nuclei contained uric acid and urate as their main constituent; four contained calcium oxalate, and only one contained a mixture of uric acid or urate and calcium oxalate. The percentage of nitrogen was in some nuclei higher than it should have been had it existed solely as uric acid, presumably because of the presence of ammonium urate. The presence of ammonia in such nuclei was confirmed by the qualitative test.

From study of Tables IV and V, it is apparent that (1) the chemical composition of the nuclei did not always run parallel with that of the stones of which they formed part, though an approximate parallelism existed in a good many instances; (2) the nuclei were exceptionally poor in moisture, the percentage ranging from 0 to 4.1, with an average of 1.9 per cent of the weight of the nuclei; (3) insoluble ash occurred in only one instance (No. 8) where the stone and its nucleus contained it in nearly the same amounts; and (4) phosphates occurred in only traces in the nuclei, the average content being 0.9 per cent; the stones enclosing them contained it in much larger amounts,

the average being 6.7 per cent of the weight of the moisture-free stone.

Age of Patient and Chemical Composition of the Nucleus

Table VI shows the ages of the patients from whom the stones were removed and the chief constituent of the nuclei.

TABLE VI

Nucleus of stone number	Age in years	Sex	Chief constituent of nucleus
8	7	M	Calcium oxalate.
20	13	M	Calcium oxalate.
25	61	M	Uric acid or urate.
28	40	F	Uric acid or urate.
29	50	F	Uric acid or urate.
46	4	M	Uric acid or urate.
61	30	M	Calcium oxalate.
95	30	M	Uric acid or urate.
139	12	M	Uric acid or urate and calcium oxalate.
150	3	M	Uric acid or urate.
163	55	M	Uric acid or urate.
187	10	M	Calcium oxalate.

It will thus be seen that uric acid nuclei occurred both in the very young (3 and 4 years old) and in persons of advanced age (50, 55 and 61 years). There seems, from this limited series of observations, to be no relationship between the age of the subject and the chemical composition of the nuclei of the stone. These observations do not support the conclusions of Iwano (*ibid.*).

(To be continued.)

UNIVERSITY NOTES

(January to July 1935)

THE annual meeting of the Senate was held on the 28th March 1935. The report on the work of the University for the year 1934, the Budget Estimate for the year 1935-36 and the annual accounts (receipts and expenditure) for 1933-34 as audited were adopted at the meeting.

The laws (Statutes) governing the powers and duties of the Syndicate, Convocations for conferring degrees, academic robes, award of Research Studentships and Fellowships were revised and incorporated in their appropriate places in lieu of the previous provisions. Certain amendments to the Statutes relating to the applications for affiliations, recognition and approval of colleges and relating to the suspension of courses of studies were also adopted by the Senate.

On the recommendation of the Syndicate and the Academic Council, the Senate instituted the new degrees of Doctor of Letters (D.Litt.), Master of Letters (M.Litt.), and Doctor of Science (D.Sc.). Regulations for the above degrees were adopted by the Academic Council at its meeting held on the 15th February 1935. The Regulations for the Master of Science (M.Sc.) were also amended.

At the same meeting, besides adopting certain alterations in Regulations governing the ordinary degree courses in Arts and Sciences (B.A. and B.Sc.), and Oriental Titles, a general revision of the Regulations relating to the Intermediate, B.A. Pass and Honours, and B.Sc. Pass and Honours, was in the main adopted, the idea of the revision being that the Regulations in the Chapter should contain all details about the course, scheme of examination and number of marks assigned to each paper, etc.

Provision made in the transitory regulation regarding the holding of the M.A. Degree examination was further extended till the end of the year 1936-37 or till the institution of the new M.A. Degree.

Two new titles in Oriental Learning, Malpan and Soppar, for proficiency in Hebrew and Syriac respectively, were instituted.

Proposals for the institution of a Bachelor's Degree in Oriental Learning were recommended by the Faculty of Oriental Learning.

The Academic Council resolved that the B.A. (Hons.) Degree course and examination be retained and that candidates be awarded the M.A. Degree without efflux of time.

The recommendation regarding the B.A.'s to qualify for M.A. Degree were referred back to the Syndicate for consideration and report.

A supplemental Convocation was held on the 4th March 1935 when Degrees were conferred on candidates.

A special meeting of the Senate was held on the 30th March 1935 to award Diplomas and Titles, viz. Diploma in Geography, Diploma in Indian Music, Diploma in Midwifery, Diploma in Modern European Languages and Titles in Oriental Learning, viz., Siromani, Vidwan, Afzul-ul-ulama and Munsh-i-Fazil.

The following endowment lectures were delivered during the period :—

Sir William Meyer Lectures. By Dr. Radha Kamal Mukerjee, on 'The Balance and Optimum of Population; an ecological theory and its application to India'.

Principal Miller Lectures. By Mr. P. N. Srinivasachari, M.A., on 'The Inner Meaning of Progress'.

The Sir Subrahmanya Ayyar Lectures. By Mr. V. Appa Rao, M.A., L.T., on 'The Positron : its discovery and properties'.

The Gokhale Lectures. By Mr. T. K. Duraiswami Ayyar, M.A., L.T., on 'India and Recent Trends in International Trade'.

The Sankara Parvathi Lectures. By Mr. C. S. Srinivasachari, M.A., on 'The Extension of South Indian Culture in Indonesia'.

The Dr. Elizabeth Matthai Lectures. By Dr. Miss H. M. Lazarus, on 'Toxaemias of Pregnancy'.

The Travancore Lectures :

In Medicine. By Dr. T. Bhaskara Menon, on 'Problems in Filariasis'.

In Engineering. By Mr. M. K. Ranganathan, on 'The Automatic Shutters in Channels'.

In Agriculture. By Rao Bahadur M. R. Ramaswami Sivan, on 'The Manorial Problems in India'.

Sir P. S. Sivaswami Ayyar redelivered the Kamala Lectures

on 'The Evolution of Indian Moral Ideals' which were originally delivered in the Calcutta University.

The following three endowments were accepted by the Syndicate :

- (1) The Kerala Scholarship.
- (2) The Diwan Bahadur K. Krishnaswami Rau Lecture-ship.
- (3) The Sir Mannath Krishnan Nair Gold Medal.

PUBLICATIONS

The following are the University Publications—Research theses, Bulletins of the Departments and University Lectures—issued during the period (1934-35) :

The Colas, Vol. I. By Mr. K. A. Nilakanta Sastri, Professor of Indian History and Archaeology.

The Matsya Purana, A Study. By Mr. V. R. Ramachandra Dikshitar, Lecturer in Indian History.

The Samkhyakarika of Isvara Krsna (2nd Edition). By Mr. S. S. Suryanarayana Sastri, Reader in Indian Philosophy.

Unadi Sutras in various Recensions, Part VI. By Dr. T. R. Chintamani, Senior Lecturer in Sanskrit.

Raghunathabhyudaya of Ramabhadramba. By Dr. T. R. Chintamani, Senior Lecturer in Sanskrit.

Rgvedabhasya of Skandaswamin. By Dr. C. Kunhan Raja, Reader in Sanskrit.

Vajasaneyi Pratisakhya. By Pandit V. Venkatarama Sarma, former Fellow in the Department of Sanskrit.

Critical Studies on Katyayana's Sukla Yajurveda Pratisakhya. By Pandit V. Venkatarama Sarma, former Fellow in the Department of Sanskrit.

Vishnumayanatakam. Edited by Mr. K. Ramakrishnaiya, Senior Lecturer in Telugu.

Studies in Dravidian Philology. By Mr. K. Ramakrishnaiya, Senior Lecturer in Telugu.

Burhan's Tuzak-I-Walajahi, Part I (The history of the Nawabs of the Carnatic). By Mr. Muhammad Husain Nainar, Senior Lecturer in Arabic, Persian and Urdu.

Purpose and Progress (Principal Miller Lectures of 1934).

By The Rev. John Mackenzie.

Some Aspects of Ancient Indian Polity (Sir S. Subrahmanya Ayyar Lectures of 1914). By Rao Bahadur K. V. Rangaswami Ayyangar, 2nd Edition.

Inter-Statal Law (The Sundaram Ayyar-Krishnaswami Ayyar Lectures of 1933). By Mr. K. M. Panikker.

Tamil Lexicon. Three Parts in Vol. VI were issued during the period.

The amount expended to the end of December 1934 is Rs. 3,73,144. The Lexicon is expected to be completed in April 1936.

REVIEWS

THE MAKING OF THE STATE. By M. RUTHNASWAMY, C.I.E., M.A. (Cantab.), Barrister-at-Law. London, Williams & Norgate, 1932.

THE modern State is a territorial society divided into government and subjects, claiming within its allotted physical area supremacy over all other institutions. It is the most important instrument evolved by men to enable them to realise social good on the largest possible scale and the highest expression of their social spirit: Gierke has said there is nothing similar to it that is above it. To understand the meaning of the State and the factors that help to mould its life is a duty cast upon the citizen not only because its decisions affect the contour of his life; the democratic character of the modern State places on him the duty of contributing his instructed judgment to public good.

A right understanding of the State, however, requires an understanding of its history. The State was not made once and for ever. It has been continually changing not only in its forms and institutions but in the motive power which has sustained it. What are the factors and influences which have entered into the making of the State? What is their value to the modern State in its task of making the life of its citizens richer and happier? Above all how will those institutions and ideas help or retard the making of India? A full and convincing answer to these questions is essential if we are properly to appreciate the place of the State in the Great Society and to utilize it for the betterment of India.

The book under review attempts to provide such an answer. Its distinguished author has had exceptional opportunities to enable him to perform that task adequately and well. As Professor of History and Politics at an Arts College and later Principal, Law College, Madras, he has had opportunities of getting acquainted with the best masters of political and legal thought. Later, as he mentions in his Preface, 'he has learnt in the halls and lobbies of the Madras Legislative Council and of the Imperial Legislative Assembly . . . things which he could not have learnt in his library'. This experience is a rare

combination. Added to these the author has a highly cultured mind and a balanced judgment which are evident in every one of the pages of the book. The result is a useful and fascinating book which bears on its face the impress of vast research and scholarship, clear thinking, a careful sifting of materials and a sympathy which comes from right understanding.

The book begins with an outline history of the State in which the author traces the origin and development of the State from its humble beginnings in Asia where the first foundations of the State and of government, as of religion and civilization and culture were laid. War and conquest expand the State. He sets before us the early and simple form of past political societies down to their latest and most complex developments: the patriarchal system, the village community, the Greek City-State, the Roman Empire, the mediaeval State and the modern nation State. In this survey, he assesses, with great care, the contribution of each to the making of the modern State. The State in Greek hands became homogeneous, compact, self-governing. The City-State in the hands of Rome tried to expand; it broke and gave way to the country-State of the Middle Ages, leaving behind its legacy of law, unity and order. The mediaeval State, with its groups and corporations, its decentralization and self-government and rule of law and morality, showed how a large State should be organized if it was to endure. The absolutist State of the eighteenth century made the State centralized and uniform. Both mediaeval and modern ideas are necessary: the marriage of the mediaeval ideas of self-government and group life with the modern idea of centralized government and unity has given us the State which holds the future in its hands.

Next, in ten chapters, he estimates the influence of various factors in the making of the State. The land and people obviously form the first factor. *Land* largely determines the structure and character of the State. The political importance of land leads to the right conclusion that the more evenly distributed land is, the sounder a State will be. The *people*, associated in groups, the family, guilds, church, race, nation and society exercise a real influence: it is the group that gives life to the State and liberty to the individual. While groups are necessary, they can only supplement but cannot supplant the

State—a wise caution against extreme pluralistic views. *Religion* is the cement of society. In these days when religious influences are being slowly undermined, it is refreshing to read what in fact is an outspoken plea to bring more of the religious attitude in daily life: for religion makes man realize that sacrifice and not selfishness is the law of social life. It did good service in the infancy of the State by inculcating the habit of political obedience and peaceful social life, and by sanctifying the institutions of family, marriage and property. Particularly is religion necessary for democracy; for the rule of numbers would become a terrible tyranny if the citizens of democracy are not restrained and refined by religion. We may add that this was the dream also of Mazzini: to make democracy more religious so that men may think more of duties than rights. A wise government will be careful not to act against religion except in self-defence or to correct abuses. Not a free church in a free state as was Cavour's formula but a free church by the side of a free state is the formula that expresses the right relations that ought to exist between religion and the State. The influence of *Custom* and *Law* is then analysed and the conclusion is drawn that the habits and customs of the people, their history and traditions, their qualities of character and conduct and the defects of these qualities, the social life of the people and their religious beliefs, all these must be taken into consideration by statesmen legislating for a people. But within the limits placed by the facts of social life, the capacity of law for improving social and political life is undeniable: at once a wise caution and an encouragement to our legislators in their great task of adjusting law to life.

Institutions are then taken up. Institutions are defined as bodies of rules and regulations, whether governed by custom or law, embodying and related to some social principle. They give the State the core of that conservative force which is as necessary for its life as change. They are of two kinds, social and political. Examples of the former are the family, slavery, caste and property. The family is a natural institution required by the needs of man; it is also the nursery of the State. Governments will gain by the warning here given that no intervention of law is so fraught with danger as that which is directed against the intimacies of family life. Social institutions could not,

however, by themselves, have endowed the State with its distinctive characteristics: its independence and coercive power. These are given to it by its *governmental organs*, the army, judiciary, administration and legislature. In discussing the part played by them, the author makes two or three important contributions to political theory which are worth emphasis. The first is in regard to the relation between the army and the civil power. One of the cornerstones of accepted English constitutional theory is the subordination of the army to the orders of the civil government. Its value is it preserves the constitutional character of the political organization of England. Its danger, however, is that the army which is the servant of the civil authority may well be called upon to help that authority to change the constitution of the State, thereby helping revolutions. The true view suggested by him, viz., as the army represents the power of the State, that power must be used, not as a servant of any particular authority in the State, but as the guardian of the state as a whole, is worthy of more exploration. A second contribution is in regard to the relation between the Administration and Legislature. Accepted theory tells us that the executive is the subordinate of the Legislature. This theory of subordination is not only not in keeping with existing facts, but wrong because of the inherent importance of the executive function in maintaining the existence and welfare of the State. 'Responsible, modern administration is to people or to legislature, but not subordinate.' A third idea, worthy of further exploration, is the possibility of separating the functions of representation and legislation, which on account of historical causes have come to be united in one body. The experience of native states like Travancore and Mysore in this direction, of keeping separate the representative assembly, focussing the opinion of the people on the questions of the day, from the legislature, which is only a law-making organ composed of people qualified for legislation, is full of interest and may be expected to yield fruitful results.

A history of *ideas* follows. Ideas are never perfectly realized, but as Lord Acton said, the pursuit of them determines history. Equality and justice, liberty and progress have never been perfectly realized on earth but as the author points out, it is good to take the road to them. Other factors the author examines are *civilization and culture*, *modern industry*, the importance of

leadership and international relations. It is not necessary to deal at length with them here. Suffice it to say that they all contain brilliant generalizations and judicious conclusions, which, as elsewhere throughout the book, are based on a vast storehouse of knowledge. Finally he examines the causes for the fall and recovery of States and concludes with a well-argued chapter on the making of India.

It will now be clear that as a comprehensive survey of the factors which have shaped the modern State, the book will remain a standard work for a long time to come. Its value to the modern student of Indian politics is, however, enhanced by the fact that the general conclusions reached in each chapter are applied to Indian conditions. We may cite a few instances: Dealing with the influence of systems of landholding on the constitution, it is suggested that much of the unrest and instability of modern India is due to the proletarianization of land caused by the excessive and unlimited subdivision of holdings (p. 61). Discussing the evils of caste, he points out 'the greatest mission of statesmen in India is to find some more life-giving groups than the caste groups. . . The formation of groups based on common fellowship of work, service and tastes, life, art and culture, rather than on birth and religion, which divide men from each other seems to be the best way'; 'social reformers would do well . . . to cease to rail at caste or to attempt to abolish it by propaganda and by legislation'; what is required is 'to build institutions for India which embody the ideas of equality, liberty and social solidarity to take the place of caste groups' (pp. 78, 210, 211). A supreme court in India will serve a useful purpose in hammering out a national law for India out of the customary law of the people and bind them into a common life of law, a service which the Judicial Committee of the Privy Council cannot perform, and yet it must be performed, for the lack of legal unity is one of the chief causes of political disunion in India (pp. 140, 148, 150). Communal electorates may not be desirable, but if they are to disappear in India, the communal laws of the Hindus and of the Muslims must also go (p. 162). The use of the army in the suppression of civil disobedience is fraught with danger not only to the army but to the State; the danger is greater in India where the army is organized on a racial basis (p. 221). Federalism suggests itself

as the future form of government in India but 'the prospects of Indian federation will be low, if it is viewed as anything but a distant prospect, or unless all parts of India, including the Indian States, reach the same stage of political development in the direction of free and popular government' (pp. 261-2). And finally, a plea for cultivating a sense of common citizenship: 'The service of the State is a service which can bind all communities together in a life of fellowship. While the service of community or religion may divide man from man in India, the service of the State may bind different parts and different religions and different classes and communities in the bonds that give unity and consequent progress and liberty' (p. 484).

A. APPADORAI

THE CAMBRIDGE SHORTER HISTORY OF INDIA.

Edited by H. H. DODWELL. Published by the Cambridge University Press, London (1934), 12/6 net.

JUST like the *Oxford History of India* published by the Clarendon Press, Oxford, the Cambridge University Press have recently brought out the *Cambridge Shorter History of India*. This very readable volume of 1,000 pages follows to a very large extent the published volumes of the *Cambridge History of India*. The plan followed in this volume is somewhat different from the *Oxford History*, and the whole book is divided into three parts—Ancient India, Muslim India and British India—the epochs being determined, in the words of the Editor, 'by the appearance from time to time of foreign influences'. While Professor Dodwell is the general editor and author of British India, the first two parts are written by equally well-known scholars, Mr. J. Allan and Sir T. Wolseley Haig respectively. The space given to Ancient India is less than half of that devoted to British India. One would wish that some more space had been given to topics like the Culture of the Indus Valley, the imperial history of the Nandas, the history of the Deccan and of South India. The history of the Deccan is traced from the early Cālukyas down to the battle of Talikota in one stretch with dynasties like the Kadambas, the Gangas, etc. intermixed. This plan has its own advantages and disadvantages. Similarly, the Coḷas, Pāṇḍyas and Pallavas are traced,

each by itself, from beginning to end. The sense of contemporaneity is thereby, to some extent, injured.

In this section there are many statements on which there have not been established a general agreement and which we cannot examine in a short notice like this. To mention a few:—The Purāṇas, the Arthasastra and the Kāmasūtra are said to be works compiled in the third or fourth century A.D. First, we take up the Purāṇas. The Brāhmaṇas, the epics and early Dharmasūtras like that of Āpastamba mention the Purāṇas by name. It may be that dynastic portions were added to them in the third or fourth century. The other portions are undoubtedly very much older. Secondly, to say that Kauṭilya in question is not the Mauryan minister is to set at nought the unanimous Indian tradition, and the equally unanimous opinion of Indian scholars supported by distinguished European Indologists like Fleet, Jacobi and F. W. Thomas. In this connection the *Shorter History* compares very unfavourably with the research represented in the first volume of the *Cambridge History of India*. Stress is laid on the *Fragments of Megasthenes*, but they cannot be accepted as a primary authority for the Mauryan history. The wonderful correspondence between the Arthasāstra and the terms in the Aśokan edicts is sufficient to establish the priority of the Arthasāstra to Aśoka. The emphasis laid on Aśoka being a Buddhist is to ignore the other side of the picture, viz., a Brahmanic Hindu who was however quite catholic in his outlook. Again the propositions that the Satiyaputras are probably connected with the Āndhras (p. 44), and that the Pallavas were a family of foreign origin (p. 196), are statements yet to be proved.

The second and third parts will generally be read with approval. In the opening chapter of the Muslim period, the thirteenth century is stressed as witnessing the foundation of the Delhi kingdom. In the chapter on the Khaljis and the Tughluks conquests and campaigns occupy considerable space. The life and career of Muhammad bin Tughluk are very elaborately treated. The same detailed treatment is noticed in the case of provincial Muslim kingdoms like Jaunpur and Bengal. The history of Vijayanagar is dealt with largely from the point of view of its external relations with the Bahmanis and not from the standpoint of its culture and polity and also of its

expansion in the south. The notion of Akbar's illiteracy seems to be accepted and the remark is made that 'his practice fell far short of his precepts'. The later Mughal history is chronicled faithfully down to 1761 (crisis of Panipat).

Part III opens with a chapter on 'the Coming of European Influence' with an estimate of the Portuguese culture and of Dutch power. Of Dupleix it is remarked that 'his policy lacked elements of permanent success and could never have survived a European war' (p. 547). One notices some difference between the chapter on Warren Hastings in the Fifth Volume contributed by P. E. Roberts and that in the book under review. In Chapter V, the wars of the period 1784-1818 are compressed into proper proportions. Separate chapters deal with the growth of political sovereignty over native states, and the growth of the army. The chapter on the Company's Administrative System and Policy 1818-58, is concluded with the remark that the British Government with its western outlook was bound to give a series of shocks to Hinduism which would react sharply and convulsively. The chapters on the Constitutional and Administrative Development after the Mutiny afford very interesting details.

The book is a welcome addition to the single volume histories of India and may be safely placed in the hands of students of colleges. There is erroneous spelling of some proper names, like Jātavarman, Kerāla, in the first part. We hope these would be rectified when a second edition is called for. We offer our hearty felicitations to the learned authors who have co-operated to produce a good and useful book.

V. R. R. DIKSHITAR

BOOKS RECEIVED

1. *A Book of English Verse*. By W. S. Mackie (1935). Macmillan. 190 pp. Price 3s. 6d.
2. *An English Reader for Foreign Students*. By Wilfred Thorley. Macmillan. 1935. 3s. 6d.
3. *The Story of English Literature*. By Gerald Bullet—How and Why Series. 2s. 6d.
4. *Worlds in the Making*. By G. H. Vallins. 2s. 6d.
5. *For all who Seek to Express themselves in good English*. By William Freeman. A. & C. Black. 3s. 6d.
6. *Higher School Geometry*. By L. Crosland. Macmillan. 1935.
7. *The Fundamentals of Chemical Thermodynamics*, Parts I and II. By J. A. V. Butler. Macmillan. 1935.
8. *Physical Principles and Applications of Magnetochemistry*. By S. S. Bhatnagar and K. N. Mathur. Macmillan. 1935. 21s.

The following books have been received from the Oxford University Press :

9. *Chaucer Troilus and Criseyde*. Abridged and Edited by R. C. Goffin. Rs. 2.
10. *La Narration Francaise*. By M. L. Lebonnois. 1s. 9d.
11. *Heat* (Intermediate Standard)—Indian Edition. By Robert W. Hutchinson. 3s. 6d.
12. *A Modern English Course for Schools*. By A. M. Walmsley. 3s. 6d.
13. *Elementary Mechanics and Hydrostatics*. By Frank Barraclough. 3s. 6d.
14. *Text-book of Biology*. By E. R. Spratt and A. V. Spratt. 9s. 6d.
15. *Elementary Electricity and Magnetism*. By Robert W. Hutchinson. 6s. 6d.

AMONG OUR EXCHANGES

Bombay University Journal.
Annamalai University Journal.
Madras Agricultural Journal.
League of Nations' Weekly Bulletin.
The New Review, Calcutta.
Half-yearly Journal of the Mysore University.

PUBLICATIONS OF THE MADRAS UNIVERSITY

(Text-books, Calendars and Question Papers have been omitted)

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THE HAND-LOOM INDUSTRY
IN
SOUTH INDIA

BY
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*"There is only one way of seeing things
rightly and that is seeing the whole of them."*

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CHAPTER VII

BUSINESS ORGANIZATION

SUPPLY OF COTTON TWIST AND YARN

THERE are three distinct sources of supply of yarn for the hand-loom : (1) from the Charka, (2) from the Indian mills, and (3) from foreign imports. The organisation for distribution of yarn is different in all these cases.

THE HOME SPUN YARN.

A century ago the only source of supply of yarn was the Charka. Before the advent of the mill industry in India nearly 3 million cwts. of cotton were consumed in the country by the Charka and the hand-loom. In 1869 the total production of cotton was estimated to be 7.1 million cwts. of which 5 million cwts. were exported and 2.1 million cwts. were consumed in India—0.25 million cwts. by mills and the rest by hand-looms. In 1889 the total production of cotton was $9\frac{1}{2}$ million cwts. of which $5\frac{1}{2}$ million cwts. were exported to foreign countries, 3 million cwts. were consumed by local mills and 1 million cwts. by hand-looms in India.¹ This shows that with the growth of Indian mill industry the hand-spun yarn was very rapidly superseded by yarn made in Indian mills. The writer's enquiries in some places in Tanjore district revealed that 100 years ago the Government of Madras offered certain transport facilities to spinners and weavers of fine cloths. Weavers at Tugili got their yarn of 60s and sometimes 100s from Negapatam, Sikkil, Thachanellore and other places where caste Hindus and Muslim women spun fine yarn of repute which was purchased by them. Cloths when manufactured were collected and were sent to Tirukkooloor, Panruti, Vridachallam and other places in the north with the

seal of the Circar which gave them the necessary protection in transport. However with the growth of the mill industry hand-spinning shrank to insignificance. Yet the supply of hand-spun yarn for the hand-loom industry even now is considerable. In Assam spinning and weaving are done by women at home and almost every household has its spinning wheel and its own loom.¹ According to the Census of 1921 there were 229,463 wheels, 95,172 hand gins, and 41,729 hand-looms in Assam. Even now in Vizagapatam and other districts the ryots often spin their own yarn which they hand over to the weavers to be made into cloth. 'In Sripuram and in Pondura,' writes the author of the *District Gazetteer*, 'the Patu-Sales make delicate fabrics from specially fine threads called *patu-salai nool* which the women of their castes spin for them and which is as fine as 150s.' Mr. T. N. Mukerjee in his book on the *Arts and Crafts of India* describes how in Arni fine yarn was spun for good muslins as late as 1880. Even to day in many Vellala villages of Salem district women spin their cotton into yarn and the Panchama weavers who are partial agriculturists convert it into cloth for customary wages i.e. two local measures of ragi and four annas per piece. Similarly, the Special Officer who enquired into the cottage industries in Madras Presidency has also noticed cases of survival of cotton hand-spinning in the districts.

Hand-spinning is now a growing industry due to the vigorous propaganda carried on by the All-India Spinners' Association. The expansion of the industry is marvellous and it shows that in many cases hand-spinning was given up because there was no organization which could provide the necessary facilities for the distribution of cotton, purchase of yarn, employment of weavers and the marketing of cloth. The following figures give us an idea of the growth and

expansion of the hand-spinning industry in India and the Madras Presidency :—

PRODUCTION OF HAND-SPUN CLOTH IN INDIA.
(From A. I. S. A. Reports)

Year	Value of production in lakhs of rupees.			Price of Cotton per Candy (Highest Price)
	India	Madras Presidency :		
		Andhra	Tamil Nadu and Kerala	
1921	... not known ...	...	...	Rs. 560
1924	9.5	...	4.7	560
1925	19.0	...	7.0	475
1926	23.76	3.5	8.45	360
1927	23.45	3.8	10.97	360
1928	24.1	2.95	9.97	415
1929	31.5	3.39	11.37	417
1930	54.9	7.78	16.16	354
1931	58.3	7.75	24.42	272
1932	44.6	...	13.94	199

Thus the industry under the management of the A.I.S.A. has increased its output four times since 1924. It now supports more than 60,000 spinners and 3,500 weavers, besides numerous carders, dyers and bleachers. It becomes evident that from the point of view of the number of persons supported by the industry, the khaddar industry is not insignificant. But judged by the percentage of hand-spun and hand-woven cloth to the total consumption of cloth, the industry is still unimportant.

Hand-spinning generally obtains in places where cotton is not an important commercial product but is grown as a garden crop to meet the domestic demand. In many other places it is carried on as a famine relief measure. In Tirupur it thrives as it is fostered by the A.I.S. Association. The cotton is purchased by the Spinners Association, ginned and distributed to spinners who return the yarn to the depot and receive

¹ Census Report for 1921.

wages. The depot again distributes the yarn to weavers who convert it into cloth and get wages. The A.I.S.A. has its own sale depots. This elaborate organisation does not obtain in places where hand-spinning is carried on voluntarily as a means of subsidiary income e.g., Uttangarai taluk in Salem district. Cotton is grown by spinners themselves and the yarn is given to the village weaver who converts it into cloth for customary wages.

The question now arises whether this source of supply can still further expand, even after the Spinners' Association withdraws its help, and become more important in the future. The scope for and the extension of the industry is dependent on the following factors:—(1) the nature of the spinning wheel, (2) the necessity for subsidiary employment, (3) earnings in other industries and their possibilities for expansion, and (4) the growth of an efficient organization for the fostering of this industry. Any improvement in the spinning wheel which will increase the outturn, say six times, will make this industry the primary means of livelihood. But during the last hundred years and more very little improvement has been made in the hand-spinning wheel. Inventions have helped power-spinning and not hand-spinning and if the dream of a better spinning wheel materialises in new inventions and improvement of the Charka, its future will be assured. But as regards hand-weaving, inventions have proceeded *pari passu* with those in power-looms. This accounts for the triumph of power-spinning over hand-spinning while the power-loom has not yet vanquished the hand-loom. It cannot be said that in India there is no need felt for the subsidiary means of livelihood but the Charka will not be resorted to unless (1) an organization of the A.I.S.A. type becomes a permanent feature, and (2) earnings in other fields become less remunerative than in spinning. The spinners left to themselves can do nothing.

The case for the Charka is well stated by its advocates, but it is too much to expect that all yarns required for our consumption can be produced on the country wheel. It is estimated that if all the adult male population of India spin for four months consecutively working at the rate of ten hours a day the requirement can be met. But how laborious, tedious

and wasteful! Will people spin? What is the inducement? The doctrine of capitalising idle hours and of using man-power in preference to mechanical power has, even with reference to India, a limited application unless it be that human values further depreciate.

THE MILL YARN: (i) LOCAL SUPPLY

No less than 80 per cent of the yarn consumed by hand-looms is supplied by the Indian cotton mills. Madras Presidency consumes 60 million lbs. of Indian mill yarn. It consumes about 20 million lbs. of foreign yarn; and the yarn available from the local mills is about 40 million lbs. From Bombay the West Coast imports by sea and the Telugu districts import by rail annually about 20 million lbs. The Bombay mills supply finer counts for the hand-looms.

The mills have their own systems of sale. The local mills have their sole agents for each territorial area and all sales must be effected through them alone. The agents are mainly large capitalists. They get 2 per cent commission in the case of local mill yarns and 1 per cent in the case of Bombay mill yarn and also a month's credit. If the sum is immediately paid, a rebate of interest, usually one per cent, is paid. In all these cases the sales to the agents are secured by the guaranteeing brokers, who get 5 annas 4 pies for every bale of yarn sold to agents. The legal effect of this transaction is that mills sell to their agents and the guaranteeing brokers stand surety.

(ii) FOREIGN IMPORTS

The average annual import of foreign yarn into India during the years 1921-6 was 53½ million lbs. of which

Grey accounts for 41 million lbs.

White	„	2	„
Coloured	„	7½	„
Mercerised	„	3	„

The United Kingdom and Japan supply all the grey yarn, Japan's share being more in counts below 40s while the United Kingdom supplies all yarns of 40s and above. It has the monopoly of bleached yarn also, its share being more

than 80 per cent. Japan has 'practically all the trade in mercerised yarn. The United Kingdom again has the lion's share of the trade in coloured yarn. Netherlands, Italy and Switzerland also share in the colour yarn trade.

The import trade is practically in the hands of foreign importing firms. Though Madras consumes more than or at least half the amount of foreign yarn consumed in India it is striking that practically the whole trade passes through Bombay. The direct import into Madras is less than a half of what it actually consumes. The rest is imported from Bombay by rail.¹ The predominance of Bombay in the foreign trade is due to its financial supremacy.

Each importing firm has its own system of distribution; one firm sells to yarn dealers only; another sells to all for cash; a third sells to approved agents for credit and for cash. But the recent tendency for importing firms is to market their yarns directly to small dealers in mofussil towns. Thus the numerous middlemen between the importer and the retailer are eliminated and the trade is so well organised by the importing firms that the best price for yarns is now obtained. This rationalisation of the business has not, however, benefited the weaver directly by any reduction in the price of yarns.

Has the hand-loom consumption of foreign yarn increased? The average annual import into India for the quinquennium 1890-05 was 45 million lbs. and for the quinquennium 1900-05 was 27 million lbs. and 37 million lbs. for 1910-15 and 53 million lbs. for 1921-26. Thus the present increase in the import over 1890 is 18 per cent. The fall in the import of yarn during the 1900-1915 is due to the increasing imports of piece-goods. The share of the Madras Presidency in the increased imports of yarn is not exactly ascertainable as a good part of its imports is got from Bombay by rail. However it can be inferred, from the larger export of her handkerchiefs and lungis which are mainly manufactured out of foreign yarn, that its import has increased.

It may be noted in passing that the price of imported yarn determines the price of local yarn. It is often stated that the

¹ In 1920-21 out of 23 million lbs. of foreign yarn consumed in the Presidency nearly 11 million lbs. were imported by rail, chiefly from Bombay.

imported yarn does not compete with Indian mill yarn. The range of competition is really small, yet it helps to regulate the price of Indian mill yarn. The imports from Japan and the lower counts of the American yarn from the United Kingdom especially determine the prices of Indian mill yarn. 'The imported yarn (of counts below 40s) though it is only a small portion of the yarn used by the hand-loom industry, exercises an important function in that it helps to regulate the prices of Indian mill yarn.' So care should be taken in imposing duties on imports of foreign yarn.

PRICE OF YARNS IN THE RETAIL MARKET

Competition rules in the wholesale yarn market and in important centres as Madras, Madura, Salem and Coimbatore where there are a number of yarn depots. But in villages remote from urban centres and in fairs which are frequented by a few yarn merchants competitive prices do not obtain and there is a more or less rigid rate for yarns of particular brands. The retail prices in those centres are less fluctuating than those of the wholesale and urban yarn markets. Another feature worth noting is that while a rise in the wholesale market is immediately followed by a rise in the retail price of yarn in the rural parts, it takes time for the retail price to adjust itself to a fall in the wholesale prices. This shows the weakness of small buyers. Also in many villages in Salem and Coimbatore districts, the price of yarn is one to three annas per pound higher than it is in headquarter towns.

THE NATURE OF THE YARN CONSUMPTION ON HAND-LOOMS

The Indian mills supply about 250 million lbs of yarn, of which nearly a fourth is dyed; the import amounts to 50 million lbs and the hand-spun yarn about 2 million lbs. The hand-spun yarn is mostly of low counts, i.e., below 20s. Of the imported yarn in the Pre-War days 50 per cent used to be coloured yarn. Now it is only a fourth of the total imports. Regarding the counts of yarn imported, 10 per cent is below

¹ Speech of the Member for Commerce and Industry in the Legislative Assembly—1921-22.

20s, 60 per cent between 20s and 40s (the bulk of it being 40s), and the rest above 40s.

It is not possible however to state how much of each count of yarn is consumed in hand-loom. The Monthly Returns of Spinning And Weaving Mills In India publish the total production of yarn of each count and the volume of cloth produced without stating how much of each count of yarn is consumed in mills themselves. The mills in India now produce yarns up to 100s-102s but the bulk of yarn produced is below 30s being more than 90 per cent of the total production. In mills the greatest weight was spun in the following counts: (stated in the order of importance) 20s, 21s, 24s, 22s, 11s, 30s, 16s, 14s, and 12s. But it is not known how much of each count is available for hand-loom. It is safe however to assume that the Indian mills supply all counts below 80s while Japan supplies 40s and 60s and the United Kingdom the finer yarn above 40s.

CHAPTER VIII

BUSINESS ORGANISATION:

MARKETING OF CLOTH WITH SPECIAL REFERENCE TO HAND-WOVEN GOODS

In these days the study of markets, and especially the methods of penetration into new markets, has become a matter of immediate interest. The expansion of foreign trade, depending almost entirely on the discovery and exploitation of new markets, and the retention of markets already gained against continual and intense competition, is at once the problem of industry and the main duty of finance.

'The hold which small shops retain on poor districts rests on solid economic foundations. Some of the foundations are the product of evil and unnecessary conditions and others are likely to endure so long as a considerable part of the population live on small incomes and are inadequately housed.'—A. Marshall, *Industry and Trade*.

'Not a little of the industrial success of modern Japan is due to the attention that has been paid not only to the educational and technical training of cottage workers but to the building of business organisations which take over the products of their industry and disposing them all over the world.'—*The Indian Industrial Commission*.

THE organisation required to market any article depends on various factors. The distribution of the consumers; their habits and tastes; their income, the character of the demand for the article in question; the nature of the article to be marketed and the conditions under which it is produced—all these determine the organisation required to bring the product to the consumer.

THE DISTRIBUTION OF THE POPULATION

India is a vast country with a vast population scattered over many villages. Its area is about 1·8 million square miles. There are 687,981 towns and villages maintaining a population of 352 millions. A comparison of India with the United States of America, another large civilised country, in regard to the distribution of the urban and rural population will explain the types of marketing organizations prevailing in the two countries. The continental United States of America is about 3 million square miles with a population of 112 millions. But its population is more urban in character. The percentage of urban population in America is 51·4 (assuming that places containing more than 2,500 inhabitants are urban centres) while in India the urban population accounts for 27 per cent only (even assuming that places having 2,000

inhabitants are urban centres). The rest 73 per cent of the Indian population are found in 677,232 villages scattered all over the country.¹ The marketing organisation in India for supplying this necessary of life is largely determined by the resources, habits and tastes of this vast rural population. The consumers being found in villages separated by distance from one another cannot be reached by shops and therefore hawkers and weekly fairs play a prominent part in the marketing organisation in India; while the concentration of population in urban centres in America makes it possible to reach the consumer more easily through shops.

THE CONSUMER

Further, the habits, tastes and resources of the consumer will generally determine the nature of the marketing organisation. The Indian consumers can be grouped under two main heads: (1) urban, and (2) rural. These, again, may further be subdivided according to their status and means. The rich land-owning classes in the rural area and the professional classes in the urban centres enjoying a higher standard of living consume more cloths than others. Their requirements also admit of many varieties. The urban class as a whole needs more clothing than the rural population which by tradition is frugal and simple. Even the urban artisans and wage-earners use more cloths than those in villages. The regular monthly income of the former and the seasonal earnings of the latter account for the difference in their demand. Social conventions and ideas of fashion regulating the sartorial outfit of individuals differ according to castes and communities they belong to. It is estimated that a fifth of the urban population consume nearly a tenth of the total cloth available and that the urban population—one-fourth of the total Indian population—consume a little more than half the quantity of cloth available. This higher consumption of cloth in towns is partly due to their better economic conditions and partly to

¹ No. of villages with a population below 500—509: 786 with a total population of 97 millions.

No. of villages with a population between 500—1,000: 113,541 with a total population of 79 millions.

No. of villages with a population between 1,000—2,000: 53,905 with a total population of 73½ millions.

the more efficient marketing systems prevalent there. The congregation of the population with a regular fortnightly or monthly income and a higher degree of literacy enables the traders to effect more sales by show rooms, advertisements, auctions and clearance sales, etc. The difference in demand and consumption of the various classes of the population is also due to the difference in their social and personal habits, age, sex and occupation and income. And on these factors depends the nature of the marketing organisation.¹

THE SYSTEM OF PRODUCTION DETERMINES THE METHODS OF DISTRIBUTION

Where the weaver markets the cloth himself hawking obtains invariably. Where cloths are manufactured by the sowcar or the capitalist master craftsman both *shandy* sale and shop systems obtain. But where goods are manufactured on hand-loom factories, regular shop, canvassing agency, mail order house and commission agency are the regular channels of distribution. In the case of mill-made cloth—especially imported cloths—hawking and shandy sales are not so common except in far interior villages of the country. Regular shops are the main channels of making them available to the consumer.

THE SYSTEM OF DISTRIBUTION DEPENDS LARGELY ON THE PROXIMITY OF THE MARKET AND THE BUYING HABITS OF THE CONSUMER

Where cloths are produced for local consumption hawking, sale in shandy and 'bespoke system' (i.e., manufacture and sale of cloth on orders placed) obtain. But where cloths are manufactured for purposes of export to other districts and outside the province and also where such cloths are specialties having an extensive market, the capitalist middleman is an invariable factor and the ultimate consumer is reached by the retail cloth shop through one or more middlemen. The

¹ The consumer's spending power is limited by his earning ability. This is a truism. But 'the standard of living', the opinion of the class to which the consumer belongs, as to what may be expected of him in the matter of his clothing requirements has its constant effect on his conduct.—Clark: *Readings in Marketing*.

middlemen purchase the cloth from manufacturers according to the requirements of moffussil retailers and forward it to them. This is what the Komatis of Salem do. Their function is to finance the trade and the moffussil merchants. Where cloths are intended for foreign exports as in the case of Madras handkerchiefs, lungis and kailis, they pass through a series of middlemen ending with the shipper—some finance trade; others, production; and a few, act only as buying or selling agents.

Hawking, shandy sales and sowcar shops are more important in rural areas while 'shop' and 'auction' systems are characteristic of towns. This does not, however, mean that hawking and sowcar shops are uncommon in towns. One can find a host of hawkers and a number of sowcar-cloth-merchants in the area occupied by the working classes in urban centres. Hawking in respect of costly silks and other fabrics is now becoming more usual with the development of the idea that the consumer must be attacked in his own place.

What system—whether hawking, sowcar shop, or the regular shop—obtains in a particular locality is determined by the buying habits of the consumers.¹ With price higgling and the sales for credit which are dominant among the working classes and in rural areas, hawking and sowcar systems obtain. In towns where there are regular shops price higgling is almost eliminated and the sale is based on standardised quality, guaranteed satisfaction and fixed prices. Therefore in these shops the consumer has come to expect that goods can be bought without bargaining. This means that while he is safer in his purchase in this shop regarding the price he pays he is more careless also. This psychology of the consumer is well appreciated by the dealers, and the auction and clearance sales systems are coming more into

¹ The habits of the consumer.—The purchasing habit of the consumer is a deciding factor in the systems of retail-trade. The rich and the upper middle class urban consumers expect quality cloths at fixed prices and they go to regular shops for their purchases. Here the consumer seeks the retailer. In rural areas on the other hand, price higgling, customary prices and careful examination of the quality of the cloths are regular features. The price higgling is partly the result of the consumer's ignorance of the cloth market and his slender means. He has to be reached in his own place by the retailer.

prominence in urban cloth shops. In Madras there are about half a dozen 'clearance sales' in a year: Summer sales, Dasara sales, Deepavali clearance sales, Christmas sales, Stock-taking sales etc., etc.

The kinds of fabrics also determine the type of retail shops. For example, coarse cloths—white and coloured—manufactured on hand-looms and mills, are generally hawked and sold by sowcars in villages and in ordinary cloth shops in towns. But the specialised fabrics for which there is a limited demand and for which the market is narrow, the shop is the only usual channel of distribution. The laced cloths of Madura and Salem, the elaborately embroidered cloths of Kumbakonam and Bangalore are seldom sold by hawkers. The specialised hand-woven cloth depot is the chief distributing agency for such fabrics.

Specialism in the retail trade of cloth is now increasing. Shops dealing only in underwears, saris, or other cloths, are quite common. There are two kinds of shop: one, where only mill piecegoods are sold, and the other, where hand-woven goods alone are available. Their distinguishing features may be noted. In the mill piecegoods shop wholesale purchase, attractive show-rooms, standardised products, fixed and uniform prices, large daily turnover and small commissions obtain while in the hand-woven cloth depots time-to-time purchases from weavers and manufacturers in small quantities, variable prices, bargaining and small daily turnover are common.

CHAPTER IX

SOME TYPES OF RURAL AND URBAN CLOTH MARKETS

(A) THE RURAL MARKET

1. *The Weekly Fair or Shandy*

THE weekly fair is a special feature of Indian rural trade. Except in Guntur, Nellore and Malabar this is the main channel of distribution.¹ The fairs play a very important part in bringing to the rural consumer necessities and luxuries otherwise procurable only in towns. They in fact serve the same purpose for the rural area as a number of specialised shops do in towns. These weekly markets are held in convenient distances, to serve a group of villages and the days are so arranged that the same traders may go on from one market to another. These markets are often visited by the weavers living in the neighbouring villages and they sell their cloth manufactured during the week and purchase yarn and other articles required for work for the next week. Also cloth merchants visit these fairs. *Shandy* sale is an integral part of the system of trade adopted in this Presidency.

Prices are to a large extent inelastic and this is almost always the case with coarse cloths and other cloths of common varieties which are brought to the market by the producers. Buyers are accustomed to a fixed movement in prices. There are seasonal variations in prices: The price of cloth is usually higher during marriage, Deepavali and Sankranti seasons than in other times. Also shandy prices seem to be a bit higher but steadier than the hawker's price. In the shandy retail sale is the rule. The sale is invariably for cash. In small shandies the cloths are brought for sale by small weavers while in the bigger shandies, as the Pollachi Fair, big merchants come there for disposing of their products. In all these rural shandies hand-woven goods are more important than mill cloths. They form nearly 75 per cent of the cloths brought there for sale.

¹ The Madras Census Report 1921.

2. *Special Fairs and Exhibitions* are held during important local festivals (e.g., Conjeevaram and Madura festivals, Park Fair exhibitions, where shops are opened for the occasion). Here thousands of people assemble and this is a rare opportunity for dealers. Besides coarse ordinary cloths, special fabrics also are brought for sale. The weekly fairs are generally attended by the poor people while the fairs during festivals are attended by the rich and the poor alike. The rich seldom go to the weekly fairs. They get their requirements from weavers of the locality with whom they place their orders or they go to shops in the neighbouring towns for the purchase of high class hand-woven and mill goods.

There are three other institutions which play an important part in bringing cloth to the rural consumer :

- (a) The village pedlar and the hawker in the bazaar
- (b) The local moneylender or the sowcar who also sells cloths, utensils etc.

(c) The seasonal trader called the *Arumasa Kadankaran*.

(3) The *Pedlar* is a general merchant having for sale some articles of necessities and luxuries. But the cloth pedlar is not a general merchant, but sells cloth alone. He sells usually for cash but recognised customers are given credit also. Such hawking is quite usual during the marriage and Deepavali seasons, when the demand is brisk.

(4) In many villages where there are small *Marwadi money-lenders*, e.g. in Coimbatore district, they combine sales of old and new cloths, ready-made shirting and clothing, utensils etc., with money-lending which is their primary business. This kind of business thrives most in centres where there are a number of wage-earners and artisans. Their prices are often many times higher than those of the hawkers and retail dealers in the neighbouring towns. But the sale is generally for credit and the impecunious wage-earners who are slaves of conventional extravagances and social prestige but who have not the ready means for the purchase of their requirements have recourse to these money-lenders. The scale of business is very small and therefore the prices are high enough to cover the interest, risks involved in transaction and charges for waiting and retail sale. The range of goods is limited and therefore only needed persons resort to these

shops. This system obtains in urban centres also where there are the colonies of the working classes, (e.g. Perambur). It thrives because the customers have not the ready money for the purchase of their requirements and they have accommodation only from these kindly sowcar merchants. Also the sowcars allow easy payments by instalments. In many cases valuable articles are pledged to the sowcars who advance loans and sell cloths for credit. But the high rate of interest and the high credit prices work double havoc on the customers. It is in such cases that co-operative sales depots will be useful and may eliminate the profits of the middlemen to some extent and reduce the price of cloth to consumers.

(5) The *Arumasa Kadankarans* (meaning six-months creditors) are important as rural retailers in South India. They are mainly Labbais coming from Karur and other interior taluks of Trichinopoly district. Their operation is interesting. A number of them subscribe capital, each about Rs. 50 or so, purchase the cloths usually demanded by the agricultural labourers and also some ready made and cheap coats, shirts, underwears and other brightly coloured goods, have their shows in the villages just a few days before Deepavali and sell them to the villagers with the assistance of the local headman. The sales are for credit mainly. The time they visit the villages is very opportune. It is just then there is demand for cloth, for custom enjoins the purchase of new cloths for Deepavali. It is also favourable for credit sales. The agriculturists are just then entering a period of off-season due to rain and temporary cessation of agricultural operations. The ryots are then generally out-of-pocket. Cloths are sold to them at six months' credit. The merchants return at the time of the harvest and collect their dues usually in the form of grain. Here the prices of articles are from 100 to 300 per cent higher than in shops in towns.

The characteristics of this system are: (1) there is an element of barter in this transaction; the merchants accept grains instead of money for payment; (2) while the prices are indeed very high, the profits of the merchant are not high enough to make his business worth his while for there is a large amount of bad debts and (3) the prices of cloth are twice as dear and the commutation rate of grains is some-

what less than the market rate. The whole system persists because of the ignorance, poverty, necessity and illiteracy of the people; and the conventional expenses occurring at a time when their savings are nil and income is meagre; and the merchants take advantage of the situation.

(B) THE URBAN RETAIL MARKET

1. THE HAWKER

In almost every town the weavers of the neighbouring villages can be found hawking their manufactures usually in the evenings. In most places they sell direct to consumers but in Salem the daily transactions in the evening bazaar run to several thousands of rupees and the middlemen's transaction is nowhere so extensive as in Salem. The Komati Chettis act as middlemen for mofussil cloth merchants, purchase goods coming into the market and brought down by weavers. For every rupee of transaction they get not less than $2\frac{1}{2}$ annas.

In other places also the cloth hawkers are mainly independent weavers who come to town to sell their goods. In most cases the articles are meant for local consumption. This enables the weavers to eliminate middlemen's profits and compete with mill products.

2. SMALL SHOP

Where articles are of costly varieties and the demand for them is restricted, the weavers cannot sell them directly to the consumers. The capitalist-merchant is a necessary link. He purchases for cash or credit from weavers and retails them to consumers. Here the function of the merchant is really marketing. In most cases the merchant purchases the articles; neither commission nor consignment sale being known in the trade of hand-woven goods. He must necessarily lock up a great deal of capital in stock, for, while he must be purchasing cloths when they are coming into the market, he can sell them only in particular seasons. This means that risks due to fluctuations in prices are borne by the merchant himself. His prices therefore include a heavy charge against such risks. While this is the case with the retail merchant, the merchant who performs the function of a broker, e.g. Salem

Chetti—gets very good profits for no other function than financing the trade, allowing the mofussil merchant a month's credit and paying off immediately the weavers in cash. He pays the weaver taking a discount of 2 annas per rupee and charges the merchant $\frac{1}{2}$ anna for agency function and accommodation and 12 per cent interest on overdue amounts.

3. SOWCAR SHOP

It is the same as the sowcar's shop in rural areas except that in the urban shop a larger percentage of sale is against pledged moveable properties.

The characteristics of all these systems of marketing are small scale business, price higgling, unstandardised goods, absence of advertisement, different prices for cash and credit.

4. AUCTION SHOP

A recent phase in the development of marketing of hand-loom products is the *auction system*. This does not always mean that the goods are auctioned for a small commission on behalf of the weavers, but it is a device of retail sale adopted by cloth merchants. The cause for its popularity is the correct appreciation of the mass-psychology. The buyer usually associates cheapness with auction sales though often he is taken unawares and the price he pays is dearer considering the quality of the cloth. This system had its origin in the imitation of the much advertised clearance sales of foreign piecegoods merchants.

The modern shop with advertisement, organised salesmanship, fixed prices and standard qualities obtains only with reference to mill-woven goods and goods manufactured in hand-loom factories. Except in the few co-operative cloth depots where one price system and wide advertisement obtain, the progressive ideas of modern salesmanship do not obtain anywhere in the case of hand-woven cloths.

SOME PROBLEMS OF MARKETING HANDLOOM PRODUCTS

(i) *Standardisation*

It might be noted in passing why hand-woven goods are not favoured by piecegoods merchants. They deal in large stocks of mill goods because the mill product is standardised

and answers to the sample. But there is no standardisation of quality or prices in regard to the handwoven goods. It does not however mean that they cannot be standardised but there is no agency to effect it. Nor is the cost of standardisation prohibitive. The absence of standardisation often results in higgling in prices, more salesmen, slow turnover, high costs, and low profits. Standardisation of prices and quality is a necessary factor in the case of articles intended for wholesale and foreign markets for they must pass through many middlemen before they reach the ultimate consumer. Standardisation of quality, therefore, obtains in the case of Madras handkerchiefs, lungis and kailies.

Again nowhere does the wholesale merchant place huge orders for cloth with small weavers; and the tiny weaving establishments cannot meet his demand. Unless the workers are organised in rural factories their products cannot be standardised or marketed on scientific lines.

(ii) *Organisation of hand-loom factories*

The growth of hand-loom factories has led to the introduction of new business methods in the cloth trade to some extent. Sole agency, commission sale, sale on consignment basis, mail-order house and canvassing agency are some methods of recent development in marketing. These systems of distribution are quite unknown to the ordinary weaver or the merchant dealing in hand-woven goods. The hand-loom factories push their sales in distant parts of the country through commission agents and advertisements. The agents book orders from retail merchants in North India where there is a brisk demand for the kinds of products manufactured in South Indian factories. The consumers are also attracted by advertisement and of late the mail order business is progressing. The amount of business done here, though small, promises to expand in future. Still lack of enterprising advertisement retards its progress. The chief limitation to advertisement is the low standard of literacy of the people. It may be concluded that the advent of the hand-loom factory is a new chapter in the organization of industry both on the production and marketing side; and it is full of promise for the future. If men with greater imagination, resources,

business knowledge and enterprise come into the business the future of the hand-loom is assured.

(iii) *Reduction of marketing costs*

One great handicap that the hand-loom weaver is at present labouring under is the very prohibitive cost of marketing his manufactures especially those intended for distant markets. On examining the cost of marketing hand-loom products, the conclusion is irresistible that due to various causes the hand-loom is now at a very great disadvantage. Economy in respect of freight, purchasing and forwarding commissions, other agency charges, packing cost etc., which generally obtains in the case of mill manufactures is not secured in respect of hand-loom goods as they are produced on a small scale.

(iv) *Middlemen*

It is often stated that the existence of too many middlemen in the hand-loom trade between the consumer and the producer accounts for the high price of hand-loom goods and the low wages of weavers. It is desirable to avoid the dangers of this kind of generalisation. It is admitted that there is enormous waste which can be prevented to the advantage of both the weaver and the consumer; but one cannot expect things to be very much better under present circumstances of hand-loom production in India.

It is a common belief that the existence of many middlemen in the same stage of production and distribution will result in the free play of competition among themselves which in turn will reduce the cost of that service to a minimum. If, on the other hand, middlemen exist in successive stages of production and distribution, competition cannot be so very effective as to reduce the cost of their service to the lowest margin but it may result in the exploitation of workers and consumers. A careful survey of the marketing organisation in respect of hand-loom products shows that—

(1) there are many middlemen between the actual producer and the ultimate consumer.

(a) in towns such as Madras, Salem, Madura, Conjeevaram, the presence of a large number of merchants, middle-

men and master weavers results in competition among themselves avoiding exploitation of workers.

(3) in villages which are generally served by a single merchant or a group of middlemen and merchants, there is very little competition. The weavers have to accept the wages paid to them by merchants who give them work, or they have to starve. The consumers are similarly at the mercy of the merchants. Most of the weavers belong to this category.

(v) *Low turnover*

But from these facts one should not hastily conclude that there are too many middlemen and that the weavers are underpaid; that what is legitimate is withheld from them by the merchants; and the consumers are exploited by the middlemen. An analysis of the conditions of production and distribution shows that the cost of middlemen's service per unit of manufactures is generally greater in India than in Western countries, but yet the profits of the middlemen are anything but enviable. They make a miserable living as a rule. The explanation for this is not far to seek. A village pedlar can hardly sell 30 to 50 yards of cloth per day.¹ It

¹ Certain figures of cloth retail trade relating to India and the United States of America tabulated below are interesting :—

.....		U. S. A.	India.
Volume of cloth consumed (in million yards) ...		7,000	6,000
Population (in millions) ...		105·7	352
Area of the country (million sq. miles) ...		3·02	1·8
Number of dealers and retailers of cloth ...		46,250	335,000
Average area per retailer (sq. miles) ...		65	5·4
Average population served by each retailer.		2,284	938
Average daily sale per retailer (yards). ...		464	50

According to the recent census there are about 65,000 traders in textiles in the Madras Presidency. It means that the average daily sale per trader is about 25 yards, which is only about a twentieth of what it is in U. S. A. It is no wonder that the cost of retail trade is very high in India though the merchant hardly makes a living.

is evident that the ridiculously small average daily turnover of retail dealers, their impecunious circumstances and their difficulties of making a living account for the high rate of marketing cost in India, the low business morality of traders and the primitive state of the trade.

(vi) *Transport difficulties*

The causes which explain the low turn-over of the retailer in India are quite known. First, unlike the people in U.S.A. and other western countries, the Indian population is more scattered and lives in villages and hamlets distant from one another. Though the American retailer covers a large area, he deals with a highly urbanised population which facilitates the adoption of many economic methods of marketing. Secondly, the transport facilities in India are very poor both in mileage and quality.¹ The greater transport facilities in U.S.A. enable the traders to serve a larger area and population than it is possible for them here. Also the larger the turn-over per trader, the lower is the cost of marketing. Thirdly, the people in India are very poor and live on seasonal production. Naturally, therefore, no trade is possible except on credit. Credit sales mean high cost of collection and administration. Fourthly, credit facilities to the rural merchants in India are very dear and inadequate. The average rate of interest against security is seldom below 12 per cent.

(vii) *Other disadvantages of the hand-loom*

It may now be asked: 'The system of rural retail trade is the same both in respect of the hand-loom and the power-loom products. Then, why should the products of the hand-loom alone suffer?' The answer need not be laboured. First, the cost of the hand-loom product includes transport costs twice (i) for conveying the yarn from the mill to the hand-loom weavers and (ii) for conveying the manufactures from the weavers to the consumers. In hand-loom production

¹ The total mileage of all roads in India is 254, 127 including 70,127 of metalled roads and of rail roads about 42,000; while the corresponding figures for U. S. A. are 2,941,294; and 250,222; in India the inland waterways returns are not available. But the volume of the coasting trade is estimated to be five million short tons, while the inland water transport is almost negligible. In U. S. A., on the other hand, the annual freight carried exceeds 375 million short tons (excluding foreign trade).

yarn is produced in one place, cloth is made in another place and it is consumed in a third place, and all have to be linked by a number of middlemen. In the case of the power-looms no middlemen are necessary to secure yarn for weaving and no transport cost is incurred in bringing the yarn to the loom, for most mills in India have their own spinning departments. They enjoy another advantage over hand-looms. As the mills are well organised and bring large custom to the spinning and railway companies, they are in a position to bargain for special rates. The hand-loom weaver and the merchant dealing on a small scale have to send their goods invariably by railway parcel or by goods paying the general class rates which are much higher than the special rates quoted for export and port-to-port tariff for foreign goods and special rates for exports from Ahmedabad, Bombay, Sholapur, Nagpur, and other cotton manufacturing centres. No hand-loom weaving centre, however large, enjoys any such special treatment in respect of yarn imported into that area or of cloths exported therefrom. Also it deserves to be noted that both cotton yarn and cloth—irrespective of their value—are charged the same class freight.¹ Thirdly, the mills, by sole agencies and by offering special facilities to merchants, are able to effect a large sale on the basis of a small commission not exceeding 3 per cent. But the Salem merchant, for example, takes 2 annas per rupee. The turn-over of the hand-loom cloth dealer is very small and a high percentage of commission has to be charged. Also the hand-loom products, especially in the case of foreign exports, have to pass through the hands of several middlemen; they pass through a larger number of middlemen than power-loom products. Taking Ahmedabad cloth for instance, it is obtained by the sole selling agent at Madras who invariably has his branch office in

¹ Cotton piecegoods and cotton yarn and twist are placed in class six (railway risk) or class four (owner's risk). Therefore the railway rates work out at a higher percentage on value in the case of yarn. Also the rates work out at a higher percentage in the case of cheaper and coarse yarns.

The special rate for mill cloths from Ahmedabad to Madras inclusive of terminals etc. is Rs. 2-2-0 per maund while the waggon rate is still less. The ordinary goods rate is very nearly Rs. 5 while the parcel rate is over Rs. 9. It is necessary in fostering the hand-loom industry to give at least the same special treatment to hand-loom products as to mill products, if not more. The rates must be reduced if the yarn is imported for the use of the hand-loom, and also for hand-woven goods.

Madura, Calicut and Bezwada. The retailers, including the village hawkers, purchase from him and these convenient but large distributing centres render it possible to reduce the marketing cost. But in regard to the hand-loom cloth the yarn from the mill to the weaver and the cloth from the weaver to the ultimate consumer have to pass through many independent middlemen with the result that the cost of marketing service is very high. Unless the business is so organised that the daily turn-over per trader increases, that middleman service, wherever possible, is eliminated, and that mass handling of goods is effected, neither the hand-woven cloth can be cheapened in price nor can the status of the weaver be improved.

CHAPTER X

WEAVERS AND CO-OPERATION

'What makes all savage communities poor and feeble? The same cause which prevented the lions and tigers from long ago extirpating the race of men—incapacity of co-operation.'—J. S. MILL, *Civilisation*.

'There must be a very great improvement in the economic condition of the weaver if co-operative organisation can be formed. . . . There is no extravagant fancy in a mental picture of a network of weaving societies throughout the Presidency, organised into central and wholesale societies which are closely in touch with yarn and cloth trade, can get the weaver his yarn cheap, can advise him what to weave, and can sell his cloth for him.'—F. R. HEMINGWAY, I.C.S., (*formerly Registrar of Co-operative Societies, Madras.*)

THE co-operative movement seeks to help weavers in three ways: (1) in providing easy credits to them and relieving them from their indebtedness to moneylenders, (2) in purchasing raw materials required for the industry at wholesale prices and selling them to members and in selling as agents the products manufactured by weaver-members, thus eliminating the profits of middlemen and (3) in organising producers' societies. An attempt was also made in this Presidency to finance the trade in hand-woven cloths by starting a sort of a loan and sale society for advancing loans to weavers on the security of their manufactures.

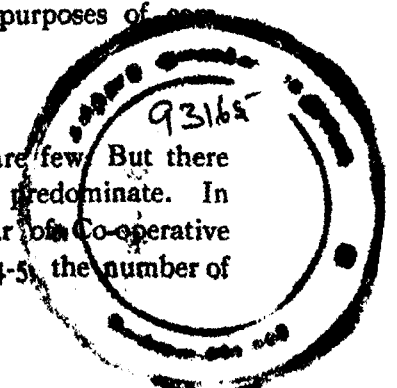
We shall examine in this chapter the actual achievements of co-operation in this presidency in these directions. The societies are classified under three heads: (1) Credit societies (2) Purchase, Purchase and Sale societies and (3) Production, Production and Sale societies.

The annual administration reports of the Registrar of Co-operative Societies indicate the lines of progress. They are now more informing but the changes in the classification of societies and the transfer of societies from one group to another render the reports less useful for purposes of comparative study.

I. THE CREDIT SOCIETIES

Credit societies exclusively for weavers are few. But there are some societies where weaver-members predominate. In the Administration Report of the Registrar of Co-operative Societies in the Madras Presidency for 1924-5, the number of

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societies where more than 60 per cent of the members belong to weaving communities was for the first time separately stated. In 1930 there were 95 such societies in the Presidency. The following is a statement of the progress of these societies during the years 1926-30 :

	1926-27	1927-28	1928-29	1929-30
No. of societies ...	66	76	86	95
	Rs.	Rs.	Rs.	Rs.
Paid-up-share capital ...	38,574	51,117	70,657	92,582
Reserve Fund ...	27,707	35,164	42,847	54,544
Working Capital ...	399,731	520,386	553,284	610,038
Cost of management ...	4,479	5,311	4,991	10,682
Net profit ...	6,297	6,974	12,649	15,051
Net loss ...	3,356	10,403	9,813	8,319

Thus there has been progress all round. There is an increase in the share capital, in the reserve fund, and in the working capital, and a reduction in the cost of management. But it is not clear how many and how much of the loan amounts are given to actual weavers and how far the weavers are benefited by them nor is the purpose of the loans stated.

Loans in credit societies are advanced to members against the security of property or on the surety of two other members. This being the case, it is not known how far these credit societies have really benefited the weavers who are proverbial for their poverty. It is often said that loans are given mostly to cloth merchants who employ weavers for manufacturing cloths they require. Most of the credit societies are on the limited liability basis. Loans are given for useful purposes as enunciated in the bye-laws. It will be interesting to know the amount and the number of loans granted to artisans for the purchase of raw materials and implements required for the industry, for purposes of trade and for the repayment of previous loans. But the annual reports do not contain any information on these points. The societies could not have helped the poorer weavers very much for the following reasons :—(1) they are controlled by cloth merchants

and well-to-do people against whose domination the societies seek to protect the poor weavers; (2) as many of the weavers have no security to offer they are no better off for being members of the society; (3) and again the borrowing capacities of members are fixed very low. Nor are the amounts of loans large enough to help them to any great extent. The 95 societies have a working capital of Rs. 6.2 lakhs i.e., Rs. 6,500 per society on an average, which is inadequate.

The credit societies are chiefly in the districts of Chingleput, Trichinopoly, Coimbatore and North Arcot. Of the 95 societies in the Presidency, 50 societies are in these four districts with a working capital of over 4½ lakhs and reserve fund of Rs. 57,000.¹

The objects of these societies are not merely to pool the resources of the members to be utilised for loans to be disbursed among themselves for useful purposes but in some cases to act as the agent for the purchase of raw materials required for the members and for the sale of their finished products. Such transactions however are very few and no joint purchase or sale was made in 1926-27. In 1925 the societies in Coimbatore district effected joint purchase of raw materials to the extent of Rs. 43,735 and sold the finished products of members to the value of Rs. 1,711. But nothing is reported in the next year. The societies in Chingleput District sold the finished products of members to the extent of Rs. 2,871. But this purchase and sale activity of credit societies is very insignificant.

¹CREDIT SOCIETIES. (WEAVERS) IN 1930-31

District	No. of Societies	Paid up Capital Rs.	Working Capital Rs.	Loans Rs.
North Arcot ...	11	20,049	1,05,726	Not available
Chingleput ...	14	22,620	1,41,752	
Trichinopoly ...	12	7,319	77,166	
Coimbatore ...	13	10,628	1,42,576	
Presidency Total ...	95	95,639	6,19,585	

II. NON-CREDIT SOCIETY FOR PURCHASE, SALE AND PRODUCTION

There are two classes of societies which are properly called weavers' societies: (1) Purchase, Purchase and Sale Societies and (2) Production, and Production and Sale Societies. Before 1925 they were classed together and in that year a distinction was made between societies primarily industrial and primarily trading.

There were 52 societies as reported in 1926-27 of which only 27 societies were of more than five years' standing. Others are of recent growth. It must be remembered that in the case of these societies, it is not their number that is important; but it is the period of the working and the extent of transactions of each society that can truly indicate the progress in co-operative enterprise.

There were 42 purchase and purchase and sale societies in the Presidency during 1927-28. Their working is far from satisfactory. 26 of them had transactions for less than Rs. 500 each. In 1930-31 there were only 28 societies; thus the number of societies of this class is falling. It is the societies in Madura district and in North Arcot district that work well. The Madura Sourashtra Society is easily the best, for it accounts for nearly 90 per cent of the total transactions in respect of raw materials purchased by this class of societies in the Presidency. The Sourashtra Society mainly purchases raw materials to be sold to members; while the North Arcot Society purchases raw materials to be sold to members and also sells the finished products of members to the public.

VALUE OF FINISHED PRODUCTS PURCHASED FROM MEMBERS AND SOLD TO THE PUBLIC

Year	Purchase and Sale of Raw products by N.A. Societies		Purchase and Sale of finished products by N.A. Societies		Purchase and Sale of all societies in the Presidency	
	Purchase	Sale	Purchase	Sale	Purchase	Sale
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
1924-25	...	...	34,626	33,445	38,498	41,494
1925-26	...	...	20,223	20,342	25,434	28,161
1926-27	7,240	9,160	15,088	12,365	18,304	15,461
1927-28	8,729	8,335	13,516	15,885	26,373	25,905
1928-29	7,080	9,634	14,907	16,139	105,667	116,752
1929-30	3,174	3,174	12,971	...	22,072	23,529
1930-31	not reported		3,384	2,723	45,208	37,324

The Madura Sourashtra Society.—This society was registered in November, 1918 and the area of its operation was primarily confined to the Madura municipal limits. However, it has six member-societies which are situated in the Madura and Ramnad Districts. This is mainly a Purchase and Sale Society and it has been working with some measure of success for over ten years.

The object of the society is to improve the economic condition of weavers and dyers of Madura town. Its authorised capital is Rs. 1,00,000 while its paid-up share capital is Rs. 20,130. The borrowing power of the society is limited to five times the paid-up share capital plus the reserve fund. Each share is of the value of Rs. 10 and the individual maximum borrowing power is Rs. 1,000 while the maximum amount of loan per share is Rs. 25.

The main activity of the society is to purchase raw materials required and sell them to members. Other activities, of course, are secondary. The sale of raw materials to members is generally for cash but the society often sells them on credit, treating such sales as advances of loan. It functions as a credit society as well. But such transactions are small. The Society has a reserve fund of over Rs. 7,500 i.e. more than a third of its paid-up capital; and a common good fund of Rs. 983. There are four paid clerks in its establishment, two of them are paid Rs. 30 each and two others Rs. 15 each. The following statement shows the progress of the society during the last ten years (mainly purchase and sale of raw materials).

Year	No. of Members	Paid up share capital	Stock bought	Sale of Goods	Net Profit	Reserve Fund
		Rs.	Rs.	Rs.	Rs.	Rs.
1918-19	587	17,892	191,219	193,369	5,132	...
1919-20	659	19,252	70,673	74,887	972	4,454
1920-21	755	23,245	296,263	284,608	3,419	4,454
1921-22	779	23,824	265,769	278,354	4,533	5,038
1922-23	786	23,915	48,157	50,940	267	6,622
1923-24	781	23,917	118,699	127,813	358	7,062
1924-25	779	22,840	194,792	198,238	793	7,152
1925-26	716	21,884	193,005	186,653	301	7,152
1926-27	700	21,002	126,876	137,030	1,011	7,280
1927-28	684	20,322	99,121	97,520	not available.	

This society is not typical, but it is easily the best Purchase and Sale society in the Presidency. However, it is not such a great success as it should have been. In a town where there are more than 4,000 weaving families the number of members in the society is only a negligible fraction. Even this success of the society is firstly due to its enthusiastic panchayatdars who are intelligent and conscious of their part in the communal uplift. Secondly, the feeling of communal solidarity is also responsible for the success of the society. Thirdly, the presence of a large number of members congregated in a convenient area renders it possible to purchase and distribute yarn, dyes etc., required for the members without much extra cost. Fourthly, there is little opposition from vested interests. Fifthly, its large amount of transactions enables the society to employ paid clerks, etc.; and the introduction of payment for services, instead of honorary work (which is the cause of the want of enthusiasm in most co-operative societies) accounts for the success of this society.

The working of other societies in other districts is not satisfactory. In the first one or two years these societies seemed to work well but they soon fell on evil days. A study of the history of the societies for example in Coimbatore District will justify this remark. There are five Purchase and Sale Societies in the district. The number of members in each society is small and forms less than 10 per cent of the weaving population in the area of its operations. The following statement of the sale of goods to members and the value of stock bought by each of the societies for a period of four years shows the insignificance of their transactions and the decline in their working.

(a) VALUE OF THE SALE OF GOODS TO MEMBERS BY SOCIETIES IN COIMBATORE DISTRICT

	1923-24	1924-25	1925-26	1926-27
	Rs.	Rs.	Rs.	Rs.
Kollapalur ...	4,409	8,258	244	...
Kannanpalayam ...	3,603	...	...	2-10-0
Marianallur ...	4,049	...	4,371	...
Bavani ...	...	1,505	...	36

(b) VALUE OF STOCK BOUGHT BY THE SAME SOCIETIES

	1923-24	1924-25	1925-26	1926-27
	Rs.	Rs.	Rs.	Rs.
Kollapalur ...	5,552	7,298	...	...
Kannanpalayam ...	3,543	...	...	...
Marianallur ...	4,380	...	4,314	...
Bavani ...	...	1,565	35-8-0	no transactions reported.

Some of these societies combine credit transactions also. They advance short term loans to members for the purchase of yarn etc. The Bavani Carpet Weavers' Society advanced in 1924-25 loans to 38 members to the extent of Rs. 1,230 for a period not exceeding three months. The main cause of the decline in the business of the society was the fluctuations in the yarn market and the financial weakness of the society to face them. Besides they did not enable their members to be entirely independent of the money-lender, the cloth merchant or the middleman.

III. PRODUCTION AND SALE SOCIETIES

In 1924-25, there were only three weavers' societies of this class in the Presidency. Now there are reported to be 10 societies. The oldest society in this group was the Big Conjeevaram Weavers' Co-operative Union in Chingleput District which is now liquidated.

The distinguishing feature of the production and sale society is mainly in the method of the distribution of profits. Yarn is purchased by the society, the finance is provided by weaver and non-weaver members, yarn is converted into cloth by weaver-members for certain fixed wages, cloth is marketed by the society, and the net profit after allowing interest on capital, depreciation charges etc., and deducting the amount for reserve fund is distributed to member-workers as a bonus on work done for the society. In Conjeevaram there are many small weaver societies which were affiliated to the Big Conjeevaram Union. But such organised Weavers' Unions have not yet come into existence in other districts.

The following statement of the progress of Co-operative Production and Sale Societies in the Presidency exclusively for weavers speaks for itself :

PRODUCTION AND SALE SOCIETIES EXCLUSIVELY FOR
WEAVERS

Year	No. of Societies	Value of raw materials purchased	Value of goods sold as owners	Value of goods of members sold for commission	Working Capital	Net Profit	Net Loss
		Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
1924-25	3	581	425	1,056	7,786	...	771
1925-26	9	26,420	32,131	10,570	43,561	369	3,801
1926-27	10	22,581	26,456	2,471	47,580	556	4,205
1927-28	10	20,918	20,615	3,117	49,996	169	6,459
1928-29	10	21,020	22,543	nil	47,037	269	7,078
1929-30	5	nil	18	nil	15,416	1,019	2,776
1930-31	9	22,355	22,355	nil	34,143	126	4,265

N.B.—Of these ten societies 5 are in West Godavari Dt., 3 in Anantapur, 1 in Chingleput and 1 in Kistna.

The increase in the number of societies in 1925-26 is due to the inclusion of societies which were formerly classed as Purchase and sale Societies. That explains also the increase in the volume of transactions in that year. It must be noted that the net loss of societies is greater than the net profits. This means that this class of societies is not working satisfactorily.

A study of the progress of the Big Conjeevaram Weavers' Union will also bear out this observation.

BIG CONJEEVARAM WEAVERS' SOCIETIES

Year	Working Capital	Value of goods		Cost of Management	Profit	Loss
		Bought	Sold			
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
1910-11 ...	4,991	8,058	...	...	48	...
1911-12 ...	...	...	...	...	...	...
1920-21 ...	9,107	15,608	17,855	759	386	...
1921-22 ...	...	...	...	...	...	...
1922-23 ...	10,266	8,400	8,991	663	...	292
1923-24 ...	9,345	4,144	5,600	481	...	387
1924-25 ...	7,776	581	1,481	...	...	771
1925-26 ...	7,271	916	1,109	112	...	1,238
1926-27 ...	8,308	...	905	186	...	1,635
1927-28 ...	7,849	749	1,465	227	...	2,175

In 1910 there were 87 members and in 1921 there were 531. Of this, less than 25 per cent were bonafide weaver-members. In spite of the increase in the number of members the Union shows signs of languishing. During the last 6 years it was working at a loss, and the transaction per member was less than Rs. 5 per year though it combined credit with all kinds of non-credit transactions.

Thus, it is seen that the co-operative movement in the non-credit section has not made any headway. There are only 120 societies, including credit societies, connected with the hand-loom industry. Their working capital is less than Rs. 5 lakhs and the sum of loans advanced to weavers, the value of goods sold and the raw materials purchased all amount to Rs. 5 lakhs. This is insignificant when compared to the value of output in the hand-loom industry every year. The annual value of cotton hand-loom production in the presidency alone is estimated to be over Rs. 5 crores and the working capital of the co-operative societies represents hardly one per cent (even when the working capital of all societies of cotton, cumbli, silk and coir weavers is included).

Economic Benefit.—Inadequate as these forms of assistance are, the economic benefit derived by society-weavers is not

insignificant. There are cases where yarn is supplied at a price 15 per cent less than the market rate; where money is advanced ordinarily at 5 per cent less than the Sowcar's rate and better prices for manufactured goods are obtained by sale through co-operative societies. But the extent of this economic benefit derived by each society is not stated anywhere either in the Registrar's report or in the auditor's report or in the annual reports of the societies.¹

WHY THE PROGRESS OF SOCIETIES IS UNSATISFACTORY

Generally speaking it is the illiteracy and ignorance of members, the incompetence of panchayats, the insufficiency of finance and, in some cases, the active hostility of vested interests that are mainly responsible for the unsatisfactory progress of weavers' societies. There are certain special reasons for the failure of each class of societies which we shall now examine.

Credit Societies.—They are mainly on the limited liability basis. Though the amount of share capital which would entitle one to become a member is fixed low and is collected in easy instalments, the weavers generally have a hand-to-mouth existence and they can hardly save anything out of their earnings to enrol themselves as members. They are proverbially poor and the majority of them have no valuable security to offer and thus derive the benefit of co-operative credit. The co-operative ideal of helping the poor and the honest seldom obtains in practice. Also it is usual that these societies are controlled by local money-lenders and merchants and the bulk of the loans are monopolised by them. Besides, the procedure of the financing banks entails undue delay in making the loans available for primary societies for distribution and the weavers are driven in the meantime to money-lenders for immediate help.

¹ The economic benefit is ascertained in the case of credit societies, by the difference between the rates of interest charged by the co-operative society and the other agencies; in the case of purchase and sale societies, by the difference between the price at which raw materials are obtained from the co-operative society and the price at which the merchants generally sell them to weavers and the difference between the price at which the weavers themselves could sell their manufactures and the price which the co-operative societies could get; and in the case of producers' societies the difference between the aggregate earnings of the weaver-members including the wages and bonuses and the wages they would otherwise get by working for sowcars independently.

The main object of a credit society is to provide members with *easy and cheap credit on reasonable terms*, and give them *considerate treatment*. Money is required by a member for the purchase of yarn and other raw materials, to maintain himself and his family while cloths are being manufactured for the market, especially during the dull season, and to repay old debts. Credit is cheaper in the society. But it is not available in time nor to an adequate extent. The borrowing capacity of the society is fixed in proportion to the paid-up share capital and the reserve fund, and this limit is low and does not usually permit accommodation to all members without raising the share capital and the reserve of the society. The borrowing capacity of the society is not as high as to permit it to borrow enough money to meet all the requirements of members. The maximum limit must, of course, be fixed with reference to the security that the society can offer to the central bank; but it should not be too low. The Central European practice of not withdrawing the dividends payable to members from the society but adding them on to the share-capital of members and to the reserve fund is followed by some societies but the practice is not universal. This practice might be useful if followed by all societies and will ultimately increase their borrowing power.

The loans are generally distributed by the Panchayats at their own discretion. It is often made a question of patronage and it raises undesirable questions of caste and political prejudices which generally lead to the liquidation of societies.

The credit society is not popular with members for the reason that the society is unwilling to give more than one loan to one member. This naturally drives members to other agencies which often make exacting terms with members of co-operative societies.

It is unfortunate that there are many cases of overdue payments and default by members. This necessarily demands caution in giving loans. Loans to individuals are not generally granted in the light of their repaying capacity. In many cases the purposes for which the loans are taken are not really productive and it is but natural that there is default. The responsibility of the society should not cease with the sanction of the loans but it should see that such

loans are applied for the purpose for which they are intended and such purposes must usually be productive in character. Co-operation cannot work successfully unless it improves the moral stature and the social consciousness of members. The repaying capacity of the member must be determined by his earning and saving capacities.¹

The Co-operative Purchase Society enables members by the elimination of profiteering middlemen to buy their requirements at reasonable prices. For the success of the

¹ In his Memorandum to the Textile Committee of the Madras Legislature in 1928, the Textile Expert examined the reasons for the failure of Weavers' Societies.

Most of the societies are organised on the limited liability principle which accounts for their financial weakness. The reasons for their failure are (1) the inability of the weavers to purchase even one share of the value of Rs. 10 ; (2) the unwillingness on the part of rich weavers to take a large number of shares, as dividends cannot be assured ; (3) the borrowing capacity of a society is greatly restricted owing to the low security it can offer ; (4) the necessity for borrowing elsewhere at high rate of interest ; (5) malpractices of rich members, in many cases, well-to-do weaver merchants who happen to be members of the society take undue advantage of their status and appropriate the major portion of the raw materials procured by the societies, for their employees, leaving the poor weaver-members to shift for themselves as best as they can ; (6) the comparatively higher wages paid to weaver-members than those given by sowcars to non-members and the consequent high price of cloth produced by members ; (7) the lack of organisation for a regular disposal of the finished products.

And he suggested the following measures for their development :

1. Granting through Co-operative societies, advances to the poor weavers in the initial stages to the extent of the value of a share and recovering the amounts from the earnings of the weavers in small instalments.
 2. Allowing credit for the society at low rates of interest ;
 3. Inducing rich weavers to take shares by guaranteeing payment of a reasonable dividend so that they may release the poor weavers employed by them to work in the society ;
 4. Instituting enquiries with a view to ascertain the real debt of the weaver-member and to arrange for the gradual repayment to the Sowcar of the Weaver's debt from the latter's earnings ;
 5. Arranging to grant small cash loans to weavers in case of necessity ;
 6. Advancing money at low rate of interest on the mortgage of stocks of cloth properly secured and insured ;
 7. Guaranteeing against loss up to $\frac{1}{2}$ of the paid-up share capital of the society.
- Other directions in which Weavers' Co-operative Societies can be assisted are also mentioned :

- (a) Granting a sum of Rs. 5,000 a year to a private organisation which will have for its object the creation of a demand for the products of hand-loom weavers ;
- (b) Starting of yarn Banks ;
- (c) Removal of duty on imported yarn ;
- (d) Opening of spinning mills worked by Jail labour.
- (e) Linking power preparatory processes with hand looms ;
- (f) Appointing a departmental officer to exercise close supervision of the working of all weavers' societies started in a particular district and to take interest in the sale of cloth.

Purchase Society it is necessary to have a large number of members, thereby enabling the purchase of articles at wholesale prices. Co-operative purchase is more successful than co-operative sale. However, the main difficulty in the Purchase Society is that it does not get the same trade commissions and facilities from wholesale dealers as private merchants do.

There are certain factors which militate against the successful working of the Purchase Society. First, the Co-operative Purchase Society does not usually sell to non-members. This naturally reduces the dealings of the society to small dimensions. But there are also difficulties in selling to non-members. Selling to non-members is not only contrary to true co-operative principles but there is difficulty also in anticipating the demand. Some Purchase Societies sell also to non-members and this is an innovation. Secondly, the co-operative society refuses to sell on credit to members. The local yarn dealers still command a large custom because they sell for credit and give timely accommodation to their customers. The rules of the societies are very inelastic in this respect. Any method of marketing to be successful must take into account the buying habit of the customers. The buying-for-credit habit of the weavers, (no matter what the disparity is between the cash and credit prices), and the strict adherence of societies to the principle of cash sales seem to be incompatible, and that accounts for the very small transactions of purchase societies. Thirdly, co-operative societies have but a very few brands of yarns, dyestuffs, etc., while the private merchant stocks a large variety allowing a wider range for choice.

However the conditions in weaving centres are favourable for the progress of Purchase Societies and their working on these lines. The requisites of success are that (1) there must be a large number of weavers in one centre which secures efficient, easy, and cheap distribution, (2) they must produce one or two varieties of cloth requiring a few varieties of yarn and other raw materials; for this will facilitate wholesale purchase and sale by societies, and (3) the weavers must belong to one caste or community which will strengthen the feeling of solidarity. These factors are present in many weaving centres in India. In most of the weaving centres the

weavers mostly belong to one community and they produce limited patterns of cloth which do not require a variety of raw materials. Also in many centres there are enough number of looms and weavers to work a Purchase Society successfully. What is wanted is human material with steady enthusiasm and loyalty of members.

The Co-operative Sales Societies are for securing the best markets for the finished products of their members. By co-operative sale members can get better prices for their manufactures again by the elimination of middlemen or by sale in the best market. Co-operative sales have not been so successful as co-operative purchase. Most of the Purchase and Sale Societies do mainly buying and only to a very small extent selling. The societies leave the selling or the marketing of members' goods to themselves and the main problem of the weaver being marketing and that being not properly tackled by the co-operative societies, they have not progressed very far. The weavers have still to depend on the local merchants and sowcars for the financing of the trade in their manufactures and the export of their cloth to distant markets. In 1929 a Marketing Officer of the grade of Sub-Deputy Registrar of Co-operative societies was appointed to organise production and sale on behalf of the Salem Weavers' Co-operative Society. The experiment has proved a success. He has standardised production, found market for manufactures in Madras and other places eliminating the costly and expensive services of the Salem Commission Chettis. This was highly commended by the Registrar of Co-operative Societies and the Economic Depression Enquiry Committee. But the Government put an end to this experiment as a measure of retrenchment. Generally the societies have not developed the marketing side of their activities. There are of course great difficulties in the way of the societies undertaking the marketing, e.g., absence of standardisation of cloths produced, lack of that personal interest of private merchants (the requisite for success in business), insufficient finance for developing the trade, and small production which does not attract the large capitalists and wholesale cloth dealers to the business.

The requisites of success for a sale society are: (1) The

finished products must be standardised in quality and the goods supplied must answer to the sample, (2) the society must be able to sell in large quantities, undertake forward contracts and perform timely deliveries, if it should attempt to push its articles through the ordinary trade channels, and (3) the society must have enough fund to finance the weavers when the market conditions demand the holding out of their manufactures. It would be a great step forward if the society develops a loan and sale function as well. It must also advance money to weavers against the security of their manufactures, say 50 per cent of their value for 6 months.

Co-operative ownership of expensive appliances: By this, expensive appliances which are not available to the individual workers are made accessible to them at a low cost. Nothing is done in this direction save that one of the societies in Conjeevaram has achieved a moderate success.

Co-operative production and sale society: Production societies are very few in number. And they have not worked satisfactorily either. The difficulty in organising successful weavers' society for production, purchase or sale is in part due to the inability of the society with little capital or credit to provide for the services of a man of sufficient business knowledge and experience of the market in yarns, dyes and cloth. A society for production and sale requires more capital than one for purchase and sale alone. The required capital cannot come from the weaver-members. Non-weavers do not invest much capital. Nor do rich weaver-members invest the necessary capital. The share capital is usually Rs 10 and in some cases Rs. 25. For a society of 100 members, to wit, producing ordinary grey cloth of 20s the minimum working capital required is Rs. 30,000 (when its annual turnover does not exceed Rs. 75,000) on the assumption that each member works for only 20 days in a month and earns 8 as. a day and that there is a stock of yarn required for three months' production and stock of cloth representing three months' output. The society can at best get Rs. 2,500 as the share capital if all shares are fully paid-up and a loan of five times the amount of share capital from the financing bank; thus its total working capital will amount to Rs. 15,000. This is absolutely inadequate and a crisis is often precipitated,

when there is a small glut in the cloth market or fluctuation in the prices of cloth and yarn. The weavers could not be given work and the weaver-members who depend on the society for work then naturally turn to private merchants for employment. It is in such cases that a Central Yarn and Cloth Bank will be useful. It can receive yarn and cloth from weavers' securities and advance loans to the weavers' society.

The trouble we meet in Production and Sale Society is the want of satisfactory arrangement for the disposal of its output. If we can secure the consumption market on a tangible basis, the organisation of producers' societies becomes a simple affair. Financing banks may be expected to give credit upto 70 per cent of the value of goods produced provided they are satisfied about the worth of the goods in the consumption market. The few Producers' Societies now in existence feel the inadequacy of the arrangement to secure the consumers' market. This is the cardinal point in the development of such societies. The Marketing Officer, appointed by the Government of Madras in Salem, had no special training in commercial organisation; yet he had secured the market in Madras and other places for the manufactures of Salem Weavers' Co-operative Society during the period of experiment. It is unfortunate that the Government should have decided to put an end to the post.

To sum up, the first requisite for the success of a Production and Sale Society is finance. Secondly, a man of good business experience and knowledge of the yarn and cloth and dye market must be secured. Thirdly, the necessary conditions for the successful marketing of cloth must be created, e.g., the cloth must be standardised, prices should be stabilised and standardised and proper marketing methods must be chosen. Fourthly, on the production side the regularity of employment of workers and standardisation of wages are necessary to ensure the loyalty of workers to the society and the utility of the society to weavers.

It is possible that better results might be obtained by the formation of strong central societies in important weaving centres, comprising individual share-holders who would put in substantial share capital (and some of whom should be men who have had experience in yarn and cloth trade) as

well as local primary societies for weavers. The bye-laws should permit the sale of raw materials to non-members. Such a scheme would probably go far to disarm the hostility of the local yarn dealers and might possibly solve the difficulty which certain weavers' societies find in marketing their cloth. The individual share-holders would supply not only the bulk of the capital as in the early stages of our district central banks, but also the initiative and business capacity required for the successful organisation and working of such a society.¹

YARN DEPOT AT ITCHAPUR, GANJAM DISTRICT

A careful study of the working of the Itchapur yarn depot and weavers' co-operative society in Ganjam District organised mainly for the purpose of production and sale is very instructive. The society was started in November 1918. The Government opened a yarn depot which purchased the yarn and distributed it to weavers through the co-operative society. The society was managed by a Panchayat of weavers while the yarn depot was under the Director of Industries. The society was paid commission for the production of cloth and the weavers were given a fixed wage of Rs. 5 per bundle plus a bonus of one rupee per bundle when a weaver had woven three bundles for the society in one calendar month. Besides, they were entitled to the dividend if the society worked at a profit. The depot undertook the sale of the cloth in Madras and later in the local shandies. This experiment continued for a period of about 14 months; the price of yarn was fluctuating and fell from Rs. 16 to Rs. 7; cheaper cloths flooded the market and the society had an accumulation of stock manufactured when yarn prices were high. The object of the Government to help the weavers at the time when high prices ruled and to cheapen the price of cloth was achieved with the fall of the price of yarn to Rs. 7 per bundle. They then decided to close the depot. But, it must be noted, this is not because that the co-operative experiment was a failure. During the 14 months the society manufactured and sold cloth

¹ Report of the Registrar of Co-operative Societies, Madras, 1921-22, page 17.

to the value of Rs. 22,700 and distributed wages to weavers to the extent of Rs. 5,150 and earned a net profit of Rs. 1,660 after all establishment and contingency charges were paid.¹

THE ITCHAPUR EXPERIMENT AND ITS LESSONS

The success of the Itchapur experiment, especially at a time of falling prices, was due to the co-ordination of the yarn depot and the weavers' co-operative society. The former purchased yarn, standardised the quality of the cloth and marketed it; while the latter distributed yarn to weaver-members and organised production. However there were certain defects in the organisation which rendered the working of the society difficult, if not impossible.

First, it was not possible to secure a decent initial capital and the society was started without any paid-up capital and hence the enterprise was financially very weak. This weakness naturally hastened the crisis when the market was unsteady and the demand for the cloth was very dull. The remedy seems to lie in the establishment of a bank which will advance money to the society on the security of cloths produced by the society. A loan and sale society would have obviated this difficulty.

Secondly, the panchayats took merely a nominal interest in the management of the society. The weavers themselves who had not the faintest idea of what co-operation meant practically regarded the depot which ran the whole show in the same way as sowcars employing them. It cannot be expected at their present stage of education that weavers will understand the full meaning and usefulness of co-operation and it would be impatience to expect a sudden and radical change in their outlook. 'Each for all and all for each' is yet the unrealised ideal, and social measures of this kind take firm hold only when they are tried patiently for years and, even then, the result will be imperceptibly slow. Experience alone will enable weavers to understand the value of co-operation and devices must be found to make the intelligent, the well-to-do and the educated members of the community take an extra interest in the management of the

society. Also co-operation is not mere charity but business, and the management, to be always efficient, must be rewarded for its labour.

Thirdly, the panchayat took no interest in the sale of cloth nor did the yarn depot concert any measure in order to instruct the society in the methods of pushing up the sale and of popularising its cloths. This is where the whole organisation was really weak. Neither the weavers nor the Government departmental officers were in any way acquainted with the cloth market. Formerly, the marketing function was performed by sowcars. When they discovered that the sales of society would prejudice their interest they stayed out. Moreover the depot in Itchapur produced a kind of cloth for consumption in Madras city which, because of its width, could not find a market there. The depot also ignored the market requirements and the buying habits of the people. It failed to adopt proper marketing methods. As the production was not on a large scale and as the cloth market was uncertain neither the consignment system nor the agency system of sale could be adopted with advantage. A business man was also found necessary to organise the sale.

Fourthly, there was no check on the vagaries of the weaver-members of the society and the society did not take any action against a weaver who absented himself for months during the busy season in order to work for the sowcar. Nor did it prohibit its members from accepting work from a private merchant which was detrimental to the interests of the society. The weavers preferred to work for the sowcar because he paid high wages during the busy season and accommodated them with advances etc., during times of need. On the other hand, the society adopted a fixed wage policy with deferred bonus for extra work done and this hardly appealed to those who believed that a bird in the hand was worth two in the bush. This is not all. The society in its anxiety to cheapen the price of cloth was giving lower wages to workers. It was noted by the then Director of Industries that the society-weaver was paid less than the weaver working for the sowcar, and it is no surprise that he deserted the society. The society was more anxious to cheapen the price of cloth than to pay competitive wages or to better the conditions of the weavers.

¹ From the Correspondence of the Department of Industries, Madras.

If only the society had sold the cloth for the best price, it could have earned greater profits and could have afforded to pay better wages to workers. A wooden policy aiming at lower wages and prices, irrespective of other circumstances, drove the workers from the society to the sowcar.

Further the society ignored the habits and needs of the weavers and failed to accommodate them. The weavers are usually under the obligation of the sowcars for having received the timely advances from them and they find the regulation application to get loans from co-operative societies not always possible to comply with. This leads to the secession of weavers from the society. No doubt rules and regulations cannot be dispensed with but there must be greater flexibility and less rigidity in the actual administration. What was wanting in the administration of the society was the human element.

Sixthly, the society was faced with the competition of the sowcars which, apart from the payment of temporary higher wages, took another form. The sowcars tampered with the quality of cloth. They asked the weavers to put in fewer ends and picks per inch than before and sold the cloth for a price very much less than that of the society's cloth. However, it was not a serious matter as the buyers differentiated the qualities and willingly paid a higher price for the cloth made by the society.

The chief cause, however, for the failure of the societies at Itchapur and Berhampore was that at the time when they were started the prices of yarn and cloth were abnormally high and this affected the elasticity of its demand. The large stock of yarn purchased at higher prices with which both the depot and the society were saddled rendered it impossible for them to compete with the merchant. The rapid fall in the prices of yarn led to the glutting of the local market with cheaper and inferior cloths and enabled the weaver to purchase his own yarn and to find a market for his own finished products as an independent worker.

Thus it is not so much the inherent weakness of co-operative organisation as the combination of some external circumstances and bad business that accounts for the failure of the Itchapur society. The Government hastily decided to close

down the yarn depot and allowed the society with little experience and with no intelligent guidance to drift for itself. An experiment in the right direction i.e. a co-operative society aided by the yarn and cloth depot (resembling almost the yarn bank) was well begun, but before it was tried for a sufficiently long time as to yield useful lessons, it was given up. The closing of the experiment, as it was expected, led to the collapse of the society. 'The closing down of the society will deprive the weavers of the means of bettering their conditions and profession'. 'If we close the society the weavers will in time to come, by a combination of circumstances, become chained to art which is daily sinking them in depths of destitution and from which they have no power to escape unaided'. In spite of these representations by successive Directors of Industries, the Government decided to close down the depot in 1920.

Co-operation :

THE BASIS OF THE FUTURE INDUSTRIAL ORGANIZATION¹

The object in reorganising the hand-loom industry is to benefit the cottage workers. And there is no better method of achieving that end than by organising them on a co-operative basis. For the industry is best fitted for co-operative effort. Where the products of an industry have a ready sale at a more or less fixed price, co-operative societies are difficult to work; and the advantages of co-operative sale in such cases are as a rule not very great. But where the market depends on a casual purchase, or is a fluctuating or seasonal one, most

¹ On the future of co-operation the *Encyclopædia Britannica* may well be quoted :—

'The underlying issues of the individual and the mass, the section and the whole, the class and the community form the real problem of co-operations' future. Avowedly neutral in religion and politics, the international movement does not regard itself as excluded from pursuing—although on a vaster scale—the original aim of co-operative community proposed by the co-operative fathers. How far is that aim practicable? It does not stand as a design of a theorist. To any friendly constant observer it must appear as arising from the social instincts of the masses. But amongst the masses themselves, there are multitudes bound to the co-operative movement only by self-interest, and monetary ties. To make economic democracy effective, the co-operators evidently need to find profounder means than those yet employed for arousing disinterested human enthusiasm. Furthermore, to have great effect in life's varied field, a movement must be complex as well as extensive. Conscious mass power is a new thing, tremendous and far-extending, but it is not everything. Individual and personal integrity and skill will not be submerged; the

of the workers are so largely in the hands of money-lenders, who take these risks and charge very high rates for doing so, that it is not easy to help them, unless an organisation can be set on foot large enough from the very beginning to finance stocks and arrange sales.¹ All this is true so far as the hand-loom industry is concerned. The main difficulty in the organisation of industrial societies which involved dealing on a large scale lies in buying and selling and in the absence of persons of intelligence and standing acquainted with the business whose interests are yet not necessarily opposed to the success of the scheme. The cloth merchants are directly interested in maintaining the weaver in his present state of bondage, while few persons have sufficient knowledge of the business and sufficient public spirit to be able to organise it with success. The service of experts in textile technology, in business and co-operation may be secured only when the whole hand-loom industry is organised on a really comprehensive and large scale. A single weaver or society of a small number of weavers cannot employ them. And what Mr. Hemingway said some few years ago is still true. 'There must be room for a very great improvement in the economic conditions of the weavers if co-operative organisation can be formed. Careful and calculated study of these trades will be necessary but the thing can be done and there is no extravagant fancy in a mental picture of a network of weaving societies throughout the Presidency organised into central and wholesale societies which are closely in touch with yarn and cloth trade, can get the weaver his yarn cheap, can advise him as to what to weave and can sell his cloth for him'.² Registrars of

side which enlists also this latter power will also be hard to defeat. As a free movement neither class-bound nor state-bound, co-operation appears to have before it a magnificent opportunity. Both producers' and consumers' co-operation present, it is urged by co-operators, a solution of the industrial problem by showing capital as a hired yet contented servant. Consumers' co-operation further offers the outline of a new economic society in which the workshop is related to the home and economic surplus to human needs, and where industry begins to look to its human ends instead of simply to profits and money wages. Whether the movement can lead a stubborn world decisively along this co-operative road, probably will depend more and more not only on its members but also on its power to enlist intelligence and develop in all ranks a leadership capable both of creating enthusiasm and producing every day conviction among the masses of mankind.

¹ Indian Industrial Commission Report.

² *The Co-operative Manual*, Madras.

Co-operative Societies and industrial leaders have often expressed their faith and hope in co-operation for the regeneration of the hand-loom and other small industries.¹

The Producers' Co-operative Society in conjunction with a Central Weavers' Society and Bank will be the solution for the industrial problem by showing capital as hired yet contented servant. The co-operative producers' societies on a comprehensive scale as contemplated above will remedy the present exploitation of workers financially weak by a few persons ignorant of the work but expert in banking and will restore to the workers similar opportunities and incentive to do honest and decent work. Their ideal is that in one area the workers in one trade or craft should combine and, pledging the services or their credit in common, obtain the necessary premises, machinery, etc., that they should work in common and share profits in common and that they should control themselves through their own elected representatives. Whenever this has been tried the workers have improved enormously not only in health and prosperity but also in morals and self-respect.

The Registrar of Co-operative Societies of Bombay emphasises the importance of Production Societies:—'It is hoped and believed that there is no greater instrument for national regeneration, both in craftsmanship and morality, than the successful and the steady growth of the producers' societies. They bring hope and ideals to every worker and every worker's family, but they need carefully prepared ground and laborious education in co-operative principles and practice. The ultimate condition of success is therefore

¹ At a conference of the Assistant Registrars of Co-operative Societies held in October 1922, a resolution was passed urging the necessity for a strong central society for weavers. The resolution runs as follows:—

'The reasons for the comparatively slow progress of weavers' societies apparently are that the societies are too weak, both financially and otherwise, to meet the competition, sometimes unfair, of private individuals and firms, that the price of yarn fluctuates within such wide limits that it is difficult to secure the steady loyalty of members to the society in regard to the joint purchase of yarn they require and that there is difficulty in certain districts at least in regard to the marketing of the cloth produced. It is suggested that better results might perhaps be secured by the formation of strong central societies in important weaving centres, the members to comprise capitalists and merchants (some of whom should be yarn and cloth dealers) and also local primary societies for weavers. Sale of raw materials to non-members should also be permitted by the bye-laws.'

education—not necessarily education in the conventional three R's, but education in self-respect, self-control and higher ideals of co-operation'. Experience in other countries shows that co-operation of producers succeeds either where there is great intelligence and moral temperance among workers or where there still survives a strong communal feeling. There is a strong sense of communal unity among our weavers of various castes. There is ample evidence to show that our weavers are intelligent enough to understand the significance of changing conditions and value of new methods but intemperance is their sore point; it exists in varying degrees among different castes. The Kaikolars are noted for sobriety and producers, societies of Kaikolars may therefore succeed.

The knid of co-operative organisation suited to the hand-loom industry in India is thus sketched out by E. B. Havell:—¹

'The principle of the Danish Co-operative system as applied to dairy farming is the combination of a number of small proprietors for sending their products to a central factory in which each of them has a share proportionate to the quantity of his contribution. In the management of the factory, each member has an absolutely equal voice, irrespective of his holdings. Adapting such a system to the Indian weaving industry each weaving community would have a central establishment and its own control which would arrange the purchase of materials at wholesale rates, prepare warps for the weavers' looms and organise the sale of the finished products. The actual weaving would be carried on as at present in weavers' houses by the master weavers and their apprentices. If a system of this kind would retain the economic advantages of the factory system and eliminate its many evils, it is obvious that *the factory owned and controlled by the weavers themselves and worked only for their advantage* is a very different thing to a factory controlled by capitalists only for the purpose of exploiting the labour of their employees'.

It is also necessary to secure the loyalty of weavers to co-operative societies. It would be desirable therefore to

obtain greater elasticity and variation in bye-laws in weavers' societies as in the matter of advance, management and repayment of loans. The introduction of provident fund rules will be a great step forward in this direction. The Registrar of Co-operative Societies, Bombay, has suggested that 1/50th of the wages of the first 20 years of employment and 1/100th of the wages for the next 10 years of employment should be given away to weaver-members of the production societies. This is highly commendable. It is conducive to continuity and regularity of employment and it also makes some provision for old age and this solves the difficult problem of social insurance of home workers.

Now it is true that the improvement of the status and condition of a million people who are apparently indifferent to their own improvement is not an easy task and the problem is one that must be solved by the Government in conjunction with the non-official Provincial Co-operative Federation, the primary society, and the financing central bank. At present these different agencies for the development of co-operation imagine to have conflicting duties and rights with the result a good thing fails. The Registrars of Co-operative Societies who are often recruited from the Indian Civil Service have shown ability and capacity for stern discipline which would be a virtue where administration is in confusion, but they lack initiative, imagination, human understanding and a living faith in the cause which are essentials of success of co-operation in its initial stage and of its expansion later. Civilians with judicial and revenue administrative experience but very little training in co-operative work are often shunted on to this department for a change or to suit some administrative convenience and are placed at the head of the department and no wonder they cannot and do not inspire the subordinate staff with the co-operative ideals. The non-official agency, while having a liberal creed, is often dominated by party politics which is ruinous to discipline and administrative efficiency. The individual society is lacking in practical understanding. Thus, as observed before, the wholesale importation of the principles of co-operative administration obtaining in countries, where conditions are very different, to India where the vast majority of the people are steeped in

¹ 'East and West'.

ignorance and poverty is largely responsible for the slow progress of the co-operative movement. Especially the insistence on the principle of management of the society by members themselves must be modified. The function of the States does not stop with audit and financial control, but it must offer intelligent leadership and active financial support at the first instance. There is no need for conflict of rights among the State, the Co-operative Federation and the individual society if they remember what is best administered is best and if they work on definite lines believing that there is no more powerful lever than co-operation to aid a people sunk in utter despair and poverty.'

¹ REPORT OF THE REGISTRAR OF CO-OPERATIVE SOCIETIES, MADRAS, 1929-30.

Nearly half the number of societies for hand-loom weavers were dormant. In dealing with the subject of forming co-operative societies for hand-loom weavers, as recommended by the Special Officer for the Survey of Cottage Industries, it was found *that attempts already made have proved a failure* as the societies always came into conflict with master weavers. The Textile Advisory Committee discussed these difficulties and considered the desirability of forming a *Central Weavers' Co-operative Society*. It was at first anticipated that through a central organisation weavers would get yarn cheap and reduce the number of middlemen between the handloom weaver and the ultimate purchaser to a minimum and that the weavers would then be enabled to get a larger share of the profits. The Government were informed of the financial assistance required from them and also of the extent of such assistance given by the *Governments of Bengal and the Punjab* to similar organisations working in these provinces. The Textile Advisory Committee after considering the scheme recommended that primary societies for weavers should be started and a *Central Society and Bank* organised for financing the primary societies and conducting the sale of their finished products. The Central organisation was also intended to arrange for the demonstration of the use of machine sized ready made warps and to popularise other improved preparatory processes and method of weaving. There was to be a business manager to study and collect information in regard to marketing of handloom products and make this information available to the weavers.

CHAPTER XI

THE PREPARATORY PROCESSES

'Preparation of warps for the handloom is the crux of the whole problem and unless material improvements are effected in the quality, regularity, and strength, combined with a reduction in the cost of producing them, the advantages gained by the general adoption of flyshuttle sley will be but slight, and progress in consequence but slow'—Sir Alfred Chatterton.

BEFORE weaving is begun the warp yarn is subjected to special treatment called preparation of the warp, so that it can bear the strain involved in weaving. The term *preparatory processes* embraces winding, warping, sizing, beaming and drawing-in and piecing the threads together. In some cases, the warp yarn has to be doubled and twisted. The methods adopted by the hand-loom weaver in respect of each process will be described in this chapter.

Winding.—Yarn for the warp and the weft is usually wound by women and children of the weaver castes. Winding is done with the help of the charka and the cone (*Thiruvattam*). Weft yarn is chiefly wound on the shuttle pins; while warp yarn is wound on cones if peg-warping is employed, and on tin cylinders if the warping mill is adopted. The preparation of the warp yarn depends on the warping method followed. In the Madras Textile Institute and in some factories improved hand-driven bobbin winding machines are introduced. It may be noted in passing that the introduction of bobbin winding machines depends on the system of sizing and the length of the warp generally in vogue. With the present method of street sizing by women and short warps in use the necessity for any radical change in the present winding and reeling processes is not keenly felt. In the beginning of this century, some improved bobbin winding machines were placed in the market by Messrs. Butterworth & Dickinson but the results were unsatisfactory.¹ A careful comparison of the results of the working of the multiple pin and bobbin winders showed that the primitive method was faster

¹ Quoted by N. Subramania Iyer, *S. I. A. Journal*, p. 179.

and cheaper—the fact being that the imported machines were too heavy for manual labour. Even today in many hand-loom factories hand-driven bobbin machine is not employed.

Warping.—Warping is merely the laying of a number of threads in parallel order and equal in length and in number sufficient to make the required width of the cloth. It is the function of the warper therefore to provide a sufficient number of parallel threads for a web, all of equal length and to retain their parallelism. The efficiency of weaving depends on this and the uniform tension of all the warp threads. It is in the warping process that some improvement has been made by the Department of Industries. The early method of warping was to fix a number of sticks on the ground—the distance between the sticks on either extreme depending on the length of the warp—and to fasten the yarn to the first stick and then go on unreeling the yarn in the cone round the sticks until the last one is reached when the course is repeated backward. The warp is laid on an arrangement of sticks—the distance between each successive set of sticks is 3 to 4 ft. The whole idea of the arrangement is to produce a cross, called *lease*, between every pair of sticks whereby each successive thread is kept separate from its neighbours throughout its length and to prevent the threads from getting entangled. Warping is generally done by women and children. The defect of this system of warping is that only one thread is reeled at a time and before the required number of warp threads are laid the warper has to walk several miles. This is a very tedious process and can still be witnessed in a number of villages.

The first improvement made in the warping process is the elimination of this method of warping. In peg-warping, the same process is gone through—only instead of pegs fixed to the ground, there are pegs fixed to a wooden frame or to a wall. The advantage is that the work is done in-doors and the workers need not walk several miles.

The next improvement is the adoption of the warping mill where more than one thread can be reeled at a time. The warping mill consists of a horizontal or vertical reel made of bamboos or other wood on which the warp is wound round and a reel for the bobbins from which the yarn is reeled off.

The lease in these warps is formed by a separate device attached to it.

The Department of Industries, Madras, further improved the warping process by improving this mill. Here the *lease* is formed at only one end and this would do for warps of twisted yarns requiring no sizing and for warps already sized in hanks. But this will not suffice where sizing is done according to old methods. There must be leases at intervals, for which the present horizontal warping mill with pegs fixed on the circumference of the reel at intervals of a yard is best suited. This mill is now increasingly employed by weavers.

The advantages claimed for a warping mill are :

- (i) it can produce warps, grey or coloured, in any length, with any number of ends;
- (ii) the warp can be made up in convenient bundles with full particulars of yarn used;
- (iii) the warp is placed within easy reach of the weaver at less cost than he can produce it himself and
- (iv) it saves him much labour.

Wherever the warping mill has been introduced, warping is carried on as a specialised function by a separate group of artisans. The yarn is given to the warper by the weaver, and sometimes by the cloth merchant, either wound on bobbins or in hanks. The warper is paid piece-rates. Likewise in sizing. This division of labour is a step in the right direction.

Sizing is a more important process than warping. The cotton yarn has a rough surface and the fibres do not unite. If the yarn is used as it is, it cannot stand the strain and friction caused in weaving. Sizing fastens the fibres together. It is the application to the yarn of a starchy or glutinous composition which, passing between the loosely compacted filaments, causes them to adhere firmly together and thus the better to resist the strain and friction involved in the weaving operations.

The primary object of treating the warps with size is to make the yarn smoother and stronger by laying down the loose ends of the fibres that project from the main body of the threads, thereby enabling them to more effectually withstand the tensile strain and friction to which they are subjected

chiefly by the pulling action of the healds and the fingering action of the reed, shuttle and sley during weaving, together with as much retention of the natural elasticity combined in the yarn.¹

There are two methods by which warps are sized by the hand-loom weaver. One is to size the yarn in hanks before warping and the other is to size the warp itself. The former practice is said to be in vogue in Bengal. But in Madras, warping precedes sizing; and when the elasticity of the yarn is to be preserved, the yarn is lightly sized before it is sent to the winder.

The Madras method of sizing.

In Madras the yarn is sized after the warp is stretched; for, it is claimed, that if sized yarn is sent to the winder, the size is pulled off in winding and warping and the warp loses much of its strength.

The warp wound on the sticks is stretched on two pegs in the street. The size applied is of a very simple composition. Broken rice or ragi with gingelly or some other oil is boiled and it is applied to the warp and carefully brushed over and over again in such a manner that the size permeates to the interior of the yarn and the warp threads are dried uniformly and prevented from sticking to one another by constantly manipulating the lease-rods.

The bulk of sizing is now done by women and that explains why short warps are prepared. In some places where longer warps are employed, sizing is done by a number of men on a co-operative basis. The characteristic of the Madras system of sizing is its elaborate brushing process. The finer the yarn, the greater the number of times the warp is brushed. The greater the number of times the warp is brushed, the better is the warp. The difference in the quality in the sized warps of different places in the Presidency is due mainly to the varying degree of attention paid to the several details connected with the processes such as wetting, boiling, oiling and so forth. The present method of sizing is accepted to be quite satisfactory in quality but the process is tedious and

costly and wasteful. And it has been often pointed out that it is here the hand-loom is chiefly beaten by the power-loom.

Drawing-in and Twisting.—'Drawing-in' is the operation of passing warp threads through the eyes of the healds in a sequence determined by the nature of the pattern to be produced and the order of lifting the several parts. This is necessary only when the healds are brought to use on the looms for the first time. After the first warp is woven the warp ends are not taken out of the healds completely but cut, so that when a fresh warp is required to be woven, the ends of it are twisted to the cut ends of the old warp remaining in the set of healds and reeds and the new warp is drawn through the eyes of the healds and the reeds. This is a laborious process and it may continue to be so. The automatic device for drawing-in can be used with advantage; it can save two hours for each warp.

Beaming.—The process of beaming is little known to the country weaver. It has become important since the advent of the slasher sizer. The country sizer delivers the warp in the ball form. If any attempts were to be made in distributing power sized warps to the weaver and in introducing the weaver's beam which will give the warp the uniform tension, beaming will become more important.

The drawbacks of the present method of hand-sizing are: (1) it is extremely tedious; (2) it involves much time and labour; (3) only short warps can be sized and dried in the sun in the manner in which it is done; (4) excessive heat during the day or wet weather renders this process impossible; and (5) it is expensive in many localities where labour has to be paid for.

Mr. J. B. Clark compares the amount of human labour employed in the various processes of weaving in hand-loom and power-loom and shows that one person in the mill does what 195 persons are required to do in the preparation of the warp in the indigenous way while one power-loom weaver does the work of 16 weavers in the hand-loom.

The following table states the amount of human labour involved under respective systems of production; (1) power-loom, (2) hand-loom with fly shuttle sley and the country methods of winding, stick warping and street hand-sizing, and

¹ D. M. Amalsad: *Hand-loom weaving in the Madras Presidency.*

(3) hand-loom with fly shuttle and weaver's beam and with hand-driven bobbin winding machine and hand sizing machine.

SPECIFICATION OF CLOTH 16S×16S, 38" 1440 ENDS, 36 PICKS
10500 YARDS

—	Power-loom.	Old hand-loom method (each Warp 25 yds.)	New hand-loom method (each Warp 100 yds.)
Winding ...	9 women	3,150 boys	250 (15 yds. per minute, 8 hrs. a day).
Warping, sizing } and beaming }	1 man 2 men	215 women	70
Drawing-in and twisting ...	2 men	210 men	52
Weft winding ...	20 women	2,992 men	230
Weaving ...	71 persons (1 weaver for two looms)	1,135 weavers	875 weavers
	105	7,744	1,477

Thus it is evident that the hand-loom is weak first in respect of winding for warp and weft, secondly in respect of warping and sizing. But it must be borne in mind that the application of cheap and labour-saving appliances and methods to hand weaving should in no way interfere with the quality of the warp; for, if they should, the reputation for durability which hand-woven cloths have long been enjoying would be lost altogether.

With this object in view, certain improvements were made in the method of sizing and many kinds of sizing plant were patented. Sir Alfred Chatterton thought that sizing in hand-loom weaving should be done on a scale as it was done in power-looms, and he thought the improved Yorkshire Dresser sizer was the nearest approach to the slasher sizer used in mills; for it could retain the merits of the hand sizing and secure the economies of the slasher sizer and offer the basis for the hand-loom de-organisation. The advantages claimed for the dresser sized warp, are stated and examined below¹ :—

¹ D. M. Amalsad in his Memorandum to the Textile Committee of the Madras Legislative Council has stated the case for the Dresser Sizer.

(a) 'The dresser sized warp enables a loom to be kept employed for 45 days at a stretch as against only four days in the case of a street sized warp of 40 or 50 yards'. This is a material advantage. It saves 3 to 4 hours per warp which means an increase of about 10 per cent in the efficiency of the weaver.

(b) 'While the street sized warps are sold in the rope form, the power dresser sized warps are supplied in uniform sheets which unwind automatically as weaving proceeds, thereby saving the weaver the laborious task of spreading the warp every two hours as is necessary in the case of street sized warps'. The extent to which power sized warps can be adopted is limited by the financial ability of the weaver. In the absence of co-operative effort or other means of financial assistance, the poor weaver cannot adopt the power sized warp, however advantageous it may be. The rope warp is at present suited to his work. He can change easily the pattern of the cloth, its width, its texture etc., as is desirable. Such things are not quite easy in long warps. They can be used only where mass production obtains.

(c) 'The use of the power sized warps increases the daily outturn of the weaver by 10 to 14 yards'. Each weaver can increase his outturn by about 20 to 25 per cent and this, along with the introduction of a second loom in his family, would enable him to earn more.

(d) 'The price at which power sized warps are sold (in the Institute) at present compares favourably with the price paid by individual weavers for street sized warps'. This advantage is perceptibly great in respect of very fine yarn, as may be seen from the statements of cost of preparation under different methods. (Vide Tables pp. 136-139). But the reputation of the hand sized warp is a factor to be encountered in any attempt at popularising machine sized warps. The experiment of the power dresser sizer carried out by the Department of Industries and by a private merchant in Godavari District has not proved successful. This does not however mean that a proper trial has been made and it would be unfair to condemn the dresser sizer as an economic failure.

(e) 'If a power dresser sizing machine is set up the weaver will be able to obtain a continuous supply of warps

throughout the year, whereas street sized warps are not available during the monsoon and during the occurrence of excessive heat or wet or windy weather when street sizing has to be suspended'. This advantage of the power sized warp can now be secured by the cottage sizing plants invented by Amalsad and by Bhavaram which require less initial outlay. The latter has been more successful.

(f) 'Street sized warps when spread out on the loom take up a larger space than the power sized warp beam which requires very little space and thus enables the weaver to have two looms in the space occupied'. This is no great advantage. Even now the weaver makes most economical use of space. What he loses in space he gains in capital investment. But he would certainly stand to gain by adopting the two-loom-system.

(g) 'The power dresser sizer enables the weaver to abandon the wasteful preparatory processes and to introduce a second loom in his family. As a result of increased production obtained by increasing the number of looms operated by a weaver's family, the cloths turned out can be sold at a somewhat cheaper price, the merchant being thus enabled to find a ready market for his products particularly in localities where cheap mill made goods enter into competition'. This is the chief argument for the introduction of the dresser sizer. The adoption of the two loom system is rendered possible by it. It can increase the earnings of the weaver's family and reduce the price of hand woven cloth thus enabling it to compete with the power-loom. The power sizer and the two-loom system are so closely connected that the successful revival of the hand-loom industry depends on the success of the sizing plant which avoids waste of time and energy and reduces the cost of production. The dresser sizer has been tried at the Madras Government Textile Institute and also in Godavari District by a private merchant, but its commercial possibilities have not as yet been proved beyond doubt. There are certain difficulties in its introduction. It is rather difficult to find 200 weavers manufacturing the same kind of cloth. If different kinds of warps are used, changes in the reeds etc., will involve a great loss of time and an increase in the cost

of preparation.¹ Also the reduction in the cost of preparation in the dresser sizer is not enough to drive the cottage sizers from the field of competition. The street sizing—especially where small warps are in use—is distinctly cheaper than the dresser sizing. But it must also be admitted that no honest experiment has been made in regard to the commercial possibility of the dresser sizer and the establishment of warp distributing centre.

Certain improvements in the sizing plant have been made during the last 20 years. Mr. Amalsad invented one which enables the sizer to make long warps in a limited space even during rainy seasons. It is driven by hand. It can turn out 4 warps of 240 yards × 500 ends of 20s every day, thus giving work enough for 24 weavers. The sizing plant is priced Rs. 1,500 and the working expense per pound is about 3 annas. However this sizing plant has not been a success. Except in the Textile Institute and large handloom factories nowhere is it in use. The causes of failure are firstly, it is believed that the hand-sized warp is superior to power-sized warp. Secondly, the initial cost is beyond the means of the weaver and the sizer. Thirdly, the use of the plant does not reduce the cost of sizing. Fourthly, facilities for extension of weaving by abandoning sizing where it is done by the weaver and his family are not present. Lastly, the weaver is poor and he cannot afford to invest so much capital in the purchase of long warps. There is no organisation to finance him. The cloth merchants are unwilling to finance him as the recovery of the loan would be difficult.

Another sizing plant was invented and worked by a Sourashtra, named Bavaram, in Madura. But it costs only Rs. 350. The machine requires the attention of 2 boys. About 800 yards of 240 threads are wound, warped and sized each day. It is sad to note that Mr. Bavaram had to close down his establishment as he could not have the required financial assistance from the Government for the preparation and sale of sized warps.

These hand-power sizing machines have not, however, become popular with the weavers. To be effective they must

¹ For every change in the warp, it takes nearly a day and a half to readjust the reeds etc.

be so constructed that they may be capable of carrying out all the under-mentioned operations continuously and at a uniform tension without throwing even the least strain on the yarn :¹

- (a) withdrawing the yarn from the warp beam,
- (b) applying the size to the yarn uniformly,
- (c) brushing the size,
- (d) uniformly drying the yarn by blowing hot air on it,
- (e) dividing and opening the yarn,
- (f) applying oil to the yarn and
- (g) providing leases.

All the cottage sizing appliances so far placed in the market do not carry out all the operations to the satisfaction of the weaver. Besides they are highly specialised, making the treatment of different kinds of yarn difficult and costly. Their initial cost is another factor which accounts for their unpopularity with the weaver.

The advantages of the improved sizing plant like the dresser sizer, Amalsad's sizing machine and Bavaram's warping and sizing mill, over the indigenous method of warping and sizing may be stated thus :

Indigenous Method

1. The warp threads have no uniformity of tension.
2. Usually small warps not exceeding 30 yds. are prepared. So time is lost for every stoppage and joining of threads.
3. In the indigenous method, the warp is sized in the ball form which has certain advantages and disadvantages as well. For every yard or two of the warp woven, the unwinding of the warp and the shifting of the lease rod are necessary in which some time is lost.
4. The cost of production is less than in the improved sizing plant where small warps are prepared. Small warps being quite common, street sizing is difficult to be replaced.

Improved sizing plant

1. The warp is uniformly sized and has regularity of tension.
2. The time saved for each stoppage for piecing the warp threads is about 3 hours. In Bavaram's and Amalsad's usually the warp is 100 yards long ; and in the Dresser sizer it is 500 yards. The time saved for each warp is proportionate to the length of the warp.
3. The warp is beamed and drawn through the healds and reeds and by a simple device the cloth can be wound on the beam and the warp can be unwound without much loss of time.
4. The cost of production is practically the same as in the indigenous process, perhaps a little less where long warps are prepared. But they are no practical proposition commercially where only short warps are required by the weaver.

The scope for the introduction of these improved sizing machines is at present very limited by the nature of the present hand-loom manufacture and the economic condition of the weaver and the weakness of the industrial organisation. So long as fashions favoured garment units the hand-loom prospered. But modern sartorial fashions depend on the tailor who requires piecegoods. Garment units may, therefore, be rapidly replaced by piecegoods in the production of which power-looms may easily claim an advantage over the hand-loom. Until the hand-loom captures the field of the power-loom and begins to manufacture piecegoods and not merely garment units, the adoption of the dresser sizer and other sizing plant cannot be an economic proposition. Even then the slasher sizer has an advantage over all the sizing plants including the power dresser sizer in respect of the cost of preparation. The object of further researches in cottage sizing should not be merely mechanical perfection but an appreciable reduction in the cost of preparation.

¹ Correspondence of the Department of Industries, Madras.

HAND-LOOM INDUSTRY IN MADRAS PRESIDENCY 139

IV. IN MALLASAMUDRAM (Salem District).

Rates per 20 hanks.

					20s	40s
					Pies	Pies
Winding	...	...	...	...	3	3
Warping	...	...	...	...	3	3
Sizing	...	...	...	...	24	24
Total per pound					RS A P 0 2 6	RS A P 0 5 0

TABLE A.

Statement of the Cost of Preparatory Processes in Certain Weaving centres in the Presidency.

I. IN SALEM TOWN.

Rates for 20 hanks of grey or white.

	20s	40s	60s	80s	100s
	Pies	Pies	Pies	Pies	Pies
Winding ...	4	4	4	4	6
Warping ...	4	4	4	4	6
Sizing including ingredients ...	28	24	20	28	42
Total cost per pound of yarn ...	RS A P 0 3 0	RS A P 0 5 4	RS A P 0 7 0	RS A P 0 12 0	RS A P 1 6 6

II. IN RASIPURAM.

Rates for 20 hanks of colour yarn.

	30s	40s	60s
	Pies	Pies	Pies
Winding ...	6	6	6
Warping ...	8	9	12
Sizing ...	14	15	15
Cost per pound ...	RS A P 0 3 6	RS A P 0 5 0	RS A P 0 8 3

III. IN MADURA AND NORTHERN CIRCARS.*

Place.	Count of yarn.	Winding.	Warping.	Sizing labour.	Sizing ingredients.	Total for 20 hanks.	Cost per lb.
		Pies	Pies	Pies	Pies	Pies	RS A P
Madura ...	20s	6	10	42	6	64	0 5 4
N. Circars...	"	6	6	18	12	42	0 3 6
Madura ...	30s	6	10	42	6	64	0 8 0
N. Circars...	"	6	6	18	12	42	0 5 3
Madura ...	60s	6	10	42	6	64	1 0 0
N. Circars...	"	6	6	18	12	42	0 10 6
Madura ...	120s	12	10	48	6	76	2 7 0
N. Circars...	"	6	6	21	6	39	1 3 6

*(Extracted from *Hand-loom Weaving in the Madras Presidency* by D. M. Amalsad.)

TABLE B.

STATEMENT SHOWING THE ECONOMICS OF THE POWER
DRESSER SIZER*Machinery : non-recurring cost.*

Winding machine, 200 spindles, warping machine, Dresser Sizer, Mixing beck, gearing, boiler, stores, erection including.	Rs. A.
	20,000 0

Recurring expenses monthly.

	Rs. A.
1 Engine Driver	50 0
1 Fireman	25 0
1 Foreman for Sizing	60 0
1 Assistant sizer	40 0
1 Warp tender	25 0
Watchman and labour	20 0
Starch, oil and tallow	50 0
Fuel	200 0
10 Winders	100 0
Repairs and renewals	25 0
Rent of buildings	60 0
Depreciation on machinery at 5 per cent per annum	85 0
Interest at 4 per cent	65 0
Total per month	885 0

Production per month of 25 days : One hundred beams of 2,000 threads
20s 500 yards long each.

Net cost of production per lb of 20s : Re. 0 2 5 ps.

The reasonable price at which the warp can be sold is annas 3 per pound. The margin will be sufficient to cover charges of supervision, interest on working capital (which may be required to the extent of Rs. 10,000) and other contingent charges.

(N.B.—The estimated costs of preparation per pound of 30s, 40s, and 60s, and 80s are 4 annas, 6 annas, 10 annas and 16 annas respectively.)

TABLE C.

*A. Comparative Statement of the Economics of Amalsad's Hand
Sizing Machine and the Street Sizing Method.*

AMALSAD'S SIZING MACHINE

Price Rs. 1,500.

Production per day of 8 hours ...	{ 4 warps each 240 yards long, 500 threads, 20s, can be made.	RS A P
	House Rent	20 0 0
	One turner	15 0 0
	Two attenders at Rs. 20 each	40 0 0
	Fuel	18 0 0
Cost of running for a month of 25 days as estimated by Amalsad.	Size	9 0 0
	Oil	3 0 0
	Interest and depreciation at 12 per cent.	15 0 0
	Repairs	5 0 0
	Total	125 0 0

	RS A P		RS A A
Cost per day	5 0 0	{ Cost including winding charges	5 14 3
Cost per pound of 20s warp (warping and sizing only)	0 2 8	{ Cost per pound of 20s including winding, warping and sizing	0 3 2

STREET SIZING METHOD.

	RS A P
Winding 570 hanks at 3 pies per 10 hanks	0 14 3
Warping 570 hanks at 5 pies per 10 hanks	1 7 9
Oil, fuel and starch at 3 pies for 10 hanks	0 14 3
Wages for 8 men for sizing	4 7 3
Total Cost of Winding, Warping and Sizing 28½ lbs of 20s.	7 11 6

Cost per pound of warp RS A P
0 4 4

The cost of street sizing is a little exaggerated. Reduction in cost is possible in respect of warping and sizing ingredients. Still the cost of preparation in Amalsad's sizing machine is much less than in the street sizing method even if we include 14½ annas as winding charges. The sizing plant can be worked more economically in villages where house rent will be almost nominal. The saving in labour is also considerable. Still, the Amalsad Hand Sizing plant has not replaced the street sizing method for reasons stated in the text.

CHAPTER XII

THE TECHNIQUE OF WEAVING

WEAVING embraces only one section of the textile industry; for, felted, plaited, netted, hoisery and lace fabrics lie outside this definition. The process of weaving consists in interlacing two or more series of flexible materials. Notwithstanding this limitation, woven fabrics are varied in texture and have an enormous range of applications in the modern civilised society.

*Weaving Mechanism.*¹—The longitudinal threads of a fabric are called 'warp' and the transverse threads are called 'weft' or 'woof'. A loom for intersecting these several threads must provide for

- (1) shedding i.e., raising and lowering the warp threads in a predetermined sequence so as to form two lines between which the weft may be passed;
- (2) Picking or placing lines of weft between the divided warp;
- (3) beating-up or striking each weft thread into its appointed position in the fabric;
- (4) letting-off or holding the warp tense and delivering it as weaving proceeds;
- (5) taking-up or drawing the cloths as manufactured;
- (6) and for stretching the fabric widthwise in order to prevent the edge thread of the warp from injuring the reed and from breaking.

Besides these, the powerloom and all automatic looms must have mechanical contrivances to stop the loom when the weft breaks or is exhausted, or the warp is broken, or when the shuttle fails.

Shedding.—A hand-loom as used by the ordinary country weaver has all these simple devices. It has the warp coiled evenly on a beam (when the warp beam is used) or has the warp stretched on the lease rods and a part of it bundled

which is unwound whenever necessary. The warp thread passes, as weaving proceeds, alternately over and under two lease rods, then separately through the eyes of the shedding harness, in pairs between the dents of a reed and finally they are attached to a cloth roller. For small patterns healds are used to form sheds but for large ones a Jacquard or dobby or chain device is required. Healds are usually made of twine or of twine loops attaching to bamboo shafts. Usually from 2 to 12 healds are employed in South India and the threads will be drawn through the eyes in a predetermined order. The upper shafts are suspended from pulleys and the lower ones are attached to treadles placed near the floor. The weaver depresses the treadles with his feet in a sequence suited to the pattern and thus the shedding is formed for the shuttle to pass through.

Picking and Beating.—The reed is the instrument by which weft is beaten into position in the cloth and the shuttle places the weft in the warp. The reed also determines the closeness of the warp threads and guides a moving shuttle from side to side. The reed is usually made up of cane or strips of flattened wire. It is placed in the lower portion of a batten, which is suspended from the upper frame work of the loom. In front of the reed and immediately below the warp, the projecting batten forms a race for the shuttle to travel upon from side to side. When the fly shuttle is used, a small contrivance is in use which throws it between the divided warp and catches it at the opposite selvage.

Thus now a treadle is pressed down by one foot to form a shed, the batten is pushed back till a sufficient portion of the shed is brought in front of the reed and the depressed threads lie upon the shuttle; a clear way is thus provided for the shuttle. A quick movement of the fly shuttle device projects the shuttle from one box to the other. (This is Kay's invention). The batten is now drawn forward and the reed beats up the weft left by the shuttle. As the next thread is depressed to form another division of the warp for the return movement of the shuttle the last length of the weft is enwarpd between intersecting warp threads and the remaining movements follow in regular succession.

The devices in the Indian hand-loom for holding the warp

¹ Encyclopædia Britannica.

tense and delivering it as weaving proceeds, and for drawing up the cloth as it is manufactured, are very simple. They are not automatic in most looms. The cloth is wound on a beam. The warp is bundled up. There is no uniform tension. Much time is usually lost in unwinding the warp and winding the cloth as weaving proceeds. A bamboo or a wooden stick with pointers at the end is all the device for keeping the width of the cloth fully stretched. As weaving is done, the weaver winds the cloth on the beam, unwinds the warp and stretches it and shifts the tension rod.

This is the ordinary mechanism for weaving; but large figured effects are usually produced in *draw-boy looms* where the warp threads are so controlled by separate strings that any assortment can be lifted when required. Therefore in weaving this kind of fabrics there is always a boy aiding the weaver in drawing the strings in the required sequence. But now the dobby and the Jacquard devices are taking the places of the loops, the pulleys and the draw-boy of the older shedding motions.

Between the primitive loom and the modern imported domestic hand-loom, there are many kinds of looms each differing in its construction and efficiency. Many improvements in weaving devices have been made during the last half a century to suit certain special needs. A brief study of them will be interesting.

The *pit-loom* is the most common in use in India. Formerly it was fitted with a throw shuttle irrespective of the kind of cloth it was intended to weave. But recently almost every pit-loom has been fitted with a flyshuttle. The pit-loom as found in the weaver's home is rather clumsy and primitive, but simple in its construction. The attempt to replace it by the frame-loom has not been quite successful, for it is claimed for the pit-loom, especially by weavers using very fine yarn, that (apart from the economy of space) it preserves favourable atmospheric conditions. The warp, being almost in level with the ground, enjoys the benefit of a greater humidity. Also the cost of the pit-loom is only half of the frame-loom and is decidedly cheaper and therefore is within the reach of all weavers. Its construction is simple. The village carpenter can make all repairs. In spite of the effort

to introduce frame-looms, improved and automatic looms, the pit-loom still persists, for the weaver is a hard-headed practical man. Sir P. T. Chetty, a weaver by caste and by profession, at the All-India Weaving Competition held in Madras in 1908 said: 'I am satisfied that the pit-loom with the flyshuttle arrangement attached will become the ideal loom and is bound to replace the ordinary country loom except of course in regard to the manufacture of solid bordered cloth. I have tried the Japanese, Churchill's, Raphael Bros.', Hattersley and Sayaji looms but the results have not been satisfactory'.

The Frame-loom.—One of the earliest improvements made by the Department of Industries for the mechanical perfection of the pit-loom (which was defective in certain respects) was the introduction of the frame-loom. It was then very little realised that all the improvement that is now made on the frame-loom can also be made on the pit-loom. The only advantage that the frame loom now enjoys is the facility it affords for shifting from place to place. Probably the seating position of the weaver in the frame-loom is a little more comfortable than it is in the pit-loom. All this is no material consideration. And it is not a matter to be regretted if the weavers are unwilling to replace their pit-loom by frame-loom provided they adopt the flyshuttle sley which can be fitted easily to a pit-loom at a small cost of Rs. 10. It must also be noted that the wooden frame-loom is not sufficiently strong to bear the heavy treadling operations of jacquard weaving; nor can mechanical power be used in driving frame-loom without disturbing the tension and the stability of the loom.

During the last fifty years, there has been continuous experiment carried on in regard to the improvement of the hand-loom. The superiority of the power-loom lies chiefly in the automatic synchronisation and proper sequence of the different weaving operations—shedding, picking, beating, taking-up—and this tends to the rapidity of production. Compared to the hand-loom, the power-loom regulates the force and maintains the proper tension of the warp. Improvement in this respect has been the object of the non-automatic improved looms. Under this category come the Nagpur loom, Churchill's loom, Serampur loom, Lord Ampthill loom. Other improved looms are partially or wholly automatic

and some of them can hardly deserve the name of hand-loom at all. The domestic looms of Raphael Brothers and Hattersley, the automatic looms patented by Capt. Maxwell, Mr. Tikkekar and Mr. Shukla are imitations of the power-loom. A brief statement of their merits and demerits will be instructive.

The Nagpur loom is a type of the ordinary frame-loom used in the Government Hand-loom Weaving Institute in Poona. There is no automatic action; it is not cheaper than the ordinary frame loom; its speciality is that the picking operation produces less noise. But this is no great advantage in increasing the efficiency of the loom. Perhaps the mental strain on the weaver may be less. The weaver may not be fatigued by the monotonous noise.

Churchill's loom.—Mr. Churchill who took out a patent in his name was a very enthusiastic worker of the American Mission at Ahmednagar. The chief advantage claimed for his loom by the inventor is that it combines some of the automatic actions of the power-loom without depending on mechanical power. Automatic looms intended to be driven by mechanical power are unsuited to the weedy Indian hand-loom weaver. A loom which can be operated by man-power and at the same time possesses certain merits of the power-loom was considered by him to be suitable to the conditions of the Indian weaver. In his loom picking, beating and taking-up are combined. Shedding is done by the weaver by pressing the treadle with his feet, and picking is effected by his hand. The rate of picking in this loom is a little more than in the ordinary flyshuttle loom, but the mechanism for timing the throw of the shuttle is defective. The warp thread often breaks because the sley has to be worked with a jerk. So the effective rate of picking is not appreciably greater. It is also found that it is not quite suited to the weaving of very fine cloths. It is now in use in certain weaving schools in Ahmednagar and Poona districts for weaving sheets and durries. Beyond that it is not in use.

There are three other looms which deserve a brief mention. Mr. E. B. Havell speaks very highly of the loom in the Weaving Institute of Serampur. The *Serampur loom*, as it is called, is an ordinary frame-loom with slight modifications.

A Sourashtra of Madura patented an improved loom, called *Amphill loom*, but the commercial possibilities were never explored; nor could new improved devices be patented by him as the banks refused to finance him. But neither of these looms is much in use. In the Punjab certain looms, called the *Japanese looms*, were imported and worked for some time. But textile experts have unanimously condemned them as being absolutely unsuited for India. They were found working in Ludhiana by Sir A. Chatterton in the manufacture of very coarse cloth. It is said it is not very much in use even in Japan.

Automatic looms.—Among the automatic looms the *Domestic Loom of Hattersley* comes first. Messrs. Hattersley are manufacturers of textile machinery of long reputation in Lancashire. They have patented a loom almost on the model of the power-loom which is automatic in respect of picking, beating, taking-up and shedding etc., which is fitted with weft-stop motion and which can be manipulated both by mechanical and man power. It has about 350 parts. The Departments of Industries of some of the Provincial Governments in India and some industrial enthusiasts thinking that rapid mechanisation of handicrafts alone could bring about industrial revival, imported a number of Hattersley Domestic Looms for the rejuvenation of the hand-loom industry. Their attempt to introduce the heavy looms with iron frame work and complicated mechanism into India where conditions are different from Europe, where these looms are said to be successful, proved a failure. In the beginning of this century a number of looms were imported but almost everywhere except in Western India (Poona, Surat and Sangli) the loom was not popular. Even in the weaving institutes it is relegated to the museum. Its failure is due to (1) its high price, (2) its unsuitability to manufacture the kind of cloth that is usually woven on hand-looms in India out of the yarn generally available, (3) its great demand on human power and its unsuitability to the temperament of the hand-loom weaver, (4) its complicated mechanism, (5) the difficulty in replacing worn-out parts, (6) the absence of cheap power which alone can make the establishment of commercial units possible as it is found in Japan, Scandinavia and Wales and (7) the

unsuitability of the country warping and sizing methods. Though the rate of picking is great, the efficiency of this loom is greatly reduced by the too frequent snapping of warp threads.

In the Salem Hand-loom Factory it was tried but was found unsatisfactory. The loom was far too heavy for the native weaver. It is satisfactory if driven by mechanical power but when the source of power is the weaver, the supply is irregular even if two weavers work; and the results are unsatisfactory.¹

In regard to the suitability of the Hattersley Domestic Loom to Indian conditions, the controversy between Sir A. Chatterton and E. B. Havell is interesting. The latter makes a very spirited defence of this loom which was severely criticised as the 'dilettantism of the artists' by Chatterton:

'Though Mr. Chatterton has condemned off-hand Messrs. Hattersley's looms as being too heavy and complicated for the weaver, the fact remains that they have been already successfully used in a hand-loom factory in Ganjam and many other places. They have been fitted up and repaired by an ordinary village blacksmith and worked by an ordinary weaver Messrs. Hattersley have made a number of hand-looms for Roumania and have revived the hand-loom weaving in the Balkan States. They have studied all the technique and local conditions under which the hand weaving in India is now carried on and have placed their manufacture on the market. A number of looms have also been imported every year for hand-loom factories. They have now overcome the difficulty of beaming and sizing warps by hand with their latest hand power beaming and slasher sizing machines designed for an output of about 50 hand-looms. These are two of the most difficult technical problems connected with Indian hand weaving. The beaming machine is for putting yarn on to the warper's beam direct from the warping bobbins by hand and the sizing machine is for sizing yarn as it passes from the warper's beam on to the loom

¹ Sir A. Chatterton.

beam. Messrs. Hattersley have produced a simple and excellent warping mill and reel, weft winder, warping bobbin, pirn winder and also special looms for weaving heavy fabrics, silk, woollen, linen etc'.¹

In spite of this application of great scientific and mechanical knowledge to the hand-loom weaving by Messrs. Hattersley, it is significant to note that very few looms have been imported and many of them remain idle.² They are not at present employed on any large scale even where hand-loom factories are established. Evidently they can become commercial units not as hand-looms but as power looms driven by mechanical power such as electricity or oil engines. In Roumania, Scandinavia, and Japan they are extensively in use because power is cheap. Till electrical and mechanical power becomes very cheap the hope of introducing these looms cannot be realised. There are other questions as facilities of finance and marketing before the weaver can be expected to adopt this loom which requires more capital. It must also be remembered that even when they are introduced it can hardly be claimed that they would revive the hand-loom industry and solve the unemployment problem but it would tend towards the dispersion of the factories and the establishment of smaller weaving units which would avoid the conflict between capital and labour and all the evils of the factory system and urban overcrowding.³

¹ E. B. Havell: *Artistic and Industrial Revival in India*, pp. 186-188.

² The writer is told that there are about 2000 Hattersley looms working in Surat where they are driven by hand. But in Poona Sangli and also in Bangalore, where they are in use, they are driven by mechanical power. But in such cases, they can hardly be called hand-looms. The writer understands that if electric power is employed even one loom can constitute a commercial unit; but when power is generated by an oil engine 3 to 4 looms will be necessary to make an efficient unit.

³ Sir A. Chatterton was not alone in condemning the Hattersley loom: W. A. Beardsell of Messrs. Beardsell & Co., Madras, in his evidence to the Indian Industrial Commission says: 'We imported a loom called the Hattersley, about six of them. The loom was operated by the feet. . . . We are told that it had worked very successfully in several countries in the Continent. The speed was from 200 to 250 picks per minute. Our experiment with the loom was not successful. The difficulty we experienced was that the loom was very much heavier to work than the country loom and there is a greater strain on the yarn used. We experienced constant breakages and eventually gave up any idea of making use of the looms which were finally handed over to the Industries Department.'

I. STATEMENT SHOWING THE COMPARATIVE COST, RECURRING EXPENSES AND EFFICIENCY OF DIFFERENT HAND-LOOMS IN USE.

Name of the loom	Cost	Annual recurring cost	Average daily outturn for 8 hrs ¹ .	Average effective picking per minute.	Average rate of picking per minute.	Ideal Rate of picking at competitions	Maximum count of yarn that can be used.
(1) Pitloom with throw shuttle.	Rs 20	Rs ...	Yds. 3 to 4	15	30	50 60	any counts
(2) Pitloom with fly shuttle.	25	...	5 to 6	25	60	80-100	80s single
(3) Frame loom with fly shuttle.	30 45	...	5 to 6	25	60	80 100	80s single
(4) Nagpur loom ...	45	5	5 to 6	25	45	80-100	80s single
(5) Salvation army .	100	10	5 to 6	25	45	50-60	only double yarns
(6) Churchill's loom	80	8	7	30	45	60-70	Do.
(7) Koshti kalyan loom.	80	8	7	30	45	60-70	Do.
(8) Gomati loom ...	150	15	8	35	75	80-100	Do.
(9) Hattersley 50" width.	375	...	16	60	60-80	90-100	any yarn
(10) —Do.— driven by mechanical power.	...	...	27	100	140-160	180-200	any yarn

II. STATEMENT SHOWING THE COST AND EFFICIENCY OF CERTAIN APPLIANCES USED IN PREPARATORY PROCESSES.

Name of the plant	Price	Number of workers required.	Outturn per day of 8 hours.
(1) Country warping mill ...	Rs. 75	one	100 yds. of 2000 ends of 20s.
(2) Vertical warp mill with slide lease mechanism.			
(3) Winding for warp and weft ...	Rs. 2 Rs. 250	one one	5 to 6 lbs. of 20s. 30 to 60 lbs. of 20s.
(a) on charka			
(b) on hand-driven winding machine with six bobbins.			
(4) Doubling machine ...	Rs. 150	one	24 lbs.
(5) Weaver's beam with one drum.	Rs. 75	one	250 yds.
(6) Weaver's beam with three drums.	Rs. 150	one	Used for different counts and coloured warps 150—200 yds.

The *Automatic Domestic loom* of Messrs. Raphael Bros., like Hattersley's, is for all intents and purposes a powerloom and so its defects become pronounced when worked as a hand-

¹ The daily outturn is based on the assumption that 40s grey yarns are used for warp and weft and that the width of the cloth is 50" and that the number of picks per inch is from 52 to 56.

loom. Sir P. T. Chetty got one which was tried by Sir Alfred Chatterton in Tondiarpet factory. It was found much too hard to work for the undeveloped feet of the weaver. It was made of cast iron and so its parts were often easily broken. It was also found that it could be a commercial proposition only, if it were worked in a small factory with a number of other looms driven by mechanical power. It is now realised that a power-loom converted into a hand-loom is an unsatisfactory machine owing to the irregularities in the driving force.

Both Hattersley and Raphael looms being found unsuited to Indian conditions, certain new inventions, embodying the virtues of the automatic loom but at the same time not depending on mechanical power were made. These improved looms are the Salvation Army loom, Koshti Kalyan loom and Gomati loom. All of them are partly or wholly automatic. Capt. Maxwell was the inventor of the *Salvation Army loom*. Its peculiarity is that picking is automatic depending on the movement of the sley; so the rate of picking is great; but the sley works with a jerk as the power applied to it is irregular and the efficiency, therefore, suffers. The loom works satisfactorily on coarse yarn but is found unsuitable for fine counts. The *Gomati Patent loom* can weave up to 200s. It is mainly made of wood on the same principle as the Hattersley loom without so much of complicated mechanism. It was invented by one Mr. Shukla who was an ordinary labourer in an Ahmedabad mill. He has received no special education. It is automatic in respect of picking, beating, letting-off, taking-up and shedding, but it has no device for stopping the loom when the weft or the warp thread is broken. It differs from Hattersley's in that it has the underpicking mechanism. The patent was taken out last year. Mr. Shukla himself is employing about six looms which are worked by ordinary labourers. The *Koshti Kalyan loom* patented by Mr. Tikkekar is different from Shukla's loom chiefly in respect of driving power. It has not, however been adopted elsewhere. There are certain defects in the loom which must be removed. As the driving power is applied from one of the sides of the loom, it is not possible for the weaver to supervise the whole warp when weaving proceeds. Being made of wood it is

shaky; and there is no mechanism for keeping the warp in tension. There are no proper *lemles*.

A new loom was recently invented by Mr. N. Banerji of the Government Central Weaving Institute, Amritsar. It is called the *Double Production loom* where two warps are woven at the same time. The object of it is to increase the outturn of the weaver and consequently his purchasing power. Two cloths are simultaneously made one over the other. The mechanism of the loom is also said to be simple. It consists of a double production loom and a sley frame having combined sley-races with boxes on each side one above the other. The bottom sley race is fixed to the sley frame and the top sley race is moveable when required. Shuttle boxes are fixed on each side of the sley races and the upper box has a spindle; a common picker works for both boxes sliding on the spindle. The picking is done with one hand and the sley moved by the other, so that weaving is continuous. The warps are drawn through rows of eyes in a common heald-shaft and are connected and operated by treadles which also rotate separate cloth beams. The loom can easily be manipulated by hands and feet. Also it can be fitted with a dobby or Jacquard machine. Winding of cloth on beams is automatically done and consequently the number of picks is uniformly inserted into the cloths throughout. The number of picks per inch can be increased or decreased as required by adjusting the connecting rod. A mirror is placed on the left side of the loom which helps the bottom cloth as well as the bottom warp threads to be seen clearly as the warp images on the mirror and the worker can easily detect if any thread is broken. The price of the loom varies from Rs. 60 to Rs. 100.¹

Attempts to popularise the automatic looms have not succeeded. About 2000 narrow Hattersley domestic looms are said to be working in Gujarat. Domestic looms have also been recently installed in Bangalore and Poona driven by electricity, and in Sangli by oil engines. Other types of looms are also found working in certain centres; but their number

is negligible. The most common loom is the country loom fitted with flyshuttle sley and dobby. Their popularity is due to their cost being low and so within the reach of the weaver, and to their serviceableness in weaving cotton cloths of counts upto 150s and in weaving silk goods even at 50 picks per minute. Besides, they are light and easy to handle yet sufficiently strong for making cloths of medium weight; they can be fixed to the existing frames in the weaver's home and they enable the weaving of wider cloths which is difficult in the throw shuttle loom.

Besides these looms certain improvements in the weaving appliances have also been made mainly by the efforts of the Provincial Department of Industries. First comes the flyshuttle sley which has doubled the production in coarse counts and has increased it by 50 per cent and 25 per cent in the case of medium and fine counts respectively. Hand-power machinery for winding, warping, doubling, sizing and beaming have been evolved. Excepting the sizing machinery others are now slowly adopted by weavers. Multiple-box sleys for weaving cloths requiring different coloured wefts, tape sleys for weaving a number of tapes at a time, swivel sleys for producing figured-spot effect in fabrics, and jacquard machines for speeding-up production of richly embroidered cloths have also been introduced. But due to their cost the jacquard machines are not commonly employed by hand-loom weavers; but small ones made in the country for weaving figured *dhoties* and *angavastrams* are now becoming popular with them.

The economies effected by several improvements made in the weaving appliances that are now generally adopted by weavers may be stated thus: (1) the flyshuttle sley has increased production by 25 to 100 per cent; (2) the dobby has dispensed with the draw-boy and avoids the employment of children; (3) the jacquard harness saves a great deal of labour. For example, it takes twelve days for a man to lace up the threads, while in the country chain harness the same work requires 24 days for a man and a boy. For weaving a particular design it takes for a man 5½ days in a loom fitted with a jacquard harness while in a loom with the country harness it can be done by one man and one boy in ten days.

¹ Taken from the pamphlet issued by the inventor.

Still there is ample scope for the improvement of the weaving appliances. The direction in which further development of the hand-loom may profitably take place lies in increasing the outturn per loom. At present the effective number of picking is only a third of the ideal number of picks. This can, of course, be improved if better qualities of yarn are obtained for hand-looms than what are at present available. Still the time now lost in mending warps and filling and changing shuttles is considerable and if these are done while the loom is working without an appreciable increase in the price of the loom, its efficiency can greatly be increased. Further lines of development of the mechanism of the loom which can be pursued with advantage are: (1) its speed must be increased approximately to that of the power-loom; (evidently this depends on the weaver himself when mechanical power is not employed) (2) the loom must be adaptable to all ordinary widths and fineness of cloth; and (3) a solid-bordered sley must be evolved; for, this would help the weaver most.

In improving the mechanism of the hand-loom or in introducing labour-aiding appliances certain conditions must be satisfied, the failure of which accounts for their not being adopted by weavers. They must be cheap so as to be acceptable to weavers. They must be capable of being manipulated by man-power, which, fortunately or unfortunately, will remain in India for a long time to come cheaper than mechanical power. They must be capable of being manufactured in the country itself so that the labour displaced by their introduction may be absorbed to some extent in their manufacture. They must have some economic advantage over the country plant if their introduction is to be successful. In short, these appliances and improvements in the mechanism of the loom to be serviceable must be simple in construction, cheap i.e. within the reach of the poor weavers, durable in proportion to cost, reliable under prolonged trial, easy to repair and capable of satisfactory erection in the homes of weavers.

CHAPTER XIII

THE STATE AND THE HAND-LOOM INDUSTRY

Early attempts made to improve the cotton hand-loom weaving in the Madras Presidency

THE rapidly declining economic condition of the weaver during the nineteenth century as a result of mill competition attracted the attention of the Madras Government. But till 1900 all that Government had done for the hand-loom industry—nay, for all cottage industries,—was to revive the artistic aspect of the industry rather than to improve its mechanical equipment or organisation. It hardly realised, in its blind faith in the mechanisation of industry, that the rejuvenation of artistic industries and luxury arts could touch only the fringes of the problem of industrial development, and that the proper method would lie in the revival and development of indigenous useful arts.

In 1900 Mr. Alfred Chatterton was placed on special duty to study the condition of the weaving industry and to suggest remedial measures for the amelioration of the condition of weavers who were hard hit by power-loom competition. As a result of his report, the hand-loom weaving section was opened in 1901 and experiments were conducted in the School of Arts and Crafts, Madras, with flyshuttle looms capable of producing a greater output of cloth than the country hand-thrown-shuttle loom. After a few years of experiment, the department made certain unsuccessful attempts to induce the weavers to leave their homes in order to receive free training in the working of improved looms including the imported automatic domestic looms. Weaving competitions and practical examinations in flyshuttle weaving were then held among the weavers and prizes were awarded with a view to stimulate their interest. As even these steps did not induce them to come forward to learn the improved methods of weaving and as the belief that the factory organisation of the hand-loom weaving could alone bring about its ultimate prosperity was gaining ground, the department started in 1906 a weaving factory in Salem and endeavoured to get local weavers to work therein. The factory worked for five years but it failed in its main objects of introducing the

imported domestic looms among the weavers and of attracting hereditary weavers to the factory. As it was then recognised that the preparation of yarn was the crux of the problem of hand-loom weaving, the department turned its attention to the improvement of the several processes preliminary to weaving. Some efforts were made in Salem factory to improve upon the crude and costly traditional methods of sizing cotton yarns. Also an attempt was made to obtain the economies of the slasher sizer by introducing power sizing of warps required for hand-looms. Power driven machinery was ordered for sizing yarns in skeins. Now the imported looms proved to be unsatisfactory and they had to be scrapped. The department now realized that the future of the industry lay not so much in the wholesale importation of Western methods and ideas but in the improvement of the indigenous processes. As mechanical sizing could not be replaced by any ingenious device which could be operated by hand, it had to be given up altogether and attention was then turned to the introduction of hand-driven warping mills of the types used in European countries to replace the second of the preparatory processes viz. the peg or stick warping which was in vogue. Further work on these lines was however cut short owing to the change in the Government's industrial policy. As a result of it the Salem factory was closed. Mr. Chatterton was then made the Superintendent of Industrial Education working under the Director of Public Instruction and he was not to 'demonstrate commercially by the establishment of factories the merits of new industries and new processes'.¹

¹ These are the words used in Government Dispatches. The Secretary of State for India by his Dispatch of 29th July 1910 made short work of the resolutions of the Industrial Conference requesting the Government to actively assist in the industrial development of the country and to have a comprehensive programme of economic development, to control education, to pioneer new industries, to improve industrial processes, to establish a bureau of industrial information and an industrial museum, to render financial assistance to industries directly and indirectly, to provide expert advice by appointing textile, dyeing, tanning and other experts and to organise a Department of Industries under a Director of Industries. The Dispatch of the Secretary of State observed, 'the utility of State effort in these directions, unless it is strictly limited to industrial instruction and avoids the semblance of a commercial venture is doubtful'. 'The policy which I am prepared to sanction is that State funds may be expended upon familiarising the people with such improvements in the methods of production as the modern science and the practice of European countries can suggest; further than this the State should not go and it must be left to private enterprise to demonstrate that the improvements can be adopted with commercial advantage.'

Thus tragically and prematurely terminated a beginning well made of good intention and sound policy.

However, when in 1913 Government revised its policy and transferred the control of the weaving section from the Revenue Department to the Director of Public Instruction, it was decided that the best way to convince the weaver of the efficiency of the fly-shuttle sley was by demonstrating it at his very door and accordingly the Educational Department organised a peripatetic party for work in the southern districts of the Presidency. As this proved a success a second party was started in the following year for work in the Northern Circars. Meanwhile the control of this branch was transferred from the Department of Public Instruction to the then newly formed Department of Industries. Later on a Textile Institute was established in Madura and a building was constructed at a cost of nearly a lakh of rupees in the hope of affording instruction to weavers and dyers from all parts of the Presidency in improved methods of weaving and dyeing; but as the building subsequently proved to be ill-designed and unsuitable for the purpose of the Institute, it was finally given up. By the outbreak of the War further work was hampered. Thus during this period all that was done by the the Madras Government towards the technical improvement of this industry was the introduction among weavers of flyshuttle sleys which increased their production. But owing to the absence of facilities for marketing their goods, the weavers usually worked for shorter hours and failed to have the full advantage of increased production. Thus their economic condition after twenty years remained practically the same. In the direction of education and propaganda Government conducted certain weaving schools, organised peripatetic parties and in the field of co-operation started co-operative societies for weavers, both credit and non-credit. Beyond that very little was done by the State and this was due to the lack of a definite industrial policy.

But with the War and the Reforms came a change in the attitude of the Government of India towards industries and economic development of the country. It was thereafter to play a positive rôle in the industrial development. The Department of Industries was strengthened. The Director of

Industries now recognised the magnitude of the hand-loom problem and on his recommendation the Madras Government appointed a Dyeing Expert and later on a Textile Expert in 1919. A separate textile section was instituted in the Department of Industries. This marks the beginning of the earnest effort of Government to aid the hand-loom industry. Realising that the prosperity of the hand-loom weaver depends as much on silk weaving as on cotton weaving, the Madras Government later appointed a Sericultural Expert to develop sericulture. The Textile Expert as the head of the Textile section of the Department of Industries was charged with the duties of laying down lines on which instruction should be given in the Textile Institute. At present with an annual grant of about Rs. 1,00,000 the textile section has grown. All branches of textile industries, cotton, silk, woollen and coir have received the attention of the section and it has also dealt with dyeing, sericulture, technical education, research in textiles and propaganda. Much has been done during the last fifteen years, though much more still remains to be done.¹

WHAT THE GOVERNMENT DOES FOR THE HAND-LOOM INDUSTRY

The assistance that Government at present renders to the hand-loom industry in the Madras Presidency through its various departments can be dealt with under the heads: (1) education, (2) research, (3) propaganda, (4) finance and (5) co-operation and business organisation.

Education.—It was recognised long ago that the work of bringing the younger generation of the weaver class under the influence of modern methods and of initiating them early into the use of improved appliances is of vital importance; but the earlier measures to impart instruction in practical weaving in the School of Arts and Crafts were both inadequate and unsatisfactory. Hence it was suggested that primary schools in weaving centres should include in their curriculum some form of manual training in weaving. Vocational schools were

¹ D. M. Amalsad, Memorandum to the Textile Committee of the Madras Legislative Council, 1928.

started by Local Bodies, the Labour Department and Missionary organisations; but the instruction given in these schools, as it was pointed out by the then Director of Industries, was not of the nature which would ultimately help the children of the weavers to take their place in the organisation of the industry as desired by the Department. This is equally true of the instruction given in the denominational industrial schools aided by government grants. The mere grant of financial assistance to schools running weaving sections was more in the nature of indiscriminate doles than of assistance to hand-weaving. The majority of them are no more than ill-equipped hand-loom factories and the training given does not help the pupils to earn an independent livelihood. Further they have failed to attract weavers' children and to turn out competent craftsmen and captains of industry. Besides, these schools were ill-equipped for teaching and were understaffed and it would be too much to expect them to carry on researches or effect improvements in the practice of weaving.¹

A central textile institute imparting a theoretical knowledge and giving a thorough practical training to students in modern methods of work and combining the power-loom and hand-loom processes was a desideratum of the industrial educational policy. It was only recently that the want was met by the establishment of the Textile Institute at Madras. It began work in 1922, and was placed under the control of the Department of Industries. The Textile Expert was to be the Principal of the Institute. Its object was to impart to the students theoretical knowledge and to give them a thorough practical training in modern methods of work, to evolve labour-saving appliances to suit the requirements of the weavers in the Presidency and to set up and work such types of power plant as could be suitably linked with the various textile cottage industries with a view to organise and place

¹ There is a considerable measure of agreement on all sides that the weaving schools and parties fail to reach, as satisfactorily as might be desired, the right classes of people and do not go far to solve the problem of rural poverty.

—*Report of the Department of Industries, Assam, 1931-32.*

Industrial schools are understaffed and ill-equipped arts and crafts depots.

—*Report of the Department of Industries, Punjab, 1930-31.*

them on a commercial basis.¹ There are two courses of instruction, (1) the supervisors' course training captains of industry who would assist in the organisation of the industries and (2) the artisans' course turning out efficient artisans. The Institute is well equipped for research work and for practical training in different branches of textile manufactures.

Education and training in this Institute has so far fitted men to be teachers in weaving schools or demonstrators in Government peripatetic parties. It has not yet succeeded in training men to set up businesses of their own on up-to-date lines. Nor has it attracted many students from hereditary weavers from moffusil parts. They will not naturally be attracted to a place so far removed from their homes in distant districts. The Special Officer for Cottage Industries recommended the establishment of a peripatetic weaving school. The suggestion, though excellent as providing education to the weavers at their very door, is not feasible. For the school to yield permanent results must be continuous and not itinerant. Unlike travelling exhibitions and weaving peripatetic parties, the work of the school is not propaganda but the rearing up of successive generations of artisans skilled in their work and conversant with modern practices. For that purpose industrial schools as well equipped as the Textile Institute must be established in suitable weaving centres. To attract weavers' children to such schools the system of paying them for work done in schools along with the practice of giving stipends must be introduced. It must be well understood that the object of the industrial school is to afford training and education in improved methods of manufacture and business organisation preferably to weavers' children with inherited skill and dexterity.

¹ The objects of the Textile Institute as stated in G.O. No. 668 are :
 1. to manufacture various types of hand-loom and hand-driven warp and weft preparation machinery for the requirement of the several classes of weavers and to serve as a central distributing factory for the supply of improved weaving appliances and accessories connected with the hand-loom industry including special warp and weft preparation machinery,
 2. to produce and supply machine-warps and to demonstrate to hand-loom weavers the economy of such warps,
 3. to afford practical training to weavers and *maistris* engaged in hand-loom weaving in schools,
 4. to serve as a permanent museum of all types of hand-woven products, improved looms and accessories, and

Research.—The Textile Institute at Madras is equipped with the necessary appliances and machinery for the improvement in the methods of manufacture and for evolving new appliances suitable to the cottage worker. A power dresser sizer, a woollen power-spinning cottage plant, instruments for the testing of cotton yarn, appliances for silk reeling and twisting and aerograph printing, a well equipped laboratory, different kinds of looms, automatic and otherwise, hand-driven machines for sizing, warping, bobbin winding, pirn winding, doubling etc. and plant for generating power are all now housed in a suitable building in Washermanpet, the weaving centre of the city of Madras.

Mainly due to the efforts of the Textile section of the Department of Industries improvement of different appliances has been made. Fly-shuttle sleys, suitable hand-power machinery for the different preparatory processes as hand-power warp and weft winding machines, hand-power beam warping mills, machines capable of sizing yarns in hank and sheet form, beaming machines for winding coloured and grey warps on weaver's beam, hand-power doubling machines for twisting twelve or more threads at a time, multiple box sleys for weaving cloths with wefts of different colours, tape sleys for weaving a number of tapes at a time, swivel sleys with rack and pinion for weaving figured spots, various types of *dobbies* for weaving damask etc., jacquard for weaving figured garments, cottage plant for dyeing, printing, silk reeling, have been improved to suit cottage workers. Attempts are now made to evolve a plant for sizing coloured yarns which are used extensively by hand-loom weavers in the Presidency. It is true that evolution of new cottage plant is not merely the work of the textile expert but it is the work of both the textile expert and the engineer. Further progress in research regarding textile cottage plant cannot be made unless the required technical assistance of a highly trained mechanical engineer also conversant with the practices in textile industries is forthcoming. At present the Industrial Engineer, it is stated, cannot give enough co-operation to the textile

5. to serve as a research institute in which experiments can be carried out in various problems in connection with the textile industries which will await solution.

section.¹ Considering the magnitude of the hand-loom industry it would not be a waste to appoint a textile engineer, if necessary, on the staff of the Government of India whose services will be available for the textile experts of the provinces. The research staff of the textile section must be further strengthened by the appointment of a Dyeing Expert assisted by expert dyeing demonstrators. Introduction of new designs and patterns must be the special function of the Textile Department.

Researches in the processes of manufacture as would eliminate waste of time, energy and material are equally important. Evolution of better tools and plant depends on the processes of manufacture and on the conditions under which the industry is to be carried on. The substitution of mill warping and sizing for the indigenous street warping and sizing was mainly the work of the Textile Department. The department now endeavours to eliminate the waste of labour and time involved in the indigenous preparatory processes and to reduce the cost of production by applying the principle of the power dresser sizer to the cottage sizing plant. Though the former object has been realised to some extent, the newly evolved Amalsad Sizing Machine and the cottage sizing plant have yet to achieve the latter object in view. The department attempted to distribute power dresser sized warps to weavers with a view to educate the weavers in the economies of central warp distributing factories, but the attempt has not been so far successful.

Propaganda.—The Textile section of the Department of Industries was charged with the duty of disseminating the knowledge acquired in the research section of the Textile Institute respecting improved methods and appliances and of popularising by demonstration such of those methods and appliances as are found suitable to the conditions of the weavers and promise a better future to the industry and its workers. Peripatetic weaving parties were started in 1913 but in their earlier years their work suffered very much as there was no Textile Institute and, therefore, no training could be given to the members of the weaving parties. The work

of the parties was, therefore, restricted to the demonstration of flyshuttle sleys and dobbies. In recent years, however, the activities of the parties have been directed to the demonstration of the hot-air sizing machine with a view to pave the way for the ultimate establishment of warp distributing centres with power dresser sizer. Side by side with this there was the attempt to demonstrate the advantages to be derived by the use of warps made in the power dresser sizer established at the Textile Institute. But the experiment, for want of financial assistance to weavers and lack of marketing facilities, was not a success. There were twelve weaving parties at one time working in different parts of the Presidency and they are now reduced to three, partly as a measure of retrenchment and partly, it is said, as the adoption of simple appliances has sufficiently advanced there is very little work for so many parties in the districts. In a province with 225,000 looms and 400,000 weavers twelve weaving parties cannot be too many.

The peripatetic parties have carried to the very homes of the weavers the successful experiments carried out in the Textile Institute; but the one weakness of the system is that the parties do not stay long enough in any one place to get their methods firmly established. Nor do they revisit the places to help the weavers over any difficulties that may have cropped up since they adopted their methods or their appliances. The weavers must be taught the adaptability of these methods and appliances to the different kinds and qualities of cloths. Otherwise they would discard them. An organisation is necessary for helping the weavers when difficulties present themselves and for reaping permanent advantages from the peripatetic system. Permanent weaving schools in important weaving districts with proper technical equipment and trained staff may perhaps answer this purpose.

Other forms of propaganda and education that the department has adopted may be mentioned. Weaving competition was held in the earlier years. Now the publication of the departmental bulletins is the only method of propaganda other than the peripatetic weaving parties. The department must organise textile exhibitions of appliances and improved methods of designs and patterns and hold weaving competitions, award prizes for improvements effected in the appliances

¹ Memorandum of D. M. Amalsad to the Textile Committee of the Madras Legislative Council, 1928.

used or in the methods of manufacture. This would not only be educative but will also stimulate the inventive faculties of the weavers.

Financial assistance.—Apart from the organisation of the Salem weaving factory, the experiment carried at Itchapur for a short time to run a yarn depot on co-operative basis, the grant of financial aid to weaving schools and the establishment of the Textile Institute and weaving parties, the direct financial assistance given by Government to the hand-loom weaver was nothing prior to the passing of the State Aid to Industries Act in 1923. Even now the extent of State financial aid to the weaver is restricted. The directions in which the Government can assist the weaver are many. The weaver wants financial help for different purposes, e.g., for setting up a new loom, for purchasing cottage plant for warping and sizing and jacquard weaving, for the purchase of yarns and for tiding over temporary difficulties, especially when he withholds his manufactures from the market in anticipation of a rise in their prices. The co-operative societies provide these facilities to some extent but the State must supplement their work and finance pioneer efforts.

The State Aid to Industries Act empowers Government to assist industries with finance directly and lays down the conditions to be fulfilled by industries demanding State assistance.¹ The conditions of the 1923 Act made financial aid practically unavailable for the poor weavers. An amendment to the Act was made permitting Government to sanction loans to weavers on special terms. Amounts not exceeding fifty rupees may be granted on personal securities to weavers, repayable by instalments on the recommendation of the Department of Industries. But the Act, like the Land Improvement Act and Agricultural Loans Act, has not been much availed of by weavers. The extent of help given to

¹ The Government assistance is regulated by the provisions of the Act which empowers the Government to aid new and nascent industries provided they are registered in India as rupee companies and comply with the rules framed under the Act. The assistance may be (1), by granting a loan, (2), by guaranteeing a cash credit with the bank, (3), by subsidising research on the purchase of machinery, (4), by taking up shares or debentures, (5), by guaranteeing a return on part of the capital and (6), by granting land and raw materials on favourable terms.

weavers so far under this act is very little.¹ There is ample room for the State to render direct financial assistance to hand-loom weaving by securing for the weaver cottage plant on the hire-purchase system, by starting yarn banks and taking shares in such banks and guaranteeing interest on debentures issued by them. It can establish warehouses and organise co-operative sales societies and depots and provide marketing facilities. In this connection the hire-purchase machinery clause of the Bihar and Orissa State Aid to Industries Act deserves special mention. It furnishes appreciable stimulus to the gradual improvement of the cottage industries without which they are in danger of being wiped out. The inadequacy of the finance required by weavers' co-operative societies may be overcome to some extent by the State providing capital at a low rate of interest or taking shares in the societies.

Co-operation and business organisation.—It is now well recognised that all efforts of the Government would be fruitless if the business organisation in the trade of hand-loom products is not built up. The weaver cannot do it himself. The merchant is equally ignorant, if not indifferent. Co-operation is the only method by which the business organisation can be built which would be to the advantage of the weaver. The attempts to organise co-operative societies for purchase of raw materials, sale of finished products and for production have not been quite successful. But the recent co-operative experiment at Salem with a marketing officer at its head and the co-operative endeavour at Itchapur, assisted in marketing its products by the yarn depot run by the Department of Industries, have proved a signal success. The promotion of such societies with the active co-operation of the Government is what is now needed. In the field of non-credit co-operative organisation much remains to be done and that can be done only through governmental agency. Much reliance on weavers' initiative or the enthusiasm of individuals alone cannot be placed. Co-operative hand-loom factories assisted by technical experts and marketing officers would provide the industry with the much-needed business organisation and place the industry on a firmer footing.

¹ It is said that many applications of weavers for loans have been turned down. No effort is made by the Government to supply yarn to weavers on favourable terms.

The survey of the cottage industries undertaken in 1927-28, the information and technical advice given by the Textile Expert are some other directions in which the State has been taking interest in the industry. Indirect assistance is also given by the State. But there is still ample room for Government to assist this industry. The grant of protection against mill competition, the abolition of import duties on yarn, lace and dyes—at least the rebate of such duties on goods imported by weavers' co-operative societies,—a reduction in railway rates on yarns and cloth are some ways by which the State can assist the industry. Further, direct assistance can be rendered by the State, for example by providing capital for the establishment of hand-loom factories, warp distributing centres with power dresser sizer, and bleaching, printing and finishing factories, by providing technical and business advice, by exploring the market within and outside the country for the hand-loom manufactures by the appointment of marketing officers and trade commissioners in the Federated Malay States, Africa and other places where Indian hand-woven goods are in demand, and by advising the weavers on the production of such cloths as have a demand and so on. While caution is necessary against the frittering away of taxpayers' money, it is difficult to exaggerate the necessity of the direct and keen interest that Government ought to take in the development of this important industry.

NOTE

Since this was written, the Government of India has decided to make an annual grant of Rs. 5 lakhs for five years to the Provincial Governments for the development of the hand-loom industry. At the Industries Conference held in July, 1934, it was resolved that the grant should be distributed on the basis of the hand-loom consumption of yarn and the expenditure on the development of the industry in each province. According to this scheme, Madras is expected to get Rs. 3½ lakhs spread over five years. The Madras Government prepared a scheme for improving the marketing of handwoven goods on a Co-operative basis, with a provincial Weavers' Co-operative Marketing Society having a share capital of Rs. 100,000 of 20,000 shares, and Co-operative Societies with 400 members in ten important Weaving centres. Efforts will also be made to bring about the 'linked' organisation, to open an emporium, to arrange for wholesale and retail sale, to depute marketing officers to the Federated Malay States, Burma and Ceylon.

CHAPTER XIV

THE STATE AND THE HAND-LOOM INDUSTRY

TARIFF REGULATIONS WITH SPECIAL REFERENCE TO
THE HAND-LOOM INDUSTRY

IN this chapter we shall review the history of the tariff regulations in relation to the various branches of the cotton textile industries in India and their immediate and ultimate effect on the hand-loom industry and, in the light of the investigation, state what should be the fiscal policy in regard to the industrial and economic development of this country.

The report of the Indian Textile Tariff Board, 1927, offers a suitable starting point for the present discussion. The conclusions of the Board are well known. The President recommended an increase of duties on yarn and piecegoods imported from Japan while the other members objected to the enhancement of the duty on yarn as it would place the hand-loom industry at a disadvantage, but they recommended an increase in the import duty on all cotton piecegoods and the grant of bounty for finer spinning. In 1927 the Government of India rejected both the recommendations; but the continued depression in the Bombay Cotton Textile industry, due to the increasing competition from the Far East, especially from Japan, compelled the Government to take some protective measures. In August, 1927, the Government sought to protect the spinning industry (postponing the consideration of the grant of further protection to the weaving industry to a later date) by a revision of the tariffs on the imported cotton twist and yarn. They substituted 'a five per cent *ad valorem* or 1½ annas per pound whichever is higher' for the then existing 'five per cent *ad valorem* duty on yarn'. In May 1929 Mr. G. S. Hardy, I.C.S., Collector of Customs, Calcutta, was appointed, on the representation of the Indian millowners, to investigate and to report on the extent and severity of external competition with the products of Indian mills since the Tariff Board had reported, and to examine the possibility of

substituting a system of specific duties for the then existing system of *ad valorem* assessment on cotton piecegoods. Here we find a new view on the effects of specific duties which has almost become an article of faith with the Government of India. By converting the *ad valorem* into a specific duty, it is claimed that a greater measure of protection can be afforded to the industry. The Government adopted this measure on the assumption (a) that the import of finer count yarn did not compete with the Indian mill product, and, even if it did, it should not be heavily taxed as it would affect the hand-loom industry, the bulk of its consumption being finer counts; (b) that the Japanese competition was most severe in respect of medium counts of 30s and 40s and (c) that the new basis of increased specific duty on coarse and medium counts would equalise the advantage of 10 per cent that Japan had by reason of its labour conditions and thus protect the Indian spinning industry, while the retention of the 5 per cent *ad valorem* in the case of costly fine yarns, which were considered to be staple products of consumption by hand-looms, would mean no disadvantage to the hand-loom industry. The assumption and the contention are untenable, if we carefully examine the facts of the case.

The increase in the import duty on yarn by imposing a higher specific duty without a corresponding increase on the imported piecegoods had the expected result; Japan ceased to export yarn to India but increased its exports of piecegoods and intensified its competition in piecegoods as the following table will clearly indicate:—

Period	Country of export	Import of yarn			Total import of twist and yarn.	Imported piecegoods
		Below 40s.	Above 40s.	Others		
		(In million lbs.)			(In million lbs.)	(In million yards)
Post war average...	United King- dom	7.7	6.61	2.43	16.71	1199
	Japan	16.32	0.86	11.6	28.77	113
	China	0.92	...	...	0.93	2.3
	Total	31.1	...	...	46.4	1351

Period	Country of export	Import of yarn			Total import of twist and yarn.	Imported piecegoods
		Below 40s.	Above 40s.	Others		
		(In million lbs.)			(In million lbs.)	(In million yards.)
1927-28 ...	United King- dom	9.04	7.74	3.7	20.47	1543
	Japan	7.86	0.14	8.96	16.96	323
	China	12.03	...	0.81	12.84	7.4
	Total	28.9	8.04	13.63	52.3	1973
1928-29 ...	United King- dom	7.89	9.23	6.27	23.2	1456
	Japan	2.24	0.04	5.23	7.51	357
	China	10.1	0.01	0.81	10.88	13.5
	Total	20.2	9.33	12.60	43.7	1937
1929-30 ...	United King- dom	6.86	8.81	3.73	20.1	1247
	Japan	2.85	0.11	7.89	10.9	562
	China	9.84	0.10	0.72	10.6	9.7
	Total	21.84	9.01	13.05	43.9	1919
1930-31* ...	United King- dom	2.78	4.09	2.96	9.81	523
	Japan	2.85	0.08	4.65	6.88	320
	China	10.13	0.74	1.53	14.87	3
	Total	21.84	4.27	9.17	29.14	890
1931-32* ...	United King- dom	2.95	5.20	3.15	10.29	383
	Japan	0.39	nil	5.62	6.02	339
	China	11.20	nil	2.01	13.19	4
	Total	15.31	5.25	10.73	31.57	775

(Form the Review of the Trade of India.)

India imports all yarns of 40s and above from the United Kingdom while 40s and below come from Japan and China. The burden of the new basis of taxation being heavier on coarse and medium yarns than on finer ones, there is a fall in the import of 40s and below. But this fall is more than made good by a rapid increase in the import of cotton

* The years 1930-32 were years of vigorous campaign for Swadeshi and boycott of foreign cloth; also it was then that the duties on piecegoods were increased first in 1930, again twice in 1931 and again in 1932. Hence the fall in the imports of cloth. But even here Japan was less affected than the United Kingdom and other countries.

piecegoods from those countries whose yarn trade with India had declined. The import of yarn from Japan was reduced from 17 million lbs. in 1927-28 to $7\frac{1}{2}$ million lbs. in 1928-29 and 11 million lbs. in 1929-30 while the import of cloth increased from 323 million yards to 357 million yards and to 564 millions in the corresponding period. The same tendency can also be traced in the Chinese trade. This means that Japan attempted to avoid the burden of the increased duties on yarn by reducing its exports of yarn and increasing its exports of cloth to India. It is advantageous to Japan, to cite an instance, to export to this country cloth made of 60s and below rather than to export yarns of similar counts. For while the import duty on cotton piecegoods in India remained 11 per cent *ad valorem*, the specific duty of $1\frac{1}{2}$ annas per pound worked out at the rate of 12 per cent in the case of 20s yarn, $8\frac{1}{2}$ per cent in the case of 40s, and $6\frac{1}{2}$ per cent in the case of 60s, taking the average price for the last three years at 12, 18, and 24 annas per pound of 20s, 40s and 60s respectively. Thus the margin of difference between the customs duties on cloth and yarn diminishing and other conditions remaining the same, an increased duty on yarn will naturally encourage the import of cloth and discourage the import of yarn.

The new basis of the duty on yarn had thus a very far-reaching and disastrous effect on the indigenous textile industries. The protection to the Indian spinning industry has increased Japanese competition in piecegoods and the power weaving industry is now faced with a more severe competition. The lesson we learn from this episode is that *it is absurd to believe that protection to any industry can be given by simply revising the method of assessment*. Prohibitive tariff must be imposed to make protection effective and real.¹ Half-hearted measures and ill-conceived experiments are not only ineffective but at times are positively harmful as they have proved to be in this case. *The new specific duty has protected the Indian spinning industry; but it has increased foreign competition in piecegoods; further it has affected*

¹ Total prohibition is not unknown to history. The effectiveness of tariffs depends not on the manner of imposition of duties but on their achieving their desired ends.

the hand-loom industry by increasing the price of yarn and curtailing the profits of the hand-loom weaver.

CONFLICT OF INTERESTS

The history of the textile tariff regulations in India illustrates the conflict of interests that the Government of India was often called upon to reconcile in framing its tariff policy. First, there is the interest of the consumer with which Manchester often finds it convenient to identify its interests. Secondly, there is the Indian mill industry which is organised in its demand for preferential treatment. And thirdly there is the hand-loom weaver, helpless and unorganised, whose cause is at times conveniently espoused by Government against the demands for protection by the power-loom in India and for avoiding the odium of safeguarding Lancashire interests. In this conflict, however, there is a peculiar irony in the consistency of the policy of the Government of India, viz., that the interests of Lancashire had been so paramount throughout that nothing was done to develop either the power spinning or weaving or hand-loom industry in India till the last decade. Any measure of protection to the spinning branch of the textile industry was opposed on the ground that it would be detrimental to the hand-loom industry and protection to the power weaving industry was objected to on the ground that it would increase the burden on the consumer. The policy of the Indian Government was throughout announced to be to protect the interest of the consumer. Perhaps, this championing of the consumers' interest was intended to cloak the desire of Government to advance Lancashire's interests.

However it might be argued that the present policy is the result of the conflict of local interests. It is true that a policy of protection raises this issue. But this conflict is neither unavoidable nor peculiar to this industry or to this country. More about it later. But it must be noted here that all revisions of the basis and the rate of tariffs with a view to protect the mill industry affected the hand-loom industry adversely, as a careful study of the tariff regulations well illustrates. Before the War the import of yarn was

allowed free of duty ostensibly in the interest of the hand-loom but mainly in the interest of Lancashire which was exporting to India 40 million lbs. of yarn every year. The cloth manufactured in Indian mills was subject to $3\frac{1}{2}$ per cent excise duty and the import of piece goods was subject to $3\frac{1}{2}$ per cent *ad valorem*—both being revenue duties. But this had incidentally certain protective effect on the hand-loom industry which prospered during 1896-1916 when those duties were in force. After the War with the increasing financial difficulties of the Government of India a duty at 5 per cent *ad valorem* on yarn and 11 per cent *ad valorem* on cloth was imposed on imports while the excise duty on the cloth manufactured in Indian mills remained $3\frac{1}{2}$ per cent. Till the abolition of cotton excise in 1925 and more precisely till the revision of the tariff on yarn in 1922, there was a steady expansion of hand-loom weaving; it was during this period that the hand-loom industry was at its best; for there was a measure of protection both against foreign imports and Indian mill manufactures while both the power-spinning and weaving industries in India also progressed satisfactorily as is evident from the table below:—

Year	Production of cloth in Indian Mills	Production of cloth on hand-loom	Import of cotton piece-goods
Average for	(In million pounds of yarn)		(In million yds.)
1901-05	125	231	1,988
1905-10	182	259	2,175
1911-15	261	262	2,528
1920-21	328	287	1,405
1921-22	360	297	980
1922-23	362	335	1,467
1923-24	359	251	1,374
1924-25	410	313	1,710
1925-26	409	289	1,502
1926-27	472	334	1,728
1927-28	510	327	1,973
1928-29	400	269	1,937
1929-30	506	346	1,919

The present decline in the hand-loom industry, which is not in quantitative outturn but in the human element began

society. Also co-operation is not mere charity but business, and the management, to be always efficient, must be rewarded for its labour.

Thirdly, the panchayat took no interest in the sale of cloth nor did the yarn depot concert any measure in order to instruct the society in the methods of pushing up the sale and of popularising its cloths. This is where the whole organisation was really weak. Neither the weavers nor the Government departmental officers were in any way acquainted with the cloth market. Formerly, the marketing function was performed by sowcars. When they discovered that the sales of society would prejudice their interest they stayed out. Moreover the depot in Itchapur produced a kind of cloth for consumption in Madras city which, because of its width, could not find a market there. The depot also ignored the market requirements and the buying habits of the people. It failed to adopt proper marketing methods. As the production was not on a large scale and as the cloth market was uncertain neither the consignment system nor the agency system of sale could be adopted with advantage. A business man was also found necessary to organise the sale.

Fourthly, there was no check on the vagaries of the weaver-members of the society and the society did not take any action against a weaver who absented himself for months during the busy season in order to work for the sowcar. Nor did it prohibit its members from accepting work from a private merchant which was detrimental to the interests of the society. The weavers preferred to work for the sowcar because he paid high wages during the busy season and accommodated them with advances etc., during times of need. On the other hand, the society adopted a fixed wage policy with deferred bonus for extra work done and this hardly appealed to those who believed that a bird in the hand was worth two in the bush. This is not all. The society in its anxiety to cheapen the price of cloth was giving lower wages to workers. It was noted by the then Director of Industries that the society-weaver was paid less than the weaver working for the sowcar, and it is no surprise that he deserted the society. The society was more anxious to cheapen the price of cloth than to pay competitive wages or to better the conditions of the weavers.

consumption of yarn is 40s and below, even assuming that all kinds of yarn of 40s and above imported and manufactured in Indian mills are consumed by the hand-loom only. To assume therefore, as it is done by the Government of India, that the retention of the 5 per cent *ad valorem* duty on yarn of finer varieties and the increased specific duty on the coarse and medium counts would not harm the hand-loom weaver to any appreciable degree is to betray one's ignorance regarding the kind of yarn used by him.

FUTURE POLICY

Tinkering with tariffs just to surmount some temporary difficulties or to hush the loud complaints of certain powerful interests or to placate them for political reasons will not and cannot carry us far. That would at best be a mere patch-work but it can never be an act of wise statesmanship. A more comprehensive and well designed policy regarding industrial development of well organised industries and small cottage industries with a careful estimate of the proper place of each in the national economy can alone lay the true foundations of industrially prosperous India. But it must be as clear as daylight that as between Indian manufactures and imported ones the former should have the preference and have all possible and reasonable protection against the latter. But as between the power-loom and the hand-loom the one should not be sacrificed for the other except for very valid reasons. *It is not pleaded here that the hand-loom should be protected at any cost against the power-loom, but that, at least, the dice should not be loaded against the hand-loom as it obtains under the existing tariffs.* Now the imposition of an import duty on yarn and the abolition of the cotton excise imposed a disability on the hand-loom; for the price of yarn to the hand-loom weaver includes the 5 per cent duty while the power-loom in most cases manufactures its yarn requirements free of duty. By the substitution of the specific duty on yarn the disadvantage to the hand-loom has increased, for in effect it protects the Indian power-loom against the hand-loom and the degree of protection varies from 5 to 20 per cent according to the market price of yarn. Again the enhancement of import duties on gold and silver thread to 50 per cent *ad valorem* and on silk and rayon to 25 per cent has placed

the handweavers at a further disadvantage by increasing the price of their manufactures and thus curtailing their market; for these imports are chiefly used by hand-looms.

We have already stated that the conflict of interests between spinning and power-weaving and hand-weaving is not unavoidable. Protection to the weaving industry raises no question of conflict of interests except that there is an initial burden on the consumer. But protection to the spinning industry involves the conflict between the hand-loom and the power-loom. But this is not an unavoidable consequence of any policy. If development of the spinning industry is desirable an increased import duty on yarn is not the only means; the same end can be achieved with better results by the grant of bounties as recommended by the majority of the Textile Tariff Board.

It is proposed here that the duty on cloth should be increased to 25 per cent *ad valorem* and the duty on yarn be abolished while the hand-loom must be protected against the power-loom by an imposition of excise duty of $2\frac{1}{2}$ per cent.

The Government of India did not favour the proposal of the Tariff Board for the following considerations:

1. That the abolition of the import duties on yarn will affect the revenues of the Government of India and rouse the opposition of the spinners in India, while the advantage that would accrue to the hand-loom weaver would be almost negligible.

2. That the enhancement of the duties on imported cotton piecegoods will increase the burden on the consumer while the revenues of the Government may also suffer as a result of decreased demand for imported cloth.

We shall now examine these arguments. At present (1929) the duty realized on yarn is less than Rs. 50 lakhs. This loss is insignificant and is not to be regretted as the duty is mainly a protective one. But even this loss can be made good by an enhanced duty of 25 per cent on piecegoods; for the new revenue realised will not be less than what it is now. Unless there is a remarkable fall in prices of cotton goods or a fall in the volume of their imports, there can be no fall in the revenue. The demand for imported cloths being inelastic to a degree, there is no fear of a great

fall in the volume of imports. If it does, sooner or later Indian mills will increase their production in order to make up the deficiency which means increasing the national productivity. This would open up new sources of taxation. What is now lost in customs revenue can be regained to some extent through income-tax ultimately.

As regards the increased burden on the consumer, he will have to pay nearly 16 pies more per rupee of his cloth purchase than what he does now. But consumers of imported cotton manufactures belong to a class who will never be deterred by this increase in price and who can bear this burden. But the interest of the consumer is not all. Even a consumer is a producer himself and it is his effective productive capacities that ultimately determine his effective consumption. Therefore the interest of the producer is all important. The consumer's interest cannot be paramount unless it be that the whole nation consists of persons living upon their savings or hoarded wealth and not depending on their present productive power.

Again the abolition of the duty on yarn accompanied by bounties of 5 per cent for fine home-spun will give the hand-loom and the power-loom equal advantage. From the viewpoint of the hand-loom weaver, the abolition of the duty on yarn will in turn reduce the cost of production of his cloth. This will enable him to get larger returns. The increase in his daily earnings may vary from 2 annas in the case of finer cloth to 4 annas in the case of cloth made of 20s. This increase is not negligible to one who rarely earns 10 annas a day.

Now it is time for the Government of India to realise that the past policy of makeshifts must be abandoned as it is positively harmful to industrial development; that real protection to the industry does not depend on the methods of assessing the customs duties but in making the tariffs effective. As Sir Alfred Chatterton said, imports should even be prohibited if need be. It must be well understood that while changes in the tariffs are necessary in the common interest of spinning, power- and hand-loom industries, changes in the methods of assessment alone cannot solve the problem. In the higher interests of the Indian textile industries comprising spinning and hand-loom and power-weaving

—the main industries of India—protection is necessary against foreign competition. If this means imposing higher tariffs, they are not necessarily harmful. In America there is a 40 per cent import duty on cotton manufactures.¹ Indeed even

¹ Tariffs in several countries on imports of cotton manufactures.

	Cotton yarn singles						Cotton cloth					
	Grey		Bleached		Dyed		Grey		Bleached		Dyed	
	1914	1924	191	1924	1914	1924	1914	1924	1914	1924	1914	1924
India	Free	5% Adv.	Free	5% Adv.	Free	5% Adv.	3½%	11%	3½%	11%	3½%	11%
U.S.A.	15% Adv.	4-2d. per lb.	17½% Adv.	5-38d. per lb.	17½% Adv.	5-38d. per lb.	17½% Adv.	8-5d. per lb.	20% Adv.	9-5d. per lb.	20% Adv.	11-7d. per lb.
Japan	...	...	...	...	...	...	2-5d.	2-1d. per pound of cloth	3-1d.	2-6d.	3-8d.	3-2d.
China	0-3d. per pound	1-1d. per pound	...	...	...	...	4d.	11-3d. per piece of cloth	4-8d.	13-4	5-3d.	14-2
Russia	7-7d. per pound	13-2d. per pound	...	...	...	...	...	...	...	...	...	...
Switzerland...	...	...	...	...	...	...	0-4d. per pound	0-5d.	...	...	...	...
Italy	...	...	...	...	...	...	3-3d. per pound	5-3d.	...	...	4-4d.	7d.
Germany	...	...	...	...	...	...	2-7d.	3d. per pound	3-7d.	4-1d.	5-4d.	5-9d.

in India during the last five years the duties on cotton piece-goods have been considerably enhanced. They stand to-day at 25 per cent (British) and $31\frac{1}{4}$ per cent (non-British), with a specific duty of $4\frac{1}{8}$ annas per pound of grey. If the needs of our industries demand protection the Government of India should not hesitate to increase the duties on imported cloth. It should abolish duties on yarn and grant bounties to the spinning industry¹ and assist the hand-loom and thus foster all branches of the cotton textile industry which support eight million persons or 25 per cent of the industrial population in India.²

¹ 'For the reasons given elsewhere the majority are of opinion that any assistance given to the spinning industry is best given in the form of a bounty.' —P. 175, Tex. Tariff Board Report 1926.

² Recently many changes have taken place in cotton tariffs. At present as a result of Hardy's Report, the Ottawa Agreement and the financial crisis, the duties have been enhanced; there is discrimination between British and non-British goods, and discrimination between grey and other classes of cotton piecegoods in the rate and manner of taxation. But these conditions while being favourable indirectly to the development of the hand-loom, are unfortunately accompanied by an unprecedented depression which has affected the demand for the manufactures of the hand-loom. Also the disadvantage on account of the import duty on yarn, artificial silk and silk which are mainly used by hand weavers still persists handicapping the hand-loom against the power-loom in India.

CHAPTER XV

THE WEAVER

THE rapid break-down of caste monopoly of occupations has not affected very much the hand-loom industry; for still over 60 per cent of the hand-weavers are mainly weavers by caste. The *Kaikolars*, *Devangas*, *Salês* and *Sourashtras* are the important weaving castes found in the Madras Presidency and a brief survey of their social customs and characteristics is not out of place.

Each caste has different surnames. The *Kaikolars*, *Sengundars*, *Sengunda Kshatriyas* are the names of a certain group of Tamil weavers. There are more than 400,000 *Kaikolars* in this Presidency found mainly in the districts of Coimbatore, North Arcot, Salem, South Arcot, Chingleput, Trichy, Tinnevely, Tanjore and Madura, stated in the order of importance. 50 per cent of them follow their hereditary occupations. They claim to be the descendants of Virabahu. Their original home is Conjeeveram wherefrom they migrated to other places. The whole community is divided into 75 *nads* which are all administrative divisions, the most important divisions being Conjeeveram, Elur and Salem. The premier *nad* is that of Conjeeveram where the *Mahanattan* resides. The caste guild is an important institution which regulates their social relations. There are various officers and committees—all honorary—which decide caste disputes. Each *nad* has a committee consisting of (1) *Periathanakaran*, (2) *Nattamaikaran*, (3) 12 *Kariakarans* and (4) *Sangudi*. The first two officers are hereditary; and the rest, elected. The function of the guild is mainly social and it has nothing to do with the trade or industry. However, there is a strong caste-feeling among them which can be used to advantage in the reorganisation of the industry.

The *Sales* come next in importance. There are about 350,000 persons belonging to this caste and again 50 per cent of them follow their hereditary occupations. They are scattered all over the Presidency but they are mainly found in the Circars and Ceded Districts. They are Telugu speaking

people and their big colony in the south is found in Ramnad District. There are two important sub-divisions in this caste (a) the *Patu-Sale* and (b) *Padmasale*. In Tamil districts the *Patu-Sale* speak Kanarese and mainly manufacture silk fabrics and fine cloths while the *Padmasale* speak Telugu and weave coarse cloths—mainly cotton coloured fabrics. The *Saliyans* of Kornad and Ayyampet in the Tanjore District resemble them closely in customs and manners but belong to a different caste.

The *Devangas* are numerically as strong as the *Sales* and their customs also closely resemble theirs. Of the 290,000 *Devangas* in the Presidency the districts of Coimbatore and Salem account for nearly a third. They are also found in Ramnad, Chingleput, South Arcot and North Arcot districts. They call themselves by different names, *Chettis*, *Jedars*, *Naidus*, *Seran*, *Sendan*, *Chettukaran*. *Devalan* is their legendary ancestor and his killing the *asuras* in battle is associated with the nature of their work—for they invariably work on coloured fabrics. Their original home is Hampi, and to this day the headquarters of their headmen is in Amarakundi to whom appeals against decisions of local panchayats are said to be referred.

The *Devangas* are divided into two groups (1) Kanarese and (2) Telugu. They do not intermarry. Their caste panchayats have control over their social affairs. Disputes are decided by *Pangalans* presided over by a *Chetti* (or headman). The majority of the *Devangas* are Saivaites unlike *Sales* and wear lingams. The caste is socially self-contained; they have their own *dasis*, and other social institutions.

The *Sourashtras* or *Patnulkarans* are the most progressive of the weaver-castes. They belong to the caste of Surat silk weavers who were induced to settle in Madura by one of the early Naik kings and this patronage accounts for their higher prosperity in Madura. The other theory is that they have migrated to the south from Guzerat due to Musalman invasion and famines.

There are 90,000 *Sourashtras* in the Presidency; Madura accounts for 40,000 and Tanjore, Trichy and Ramnad districts are other important centres. However, they are mainly urban artisans and found practically in the cities of Madura,

Tanjore, Trichy, Salem, Kumbakonam, Arni, Rasipuram and Tirupathi producing silk and fine cloths.

Compared to other weaving communities, their social consciousness and solidarity is remarkable. As a caste they are self-sufficient; as workers, they manufacture mainly non-competitive goods—silk or laced cloths; as a mercantile community they have advanced far and the trade in cotton textiles, dyes, gold thread and silk in Madura and Kumbakonam is mainly in their hands. They are very skilful and industrious. Sir A. Chatterton writes about them: 'In various ways the *Sourashtras* of Madura have furnished evidence that they are a progressive community, particularly in the attention which they pay to education and the keenness with which they are on the look-out for improvements in the methods of their hereditary craft'.

A large number of the *Vellalas*, *Musalmans*, and *Panchamas* in Tamil districts and the *Baliya* and *Mala* in Telugu countries are also engaged in weaving; and 30 per cent of the workers are drawn from them.

It is interesting to note that the workers in most of the cotton hand-loom factories are mainly of non-weaver castes, especially in the West Coast.

There is a persistent tendency for the weaver castes to give up their hereditary calling. With the technical progress of the industry, weaving fails to maintain the former number of workers and this means that the hereditary weavers are worse affected.¹ However the *Sourashtras* and the *Devangas* are still adhering to their traditional occupations. The work

¹ Percentage of persons of the weaving castes following their hereditary calling.

	1911		1921	
	Men	Women	Men	Women
Devangas	72	76	55	53
Kaikolar and Sengundas	62	43	48	43
Sales	63½	61½	51	46
Sourashtras	...	...	66	71

of the Sourashtra being of a better order, the decline in their numbers following their hereditary occupation is small. Dyeing, specially with turkey red, and weaving of fine fabrics or silk and cotton with lace, require great skill. The Devangas are mainly weavers of coloured goods and dyers of yarn, and dyeing requires more skill than weaving. The Kaikolars and the Sales are fast being driven out of their hereditary calling. The improvement in warping and sizing led specially to the decline in the number of women workers of the Devanga and Sale communities. Among Kaikolars, women seldom warp and size. The 'chungudi sari' industry of Madura accounts for the high percentage of Sourashtra women workers.

The most literate community among weavers is the Sourashtra. 35 per cent of Sourashtra men are literate i.e. can read and write vernacular while $4\frac{1}{2}$ per cent of them have received some English education. The Kaikolars come next in literacy with 26 per cent but the percentage of literates in English is low. The Devangas are slightly backward but the Sales are the least advanced. Only 15 per cent of them are literate.

The influence of education on the social and economic conditions of the community can hardly be exaggerated. The Sourashtras are educationally much advanced and therefore they have economically progressed very far, when compared to the other weaving communities. The Sourashtra Sabha of Madura maintains a High School and has enabled many members of the community to receive technical education in Bombay, and they have used their education to the advancement of their industry and trade. They have the practical monopoly of the dyeing industry and trade in dyestuffs and dyed yarns and fabrics. They have also the control of the silk industry and trade. They have the credit of inventing some weaving appliances.¹

The Kaikolars come next. Though they weave cloths which directly compete with mill production they are able to resist

¹ In Madura Mr. Tulasiram, B.A., B.L., improved Turkey Red Dyeing.
Mr. Bavaram, improved sizing and warping.
Mr. Kuppasami Iyer has patented a device in the shedding apparatus.

In Kumbakonam Mr. Varada Ayyar has developed jacquard weaving.

its competition successfully by slight adjustments which their education to some extent suggests. Slowly they are now taking to weave non-competitive fabrics, and they are adopting such labour-saving appliances as would help them in their struggle for existence. The Sengundars' educational institutions deserve special mention. It is the education of Kaikolars and Sourashtras that has enabled them to work co-operative societies successfully and improve their status, the condition of their industry and trade. They are also inventive. A Mudaliar of Salem has invented a jacquard device and has made it very cheap. The other weaving communities of Devangas and Sales are less progressive. In most cases they are improvident, illiterate and rather addicted to drink. Co-operation and education have made very little progress among them. The material and moral progress of these two communities must be attended to first. Again it is the members of these communities that are in the grip of the money lender, the sowcar or the merchant and they are sweated by their employers.

The skill of the Indian weaver is unequalled and is a matter of universal admiration. His unrivalled skill and artistic temperament explain the supremacy of the Indian hand-loom weaving. James Mill, speaking of the Indian weaver, wrote: 'It (weaving) is a sedentary occupation and thus in harmony with his predominant inclinations. It requires patience, of which he has an inexhaustible fund. It requires little bodily exertion, of which he is always exceedingly sparing; and the finer the production, the more slender the force he is called upon to apply. But this is not all. The weak and delicate frame of the Hindu is accompanied with an acuteness of external sense, particularly of touch, which is altogether unrivalled; and the flexibility of his fingers is equally remarkable. The hand of the Hindu, therefore, constitutes an organ adapted to the finest operations of the loom, in a degree which is almost or altogether peculiar to himself'.¹

No systematic study has been made regarding the health of the weaver, and the influence of occupation on the health

¹ *History of India*: Vol. II, page 8.

of the worker. But any casual observer can at once see the effects of the conditions of living and work of the weaver on his health. The position in which he works for long hours in ill-lighted and ill-ventilated rooms explains his apparent lack of industrial discipline and many of his sedentary habits. The weavers who are manufacturing coloured goods, especially the Sourashtra and the Devanga, have a peculiarly anaemic constitution. They are pale, weak, and underfed. Poverty and drunkenness¹ have undermined their health and efficiency.

Most of the weavers live in thatched hovels made of mud invariably with two rooms, unlit and unventilated. A large space is occupied by the loom. The lodgings and surroundings of the weaver are really abominable. His dwelling and the working place are the same. In each house live many families. There is very little privacy. Even a few hours of peaceful rest cannot be had; it is almost a luxury unknown to many of the weavers; for unceasingly the tick of the fly-shuttle goes on; the woman is at the buzzing wheel; the children are at the dobbie or are winding for the bobbin. Under such strain, drink is the only pleasure and aid to forgetfulness. The weaver knows no other luxury. In his house there is no furniture. His workshop, if it can be so called, has no costly or elaborate equipment. One or two looms, a few hand-wheels, a number of *thiruvattams*, a few mud and brass vessels and trade-mark pictures are all his possessions. His women wear few jewels. His food is extremely frugal and simple. Rice or ragi is his staple food. Vegetables, ghee, mutton and fish are very rare delicacies.

The weavers are poor as a class except the Sourashtras of Madura and Kumbakonam. They have no money to purchase raw materials. Hence they take advances of either money or yarn from sowcars or chettis. They are worse off for doing so. Nearly 80 per cent of the weavers are in debt and the extent of their indebtedness varies from Rs. 50 to Rs. 500. The rate of interest in most cases is ruinous. Where the advance is taken from the cloth merchant for

whom the weaver works, the rate of interest is usually 12 per cent but his wages are also a little lower than the ordinary rate. But where the loan is taken from the local cloth merchant with whom he contracts to sell, his prices are very much less than the market price. But where the loan is taken from the money-lender, the interest varies from 3 ps. to 2 as. per rupee per month. The emancipation of the weavers from this position can be effected only by their education, their increased employment and income and by co-operation.

The present economic condition of the weaver is nothing too enviable. He earns miserable wages. The average wage of a skilled weaver does not exceed ten annas a day, while one weaving plain cloths of coarse and medium counts earns hardly six annas. Better wages are, however, earned in hand-loom factories and by the silk and laced cloth weavers. The weaver in the West Coast gets twelve annas and sometimes more. The silk weaver gets eight to twelve annas a day. But the ordinary weaver is not very much better off than the average agricultural worker. Besides, the period of unemployment of the weaver is considerably long and tends to extend.

The uncertainty and the seasonal character of the demand for his manufactures, the fluctuation in the prices of yarn and cloth, the insufficiency of his income, the interest on his loans and the fraud of the merchants make the position of the weaver still worse. His condition really invokes pity. The precarious nature of his business with a fluctuating market and a perpetual burden of debt requires a higher daily income than what he gets now to keep him above actual destitution.¹ Bad harvests, wars, epidemics, famines and changes in the currency and fiscal policy of the State and

¹ Hobson, speaking of the human claims of labour, in his book *Work and Welfare* writes thus about the effects of fluctuations in wages:

'Rapid and considerable fluctuations of wages, even with full employment are damaging to character and ability of standards; but irregularity of employments is the most destructive agency to the character, the standard of comfort, the health and the sanity of wage-earners. The knowledge that he is liable at any moment, from commercial or natural causes that lie entirely outside his control, to lose the opportunity to work and earn his livelihood, takes out of a man that confidence in the fundamental rationality of life which is essential to the soundness of character. Religion, Ethics, Education can have little hold upon workers exposed to powerful illustration of the unreason and injustice of industry and of society.'

¹ The investigation of the writer in Salem District shows that practically more than two-thirds of the Abkari revenue comes from the weaving centres.

many other factors beyond his control have equally affected his economic conditions.¹

The conditions of the weavers in the Madras Presidency are very peculiar. Comparing the conditions of weavers in Madras and those in Bihar and Orissa, J. B. Clark, Textile Expert to the Government of Bihar and Orissa, writes: 'The weavers in Madras live together in large colonies. They are generally the most skilful and make fine cloth with intricate patterns, while the weavers in Bihar and Orissa—98 per cent of them—live in districts and are scattered amongst entirely agricultural population. They are partially dependent on agriculture. They make plain cloths mostly with 20s yarn. The Madras weavers cater for the urban middle classes, while the weavers of Bihar and Orissa meet the demand of the ryots. But both of them are competing with the mill products; the former depending for their supply of yarn on foreign imports compete with foreign goods, while the latter getting their supply of yarn from Indian mills compete with the

¹ The estimates of the earnings of the weavers at different periods indicate that their nominal wages have increased, but their real wages have remained the same; probably they have not declined:

Year of Estimate	Estimate made by	Earnings of Weavers
1912	... Sir A. Chatterton ...	Rs. 7-8-0 per mensem by the throw-shuttle weaver; Rs. 10 per mensem by the fly-shuttle weaver.
1912	... N. Subramania Ayyar.	Rs. 10 by the Kaili weaver on a country loom and Rs. 12-8-0 by him on a fly-shuttle loom; Rs. 2 per mensem by the Tape weaver (woman) at Peddapuram. Monthly earning of Rs. 24 in Srivilliputhur and Rs. 20 in Sholingar.
1918	...	As. 4 to 8 per day in Travancore.
1923	... Pamphlet of the Department of Industries, Travancore.	As. 12 to Re. 1 <i>per diem</i> by weavers of special cloths in Madura and Dindigal.
1927-29	... Special Officer for Cottage Industries.	As. 8 in Jayankondam and Thoraiyur. As. 6 to 8 in Tirunageswaram for ordinary cloth. As. 10 to 12 in Karur factory. As. 12 in Conjeevaram. As. 14 to 16 in Coimbatore (Turban cloth weavers).
1929	... By the Author ...	Wages in Kumaramangalam: In 1921—Re. 1 4 0 per day. " 1925— " 0 14 0 " " 1929— " 0 7 0 "

products of Indian mills. But the conditions of weavers in Madras, though they are more skilful and manufacture better kinds of cloth are definitely worse. They are largely in the hands of merchants and receive very poor pay for fine work; for most of them are debarred by caste from dealing directly with the consumer. But the weavers in Bihar and Orissa whenever possible sell their manufactures directly to consumers and receive a higher rate of pay for coarse work than Madras weaver does for fine'.

In sacred books weaving is spoken of very highly. The Tamil Literature is full of reference to its importance. Great emphasis was laid on the skill of the weaver, his business morality and his contribution to social welfare. Conditions have now so changed that hand-loom weaving is now regarded as a relic; the weaver is the object of pity; his work commands no dignity. The present environment and the conditions of work and life of the weaver can only lead to social evils of drunkenness, insanitation, improvidence, extravagance, dishonesty and growing poverty. These conditions, damaging to character and prosperity, which obtain in the case of over four million people who are on the path of preventible ruin, demand our immediate attention.

NOTE ON THE CHANGES OF THE ECONOMIC CONDITION OF THE WEAVER

A study of the changes in the economic condition of the weaver is important. But so far no proper and systematic enquiry was made. An attempt is made here to present the statistical material now available, insufficient as it is, in the form of a table of index numbers of the hand-loom production, the margin of profits and the level of prices which indicate the changes in the economic condition of the weaver since 1874.

Year.	Hand-loom outturn in Million yards.		Index Number of			Remarks.
	Yards	Index Nos.	Margin of Profits.	Retail price of Food-grains.	General level of Prices.	
1874-1875	...	...	33.3	61.7	80.6	5% on cloth and 3½% on yarn imported.
1875-1876	...	...	54.0	56.2	71.6	
1876-1877	...	...	8.4	60.0	74.6	
1877-1878	...	...	37.5	89.0	92.0	
1878-1879	...	...	46.0	107.5	103.0	
						All duties on cloth and yarn were abolished.
1879-1880	...	...	41.5	99.0	94.0	
1880-1881	...	...	33.3	73.0	81.3	
1881-1882	...	...	46.0	59.2	73.8	
1882-1883	...	...	50.0	58.6	73.0	
1883-1884	...	...	46.0	58.6	73.8	
1884-1885	...	...	37.5	61.0	79.9	
1885-1886	...	...	33.3	61.8	79.1	
1886-1887	...	...	37.5	65.0	76.9	
1887-1888	...	...	46.0	72.0	77.6	
1888-1889	...	...	16.6	76.0	82.9	
1889-1890	...	...	16.6	73.5	87.3	
1890-1891	...	...	41.5	74.7	87.3	
1891-1892	...	...	58.3	84.5	89.6	
1892-1893	...	...	58.3	91.0	98.4	
1893-1894	...	...	37.0	79.5	92.0	
						5% import and excise duty on cloth and yarn.
1894-1895	...	...	67	70.4	91.0	
1895-1896	...	...	67	74.0	89.5	
1896-1897	784	96	36	96.0	98.0	
1897-1898	924	113	42	113.0	114.0	
1898-1899	948	116	42	86.0	93.0	
						3½% import and 3½% excise duty on cloth—duty on yarn abolished.
1899-1900	880	100	100	100	100	
1900-1901	692					
1901-1902	880					
1902-1903	960	117.5	104	87	95	
1903-1904	872	106.8	87.5	78	91	
1904-1905	828	101.3	71.0	72	90	
1905-1906	1084	132.7	125.0	81	101	
1906-1907	1148	140.5	116	110	118	

HAND-LOOM INDUSTRY IN MADRAS PRESIDENCY 189

Year.	Hand-loom outturn in Million yards.		Index Number of			Remarks.
	Yards	Index Nos.	Margin of Profits.	Retail price of Food-grains.	General level of Prices.	
1907-1908	1108	135.3	104	110	125	
1908-1909	1116	136.2	133	142.5	134	
1909-1910	896	109.4	98	120	120	
1910-1911	908	111.0	71	100	112	
1911-1912	1044	128.0	79	100	116	
1912-1913	1040	127	121	117	130	
1913-1914	1068	130.8	115	123	136.0	
1914-1915	1184	145	98	137	139.5	
1915-1916	1048	128.5	118	135	136	
1916-1917	816	100	125	124	138	
						Cotton import duty raised to 7½%; excise duty remained at 3½%.
1917-1918	812	99.5	125	125	132	
1918-1919	1048	128.5	250	167	160.5	
1919-1920	564	69.0	200	246	224.5	
1920-1921	1148	140.5	150	221	225	
1921-1922	1190	145.8	429	231	204	
						Cotton import duty raised to 11%; Import duty of 5% on yarn levied.
1922-1923	1341	164.1	308	195	198.5	
1923-1924	1005	123	225	160	193.5	
1924-1925	1256	154.8	162.5	162	192	
1925-1926	1160	142	206	183	198	
1926-1927	1336	163.5	175	187	194	
						Excise duty of 3½% abolished.
1927-1928	1312	160.5	138	185	...	Specific duty on yarn.
1928-1929	1060	130	125	181	...	
1929-1930	1384	169	163	192	...	
						Increase on the duty of cloth and specific duties on cloth.

The above table is based on certain assumptions: (1) that the weaver's earnings can be indicated by the difference of the prices between the mill cloth and the mill yarn; and that there is a correspondence, though somewhat remote, between the weaving margins of mills and the weaver's earnings, (2) that the extent of hand-loom production has got a direct influence on the earnings of the weaver and (3) that the cost of living of the weaver can be roughly measured by the general level of prices, more properly by the retail prices of

food-grains; for, food-stuffs account for more than 60 per cent of his expenditure. A study of these sets of figures along with the incidence of famine, currency and fiscal policy and the general economic condition of the country will indicate broadly the changes in the condition of the weaver. And it must be noted that these figures are not purposely correlated; nor are the *per capita* earnings or even the aggregate earnings of the weavers worked out. The table is given for what it is worth.

It indicates however (a) that the condition of the weaver is affected adversely by the rapid fluctuations in his aggregate outturn as well as in his earnings; (b) that his condition was at its worst during the last century, especially during the period of free trade in India; (c) that wars, famines and the currency and fiscal changes have affected his prosperity; and (d) that there is nothing to show that his economic condition has materially improved during the last sixty years.