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THE CHIEF PREVENTIBLE BLINDING DISEASES OF CHILDHOOD

Dr. Elizabeth Matthai Lectures 1933-34 (Madras University)

BY

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(Continued from Vol. VI. No. 2 on page 172)

LECTURE II

CONGENITAL SYPHILIS

The syphilitic affection of the eyes which is responsible in some cases for causing blindness in children is known as parenchymatous keratitis, interstitial keratitis, or uveitis anterior. It is one of the most important of the stigmata of congenital syphilis and is included in the triad of symptoms and signs which Jonathan Hutchinson, the great clinical syphilologist described as most characteristic of this condition, the other two being deafness and the peculiar shape, spacing and notching of the teeth, since known as Hutchinson's teeth. As a matter of interest I may mention that we seldom observe the deafness of this triad in our out-patients department. Only a few weeks ago I had the opportunity of examining one hundred deaf mutes in the School for the Deaf, Mylapore, Madras, and did not find an instance of congenital syphilis. But this triad alone does not give us the whole picture of congenital syphilis as we meet it. Frequently children coming to the hospital with this chronic inflammatory condition of the cornea are unmistakable as congenital syphilitics the moment they are seen. They always present one or more of the other common stigmata which go to make up the syphilis facies. The skin of the face is inclined to be thick and lined, the face itself is narrow and pinched, the frontal eminences prominent, the bridge of the nose flattened, and the nose tip-tilted by contrast, giving a sunken appearance to the face below the brows. The eyes when affected show a bluish haze, the teeth are irregular, spaced, and notched, the palate highly vaulted. The knee joints may be



swollen and contain more or less fluid but are not necessarily painful. The body is undersized and thin, although the child is often precocious. It would be unsafe to diagnose congenital syphilis by the appearance of the teeth and palate alone because we frequently see non-syphilitic children with similar abnormalities of teeth and mouth, but interstitial keratitis itself is characteristic when examined under magnification. It always affects the two eyes, but not necessarily together. A feature of the keratitis is the blue haze which seems to show up more in the Indian eye than the pink crescent or salmon-patch due to deep vascularization of the upper part of the cornea, which is so characteristic in the lighter coloured eyes of Europeans. The affection in the eye however is not confined to the cornea, there is also a deep inflammation due to the infection of the pigmented coats and it is the iritis and choroiditis which frequently do the greatest damage in this affection. Our Indian cases also commonly have massive pale inflammatory deposits on the back of the cornea. We see quite a large number of congenital syphilitics year in year out; for the last ten years the figures averaged 30 cases in approximately 20,000 out-patients per annum, but this is a considerably lower frequency than that given for ophthalmia neonatorum. Relatively few instances are seen in babies and then only when they are in an advanced stage of marasmus and quite likely to die. Those children who survive the general effects of the congenital disease very often find their way to the hospital, if and when eye symptoms appear. Although interstitial keratitis is not common in the first five years, being far more frequent in the next 15, still we may regard it as a disease of childhood inasmuch as the infection required for its production is there at birth. But no matter at what age the eyes show the hereditary taint, the numbers which we see rendered blind by this affection in any one year is relatively small. Many of them now-a-days respond to treatment with organic arsenic intravenously and recover a considerable amount of sight. I do not suppose more than three or four children in any one year would be noted as blind or practically blind of this affection. We see then that congenital syphilis is not so important a cause of preventable blindness in children as some of the other conditions we have been considering. This does not mean that syphilis, congenital and acquired, is not to be regarded as one of the greatest causes

of preventable blindness at all ages; it is one of the greatest single causes.

The whole clinical picture of syphilis has been modified here in the last thirty years largely owing to the arsenical method of treatment started by Ehrlich and the more modern combined methods, so that more of our serious eye disease is seen after the fourth than in the earlier decades, but with such considerations however interesting we are not now concerned.

Prevention :

The prevention of the syphilitic blinding diseases of children resolves itself into prevention of the disease in the adult population. This is a most important matter as probably every responsible member of society knows. They also ought to know that syphilis is essentially a disease which is very amenable to treatment and although gonorrhoea is more elusive, it too is amenable to treatment when taken in time. A third thing, which every member of the Madras general public ought to know is that Government has a special or venereal branch of the medical department which practises all the most up-to-date methods of dealing with these two diseases, is in touch with the great modern venereal clinics in Great Britain, is capable of employing the most up-to-date tests, and is ready to do all this free and privately. Unfortunately since this scheme was started as a routine efficient machine it has got a little out of the limelight, it is no longer as fashionable as it was some years ago to attract attention by rushing to get a seat in the front row at a venereal or social hygiene meeting. Government too has cooled off a little and the machine which was modelled on Mr. Lees' organisation in Edinburgh, and was to have been extended to the remotest parts of our Presidency, is in places very hard up for bare necessities and without them in many more. While this 'out of sight out of mind' slump has been attacking our anti-venereal campaign, it has become fashionable to publicly boost and collect both money and men to tackle social diseases which are not nearly so important and which are in quite a different category such as tuberculosis and leprosy. These would tend to die a natural death with the betterment of social conditions, and the advance of civilization, whereas the venereal diseases march hand in hand with civilization; at least they have done so up to quite recently and will again if the general public allows its perspective

to be distorted and its money diverted into less important channels by enthusiastic lay workers, uninformed city fathers, or even a benign Government. I do not mean to infer that the combat of social evils of any sort is not worthy of energetic effort. It is the lack of perspective in social effort and good work which is so defective. Perspective is most important in all prevention work if effort is to be properly directed. It is of particular interest to those of us who deal with vision that the realisation of perspective revolutionised the painting of the Italian Renaissance. It came in a wave of enthusiasm, gradually settled down and has remained ever since as an ordinary feature of that art. If we could only have such a burst of enthusiasm in the realm of local mental perspective it would do much to co-ordinate and enhance the value of the various efforts to correct social evils.

SMALL-POX

One of the most important diseases giving rise to an acute ulceration of the cornea which frequently results in blindness is small-pox. We may well consider it as a preventible disease of childhood because protective vaccination against small-pox is supposed to be carried out in the first year of life, and theoretically we may expect to meet with the more severe forms of rash on the face associated with ulceration of the cornea in the period before vaccination. This does not quite follow however, as some of the children are not vaccinated at all and others are not vaccinated successfully. Of course even the unvaccinated may escape till quite late in life so that the blindness due to small-pox is not by any means confined to children or adolescents. It is not possible to estimate the number of persons rendered blind by this affection even in a hospital population. We can only try to get an approximate idea in this way. If we take an average for four years of the number of eyes seen with scars of the cornea which have resulted from ulceration of one sort or another, we find that the figure is about 806 cases in 20,000 out-patients. This figure is made up of the number of cases diagnosed as nebulae, leucomata, and staphylomata of the cornea. An attempt to analyse these in 1929 showed that of 726 opacities of the cornea (the leucomata and nebulae)

59 followed small-pox.

2 „ ophthalmia neonatorum.

92	„	irritant remedies.	302
68	„	injuries.	
54	„	ulcers (associated with acute catarrhal conjunctivitis, phlyctenular conjunctivitis etc.)	
41	„	trachoma.	
18		followed keratomalacia.	
14		following syphilis (congenital or acquired)	
378		were of unknown origin.	
		Of 143 anterior staphylomata (bulging corneal scars)	
16		followed small-pox	
Nil	„	ophthalmia neonatorum.	
35	„	irritant remedies.	
31	„	injuries.	
2	„	ulcers (associated with acute catarrhal conjunctivitis, phlyctenular conjunctivitis etc.)	
Nil	„	trachoma.	
6	„	keratomalacia.	
Nil	„	syphilis	
58		were of unknown origin.	

As pointed out in a previous lecture some cases of leucoma and staphyloma must be taken to swell the numbers of blind due to keratomalacia e.g. 24 in the above statement where the sequence is known, and an uncertain number of the 431 undiagnosed. The difficulty of assessing the responsibility for total blindness is however great and we have to draw on our experience in estimating the importance of the various causes. It may be seen at a glance that even if the majority of these opacities and staphylomata only partially blind the individual, the position of small-pox comes close to injuries and irritant remedies in giving rise to serious damage which may result in loss of sight. In the year analysed, 75 patients out of about 20,000 showed that the disease had attacked the eyes, about 3.75 per 1,000 of our hospital population. It will be remembered however that about 9 per 1,000 were attacked and 3 per 1,000 rendered blind or practically blind by keratomalacia. How is it that small-pox attacks so many persons severely when successful vaccination at regular intervals protects from the severer forms of the disease? A reference to figures kindly supplied by Col. J. R. D. Webb, I.M.S., Director of Public Health, Madras give

a partial answer to the question. They show the percentage of children who escaped vaccination in the Madras Presidency during the first year of age.

1928-1929		37.1 per cent
1929-1930		37.3 "
1930-1931		43.4 "
1931-1932		40.8 "
1932-1933		47 "

To quote the Director of Public Health :— ' This shows that a proportion from 37 to 47 per cent of children surviving at one year escape vaccination. This is only a rough approximation, for we have no idea of the vaccinal condition of the infantile deaths. In the above figures the assumption has been made that all the infantile deaths were not vaccinated. As vaccination is generally done after the age of six months, we may take it that roughly about a third of these infantile deaths were amongst the vaccinated. Assuming this, the percentage of escapes at one year will be still further increased. The number of vaccinations in the year 1-6 is only slightly less than the number of escapes at one year calculated as above. The proportion vaccinated varies from 100-80% of the escapes at one year. As a rough approximation we may say that 90% of the surviving children get vaccinated by the end of the sixth year. The failure rate varied from 4.1-1.4% of the number of vaccinal operations. We have no statistics to show the number of small-pox cases amongst the vaccinated which give rise to pox marks on the face.'

I presume we must also assume that the number of those attacked before vaccination who do not die are not recorded in the vaccination operations. A consideration of these facts help to explain why small-pox is responsible for a considerable amount of blindness in spite of an elaborate machinery for preventing the disease.

IRRITANT REMEDIES

It will be seen from the figures given above that the use of irritant remedies was responsible for 127 cases of severe damage to the eyes in 1929; over 6 per 1,000 of our hospital population. Many of these are rendered partially blind; it would be impossible to say how many are totally blinded from this cause, but it is likely to be in the neighbourhood of 2 per 1,000 if we take

into consideration the probability that the figures for corneal leucomata and staphylomata of unknown origin are more likely to include a higher proportion of cases due to this cause than for instance to small-pox which is more readily eliminated from the unknown origin group. This cause of blindness in children is almost peculiar to the East and we are particularly prone to it in India. The ignorance and superstition which prevails is almost unbelievable in this connection. Not only do village-quacks and old women of the family treat all manner of simple eye diseases by inserting virulent irritants into the eyes, but they even treat fits and various forms of unconsciousness in children by this means with the idea of directly stimulating the brain. Nothing appears too vicious for these people. Tobacco juice, red hot coals, alum, chillies, the leaf or juice of the plant called in Tamil *Erukham* [*Madar* (Hind.), *Calotropis gigantea* (Bot.)] urine, dung, human milk have all had their adherents as efficacious remedies. A former member of the staff of this hospital, an experienced sub-assistant surgeon Dr. Ekambaram, made an investigation in this connection and succeeded in listing no less than 144 types of irritants which may be put into the eyes for various reasons. The only way to prevent such a state of affairs is to bring home the wrong of such practices to the villagers. We attempt to do this by approaching children and parents by means of posters, lectures, leaflets and other forms of propaganda, through the agencies of the medical and educational departments and unofficial organisations like the Red Cross Society. The most effective agent in dispelling ignorance and superstition is the Educational Department, and the Director of Public Instruction through the machinery under his control has done, and is still doing the chief work in this connection.

INJURIES

Injuries account for quite a high proportion of the cases of severe corneal damage which may result in partial or total blindness in children. The bulk of these no doubt affect one eye only although there is one very important type of damage which nearly always involves both eyes, I refer to the result of explosive mixtures. We all know how popular crackers, fire works, bombs and so on, are on certain festive occasions in India. For the most part the injuries are sustained by the individual

who prepares such explosives, hence this type of damage is not so common in young children. From the figures at our disposal we cannot estimate the proportion of children rendered totally blind by injuries, and the same applies to the damage of undiagnosed ulcers, but it is likely that total blindness in children from such causes is rare.

As seen in the above statement 431 cases of corneal scars and staphylomata of unknown origin were observed in 1929, out of about 20,000 out-patients. The great bulk of these were no doubt in adults and do not come into our purview; of the remainder, (those affecting children), the majority were unilateral and not a cause of total blindness, whilst a number no doubt were probably due to keratomalacia, ophthalmia neonatorum, irritant remedies and injuries. It is impossible in the absence of an accurate history to say what is the cause of an old corneal scar or at what age it occurred and we cannot do more than depend on our experience in disposing of this group in the way suggested above; even if the assumption is considerably in error, it does not affect the general considerations as to the chief causes of preventible blindness in childhood.

Finally as regards preventing the various types of blindness dealt with in this lecture, we depend on propaganda work almost entirely; there is no legislation. The difficulty of propaganda work may be gauged by the fact that it took me over two years to obtain a few thousand copies of ten different posters from one of our local organisations with public money lying idle which had been earmarked for devotion to such ends.

Routine, continuous and organised effort in the direction of prevention does not attract the average lay worker. It does not bring individual effort into sufficient prominence, nor afford the personal satisfaction and public approval which many a social worker appears to have in view rather than the end towards which the effort is ostensibly directed. It is also much easier to play on the feelings of the public in order to enlist sympathy in the cause of humanity when the damage has been done rather than prevent the damage. To care for the blind is a more popular social virtue than to prevent blindness. It would almost appear that the continuous, effective and unostentatious part which every educated citizen ought to play in the prevention of social evils was too dull a role for many of those impetuous spirits whose

enthusiasm carries them towards the forefront of the clamour connected with any popular movement of the moment. They appear to set an example of good work to others, but the others are not infrequently left to carry the baby, sometimes not a very healthy baby. Most of you, my hearers, being medical men and women, will frequently find yourselves in this position, but do not let this disappoint you; continue to preach the gospel of prevention consoling yourselves with the fact that none are so blind as those who will not hear.

LECTURE III

HEREDITARY DISEASES

In opening this last lecture of the series, I wish to thank the members of the staff of this hospital, medical and non-medical, to whom I am indebted for help in connection with references to cases, literature, hospital records and other matters.

It might seem at first sight that hereditary blinding diseases hardly come under the category of 'preventible', but I hope to show later that they do. Some ten years ago I would not have included them amongst the chief preventible causes of blindness in children, but I am prepared to do so to-day. When for certain reasons it occurred to me last year that the hereditary blinding diseases might be so classified I began to collect a few facts in this connection. A survey of our hospital records, and a consideration of our experience with such diseases, convinced me that if we treat this group as a whole, we have a cause of blindness which is probably more important than any other single cause. In the first lecture of this series, I referred to my publication in the 'Lancet' of April 1931 in which a case was made out for keratomalacia as the greatest cause of preventible blindness in children in India. I now propose to suggest that the hereditary diseases taken as a collective group may be considered as filling this role, at all events, in South India. Let us first look at a list of hereditary diseases which are apt to cause blindness or practical blindness, not necessarily a complete list, and see which of them we observe in our hospital population and with what frequency. As a matter of interest I shall include in this list some conditions which do not necessarily cause blindness, only defective vision, but these will be noted.

Hereditary diseases		Average rate of incidence per annum in our hospital population of approximately 20,000, calculated over a period of five years.	
Tapeto-retinal degenerations	Retinitis pigmentosa (usual classical form) ...	35	40
	Retinitis pigmentosa sine pigmento. ...	3	
	„ punctata albescens ...	2	
	„ pigmentosa centralis ...	...	
	Fundus albescens with hemeralopia congenita (Oguchi's disease)	...	
Symmetric familial degeneration of the macular or region and periphery other than Tapeto-retinal, with or without other degenerative features.	Progressive heredo-degeneration of the macula, with or without demencia, with or without pigmentation.	From 0.8 to 4	The only cases observed which we can fit into this group are those of progressive heredo-degenerations of the macula with or without pigmentation.
	Familial chorioiditis (Doyme)	figure will be explained below).	
	Tay-Sachs amaurotic family idiocy.	...	
	Atrophia gyrata chorioideæ et retinae	...	
	Atrophia chorioideæ et retinae totalis or chorioideremia	...	
	Nystagmus (other than those associated with recognizable lesions of media or fundus) ...	12	
	Buphthalmus (infantile glaucoma).	7	
	Glioma ...	5	
	Ectopia lentis (congenital dislocation of the lenses) ...	6	
	Coloboma of the iris and choroid ...	5	
	Microphthalmus ...	3	
	Anophthalmus ...	0.6	
	Albinism ...	1	
	Hereditary optic atrophy (Leber's disease and varieties not recognizable as such)	...	
	Aniridia	...	
	Congenital cataract ...	9	
	Oxycephaly (Tower skull, Turmschadel) ...	0.2	
	Familial corneal degenerations (symmetric, lattice-like or nodular) (Groenouw's disease) ...	1.4	
	Congenital colour blindness	...	
	„ night blindness	...	
	„ high myopia	...	
	Blue sclerotics	...	

It must be noted that these figures vary considerably in different five yearly periods and would be enhanced if the rarer conditions were always recognised as such in the out-patient department.

The total hereditary diseases recorded as such, taking the lowest or known figure in the second member of the series, averages 91 per annum over a period of five years. This may be expressed as approximately 4.55 per 1,000 in our hospital population, whereas the figure for keratomalacia (total and practical blindness) was 3 per 1,000.

It might be argued that it is doubtful if some of these are definitely hereditary, but on the other hand there are certain conditions which might perhaps have been included e.g., the 'phakomatoses' of van der Hoeve embracing the three affections coupled to the names of Bournville, Recklinghausen, and von Hippel-Lindau.

This list will, however, serve our immediate purpose as the lecture does not purport to be an exhaustive study of the hereditary blinding diseases. We may conveniently consider them in two groups as suggested by Treacher Collins in his address at the International Congress, Washington 1922; (a) those in which the tissue involved has from the first been imperfectly developed, and (b) those in which after full development degeneration sets in. As examples of the first, the hereditary errors of development resulting in anatomical defects and deformities, we have such conditions as:—

Buphthalmus
Ectopia lentis
Coloboma of the iris and choroid
Microphthalmus
Anophthalmus
Congenital cataract
Tower skull.

They are comparable with hereditary defects with which the ordinary lay person here is probably more familiar such as extra fingers.

Treacher Collins also includes hereditary functional disturbances under this head such as nystagmus, congenital colour blindness and congenital night blindness, as having some anatomic basis.

As examples of (b) we might include the first two series of grouped conditions on our list and others such as hereditary optic atrophy, familial corneal degenerations etc.

With reference to the second group he says, 'widely as these

affections may at first appear to differ they will be found to present similar characteristics which allow them of being grouped together in a classification of eye diseases founded on a pathologic basis.'

'All these diseases are hereditary in the sense that they may be met with in several siblings of the same generation and all' (with two exceptions) 'in several different generations.' The exceptions are amaurotic family idiocy and some types of symmetric macular pigmentary degeneration in which the individuals die before child bearing age. The former hardly concerns us as it is said to be confined to Jewish strains and we have never seen an instance of it here. They are all bilateral, non-inflammatory and indicate degeneration in certain definite groups of cells, 'which having reached a full degree of development and functional efficiency have then undergone degeneration.' The time of onset of degeneration varies. They fail not because of any toxicity or avitaminosis or lack of endogenous secretions, but from imperfect cell vitality so that they are unable to maintain their nutrition in full development. As Sir William Gowers, quoted by Collins, says they fail 'from imperfect life, from abiosis, in what may be designated abiotic atrophy or abiotrophy.' The cells degenerate earlier than usual due to some inherent cause. He pointed out that all cells tend to decay and die eventually, but some decay abnormally early. We do not necessarily apply the word death to this inherent failure of vitality, we speak of it as degeneration. We do not know what the force is which keeps tissues from a failure in vitality, but it is convenient to refer to this unknown quantity as vital force and to assume that lack of it means degeneration. The cells of the body are either in a state of evolution to maturity or involution to decay. Collins quotes Paget to the effect that 'premature degenerations are to be considered therefore methods of atrophy, as defects rather than perversions of the nutritive process, or as diseases only in consideration of the time of their occurrence.' Collins following Paget and Gowers regards all such hereditary conditions as abiotrophies.

We may find it difficult to fit in certain of the hereditary affections under such a grouping, but this does not alter the fact that it helps us to link up a number of diverse conditions to a common base. As an isolated example which does not appear

to fit in with either group we might instance glioma, that new growth of childhood which only shows its degeneration after a period of excessive proliferation of cell elements. It occurs no doubt after the retina has attained maturity, but is hardly to be designated a degeneration or abiotrophy in its proliferating stages. The layman would in fact label it a malignant disease or cancer.

We will now turn to a consideration of our hospital records and see which of these hereditary diseases, degenerations or defects of development we meet with in South India and with what approximate frequency, in our hospital population. This is shown in parallel column with the preceding list. Our approximate annual out-patients attendance is 20,000, and we have taken an average of the number of cases of hereditary diseases occurring over a period of five consecutive years where this has been possible.

Our considered opinion is that this figure must be enhanced. For example with reference to symmetrical familial macular degenerations, we have for a long time observed curious macular degenerations which we feel ought to be placed in this group because of their ophthalmoscopic similarity to known cases in the group, but which we are unable to prove as familial because of the difficulty in obtaining an accurate history or an examination of other members of the family. Many such cases show a central degeneration without pigmentation and without mental defect which we are wont to describe ophthalmoscopically as having a resemblance to 'tarnished metal,' 'beaten copper,' or 'beaten silver.' The disc may show more or less atrophic changes and of course the vision is poor. We feel that such cases ought to be included in the group, but they are ordinarily classified under fundus diseases, not hereditary, for want of evidence.

It may be noted also that congenital high myopia has been omitted from the lists of figures, as, when seen in young children, it is difficult to be sure if we are dealing with a single condition which may be so named, but a certain number of our cases would be included in this category by many. Aniridia has not been given a figure as we do not remember to have seen more than two cases in the last 14 years.

Glioma, ectopia lentis and buphthalmus are probably more frequent than the figures indicate.

Hereditary optic atrophy has not been recorded. We do not remember having seen more than two such in the last 14 years which were diagnosed as of the Leber type; but a considerable amount of optic atrophy is seen in young children and classified under fundus diseases (optic atrophy), which we feel ought to be included under the title hereditary optic atrophy.

Congenital colour blindness and congenital night blindness are not included as they are not productive of a sufficient degree of damage to vision.

On the other hand in oxycephaly, blindness does not occur in all cases, and congenital cataract may be treated with great improvement to vision; albinism and retinitis pigmentosa may be associated with sufficient vision to enable the individual to earn a livelihood, as also nystagmus and coloboma of the iris and choroid, but a reduction on account of these would hardly counterbalance the enhancement. I think we might reasonably assume a practical blindness rate of 4.55 per 1,000.

Retinitis pigmentosa, the commonest member of the Tapeto-retinal degenerations, heads our list. It is a progressive disease and whereas it sometimes does not go on to complete blindness till late in life, the majority of our cases show very defective vision comparatively early.

It is said that 33 per cent. may be deaf and 4 per cent deaf mutes. We have not noted this frequency of association and although we may have missed making observations in many cases it is most unlikely that we would fail to observe such a marked association as 33 per cent. I have recently had the opportunity of examining one hundred deaf mutes from the School for the Deaf, Mylapore, Madras, and in this series of children, there were three with retinitis pigmentosa, two Hindu brothers; and a Scotch girl, one of the very few Europeans in the institution. We see extraordinary diverse forms of Tapeto-retinal degenerations, but our criterion in diagnosis is the peculiar quality of the atrophy of the optic disc and the characteristic changes in the vessels of the retina rather than any particular form of pigmentation or the lack of it. The commonest form is retinitis pigmentosa with obvious migration of pigment, more towards the periphery of the retina, but the pigment is not distributed in the bone-corporuscle pattern so frequently seen in European countries, it is more irregular and

patchy. As has been pointed out by Kirkpatrick it is frequently associated with consanguinous marriages in South India.

Glioma, the curious malignant growth of the retina, occurs more frequently in young children and kills in childhood except in the rare cases, (with us), in which one or both eyes are removed and the individual lives to child-bearing age and possibly transmits the condition to future generations. I agree with Bickerton (*British Medical Journal*, January 1934) when he says 'the death of a child with glioma of the retina is an appalling experience for parents and child, and may take as long as two years. The law which forces us to withhold euthanasia in these cases at the same time forces us to act in a barbarous and monstrously inhuman fashion, and is, in my opinion, indefensible.'

Mention has just been made of the association of consanguinous marriages with retinitis pigmentosa in South India. It may also be noted as recorded in the Eugenics Laboratory Memoirs XXI 'Treasury of Human Inheritance Nettleship Memorial Volume', Vol. II, Part I by Julia Bell edited by Karl Pearson, that with an increase in the percentage of consanguinity there appears to be an increase in the defect resulting. For the most part we find it practically impossible to follow up pedigrees or even verify the incidence of an abnormality in the same generation. Sometimes a defect appears in several siblings of the same generation without any trace of its occurrence in previous generations even when circumstances favour a careful investigation. For the most part the affections we see show themselves in siblings of both sexes. Recently we met with an interesting familial affection in a family of three brothers and one sister in which the three brothers showed macular degeneration with progressive diminution in vision, dementia, and marked dolicocephaly. At first sight the eldest boy, about 17, gave the impression of tower skull with lateral compression and elongation, but it was not a true oxycephaly (photographs shown). The appearances at the maculae were those previously referred to as of the 'beaten brass,' or 'tarnished metal' type. The female was unaffected. No evidence of such a disorder could be found in the previous generations, the grand-parents also were free. It is possible that in this case the condition was transmitted by unaffected females, the males only being affected, complying with the law of Nasse. This law holds for certain conditions like Hæmophilia, Leber's

hereditary optic atrophy, certain forms of nystagmus, colour blindness, megalocornea. There is no hereditary condition known however in which the female alone is affected and the defect is transmitted by the healthy male. It would appear that in heredity Kipling is right, and that 'the female of the species is more deadly than the male.'

For the purpose of these lectures nothing more need be said to emphasise the importance of hereditary blinding diseases and the part they play relative to the other chief blinding diseases of childhood. While I was yet collecting records on this subject and thinking of the part played by heredity in connection with our blind problem it interested me greatly to see an article by Bickerton in the *British Medical Journal* of January 1934 on 'The menace of hereditary blindness.' He illustrates his article with a number of interesting pedigrees and makes out a case for checking these conditions which appear to play a prominent part in the causation of the total blindness of England and Wales by a number of means for improving environment and heredity, including sterilization. The article should be read by those interested.

Prevention :

In Madras we have heard a great deal about birth control in the last year or so. The opinions of all and sundry have been aired at length ; clerical and lay, Protestant and Catholic, male and female. Nearly all are the opinions of those who have not made an intimate study of the various population problems involved and applied to them the acid tests of historical records, statistics and eugenics, including modern views on heredity. They make wonderful copy, and on account of the sex problems involved attract a wide range of readers. The reading too is sometimes very amusing. There is no certain knowledge however that if it were feasible to introduce birth control by Stopean methods, such as those suggested, on a scale commensurate with the object in view and in such simple forms as to be adopted intelligently by the uneducated masses, it would have any material effect in checking the undesirable increase of population. One has only to look at the history of population figures in Japan, Ireland, France, Italy, Great Britain to realise that there are factors at work so profound that their effect would hardly be influenced over a few generations by the methods of

birth control so much discussed in the past few years if attempted in India. The practical essay of the various forms of Stopean technique by the uneducated villager conjures up the most comic situations in the medical mind. Nor is difficulty in acquiring technique by any means confined to the 'country cousin' as every medical man knows.

However we are not now concerned with the humorous side of a partially impractical and purely hypothetical measure for influencing the birth rate as a whole. The matter was very well summed up not long ago by the *British Medical Journal* in a report dealing with the conference on birth control in Asia held at the end of last year under the presidency of Lord Horder. Referring to the data before the conference it says, 'about these facts and about similar facts pointing to over-population in China, there was hardly any controversy. But though in proposing a remedy everybody was anxious to put the cart before the horse, nobody, as is common in sociological discussions, could distinguish for certain or agree entirely with anybody else as to which was which.' Suppose for a moment we agree that birth control in some form in certain circumstances is desirable, might we not reasonably consider that the 'certainty or strong probability of a man or woman being the parent of a potentially blind child, is one good reason for the application of stringent birth control. If this be admitted, might we not also consider what is the best and only certain method of control under such circumstances. When I first started thinking of the hereditary conditions in connection with preventible blinding diseases, I knew that there was a movement afoot to approach the Minister of Health in England with regard to the sterilization of the unfit. In June 1932, the Minister appointed a Departmental Committee on sterilization. That Committee went into the subject in great detail and its report was presented to Parliament on January 18th this year. The difficulties which had to be contended with can only be appreciated by reading details of the report.

To quote from a leader in the *British Medical Journal* : 'Before coming to a conclusion as to the justification for sterilization the committee considered first the question of compulsion. Interpreting its reference as asking it whether there was on scientific grounds, an unassailable case for sterilization,

it came to the conclusion that in the present state of knowledge the case for compulsory sterilization could not be established.' . . . 'With regard to voluntary sterilization, the committee did not entertain the same doubts and unanimously recommended that voluntary sterilization be sanctioned, on the grounds that enough is known, "to be sure that inheritance plays an important part in the causation of mental defects and disorders . . . and that mentally defective and mentally disordered parents are, as a class, unable to discharge their social and economic liabilities or create an environment favourable to the upbringing of children; . . . with the rider that there is reason to believe that the opportunity for sterilization would be welcomed in some cases by the patients themselves". In other words the committee recommended legislation of voluntary sterilization subject to safeguards. The Ministry is now in consultation through the Board of Control with the Medical Research Council, and the Registrar-General as to the best course of action concerning the recommendations in the report. It is interesting for us here to observe that the British Government consults experts before embarking on legislation in relation to highly scientific problems.

Meantime it may be noted that in Germany sterilization of defectives has been legislated for in a less conservative spirit than that indicated in the British Report. There is in fact a world-wide tendency to come to grips with this important problem of preventing defectives begetting defectives. It would *prima facie* appear to be the best end at which to begin in any composite scheme for lessening the number of births. We might in any such programme include the sterilization of those suffering from hereditary disease productive of blindness. I wonder how many of those who have put up a fight for the modern contraceptive birth control would be anxious and willing to resort to sterilization should they discover that they were the potential parents of children likely to become blind because of a hereditary taint. Retinitis pigmentosa is so common in Southern India that it is more than likely that some of our birth control protagonists suffer from it. If so they might set a good example by publicly embracing the only certain method of birth control namely, sterilization.

A word as to sterilization. My friend and colleague, Lt.-Col.

V. B. Green-Armytage I.M.S. (Retd.) London (formerly of the Eden Hospital, Calcutta) who has had an extensive experience in this connection and advocates a special technique, assured me in the course of discussion that sterilization in the female is a simple undertaking. Permanent ligation of the tubes is an easy operation which should be possible for any competent gynaecologist to perform per vaginam. The patient should be out of bed by the fifth day and home by the seventh. The same ease of performance holds good for the general surgeon with regard to the cords in the male; it should be possible to do either procedure rapidly under local anaesthesia. Neither operation interferes in any way with the individual, sexual activity is not lessened, but subsequent reproduction is impossible. No doubt many reasons may be given against it by those opposed to the sterilization of known carriers of hereditary blinding diseases. A very practical one here in India is that owing to the difficulty of tracing relatives, carriers who do not themselves present the disease may be missed in the previous generation. But one has only to look through some of the hundreds of pedigrees published in ophthalmic literature to be prejudiced in favour of sterilization; for instance the Risley pedigree, recently brought to mind by Bickerton's illustrated article in the *British Medical Journal* of January 20th this year, in which one man blind with aniridia had thirteen children similarly affected, sixty-one grand-children affected out of sixty-three, and thirty-nine great grand-children out of forty-two. This single individual in the course of three generations was responsible for producing 113 cases of blindness.

The Prevention of Blindness Committee of the Union of Counties Association for the Blind (Great Britain) issued an interesting report last year on hereditary blindness. It points out that data recorded over a long period of years have been analysed by genetic experts, and reports issued by the Galton Eugenics Laboratory. For technical reasons it cannot be estimated with any degree of accuracy to what extent blindness as a whole could be prevented by limitation of parenthood in individual cases.

The *British Medical Journal* says with reference to these reports:—'There are diseases of the eye which result in defective vision and others which cause blindness. Taking both groups it may be held by the eugenicist:—(a) That any man or woman who has aniridia, congenital cataract, glioma of the retina, hereditary

opacity of the cornea, or ectopia lentis, microphthalmus, or retinitis pigmentosa, and of whom either parent has been similarly affected, is likely to transmit the defect and should abstain from parenthood. (b) That any normal parents who have more than one child affected with one of the above mentioned diseases, or with buphthalmus or total colour blindness should have no more children, and such children as they have should abstain from parenthood—whether they themselves are affected or not. Even if the parenthood of such children does not lead at once to the manifest reproduction of the disease, it inevitably adds to the latent defect in the population, which becomes manifest when two people carrying such latent defect marry and have children. (c) That if, in all stocks in which Leber's disease (hereditary optic atrophy) has occurred more than once, the sisters of affected males were to abstain from parenthood, the disease would be almost exterminated, except for sporadic cases of no genetic significance. In general, there is no risk to the descendants of men who are suffering from Leber's disease; the instances in which they transmit the disease are very rare, but should be borne in mind, and if one such case in a family has occurred all other affected members of that stock should be regarded as liable to transmit.'

These recommendations would appear to be essentially sound, but the words 'abstain from' are perhaps a little conservative. In view of my experience of the criminal carelessness of certain parents, I would feel more inclined to substitute 'be restrained from.' There is no doubt a great difficulty here in South India in obtaining accurate information, but I personally feel that nothing but good could result from the sterilization of all those known to be potential transmitters of hereditary blinding diseases.

DEBT CONCILIATION IN THE CENTRAL PROVINCES

1. *The Rural Economy of the Central Provinces*

In order to understand the nature and working of the Debt Conciliation Boards in the Central Provinces, a knowledge of the land tenures and rural conditions of that province is essential. The principal tenure in vogue in the C. P. (as distinct from Berar) is the *malguzari*, and 26,827 out of the 36,151 villages or 72 per cent are under that tenure, whilst *ryotwari* accounts for only 2,972 villages or 8 per cent of the total. But, of the 21,940,090 acres of land under *malguzari*, only 3,752,834 acres (or about 17 per cent) are cultivated as home farm (*Sir* or *khudkasht*) whilst the rest is held in tenancy right. Of the tenancy land, nearly 90 per cent is held by occupancy tenants and are not transferable. Even if we consider the whole occupied land (22 million acres), 15 million or nearly 70 per cent of it is inalienable. Indeed *malguzars* have power to transfer their *malguzari* rights, but the occupancy tenants have no rights of transfer except to co-sharers and certain heirs, and their land cannot be used as security for loans, although *takavi* advances form a charge on it. Occupancy land cannot be attached or sold in execution of decrees, but for arrears of rent the tenant may be ejected by a revenue court.

In result, the great majority of the agriculturists of the province have only such credit as their standing crops, their cattle and their movable property will command. No wonder that of the total debt in 1928 only 27 per cent was 'secured'. The greater the risk the higher the rate of interest. The average rate is 24 per cent with a penal stipulation of a higher rate—usually 37 per cent in case of default, which is common.

In Berar, however, the bulk of lands is under *ryotwari* tenure and is transferable, and therefore the debt is largely secured. In 1928, secured debt formed more than 60 per cent.

2. *Debt Conciliation is not new in Central Provinces*

During the economic depression resulting from the great famine of 1897-1900 and after, Government carried out a

scheme of debt conciliation in six districts. The total debt conciliated was Rs. 240 lakhs of which Rs. 155 lakhs was remitted. The beneficiaries were mostly tenants. The conciliation proceedings were conducted by panchayats presided over by Government officers. Debtors and creditors were collected together in villages and signed agreements consenting to abide by the decision of the conciliators. The paying capacity of the debtor was taken into account and easy instalments were fixed for repayment, 5 to 10 years in the case of tenants and 15 years in the case of *malguzars*. Six per cent was allowed in the case of overdue instalments. A good deal of irrecoverable debt was written off, and according to some accounts 'a very large proportion of the debts conciliated was irrecoverable', but a material relief was given to debtors. The creditors seem to have soon repented of the wave of generous enthusiasm that swept over the country, and their exactions became more rigorous afterwards. However, there was no contraction of credit due to this measure. In Betul, there was a temporary withholding of credit, but wiser counsels prevailed and matters went on as before.¹

3. *The Origin of the Debt Conciliation Boards*

The Debt Conciliation Act of 1933 was a result of the bold generosity of the Government of Central Provinces and it was ably piloted through the Council by Mr. (now H. E. Sir Hyde) Gowan, then Revenue Member. The opposition came chiefly from certain representatives of the people, who suggested a proper enquiry. 'If you see your house on fire', asked the Revenue Member effectively, 'will you enquire into the causes before you put the fire out?'² The bill became law in January 1933 and came into force on 1st April. Two Conciliation Boards were established in July 1933 (Khurai in Saugar District and Seoni in the Chindwara District) and subsequently four others were established, two being in Berar. All the Boards consist of non-officials working in an honorary capacity, but the chairman is a Government officer from the executive or judicial service. The Act originally provided for only five members, but as the work imposed a heavy strain on the

members, the Act was amended and the strength of the Board was increased to 9.¹ It is interesting to note that several moneylenders have volunteered to become members and are taking a keen interest.

4. *The Procedure of Debt Conciliation.*

Debtors or creditors may apply to the Board, but only debtors who do not owe more than Rs. 25,000 may apply, as the law now stands. The application must contain particulars about the parties, the amounts owed to each creditor, the property owned by the debtor, and so forth. On receipt of the application, the Board fixes a date for hearing the application. If after examining the applicant, the Board is convinced about the desirability of a settlement, a notice is issued to all the creditors to submit an account of the debts owed to them. If a statement of debt is not made in time, such debt are deemed to have been discharged. The creditor must also submit his books and documents for inspection. The Board then endeavours to make an amicable settlement, summoning witnesses, if necessary. If the creditors to whom 40 per cent of the debts are owing agree to a settlement, an agreement is signed setting forth the terms. The agreement is then registered under the Indian Registration Act. In any proceedings before a Board, parties may be represented by agents authorised in writing, but not by legal practitioners. Lawyers therefore have no place in the conciliation system. (See Appendix).

If a debtor defaults in paying the instalments according to the agreement, such amount may be recovered as arrears of land revenue on the application of the creditor, but if the Deputy Commissioner fails to recover such arrears, he will certify that it is irrecoverable, and the agreement will cease to subsist.

If a creditor refuses to agree to an amicable settlement, on the terms considered by the Board as reasonable, the Board may grant the debtor a certificate in respect of the debts owed by him, and if the creditor thereafter sues the debtor in the civil court for the recovery of the same, the court will not allow him any costs in the suit, or interest on the loan after

¹ See *C.P. Banking Enquiry Committee Report*.

² *Council Proceedings*, 19th January, 1933.

¹ See *Central Provinces Gazette*, 16th March, 1934.

the date of certificate not exceeding 6 per cent. If, after the registration of an agreement, an unsecured debtor sues for the recovery of the debt, any decree so obtained will not be executed until all amounts payable under the agreement have been paid off. Civil courts are prohibited from entertaining suits in any matter pending before a Board, and proceedings pending before a court are suspended, and cannot be revived until the Board has dismissed the application.

5. Inclusion of Co-operative Debt

There was at first great opposition to the inclusion of co-operative debts in the scope of debt conciliation. It was feared that the inclusion would ruin the co-operative movement by causing a run on the deposits in the central banks, and non-official co-operators stoutly opposed it. The Registrar of Co-operative Societies held on the other hand that co-operative debt should be included, because (1) conciliation must comprise the entire debt, if it is to be effective; (2) the exclusion of co-operative debt would cause a grievance to private creditors; and (3) the conciliation of co-operative debt would stimulate the process, already initiated, of writing off bad debt. It was also pointed out (4) that if co-operative debt was not included, the debt owed to private creditors would become like a first charge on the ryot's annual income. Even otherwise, moneylenders have a virtual charge on crops by seizing produce at the threshing floor, but when conciliation is effected, the co-operative society will have to wait till all other creditors are paid off. By allowing conciliation, provision could be made for co-operative debt in the agreement, along with other debts, and if the debtor's land is sold, the society could get a share of the proceeds. However in the end it was decided to include debts owed to the Co-operative Society, but subject to the previous approval of the Registrar of Co-operative Societies. The wisdom of this decision is doubtful. It is now thought by many that co-operative debt must be altogether left out or be included like all other debts, no debtor claiming a privileged position.

6. The Working of the Conciliation Boards

Two of the Boards have worked for about 15 months, and the others for shorter periods. The first report of the working

of the two older Boards was published in April, and progress reports now appear monthly. The following are the results :—

Work done by the various Boards till October, 1934

Name of Board	No. of agreements executed	Amounts involved	Percentage remission	No. of certificates issued
		Rs.		
Khurai (16 months)	1,507	14,47,471	50	802
Seoni (15 months)	1,738	17,80,261	40	239
Balaghat (9 months)	621	5,37,198	40	7
Narsingpur (6 months)	227	2,83,646	54	34
Mekpar (5 months)	149	1,95,388	30	30
Kelapur	31	39,038	32	...
Total ...	4,273	42,83,002		1,112

(Compiled from the periodical reports issued by Government)

7. Estimate of the Board's Work

Several complicated cases have come for hearing before the Boards, and many which were pending before the civil courts would have prolonged themselves had they not been settled by the Board. In one case at Seoni, the number of creditors was thirty, and they were from all over India, Sholapur, Ahmedabad, Tanjore, Cawnpore, Dacca, and Delhi; it was the case of a cloth merchant (himself being also a landowner) who had dealings with merchants in all those places. The total claim against him was for Rs. 20,129, but owing to the indefatigable labours of the Board, a settlement was made for Rs. 10,483.

The economic advantage resulting from such debt settlements is inestimable. In the civil courts, each creditor has to sue the debtor separately, and thus each case would have cost much money to the parties and involved much loss of time to the court, but before the Board, the whole question is heard at once and decided. Had such a complicated case as that of the cloth merchant noted above gone to the civil courts, it would have been heard as thirty separate cases, each party engaging a separate lawyer, and each case being heard separately before the court. By the Board taking it up, the parties gained, the lawyers lost, and the court's time was greatly saved. However, what the parties gained was at the expense of the lawyers and the Government treasury. Lawyers in Seoni have much less work to-day, as the number of cases has already diminished by a third. Government loses under two heads—court fees and income-tax. The sowcars who agree to conciliation file copies of the agreements at the Income-tax Office and thus obtain a rebate of income-tax already paid and get their tax reduced for the future.

I visited Seoni in the middle of September 1934, and was much impressed by the working of the Conciliation Board, by the *esprit d'corps* animating the members of the Board, the conciliatory spirit of the moneylenders, and above all, the fairness and ability of the Chairman. In fact, the Chairman is the life of these Boards, and their success is greatly due to his industry and perseverance.

Deficiencies of the Conciliation System.—If a relief measure of this kind is meant to give immediate relief, it must be available to a large number of those who are stricken by the depression. But the Conciliation Act, as at present ordained, can only relieve a small section of those who need relief, and even they get only a partial relief. First, an application for conciliation will be considered only if 40 per cent of the debtors agree. In the case of debts which are mostly secured by mortgages, and in which the property mortgaged is more than covered by the encumbrance, the creditors are not likely to consent to conciliation, as they know that they can have their pound of flesh, by proceeding to the civil court. Is it any wonder if in spite of persistent propaganda, very few secured creditors in the Central Provinces have come into the

agreements?¹ After all, secured debts formed only 27 per cent of the total debt of the Central Provinces in 1928, and therefore a large number of debtors may benefit by the Act, but that cannot be the case in a province like Madras, the bulk of whose debt is secured by land mortgage. In such provinces, creditors will not agree to come in unless the minimum is pushed down, or a larger degree of compulsion is introduced in some other manner.

Secondly, even after an agreement has been arrived at, the secured creditor can proceed to foreclosure and thus nullify the agreement. Only those secured creditors who had filed their suits in court or who had applied for the execution of decrees are affected by the Conciliation Act; for, Section 21 suspends all such suits and legal proceedings and prohibits their being revived till the registered agreement ceases to subsist. The Act does not bind the hands of other classes of secured creditors—i.e. those who have not filed a suit and those decree-holders who have not instituted proceedings. They are not bound by the provision in Section 15 (3) which compels unsecured creditors who have not come into the agreement to wait till the amounts payable under the agreement have been paid. Indeed the Board can grant a certificate under Section 15 (1), but it only means that the creditor will not get the cost of the suit and that interest will not exceed 6 per cent after the date of certificate. This cannot have any strong deterrent effect. As for the creditor who had already secured his decree, the certificate does not affect him, and he is free to execute his decree in defiance of the agreement. Thus a large section of creditors has no incentive to come into the agreement.

It must be pointed out, in passing, that the unequal treatment of secured and unsecured debts in this manner is not in keeping with the Indian traditional law; and it is calculated to undermine the sanctity of the plighted word.

The opinion is therefore now growing that such defects in the system must be done away with. The principal suggestions for amendment are :—(1) Remove the exemption given to secured debtors in Section 15 (3); (2) lower the interest

¹ This is not true of Berar. In Mekkar, 35 % of the settlements were mortgages.

allowable to secured debtors under Section 15 (2); and (3) put in a clause to the effect that when creditors to whom not less than 20 per cent of the debts are owing enter into the agreement, the remaining creditors also must either enter or wait till the amounts according to the agreement have been paid off. These proposals are now before Government.

Exclusion of Rent from Debt.—Another question which has created much comment is whether rent should be excluded from the purview of the Act. It was argued that as land revenue was paid from the rent received by the malguzar, it would be unfair to allow rent to be cut down. But in reality the arrears of rent which landlords complain of are really arrears of loans advanced by them to the tenants. Usually, the landlord lends money to tenants, but when rent is paid such payments are taken towards arrears of interest or principal, and rent is marked as in arrears. By doing so, the landlord could effectively threaten the tenant; for the latter could be turned out if rent was in arrears for three years. Further, rental arrears have been treated in a special manner by the Board, and in many cases they have insisted on applicants paying their rents before applying for debt conciliation. If rent is excluded by statute from the operation of the Act, a good number of the cases that now come for settlement will have to be dismissed, and the Debt Conciliation Act will be of little real help in relieving agricultural distress.

Repayments.—The real test of the success of debt conciliation is the punctuality of repayments, for if the instalments according to the agreement are not forthcoming, the agreement will be null and void. However light the instalments may be, repayment will be found difficult at a time like this. Hence the need for an institution like the Land Mortgage Bank to advance the money and recover it from the debtor in annual dribbles spread over a long period. There are no land mortgage banks in the Central Provinces; Government is now contemplating the establishment of such banks, but so long as the bulk of land remains non-transferable, such banks will only touch a fringe of the debt problem in the Central Provinces. To remove this defect, Government is proposing to change the land law, enabling occupancy tenants to mortgage and sell their holdings to the land mortgage banks.

8. *Other Measures to Relieve Indebtedness in the Central Provinces.*

The Government of the Central Provinces has also carried out legislation to regulate moneylending and to keep interest rates under control. The Usurious Loans Act of 1918 has given the courts power to reopen transactions and cut down interest if (1) the rate of interest is excessive; and (2) the transaction substantially unfair. But both these conditions are essential for interference, and it is left to the discretion of the courts whether to interfere or not. The result has been that most courts have not interfered, save in very exceptional circumstances. Law is intensively conservative, and many lawyers and judges will appeal to the sanctity of contract, even if injustice to a party is patent.

The Usurious Loans (Central Provinces Amendment) Act of 1934 is meant for strengthening the hands of law courts in meting out justice. Clause 2 of the Act empowers the courts to interfere if the transaction is substantially unfair or if the rate of interest is excessive; both these conditions need not be fulfilled. Not only does it empower the courts, but compels them to interfere, as is clear from the substitution of the word 'shall' for 'may' in Sub-section (1) b of Section 3 of the India Act. The exact level beyond which the interest rate may be deemed excessive is left to the discretion of the court, but interest will be deemed excessive if it exceeds 12 per cent on secured loans and 18 per cent on unsecured. For future loans the Provincial Government may order that compound interest in excess of 10 per cent is excessive.

The Moneylenders' Act of 1934 is meant for the control of moneylending. Provisions have been made for the maintenance of accounts by moneylenders and for the supply of statements thereof to debtors, but debtors are not bound to admit the correctness of such accounts. The procedure of courts in suits regarding loans is laid down. The principle of *damdupat* is recognized: interest in future is not to exceed the principal, and this may apply to past loans also, with certain reservations. Decretal amounts may be paid by instalments.

A STATISTICAL STUDY OF THE RESULTS OF A UNIVERSITY EXAMINATION

BY

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SINCE schools have existed, teachers and other school officials have attempted to measure the abilities of pupils in each of the subjects by examinations. According to H. Rugg teacher's mark measures 'Inherited capacity, ability to do, and specific performance'. The measures of the abilities of pupils obtained in these ways are regarded as possessing a high degree of precision and are considered very important. An arbitrary minimum is fixed, and a pupil is promoted if the mark obtained by him is equal to or above the minimum say 'The passing mark'; and a pupil is classified as a failure if his mark is below 'The passing mark'. In the early years of this century a number of investigations were made in America by some eminent educationalists like F. J. Kelly, F. W. Johnson etc., to ascertain the accuracy or reliability of measures by means of teacher's estimates and examinations. This gave rise to an analytical study of the whole mass of the material gathered, and statistical methods were freely made use of to interpret the results. The American educational statisticians concentrated much of their attention on the 'distribution of ability!'. In 1904 appeared an epoch making article by Prof. Spearman 'General intelligence objectively determined and measured' *Amer. Jour. of Psychology* 15 p. 201. Here for the first time he discovered 'The hierarchical Order' among Correlation Coefficients of the abilities in different subjects and propounded 'The theory of general ability or the theory of two factors', which has been built upon this foundation. These ideas dominated correlation work in its application to Psychology for a good number of years. His work stirred up both disciples and opponents to investigations which would otherwise never have occurred to them. Thus while in countries well advanced in education and theory of statistics, the latter is freely made use of to improve the methods of education, unfortunately in

India much interest is not taken and no importance is paid to this sort of work. The Calcutta University Commission recognising the importance of a Statistical Bureau in the University made recommendations for it in the following words. 'A special examination Board should be set up in the University. In order to deal with the problems of examination on a large scale, it will need the services of a skilled statistician, acquainted with the modern methods of statistics, who should be a member of the Board. For, such a Board should also suggest new departures and improvements in dealing with the various problems of the examination system; such matters as the problems involved in the setting of questions, of Co-ordinating the marking of a set of Assistant Examiners and of estimating the unavoidable element of chance in the assignment of marks etc.' Volume V, chapter 40. This remark applies not only to the Calcutta University but to every University in India.

The object of this paper is to make an analytical study of the results of a certain University examination, making use of the ordinary statistical methods. For this purpose the marks obtained by about 1,700 students who appeared for the Group I of the Intermediate examination in a certain year were taken. The sample is homogeneous in the sense that all of them studied the same subjects, same courses, and same texts for the examination. All of them appeared for all the four subjects taken for analysis. Marks obtained in the Vernacular are omitted because the Vernaculars of the students were different. Of course there are slight differences in various groups of students reading in different colleges. But that merges away in the general population, and is one of the causes of the variability of the ability. Obviously there is no bias in this selection because the whole mass of available material is taken.

Clear thinking about a large mass of facts necessitates the condensation and organisation of the Data in a systematic way in the form of frequency distributions. That is, we are forced to group our Data in classes and statistical treatment of the Data depends upon the determination of these classes. For a table to be neither too unwieldy and consequently inconvenient for mathematical treatment, nor too meagre and consequently

cause inaccuracy, the number of class intervals generally taken is about fifteen to twenty. The range of variation of the marks in English is 20 to 190, (out of a total of 300). So the length of a class interval is taken as 10 marks. In Mathematics, Physics and Chemistry the range is zero to 100 and the class interval can be taken as 5 marks. 'The passing mark' in English is 105 and in the subjects 35. Human nature being what it is, naturally there will be a crowding about these marks. So, the class intervals are so taken that these points are at the centre or mid-point of a class interval; in order to avoid sensible error in the assumption that the mid-value is approximately representative of the values in the class.

Having fixed the position and magnitude of the class interval the observations were classified and tabulated. The separate tables of frequency distribution in the four subjects (1) English, (2) Mathematics, (3) Physics, and (4) Chemistry are given below.

FREQUENCY DISTRIBUTION OF ENGLISH

Marks obtained	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100	100-110
Frequency	2	4	7	13	53	130	250	312	369

Marks obtained	110-120	120-130	130-140	140-150	150-160	160-170	170-180	180-190
Frequency	242	153	84	42	29	10	3	1

Total ... 1704.

FREQUENCY DISTRIBUTIONS OF MATHEMATICS,
PHYSICS AND CHEMISTRY

Marks obtained	0	2.5	7.5	12.5	17.5	22.5	27.5	32.5	37.5	42.5	47.5	52.5
Frequency in—1	5	32	67	80	107	159	192	220	193	165	141	98

in—2	0	8	19	32	63	103	153	200	262	285	212	155
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in—3	8	34	56	71	98	136	166	178	210	204	202	135
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Marks obtained	57·5 62·5	62·5 67·5	67·5 72·5	72·5 77·5	77·5 82·5	82·5 87·5	87·5 92·5	92·5 97·5	97·5 above
Frequency in—1	58	60	35	26	25	17	11	6	7
in—2	88	66	25	24	8	0	0	1	...
in—3	87	49	25	29	10	2	4	...	...

Total ... 1704.

Note:—1. Mathematics. 2. Physics. 3. Chemistry.

Our sole aim is to organise the complex mass of material in such a way as to facilitate clear interpretation of the data. It is quite clear that the mind finds it difficult to deal with the whole distribution. We must find the best method of describing it. There are two fundamental characteristics in which the distributions may differ (1) they may differ markedly in position i.e., in the values of the variable round which they centre. The measure of this central tendency is called the average. Of the various kinds of averages in use the Arithmetic mean is the best and is most commonly used. The Arithmetic mean of a series of values of a variable is the quotient of the sum of the values by their number. But in the case of a frequency table, each class frequency is multiplied by the mid-value of the interval, the products added together, and the total divided by the number of observations. (2) The distributions may differ in the range of variation or dispersion. The most important of the measures of dispersion is the Standard deviation. The Standard deviation is the square root of the Arithmetic mean of the squares of all deviations, deviations being measured from the Arithmetic mean of the observations. In addition to these two principal and fundamental characters, we may also consider the Skewness or asymmetry of the distribution, and the coefficient of variation.

Skewness is measured by $\frac{\text{Mean} - \text{Mode}}{\text{Standard deviation}}$. (Mode is that value of the variable for which the frequency is a maximum.) The need for the coefficient of variation arises when we reflect that in order to gauge fairly the amount of variability, we

ought to have in mind also the size of the mean from which the variation is measured.

$$\text{C.V.} = \frac{100 \text{ S.D.}}{\text{Mean}}$$

Hence a fairly adequate numerical representation of the distributions in question could be obtained by giving the Arithmetic mean standard deviation and the coefficient of the variation of the variate. For the sake of comparison 'The normal mean and the normal standard deviation' (though the terms are apt to be misleading as they have not so far been used in statistics), given by Mr. P. V. Seshu Ayyar and Mr. S. R. Ranganadhan in 'A Statistical Study of Some Examination Marks', *J.I.M.S.*, Vol. 14 of 1922, p. 43, are also given in the table. The normal mean and normal S.D., are the average values of the means and S.D., of 6 consecutive years considered by them.

	English	Mathematics	Physics	Chemistry
Mean	34·46	39·13	42·5	39·4
A. for 6 years	39·3	41·5	40·3	39·1
S. D.	7·03	18·22	13·46	16·16
A. for 6 years	9·26	13·23	11·98	12·5
C. V.	20·41	46·56	31·67	41·02
Skewness	·0924	·3206	...	...

There is a sharp fall in the mean of the English from the standard mean by about 5 marks. This can be explained by the fact that the minimum for pass at the time of the standard mean was 40 and for the material in consideration is 35. This shows that the reduction of minimum did not produce the desired result; and that the examiners' minds were fixed more on the percentage of pupils to be promoted than on the real worth of the candidates. There is a slight fall in the mean of Mathematics and rise in the mean of Physics.

As is generally expected the S.D., in English is lower.

and in Mathematics highest. But the fluctuations of standard deviations which are far greater than what we expect from the theory of probable errors, require an explanation. There is very marked increase of S.D., in Mathematics, Physics and Chemistry and fall in English. This shows that there is a tendency for students to be crowded about the mean in English and to be dispersed more evenly about the whole range in the subjects. This might have been brought about by the nature of the test or by the mode of giving marks.

That variability is least in English and greatest in Mathematics is confirmed from the coefficient of variation of the four subjects. In fact variability in the four subjects can be arranged in ascending order both from the S. D., and C.V., as follows; English, Chemistry, Physics and Mathematics.

The greatest aid to sound interpretation of statistical Data can come from the graphic presentation of the facts in question. The graphical method produces an instructive picture of the scheme of observations, and makes a better appeal to the mind and reason than a whole mass of the material. The distributions can be represented graphically by drawing either the frequency polygons or histograms. If we have a sufficiently large Data, these figures approach as a limit, some smoothed curves having specific mathematical properties and capable of leading to generalised interpretations. If we refer to the diagrams we find that the frequency curves of Physics and Chemistry are symmetrical, and though the curves of English and Mathematics are a little skew they have a great tendency towards the symmetrical type. The particular curve which very commonly occurs in the distribution of abilities is 'The normal curve of error'. Many eminent writers on the subject proved on theoretical grounds that the curve of abilities must be of the normal type. H. E. Garrett in 'Statistics in Psychology and Education' writes: Measurements of natural phenomena as well as measurements of mental and social traits tend to be distributed symmetrically about the central tendency in proportions which are determined by the laws of chance; the reason is that they are probably very often due to the operation of laws of chance. A man's intelligence is determined very probably by a large number of factors which have approximately the same influence

on the final result.' Finally he says that the selection of the normal curve is after all sufficiently justified by the fact that it does generally fit the Data better. Jerman in 'Measurement of intelligence' points out the symmetry of the plotted results of testing intelligence of 905 school children. He says 'The distribution for the ages combined is seen to be remarkably symmetrical.' The symmetry for the separate ages was hardly less marked considering that only 80 to 100 children were tested at each age. H. Rugg in 'Statistical Methods Applied to Education' writes: 'Many measurements of human intelligence, various mental traits resemble with striking regularity a symmetrical curve'. 'Human traits are combinations and include many arrangements of a vast number of separate causes which may be assumed to be independent of each other. In deriving a theoretical curve of distribution for a set of many independent causes we must recall the mathematical results obtained by combining and arranging such groups of causes. Now we are dealing with compound events, i.e., those produced by the concurrence of a very large number of causes assumed to be independent of each other. For example, arithmetical ability in a particular individual, may be said to be a complex resultant of a very large number of causes; those due to the hereditary capacity, physical conditions of growth and conditions of home and school training (e.g., absence from or regularity in a school), outside activities etc. We cannot isolate the specific unit causes, so hopelessly are they tangled up; but we can measure the effect of the combination of this vast number of separate causes by the objective evidence; we measure the resultant human trait called, for convenience, "the mathematical ability". Now it is a safe assumption that these separate causes are independent of each other, at least they are not related in a definite way. Human events thus are assumed to be compounds analogous in their determination to compound chance events of an ideal nature.' Mecall, in 'How to Measure in Education', writes: 'experimental research has found that the measurements for a given fact fit the normal frequency curve when the fact measured is the joint action of (1) a large number of causes, (2) causes which are approximately equal, (3) causes which are naturally uncorrelated

or act independently of each other; i.e., the presence of one cause does not bring with it the other causes. It is because these conditions are usually present in education that most educational measurements approximate normal distribution'. A. S. Otis in 'Statistical Method in Educational Measurement' writes: 'If we think of the chance of a pupil knowing or not knowing the answer to a question in a text as something like the chance of coin falling heads or tails and hence the chance of a pupil making a certain score as something like the chance of there being a certain number of heads among 10 coins that have been flipped, we can see a reason for the distribution of a course of a homogeneous group of pupils resembling the distribution of heads among flipped coins. We know in fact that there are hundreds of causes or influences operating to determine the score of a child in even the simplest test. A child's score is effected by all the days of instruction he has had, by the factors making up his innate capacity to learn, by the interest in the subject as governed by the many ways in which it has or has not appealed to him as satisfying his needs, by the many factors making up the quality of his instruction, and finally to some extent at least by the elements making up his physical condition and mood at the time of his test. All these factors, elements, and influences are of a nature such that the presence of any one of them in the case of one of the pupils in the group and its absence in the case of another is largely a matter of chance. So that, after all, there appears to be a marked similarity between the nature of causes governing the distribution of scores of a group of pupils in a test and the causes governing the distribution of number of heads in a set of coins that have been repeatedly flipped. This reasoning coupled with the fact that there is so close a correspondence in shape between the histograms of distributions of scores of homogeneous groups of pupils and the theoretical histograms of distribution of number of heads among flipped coins leads us to say that such distributions of scores tend to follow the law of probability or the law of normal distribution.'

In short the theoretical reasoning for the adoption of normal curve to educational statistics can be put in the following words. The normal curve represents the relative frequency

of occurrence of various combinations of a very large number of *equal, common, similar and independent* factors, when the chance of occurrence or non-occurrence of each factor is the same. The specific performance of a student in a test depends upon the combinations of a very large number of causes, (e.g.) his instruction, hereditary influence, interest in the subject, physical condition and mood at the time of the examination etc. All these can be assumed to be of equal weight, and they are independent of each other or at least they are not related in any definite way. Hence the required conditions for a normal curve are satisfied. Moreover the theory is very well supported by practical verifications.

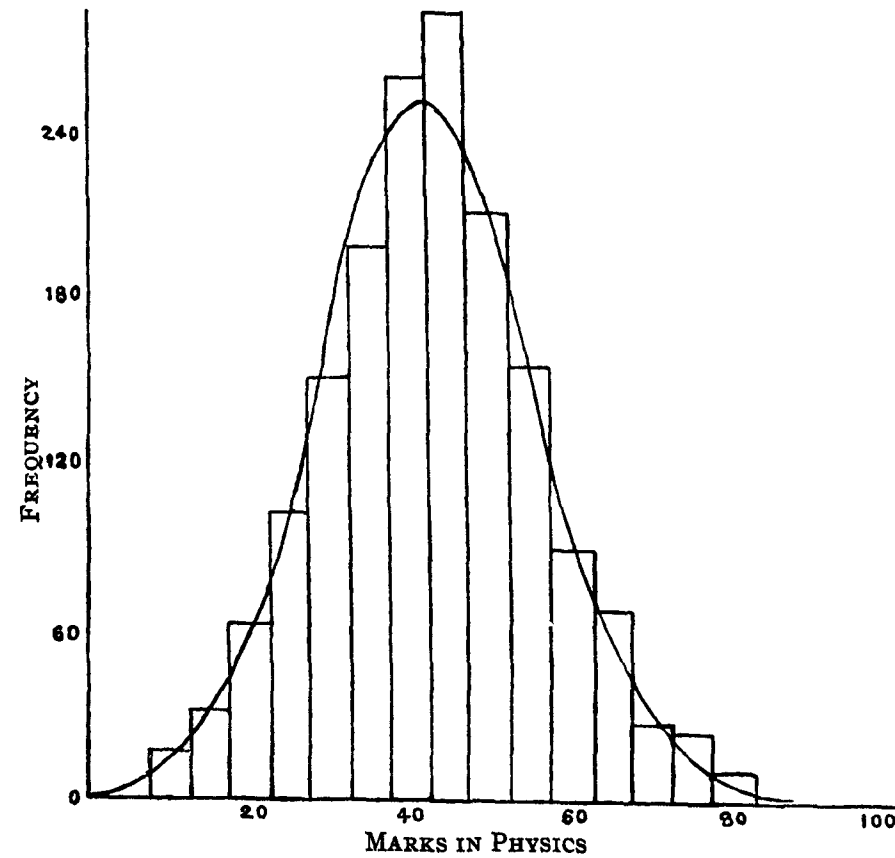
Although graphs are useful as pictorial arguments appealing to the reason through the eye, they give only a rough idea of the distributions. To get the theoretical curves which represent the several distributions Karl Pearson's famous method of moments is used. Normal curve is fitted to each of the distributions and the goodness of fit found out in each case. The results for the several distributions are given below. In each diagram the smooth curve is the expected Normal distribution and the histogram represents the observed frequency distribution.

FITTING A NORMAL CURVE TO PHYSICS:—

$$(\beta_1 = .00104; \beta_2 = 3.1417).$$

Marks	Frequency (expected)	Frequency (observed)	O-E	$\frac{(O-E)^2}{E}$
below 7.5	7.9	8	.1	.01
7.5—12.5	14.1	19	4.9	1.70
12.5—17.5	33.1	32	-1.1	0.04
17.5—22.5	61.9	63	1.1	0.02
22.5—27.5	108.9	103	-5.9	0.32
27.5—32.5	163.9	153	-10.9	0.72
32.5—37.5	215.4	200	-15.4	1.10
37.5—42.5	246.8	262	15.2	0.94
42.5—47.5	246.8	285	38.2	5.91
47.5—52.5	215.4	212	-3.4	0.05
52.5—57.5	163.9	155	-8.9	0.48
57.5—62.5	108.9	88	-20.9	4.01
62.5—67.5	61.9	66	4.1	0.27
67.5—72.5	33.1	25	-8.1	1.98
72.5—77.5	14.1	24	9.9	6.95
above 77.5	7.9	9	1.1	0.15
Total ...				24.65

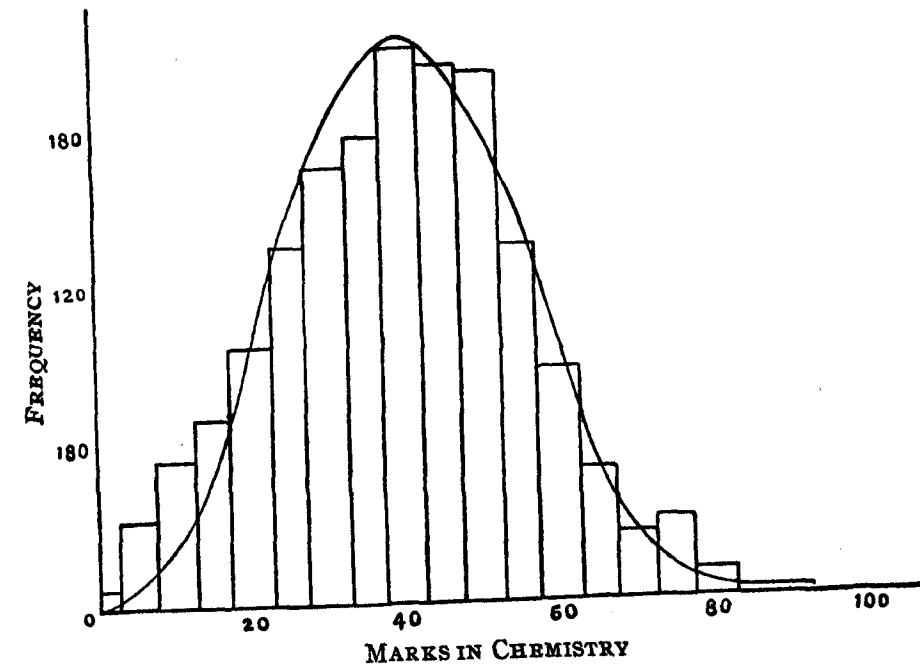
$$P = .0385$$



FITTING A NORMAL CURVE TO CHEMISTRY:—
 $(\beta_1 = 0.0006; \beta_2 = 2.8167).$

Marks	Frequency (expected)	Frequency (observed)	O-E	$\frac{(O-E)^2}{E}$
— 2.5	19.1	8	0.7	0.01
2.5—7.5	22.2	34	15.4	5.84
7.5—12.5	40.6	56	3.3	0.16
12.5—17.5	67.7	71	4.5	0.20
17.5—22.5	102.5	98	5.3	0.20
22.5—27.5	141.3	136	11.1	0.70
27.5—32.5	177.1	166	28.4	3.91
32.5—37.5	206.4	178	5	0.12
37.5—42.5	205	210	6.7	0.23
42.5—47.5	197.3	204	32.8	6.36
47.5—52.5	169.2	202	3.1	0.07
52.5—57.5	131.9	135	6.5	0.45
57.5—62.5	93.5	87	11.3	2.16
62.5—67.5	60.3	49	10.4	3.06
67.5—72.5	35.4	25	10.1	5.40
72.5—77.5	18.9	29		
77.5—82.5	9.1	10		
82.5—87.5	4.0	2	0.4	0.01
87.5—92.5	2.5	4		
Total ...				28.88

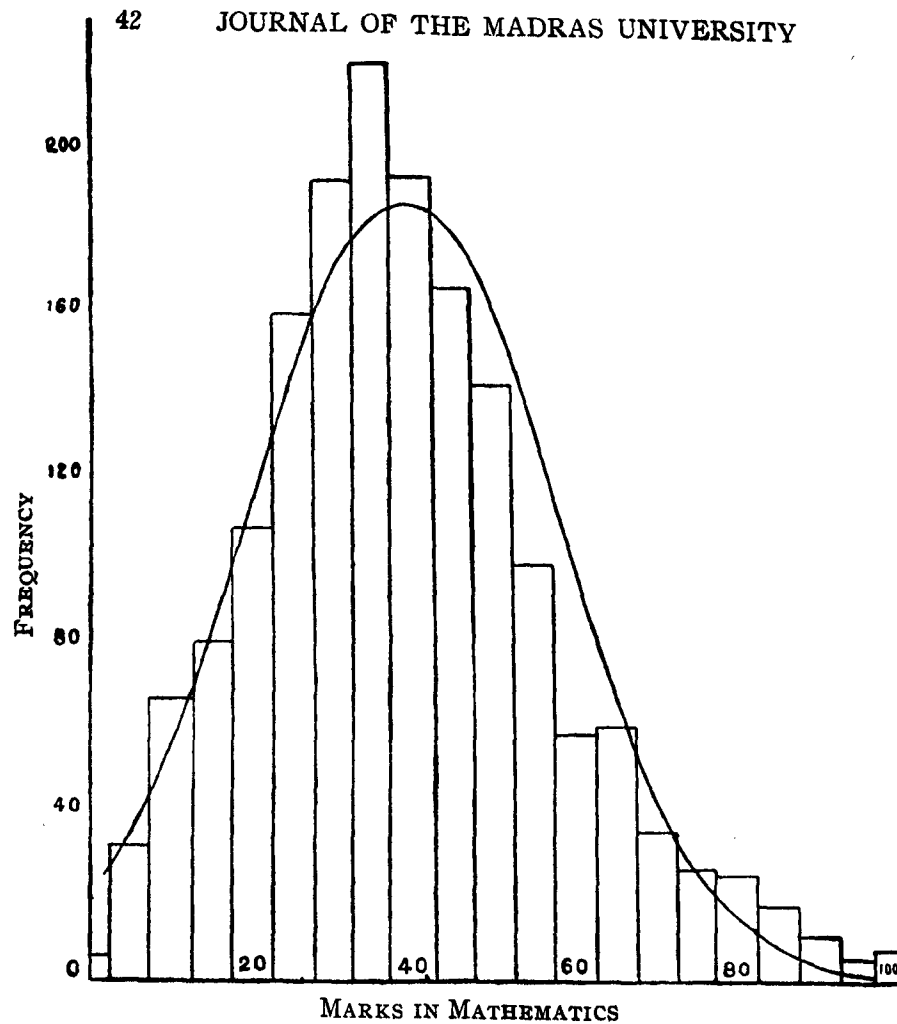
$P = 0.0108$



FITTING A NORMAL CURVE TO MATHEMATICS:—
 $(\beta_1 = 0.352; \beta_2 = 3.4090).$

Marks	Frequency (expected)	Frequency (observed)	O-E	$\frac{(O-E)^2}{E}$
0—2.5	37.8	5	-32.8	28.46
2.5—7.5	32.5	32	-0.5	0.01
7.5—12.5	52.2	67	14.8	4.20
12.5—17.5	77.8	80	2.2	0.62
17.5—22.5	107.5	107	-0.5	
22.5—27.5	138	159	21	3.20
27.5—32.5	164.1	192	27.9	4.74
32.5—37.5	181.6	220	38.4	8.12
37.5—42.5	185.8	193	7.2	0.28
42.5—47.5	176.6	165	-11.6	0.76
47.5—52.5	155.8	141	-14.8	1.41
52.5—57.5	127.5	98	-29.5	6.83
57.5—62.5	96.9	58	-38.9	15.62
62.5—67.5	68.3	60	-8.3	1.01
67.5—72.5	44.6	35	-9.6	2.07
72.5—77.5	27.1	26	-1.1	0.45
77.5—82.5	15.2	25	9.8	6.32
82.5—87.5	8.0	17		
87.5—92.5	3.9	11		
92.5—97.5	1.7	6		
97.5 and above.	1.1	7		
Total ...				131.15

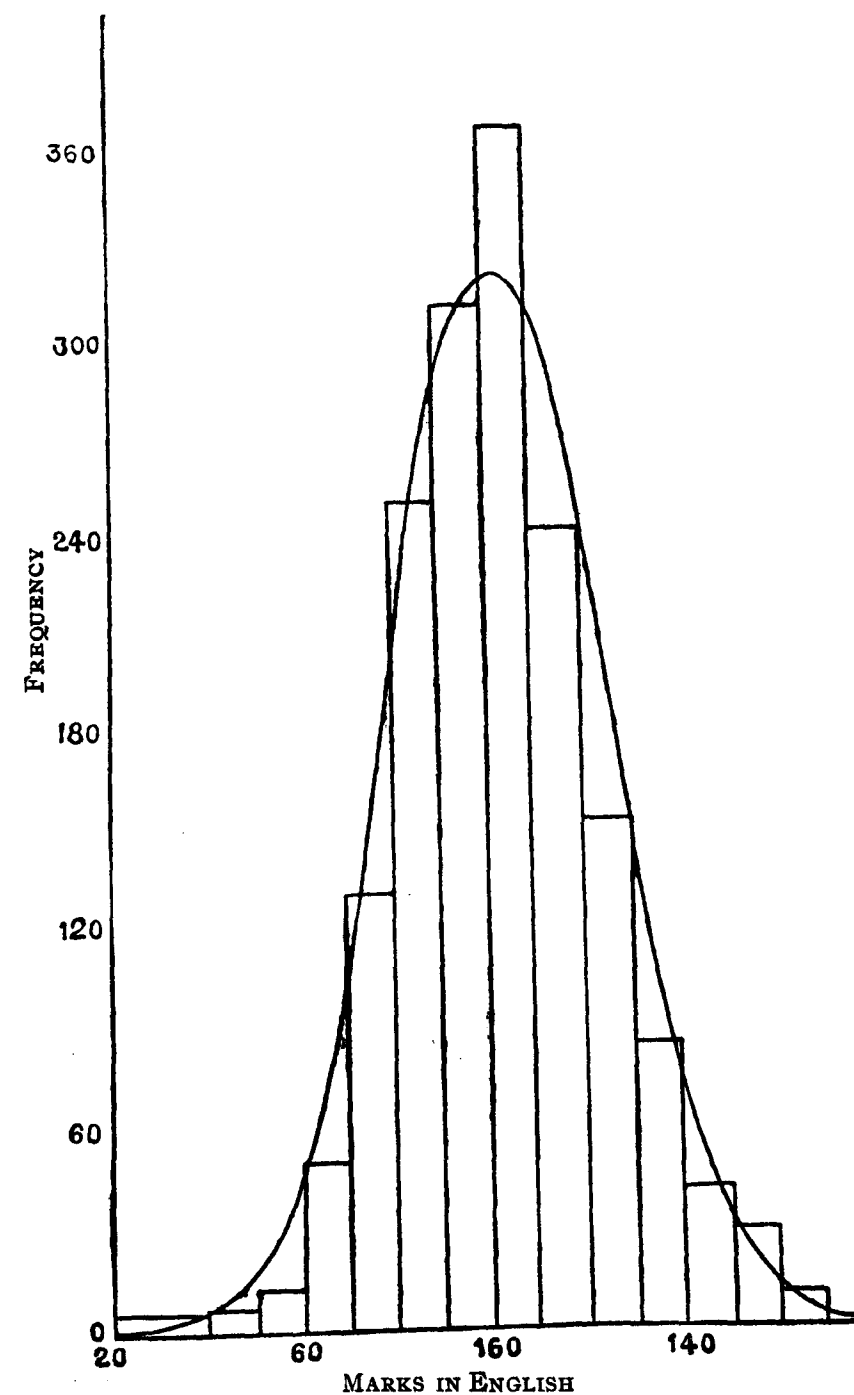
$P = 0.000000....$



FITTING A NORMAL CURVE TO ENGLISH :—
 $(\beta_1 = .0601 ; \beta_2 = 3.6528).$

Marks	Frequency (expected)	Frequency (observed)	O-E	$\frac{(O-E)^2}{E}$
20-30	0.5	2		
30-40	2.0	4	2.5	0.60
40-50	8	7		
50-60	25.6	13	-12.6	6.20
60-70	66.7	53	-13.7	2.81
70-80	134.6	130	-4.6	0.15
80-90	224.4	250	25.6	2.92
90-100	298	312	14	0.66
100-110	317.5	369	51.5	8.35
110-120	271.4	242	-29.4	3.19
120-130	186	153	-33	5.85
130-140	102.3	84	-18.3	3.27
140-150	45.2	42	-3.2	0.23
150-160	15.8	29	13.2	11.03
above 160	6	14	8	10.67
Total ...				55.93

$P = .000000...$



From the values of β_1 and β_2 we see that distributions of Physics and Chemistry fall in the 'G' region of the diagram

in Karl Pearson's tables for statisticians and Biometricians vol. 1; but from the value of P we see that the fit is not as good as is to be expected. This is due to the fact that there are serious divergences in the observed frequencies from the normal frequencies about the mean values. This can be explained by the fact that examiners have a tendency to be liberal at the pass mark and a little bit stringent at the distinction marks. If we refer to the deviations of the distributions of English, Physics, and Chemistry from the normal distributions, the most striking fact is that about the mean the observed frequencies are greater than the expected and on either side of it they are less. This may be due to the fact that the examiners have a tendency of being lenient towards average students and stiff towards those who are far above or below the average. Of course we cannot expect the tails to conform to the normal law. The one glaring fact about the deviation of Mathematics distribution from normality is that observed frequencies are greater than the expected for almost all the classes below the mean and the reverse is the case for all classes above the mean. In this respect it differs from the other three distributions. It shows that the Mathematics paper was difficult. This explains the high positive skewness of the curve of Mathematics.

It is not always that we get normal types for the frequency distributions in educational statistics. H. E. Garette in 'Statistics in Psychology and Education' writes: 'There are several reasons why distributions are skewed'. The sample may be small, or the distribution may belong to a special class e.g., dull and feeble minded. Again technical faults in the construction of the test, errors in scoring and the like may often produce skewness in a distribution of test scores. Skewness also results oftentimes, from a real lack or normality in the Data. This condition arises when several of the factors determining a given result are dominant or prepotent and hence are present more often than chance would allow e.g., in a test if there are easy questions, there will be a piling up of the scores towards the high score end of the distribution and hence negative skewness. On the other hand if the test is difficult there will be a piling up of the scores towards the low score of the scale and a positive

skewness. Too easy a test excludes from operation some of the factors which make for an extension of the curve at the upper end. Too hard a test excludes from operation factors which make for the extension of the curve at the lower end. In one case we have a number of perfect scores and little discrimination; in the second case a number of Zero scores and equally poor discrimination.

If we refer to our distributions in the light of the above remarks, we at once find that the skewness cannot be attributed to the two facts that the sample may be small or that it may belong to special class. The total number of students is 1704. So the sample is of adequate size. Students are taken from all the colleges existing in the different parts of the Presidency. There is no reason to believe that in this particular year either exceptionally bright or exceptionally dull students appeared from all the colleges. Hence the only possible explanation is the method of setting the papers and scoring. The abnormal excess of S.D., over the average of previous years confirms the above view.

CORRELATIONS

It is of great pedagogic interest to see whether there is any correlation *inter alia* between the various subjects; i.e., whether efficiency of a student in any subject indicates efficiency or the opposite in some other subject. We can also study the variations of correlation between various subjects. Six tables of double entry are formed and Karl Pearson's product—moment formula—is used to find the various coefficients of correlation. The following table gives the coefficients:

Subject	English Mathem	Mathe Phy	English Physics	English Chemis	Mathe Che	Physics Chemis
Co-efficient	0.4686	0.7634	0.5055	0.4875	0.6857	0.7044

Broadly speaking the correlation between English and subjects is less than correlation between subjects themselves. Again the correlation between English and science subjects

is greater than the correlation between English and Mathematics. The correlation coefficients of the various subjects with English may be taken to give a quantitative measure of the extent to which the power of expression in good English is necessary in the various subjects. Clear thinking and precise expression which are so very essential in science subjects explains the high correlation between English and science subjects. But it is a matter of common experience for those in charge of the students that the average standard of English or Mathematics students is less than that of any others. As between the subjects we naturally expect a higher correlation between Physics and Chemistry than between one of the science subjects and Mathematics. But we actually find that the correlation between Mathematics and Physics is highest. This discrepancy can be easily explained. If we refer to the Physics question papers for some years, we find that every year a number of questions requiring the knowledge and use of Mathematics are given. Hence a student efficient in Mathematics can easily score good number of marks in Physics considering the fact that a student who answers a mathematical question correctly gets full credit for the question whereas it is not the case for questions in scientific theory. So the correlation between Mathematics and Physics is highest, next comes Physics and Chemistry and then Mathematics and Chemistry.

As they stand the raw correlation coefficients are high thereby indicating a high correlation between the various subjects. But we must not run to hasty conclusions without further analysis. Thus the high correlation between Mathematics and Chemistry may be due to the fact that Mathematics is highly correlated with Physics and the latter with Chemistry. Similarly the correlation between English and Mathematics may be due to the fact that Mathematics is highly correlated with science subjects and the latter with English. Hence there arises the need for the calculation of the partial correlation coefficients. The partial correlation between any two of a number of variables is the correlation between these two variables in the universe of all the others; i.e., the correlation between the two variables when the influence of all the others is the same for both. In the case

of the variables 1, 2, 3, the partial correlation between 1 and 2 is measured by

$$r_{12.3} = \frac{r_{12} - r_{13} \times r_{23}}{\sqrt{1 - r_{13}^2} \sqrt{1 - r_{23}^2}}$$

In the case of 4 variables partial correlation between 1 and 2 is measured by

$$r_{12.34} = \frac{r_{12.3} - r_{14.3} \times r_{24.3}}{\sqrt{1 - r_{14.3}^2} \sqrt{1 - r_{24.3}^2}}$$

The following table gives the partial correlation coefficients between the various subjects.

Subject	$r_{12.34}$	$r_{13.24}$	$r_{23.14}$	$r_{14.32}$	$r_{24.31}$	$r_{34.12}$
Co-efficient	0.0855	0.1789	0.5168	0.1782	0.3011	0.3406

1. English, 2. Mathematics, 3. Physics, 4. Chemistry.

Here we see that all the partial correlation coefficients are very much less than the raw coefficients. The correlation (partial) between English and Mathematics is negligible. It is noticeable between English and science subjects and marked between the subjects themselves. The same story is repeated here again. Correlation is highest between Mathematics and Physics and lowest between English and Mathematics. In fact correlations can be ranked in the following descending order. *

1. Mathematics-Physics, 2. Physics-Chemistry, 3. Mathematics-Chemistry, 4. English-Physics, 5. English-Chemistry, 6. English-Mathematics.

CONCLUSIONS

The average in English is less than the minimum (passing) mark, and that in the subjects is greater than the minimum (passing) mark. From this it follows that mediocrity is the order of the day in English; or that the standard of the students is low in English and higher in the subjects. The low value of S. D., in English and its high value in the

subjects, shows that there is much crowding of the students about the mean value in English and that they are more evenly distributed in the subjects. This might have been brought about by the method of setting papers or scoring. The comparison of the actual distribution of abilities with the normal distributions shows the glaring fact, that the deviation from normality is due more to the method of setting papers and giving marks than to the real lack of normality in the population. The high correlation between Mathematics and Physics is due to the importance given to the mathematical questions in physics papers. The high correlation between the subjects themselves is due to the common scientific interest required from the student for their study. The reason for the high correlation between English and science subjects is due to the fact that clear thinking and precise expression which are so essential for scientific subjects help good expression in English.

I am indebted to Mr. N. K. Adyantayya, Lecturer in Statistics, University of Madras, for suggesting the problem and for his kind help.

	- 2.5 -
	- 2.5
	7.5
	12.5
	- 17.5
	- 22.5
	- 27.5
	- 32.5
	- 37.5
	- 42.5
	- 47.5
	- 52.5
	- 57.5
	- 62.5
	- 67.5
	- 72.5
	- 77.5
	- 82.5
	- 87.5
	- 92.5
	- 97.5
	above - 97.5
Total	5

Physics

THE HISTORY OF AUCITYA IN SANSKRIT POETICS

BY

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(Continued from p. 134 of Vol. vi. No. 1.)

Ānandavardhana then goes to other kinds of Aucitya or rather points out how, not only the working out of a plot, not only the expression of an idea in figure, but even the words and the synonyms, the case, inflection, voice etc., have to be suggestive of Rasa. That is, a poet should explore all possibilities of suggesting the vast realm of emotion—as many possibilities as his poor medium called language can afford. If a jingle can aid him, he seizes it; if a use in the passive voice is more effective than one in the active, he prefers it; if Ātmanepada suggests more, that has to be exploited. Thus every bit of the medium called language from sound, word, position of a word in a sentence etc., has to be thoroughly exploited and capital use made out of it by the poet. All these ideas revolve round Aucitya. If Sup, Tiṅg, Kāraka etc., are suggestive, they are 'ucita', appropriate.

सुसिद्धवचनसम्बन्धैः तथा कारकशक्तिभिः ।

कृत्तद्वितसमासैश्च शोभोऽलक्ष्यक्रमः कचिद् ॥

From this part of Ānanda's work is derived Kṣemendra's Aucitya of Kriyā, Kāraka, Liṅga, Vacana etc. Similarly there is the Aucitya of Pada, of a word, of a name or synonym. This is the Padadhvani of Ānanda, found in the beginning of Ud. III. The 'suggestive word' or the 'proper word' of Ānanda and Kṣemendra is like the 'inevitable word' or the 'strong word' mentioned by some English writers.

Of Aucitya of Vṛtti and Rīti also Ānanda speaks in the third Uddyota which is devoted to the exploration of all

possible suggestive means in the medium of language, the Vyañjaka.

“यदि वा वृत्तीनां भरतप्रसिद्धानां कैशिक्यादीनां काव्यालंकारान्तर-
प्रसिद्धानां उपनागरिकाद्यानां वा यदनौचित्यं अविषये निबन्धनं तदपि रस-
भङ्गहेतुः ।” Dhva. Ā. III. p. 163.

Aucitya regarding Rasa itself, how the main Rasa has to be delineated, how the Aṅga-rasas are to be made to develop the main, what Rasas are mutually incompatible, how a Rasa like Sṛṅgāra must not be so over-developed as to cloy or Karuṇa which, when again and again developed, makes the heart ‘fade’ (Mlāna)—these are dealt with by Ānandavardhana in the III Ud. In this respect also, the pitfalls which may be called Rasadoṣas, are already available to some extent in Rudraṭa. Yaśovarman himself mentions ‘रसस्य स्वावसरे पुष्टिः’ ‘nourishing of the Rasa at the proper time’. Rudraṭa gives a Doṣa called Virasa, which is the introduction or flowing of an irrelevant or contradictory sentiment into the current of the main Rasa. In this Virasa is included the Doṣa of Viruddha rasasamāveśa of Ānanda. (Vide Dhva. Ā. III. 20. pp. 164-170). Rudraṭa illustrates this Virasa by a case of a very inappropriate mingling of Karuṇa and Sṛṅgāra. Another kind of Virasa according to Rudraṭa is the fault of over-development of even the proper Rasa.

अन्यस्य यः प्रसङ्गे रसस्य निपतेत् रसः कमापेतः ।

विरसोऽसौ स च शक्यः सम्यक् ज्ञातुं प्रबन्धेभ्यः ॥

यत्सावसरोऽपि रसो निरन्तरं नीयते प्रबन्धेषु ।

अतिमहती वृद्धिमसौ तथैव वैरस्यमायाति ॥

K. A. XI. 12-14.

The latter is Ānanda's Atidīpti or पुनः पुर्दीनितः. These flaws of Rasa resulting from lack of Rasaucitya are mentioned in the Sṛṅgāratilaka also:

त्रिसं प्रत्यनोक्तं च दुस्सन्धानरसं तथा ।

नीरसं पात्रदुष्टं च काव्यं सद्भिर्न शस्यते ॥ III. 20-22.

Virasa is explained by Rudrabhaṭṭa as Viruddha rasa, inappropriate or incompatible emotion and Nirasa as the intermittent or excessive portrayal of one Rasa—निरन्तरं एकस्य वृद्धिः Ānanda puts these ideas of Rasaucitya relating to the handling of the Rasas themselves thus:

प्रबन्धे मुक्तके वापि रसादीन् बन्धुमिच्छता ।

यत्नः कार्यस्सुमतिना परिहारे विरोधिनाम् ॥

विरोधिरससम्बन्धिविभावादिपरिग्रहः ।

विस्तरेणान्वितस्यापि वस्तुनोऽन्यस्य वर्णनम् ॥

अकाण्ड एव विच्छित्तिः अकाण्डे च प्रकाशनं ।

परिपोषं गतस्यापि पीनः पुन्येन दोषनम् ॥

रसस्य स्यात् विरोधाय वृत्त्यनौचित्यमेव च । III. 17-19.

The last mentioned Vṛttyanaucitya resulting in Rasānaucitya is an error in taste in respect of thought in the development of character and in the portrayal of actions and incidents which is called by Rudrabhaṭṭa as Pātraduṣṭa. This is also taken by Ānanda as the improper atmosphere—कैशिक्यादिवृत्त्यनौचित्यम्. A mellow temper cannot suit a boisterous scene of dust-raising conflict of Raudra; a bloody and tumultuous chaos goes ill with the sweetness and quite pleasantness of love or the tenderness and delicacy of Vipralambha and Karuṇa. Of this Vṛttyanaucitya Ānanda again says:

रसाद्यनुगुणत्वेन व्यवहारोऽर्थशब्दयोः ।

ओचित्यवान् यस्ता एव वृत्तयो द्विविधाः स्मृताः ॥ III. 33.

Thus Ānanda has shown how, in his own phraseology, Aucitya is the greatest secret of Rasa—परा उपनिषत्; how in the fashioning of every part of the expression which is the body or the symbolic vehicle of Rasa or ‘the empirical technique’ as Abercrombie calls it, the only ruling principle of the poet is an all-round, all-comprehensive Aucitya, with reference to which alone, the choice of words, of cases, of metre, the collocation, style, Guṇas, Alaṅkāras—in fact every means of suggestion from the trifling jingle to the greatest, is intelligible.

This Aucitya of word and thought, Vācya vācaka, with reference to Rasa is the greatest rule in poetry. To attend to it and write according to it is the chief duty of the poet.

वाच्यानां वाचकानां च यदोचित्येन योजनम् ।

रसादिविषयेनेतत् कर्म मुख्यं महाकवेः ॥ III. 32.

Between this verse on one side and with the verse—

अनोचित्यादृते नान्यत् रसमङ्गस्य कारणम् ।

प्रसिद्धोचित्यबन्धस्तु रसस्योपनिषत्परा ॥

occurring in the same section in a similar context, on the other side, the whole theory of Aucitya is completely stated.

If Time had spared to us the whole of Rājasekhara's Kāvya mimāṃsā, we would have had a larger knowledge of Rājasekhara's ideas on Aucitya. Even in the first chapter of Kavirahasya that has come to us, Rājasekhara mentions Aucitya in the fifth section called Kāvya-pākakalpa. He first takes up poetic culture and learning and opines that all poetic culture is only the discrimination of the proper and the improper—Ucita and Anucita.

“उचितानुचितविवेको व्युत्पत्तिः” इति यायावरीयः ।”

p. 16, K. M. Gaek edn.

There is also an oft-quoted Sanskrit verse which gives this same idea regarding the larger art of man's behaviour in the world.

श्रुत्वापि नाम बधिरो दृष्ट्वाप्यन्धो जडो विदित्वापि ।

यो देशकालकार्यव्यपेक्षया पण्डितः स पुमान् ॥

Rājasekhara's wife also lays great emphasis on Aucitya; for she says that Pāka, ripeness or maturity of poetic power, is the securing of expression,—ideas, words, concepts, fancies, etc.,—which is proper and appropriate to Rasa.

“तस्मात् रसोचितशब्दार्थसूक्तिनिबन्धनः पाकः ।”

p. 20. K. M.

The idea of Aucitya as adaptation, the idea that in poetry there is no fixed rule determining Guṇa and Doṣa and that things are good or bad only on the ground of appropriateness or inappropriateness and that, according to circumstance, even a Doṣa may become a Guṇa—is also very well realised by Rājasekhara who says at the end of Kavirahasya—

न च व्युत्क्रमदोषोऽस्ति कवेरर्थपथस्पृशः ।

तथा कथा कापि भवेत् व्युत्क्रमो भूषणं यथा ॥

अनुसन्धानशून्यस्य भूषणं दूषणायते ।

सावधानस्य च कवेः दूषणं भूषणायते ॥

p. 112. K. M.

The careful poet who has his eye on Aucitya employs even the so-called flaws and makes them excellences whereas the careless writer abuses even the Guṇas and spoils his expression by the absence of the sense of Aucitya.

The place of Abhinavagupta in the history of Aucitya is important. As the author of the Locana he lucidly expounds and elaborates the ideas of Ānanda, who, as we have seen above, is the greatest name in the history of Aucitya. On the other side, Abhinava is the teacher in Poetics¹ to Kṣemendra who is the systematiser of Aucitya. It is clear from Ānanda's treatment of Aucitya in Ud. III. that Aucitya naturally emerges out of the doctrines of Rasa and Dhvani and that the three cannot be separated. Abhinava takes his stand on this triple aspect of the 'life' of poetry—Rasa first, then Dhvani and then Aucitya. He says:

“उचितशब्देन रसविषयमोचित्यं भवतीति दर्शयन् रसध्वनेः जीवितत्वं

सूचयति ।” p. 13.

Aucitya presupposes something to which a thing is 'ucita' and that to which everything else is finally to be estimated as 'ucita' is Rasa which is the 'soul' of poetry.

On the subject of Alaṅkāraucitya about which Ānanda speaks so much in Ud. II, Abhinava says that the greatest Aucitya of Alaṅkāra is that the term has any meaning at all only when there is the 'Alaṅkārya', the 'Soul'. Otherwise, it

¹ Vide *Byhathakāhāmanjari*, chap. xix. 36, 37 and *Bhāratamanjari*, last chap. 7, 8.

is like decorating the dead body. Decoration of a living body also is Anaucitya in certain cases; ornaments on the body of a recluse who has renounced life appear ridiculous—*anucita*. Thus figures of speech without *Rasa* and figures of speech in places which do not need them are bad.

“तथा ह्यचेतनं शवशरीरं कुण्डलाद्युपेतमपि न भाति । अलङ्कार्यस्या-
भावात् । यतिशरीरं कटकादियुक्तं हास्यावहं भवति, अलङ्कार्यस्यानैचिल्यात् ।”

p. 75. Locana.

He thus explains *Rasaucitya*, i.e., the *Aucitya* of *Bhāvas*, *Vibhāvas*, etc., on p. 147.

“विभावाद्यौचित्येन हि विना का रसवत्ता कवेरिति । तस्माद्विभावा-
द्यौचित्यमेव रसवत्ताप्रयोजकं नान्यदिति भावः ।”

The idea of *Aucitya*, like that of *Vakrokti*, was current as a very frequently used term in the critical circles of Kashmirian *Ālaṅkārikas* for a long time. *Vakrokti* rose out of *Ālaṅkāra*, *Aucitya* in the wake of *Rasa* and *Dhvani*. *Aucitya* must have become more current after *Ānandavardhana* who has spoken of it so much and who has said that its presence and absence makes and unmakes *Rasa* and poetry. It was so much in use that, by the time of *Abhinava*, it must have been heading towards systematisation, even as the concept of *Vakrokti*, which, as old as *Bhāmaha*, was given so much life in the critical circles that it enlarged itself and through *Kuntaka* built itself into a system. *Aucitya* also had assumed proportions and was in search of a writer for systematisation. The critics were using *Aucitya* as the essence of poetry very often, more often than *Rasa* even. Says *Abhinava* in two places criticising these critics: ‘One cannot be indiscreetly using the word *Aucitya* by itself; *Aucitya* is ununderstandable without something else to which things are “*ucita*”—appropriate. *Aucitya* is a relation and that to which things are or should be in that relation must first be grasped. That is *Rasa*, nothing less and nothing else.’ *Abhinava* first proves that there is no meaning in *Aucitya* without *Rasa*.

“उचितशब्देन रसविषयमौचित्यं भवतीति दर्शयन् रसध्वनेः जीवित्वं
सूचयति । तदभावे हि किमपेक्षयेदमौचित्यं नाम सर्वत्र उद्घोष्यत इति भावः ।”

p. 13.

He again proves that *Aucitya* presupposes *Rasa* and *Dhvani* also.

“ओचित्यवतो (अतिशयोक्तिः) जीवितमिति चेत्, ओचित्यनिवन्धनं
रसभावादि मुक्ता नान्यत् किञ्चिदस्तीति तदेवान्तर्भासि मुख्यं जीवितमित्यभ्युप-
गन्तव्यं, न तु सा । एतेन यदाहुः केचित्, ‘ओचित्यघटितसुन्दरशब्दार्थमये
काव्ये किमन्येन ध्वनिना आत्मभूतेन कल्पितेन’ इति स्ववचनमेव ध्वनिसद्भावा-
भ्युपगमसाक्षिभूतं मन्यमानाः प्रत्युक्ताः ।” p. 208. Locana.

These two passages clearly show that critics there were who were speaking of *Aucitya* as the only thing enough to explain poetry, which according to them, was beautiful words and ideas set in perfect harmony—*Aucitya*. These critics had omitted the word *Rasa* from their vocabulary and dispensed with *Dhvani*. *Abhinava* criticises these poor critics who do not understand the implication of what they say. *Aucitya* implies, presupposes and means ‘suggestion of *Rasa*’—*रसध्वनि*, i.e., the doctrines of *Rasa* and *Dhvani*.

Abhinava thus takes his stand on the tripod of *Rasa*, *Dhvani* and *Aucitya*. *Rasa* is the ‘*Ātman*’ of poetry and the fact is that it is so only through the process of *Dhvani*. Again *Rasa* is or can be so only through *Aucitya*. Thus these three are very intimately and inseparably associated together. *Aucitya* is as indissolubly associated with *Dhvani* as with *Rasa*. If an *Ālaṅkāra* is said to suit, to be ‘*ucita*’ to, a *Bhāva*; it means that the *Ālaṅkāra* effectively suggests that *Bhāva*; if there is said to be *Guṇaucitya*, it means the *Rasa* there is suggested by the *Guṇa*. A word, a gender, a mere exclamation—these are said to be ‘*ucita*’ and how? The test of *Aucitya*, its proof, is the suggestion of *Rasa*.

Another point which *Abhinava* pointed out is that the breach of *Aucitya* results in ‘*Ābhāsātā*’. A *Kāvya* which does not have *Aucitya* is *Kāvyaābhāsa*, not poetry but semblance of poetry. Improper *Ālaṅkāra* is *Ālaṅkārabhāsa*. If there is *Aucitya* we have *Rasa* and sentiment; if there is *Anaucitya* due to absence of *Prakṛtyaucitya* etc., we have *Rasābhāsa* and sentimentality.

“ओचित्येन प्रवृत्तौ चित्तवृत्तेः आस्वाद्यत्वे स्थायिन्या रसः व्यभि-
चारिण्या भावः । अनौचित्येन तदाभासः, रावणस्य सीतायामिव रतेः ।”

Neither in his smaller *Sarasvatikanṭhābharaṇa* nor in his bigger *Śṛṅgāraprakāśa* has Bhoja any special subject under a separate head called Aucitya. But the concept of Aucitya is not altogether absent in his two works. It is found in more than one place as a basic idea underlying many principles. Long before the concept of Aucitya dawned upon the literary circle, it was accepted in grammar as one of the conditions that determine the meaning of a word in a context, when the word has more than one meaning. The *Vākyapadiya* of Bhartṛhari says:

वाक्यात् प्रकरणात् अर्थात् ओचित्यात् देशकालतः ।

शब्दार्थाः प्रविभज्यन्ते न रूपादेव केवलात् ॥ II. 316.

Other writers call these 'Śabdārthaprabhājakas', Aucitya etc., as 'Anavacchinna śabdārtha viśeṣa smṛti hetus'. This sense-determinant of Aucitya, Bhoja mentions twice in his *Śṛ. Pra.*, first while explaining various kinds of *Vivakṣā* or intention in chapter seven and then in a similar context in chapter twenty-five.

In chapter xi, Bhoja calls his magnum opus, the *Śṛ. Pra.* by the name *Sāhitya prakāśa* and says that, among other things, Aucitya is inculcated therein (p. 430. vol. II. Mad. MS).

“एतस्मिन् शृङ्गारप्रकाशे सुप्रकाशमेव अशेषशास्त्रार्थसंपदुपनिषदां अखिलकलाकाव्य—ओचित्य—कल्पनारहस्यानां च सन्निवेशो दृश्यते ।”

Bhoja realises that Aucitya is a vast and elastic principle and that it pertains to every part of the art of poetic expression. We first sight Aucitya in Bhoja in his section on Doṣas where he speaks of a Pada doṣa called Apada, which means that a poet must use the vocabulary suited to the character who is speaking. A vulgar and a rustic character does not employ the same words as a refined city-bred man. The appropriate vocabulary is one of the chief conditions that call up the correct atmosphere. Inappropriate vocabulary, which is a breach of Aucitya, is the Doṣa called Apada. See S. K. Ā. I. 23. pp. 19-20. Bhoja's *Vākyārthadoṣa* called *Virasa*, which is borrowed by him from *Rudraṭa*, emphasises a principle of *Rasa-aucitya*. (See S. K. Ā. I. 50 p. 35.) Ratneśvara,

commentator on the S. K. Ā., quotes here Ānanda's verse on Aucitya and Anaucitya— *अनौचित्यादृते नान्यत्* etc., and adds that the three following *Upamā doṣas* also are various instances of Anaucitya. Thirdly, the Doṣa called *Viruddha* (S. K. Ā. I. 54-57), *Loka virodha*, *Kāla virodha* etc., is also based on Aucitya. These are only more definite and particularised names for varieties of Anaucitya of *Vastu* or *Artha*. In the sub-class of *Anumāna viruddha*, Bhoja has a variety called *Aucitya viruddha* (see p. 40. S. K. Ā) and illustrates it by a case of an incorrect and inappropriate description of a low ordinary man, a *Pāmara*, as wearing refined silk-dress. Fourthly, a similar instance of Anaucitya of *Artha-kalpanā* is mentioned by Bhoja in connection with his *Śabdaguṇa Bhāvika*. (S. K. Ā., p. 58.) Here is an instance of the larger Aucitya of Adaptation, which makes *Guṇas* of flaws. Besides this, there is a whole section of *Vaiśeṣika guṇas* at the end of chapter I where it is shown that as a result of circumstance, special context and Aucitya, all the Doṣas may cease to be so and may even become *Guṇas* (S. K. Ā. pp. 74-120. see esp. p. 118).¹

“अत्र स्त्रीत्वात् ओचित्यविरोधेऽपि तत्समयोचितत्वात् गुणत्वम् ।”

S. K. Ā. p. 118.

Aucitya figures to some extent in Bhoja's *Alaṁkāra*-section also. Bhoja opens his list of *Śabdālaṁkāras* with the elaboration of the idea of the choice of the appropriate language, *Bhāṣaucitya*, which, he says, is an ornament or *Alaṁkāra* called *Jāti*. Certain subjects are well expressed in Sanskrit; certain in *Prākṛt* or *Apabhraṁsa*. There is also the appropriateness of country or province (*Deśa*) and rank and culture of character (*Pātra*, *uttama*, male, female etc.) which decides the language. Bhoja and Ratneśvara point out all these Aucityas which are seen already in the eighteenth chapter of Bharata's *N.S.* called *Bhāṣāvidhāna*. Bhoja himself uses the word Aucitya here and Ratneśvara clearly explains the Aucitya involved in this *Jāti Śabdālaṁkāra*.² In chapter xi, Bhoja

¹ See also pp. 118-119 and 126 of Vol. VI. No. 1 of this *Journal*, the first part of this article.

² I have spoken of these at greater length in the chapter on Bhoja and Aucitya in my University Research Thesis on Bhoja's *Śṛṅgāra prakāśa*.

gives a Prabandha-ubhaya-guṇa, a comprehensive excellence of the Śabda and Artha of the whole work, called "language according to the character", पात्रानुरूपभाषत्वम्. What is this Ānurūpya except Aucitya? This Prabandha-bhāṣaucitya is only the extension of the Vākyaālaṅkāra called Jati (p. 432. vol. ii. Śr Pra. Mad. Ms). The second Śabdālaṅkāra of Bhoja is also a principle of Aucitya. It is called Gati; it is the choice of the proper poetic form, verse (padya), prose (gadya), or mixed style (campū) and the choice of the proper metres suggestive of Rasa in the padya-class. This last is only another name for Vṛttaucitya. In explaining this Gati, Bhoja himself bases his Alaṅkāra on Aucitya of Artha which he mentions twice here. (see S. K. Ā. II. 18 and 21.)

पद्यं गद्यं च मिश्रं च काव्यं यत् सा गतिः स्मृता ।

अर्थौचित्यादिभिः सापि वागलङ्कार इभ्यते ॥ II. 18.

In chapter xi again Bhoja speaks of this, the 'proper metre', as the Prabandha-ubhaya-guṇa called 'metre according to idea'—अर्थानुरूपचन्द्रस्वम्.

“अर्थानुरूपचन्द्रस्वं इत्यनेन शृंगारे द्रुतविलम्बितादयः, वीरे वसन्त-
तिलकादयः, करुणे वैतालीयादयः, रौद्रे स्रग्धरादयः, सर्वत्र शार्दूलविक्री-
डितादयः निबन्धनोपा इत्युपदिशति ।”

p. 432. vol. Śr. Pra. Mad. Ms.

All these Aucityas, Bhoja does not fail to relate to Rasa; for he treats of these principles of Aucitya as Doṣa-hāna, Guṇa and Alaṅkāra and all these three are, according to his statement, the means to secure the eternal presence of Rasa, Rasa-aviyoga.

Lastly Bhoja speaks of Anaucitya in the very story as available in the original source. He says that the poet must leave off those Doṣas or Anaucityas in the source which hinder Rasa and conceive the plot in a new manner. Bhoja calls this Prabandha-doṣa-hāna and Anaucitya parihāra. (Vide pp. 131-2, Vol. vi. No. 1. of this journal) says Bhoja:

“तत्र (प्रबन्धे) दोषहानं अनौचित्यादिपरिहारेण यथा मायाकैकेयो-
दशरथाभ्यां रामः प्रवासितः न मातापितृभ्यां इति निर्दोषदशरथे (राजशेखरस्य
बालरामायणे)” p. 410. Vol. II. Śr, Pra. Mad. Ms.

In his S. K. Ā. Bhoja has this passage on p. 642 and he has also this Kārikā:

वाक्यवच्च प्रबन्धेषु रसालङ्कारसंकरान् ।

निवेशयन्त्यनौचित्यपरिहारेण सूरयः ॥ V. 126. p. 418.

Compare Ānanda III. 11 and Kuntaka IV. p. 224.

Kuntaka naturally speaks much of Aucitya which, we are given to understand by the Locana, was a term widely current in circles of Sahṛdayas of that time. Kuntaka was a younger contemporary of Abhinava or wrote immediately after him. The word denoting the essence of poetry at that time seems to be 'Jivita'. For we find the Locana itself rendering the 'Ātman' of Ānanda as 'Jivita' twice. Kuntaka uses the same word 'Jivita' to praise his Vakrokti and soon Kṣemendra is to use the same to signify the place of Aucitya. The two main facts recognised by Kuntaka in poetry are the utterance and its embellishment or its strikingness called Alaṅkāra or Vakrokti. Besides these he recognises certain general concepts which go to define his notion of poetry. Notable among these is the idea of Sāhitya. Along with Sāhitya, Kuntaka mentions two 'Sādhāraṇa Guṇas' called Aucitya and Saubhāgya. These general excellences pertaining to all styles of poetry are to be distinguished from the 'Asādhāraṇa Guṇas', special qualities, which go to distinguish styles into the graceful (sukumāra), the striking (vicitra), and the middling (madhyama). The Sādhāraṇa Guṇas, Aucitya and Saubhāgya are of greater importance.

“एवं प्रत्येकं प्रतिनियतगुणप्रामरमणीयं मार्गात्रितयं व्याख्याय साधारण-

गुणस्वरूपव्याख्यानार्थमाह—॥” p. 72. V. J.

The first of these two Sādhāraṇa Guṇas, Aucitya, is thus defined in two verses:

आज्ञप्तेन स्वभावस्य महत्त्वं येन पोष्यते ।

प्रकारेण तदौचित्यं उचिताख्यानजोवितम् ॥

यत्र वक्तुः प्रमातृर्षा वाक्यं शोभातिशायिना ।

आच्छाद्यते स्वभावेन तदप्यौचित्यमुच्यते ॥ V. J. I. 53-54.

Both kinds of Aucitya are for heightening the power of expression, for developing the idea undertaken to be described. They are very general and comprehensive, referring to all aspects. Kuntaka describes Aucitya generally as उचितारुपान —proper expression. Vide pp. 72-74. V. J.

Kuntaka grasps the supreme importance of Rasa and character, i.e., Prakṛti or as Kuntaka often says, Svabhāva. He accepts the Aucitya pertaining to these which has been spoken of by Bharata and Ānanda. Other items of Aucitya also are shown by Kuntaka and everywhere he points out that all Aucitya is to develop the idea or Rasa. Firstly, defining the speciality of Śabda and Artha in Kāvya, Kuntaka points out the 'Pāramārthya' of these two. His Śabdapāramārthya is only the Aucitya or Dhvani of Pada or Paryāya and his Arthapāramārthya is nothing but Arthaucitya. His Arthapāramārthya comprises cases of the propriety of minor fancies —Pratibhaucitya. Explaining a case of the absence of this Arthapāramārthya, Kuntaka remarks that the fancy of the poet is contrary to the greatness of the character of Sītā and Rāma. This is a case of a breach of प्रकृत्यौचित्य. The test of this Aucitya is, according to Kuntaka, Rasa.

“अत्र असकृत् प्रतिक्षणं कियदद्य गन्तव्यमित्यभिधानलक्षणः परिस्पन्दः न स्वाभावमहत्तामन्मोलयति, न च रसपरिपोषाङ्गतां प्रतिपद्यते । यस्मात् सीतायाः सहजेन केनाप्यौचित्येन गन्तुमध्यवसितायाः सोकुमार्यादेवविधं वस्तु हृदये परिस्फुरदपि वचनमारोहतीति सहृदयैः सम्भावयितुं न पार्यते ।” p. 21.

On page 28, mentioning the qualities in poetry which should vie with each other, i.e., while explaining Sāhitya, Kuntaka refers to Vṛttyaucitya. This is either the Aucitya of the Kaiśikī and others Vṛttis or of the Vṛttis Upanāgarikā etc. The latter is the Aucitya of Rīti, Saṅghaṭanā, Guṇa or Varṇa and Kuntaka calls it Varṇavakratā, which he deals with at the beginning of Unmeṣa ii. This is a case of Varṇa-Saṅghaṭanā-dhvani of Ānanda or Guṇaucitya of Kṣemendra. Kuntaka says that letters or sounds must be appropriate to the context and that certain letters unsuited to certain situations may help the idea and Rasa of other situations,

वर्गान्तयोगिनः स्पर्शाः द्विरुक्ताः तलनादयः ।

शिष्टाश्च रादिसंयुक्ताः प्रस्तुतौचित्यशोभिनः ॥ V. J. II. 2.

“ते च कीदृशाः—प्रस्तुतौचित्यशोभिनः । प्रस्तुतं वर्ण्यमानं वस्तु, तस्य यदौचित्यमुचितभावः, तेन शोभन्ते ये, ते तथोक्ताः । न पुनः वर्णसावर्ण्यव्यसनितामात्रेण उपनिबद्धाः प्रस्तुतौचित्यम्भान(नि)कारिणः । प्रस्तुतौचित्यशोभित्वात् कुत्रचित्पक्षरसप्रस्तावे तादृशानेव अभ्यनुजानाति ।” p. 80.¹

Following the principles of Alaṅkāraucitya pointed out by Ānanda, Kuntaka speaks further of this Varṇavakratā, under which come Śabdālaṅkāras like Anuprāsa and Yamaka, that Anuprāsas must not be written at a stretch and that the repeated letters must often be changed.

नातिनिबन्धविहिता नाप्यपेशलभूषिता ।

पूर्वावृत्तपरित्यागनूतनावर्त्तनोज्ज्वला ॥ II.4.

The first principle of all Alaṅkāraucitya is that figures must easily come of themselves, without the poet taking special effort for them. Says Kuntaka in the Vṛtti on the above Kārikā :

“निबन्धशब्दोऽत्र व्यसनितायां वर्तते । तेन अतिनिबन्धेन पुनः, पुनरावर्तनव्यसनितया न विहिता, अप्रयत्नविरचितेत्यर्थः । व्यसनितया प्रयत्नविरचने हि प्रस्तुतौचित्यपरिहाणेः वाच्यवाचकयोः परस्परस्पर्धिलक्षणसाहित्यविरहः पर्यवस्यति ।” p. 84.

¹ Vide p. 129, Vol. VI. No. 1. of this Journal, Ānanda, III. 3-4. शर्षो सरफसंयोगो etc. It is of this Aucitya of Varṇa that Pope speaks of in his Essay on Criticism :

‘Tis not enough no harshness gives offence,
The sound must seem an echo of the sense.
Soft is the strain when Zephyr gently blows,
And the smooth stream in smoother numbers flows ;
But when loud surges lash the sounding shore
The hoarse rough verse should like a torrent roar.

Hear how Timotheus' varied Lays surprise,
And bid alternate Passions fall and rise.'

Here Kuntaka speaks of what Ānanda has said that Rasa is lost when special effort is taken to build a structure of alliteration.

रसाक्षितया यस्य बन्धः शक्यक्रियो भवेत् ।

अपृथग्यत्ननिर्वर्त्यः सोऽलङ्कारो ध्वनौ मतः ॥ Dhva. Ā. II. 17.

‘रसं बन्धुमध्यवसितस्य कवेः योऽलङ्कारस्तां वासनामत्युह्य यत्नान्तरमास्थितस्य निष्पद्यते, स न रसाङ्गमिति ।’ p. 86.

In the second line of the Kārikā, Kuntaka has said what Ānanda has put in another form that the same sound effect should not be continued to a great length.

शृङ्गारस्याङ्गिनो यत्नादेकरूपानुबन्धनात् ।

सर्वेष्वेव प्रभेदेषु नानुप्रासः प्रकाशकः ॥ II. 15.

“एकरूपत्वानुबन्धनं त्यक्त्वा विचिन्तानुप्रासः अनुबध्यमानो न दोषाय ।”
Locana, p. 85.

Vide Kuntaka's Vṛtti also on. p. 84. Kuntaka adds another point of Aucitya that cacophony should be avoided. Concatenation of very unpleasant sounds like शोषप्रणाङ्घ्रि etc., are not to be written at all. Kṣemendra quotes such verses of a poet of hundred and more works in his Kavikaṇṭhābharaṇa and condemns them as utterly devoid of even a drop of Camatkāra. These sounds, says Abhinava in his Abhinava bhāratī, by nature torture our ears, while there are other sounds that seem to pour nectar into our ears.

“अन्यैरप्युक्तं (आनन्देन) ‘तेन वर्णा रसच्युतः’ (Dhva. Ā. III) इत्यादि ।
स्वभावतो हि केचन वर्णाः सन्तापयन्तीषु । अन्ये तु निर्वापयन्तीषु उपनागरि-
कोचिताः ; लोकगोचर एवायमर्थः ॥”

p. 415. vol. III Abhi. bhā. Mad. Ms.

Of Yamakaucitya pointed out by Rudraṭa and by Ānanda, Kuntaka speaks thus :

ओचित्ययुक्तं आद्यादिनियतस्थानशोभि यत् ।

यमकं नाम..... ॥ II. 6-7.

“ओचित्यं वस्तुनः स्वभावोत्कर्षः, तेन युक्तं समन्वितं । यत्र यमकोप-
निबन्धनव्यसनिखेनाप्यौचित्यमपरिस्फुरन्मिलयर्थः ॥”

The few and rare cases of ‘Rasavad Yamakas’ are called by Kuntaka “समर्पकाणि यमकानि” p. 87.

The suggestive Pratyaya of Ānanda is Pratyayavakratā, having Aucitya to the context, according to Kuntaka. This is a case of Pratyayaucitya, the propriety of the definite Pratyaya or its effectiveness in suggesting the idea or emotion.

प्रस्तुतोचित्यविच्छित्तिं स्वमहिम्ना विकासयन् ।

प्रत्ययः पदमध्येऽन्यामुल्लासयति वक्रताम् ॥ II. 17.

“किं कुर्वन्? प्रस्तुतस्य वर्ण्यमानस्य वस्तुनो यदौचित्यं उचितभावः
तस्यविच्छित्तिमुपशोभां विकासयन् समुल्लासयन्— ।”

Here are given two instances of very proper, striking and suggestive use of the present participle : वेष्टुल्लाका घनाः and
विह्वलकटाक्षे दृशौ ।

Līṅgadhvani or Līṅgavakratā or Līṅgaucitya is described on
on pp. 114-115; II. 23.

विशिष्टं योज्यते लिङ्गं अन्यस्मिन् सम्भवत्यपि ।

यत्र विच्छित्तये सान्या वाच्योचित्यानुसारतः ॥ II. 23.

“कस्मात्कारणात्, वाच्योचित्यानुसारतः । वाच्यस्य वर्ण्यमानस्य वस्तुनो
यदौचित्यं पदार्थौचित्यमनुसृत्येत्यर्थः ।”

Kuntaka thus often speaks of this Aucitya of every element to the idea (Vastu) or emotion (Rasa). He calls it Prastutau-
citya or Svabhāvaucitya or Vastvaucitya. He speaks of it
again while describing the fivefold Kriyāvaicitryavakratva. II.
25. p. 227.

A case of Tense-Aucitya is mentioned by Kuntaka in II.
26. It is to promote the Aucitya of the idea to the Rasa that
the poet adopts the कालवैचित्र्यवक्रता. Upagrahaucitya is
dealt with also by Kuntaka. The poet chooses one of the
two—Ātmanepada and Parasmaipada—on the score of Aucitya.

पदयोद्भवयोरेकं औचित्यात् विनियुज्यते ।

शोभायै यत्र जल्पन्ति तामुपग्रहवक्तव्यम् ॥

Unmeṣa III thus describes Prakṛtyaucitya which Kuntaka calls the Svabhāvaucitya of various beings and things.

भावानामपरिमितानि स्वभावौचित्यसुन्दरं ।

चेतनानां जडानां च स्वरूपं द्विविधं स्मृतम् ॥

* * *

स्वजात्युचितहेवाकसमुद्भूतोऽज्जलं परम् ॥ III. 5-7.

Of Vyavahāraucitya or Lokavṛttaucitya, which idea is the basis of Bharata's Nāṭya, Kuntaka speaks in III. 9. p. 155. Thus we see how largely looms the idea of Aucitya in Kuntaka. As a matter of fact, in almost all cases of Kuntaka's Vakratā, the test or proof of the strikingness or charm is this Aucitya of the various elements with reference to the Vastu or Rasa the depicting of which is the work of the poet. Vakrokti is only another name for Aucitya! For Kuntaka says of Pada-aucitya that it is Pada-vakratā.

‘तत्र पदस्य तावदौचित्यं बहुविधभेदभिन्नो वक्रभावः ।’

V. J. p. 76.

As more than once pointed out already, many of the instances of Ānanda's Dhvani, Abhinava's Vaicrya mentioned in the Abhinavabhāratī, Kuntaka's Vakratā and Kṣemendra's Aucitya are identical. Many items of Vakratā mentioned by Kuntaka are seen in the Abhinavabhāratī as cases of Vaicrya, with exactly the same or similar illustrations and Abhinava says that the same idea is called Suptīṅgdhvani by Ānanda and Subādivakratā by others. There is bound to be this close relation between Aucitya, Dhvani and Vakratā. Criticising Kuntaka's definition of poetry as Sabda and Artha set in Vakrokti, Mahimabhaṭṭa says in V.V. Vimarasa I: ‘The “out-of-the-way-ness” of poetic word and idea as distinguished from those of Sāstra and Loka must either be the Aucitya, so very essential to Rasa which is the “Ātman” of poetry or be the Dhvani of Ānanda. If therefore the new Vakrokti is only Aucitya (which as a matter of fact figures

largely in Kuntaka's treatment of his subject), nothing new is said. If this is denied, the only other possibility is that Vakrokti is nothing but a new name for Dhvani which really seems to be the fact. For the same varieties and the same instances as given by Ānanda are given by Kuntaka.’

“यत्पुनः ‘शब्दार्थौ सहितौ इत्यादिना शास्त्रादिप्रसिद्धशब्दार्थोपनिबन्धव्यतिरेकि यद्वैचित्र्यं तन्मात्रलक्षणं वक्रत्वं नाम काव्यस्य जीवितमिति सहृदयमानिनः केचिदाचक्षते, तदप्यसमोचीनं । यतः प्रसिद्धोपनिबन्धनव्यतिरेकित्वमिदं शब्दार्थयोरौचित्यमात्रपर्यवसायि स्यात्, प्रसिद्धाभिधेयार्थव्यतिरेकि प्रतीयमानाभिव्यक्तिपरं वा स्यात् । प्रसिद्धप्रस्थानातिरेकिणः शब्दार्थोपनिबन्धनवैचित्र्यस्य प्रकारान्तरासम्भवात् । द्वितीयपक्षपरिग्रहे पुनः ध्वनेरेवेदं लक्षणमनया भङ्ग्याभिहितं भवति, अभिन्नत्वात् वस्तुनः । अत एव चास्य त एव प्रभेदाः तान्येव उदाहरणानि तैरुपदर्शितानि ।” V. V. I. p. 28.

Mahimabhaṭṭa wrote in the same age, just after Abhinava and Kuntaka. Mahimā accepts Rasa as supreme and also the Aucitya pertaining to Rasa, Bhāva and Prakṛti. He could not escape the idea of Aucitya which was in its season then. As his criticism of Kuntaka's definition of poetry by Vakrokti shows, critics of his time were aware of only two things as specially distinguishing the poetic utterance from the ordinary or Sāstraic one, viz., Aucitya and Dhvani. Of these two there is no need to specially speak of the former because Mahimā considers it as the supreme necessity in so far as Kāvya is accepted as utterance ensouled by Rasa. That is, according to Mahimā, there can be no opposition to Aucitya. It is only with Dhvani that he fights.

“यतः प्रसिद्धोपनिबन्धनव्यतिरेकित्वमिदं शब्दार्थयोः औचित्यमात्रपर्यवसायि स्यात्, प्रसिद्धाभिधेयार्थव्यतिरेकि प्रतीयमानाभिव्यक्तिपरं वा स्यात् । प्रसिद्धप्रस्थानातिरेकिणः शब्दार्थोपनिबन्धनस्य प्रकारान्तरासम्भवात् । तत्र आद्यस्तावत् पक्षः न शङ्कनीय एव । तस्य काव्यस्वरूपनिर्णयसामर्थ्यसिद्धस्य पृथगुपादानवैयर्थ्यात् । विभावाशुपनिबन्ध एव हि कविव्यापारः, नापरः । ते च यथाशास्त्रं उपनिबन्धमानाः रसाभिव्यक्तेः निबन्धनभावं भजन्ते, नान्यथा ।

रसात्मकं च काव्यमिति कुतस्तत्र अनौचित्यसंस्पर्शः संभाव्यते, यन्निरासार्थं काव्यलक्षणमाचक्षोरन् विचक्षणमन्याः ।” V. V. I. p. 28.

On the point of Rasa and all items of Aucitya of every element of expression to this Rasa, Mahimā is completely in agreement with Ānanda. Ānanda says that if there is one word which is Nirasa, devoid of Rasa, it is the greatest literary flaw, the Apasabda. Similarly all flaws are comprised in one common flaw, viz., hindrance to the realisation of Rasa. All Doṣas are hindrances to Rasa and Mahimā calls them by the common name Anaucitya. He quotes Ānanda's memorable Kārikā on this subject.

“कथञ्चिद्वा भिन्नक्रमतयापि अभिमतार्थसम्बन्धोपकल्पने प्रस्तुतार्थप्रतीतेः विज्ञितत्वात् तन्निबन्धनो रसासादोऽपि विज्ञितः स्यात्, शब्ददोषाणां अनौचित्योपगमात्, तस्य च रसभङ्गहेतुत्वात् । यदाहुः

‘अनौचित्यादृते नान्यत् रसभङ्गस्य कारणम् ।

प्रसिद्धौचित्यबन्धस्तु रसस्योपनिषत्परा ॥”

V. V. I. p. 31

Certain ideas get certain writers as their brilliant exponents. Thus Sānitya gets Kuntaka as its first great exponent. To Mahimā falls the share of expounding two ideas, Svabhāvokti and Doṣas. The most important part of Mahimā's work is chapter II of his V.V., devoted to a study of five important flaws of expression, on which the classic Kāvya Prakāśa, the model for later compilations, draws for its own Doṣaprakaraṇa to a great extent. These five flaws, and all others are only the many varieties of Anaucitya which means hindrance to Rasapratīti. For Aucitya of Rasa and Prakṛti is the greatest Guṇa, most essential for Kāvya. The absence of this Aucitya is the greatest Doṣa within which every other Doṣa is included. Aucitya and Anaucitya pertain to the content, i.e., Rasa and Artha or Vastu as well as to the outer garment of the Rasa and Vastu, viz., the expression—Śabda. The former is Ābhyantara or Antaraṅga—internal, while the latter is Bahiraṅga—external. Even the unsuggestive or inappropriate metre is an Anaucitya, one belonging to the latter category. Among Sabdānaucityas, Mahimā says that five are to be specially

noted; they are five Doṣas named Vidheyāvimarśa, Prakramabheda, Kramabheda, Paunaruktyam and Vācyāvacanam.

“इह खलु द्विविधमनौचित्यं उक्तं, अर्थविषयं शब्दविषयं चेति । तन्न विभावानुभावव्यभिचारिणां अयथायथं रसेषु यो विनियोगः तन्मात्रलक्षणमेकं अन्तरङ्गं आद्यैरेवोक्तमिति नेह प्रतन्यते । अपरं पुनः बहिरङ्गं बहुप्रकारं सम्भवति । तद्यथा विधेयाविमर्शः, प्रक्रमभेदः, क्रमभेदः, पौनरुक्त्यं, वाच्यावचनं चेति । दुःश्रवत्वमपि वृत्तस्य शब्दानौचित्यमेव, तस्याप्यनुप्रासादेरिव रसानुगुण्येण प्रवृत्तेरिष्टत्वात् । एतस्य (अनौचित्यस्य) विवक्षित-रसादिप्रतीतिविन्नविधायित्वं नाम सामान्यलक्षणं । त एते विधेयाविमर्शादयो दोषा इत्युच्यन्ते ।” II. V. V. p. 37.

Kṣemendra was the pupil of Ācārya Abhinavagupta in poetics. A greater Guru in that subject could not have been the fortune of anybody to get. Kṣemendra first wrote a work on Poetics called Kavikarṇikā¹ which is unfortunately lost to us. Perhaps in it he dealt with Rasa and Dhvani. Our sense of its loss is keen because, in his critical writings spared to us we find many a touch of originality. Kṣemendra's Kavikarṇikābhāṣa and Suvṛttatilaka have only slight and subsidiary interest for us. It is his Aucityavicārarcā we are concerned here with, a small work which yet belongs to the class of ‘Prasthāna-works’ like those of Bhāmaha, Daṇḍin, Vāmana, Ānanda, Kuntaka and Mahimabhaṭṭa. As is plain from the above-gone survey of the concept of Aucitya, Kṣemendra is not the author of Aucitya, but, as in the case of Vakrokti and Kuntaka, Kṣemendra made Aucitya into a system, elaborating that concept and applying it to all parts of the Kāvya. Kṣemendra only worked out Ānanda and Abhinava in whose system he had his being. Abhinava criticised those critics who glibly talked of Aucitya without reference to Rasa and Dhvani which alone render Aucitya intelligible. Just as Kuntaka's Vakrokti proceeds only after accepting Rasa as supreme and accepts also Dhvani, so also Kṣemendra's Aucitya. Kṣemendra first posits Rasa as the soul of poetry, as the thing whose presence makes Kāvya; Aucitya is its life—‘Jīvita’. The term ‘Jīvita’,

¹ Vide Au. V. C. K. M. Guccaka 1. p. 115. Śl. 2.

as can be seen from the two quotations given above, was used by Abhinava to denote Rasadhvani with Aucitya. Thus Abhinava used both the words 'Ātman' and 'Jivita' as interchangeable and as meaning generally the essence—सारभूतोऽर्थः. But Kṣemendra made a subtle distinction between Soul and Life, Rasa the Ātman and Aucitya the Life. These two metaphorical names and the relation between them in metaphysical speculations point to the fact of the intimate relation between Rasa and Aucitya and of how both come into existence together. Kṣemendra's attitude to Rasa is thus plainly stated even in the opening :

ओचित्यस्य चमत्कारकारिणश्चावर्चवणे ।

रसजीवितभूतस्य विचारं कुरुतेऽधुना ॥ Sl. 3.

It is to explain Rasa, by which Kāvya is already explained, that Kṣemendra offers Aucitya. Aucitya is the very life of Rasa, the soul of poetry and this is the natural view of Aucitya in the texts of Ānanda and Abhinava. In a verse or in a Kāvya Aucitya gives Camatkāra, Aucitya which is the life of Rasa. Rasa is the thing to which Aucitya is the greatest relation in which other things exist. He again says :

'ओचित्यं रससिद्धस्य स्थिरं काव्यस्य जीवितम् ।' Sl. 5 'रसेन शृङ्गारादिना सिद्धस्य प्रसिद्धस्य काव्यस्य धातुवादरससिद्धस्येव तज्जीवितं स्थिरमित्यर्थः ।' p. 115.

We had observed before that Aucitya is as unintelligible without Dhvani as without Rasa. As a matter of fact it had its greatest exposition in the hands of Ānanda only as a supplementary idea in the system of Rasadhvani; for, to Ānanda and Abhinava the Soul-Ātman—of poetry is 'ओचित्यवद्रसध्वनिः' and the three are inseparable. But such an explicit mention and acceptance of Dhvani as of Rasa are not found in the Au. V. C. But Dhvani is all throughout implied. We had said that the test and proof of Aucitya is Dhvani, the suggestion of Rasa, or idea. Showing the propriety of Pada (which is a case of Padadhvani with Ānanda), i.e., Padaucitya in a verse, Kṣemendra says that Aucitya in that word pleases us because that word in particular suggests the state of separation and

the consequent suffering, i.e., the Vipralambha Rasa : विरहावस्थासूचकं 'कृशाङ्गुष्ठाः' इति पदं परममौचित्यं पुष्पाति । Similarly in all instances of all kinds of Aucitya, Kṣemendra must have sufficiently and clearly based his explanations of Aucitya scientifically on the principle of Dhvani. In not having done so, it must be adjudged that he has not thoroughly explained himself and that he has not paid the homage due from him to Ānandavardhana from whom the concept of Aucitya took new life.

In most cases, Dhvani, Vakrokti and Aucitya are merely names for the Camatkāra in a certain point. In his commentary on chapter xv, the opening chapter of the Vācikābhinaya section of the Nāṭyaśāstra, Abhinava uses another word for this Camatkāra, viz., Vaicitrya, strikingness or beauty or charm. Bharata gives ten grammatical divisions of words and Abhinava says that in poetry everything, gender, number, name, case etc., has to be 'vicitra', wonderful or striking. Having explained the Vaicitrya of all elements of language in poetry, Abhinava reconciles to this Vaicitrya of his the Dhvani of Sup, Tiṅg, Vacana etc., of Ānanda (Ud. III.) and the Vakratā of Sup. etc., of others (Anye) meaning Kuntaka or those of whose ideas Kuntaka is the systematic exponent.¹ To these can be reconciled Kṣemendra's Aucitya of Pada, Kriyā, Kāraka, Liṅga, Vacana, Upasarga, Nipāta etc. Again Suptiṅgdhvani, Subādivakratā, Subādivaicitrya or Subādivaucitya is the same as some of the ten different kinds of Camatkāra, Camatkāra in Śabda, in Artha, etc., given by Kṣemendra in the third section of his kavikaṇṭhābharaṇa. As a matter of fact there is nothing new in Kṣemendra's Aucitya of Pada etc., except appreciation under a different name of the same points pointed out by Ānanda in Udyota III. of his work under the heads of Dhvani of Pada, Sup. etc., forming the numerous parts of Vyañjaka. The Au. V. C. is vastly indebted to the third chapter of the Dhva. Ā. On the subject of Rasaucitya alone, while explaining Viruddha rasa samāveśa, combining of two contradictory sentiments, Kṣemendra quotes Ānanda's verse on the subject. (p. 134. Au. V. C.) Except for this one obscure quotation,

¹ Vide p. 367, Vol. II, chap. xiv. Abhi. Bhā. Mad. MS. Vide also my article on Writers quoted in the Abhi. Bhā. in the *Journal of Oriental Research*, Madras, Vol. VI, Part III, p. 221. See above, this same article on this point.

it must be stated that in his tract which only works out Ānanda's ideas, Kṣemendra has not paid the proper respect to Ānanda. He grows eloquent on Aucitya in the opening but strangely does not even quote the famous verse of Ānanda, अनौचित्यादृते नान्यत् etc.

Kṣemendra has elaborated and pointed out some more Aucitya in the wider sphere of thought—Artha and Artha-sandarbhā. Most of the things in this class like Aucityas of Deśa, Kāla, Vrata, Tattva, Sattva, Svabhāva, Sārasaṅgraha and Avasthā are comprehended in Prakṛtyaucitya and in the absence of the flaw of लोकागमविरोध which is pointed out by all writers from Bhāmaha and Daṇḍin, which is part of Aucitya and can be said to be generally included in Prakṛtyaucitya which is as old as Bharata or can be separately called as Lokasvabhāvaucitya. The Pratibhaucitya given by Kṣemendra concerns with the minor 'fancies' and not with poetic imagination or genius as a whole. Similarly innumerable items of Aucitya can be elaborated and so does Kṣemendra say in the end: 'अन्येषु काव्याङ्गेषु अन्यैव दिशा स्वयमौचित्य उत्प्रेक्षणीयं । तदुदाहरणान्यानन्यात् न प्रदर्शितानीत्यलमतिप्रसङ्गेन ।'

p. 160.

As for instance, the propriety of metre, Vṛttaucitya, is an interesting study. Bharata has spoken of it in his chapters on Vṛttas and Dhruvās, xvi and xxxii. Abhinava quotes in his Abhi. Bhā. Kātyāyana, an old writer on metres, on the appropriateness of certain metres to certain subjects, moods and situations.

वीरस्य भुजदण्डानां वर्णने स्रग्धरा भवेत् । etc.¹

Kṣemendra reserves this subject for special treatment in his Suvṛttatilaka. (Vinyāsa iii. S'ls. 7-16).

काव्ये रसानुसारेण वर्णनानुगुणेन च ।

कुर्वीत सर्ववृत्तानां विनियोगं विभागवित् ॥

* * * *

वृत्तरत्नावली कामात् अस्थाने विनिवेशिता ।

कथयत्यङ्गतामेव मेखलेव गले कृता ॥ etc.

¹ Vide J. O. R., Madras, Vol. VI., Part III., p. 223.

Kṣemendra then goes to explain with illustrations what situations and subjects should be depicted in what metres. Though there is bound to be a large amount of Subjectivism and Impressionism in this study, though, even as regards the question of relation of Rāgas and Rasas in music, in this enquiry also, it may be that one same metre has many emotional significances, there is some truth in some principles of Vṛttaucitya like the association of long metres like Sragdharā with descriptions of war, with Vīra, Raudra and Bibhatsa Rasas and the use of Anuṣṭubhs for narration, brief summing up and pointed speech.

The concept of Aucitya was born as a supplement to Rasa and Dhvani and is so developed by Kṣemendra, though it must be admitted that the latter, Dhvani, is not specifically spoken of by him. From the verses in the beginning which state the doctrine of Aucitya in general, it is plain, that like Rasa and Dhvani, Aucitya came in as a severe criticism of a merely physical or 'materialistic' or a jeweller's philosophy of poetry which made much only of Alaṅkāras and Guṇas. This is not true of the critical literature of Kṣemendra's time, for Rasa had been established firmly as the soul of poetry in poetics and the discussion yet going on was only on the process of the realisation of that Rasa, whether it was Dhvani, Anumāna, Bhāvanā and Bhōga or Tātparya and so on. But it is true of practical literature and of what the poets themselves were doing. Kṣemendra's Aucitya is another and final criticism of Alaṅkāras.

काव्यस्यालमङ्कारैः किं मिथ्यागणितैर्गुणैः ।

यस्य जीवितमौचित्यं विचिन्त्यापि न दृश्यते ॥

अलङ्कारास्त्वलङ्काराः गुणा एव गुणास्सदा ।

ओचित्यं रससिद्धस्य स्थिरं काव्यस्य जीवितम् ॥ S'ls. 4-5.

उचितस्थानविन्यासादलङ्कृतिरलङ्कृतिः ।

औचित्यादच्युता नित्यं भवन्त्येव गुणा गुणाः ॥ S'l. 6.

'अलङ्कृतिरुचितस्थानविन्यासादलङ्कृतिर्लक्षणा भवति, अन्यथात्वलङ्कृतिरव्यपदेशमेव न लभते । तद्वदौचित्यादपरिच्युता गुणाः गुणतामासादयन्ति, अन्यथा पुनरगुणा एव ।' p. 116.

This illustrative verse (which elaborates, as pointed out at the beginning of this paper, a verse on the same subject in Bharata) is also cited by Kṣemendra :

कण्ठे मेखलया, नितम्बफलके तारेण हारेण वा
पाणौ नूपुरबन्धनेन, चरणे केयूरपाशेन वा ।
शौर्येण प्रणते, रिपो कण्ठया, नायान्ति के हास्यतां
ओचित्येन विना रुचिं प्रतनुते नालङ्कृतिर्न गुणाः ॥

Bharata says this in respect of music also where the music-
alaṃkāras must be utilized only according to Rasa.

एभिरलङ्कृतव्या गोतिर्वर्णाविरोधेन ।
स्थाने चालङ्कारं कुर्यात् न ह्युरसि काञ्चिकां बभ्येत् ॥

N. S. xxix. 73-4. p. 335-6 Kasi edn.

Thus well has it been said by Ānanda that Aucitya is the great
secret of Rasa and Anaucitya, the greatest enemy.

The Agni purāṇa's section on Poetics contains little by
way of any development of the concept of Aucitya; but it is
also noticed here because it shows some ingenious
and original reshuffling of concepts and gives
this concept of Aucitya as an Alaṃkāra of both
Sābda and Artha, an Ubhayālaṃkāra. 345/2 and 5.

प्रशस्तिः कान्तिरौचित्यं संक्षेपो यावदर्थता ।
अभिव्यक्तिरिति व्यक्तं षड्भेदास्तस्य जाग्रति ॥
यथा वस्तु तथा रोतिः य (त) था वृत्तिः त (य) था रसः ।
ऊर्जस्विमूदसुन्दर्मादौचित्यमुपजायते ॥

The unpublished Rasārṇavālaṃkāra (Mad. Ms) of Prakāśa
varṣa is somewhat important. It is another work which speaks
of Aucitya as a whole as an Alaṃkāra, but
differs from the Agni purāṇa in holding it as a
Sābdālaṃkāra.

श्लेषश्चित्रं तथौचित्यं प्रश्नोत्तरप्रहेलिका ।

* * * *

शब्दालङ्कृतयः स्पष्टमष्टादश मनोविभिः ॥

p. 16. Mad. Ms.

Some valuable ideas on Aucitya are also given by Prakāśa
varṣa. He defines Aucitya as the spirit of mutual help be-
tween sound and sense, between word and idea, Sābda and
Artha and as an element which makes poetry great. He adds
that to Sahrdayas, Anaucitya is greatest flaw.

उपकार्योपकारत्वं यत्र शब्दार्थयोर्भवेत् ।
उत्कर्षाधायकं...ः (प्रज्ञैः) औचित्यं तत्प्रकीर्तितम् ॥

* * * *

अनौचित्यात् किमन्योऽस्ति तिरस्कारस्सचेतसाम् ॥

Prakāśavarṣa gives a new twofold classification of Aucitya
but does not explain the varieties further. He says that others
have said enough on this subject.¹

There is one more point to be considered before closing
this account of Aucitya. Bharata has said² that Hāsyā Rasa
or the sentiment of laughter is produced by
Anaucitya Anukṛti and Ābhāsa. It has been pointed out
above that Abhinava remarks in his Locana that
Anaucitya is at the root of Ābhāsa, as in the case
of the Sṛṅgārābhāsa of Rāvaṇa for Sītā. We can only
laugh at it. So it is that Lauṭya which is proposed as a Rasa
by some, is made by Abhinava an accessory in Hāsyā Rasa.³
In the Abhinava bhāratī on the text of Bharata which explains
the origin of Hāsyā Rasa, Abhinava discusses what consti-
tutes the basis of the comic and points out that Anaucitya is
at the root of all comic.⁴ Aucitya is Rasa and Anaucitya is
Rasābhāsa and Hāsyā Rasa. The illustrative verse quoted
by Kṣemendra gives a series of Anaucitya and concludes
'नायान्तिकेहास्यतां'. Surely one with a girdle round the neck
and a necklace at the foot will be laughed at. So it is that
Bharata also says :

मेखलोरसि बन्धे च हास्यायैवोपजायते । xxiii. 69.

This takes us to another aspect of poetry and of Aucitya.

¹ Vide J. O. R., Vol. viii. Part 3 for an account of Prakāśavarṣa.

² N. S. VI. p. 296 Gaek. edn.

³ Vide p. 342, Abhi. Bhā. Gaek. edn.

⁴ Pp. 296-297. Abhi. Bhā. Gaek. edn. A paper of mine on the Comic
element in Skr. literature (on the theory of Hāsyā and its treatment by poets)
will soon be published.

In poetry of Rasa, Aucitya is the very life, Jivita; but in comic poetry, the very life of its Rasa, viz., Rasābhāsa or Hāsyā Rasa, is Anaucitya. Anaucitya is the secret of comic poetry and poetry of nonsense.

चार्वनौच्यमेवैका हास्यस्योपनिषत्परा ।

अनौचित्यं रसाभासकाव्यस्य स्थिरजीवितम् ॥

It is only with various forms of Anaucitya that Hāsyā can be developed; all Doṣas of speech and thought occur in Sakāra and we have already pointed out above how Nyūnō-pamā and Adhikōpamā are the secrets of satire and parody. Inappropriateness is at the root of all kinds of the ridiculous and the laughable and this has been shown by Abhinava in his Abhi. Bhā:

‘अनौचित्यप्रवृत्तिकृतमेव हि हास्यविभावत्वम् ।’

p. 297. Gaek. edn.

Thus Anaucitya is the Aucitya in Hāsyā Rasa. This Aucitya is that aspect called ‘adaptation’ by virtue of which, flaws become excellences, by change of circumstances. The incoherent and the inappropriate themselves become appropriate. Just as Śrutiduṣṭa, a flaw in Śṛṅgāra, is a great Guṇa in Raudra and this adaptation is one Aucitya, so also Anaucitya which spoils all Rasas and is the greatest Rasadoṣa is the greatest Rasaguṇa in Hāsyā. This is of course said of the fundamental basis, the root cause, Vibhāva, of Hāsyā Rasa and of those conditions of inappropriateness, oddities and ludicrousness which are the stuff of which Hāsyā is made. And in the delineation of this Anaucitya itself producing Hāsyā, in expression and in all other parts, principles of internal Aucitya have to be observed. There are two old verses on this subject of how Anaucitya becomes Aucitya, of how Doṣas become Guṇas and of how adaptation and appropriateness are the only rule.

सामान्यसुन्दरीणां विभ्रममावहयन्निनय एव ।

धूम एव प्रज्वलितानां मधुरो भवति सुरभिदाहणाम् ॥

(Cchāyā of a Prākṛt Gāthā).

अन्यदा भूषणं पुंसः क्षमा लज्जेव योषिताम् ।

पराक्रमः परिभवे वैयाल्यं सुरतेष्विव ॥ Māgha. S. V. II. 44.

It is all some kind of relativity in the kingdom of poetry. There is no absolute Guṇa and Doṣa but only Ucita and Anucita; and the poet takes up even Anaucitya to make Aucitya out of it. The poet’s attitude is as free and open in this respect as in respect of the question of morality in poetry.

It is this Aucitya which Robert Bridges speaks of in his essay on Poetic Diction under the name ‘Keeping’, a concept borrowed from Painting and which he describes as the ‘harmonising of the medium’. The following line of his explains his idea further: ‘But in Aesthetic no Property is absurd if it is in keeping.’ Bridges speaks here of absurdity (Doṣa) ceasing to be so and becoming a Guṇa (Vaiśeṣika) because of Aucitya (keeping).

Three doctrines are the great and noteworthy contributions of Sanskrit Alaṅkāra Literature to the world’s literature on

Conclusion Literary Criticism. They are Rasa, Dhvani and Aucitya. Even the former two are only now being slowly recognised as ‘soul’ of poetry by English writers.¹ Aucitya is a very large principle within whose orbit comes everything else. The Aucitya-rule of criticism is obeyed by all others, including Rasa. Our Professor, Mahā-mahopādhyāya Vidyāvācaspati S. Kuppuswami Sastry puts the whole evolution of Skr. Poetics from Alaṅkāra to Aucitya in a Kārikā and illustrates it with a graph. Within the big circle of Kṣemendra’s Aucitya, there are three view-points in the shape of a triangle. The topmost point of the triangle is the undisputed Rasa of Bharata, which Ānanda and Abhinava accept as ‘Soul’ of poetry and which critics of Dhvani like Bhaṭṭa Nāyaka and Mahimabhaṭṭa and other theorists like Kuntaka accept. Lower down, the two points of the triangle are the two prominent theories, opposed to each other, regarding the process of realising Rasa, viz., the Dhvani of Ānanda and the Anumiti of Mahimabhaṭṭa. Anumiti is mentioned only as ‘upalakṣaṇa’ and it stands for other anti-dhvani theories also, like the Bhāvanā and Bhoga of Bhaṭṭa Nāyaka, Tātparya etc. Within this triangle is a

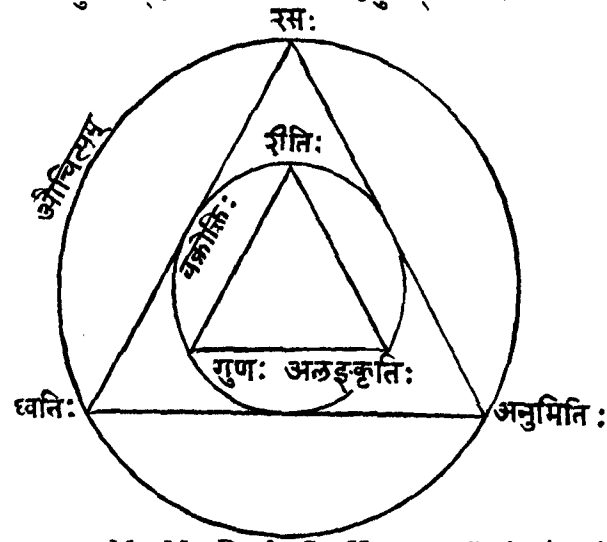
¹ A complete survey and review of Western Literary Criticism from Aristotle to Abercrombie from the point of view of Skr. Alaṅkāra Śāstra has been made by me and my paper on the subject will soon be published.

smaller circle named after the Vakrokti of Kuntaka. This circle again contains a triangle within it, the topmost point of which is Vāmana's Rīti, a concept decidedly superior to and more comprehensive than the two lower points called Guṇa and Alaṅkāra of Daṇḍin and Bhāmaha. Beginning with Alaṅkāra, the theories get superior or more comprehensive one by one. The Alaṅkāra-guṇa-rīti modes of criticism deal with diction and style in the lower sense of the term and are classed under one bigger current of the study of form culminating in the comprehensive Vakrokti-circle of Kuntaka, which is also an approach to poetry from the formal side. The next, the bigger triangle begins the current of the study of the content, of the inner essence of poetry, viz., Rasa and the process, the technique by which the poet delineates it and the Sahṛdaya gets it. All these are comprehended in the outermost circle of Aucitya which pertains to Rasa and everything else in Kāvya. All the other theories only run at the back of Aucitya which leads the van. If there is a harmony or a beauty as such, innate in every part of a great poetry, it is this Aucitī.

The Kārikā and the graph explained above are given below :—

“ओचितोमनुष्यावन्ति सर्वे ध्वनिरसोन्नयाः ।

गुणालङ्कृतिरौतोनां नयाश्चानुजुवाङ्मयाः ॥”



M. M. Prof. S. Kuppuswāmi Sāstriar.

(End)

UNIVERSITY NOTES

Administration

His Excellency Khan Bahadur Sir Muhammad Usman, C.I.E., was Chancellor of the University till the 17th August, 1934, and His Excellency Lt.-Col. the Rt. Hon. Sir George Frederick Stanley, P.C., G.C.S.I., G.C.I.E., C.M.G., who resumed charge of the Governorship of Madras, became Chancellor and continued to hold the appointment till the 15th November, 1934, when His Excellency Lord Erskine, Governor of Madras, assumed charge of his office.

Mr. Richard Littlehailes, C.I.E., M.A., assumed charge of the Vice-Chancellorship on the 21st May, 1934.

Syndicate

Mr. W. C. Douglas resigned his membership in September, 1934, on the Syndicate and Mr. H. C. Papworth, Principal, Presidency College, was elected to the vacancy by the Academic Council.

Lt.-Col. R. E. Wright, C.I.E., I.M.S., resigned his membership on the Syndicate in November and His Excellency the Chancellor nominated Lt.-Col. Clive Newcomb, I.M.S.

Mr. W. Erlam Smith, Director of Public Instruction, went on leave from the 17th December, 1934, and Mr. H. Champion, acting Director, assumed charge and he is the *ex-officio* member of the Syndicate.

Courses of Study

The Academic Council has resolved as follows *re.* revision of the courses of study :—

English course in B.A.

(1) That it is desirable in the B.A. Degree courses to make provision for English both as a compulsory subject and as an optional group. (2) That the compulsory course now provided in Part I of the B.A. Degree course be retained without substantial change. (3) That an optional course may be provided by framing a group for inclusion in Part III which should not be limited to 'English subjects' such as Prose, Poetry, Composition, etc., but should include (a) a selection of such

subjects and (b) one or more 'related subjects' such as History of England, English Institutions, English Social and Industrial History, Development of English Thought, which may be judged suitable to assist in the study and appreciation of English Literature.

Higher Degrees in Research

- (1) That there be a first Research Degree designated M.Litt., on the Arts side and M.Sc., on the Science side open to Pass or Honours Graduates in Arts and Science, awardable on approved thesis for post-graduate research work done under the guidance and supervision of a Professor approved by the University;
- (2) That there be a higher Research Degree designated D.Litt., on the Arts side and D.Sc., on the Science side open to Honours Graduates and those who have taken the M.Litt. or M.Sc. degrees, awardable on approved theses published memoir or work which shall be an original contribution to learning showing evidence of original research work;
- (3) That the M.Sc. and D.Sc. Degrees be also open to graduates in the Faculties of Medicine, Engineering, Teaching, Agriculture and Veterinary Science.

Higher Degree in Teaching

The Academic Council has accepted the recommendation of the Board of Studies in Teaching regarding the desirability of instituting a higher degree in Education, as distinct from L.T., to be designated as M.Ed. Degree to be taken after a regular University course of two years.

Framing of Regulations on the above proposals are under consideration.

Convocations

Convocations of the University were held on the 1st and 2nd August, 1934, and on the 4th December, 1934.

His Excellency the Chancellor presided over the Convocation held on the 2nd August and the Vice-Chancellor presided over the other two Convocations.

Mr. M. Ruthnaswami, C.I.E., M.A., delivered the Address to the Graduates at the Convocation held on the 2nd August, 1934.

Publications

The following were the Research Publications issued by the University during the year 1934 :—

1. Vijayanagara—Origin of the City and Empire.
2. Brahati, Part 1.
3. Unadi Sutras, Part VI.
4. Vishnumayanatakam.
5. Tamil Sangam Age—2nd Edition.
6. Katyayana Pratisakhya.

Endowments

The following new endowments were accepted by the University during this period :—

- (a) Sir C. V. Kumaraswami Sastri Medal.
- (b) Diwan Bahadur K. Krishnaswami Rao Lectureship.

Constituent and Affiliated Institutions

The Women's Christian College, Madras, opened classes in Indian Music for the Intermediate course.

The American College, Madura, was granted affiliation in Honours course in Economics. Classes have not yet been started.

Madura College, Madura, was granted affiliation in Mathematics and Urdu in the B.A. courses.

The Economics group of the B.A. Degree course was opened at St. Berchmans' College, Chenganacherry, and at the Theosophical College, Madanapalle.

The Salem College opened classes in Natural Science for the Intermediate.

Three new Institutions were approved for training students for Oriental Titles courses (Siromani and Vidwan) :—

Veda Vedanta Bodhini Patasala, Sholinghur.

The Kerala Sanskrit College, Katampazhipuram.

Sahitya Dipika Sanskrit College, Pavaratti.

Honorary Degrees

The Senate of the University of Madras has, on the recommendation of the Syndicate, resolved to confer the Honorary

Degree of Doctor of Laws (LL.D.) on the following persons who were former Vice-Chancellors of the University :—

1. Sir John Wallis, Kt., M.A., Bar-at-law.
2. Diwan Bahadur Sir K. Ramunni Menon, Kt., M.A.

EXCHANGES

Oxford.
Cambridge Bulletin.
Bombay University Journal.
Annamalai University Journal.
Inter University Bulletin.
The New Review, Calcutta.
Madras Agricultural Journal.
Madras Co-operative Journal.
Indian Co-operative Quarterly.
League of Nations' Weekly Bulletin.
The Commercial Gazette.

REVIEWS

A SHORT HISTORY OF ENGLISH LITERATURE. By EMILE LEGOUIS. Clarendon Press, 6s.

The Clarendon Press has recently published *A Short History of English Literature* by M. Emile Legouis, Professor of English Literature at the Sorbonne, Paris. Professor Legouis is a Frenchman, and he has written this book primarily for the benefit of French students of English Literature, and for this reason, as he himself explains, he has adopted the simple narrative manner, avoided abstractions, and aimed at concreteness.

The book is a complete compendium of the whole history of English Literature from Anglo-Saxon times to the present day, and squeezes in its four hundred pages a mention of almost every prose, poetic and dramatic work that English writers have produced. And the author apologises in his Preface for having omitted the literature of the United States, and of the British colonies and dominions beyond the seas! It is this extreme condensation which makes the book of small value to students of English Literature, though it may certainly serve as a handy book of reference to both Englishmen and foreigners who know a little of the subject and require encyclopædic information. Byron and Keats, for instance, are dealt with in two pages each, whilst a work like Landor's *Imaginary Conversations* is just mentioned, but not a single character in them is referred to, nor is the reader given any indication as to the subject of any one of them. This is the fault of the book; every work in English Literature is mentioned, but the reader is too often left wondering what the works are about. The case is the same with regard to some of the great historical movements, which have affected literature; they are too scrappily dealt with.

The work, however, is a very useful book of reference, in which facts and figures can be looked up; and in this respect it is executed with characteristic French thoroughness and definiteness. Professor Legouis, as one would expect in a foreigner, follows the clearly marked traditional paths of English Literature, and, avoiding the dangers which might lurk in any attempt to indulge in criticism of originality, states his facts with categorical precision. And the book must be commended for the completeness with which this is done.

Especially welcome is the last chapter in which the writer gives the outlines of English Literature from 1880 to the present day. Arnold Bennett, G. K. Chesterton, Somerset Maugham, Bernard Shaw, Galsworthy, Sir James Barrie, Sir Arthur Pinero and many others are each given a mention or a paragraph. There is sometimes, as perhaps is natural, a lack of proportion in the author's account of modern writers. Of the comic operas of Gilbert and Sullivan, for instance, only *H.M.S. Pinafore* and *The Mikado* are mentioned, whereas since the operas of this author and this composer are practically the only enduring products of the Victorian theatre, English theatre-goers would expect a word of appreciation of *Iolanthe*, *The Gondoliers*, *The Pirates of Penzance* and *The Yeomen of the Guard*. On the other hand, it is commendable that Professor Legouis realises that London is no longer the only centre of the English drama, and calls attention to the work of the Manchester Repertory Theatre, and to the production of 'local' drama in Ireland under the influence of the Celtic Revival.

One of the most attractive features of the book is its numerous artistic illustrations, ranging from a reproduction of the Beowulf manuscript in the British Museum (c.A.D. 1000), to a picture of a modern printing machine, capable of producing 50,000 twenty-four-page newspapers per hour, all delivered, folded, and counted.

H.C.P.

THE CAMBRIDGE MODERN HISTORY. Vol. I. The Renaissance. 2nd Edition. Cambridge University Press. 7s. 6d.

This is the first volume of a work which, like its original planner, Lord Acton, has become famous. The popularity and the consequent demand for this adequate and comprehensive survey of Modern History, has urged the publishers to bring out this new edition which, however, is but a reprint of the original. The general history of Europe and of her colonies since the fifteenth century is treated in twelve volumes, and for each of the volumes some historical fact of signal importance has been chosen as the central idea round which individual developments are grouped, not accidentally, but of reserved purpose.

The Renaissance, the subject of the first volume, is obviously one of such central ideas, which ushered in the modern period of history. However, this volume, it must be noted, being the first of the series, deals not only of the first of the twelve topics, with which the twelve volumes are taken up, but it is also in the nature of an introductory volume, whose purpose is to bring upon the stage of modern history the nations, forces and interests, bearing on the chief parts in the action. Thus it is that the editors of the work have devoted special chapters to forces, like the *Discourses* and the *New World*, which may be said to have inaugurated the modern history of the world's history; to interests, like the Temporal Power of the Papacy and the Catholic Kings; and to nations, like Venice and Hungary and Slavonic kingdoms, which had bearing on the 'action' of the age depicted in this volume on Renaissance.

The difficulty of arbitrarily dividing History is borne in mind by the authors. Each chapter of the volume, and the whole volume itself, include so much of antecedent, especially of institutional history, as seemed necessary for the clear understanding of the conditions bearing on the spread of Renaissance. It is interesting to note that the authors have devoted two chapters to bring out the difference between the 'Classical Renaissance' and the 'Christian Renaissance'. The work planned by Lord Acton needs no special pleading; it has already spread over the world of historical knowledge, and there is hardly a library of any importance without the twelve volumes of Cambridge Modern History.

C. J. V.

WORLD ECONOMIC SURVEY. Third year 1933-34. League of Nations Economic Intelligence Service. Pp. 356. Paper, 6s. cloth, 6s. 7d.

Those who welcomed the publication of the first number of the *World Economic Survey*, three years ago will welcome even more warmly the latest number of the series, which carries the story of recent economic developments up to the end of July of the current year. The first chapter gives an account of the principal events up to the end of March 1934. The final chapter continues this narrative and concludes with an estimate of the economic situation at the end

of July. Other chapters give more detailed analyses of the main aspects of economic and financial developments, dealing successively with production, prices, wages, international trade and commercial policy, public finance, banking and monetary questions and the capital market. There is also a discussion of the effects of the depression upon more fundamental aspects of economic organisations, population movements, changes in consumption, the control of production and the regulation of international trade.

Statistical information, wherever possible in the form of diagrams and charts, is included in support of the statements made; but the aim of the Survey is to give in readable form an account of recent events which shall be intelligible to the layman.

The marked recovery of production in recent months and the increased importance of national recovery plans are shown. The world output of foodstuffs remained much the same in 1933 as in 1932; but the production of industrial raw materials rose by 9 per cent. and industrial production by 12½ per cent. The quantum of world trade also rose, but to a much smaller extent, while the value of world trade continued to fall. The Survey examines from many angles the bearing of these developments upon the problem of reconciling national recoveries with international equilibrium.

AN IMPERIAL HISTORY OF INDIA by K. P. Jayaswal, published by Motilal Banarsi Dass, the Punjab Sanskrit Book Depot, Lahore, 1934. Price Rs. 8.

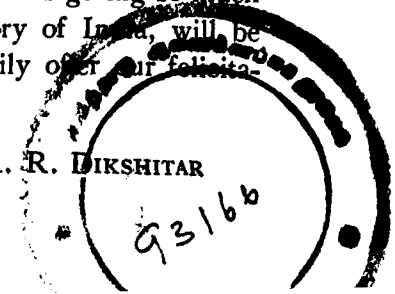
The full title of the book is An Imperial History of India in a Sanskrit Text (c. 700 B.C. c. 770 A.D.). The Sanskrit Text is the text of the Mañju-Srīmūlakalpa. This important Buddhist work, thanks to the late erudite scholar MM. Dr. Gāṇapti Sāstri, was published ten years ago in the Trivandrum Sanskrit Series from the then available manuscript. In the work under review, Mr. Jayaswal has given the Text of the Mañju-Srīmūlakalpa as corrected with the help of the Tibetan text by Ven. Rāhula Sāṅkrityāyana. The printed Text in this book begins from the fifty-third pāṭala, and contains 1,005 stanzas, all full of valuable information to the History of Ancient India particularly from the first to the end

of the eighth century. The date of the composition which must be attributed to a single author is fixed roughly A.D. 800.

The book begins with a critical introduction, followed by an analytical data of the material, which is divided into parts and sections, giving descriptive ceptions to each. The historical importance of the sections has been pointed out in the comments attached to each section. The comments are full of brilliant suggestions and original interpretations.

The importance of this literary record can hardly be exaggerated. It gives a complete history of the Imperial Guptas, of the Mukharis, of Haṛsa, of a revived Gupta Empire after Haṛsa, and of a vivid description of two popular elections of kings in Bengal. Among the several new details mention may be made of the fact that Mahāpadma Nanda was the Prime Minister before his election to the throne, that the Valabhī Dynasty continued to be Imperial for two generations, that Cāṇakya-Kauṭalya continued to be minister for three emperors including the early rule of Aśoka, and that after Haṛsa and Saśāṅka and before the rise of the Pālas, there was an imperial dynasty with its seat at Benares and in Magadha. Space forbids us from entering into details set forth in this highly informative work. Scholars will differ with some of the views expressed, for instance, the fixing of Pāṇini's date on the doubtful evidence (pp. 15-16), especially in the face of the text *niyatam śrāvakatvena*. It is surprising and perhaps worth noting that a professedly Buddhist historian omits to mention Aśoka the Great, the so called Buddhist Emperor in the Maurya Dynasty, while he mentions the non-Buddhist King Chandragupta and Bindusāra and their minister Cāṇakya. Mr. Jayaswal thinks that Aśoka is misplaced. But to us the omission seems significant, and perhaps the confused Buddhist legends have lavished all their praise on Mauryan Aśoka, which are legitimately due to Aśoka Mukhya, the predecessor of Viśoka according to the Text. The book, which is a very useful work as giving so much additional information on the early History of India, will be appreciated by all scholars, and we heartily offer our felicitations to its learned author.

V. R. R. DIKSHITAR



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

Name of Publications	Price		
	Rs	A	P
1. Some South Indian Villages, by Dr. G. Slater. Available at the Oxford University Press, Madras each	5	0	0
2. Sources of Vizianagar History, by Dr. S. Krishnaswami Ayyangar, available from the Superintendent, Govt. Press, Mount Road, Madras... .. each	4	8	0
3. Dravidic Studies, (available from the Superintendent, Govt. Press, Mount Road, Madras). Volume I	0	2	0
Volume II	0	8	0
Volume III	0	12	0
Bound Vols. I-III	2	4	0
4. History of Sri Vaishnavas, by Mr. R. Gopinatha Rao	0	10	0
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59. Rig Vedanukramani of Madhava Bhatta, Vol. I, Ed. by Dr. C. Kunhan Raja ...	3	8	0
60. The Unadi Sūtras in various recensions, Ed. by Mr. T. R. Chintamani—Part I ... " " " II ...	3	0	0
	2	8	0

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Tamil Lexicon :				
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" " II	...	4	0	0
" " III	...	2	0	0
Vol. II—Part I	...	2	0	0
" " II	...	2	0	0
" " III	...	2	0	0
Vol. II—Part IV and Vol. III—Part I	...	2	0	0
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" " III	...	2	0	0
" " IV	...	2	0	0
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- Students of Colleges, High Schools and Oriental Institutions ;
- Members of the staff of Secondary and High Schools ;
- Pandits employed in Colleges provided that the applications are made through the heads of the respective institutions.

Supplement to the Madras University Journal

THE HAND-LOOM INDUSTRY IN SOUTH INDIA

BY
K. S. VENKATARAMAN, B.A. (Hons.), B.L.
(SIR PARASURAMBHAO COLLEGE, POONA)

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

MADRAS

PRINTED AT THE DIOCESAN PRESS, VEPERY

1935

THE HAND-LOOM INDUSTRY IN THE MADRAS PRESIDENCY

CHAPTER I

INTRODUCTION

'The handloom weaving industry of India is still of great importance in the natural economy and has up to the present shown remarkable vitality in the face of competition with factory products. It is likely to remain the principal form of village industry and there is no immediate reason to fear its decline.'—*Royal Commission on Agriculture in India.*

'The revival and expansion of rural industries on an economic footing is a desideratum of any policy which contemplates the extension of arable farming.' *Ibid.*

'I hold the opinion that *the handloom may remain in India for many years the commercial weaving machine*, provided the loom is suited to the work to be done and is supplied with properly prepared materials.'—Prof. T. W. Fox.

NEXT to agriculture hand-loom weaving is the most important industry in India. It is the primary means of livelihood of a large number of persons. It is also the means of subsidiary income to many agriculturists and forms the main auxiliary to agriculture. It is important both as an urban and a rural industry, giving employment to millions of men, women and children of all communities.

The term 'hand-loom weaving' has a wide connotation. It comprises weaving of fabrics of cotton, silk, wool, jute, coir and cora-grass, weaving in each of them obtaining in such areas as there are natural facilities. Jute is woven on hand-looms in Bengal and the Northern Circars. Coir manufactures obtain on the West Coast. Woollen spinning and weaving as cottage industries are found in many provinces, especially in the Punjab, the Indian States of Hyderabad, Kashmir and Mysore. Silk-worm rearing, and silk reeling and twisting are common in Mysore, Bengal, and Kashmir; while silk weaving is carried on in many important cities all

over India. But all these can never equal either in magnitude or in value the cotton textile home industry.

The importance of the cotton textile industry cannot be exaggerated. The three main human physical needs are food, clothing and shelter; while agriculture provides all of them in a sense, it is the cotton textile industry that supplies the bulk of the cloth required. Cotton is the natural clothing of the people of India. It is light, and cool and best suited to the tropical climate. The needs of the people are simple; besides, they are poor and cannot afford costly luxuries. It is estimated that the proportion of cotton cloths to other fabrics such as silk, rayon or artificial silk and woollen consumed in India is 30 to 1. Cotton weaving, therefore, plays the same part in the Indian industrial system as the woollen industry did in England. Next comes silk weaving as a cottage industry. Silk is locally available. Besides, its use is decreed by Indian customs—Hindu and Muslim—on religious and ceremonial occasions. Practically all the silk fabrics that are manufactured in India are produced by craftsmen in their homes on hand-loom.

No doubt a large part of the cloths required by the people is met by manufactures of mills in India and by foreign imports. There are more than 300 cotton spinning and weaving mills and about 17 woollen mills.¹ Still home industries in cotton, silk and woollen fabrics play a very important part. Not less than a fourth of the total consumption of cotton cloth in India is prepared on hand-loom. Silk weaving and weaving of woollen blankets and carpets are primarily cottage- and hand-industries. It is difficult to estimate the total consumption of silk and woollen fabrics; but it can be roughly stated that more than half of the silk and a very considerable part of woollen blankets and shawls consumed in India are produced on hand-loom.

Out of 146 million actual workers in India, textile industries of all kinds (cotton, silk, woollen, jute, coir and

¹ The Statistical Abstract of Br. India, 6th issue, mentions 613 cotton weaving and 6 cotton carpet factories. This includes ginning and pressing factories.

other fibres) account for 4 million workers.¹ Deducting 800,000 persons who are employed in all textile factories (including both skilled and unskilled labourers in seasonal and

¹CENSUS OF 1921 AND THE INDUSTRIAL CENSUS TAKEN THEREWITH

Manufactures of	Census of 1921 (a)		Industrial Census, 1921 (b)			Workers in Cottages c = (a-b)	
	Men Workers	Women Workers	Number of Factories*	Men employed	Women employed	Men	Women
Cotton ...	1,803,054	1,172,168	2,037	334,719	99,177	1,468,335	1,072,991
Jute, Coir, etc.	365,626	224,229	484	258,636	51,875	106,990	172,354
Wool ...	69,636	42,396	88	9,652	887	59,984	41,509
Silk ...	34,034	46,688	174	8,428	995	25,606	20,693
ALL TEXTILES	2,455,296	1,575,378	2,889	616,019	157,046	1,839,277	1,418,332

NUMBER OF FACTORIES, FACTORY WORKERS AND
HOMEWORKERS IN COTTON TEXTILE
INDUSTRIES—(Census of 1921)

—	Census of 1921		Industrial Census, 1921			Workers in Cottages	
	Men Workers	Women Workers	Number of Factories	Men Employed	Women Employed	Men	Women
Cotton cleaning, ginning and pressing.	148,240	87,434	1,418	56,941	26,114	91,299	61,320
Cotton Spinning ...	115,030	352,670	613	277,696	72,983	1,377,118	1,011,751
Cotton Weaving ...	1,539,784	732,064					
Dyeing ...	64,549	33,502	63	3,482	380	61,067	33,122
Lace and embroidery ...	118,014	55,845	28	347	3,478	117,667	52,367

regular factories) there are still more than 3 million textile workers who carry on their work in their own homes. Thus the importance of the textile home industry is striking.

IMPORTANCE OF THE COTTON HAND-LOOM INDUSTRY

Taking the cotton textile industry alone, cleaning, ginning, pressing, carding, spinning, sizing, weaving, bleaching, dyeing and printing support 5.8 million persons of whom about 3 millions—1,903,054 men and 1,172,168 women—are actual workers. Of them about 530,000 persons alone are employed in factories.¹ The rest are connected with hand-weaving and other connected home industries. These figures are quoted here to show the real magnitude of the handicrafts in cotton textiles, which support nearly a sixth of the total Indian industrial population.

The hand weaving industry, besides offering full time employment to many weavers, is also the subsidiary

¹PERSONS EMPLOYED IN COTTON FACTORIES OF ALL KINDS
IN BRITISH INDIA AND NATIVE STATES IN 1926

Description	British India		Native States		Total	
	Number of Factories	Number employed	Number of Factories	Number employed	Number of Factories	Number of persons employed
Cotton ginning, baling, pressing ...	2,092	145,014	610	39,380	2,702	184,394
Cotton spinning and weaving	273	338,684	46	40,028	319	378,712
Cotton hosiery	18	1,358	1	49	19	1,377
Dyeing and bleaching ...	32	4,886	5	700	37	5,586
Clothing factories ...	4	1,923	...	...	4	1,923
Total ...	2,419	491,865	662	80,157	3,081	572,022

means of income to agriculturists.¹ In the Madras Presidency the industry is mainly a caste specialisation and the primary occupation of such castes. Even here though there is a tendency for the industry to concentrate in certain centres it is still primarily a rural industry. In other provinces, Assam, the Central Provinces and Rajaputana weaving is mainly found in villages. Excepting in a few urban centres where it is the only occupation of weavers who manufacture special kinds of cloths, as the laced cloth of Madura, solid bordered cloths of Salem, the Madras handkerchiefs and lungis etc., hand-weaving is still mainly carried on in villages. Even in centres where the industry is localised and the weaver is fully employed at the loom, he depends on agriculture to some extent as a subsidiary source of income. Thus agriculture and hand-loom weaving are closely related in our rural economy.

In the beginning of the 19th century the cotton textile industry—from the cleaning of cotton to the dyeing and finishing of manufactures—was the work of the artisan. In that society a part of the growing population was always absorbed by this expanding industry and thus restrained the pressure of population on land. But the introduction of machinery threw a large number of those dependent on this industry out of employment and led to overcrowding in agriculture and aggravated the problem of rural unemployment. The present attempt to revive the charka and the hand-loom is intended mainly to solve the problem of unemployment and under-employment in villages and to provide subsidiary means of livelihood to agriculturists with only small holdings.

Lastly, the revival of the hand-loom industry will solve the problem of general unemployment and lead to a better distribution of work, wealth and welfare. A century of unabated enthusiasm for industrialism and mechanisation of industries has created a sense of insecurity even in the minds of

¹ 'There are periods in the cultivator's year when all the members of the family are busy in the fields; but there are periods also when they are idle. At such times there is much labour running to waste and ample scope for some form of secondary occupation. If the cultivator could bring himself and his family to learn the art (of weaving) and face the initial expenditure of Rs. 25 he could earn a few rupees more. Hand-weaving conducted on these lines would be as sound economically, as it would be acceptable to the sentiments of the people.'—MR. EDVE, *Census Report, 1921*

its most ardent advocates. It has not only not solved the problem of unemployment but has aggravated it. The introduction of mechanical power may mitigate the physical strain of workers and lessen their hours of work to some extent. But it leaves more permanent sores elsewhere. The labour displaced by machinery and power cannot be fully absorbed in other fields and so unemployment, conflict of labour and capital and further unemployment follow. The philosophy of machinery and power is too sanguine. The power of machinery to solve our problem is limited. This is now slowly recognized. If India is to make history and avoid all the evils and horrors of Western Industrialism, the path lies not in rapid industrialisation with the aid of gigantic imported machinery and in the indiscriminate substitution of mechanical power for man-power but elsewhere—viz., in the avoidance of the waste of human life and in the subordination of machine to man. Hand-loom weaving, in the present circumstances, satisfies this test and its encouragement will give employment—which no other industry can claim to do—to several million persons, who are famishing for want of work. The charge of 'making work' cannot be made against it. The cost of its revival and protection will not be greater than the cost of protecting the mill industry. The ultimate burden on the taxpayer and the consumer will be much less. It will further have the decided advantage of avoiding the evils of excessive industrialism.

Thus the hand-loom industry is important:

- (1) as supporting a large number of persons who have hand-weaving as the only ostensible means of livelihood;
- (2) as a means of providing subsidiary occupation to agriculturists who have a long off-season;¹
- (3) as a means of solving the problem of the increasing unemployment of the working classes;
- (4) as a measure of relief in tracts where agriculture is almost precarious; and

¹ Hand-loom weaving is the only dependable ancillary to agriculture. In precarious tracts—which are too many in India—inactivity may be almost unavoidable for a whole season or even for a whole year. Where the cultivator pursues some crafts which will employ himself and his family at times when they are not required in the fields—a craft in which continuity of employment is not essential—the proceeds of the craft are a saving from waste and therefore clear gain. The most typical of such craft is the production of home spun cloth.—MR. EDYE. *Census Report, 1921.*

(5) as a means of securing economic justice in the distribution of work and wealth.

The cotton hand-loom industry is most important in the Madras Presidency. While the mill industry has developed in the Bombay Presidency, it is in Madras that the hand-loom weaving industry, in spite of the rapid growth of mills, still maintains its own and consumes more than a fourth of the yarn available for hand-loom in India.

There are certain factors which have helped the development of this industry in this Presidency. First, a regular supply of yarn is assured by the spinning mills of the Madura group. Secondly, the growth of the dyeing industry in Madura has enabled the country weavers to manufacture coloured fabrics with which mills do not compete. Thirdly, Madras is fortunate in having from the days of the East India Company a flourishing export trade in handkerchiefs and lungis which are manufactured on hand-loom.

It may now be asked: can the hand-loom be revived in the teeth of mill competition? The answer is in the affirmative. It is not based on mere sentiment or on the fashionable creed which denounces everything modern but on the opinions of textile experts and on the peculiar economic conditions prevailing in India. Sir Alfred Chatterton, to whom many South Indian industries owe their existence, declared: 'The hand-loom weavers, who have already achieved wonders in the age of machinery, will be able to turn the tables on the power-loom if but a fraction of the capital, energy and organisation were devoted to their trade that have been expended in pushing power-loom.' The late Prof. T. W. Fox of the College of Technology, Manchester, stated more emphatically: 'The hand-loom will remain in India a *commercial machine*, provided the industry is properly organised'. In what respects the present organisation of the industry is weak and on what lines it can be improved to render the hand-loom a commercial machine is the thesis of this book.

CHAPTER II

HISTORY OF THE INDIAN COTTON TEXTILE MANUFACTURES

A SHORT history of the Indian cotton textile industry with special reference to the hand-loom may be relevant in this connection.

THE INDUSTRY IN THE PRE-MOHAMMEDAN PERIOD

India was the original home of cotton manufactures. From very early times it was well known as the cotton producing and manufacturing country, and even today it is the second cotton producing and the third cotton manufacturing country in the world.¹ The arts of cotton spinning and weaving were in a high state of efficiency even two thousand years ago as recorded in the memoirs of Herodotus and

¹I. WORLD'S PRODUCTION OF COTTON IN 1930-31
(From the Indian Finance Year Book, 1932.)

Country	Yield of Cotton crop (Tods)	Area under cotton in hectares
U. S. A. ...	14,932,000 bales of 500 lbs.	30,881,000
India ...	4,820,000 " 400 lbs.	8,774,000
China ...	2,400,000 " 500 lbs.	4,100,000
Egypt ...	1,603,000 " 500 "	3,680,000
U. S. S. R. ...	1,723,000 " 500 "	4,450,000
World's production	27,474,000 " 500 "	56,000,000

II. WORLD'S CONSUMPTION OF COTTON IN 1930-31
(International Cotton Federation Estimates)

Country	Consumption in 1,000 bales	Percentage of increase (+) or decrease (-) over 1912-13.
U. S. A. ...	5,246	- 8
United Kingdom ...	1,964	- 54
Japan ...	2,565	} + 208
China ...	2,329	
India ...	2,513	+ 15.4
Germany ...	1,086	- 37.1
U.S.S.R. ...	1,821	- 12
Total of world's consumption ...	22,483	- 1

Pliny. Dr. Ananda K. Coomarasami, after a careful study of the historical material, writes, 'Cotton weaving was a true domestic industry, practised even by ladies of rank, or at least a part of the household work. But in most parts of India weaving was already in Buddhist days a distinct profession and carried on largely, though not exclusively, by men.' The export of Indian cotton fabrics was also important during this period. The importance of the industry has been noted by many foreign historians and travellers; Renaudot,¹ the French writer, Chao-Ju-Kua,² the Chinese traveller, and Marco Polo,³ the Italian, have recorded the glory of the Indian cotton industry. Before the rise of the Moghul power Gujarat, Cambay, Telingana, Malabar, Bengal and the Coromandal coast had fully developed their cotton manufactures. The Dacca and the Broach muslins, the Masulipatam chintz and palampores, the coloured chintz of Gujarat, and the calicos of the Coromandal coast had become world famous. It is now accepted that India was not merely the accredited birth-place of the cotton manufactures⁴ but it had the practical monopoly both in the production of raw material and in the manufacture of finished cotton goods.

Cotton weaving was a true domestic industry which was practised in every household. Spinning and weaving and other processes were done only by hand. Even the best fabrics were made with crude tools by people in their own homes. Foreigners wondered at the very simple methods of the Indian weaver which were far superior to the elaborate mechanical devices of the western countries. These methods received the encomium of foreign writers. 'In spite of the raw material not being brought to its high state of cultivation, despite crude machinery and little division of labour, the products were fabrics of exquisite delicacy, unrivalled by any other nation, even those best skilled in the mechanical arts'.⁵

Even in early times the Indian export trade in cotton fabrics was not negligible. The Arabs and the Greeks traded

¹ Renaudot has translated the journal of an Arab, named Sulaiman, who visited India in the 9th century, A.D.

² Chao-Ju-Kua travelled through Bengal in the beginning of the 13th century.

³ Marco Polo visited India at the close of the 13th century.

⁴ J.R.A.S. Vol. XVII, page 347.

⁵ Baines, *The History of Cotton Manufactures*.

in cotton manufactures which they carried from Patila, Ariake, Baryagaza (said to be modern Broach) and Masalia (the present Masulipatam) to the Red Sea.¹ Pliny in his *Natural History* describes how the Indian trade in luxuries, especially in cotton fabrics, was draining the wealth of the great Roman Empire.

The extent, nature and conditions of the industry are described by the author of the *Indian Cotton Textile Industry*. 'That the industry was wide-spread can be seen from the fact that almost every household prepared cloth, at least sufficient for the needs of the family. The industry was exclusively a cottage industry and the members of the family helped the weaver in the preparation of the cloth. Craftsmanship did not hold an inferior status and was supposed to be under the special protection of the kings. . . . The hand-loom industry and the spinning industry afforded excellent by-employment in ancient times. It is, however, rather difficult to bring oneself to believe that this industry which reached such a high pitch of excellence, could really be the occupation of leisure moments only. The best artisans must have been wholtime workers who spent their whole life on this one industry and earned their living from it. There was no exploitation of labour by capital since setting up for oneself was but the normal thing for the artisans of those days'.²

THE INDUSTRY DURING THE MOHAMMEDAN PERIOD

It is generally asserted by certain historians that during the Mohammedan rule in India chaos reigned everywhere and that, with the growing political insecurity, social anarchy and economic disruption followed and that all arts and handicrafts declined and that cotton manufacture shared the common fate. This is not wholly true, at any rate as regards the later Mohammedan period. During the earlier years of the Mohammedan invasion every industry suffered as it was inevitable in such times of unsettled life. But with the beginning of the Moghul power the cotton industry, along with

other handicrafts, recovered its former stature.¹ All the Moghul Emperors, Aurangzeb with all his religious bigotry not excluded, were great patrons of handicrafts. The chintz of Masula, we are told, was the craze of the Imperial Durbar. Moreland, a severe critic of Moghul administration, observes, 'the details go to show that the cotton industry was at this period much the most important handicraft in India'.² Another historian writes, 'on the coast of Coromandal and in the province of Bengal it is difficult to find a village in which every woman and child is not employed in making a piece of cloth. At present much of the greatest part of the provinces are employed in the single manufacture. The progress of the linen manufacture includes no less than a description of the lives of half the inhabitants of the Hindoostan'.³ The writings of other historians, foreign travellers and ambassadors indicate that the industry was universal and that the cotton manufacture was carried on in villages and towns to meet the demand at home and abroad. Gujarat supplied Persia, Tartary, Turkey, Barbary, Arabia, Ethiopia and other places with silk and cotton stuffs.⁴ Some centres specialised in the production of certain varieties chiefly for exports to foreign countries. Bengal, the Coromandal Coast, Cambay (drawing goods from Ahmedabad, Baroda, Broach and Surat) and the Indus Valley (deriving its supply from Lahore, Multan and Sukkur) supplied the foreign markets.⁵ The superior muslins of Dacca, called in admiration the *Evening Dew*, the *Textile Breeze*, the *Running Water*, the printed calicos of the Coromandal, the plain white and coloured cloths from many parts of the country, the celebrated handkerchiefs from Madras and the gold and silver embroidered silks and cotton fabrics of Ahmedabad and Benares formed the bulk of the cotton manufactures of India.

¹ 'The waves of conquest which commenced from the 11th century no doubt greatly hampered Indian industrialists and industries for some time. But the establishment of the Moghul Empire and the safety and security of the reign of Akbar seem to have fully revived Indian industries and handicrafts.' (*Industrial Commission Report*, page 296, Dissenting minutes of Pt. M. M. Malaviya.)

² Moreland, *India at the Death of Akbar*

³ Orme, *Historical Fragments of the Moghul Empire*, p. 413.

⁴ Ludovico di Varathema quoted by Moreland in his *India at the Death of Akbar*, p. 172.

⁵ M. P. Gandhi, *The Indian Cotton Textile Industry*, pp. 10-11.

¹ *The Periplus of the Erythraean Sea*.

² M. P. Gandhi, *The Indian Cotton Textile Industry*.

The causes of the excellence of cotton manufactures are not far to seek. The climatic conditions, the environment, the inherited skill of workmen, the patronage of kings and nobles and the discipline of the guilds explain the unique superiority of the Indian manufactures. 'It is then a physical organisation of the natives, admirably suited to the processes of spinning and weaving, to the possession of raw materials in the greatest abundance, to the possession also of the most brilliant dyes for staining and printing the cloth, to a climate which renders the colours lively and durable and to the hereditary practices by particular castes, classes and families, both of the manual operations and chemical processes required in the manufacture:—it is to these causes with very little aid from science and in almost barbarous state of the mechanical arts, that India owes her long supremacy in the manufacture of cotton'.¹

The industry received the special patronage of the State. It maintained palace *Karkhanas* where silk brocades, fine muslins, gold embroidery, etc. were made by artisans under the supervision of a master.² The nobles and high officials of the State maintained their own workshops as well.

It is instructive to study the economic organisation of the cotton industry at that time. Originally caste was the sole economic factor in industry. Different professions were carried on by separate castes and weaving was confined to a few only. But with growing external trade other castes as well took to weaving. These castes, while maintaining their entity and subject to their own caste guilds in respect of their social life, became members of the craft-guild which regulated the industry. There was little division of labour from the point of view of internal technical organisation of the industry. The weavers and their dependents, working for themselves, caused a fusion of labour approaching almost the modern co-operative production which avoids all conflicts between labour and capital.

Side by side with this there were also guilds. Each trade had its guild representing many castes and the business of the guild was carried on by chiefs called the *Natamakarans* in the south, *sheths*, *gumastas* or *nagarsheths* in North India.

¹ Baines: *History of Cotton Manufactures*, p. 75.

² Cf. P. J. Thomas in the *Modern Review*, February 1924.

Under this system the workers in an industry pledged themselves to protect one another. Membership of the guild was regulated but was hereditary. The guild perfected a system of apprenticeship which, while safeguarding the interests of the craftsmen, secured efficiency and accounted for the Indian pre-eminence in arts.

Production in this period was on the small scale. At first there were not many intermediaries between the producer and the market. But with the expansion of the market, the individual artisan could not cope with the demand which required a larger capital and a greater specialisation of functions. Those were beyond the means of the weavers. Several classes of middlemen—*Mahajans*, *Chettis*—sprang up who provided the capital and acted as the link between the producer and the consumer. This, while accelerating production, had reduced the artisan to the position of a wage-earner depending on the middlemen for work. This is termed the domestic system and marks a distinct stage in the industrial evolution and is intermediate between the old and much praised system of the independent craftsman and the modern systems of the workshop and the factory.

THE INDUSTRY UNDER THE EAST INDIA COMPANY

The history of the industry under the East India Company has two distinct phases—the one upto 1780, when the industry was at its best, and the other after 1780 when the industry began to decline as a result of the development of the power-loom. During the first period the Company was more interested in securing commercial and trading rights than political power. It, therefore, developed a lucrative trade in cotton manufactures and other East Indian specialities in spite of the growing opposition of certain interests in England. The Directors of the Company sought to encourage the Indian industry by sending out hempdressers, spinners and weavers from England to train the Indians in the manufacture of sail cloth, and by sending out dyers and throwsters to develop the silk industry of Bengal and they also proposed to develop the calico industry in Bombay. All this indicates the sympathetic attitude of the Company, though the measures

were of doubtful benefit to the Indian artisans, for, they were far more advanced than their masters in their technique.

During the 18th Century in spite of the political turmoils in the country the cotton manufacture was thriving and expanding. India after clothing her vast population exported to the West 1½ million pieces of muslins, calicos, doreas, handkerchiefs, longcloth, betellus etc., valued at £2.9 millions. The uninterrupted prosperity of the foreign export trade of India in cotton manufactures during the last quarter of the 18th century and the extent of the same from Bengal, Surat and the East Coast and also from China (Nankeen) can well be understood from the following table prepared from the Reports of the Select Committee appointed to take into consideration the export trade from Great Britain to the East Indies upon the subject of cotton manufacture, published in 1793:—

NUMBER OF COTTON PIECES SOLD BY THE E. I. CO., IN THE ENGLISH MARKET DURING 1770-1790.

Year	BENGAL	SURAT	E. COAST	NAN-KEEN	TOTAL	VALUE in £
1771	604757	131198	114710	17692	868357	1,435,475
1772	626160	147029	273766	20497	1067452	1,653,912
1773	761489	58138	134789	9818	964234	1,797,508
1774	616226	38366	207086	12506	874184	1,815,008
1775	517761	47405	181950	5000	752116	1,609,597
1776	607878	18822	209538	6180	842418	1,621,777
1777	655332	83024	224183	10299	972838	1,660,892
1778	805010	61285	296182	14990	1177467	1,663,069
1779	338465	31525	74676	12537	457203	747,121
1780	474703	18605	107130	8024	608462	1,257,868
1781	301617	33144	95868	14608	445237	850,703
1782	446488	36597	72188	24635	579908	1,287,110
1783	437802	82966	...	28201	548969	1,143,046
1784	516088	31130	44810	18698	610726	1,055,722
1785	768228	26767	45352	...	840347	1,560,847
1786	764173	...	43240	37741	845154	1,570,217
1787	745449	41882	38641	26524	852496	1,439,043
1788	594728	41806	96455	12805	745794	1,202,871
1789	614839	44715	112216	48329	820099	1,229,360
1790	866282	33131	126221	29060	1054694	1,752,356

The export of cotton manufactures by the French East India Company in 1791 is given in the accompanying table:—¹

¹ Cf. The Select Committee Report, 1793

PARTICULARS OF THE SALE ADVERTISED AT THE L'ORIENT BY THE FRENCH COMPANY IN 1791

Name of cloths	Number of pieces	Value in £
Surat and Bombay	65025	45,678- 1-0
China (Nankeen)	241993	76,438-15-0
Coast Calicos (white)	134673	4,85,137-10-0
Coast Muslins	37383	44,261- 8-0
Coast Prohibited ¹	85478	1,01,265-16-0
Bengal Calicos	93381	1,43,747-15-0
Bengal Prohibited ²	18382	13,014-10-0
Bengal Muslins	40727	3,18,343- 5-0
Total	717412	1,227,887- 0-0

But for the slight decline in the export trade from Bombay and Surat during the Mahratta wars and from the East Coast during the Mysore wars, the export trade has been on the whole steady. Madras contributed nearly a third of the export and Bengal had the lion's share. The exports from Madras were chiefly (a) white calicos comprising longcloth, percaulas, salem pores, izzrees, Goudaloor dimities and (b) muslins comprising handkerchiefs, doreas and betellus.

[In 1820, even after the development of power-spinning and weaving in England the export of Indian piecegoods to England by the East India Company and the private merchants amounted to £1,839,258 excluding the trade in Nankeen (China Cloth).³ Between 1815-1818 the export of piecegoods from different parts of India in American vessels was also considerable.⁴]

¹ Some of the manufactures of India were prohibited from being imported freely into the European countries as Demy Blue Longcloth, Sastracundees, Sassergates, Pondichery Gingham, Rumals and Percaulas of Pondichery, Narpaley, Ventepaleon and Madras of the East Coast manufactures and Barangores, Romal and Seet Romals, Copees, Cushtaes, Phoetaes, Tepoys, Soofeys and Teaffates of Bengal. *The Select Committee Report 1793.*

² *Ibid.*

³ Evidence of Messrs. G. A. Robinson and T. Reid before the Board's Committee on foreign trade of the country, 1821—page 105.

	Imports of	By E. I. Co.	By private merchants
Bengal piecegoods	...	£ 576,402	£ 27,545
Coast and Surat goods	...	1,199,502	45,809
Nankeen and China Silk	...	38,666	133,214

The details of imports are given in page 353 of the same report:—
Calicos 624618 pieces, muslins 5654 pieces, prohibited 408781 pieces and Nankeen 523853 pieces.

⁴ Board's Committee on Foreign Trade, 1821, page 344.

Since 1660 there had been a considerable opposition in England to the increasing importation of Indian calicos and chintzes. The woollen manufacturers of England complained that their goods were beaten out by the cheaper and the more attractive goods from India and their complaints gained strong support from Mercantilists who feared that England was being drained of its precious metals. Such opposition came to a head in 1700 when the importation of printed and painted calicos was prevented by an act of Parliament. Plain calicos, however, continued to come in and were printed in the country to meet local demand. Parliament again interfered and in 1720 passed an act prohibiting the wear of printed calicos. Other governments of Europe also took similar measures in the interest of their national industries. But these measures did not affect the textile exports of India to any great extent; and it has already been shown that there had been an increase in the last quarter of the 18th century.¹

THE INDUSTRIAL REVOLUTION AND AFTER

But the inevitable came. The Industrial Revolution in England enabled English spinners to make yarn strong enough for warp; and thus grew the great cotton industry of Lancashire. The use of steam-power made production incredibly cheap and soon the course of foreign trade under-

EXPORTS OF INDIAN PIECEGOODS IN AMERICAN VESSELS

	1815-16		1816-17		1817-18	
	Bales	Rs.	Bales	Rs.	Bales	Rs.
Bengal ...	12,559	31,16,366	16,040	35,99,324	5,921	15,23,725
Fort St. George ...	4,929	27,210	37,795	19,67,748	21,467	1,28,350

¹ P. J. Thomas, *Mercantalism and the East India Trade* (1926), pp. 111-17; 157-59.

HAND-LOOM INDUSTRY IN MADRAS PRESIDENCY 17

went a revolutionary change. Indian exports to England died out and English exports to India began to increase. And this was considerably helped by the high tariffs imposed in England on textile imports and by the fiscal policy of the East India Company.¹

The following table will bring out this great change:—

FOREIGN TRADE IN COTTON MANUFACTURES OTHER THAN YARN, HOSIERY, SHAWLS AND HANDKERCHIEFS

Year	Exports to England from India	Number of Power-looms in England	Imports to India from England
1814	1,266,608 pieces		818,208 yards
1821	534,495 "	14,150	19,138,726 "
1828	422,504 "	55,500	42,822,077 "
1835	306,086 "	109,626	51,777,277 "
1846			213,840,000 "

The cheapening of spinning and weaving by power meant a great handicap to the Indian spinner and weaver. The cost of producing a pound of yarn fell from 13.4 pence in 1814 to 5.9 pence in 1830 and the cost of producing a piece of cloth fell from 7s. 8½d. to 2s. 8d. during the same period.² Hence the shrinking market for the handspun yarn and handwoven cloth, and the great hardship caused to spinners and weavers in India.

In the next half of the 19th century the increasing import of cotton manufactures from the United Kingdom and other foreign countries, stimulated by a policy of free trade in India, and the increase of the cotton factories within the country led to a further decline of the Indian cotton handicrafts as will be seen from the accompanying tables.

¹ Lord Ellenborough, in his evidence before the Select Committee, said 'While the cotton manufactures of England are imported into India on payment of a duty of 2½ per cent., the cotton manufactures of India are subjected to a duty on the raw material of 5 per cent., to a further duty on yarn of 7½ per cent., to a duty of 2½ per cent. on cloth and finally to another duty of 2½ per cent., if the cloth should be dyed after the *rowannah* has been taken out for it as white cloth.' (1843).

² Select Committee Report, 1832.

IMPORT OF COTTON MANUFACTURES INTO INDIA

Annual Average for	Value of Cotton Twist and Yarn	Value of Cotton Goods
	£	£
1850-54	1,199,893	5,176,943
1860-64	1,613,417	9,302,071
1870-74	2,750,908	14,812,750
1880-84	3,302,136	20,734,517
1890-94	3,311,061	26,203,756

¹PROGRESS OF COTTON MILL INDUSTRY IN INDIA

Year	No. of Mills	No. of Spindles	No. of Looms
1851	1	29,000	
1866	13	309,000	3,400
1876	47	1,110,000	9,100
1880	56	1,461,590	13,502
1890	137	3,274,196	23,412
1900	193	4,945,783	40,124

During the period under review the import of cotton goods had increased five times and the power-loom production in India twelve times. A certain increase in the import and Indian mill production can be accounted for by the growth of population but the increase of power-loom products shows unmistakably the displacement of hand-loom manufactures. From an economic point of view this increasing import of machine-made manufactures benefited the people who obtained cheaper clothing, but they had lost to a much larger extent by the loss of their weaving industry. For, this loss was not replaced by any new industry and millions of weavers sank to the level of agricultural labourers.

In the present century the power-loom competition further increased. The import of manufactures from the United

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Kingdom continued unabated till the late war. The wave of *Swadeshi* enthusiasm, the loss of yarn trade with China, the fall in the import of cotton manufactures from Britain during the war and the post-war boom led to a rapid development of power-weaving in India. Further the import of cotton manufactures from Japan, which was insignificant before the war, began to grow to the detriment of the hand-loom and the power mill alike. The tables A and B at the end of this chapter will show the place that the hand-loom has in the supply of cotton manufactures required for consumption in India.

Even in the year 1932-33 the hand-loom supplied a little over a fourth of the total cotton goods consumed in India. Whatever may have been the extent of the decline of hand weaving in the nineteenth century, there has undoubtedly been an increase in the production on the hand-loom during the last thirty-five years for which more definite statistics are available. From 784 million yards in 1896 the production on hand-looms has increased to 1588 million yards in 1933. This does not include the production of rayon and silk goods on hand-looms. This increase is significant considering the fact that the hand-loom had been handicapped by the imposition of duties on yarn, rayon and gold and silver lace imported for its use.

THE PRESENT POSITION OF THE HAND-LOOM INDUSTRY

We may now proceed to study the geographical distribution of the industry in India, and in particular, in the Madras Presidency.

According to the Census of 1931 there are 1,678,453 men and 5,402,97 women in India including Native States who have cotton spinning, sizing and weaving as their primary occupation; and 82,814 men and 582,009 women are classed as working dependants. Besides, these industries are the subsidiary occupation of 189,205 men and 101,128 women. Thus nearly 3½ million persons are wholly or partially engaged in the above mentioned industries. Excluding the number of persons employed in cotton factories, there are

¹ From the Bombay Cotton Annual, 1932-33.

still about three million persons depending on cotton handicrafts for their livelihood. The table below gives the provincial distribution of workers in cotton spinning sizing and weaving according to the census of 1931, and the distribution of hand-looms as estimated by the Indian Tariff Board in 1932.

TABLE SHOWING THE GEOGRAPHICAL DISTRIBUTION OF COTTON TEXTILE WORKERS

Province	1931 No. of persons engaged in cotton spinning, sizing and weaving						No. of hand- looms as estimated by the Indian Tariff Board in 1932
	as principal occupation		as subsidiary occupation		working dependants		
	Men	Women	Men	Women	Men	Women	
Assam ...	1,104	7,580	2,201	17,348	1,672	192,036	425,000
Bengal ...	127,692	30,394	18,006	1,711	4,116	4,879	200,000
B. & Orissa.	81,427	37,364	37,849	3,406	1,607	5,668	150,000
Bombay ...	207,854	47,705	3,249	776	4,716	17,582	100,000
Burma ...	2,568	40,091	791	45,346	1,458	144,637	569,000
C. Provinces.	86,310	22,811	10,624	2,248	5,423	29,021	100,000
Madras ...	333,611	82,453	22,279	479	12,627	28,513	225,000
N.-W.F.P....	8,373	829	382	7	384	167	500
Punjab ...	214,381	36,671	12,514	3,674	12,346	24,991	140,000
U. Provinces	253,526	90,846	21,025	3,489	3,449	29,680	75,000
Total for British India	1,329,239	399,052	129,438	83,013	47,950	477,943	2,086,423
Total for Native States	349,214	141,245	59,767	18,115	34,864	104,066	414,577
Total for India	1,678,453	540,297	189,205	101,128	82,814	582,009	2,500,000

Though there are certain discrepancies between the census of workers and the estimate of hand-looms, the importance of the industry to each province is clearly brought out. Madras has the largest number of workers. The Punjab and the United Provinces come next in importance. In respect of the number of looms Madras comes third, yielding the first and second places to Burma and Assam respectively. But this importance of cotton hand-weaving in Burma and Assam as

indicated by the number of looms is doubtful, for, the number of workers in these provinces is far less. The pre-eminence of Madras in the hand-loom industry is unquestioned. Though definite statistics are not now available regarding the consumption of yarn by hand-looms in each province, Madras must be considered to rank first in respect of production. For it takes very nearly a fourth of the yarn available for hand-looms in India. It is estimated by the Superintendent of the Census, 1931, Madras, that this Presidency accounts for the consumption of 75 million lbs. of cotton yarn by hand-looms. As a subsidiary occupation, cotton industries are still important in the provinces of Bihar and Orissa, Burma, Assam, Madras and the United Provinces.

The industry is found in all parts of the Madras Presidency excepting the Nilgiris. The accompanying map and Table C at the end of this chapter will indicate the importance of the industry to each district at different periods. Taking male workers as the basis of comparison (Census of 1931), the districts of Cuddapa, Chingleput and Salem have over 40 male weavers per 1,000 principal male workers in all occupations. Guntur, Coimbatore, Vizagapatam, Nellore, Bellary, Anantapur, Madras and N. Arcot come next in importance with over 30 but less than 40 per mill. East Godaveri, Kurnool, Tinnevelley, Ganjam and Chittoor have over 20 but less than 30. Other districts have less than 20.

Hand-looms that survive in this Presidency not only produce fabrics which are not as yet produced on power-looms but also manufacture different kinds of cloth in direct competition with power-looms. Though we cannot estimate, in the absence of a special survey, the extent of this competition, it is undoubtedly considerable; for out of 225,000 looms in the Presidency over 40,000, according to the estimate of the Department of Industries, Madras, are producing handkerchiefs and lungis alone; and probably an equal number of hand-looms is employed in the production of such fabrics as sheeting, dhoti, towel, carpet, chaddar, khadi napkin coating, shirting, muslin etc., which are also made on power-looms. This is very significant.

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TABLE A—*contd.*

STATEMENT SHOWING THE INDIAN IMPORT, EXPORT AND PRODUCTION OF YARN AND THE AMOUNT OF YARN AVAILABLE FOR THE HAND-LOOM—*Continued.*

TABLE A
STATEMENT SHOWING THE INDIAN IMPORT, EXPORT AND PRODUCTION OF YARN AND THE AMOUNT OF YARN AVAILABLE FOR THE HAND-LOOM

Year	Net Imports of Foreign Yarn	Indian Mill Production	Export of Indian Yarn	Yarn consumed in mills for production of woven goods; 100 lbs. of yarn = 112 lbs. of cloth.	Balance of Yarn available for the Hand-loom
1	2 Million lbs.	3 Million lbs.	4 Million lbs.	5 Million lbs.	6 Million lbs.
1871	28.7	...	...	...	...
1881	45.8	...	27	...	...
1896-97	45.7	423	96	74	196
1897-98	53.0	463	200	81	231
1898-99	39.2	512	220	91	237
1899-00	37.1	514	244	87	220
1900-01	30.1	353	122	88	173
1901-02	31.6	573	278	107	220
1902-03	27.9	576	255	110	239
1903-04	23.1	579	260	123	219
1904-05	25.4	578	256	142	205
1905-06	40.8	681	305	146	271
1906-07	32.2	654	251	148	287
1907-08	30.7	638	223	169	277
1908-09	35.0	658	242	171	280
1909-10	34.7	628	234	204	225
1910-11	27.1	610	191	220	226
1911-12	34.7	625	161	238	261
1912-13	40.7	688	215	254	260
1913-14	35.9	683	207	245	267

Year	Net Imports of Foreign yarn	Indian Mill Production	Export of Indian Yarn	Yarn consumed in mills for production of woven goods; 100 lbs. of yarn = 112 lbs. of cloth	Balance of Yarn available for the Hand-loom
1	2 Million lbs.	3 Million lbs.	4 Million lbs.	5 Million lbs.	6 Million lbs.
1914-15	34.0	652	143	247	296
1915-16	31.7	722	168	314	272
1916-17	22.8	681	178	337	189
1917-18	13.3	661	130	340	204
1918-19	32.0	615	73	312	262
1919-20	7.9	636	161	343	140
1920-21	43.7	660	89	328	287
1921-22	53.5	694	88	361	299
1922-23	53.0	706	64	362	333
1923-24	39.5	617	46	359	252
1924-25	50.5	719	46	410	314
1925-26	50.6	686	32	415	290
1926-27	48.5	807	49	472	334
1927-28	50.9	809	22	510	328
1928-29	43.7	648	24.3	404	265
1929-30	43.9	833	24.6	506	346
1930-31	29.1	867	23.5	531	342
1931-32	31.6	966	22.0	611	364
1932-33	28.7	1016	15.1	632	397

[From the Indian (Textile) Tariff Board, 1927.]

TABLE B—*contd.*STATEMENT SHOWING THE CONSUMPTION OF COTTON
PIECEGOODS IN INDIA AND THEIR SOURCES.—(*contd.*)

Year	Net imports of foreign piecegoods	Mill produc- tion	Hand-loom production	Exports of Indian piece goods	Net balance of goods available for consumption	Consumption per capita	Population
1	2	3	4	5	6	7	8
	Mil. yd.	Mil. yd.	Mil. yd.	Mil. yd.	Mil. yd.	Yards	Million
1896-1897	1932	354	784	105	3063	10.59	289
1897-1898	1800	389	924	97	3113	10.73	290
1898-1899	2000	436	948	90	3384	11.63	291
1899-1900	2053	419	880	112	3244	11.10	292
1900-1901	1875	422	692	111	2878	9.80	294
1901-1902	2042	511	880	120	3313	11.23	295
1902-1903	1986	524	960	109	3361	11.31	297
1903-1904	1903	589	872	125	3239	10.83	299
1904-1905	2152	678	828	135	3523	11.70	301
1905-1906	2335	700	1084	129	3990	13.21	302
1906-1907	2193	708	1148	115	3934	12.89	305
1907-1908	2401	808	1108	112	4205	13.69	307
1908-1909	1870	824	1116	113	3697	11.96	309
1909-1910	2070	964	896	126	3804	12.23	311
1910-1911	2162	1043	908	134	3979	12.71	313
1911-1912	2262	1136	1044	118	4324	13.72	315
1912-1913	2847	1220	1040	125	4982	15.81	315
1913-1914	3042	1164	1068	130	5146	16.28	316
1914-1915	2327	1136	1184	110	4537	14.35	316
1915-1916	2019	1442	1048	161	4348	13.37	317
1916-1917	1771	1578	816	309	3856	12.16	317

Year	Net imports of foreign piecegoods	Mill produc- tion	Handloom production	Exports of Indian piece good	Net balance of goods available for consumption	Consumption per capita	Population
1.	2	3	4	5	6	7	8
	Mil. yd.	Mil. yd.	Mil. yd.	Mil. yd.	Mil. yd.	Yards	Million
1917-1918	1405	1614	812	234	3597	11.34	317
1918-1919	955	1451	1048	187	3267	10.27	318
1919-1920	836	1640	564	239	2801	8.80	318
1920-1921	1405	1581	1148	170	3964	12.42	319
1921-1922	980	1732	1190	187	3715	11.64	319
1922-1923	1467	1725	1341	186	4347	13.50	322
1923-1924	1374	1702	1005	201	3880	11.94	325
1924-1925	1710	1970	1256	230	4806	14.65	328
1925-1926	1529	1954	1160	164	4479	13.55	331
1926-1927	1758	2258	1336	181	5161	15.45	334
1927-1928	1935	2356	1312	216	5387	16.00	337
1928-1929	1912	1893	1060	187	4678	13.76	340
1929-1930	1919	2419	1384	146	5576	16.21	344
1930-1931	873	2561	1368	98	4704	13.54	348
1931-1932	760	2989	1456	105	5100	14.50	352
1932-1933	1204	3169	1588	66	5895	16.50	356

(Taken from the report of the Indian (Textile) Tariff Board, 1927.)

N.B.—(1) The quantity of handloom production in yards is derived from the estimated weight of yarn available for it in Col. 6 of Table A on the assumption that 4 yards of cloth are produced per pound of yarn.

(2) In the spinning and weaving statistics both weight and yardage of cloth woven in mills are given. But the weight of yarn consumed in the production of cloth by mill is ascertained on the assumption that 112 pounds of cloth can be made out of 100 lbs. of yarn.

TABLE C

CENSUS OF HAND-LOOMS AND WEAVERS IN THE PRESIDENCY OF MADRAS FOR THE YEARS 1901, 1921 AND 1931

District	1901				1921				1931 Census	
	WEAVERS		Number of looms	Weavers including unspecified	Number of looms	Number of looms	Number of looms	Total earners, weaving as principal occupation	Men	Women
	Men	Women								
1. Agency	2	3	4 ¹	5	6	7 ²	8 ¹	9	10	(1)
2. Ganjam	10,592	2,874	...	5,621	2,976	1,526	3,125	...	...	(2)
3. Vizagapatam	15,459	5,737	10,320	3,045	4,780	5,582	4,949	12,452	4,420	(3)
4. Godavari	26,865	16,900	1,451	22,307	13,841	7,438	1,809	23,587	7,075	(4)
5. Kistna	22,015	4,256	5,407	10,414	4,856	5,078	9,124	{ 12,883 East 5,950 West }	3,553 East 1,389 West	(5)
6. Guntur	27,505	9,654	12,203	18,178	2,409	6,349	4,419	6,872	2,238	(6)
7. Nellore	...	...	...	10,127	5,786	14,974	19,035	23,114	3,884	(7)
8. Cuddapah	23,230	6,658	8,325	1,208	5,944	10,494	10,550	13,136	1,980	(8)
9. Kurnool	21,582	10,732	11,505	8,842	4,113	6,251	13,433	12,687	1,716	(9)
10. Bellary	12,366	4,315	8,146	10,228	2,178	4,419	8,850	8,290	1,829	(10)
11. Anantapur	12,934	3,171	9,284	4,269	2,420	5,102	9,845	8,786	3,629	(11)
	12,086	4,842	2,299	5,743	2,198	4,841	6,050	9,163	2,054	

12. Madras	3,224	775	...	6,748	531	1,527	...	6,253	788	(12)
13. Chingleput	13,664	6,560	11,255	14,238	3,097	10,600	10,600	19,991	4,676	(13)
14. Chittoor	...	...	...	8,682	3,350	3,862	2,446	9,490	2,943	(14)
15. North Arcot	25,668	13,768	9,751	15,797	5,651	12,743	...	20,484	3,317	(15)
16. South Arcot	15,615	7,713	6,964	10,830	4,375	4,646	12,241	11,857	937	(16)
17. Salem	33,233	19,876	16,341	13,782	8,811	10,841	23,890	29,466	6,851	(17)
18. Coimbatore	22,781	11,154	15,040	19,664	7,684	7,714	17,899	24,909	6,742	(18)
19. Tanjore	12,425	2,184	9,598	11,291	6,493	6,299	14,858	8,533	1,369	(19)
20. Trichy	10,754	5,736	4,515	8,790	3,070	5,898	10,001	9,788	2,442	(20)
21. Madura	23,819	11,291	7,551	19,372	9,294	6,493	8,948	11,823	3,985	(21)
22. Ramnad	...	...	...	13,601	2,339	4,989	5,472	10,640	4,242	(22)
23. Tinnevely	23,194	10,301	10,196	8,910	5,353	11,394	13,038	13,611	5,257	(23)
24. Malabar	12,269	3,299	6,328	11,330	3,127	7,886	10,696	16,230	4,343	(24)
25. South Kanara	1,826	1,142	1,317	4,181	792	1,528	3,944	3,544	1,071	(25)
26. Nilgiris	26	8	...	8	1	...	...	...	...	(26)
27. States	1,414	703	...	435	271	929	...	796	178	(27)
Total	38,45,46	1,63,739	1,67,806	2,77,217	1,15,369	1,69,403	2,41,622	3,34,407	83,131	(28)

¹ From the Statistical Atlas of the Madras Presidency for 1901 and 1921
² From the handloom census taken along with the general census in 1921
³ These districts were separately constituted only after the census of 1901

CHAPTER III

THE HAND-LOOM STILL SURVIVES!

It is surprising to find that the production on the hand-loom has not been affected during the last forty years though the number of power-looms has increased nearly four times. Now a fourth of the cloth consumed in India is produced on hand-looms. The hand-loom exists in industrially advanced countries; but the causes of its survival in those countries are different from the causes of its survival in India. In the United Kingdom the existing hand-looms mainly employ linen and where cotton looms exist they are plied as a means of subsidiary income by agriculturists. In some European countries they survive where they are run by cheap electric power. In France, Italy and Japan¹ hand-looms manufacture mainly cotton decorative patterns or silk fabrics. In most other countries they are simply manufacturing silk and artistic fabrics. But nowhere does the hand-loom exist in so large a number as it does in India and China, manufacturing plain cotton fabrics and competing with power-looms.² They exist in these two countries because of their peculiar economic conditions. Some causes of the survival of the hand-loom in other countries also apply in the case of India and of China. Many looms manufacture silk and mixed goods and special cotton fabrics which cannot be manufactured on power-looms on a commercial scale. There are looms which are owned by weavers who are partial agriculturists

¹ In Japan there were in 1926, 261,332 power-looms and 104,638 hand-looms. Arno Pearse.

² The estimated world consumption of cotton in mills is 10,000 million pounds of which more than 12 per cent is the share of the hand-looms. There are only two countries where the hand-loom production of cotton fabrics is important—China and India. In China nearly three-fourths of her cloth consumption are produced by home workers on their country looms. It is estimated that hand-looms in China produce 870 million lbs. of cloth. In India the share of the hand-loom production is one-fourth of her total cloth consumption and the average annual production in hand-loom is 300 million lbs. The reasons for the survival are: 1. absence of more remunerative employment, 2. abundance of labour, 3. local market, and 4. raw products locally available. (Cf. *the Report of the Committee on Industry and Trade*, Part III, Survey of Textile Industry 1928.) (G.B.)

and agriculturists who are partial weavers.¹ It is also true that a large variety of coloured cloths which cannot be manufactured on power-looms are produced on hand-looms. It is difficult to ascertain, for no census of hand-looms is taken on that basis, how many looms there are in the country owned by agriculturists, how many are devoted to the manufacture of special patterns and coloured fabrics etc. While other causes explain their survival to some extent, the abundance of labour and hereditary skill and the absence of other remunerative occupations can alone account for the existence of hand-looms producing almost a third of the cloth required in India in direct competition with the power-loom.

The secret of the survival of the hand-loom in India in such a large number is explained by Sir Alfred Chatterton: 'The hand-loom weaver still survives to-day because there is no alternative open to him . . . He can easily hold his own for a long time to come since he is content to exist on but little more than bare necessities of life'.² The industry survives because the weaver is content with low wages and the women, who do winding, warping and sizing, are either very low paid or not paid at all as they are members of a weaver's family. This low standard of value for human labour is at once the cause of hand-weaving still surviving and the great stumbling block to the progress of the weaver. This is a hard fact and the weaver is not to blame; and it is in the light of this fact that schemes of economic reconstruction must be formulated. The weaver will, for a long time, hold his own and he will not be driven out, as the spinner is forced out, to other means of livelihood so long as these are not more remunerative than hand-weaving. The hand-spinners cannot

¹ According to 1921 census there were 1,27,175 men and 35,063 women who had returned themselves as partial agriculturists out of 15,39,784 men and 7,32,064 women weavers.

² Sir Alfred Chatterton writes in his book *Industrial Evolution in India* p. 213, 'The hand-loom has not died out in Europe, but wherever it is found working, investigation generally shows that there are special reasons why it continues to be employed. The hand-loom weaver in India still survives to the present day because there is no alternative open to him but in the struggle, he has been reduced from prosperity to poverty and even with the assistance of his women and children he is only able to earn a bare livelihood. In many cases he is no better off than an unskilled labourer and in times of famine and scarcity, the cessation of demand for his cloths reduces him to complete destitution at once. Whatever may be the ultimate fate of the hand-loom weaver, he can easily hold his own for a long time to come since he is content to exist on but a little more than the bare necessities of life.'

fight the mill competition; and agriculture, however overcrowded, is certainly more remunerative than hand-spinning and that has led to the disuse of the charka and the spindle.¹ They find that they can earn more as general labourers than by plying the wheel monotonously. Weavers on the other hand are not yet reduced to such desperate straits. With the help of labour-saving devices and other ameliorative measures of their well-wishers, they can, with all their increasing difficulties, still earn better wages by working at their looms—perhaps for longer hours—than by taking to agriculture.

Other equally remunerative lines of employment are few and cannot absorb even a small fraction of the weavers. Even the establishment of new mills will not absorb the unemployed weavers. Nay, if all the cotton produced in India is converted into yarn and then all the yarn is manufactured into cloth, even such a large cotton mill industry will not give employment for more than two million workers. But the hereditary caste weavers number several millions. Further, it must be noted that the introduction of one power-loom means the unemployment of four weavers at the least, not to mention the extent of unemployment of others who do the preparatory processes.² The acceleration of the mill industry will not by itself bring about salvation. It will only create more unemployment and accentuate the problem of poverty which, at this stage of our economic development, will become in-

¹ The hand-loom was improved but not the spindle during the last 60 years. The progress of hand spinning depends on new inventions.

² The editor of *The Indian Textile Journal*, Bombay, attempts to defend the introduction of labour-saving appliances and to refute the objection against the use of machinery in industry, viz. that it results in the employment of fewer workers and thereby creates unemployment. 'Possibly the mistake' says he, 'may originally have been created by the definition "labour-saving"—a far more accurate description of machinery being the title recently applied to it by the Prince of Wales as of "labor-aiding"—of machinery. It reduces the amount of heavy manual labour necessary before its introduction, reduces the cost of production, and develops new processes and industries, thereby increasing, instead of diminishing employment.' He supports his last point by quoting figures of employment and production in cotton textile industries in England during the last eighty years. 'Owing to the introduction of machinery it was estimated in 1840 that one man can produce as much as 320 men did in 1769 when Arkwright invented his spinning machinery. In 1855 one workman could produce as much as 700 men. The official returns show that while in 1835 the number of cotton operatives in the United Kingdom was 218,000, in 1870 it increased to 450,000 and in 1914 to 689,000 the increase in population being from 24 to 45 millions.' (*The Indian Textile Journal*, July, 1927, page 304.) The facts, as stated above, are true but what is claimed for machinery is disputed. It is now recognised that the strain to the worker is much greater in many mechanical processes than in handicrafts. The worker is

tolerable. The grinding poverty of the unemployed worker will only enable him to offer battle to the mill-worker under conditions still more degrading and miserable and he will go on working for lower wages and sweating for longer hours till either the mill supply of yarn is cut short or he is, otherwise, squeezed out. This is a grim fact which must be recognized.

There is another important cause but for which the hand-loom industry could not have expanded so much. A feature of the origin and the growth of the Indian cotton mill industry is that it began as providing yarn for the hand-loom, first

Year	Excess of spindles in factory ¹	Estimated excess of yarn ¹
1876	8.3 lakhs	83 million lbs.
1886	17.5 "	175 "
1896	29.0 "	290 "
1906	35.1 "	351 "
1916	31.0 "	310 "
1926	38.9 "	389 "

in India, and later on in China. The mills continued to increase their spindles. Even when power-looms were installed the total number of spindles catering to the needs of the hand-loom and not required for power-looms also increased, though slowly. In the first decade of this century the loss of the Indian yarn export trade to China led for a while to

much more easily fatigued in factories. The increase in outturn and the fall in the cost of production are the merits of machinery. But its weakest claim is in respect of increased employment. It has got its limitation. The development of the mill industry in the United Kingdom increased the scope for employment there but at the tremendous cost of the human power now wasted in other countries. The extent of unemployment of handicraftsmen in other countries who catered to the local demand and markets which are now captured by the Lancashire industry is great but difficult to ascertain. The benefit of machinery to the United Kingdom—nay to all countries—is mainly due to its building of an Empire and Imperial economic policy. An empire cannot be claimed by all countries aspiring to develop their power industries. Except in a highly communistic society the benefit that machinery can confer is limited.

¹ Calculated on the basis of 30 spindles to a loom.

benefit the hand-loom weaver by making a larger supply of yarn available for him. But the spirit of *Swedeshi* first and the Great War later on accelerated the tendency for the installation of new looms in Indian mills. But side by side, the spinning industry also developed catering to the demand of the hand-loom. The cheapening of the price of mill yarn and its superior quality, compared with that of the hand-spun yarn, caused a steady expansion of the hand-loom industry. And this was a great service; and it would have been greater if power-looms were not indiscriminately installed. Probably they would never have been so rapidly installed but for the post-war fiscal policy of the Government of India. At present with the recovery of the import trade, the Indian power-loom, finding it difficult to face the competition of foreign imports in spite of the protection against them, is compelled to capture increasingly the preserves of the hand-loom to the great detriment of hand-loom weavers.

The present difficulties of the weaving mills in India are partially the result of competition from hand-looms from within the country. The future development of the cotton industry depends on the adjustment between mills and hand-looms. Certain fabrics can be produced perhaps cheaply only on power-looms; but where labour cost is a large item in the cost of production the hand-loom has the greater advantage. In most cases of manufactures the hand-loom has the advantage at least so long as the particular skilled labour is cheap and abundant and no revolution is made in the processes of power-weaving. The mills, therefore, must supply yarn to the hand-loom weaver in specified qualities at reasonable prices. Herein lies the mutual adjustment.

The survival of the hand-loom is attributed to yet another fact viz., that it uses fine counts mainly. It is true to some extent; but it is an exaggeration to state that the hand-loom survives because it consumes mainly fine counts. For, as the accompanying table will indicate, 65 per cent of the yarn used on hand-looms is coarse and medium (being less than 30s) even on the extravagant assumption that all yarns above 30s, imported and manufactured in India including rayon mercerised yarn and yarn of unspecified count, are consumed by the hand-loom exclusively.

TOTAL YARN OF COUNTS ABOVE 30s and ABOVE 40s AVAILABLE IN INDIA.

(STATED IN MILLION POUNDS.)

Particulars	Average for			
	1900-3	1911-14	1924-27	1928-31
Indian yarn				
1. Between 30s & 40s	13.4	19.8	22.3	48.0
2. Above 40s	1.2	1.7	7.7	17.5
Imported				
1. Color yarn				
Between 30s & 40s	...	15.6	4.8	2.4
above 40s	...	1.6	0.5	0.4
2. Grey yarn				
Between 30s & 40s		9.7	21.3	21.2
above 40s		6.6	6.7	6.2
3. Mercerised, bleached, art silk and other unspecified yarn	...	5.8	11.2	12.0
Total of 30s and above including mercerised etc.		59.8	74.5	107.3
Percentage ¹		24.1 %	25.1 %	33.7
Total of 40s and above, including mercerised, bleached and art silk		15.7	20.1	36.1
Percentage ¹		6.3 %	6.7 %	11.4
Total yarn consumed on hand-looms		248.0	297	318

This assumption is very extravagant. The increase in 30s is mainly due to the imports while the increase in the finer counts is the result of increased production of finer yarns in Indian mills. They have also increased their output of 30s to 40s. Considering the increasing outturn in Indian mills of fine fabrics as muslins, nainsooks etc., with counts

¹ Percentage of the total yarn consumed on hand-looms.

up to 120s, it must stand to reason to assume that what finer yarn the mill requires for its use, it produces. It is estimated by Mr. G. S. Hardy, I.C.S., that Indian mills consume nearly 7 million lbs. of yarn above 40s. Therefore the increase in the quantity of yarn imported alone more correctly indicates whether hand-looms use finer count yarns. The increase in this respect is very negligible.

However, as regards Madras Presidency there is an increasing import of foreign yarn of finer counts and it has also an increasing share of the finer counts made in India. The import of yarn of counts above 40s into Madras is nearly 20 per cent and of counts above 30s is 80 per cent of the total imports into India. As regards coloured yarn Madras accounts for 75 per cent of the imports. All this is required for the manufacture of kailis and kerchiefs, and for the celebrated grey cloths of Madura, Salem, Narayanavaram, Tugili, Torayur, Chicacole, etc.

It must however be admitted that though the percentage of fine count yarns to total yarns available is very small the number of looms employing such finer yarns for manufacture is not negligible. They account for nearly 30 per cent of the total number of looms. But it cannot be said with reference to all-India that the survival of the hand-weaving industry is mainly the result of increasing consumption of finer counts.

The survival of the hand-loom is traced to the increasing use of artificial silk and mercerised cotton. It would be mere guess work, without a proper survey of the hand-loom industry, to state whether rayon has affected or benefited the silk- or the cotton- hand-loom weaver. From a study of the foreign trade in silk and art silk it is evident that the export of raw silk has increased and its import fallen. And while there is nothing to indicate an increase in the production of raw silk in the country it may be concluded that less silk is now consumed on hand-looms. But there has been a considerable increase in the import of artificial silk yarn. Therefore it would be safe to state that the increased import of rayon has benefited silk-weavers more than cotton-weavers.

Further, there are certain kinds of cloth which are the virtual monopoly of the hand-loom: viz., the coarse cloths and the superfine cloths. Mills in India are gradually

discarding the manufacture of cloths of counts below 14s.¹ In coarse yarn there is less tensile strength and therefore it is not possible to manipulate it on the power-loom with economy. The coarse counts produced in mills are mainly for the use of the hand-loom weavers who manufacture dupaties, bedsheets, carpets, jamakkalams, tapes, ropes and strings.

Again in out-of-the-way districts hundreds of looms are engaged in producing cloth from the coarse and medium yarns (partly spun locally on the charka) where none but hand-woven cloths are in demand. It is really fortunate for the weavers that such is the case. The Indian mill-made and the imported cloths have not yet much penetrated those markets. Motives of economy recommend to the masses of the poor people these coarse hand-woven cloths. There are many places of this type far interior into the country and the improvement in the means of communication and transport alone are likely to affect the weavers. Even where the mill cloths have reached the rural markets the local hand-made cloth is preferred for its price and durability to the heavily sized white cloths of the mills. Again the rural economy of those places favours the production of hand-woven cloth. In many parts of Salem and Tinnevely, even prior to the national propaganda for the revival of the charka there had been and there are still a number of Vellala villages where women spin and the local weavers convert the yarn into cloth.

Besides, there are certain kinds of hand-made cloths which cannot be manufactured with economy on the power-loom, e.g. the Conjeevaram and Kornad saris, the solid bordered grey and coloured cloths of Salem, the fine laced cloths of Madura and the Northern Circars, and a number of other types, special to each locality, of which the slow moving custom decrees the use. It has been observed that fashion is at once the best friend and the deadliest foe of the hand-loom weaver. This is very true. Local tastes and ideas of fashion and respectability account for the manufacture of such cloths on hand-looms. The survival of hand-loom weaving is in a large measure due to the fact that those tastes and

¹ Mukerjee: *Foundations of Indian Economics*.

ideas of fashions of the masses of the people have not materially changed. Western ideas of dress have affected the tastes of the educated few to the detriment of the industry. The rich and the middle classes are now aspiring to be fashionable. But the masses still prefer the hand-woven fabrics for their durability. The decline in the industry is in respect of certain patterns only, such as the broad-bordered Conjeevaram cloth. It must be said that with all the changes in the fashion the weaver is trying to adjust himself to the changing conditions and is producing new patterns. And this accounts for the survival of the hand-loom.

Again it is the conservatism of the South Indian women that preserves the hand-loom industry in a sense. The women prefer the artistically and elaborately figured garments—either pure silk or cotton and silk—and the varieties of cloths thus demanded in each small centre are so numerous that they can never be supplied cheaply by mills. On hand-looms alone it is possible to manufacture varieties of cloths with different patterns and colour designs to suit the tastes of different communities. It is true that mills have now captured much of this trade and manufacture many of the varieties hitherto produced only on hand-looms; yet the sovereignty of the hand-loom in this realm remains undisputed. Individual tastes and fancies are satisfied more effectively by the hand-loom weaver. Also weaving as a work of art is possible on the hand-loom alone while the mill can only perpetuate monotonous reproduction of stereotyped patterns. In the manufacture of cloths where the skill of the weaver rather than his mere power is required the hand-loom has still the undisputed sway.

Again it is stated that the difficulties which the mills have to face encourage the development of the hand-loom. 'Duties levied on mill goods afforded a certain protection to the hand-loom industry.'¹ This is true of the pre-war time when there was an excise duty on cloths manufactured in mills in India and an import duty on the imports of cloths while yarns were imported free. Even then the protective effect of the excise duty was merely incidental and it was not in fact designed to be a powerful lever for the expansion of hand-loom

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

weaving. But this does not hold good now. For it was after the abolition of the excise duty in 1925 while the import duty on yarn is retained, that there has been a great expansion of the hand-loom weaving as the accompanying table will illustrate.

STATEMENT SHOWING CONSUMPTION OF YARN BY HAND-LOOMS.

(in million lbs.)

Year	Production in mills		Estimated production on hand-looms
	yarn	cloth ¹	
1921-2	694	361	299
1922-3	706	362	333
1923-4	617	359	252
1924-5	719	410	314
1925-6	686	415	290
1926-7	807	481	334
1927-8	809	507	328
1928-9	648	445	264
1929-30	833	562	343
1930-1	867	590	342
1931-2	966	672	364
1932-3	1016	694	397

It is again said that the strength of the hand-loom industry lies in the weakness of the mill industry in some respects. This is an underestimate of the true vitality of hand-weaving. The reverse is nearer the truth. It is the weakness of the hand-loom industry, especially in respect of technical equipment and business organization, that accounts for the greater efficiency of the mill industry. It is claimed 'mills have to meet labour troubles, strikes and lockouts, increasing

¹ The weight of cloth given in the Weaving and Spinning statistics is reduced on the basis that cloths manufactured out of 100 lbs. of yarn will weigh 112 lbs.

cost of production due to increased prices which are great obstacles to the development of the power-loom weaving and these difficulties are likely to increase in future and it may be expected that hand-weaving may find scope for development'.¹ This is emphasising too much the weak side of the mill organization and ignoring the vitality of the hand-loom. It perhaps overlooks the fact that all this will adversely affect the hand-loom weaver as much as it would affect the power-loom for the weaver depends for the supply of his yarn on these mills.

Therefore, it must be here noted that it is the strength of the hand-loom that is responsible for its survival and expansion. It is claimed, and it is true, that cloths are produced on hand-looms with much better wearing qualities and sometimes at a much lower price than on power-looms. Expert opinion is in favour of the hand-loom. 'Hand-weaving is capable of competing with power-weaving'.² 'The Handloom can turn the tables against the power-loom'.³ 'There are splendid possibilities open to the hand-loom in India'.⁴

¹ D. M. Amalsad : Memorandum to the Textile Conference, Madras.

² Manager, Empress Mill, Nagpur, at the Indian Industrial Conference, 1907.

³ Prof. Fox : From the Correspondence of the Department of Industries, Madras.

⁴ *Bulletin of the Department of Industries, Bihar and Orissa.*

CHAPTER IV

THE DECLINE OF THE HAND-LOOM INDUSTRY : ITS CAUSES

WRITERS on the hand-loom industry generally attribute the decline of the industry to the competition from mills. 'The rapid development of machinery and manufactures', writes the author of *The Progress of the Madras Presidency during the last forty years*, 'and the cheapness with which cotton cloths were produced in England led to India being flooded with Manchester goods to the further injury of the weaving classes here. . . . Now the tide has turned and the development of the factories in India bids fair to enable her to manufacture the goods required for her own population even more cheaply than in England. . . . It is clear that the deterioration of the spinners and weavers will now be even more rapid than in the past. . . . The whole trade of the hand-loom weavers has now shrunk to small dimensions'.¹ This was true at the beginning of the factory industry in India; for a large range of goods that was formerly manufactured on hand-looms was captured by power-looms and thus the hand-loom was driven to explore new fields, which had become increasingly difficult because of its lack of resources and organisation. The development of the mill industry affected the other branches of the cotton home industries more disastrously than hand-weaving, which has not only tided over the storm of competition but is now regaining much of its lost ground. Though it must be admitted that the hand-loom is benefited by spinning mills which have cheapened the price of yarn and created a new demand for the hand-woven cloth, it cannot be denied that the hand-loom suffers from the competition of weaving mills. In this connection it must be noted that the Indian Millowners' Association claims that the power-loom does not compete with the hand-loom and that the mills far from being antagonistic to the development of the hand-loom industry are unreservedly in favour of its encouragement

¹ A similar view is expressed by Mr. E. B. Havell: 'The European goods had their great advantage in point of cheapness and therefore the native manufactures have suffered.' Most probably he meant by 'native manufactures' cloths woven on hand-looms out of hand-spun yarn.

and improvement.¹ This claim is supported by Dr. Radhakamal Mukerjee² and Mr. R. D. Bell, formerly Director of Industries, Bombay. The latter writes: 'the mill industry and the hand-loom industry are not really antagonistic to one another. A great part of the output of the hand-loom is composed of specialised types of cloth which are not suitable as regards quantity or quality for mass production. The amount of direct competition between mills and hand-looms is at present very restricted'.

'Hand-looms provide an enormous market for mill-spun yarns. Probably the greatest improvement in the hand-loom industry has been the provision of ample quantities of mill spun yarns of all counts and of regular twist and strength in substitution for the irregular and usually coarse handspun yarns of former days.'

The latter part of Mr. Bell's remarks is substantially correct. A great development in the hand-loom production took place after the development of the power spinning industry in India. But it cannot be ignored that power-loom weaving has not only driven the hand-loom from some of its former close preserves but is seeking to oust it from some others as well. The increasing outturn of dhoties, chaddars etc., is an instance of the mill competition with the hand-loom. The Salem *Gundanju*, the Conjeevaram *Pattai*, the Tugili *angavasthrams*, to cite only a few instances, are now increasingly produced on power-looms in India, Japan and Lancashire. In other respects also the mill competition tends to increase.

The growing rationalisation of hand-loom production, in order to keep pace with the progress in power weaving has created more unemployment among weavers and in many cases a fall in their earnings. This is inevitable in a changing and progressive world. The decline in the industry which

¹ M. P. Gandhi, *Indian Cotton Textile Industry*, pp. 87-88.

² Dr. Mukerjee writes in his *Foundations of Indian Economics*, page 164, 'The notion of competition between hand-loom and power-loom is wrong. The hand-loom does not compete with the mill but it supplements it in the following ways: (1) it produces special kinds of goods which cannot be woven in the mills (2) it utilises yarn which cannot at present be used on the power-loom (3) it will consume the surplus stock of Indian spinning mills which need not be sent out of the country (4) being mainly a village industry it supplies the local demand and at the same time gives employment to capitalists, weavers and other workmen and (5) lastly it will supply the long-felt want of an honest field for work and livelihood for educated Indians.'

every one bemoans is not quantitative, for the hand-loom has increased its output; but it relates to the human factor in the industry which is most deplorable and for this the mill competition is partly, if not solely, responsible.

The changes in the tastes and ideas of fashion of the people have also led to the decline of the industry. 'Both in fine and more especially inferior cloths the spread of Western ideas has had more prejudicial effects on the industry than the mere cheapness of the European goods'.¹ This is woefully true. Formerly rajas, courtiers and zamindars patronised hand-weaving which supplied celebrated muslins, sateens and other fine fabrics. At present persons in liberal professions, the merchant-princes and industrial magnates who occupy a high social position have become patrons of cheap foreign fineries and pseudo-works of art. This aspect has been much deplored by many writers.² The imports of foreign piecegoods are meant simply to satisfy their demand. Thus because of the change in the tastes of the rich and the ideas of respectability prevalent among the masses of the urban and semi-industrial population who care more for cheapness than for art and more for show than for quality, mill production advanced and the hand-loom industry suffered a severe set-back. Now, we witness the rapid supersession and base imitation of the many hand-loom patterns. 'The long-cloth has displaced the plain white cloth with a narrow border of coloured cotton'. The individual weaver cannot compete with the mill which has elaborate organisation, resources and power. He has to submit himself to the ever-growing competition of the mill and weave his own philosophy of resignation and contentment.

¹ E. B. Havell.

² Mr. D. R. Gadgil expresses a similar opinion. He writes in his *Industrial Evolution in India*, (p. 45): 'The next class which was the natural successor to the position of the nobles was the newly created educated class. This was mostly an urban and professional class, somewhat corresponding to the professional section of the "bourgeoisie" of the West. This new class might have been expected to patronise the handicrafts. But it may be said that the demand from this class did not amount to even as much as the demand from the Europeans. Indeed with a few exceptions they entirely turned their back on the indigenous arts. One of the most harmful effects of foreign rule is the imposition on the conquered people of the ideals of the conquerors and the newly created Indian "bourgeoisie" showed itself during the latter half of the last century extremely ready to accept European standards and pour scorn on everything Indian. This was especially so in the case of the arts. To follow European fashions was considered the hall-mark of enlightenment. Consequently the products of indigenous industries suffered.'

It is also said that the cause for the decline of hand-weaving is the weaver himself. 'Weavers are as a class ignorant and illiterate with no business experience, knowledge, or intelligence, with no spirit of co-operation among themselves, trodden down by the influence of the money-lender on the one hand and by extravagant social customs on the other'. It is also said that he is the least receptive to new ideas and is almost unwilling to help himself out of his present miseries. It is possible to blame the weaver but, to be fair, let us ask: what have education, capital, organisation, and energy done for the weaver?—nay, what has society done for him or for his craft that he should have improved his status or developed his art, and, in failing to do it, he deserves this strong condemnation? Society has all along been indifferent and capital and energy and organisation were diverted to other channels which were more lucrative; and now we have the sorry spectacle of the growing, vast, uneducated, unprogressive and poverty-stricken rural population and rural artisans, on whose material and moral advancement depends the progress of society.

Technical experts have attributed the decline of the art to the almost crude and primitive and slow processes adopted in weaving. Technical deficiency may have retarded the growth of the industry previously in some provinces; but now everywhere in many respects many improvements have been made in the technique of the industry.¹ It must, however, be admitted that the decay of the industry is due to the unremunerative, wasteful and slow preparatory processes adopted by the ordinary weaver. 'Ancient and primitive types of tools were used by weavers who were averse to adopt economical preparatory processes and to increase their production by introducing small labour-saving appliances'. 'The weavers persist in the slow, laborious, wasteful and costly methods in their preparation of warp'. No doubt the processes are crude and wasteful and the division of labour is rough and ready.

¹ The number of frame looms, flyshuttles, drawboy devices, warping mill etc. in use is increasing in the Madras Presidency (Refer Appendix, Salem Dt. Hand-loom Census). Mr. M. P. Gandhi writes that the number of flyshuttle looms is 84,392 as against 31,042 other looms in the Hyderabad Dt. About a third of the hand-looms in Bengal are with flyshuttle. A study of the annual reports of the working of the Provincial Departments of Industries supports this view.

It must be noted, however, that the weaver is not unwilling to adopt improved methods. Nor must it be said that he is incapable of adjusting himself to the changing conditions, and benefiting himself by the improved technique. It is his crushing poverty that is the bane of his life. Left to himself, he cannot carry on the battle against the mill. He stands in need of help from enlightened capitalists and businessmen.

Thus, it becomes evident that the lack of organisation more than the competition of the mill goods or the technical deficiency is the real cause of the present stagnant condition of the industry. Sir Alfred Chatterton said, 'If only a portion of the capital, organisation and energy that have been spent on the mill industry is devoted to his trade, the hand-loom weaver would have turned the tables on the power-loom.' The master craftsman is a small capitalist and the reorganisation of the industry is both beyond his individual means and imagination and his present function is more trading than industrial in character. Unlike the English clothier, who was the industrial entrepreneur improving the technique of the industry and organising production, the merchant in hand-loom products cares more for trading profit than for industrial advancement. He has not organised the industry on scientific lines; nor has he rationalised production and created the necessary organisation for effecting economy in the purchase of raw materials required for the industry and in the marketing of cloth. Nor is there co-operation among small merchants and craftsmen. Anything like organisation of the hand-loom industry dates only from the last decade and to-day we have a number of hand-loom factories which indicate how organisation of hand-loom weavers, however small, can help the weaver and the industry.

There are other causes which have also led to the loss of patronage and the decline of the industry. Certain practices resorted to by weavers to meet the mill competition have injured the reputation of hand-loom products. The weaver is not alone to blame. The merchants are the worst culprits who have encouraged these practices in many cases. They met outside competition by deteriorating the quality of weaving. The use of bastard reeds, irregular weaving, false description of cloths, absence of standardisation and the failure to observe

time deliveries are the factors which led to the loss of patronage. The revival of the industry depends on its reorganisation in these respects.

Again, in the industry as at present organized there is no proper division of labour nor is there a proper division of functions, the advantages of which are so well known and so commonplace that they require no detailed mention here. The cloth merchant is a Jack of all trades; he finances the industry; he regulates production; he himself markets the manufactures. There is not much of specialisation in any one branch. And even where it obtains, it is crude and unscientific. The means of the merchant are meagre and naturally his methods are inefficient. Unlike the mills or organised hand-loom factories he cannot study the needs of the market and thus adjust production to the demand nor can he effect internal economies in the industry as he is not himself a technical expert.

Above all there is one other cause which seriously handicaps the hand-loom weaver and it is here he has to depend on the mercies of his foe. He gets his supply of yarn from mills which invariably give a poor quality for the price paid. It was observed as early as 1908 by Mr. Churchill of Ahmednagar¹, and this view was later on confirmed by Sir A. Chatterton and others, that 'As regards the quality of the yarn I find it impossible to buy in the open market yarn of good quality for its number such as that used in mills. The mills usually have two classes of spindles, one producing yarn for their own use and the other for the market. The hand-loom weaver gets a poor quality of yarn or can get a proper quality only at a prohibitive price'.² As regards imported yarn it was observed that the price of imported yarn is proportionately higher than the price of cloths³ and leaves no margin for weaving charges. Besides the yarn is not obtainable in the most economical form. A similar complaint was made

¹ Proceedings of the Hand-loom Conference, 1907.

² Mr Churchill said 'I find it strange that the cost of yarn we import is greater than the cost of the imported cloth of the same weight. It is not possible to produce mulls of the well known 1703 type even at the cost they are sold in the bazaar though we use the same yarn and weave at the lowest possible cost. My experience tells me that the price of imported yarn is especially raised by some combination of foreign spinners and cloth manufacturers.'

before the Textile Tariff Board, 1926, by Mr. Amalsad. 'It is supplied only in the form of bundles which are deficient in length and seldom come up to the reputed count'.¹ Where good yarn is obtained hand-weaving is thriving. The Madras Presidency owes the present magnitude and prosperity of its hand-loom industry to the mills of the Madura group which are spinning mills exclusively.

Thus, the real limiting factors in the further development of the industry are (1) organisation and (2) steady supply of good yarn. Now the first step, therefore, in the revival of the hand-loom industry is the creation of an organisation which will, on the one hand, secure a steady supply of good yarn at a reasonable price; and, on the other, educate the weavers and the merchants in business methods, in the advantages of adopting improved appliances and processes and of manufacturing standardised quality goods; give them necessary financial help and technical advice; and also educate them in the efficient means of production and marketing.²

¹ Amalsad: Evidence before the Textile Tariff Board.

² In the Census Report of 1921, Mr. Edye, I.C.S., writes about the difficulties of the weaver and the survival of the hand-loom against mill competition thus:—'The difficulty of the hand-loom weaver is two-fold—(i) when he purchases his hanks of mill yarn, he has to pay also the cost of reeling, bundling, and baling; for the mill-owner's profits, the salesman's commission, the freight, the middleman's commission, to say nothing of the fact that he has himself to fetch it from the market and rewind it for his weft before use—all of which charges the rival mill-owner escapes but (ii) worse than this, the mill which supplies the yarn is also a rival weaver of cloth and well aware of the fact. It is indeed surprising that the hand-loom weaver, existing as he does, at the tender mercies of the mills which can produce 95% of the different kinds of articles which he produces, just as well, if not better, manages to maintain his place in the sun. The secret of his success appears to lie in the fact that he has at his disposal the labour of his wife and children who otherwise would not be engaged in production of any kind. Consequently he is able to get all his preliminary processes done free of charge. His relation with the mills will always be a source of weakness to him, but he has managed to struggle against it so far and there seems to be no room why his position should not be strengthened as his other handicaps are minimised by the introduction of improved appliances and methods of marketing.'

CHAPTER V

THE DECLINE OF THE HAND-LOOM INDUSTRY:
ITS NATURE AND EXTENT

THE necessary data are not available regarding the changes in the production of cloths on hand-looms since the first cotton mill in India was started. Regular and reliable statistics regarding the production, export and import of yarn and its consumption in mills came at the close of the 19th century. Nothing definite is known about the quantity of yarn spun on country wheels—for in the early part of the last century the production on the charka was very considerable—and even as late as 1870 the charka consumed several million pounds of cotton.¹ No systematic trade returns were made regarding the foreign trade in cotton manufactures prior to 1870, when the Annual Statement of the Sea-borne Trade was first published. Later on came the inland trade returns which throw light on the localisation of the industry and its migration. But it is unfortunate that they were discontinued as a measure of retrenchment in 1922.² The statement regarding spinning and weaving in mills in India was for the first time compiled in 1896 when the cotton excise duty was imposed. Thus there is nothing like a sure ground for discussion regarding the changes in the quantity of production on hand-loom since the introduction

¹ In 1869 S. S. R. Iyengar estimated that the charka and the hand-loom consumed about 1·8 million cwts. of cotton while the mills in India consumed 0·25 million cwts. only

² The Indian Economic Enquiry Committee observed (para. 30 of the Report): 'The annual publications relating to the inland trade of India (Railborne and Riverborne) gave import and export trade in staple articles, of each of the 5 or 6 blocks into which every province was divided and the imports and exports of 18 bigger blocks forming the trade divisions of India as a whole. The figures related to quantity only These internal trade returns were by no means satisfactory. The trade within a block was not recorded and there was obvious evasion on railways and trade by road which is not negligible. Nevertheless, the discontinuance of the publication has removed a very important check on provincial figures of production . . . We think the publication of internal trade returns should be revived and brought into line with the more up-to-date statistics of countries like the United States of America.'

of cotton mills in India, and it cannot be said how far the growth of the mill industry in India has affected the handicrafts.

But many writers have deplored the conditions of the cottage textile workers in the last century and they have attributed their miseries to the development of cotton mill industry. Mr. Royle, Mr. T. N. Mukerjee and Sir George Birdwood and others have noticed the steady decline of hand-loom weaving in India. Mr. E. B. Havell in his *Enquiry into the Arts and Crafts of the Madras Presidency* (published in 1882) observed that because of the competition of the mill cloths the Indian manufacturers who had supplied the wants of the low castes suffered most. He writes, 'Both in fine and inferior cloths the profits of the weaver seem to be reduced to a very low margin.' It is noticed by another writer 'The sufferings of the weavers are great and such as to excite commiseration. The present conditions will hasten the decline in native weaving; in fact it is obvious that in no very distant time the whole of the native industry in the low counts cloth or purely cotton cloth will give way to mills.'¹ Others found that the number of persons supported by the hand-loom industry was rapidly falling and concluded that it was a sure sign of its decay. Sir Alfred Chatterton, however, rightly pointed out that the decline of the handicrafts in textile industries was beyond hope of recovery so far as hand ginning, cleaning and spinning, were concerned, but hand-weaving had maintained its own. 'I think therefore that we may safely conclude', wrote Sir Chatterton in the Madras Census Report of 1911, 'that in the last forty years the number of hand-loom weavers has remained the same but owing to stress of foreign competition they now turn out a larger number of finished goods'. He also observed that there was no decline in the number of hand-looms working in the Presidency; only a majority of the weavers had to work hard to make a bare living.²

Now the weaver also complains of his lot. He earns, he

¹ S. S. R. Iyengar: *Progress of the Madras Presidency in the Last Forty Years*.

² The Madras Census Report for 1911.

says, miserable wages. In some cases he does not earn even as much as an ordinary unskilled labourer. This is as it would be in a free competitive market. But when the weaver speaks of the decline in the industry, not only does he refer to the fall in his money income but to his increasing period of unemployment and the change in his economic status. Formerly he was independent. He was his own employer and capitalist and he himself marketed his goods. From this independent position he is now reduced to one of dependence on the merchant or the moneylender for the supply of raw materials, for financial help, for the disposal of his manufactures, nay for everything. This means an intolerable slavery. The merchant, on the other hand, says that the trade in the hand-woven cloth is failing and his profits, shrinking rapidly, are not worth his continuing in the business. And the consumer is also disappointed with the quality of the cloth. The artist also has his complaint. He deplores the steady decline in the art of weaving. All are unanimous in their opinion that mill competition is the root cause of the decline of this industry in all these respects.

Vague as these assertions are, there is much truth in them. It is now necessary to define what we mean by saying that an industry is declining. Does the economist's conception of industrial decline differ from that of others? 1. Does the decline of an industry mean that it has not expanded and increased its output corresponding to the growth and the needs of the population? 2. Or does it mean that the industry fails to maintain as many workers as before? 3. Or does it mean that the economic or social status of the weaver has suffered a change for the worse? The second is no satisfactory test; for it is the very essence of progress in the technique and business organisation of industries that the introduction of scientific methods creates a temporary displacement of labour. But if this were to create permanent unemployment and the industries fail to absorb displaced labour directly or indirectly, this would constitute a menace to the social order. But of the other two, each by itself will constitute a symptom of its decline, especially when it relates to the human factor in the industry.

THE ECONOMIC STATUS OF THE WEAVER

It is difficult to state with any precision whether the economic conditions of the weaver have changed for the better or for the worse. But a study of the available literature invariably creates the impression that his conditions have changed for the worse during the last 120 years. No doubt he is now producing more cloth than before but that has not increased his purchasing power. The technical progress in the industry has not much helped the weaver to maintain his own, not to speak of the betterment of his conditions. The number of the unemployed and under-employed is increasing; the increase in his production has not improved his material conditions; nor have his earnings kept pace with the rise in prices and rise in the cost of living; added to it, one finds less continuity of employment and greater fluctuations in his wages. Thus unemployment of many workers in cotton textile industry on the one hand and the stationary economic conditions of those who still remain in the industry on the other are the two grim facts which indicate that the human factor has been ignored in the so-called industrial progress.

It is necessary to examine the available statistics regarding the changes in the industry itself under the heads: 1. hand-loom production and total consumption of cloth. 2. the number of persons supported by the industry as revealed by the censuses. 3. the number of looms working as stated in the industrial censuses and 4. the trade returns relating to the export of hand-loom manufactures. All these throw light on the conditions of the industry.

1. *Proportion of the hand-loom output to the total consumption of cloth*

A statement is given below showing the quantity of yarn consumed on hand-looms (1) in India and (2) in the Madras Presidency from the year 1896 when the statistics of mill production of yarn and cloth were first made available.

*Average annual consumption of yarn by hand-loom s stated
in million lbs.*

Year	All India ¹	Madras Presidency
1869	180	31½
1889	200	34½
1896-1900	233.8	
1901-1905	211.6	
1906-1910	267.6	63
1911-1915	262.2	67
1916-1920	214.4	59.5
1921-1925	297.0	Imports of yarn
1925-1926	288.9	by rail not
1926-1927	333.8	known since
1927-1928	328	1921
1928-1929	264	
1929-1930	342	
1930-1931	343	
1931-1932	364	
1932-33	397	

The consumption of yarn by hand-loom s has increased steadily except in the quinquennia following 1900 and 1915. The famine of 1900-02 and the Great War during 1914-18 account for the decrease in the hand-loom production in those periods. Besides, in 1901-5 while the Indian mill production of yarn was normal, both the export of yarn to China and the mill consumption of yarn had increased. Speaking generally, apart from the temporary depression, the consumption of yarn by hand-loom s during the last 60 years has increased rather than diminished.

But is this increased consumption of yarn commensurate with the increase in the total consumption of cloth in India? From an examination of the accompanying table it is evident

¹ Report of the Indian Textile Tariff Board

that the production of cloth on hand-loom s has increased but it does not keep pace either with the growth in the

Average for	Per capita consumption of cloth		Per capita Production on hand-loom		Percentage of hand- woven cloth to total consumed	Popula- tion	
	Yards	Index No.	Yards	Index No.		Mil- lions	Index No.
1896-1900	10.9	93	3.10	95	28.5	293	98
1901-1905	11.7	100	3.27	100	28	299	100
1901-1915	14.8	125	3.42	105	23.4	309	103
1921-1925	13.3	114	3.50	107	26.3	328	108.3
1926-1930	14.8	126	3.80	116	25.6	340	114

population or with the increased *per capita* consumption of cloth.

2. A study of the occupational census: renumber of persons supported by the industry

It is unfortunate there is no uniformity in the occupational returns of the censuses. In 1871 women were not classified according to profession and there was a male weaving population of 540,061 as against 431,733 men in 1881. Thus there was a decline of 20 per cent during that decade. The famine of 1876 and the growing mill industry are the two causes for this rapid decline. In 1881 there were 839,457 actual workers (excluding dependents) in all cotton textile industries i.e. ginning, cleaning, spinning, sizing, weaving, printing, and dyeing. No distinction is however made between the factory labourer and the home worker. There are two important heads of classification (a) cotton manufacturers (188,157 men and 354,577 women workers) and (b) weavers otherwise not described (196,610 men and 96,597 women workers). In 1891 there was again a reclassification of workers. Here the figures indicate an increase of 40 per cent because dependents are included and they are not separately shown from actual workers. In 1901 'actual workers' are again separately

enumerated from dependents and a distinction is made between workers in mills and in the home industry. The classification of workers in the different branches of the textile industry was also altered. In 1911 the distinction between factory and home workers disappeared and there was again a change in the classification of workers. In 1921 cotton spinners, sizers and weavers and unspecified spinners and weavers are enumerated separately while in the Census of 1911 they were grouped together under one head. In 1931 there is again a fresh classification. Spinners, sizers and weavers who were separately enumerated in 1921 are grouped together. The head of unspecified spinners and weavers of the last census was omitted. Though the new classification of persons following the occupation into (a) principal workers, (b) working dependents, and (c) persons following it as a subsidiary occupation is an improvement on the previous censuses, one cannot however state how many persons are supported by the particular industry or profession. Besides in some earlier censuses e.g. the Census of 1881, the cloth weaver and cloth seller, the spinner and the yarn dealer, the manufacturer and seller of all kinds are mentioned under one head. A statement is appended to this chapter showing the changes in the occupational returns since 1881 and it illustrates that the value of the census is lost by the constant changes in classification and by the absence of uniformity and continuity in the different heads of the returns.

Agriculture and hand-loom weaving are the main industries of this country and care must be taken in collecting useful information regarding them. The present census operation is far from satisfactory. Attention was drawn to it long ago by Sir Alfred Chatterton: 'We desire to point out to the unsatisfactory means provided by the ordinary census for the collection of useful occupational statistics and to suggest the adoption of special enquiries; for, the object is at least as important as the ethnological discussions that have hitherto figured so largely in the census reports'.¹

Inadequate and imperfect as the censuses are, it is possible to note certain tendencies. Since 1871 there is a pronounced decline in the number of workers in the cotton textile

¹ *Census Report of 1911.*

industries as a whole but the number of cotton weavers alone shows a slight increase or at least remains stationary so far as the Madras province is concerned.¹

The total number of actual workers in the Presidency has fallen all round if we compare 1901 and 1921 census figures. But figures for 1901 and 1911 indicate a slight increase over those of 1881. All these figures are not exactly comparable and so it is difficult to state definitely whether the number of workers has increased or decreased; but in all probability it has remained practically stationary in the case of men workers but there has been a decline in the case of women workers. The introduction of machinery in the process of cleaning, ginning and spinning and of improved preparatory process of warping in the home industry accounts for the decline in the number of women workers.

As regards hand-loom weaving in the Madras Presidency cotton weavers, as distinguished from spinners and sizers, are for the first time separately enumerated in 1881. A useful comparison may be made between 1891 and 1921. In the former period there were 1,090,685 persons supported by the

¹ *Cotton textile industries (both Factory and Home) in the Madras Presidency*

Year	Actual workers		Total supported	Index No. of workers.	
	Men	Women		Men workers	Women workers
1871	540,061 ¹	not stated	not stated	139	...
1881	388,024	451,433	839,457	100	100
1891	not stated	separately	1,250,021	...	...
1901	408,896	243,487	1,218,666	106	53.3
1911	406,696	206,898	1,177,881	105	45.5
1921	299,507	141,735	938,790	77	31
1931	334,407 ²	83,131 ²	not stated	86	19

¹ This includes workers and dependents.

² This excludes working dependents.

industry as against 822,571 in 1921—a decline of 25 per cent. But these figures include factory hands, mill managers etc. A more useful comparison may be instituted between 1901 and

COTTON WEAVING IN THE MADRAS PRESIDENCY

Year	Actual workers		Total supported
	Men	Women	
1881	384,767	451,174	not stated
1891	not stated		1,090,685
1901	384,546	163,739	1,067,589
1911	386,598	194,350	1,118,628
1921	277,711	115,740	822,571
1931	334,407	83,131	not stated

1921. There were 24,350 men and 18,686 women spinners and sizers (actual workers only) in 1921 as against 6,414 men and 59,456 women in 1901—a decline of 70 per cent. in the case of women and an increase of 400 per cent. in the case of men and a decline of 35 per cent. in the case of both men and women workers. This can be explained by certain changes in the industrial practices. Firstly, hand spinning has become nearly defunct. A careful study of the practice of the industry will show, however, that men have taken the place of women sizers who have gradually disappeared as a result of the introduction of long warps. Weaving employs 192,105 men and 83,907 women workers in 1921 as against 384,546 men and 163,793 women workers in 1901. Thus in the course of two decades there is a decline of 40 per cent. in the number of actual weavers alone. This can be accounted for by the peculiar circumstances that obtained at the census operations in 1921. The hand-loom industry was at a low ebb and it had not as yet recovered from the effects of the war, high prices, cotton crop failures, etc. This is supported by 1931 figures. As weaving is fast ceasing to be the partial occupation of agriculturists and the ideal domestic industry of women and is tending to become more and more the

specialised calling of a distinct group of workers as a result of the advances made in the technique of the industry, there is naturally a fall in the total number of cottage workers.

3. Hand-loom Censuses

Special censuses of hand-looms were taken occasionally. In the Census of 1921 the number of hand-looms was ascertained in some of the provinces. But it does not mention how many of them were actually working and how many of them were cotton looms. A careful scrutiny shows that there are more looms than actual weavers in some provinces. Also the Census of the looms in the United Provinces and other important hand-weaving provinces was not taken. Nor is the special census of looms available for any earlier period. In the Presidency of Madras, however, a census of the hand-loom

Census of hand-looms, 1921		
Provinces	No. of hand-looms	Total supported by cotton industries
Ajmere-Merwara	1,587	6,195
Assam	421,367	13,362
Bengal	213,886	472,839
Bihar and Orissa	164,592	284,422
Burma	479,637	65,213
Delhi	1,067	7,584
Madras	169,403	601,178
Punjab	270,507	667,333
Hyderabad State	115,434	242,410
Rajputana Agency	89,741	190,783

was first taken in 1856. In 1871 the Board of Revenue stated in its report that there were 280,000 looms and noticed that there was an increase of 42 per cent over the 1856 census. In 1889 the Board again estimated the number of looms in the province to be 300,009.¹ The Statistical Atlas of the Madras Presidency, 1901, mentions 167,806 looms. According to the special industrial census of 1921 there were 169,403 looms while according to the returns of the Statistical Atlas compiled in the previous year there were 242,000 looms.² How far these figures are

¹ S. S. R. Iyengar: *Progress of the Madras Presidency*.

² The Special Officer for cottage industries puts down the number of hand-looms at 259,451 (in 1928) as against 169,451 of 1921 census. At present it is estimated by the 1931 Census to be 193,474. The Superintendent considers this figure to be an under-estimate and believes that the estimates of the Special Officer for cottage industries indicating an increase of 60% over 1921 figures are easily justifiable. He estimates that the consumption of yarn by hand-looms in the Madras Presidency has increased from 60 million pounds in 1921 to over 75 million pounds in 1931.—*Cf. Report of the Superintendent, 1931 Census, Madras.*

usefully comparable, to what textile manufactures they refer are matters delightfully vague. The returns of the Board of Revenue belong to a period when statistical compilation was in its initial stage and therefore they are imperfect. They indicate an increase in the number of looms contrary to what may be expected from the growth of the mill industry; far from affecting the cottage industry it has actually accelerated the outturn of the hand-loom and led to an increase in its number. The former can be understood but not the latter.

A more detailed study of the statistical compilations of the Revenue Department, however, reveals the absolute unreliability of the data. The cattle census and the village statistical registers are supposed to enumerate the number of looms, of indigo vats, oil mills, and sugar cane presses. An examination of these data showed that the actual number of looms in villages seldom corresponded even approximately to the number entered in the registers. In some districts special censuses are also taken by Weaving Superintendents of the Department of Industries. And here again the information is furnished by the village officers. Their figures never tally with either the census figures or with the figures of the Statistical Atlas. To cite an instance, in Salem District there are 10,841 looms according to the census reports, 23,000 looms as stated in the Statistical Atlas and 28,000 looms according to the report of the Weaving Superintendent. How far these figures, obtained occasionally with no definite system of collection of statistical information, can be relied on for the discussion of the questions relating to the decline of the industry, its migration, and its present economic tendencies, it is difficult to say.¹

¹ 'We must on the whole conclude that any estimate of the tendency of the home weaving industry based on the census figures is at present inconclusive. But the record of the hand-loom census, if it is to be continued, may afford material for a better estimate at a future census'. This was the remark made by the Editor of the Indian Census, 1921. In 1925 the authors of the Report of The Indian Economic Enquiry Committee stated 'the statistics have not been compiled hitherto with a view to their being utilized for shaping the economic policies of the country'. How true it is! They further emphasised the importance of a census of production, especially of cottage industries. 'We consider it of great importance that an estimate of the quantity and value of the total annual production of the cottage industries should be ascertained along with the estimated value of raw materials used up. It would be interesting to

4. Export Trade in hand-loom manufactures

The Madras Presidency is, as it has been mentioned before, consuming nearly a fourth of the yarn available for hand-loom. And nearly 25 per cent of the looms manufacture lungis and saris mainly for export to Penang, Federated Malay States etc., and handkerchiefs to Africa. When other things remain the same an increase in the exports of these goods is an indirect proof of the increasing production on hand-loom.

Total piece goods exported from the ports of Madras Presidency.		
Year	Export in million Yds.	Value in lakhs Rs.
1875	7.5	28
1880	5.3	22
1885	13.1	48
1890	13.6	46.0
1905-10	23.0	78.2
1911-15	25.0	92.4
1916-20	30.0	160.2
1921-25	37.6	230.0
1926-30	38.5	195.0

The annual export of lungis amounted to 18,800,000 (pieces?) yards before the War and it now amounts to 22,200,000 yards—an increase of 20 per cent during the decade. The export of lungis and saris was separately enumerated for the first time in 1914. Therefore it is not possible to ascertain whether there has been an increase or decrease in their export as compared to the pre-War period. However, as lungis and saris form the bulk of the export of coloured goods from the Madras ports and as a great deal of these piecegoods is the product of the hand-loom, an increase in the export of the coloured goods from this presidency indicates that so far as these manufactures are concerned the hand-weaving industry has expanded.

ascertain, at the same time, the number of persons engaged wholly or partially in such industries, distinguishing dependents and hired workers. In weaving the number and kind of looms might be ascertained and similarly in cottage industries using machinery of one kind or another, the number of such machines might be recorded. Where the production varies in quality, the grade might also be noted.' (*Report* para. 60.) A very highly ambitious proposal! The 1931 census has not merely ignored this but failed to carry out even the modest suggestion of the authors of the 1921 census. Besides abandoning the scheme of industrial census and the census of hand-loom—valuable additions to 1921 census,—the Editor of 1931 census has adopted a new classification of cotton textile workers, making comparative study impossible. In the name of the improvement of statistics, the thread of continuity should not be broken.

This examination of the statistical position regarding the hand-loom industry has well brought out the following facts:—

1. The number of workers engaged in the cotton handicrafts has decreased; but quantitatively the hand-loom production has not suffered; on the other hand it has increased.

2. The fall in the number of home workers in ginning, cleaning and spinning is great. Workers engaged in these processes have suffered most by the introduction of mechanical power.

3. The power-weaving industry had not affected to the same extent the hand-loom which till 1915 produced nearly as much in value and quantity as the cotton mills in India, as the mill industry has affected other indigenous cotton textile industries. It was only after the War that the mill production outstripped the hand-loom production.

4. The growing rationalization of production—viz. the introduction of power and mechanical appliances in factories and the increasing adoption of labour-saving appliances by hand-loom workers—has thrown out more women than men out of the industry. The scope for the employment of women in factories with gigantic machinery and uncongenial surroundings being limited, the number of women workers in cotton power industries has fallen.

5. An important feature of the development of the hand-loom industry is that it is fast ceasing to be, at least so far as this presidency is concerned, the partial occupation of agriculturists; and it is becoming more and more the specialised occupation of particular classes of workers. But the monopoly of hereditary skill and of caste workers is not yet broken. The weavers however are slowly concentrating in towns and in colonies where there are certain facilities viz., the preparatory processes being done cheaply and quickly by special warpers and sizers. This means that women who are generally employed as winders, warpers and sizers in a self-sufficient cottage system of production are now thrown out. Perhaps there is nothing to lament in the decline of the number of women workers as their labour has nearly no value at all.

TABLE

Statements Illustrating the Changes in the Classification of Workers in Cotton Textile Industries according to the Various Censuses since 1881

NUMBER OF WORKERS IN THE COTTON TEXTILE INDUSTRIES
IN THE MADRAS PRESIDENCY

I. CENSUS OF 1881

	Actual workers		Total supported
	Men	Women	Not mentioned
1. Cotton manufacturers ...	188,157	354,577	
2. Weavers otherwise not described ...	196,610	96,597	
3. Calico printers ...	198	9	
4. Cotton dyers ...	1,059	250	
Total ...	388,024	451,433	

II. CENSUS OF 1891

	Actual workers	Persons supported by the industry (workers and dependents)	
		Men	Women
1. Cotton spinners and sizers ...	Number of actual workers not available	16,302	117,529
2. Cotton weavers, mill-owners and managers ...		580,783	509,902
3. Cotton factory hands undefined ...		1,829	1,127
4. Calenderers and fullers ...		10,065	10,221
Total ...		610,068	639,953

III. CENSUS OF 1901

	Actual workers		Total supported
	Men	Women	
A. Mill industry— Cotton ginning, cleaning, spinning and weaving ...	112	4,757	17,245
B. Hand industry— 1. Cotton cleaning, ginning and pressing ...	10,754	11,272	38,609
2. Spinners and sizers ...	6,414	59,456	71,086
3. Weavers ...	384,546	163,739	1,067,589
4. Cotton carpet and rug makers ...	575	775	2,491
5. Printers, fullers and calenderers ...	714	1,122	2,476
6. Cotton dyers ...	5,781	2,366	19,170
Total ...	408,896	243,487	1,218,666

IV. CENSUS OF 1911

	Actual workers		Total supported
	Men	Women	
1. Cotton cleaning, ginning and pressing...	20,098	12,548	59,253
2. Spinning, sizing and weaving ...	386,598	194,350	1,118,628
Total ...	406,696	206,898	1,177,881

V. CENSUS OF 1921

	Actual workers		Total supported
	Men	Women	
1. Cotton cleaning, ginning and pressing ...	5,773	5,700	20,844
2. Spinning ...	23,128	18,028	84,938
3. Sizing ...	1,231	658	4,392
4. Weaving ...	192,105	83,907	597,753
5. Spinners unspecified ...	1,660	1,609	6,645
6. Weavers unspecified ...	75,606	31,833	224,818
Total ...	299,507	141,735	938,790

VI. CENSUS OF 1931

	Workers in the Madras Province						
	No. of Persons following occupation	As principal occupation		As subsidiary occupation		As working dependents	
		Men	Women	Men	Women	Men	Women
Cotton ginning, cleaning and pressing ...	28,905	16,994	7,584	1,180	288	1,189	1,668
Cotton spinning, sizing and weaving ...	486,248	334,407	83,131	22,604	4,919	12,653	28,534
Total ...	515,153	351,401	90,715	23,784	5,207	13,842	30,202

CHAPTER VI

SYSTEMS OF PRODUCTION

A STUDY of the business structure of the hand-loom industry will show how it is organised for production and marketing; and how far its organisation is defective. The following are the important systems under which the industry is at present carried on:—

1. Where THE INDEPENDENT COTTAGE WEAVER carries on production with the help of the members of his family and sells his product locally to a dealer or directly to consumers by hawking or in shandies.

2. THE COMMISSION AGENCY where master-weavers or cloth-dealers through middlemen, analogous to clothiers in the English woollen industry, employ weavers in their own homes, advance materials, pay wages, receive back the finished products and sell them;

3. THE COTTAGE WORKSHOP where master-weavers equip the factory with looms etc., employ weavers, give them yarn and other raw materials, pay them wages and themselves sell the finished products;

4. THE HAND-LOOM FACTORY where the owner erects the building, equips the factory with necessary looms and other plant, employs weavers, winders and sizers and other technical assistants and trading agents and conducts the business on modern lines;

5. THE CO-OPERATIVE SYSTEM where weavers are organised on a co-operative basis for production and sale. This is a recent phase of the development of the industry which seems to be full of promise in the future; and

6. Lastly the POWER-LOOM FACTORIES which are beyond the scope of the present enquiry.

It must now be noted that these different types of organization obtain in the case of all small industries—especially in the case of silk, wool and rayon industries.

We shall now enquire into the working of each system in detail with reference to the financing of the industry, the conditions of production, the organization of trade, the scope

and function of capital, labour and organization, their respective importance in each system and their relation with one another.

1. THE INDEPENDENT WEAVER

He comes first in historical sequence. He was once the commonest unit in India as he was elsewhere. But now he is fast disappearing. He is found in centres (a) where the industry is unorganized, (b) where the self-sufficiency of the village is not much affected by the development of the means of communication, (c) where there is not enough work in the locality to attract middlemen-capitalists and (d) where weaving is the secondary means of livelihood of agriculturists. This system is also in vogue in respect of products which have a ready local market. The weaver invests his small savings or borrows the capital required and invests it in the business. He purchases the yarn from local yarn merchants or travelling yarn dealers in shandies. He owns his loom and works in his own house. The members of his family assist him in winding, warping, sizing and occasionally in weaving too. The women throw the warp and wind the yarn for pirns. They sometimes assist him in sizing. The children help him in bobbin winding or in the manipulation of the harness if it is the draw-loom. The weaver sizes and weaves. When the cloth is ready he takes it to the nearest bazaar every evening or to shandies every week for sale. In some places he himself hawks it in streets. Thus he is thoroughly independent of any outside agency and the difference between the cost of the yarn and the price he is able to realise for the cloth represents the wages for the labour of all the members of his family who help him in production and of his own labour. It is very rarely that he employs outside labour. It is usual that weavers who thus work independently have their own groups of customers who place orders with them for their own requirements.

The economic position of this class of weavers is theoretically ideal. The weaver is his own capitalist. He is his own employer. He is thoroughly independent of the money-lender or the middleman. The market for his product is free. But

his position in fact is anything but enviable. His earnings are miserable—miserably low when the amount of labour involved is taken into consideration. His market is narrow and limited; his period of employment is irregular and uncertain; the fluctuations in the prices of yarn and cloth are too great for his slender means; the demand is unsteady. In times of scarcity and slack season and falling prices—such hard times occur but too often—there is every danger of his running serious risks and consequently running into debt. When thus he ceases to be self-dependent and becomes indebted to the sowcar-merchant or the cloth-dealer, who alone is interested in advancing him loans, he seldom regains his former independence. This is but the beginning of his slavery. The extent of the credit facilities now available and their effects on the economic condition of the weaver is an interesting point for further investigation. But generally speaking the absence of industrial financing institutions which will give easy credit and assist the weaver to tide over his temporary difficulties and the constant and rapid fluctuations in the yarn and cloth market often drive him to bankruptcy and wage serfdom. This is but the consequence of the weakness of his financial position. Thus weavers who have lost their independent position begin to slave for master-craftsmen and contracting middlemen, and we come to the second stage of the *System of Commission Agency*.

2. THE SYSTEM OF COMMISSION AGENCY.

This is the system most common now. It obtains in places (a) where weavers are financially too weak to undertake the responsibility of production and the risks of fluctuations in prices, (b) where weavers are attached to employers by reason of their indebtedness and are obliged to work for them alone, at least so long as the debt remains unpaid, (c) where weavers cannot have easy access to the consumer by reason of the distance of the market and (d) where the demand for the cloth, being seasonal and limited, necessitates the locking-up of capital for a long time which the poor weaver cannot afford. Most workers under this system are those who are deeply involved in debt. It is well known that the weavers are obliged to remain idle for a good part of the year

or are given insufficient employment. The sowcar and the cloth merchant are the only persons who are ready to advance them loans without any valuable security and they stipulate that they should work for them at a fixed rate of wages (which is usually less than competitive wages) at least, so long as some work is given by them. But this low rate of remuneration has no corresponding advantage; there is no guarantee of work throughout the year. The worker, thus indentured, has no more employment than the independent weaver. He is overworked for a very low wage when the market is brisk and is burdened with apparently generous advance of money when the market is slack, which only keeps him and his family in bondage for ever. Loans are advanced usually against looms for they are all the property the weaver has. But the significance of such loans, as distinguished from ordinary loans, is that the worker is bound to work for the merchant who advances the loan and there is no free market for his labour.

It is often said that 'the sowcar knows his business better and understands the needs of the weaver; and, but for him the weaver would have been long since extinct. To criticise the sowcar adversely betrays a lack of proper understanding of the relation and the interdependence of the weaver and the sowcar'. This is partially true but it cannot be denied that the system as it does obtain works out to the disadvantage of the weaver.

This system has different local variations, each of which has its bearing on the status of the weaver. In some cases where the money-lender is also the cloth dealer and merchant and deals directly with weavers, he gives them yarn and advances them wages. The weavers get it wound, warped, sized and woven into cloth which they return to the merchant. Sometimes yarn advances are treated as loans and bear interest. Cash advances are also made which carry interest and a running account is maintained by the sowcar. The merchant fixes from time to time the rate of wages and the amount of work to be given. He regularly purchases the yarn and other raw materials required for the industry and undertakes the responsibility of finding the market for the manufactures. In some places the merchant instead of deal-

ing directly with weavers finances the middlemen-contractors. The middlemen undertake to supply the merchant with stated quantity of cloths. Sometimes the middlemen receive the yarn from the merchant which they distribute to weavers. And sometimes the middlemen must purchase the yarn and get it converted into cloth and deliver it to the merchant. Each middleman has his group of weavers who live in villages and who for some reason or other are obliged to work for him alone. To them the yarn is given and fixed wages are paid on delivering the finished cloth. This type differs from the other one in this respect, namely, that there is a middleman between the sowcar-merchant and the weaver and there is a greater division of functions. The merchant finances the industry; the contractor organizes production and brings together the producer and the capitalist; and the weaver gives his labour. There are two distant contracts: one between the merchant and the middleman and the other between the middleman and the weaver. The dependence of the weaver on the middleman and the dependence of the middleman on the merchant vary in degree in different places.

This system is most commonly found in the trade of the Madras handkerchiefs, lungis and kailis in the East Coast districts. It is also found in many places in Coimbatore and Salem districts. There is no personal contact between the merchant and the weaver; the workers are indebted to the middlemen and they are not in direct touch with the cloth market and this invariably results in their exploitation. How the system works out in practice in the case of the lungi trade and of the sari trade in Salem is worth notice. The cloth dealers of Salem, to cite an instance, place orders with the middlemen for coarse saris which are manufactured by weavers in villages somewhere near Erode. The Salem merchants give them coloured yarn and for each sari contract to pay 14 annas as wages and commission. The middlemen give 12 annas per sari to the weaver and get the cloth manufactured. The merchant sells it for Rs. 2-12-0 or Rs. 3-0-0 thus making a profit of 6 to 9 annas per sari. The middleman gets 2 annas. The weaver gets 12 annas (1928). After paying the cost of winding and warping which is very nearly 2 annas the weaver gets only 10 annas per sari. He

does 5 or 6 saries a week. Each middleman has a number of weavers who work for him and he goes to the village every week, gives them yarn and collects the manufactured cloths and pays them wages. The weaver earns about 3 to 4 rupees a week while the middleman by merely distributing work can earn easily that amount, perhaps much more.

The worst feature of this system is that there is always a tendency to exploit the workers. They are remunerated at a rate far lower than the rate at which the contractors are paid by the merchant. The absolute dependence of the weavers on these middlemen for work is the root cause of the evil. Where the weavers are obliged to work for the contractor or the money-lender the market for their labour is restricted and not free; but where they are obliged to sell their products to the sowcar-merchants there is no free market for their production; and where they depend for the work provided by the merchant or the middleman, there is no regularity of employment—which is as demoralising as, perhaps more than, wage slavery.

Yet another defect. In all these cases the mechanical equipment of the loom etc. for production is the weaver's responsibility. He owns the loom and all other plants connected with weaving. Neither the merchant nor the middleman takes any interest to know whether the loom is suited to the work or whether it is efficient. The weaver being very poor and leading almost a hand-to-mouth existence and groaning under his debt cannot have up-to-date cottage appliances. The plant in use for the preparatory processes, in some cases the loom itself, is most primitive and crude. It is a sad fact that neither the merchants nor the contracting middlemen are willing to finance the weavers for the purpose of equipping their looms with improved sleys and harnesses. Nor are they within the means of the individual weaver. The improved means of winding, warping and sizing done by special groups of workers are availed of by the weaver if he can get more work which would compensate for the members of his family giving up winding, warping and sizing and taking to weaving by introducing a second loom in the family. Else the weaver, irrespective of the time and labour involved in doing these processes, attempts to earn as much

as he could by doing himself all processes connected with weaving.

Now it must be noted that it is this class of hand-loom weavers that is at once the object of sympathy—for 'their conditions enlist our commiseration'—and of adverse criticism by industrial enthusiasts—for 'they are slow in adopting improved appliances and are unwilling to help themselves'. The workers, as it has been pointed out before, have not resources enough to adopt modern inventions; the sowcar is unwilling to finance them for this purpose so long as it does not increase his profits. The result is that the whole system, from the view-point of scientific and technical equipment, is very primitive.

Again the profits of middlemen and merchants are a big slice in the price of the cloth, while the labour cost is despicably low. In Salem, as it has been just pointed out, the weaver usually gets 10 annas, the middleman gets 2 annas and the merchant 6 to 9 annas per sari which includes interest and depreciation charges and cost of retail trade. The contractor in the Madras handkerchief trade gets Re. 1-0-0 per piece while the weaver gets Rs. 3-0-0. Though everything obtained by the middlemen cannot be said to be the result of the exploitation of the workers, still a large portion of it is due to the advantage taken of the unfortunate position of the weavers.

3. THE COTTAGE WORKSHOP SYSTEM.

Here the master-weaver is also the merchant and he invests the capital required for the industry. He is the owner of the business. He purchases yarn etc. required for the industry, sets up looms, gets the yarn warped and sized, employs weavers in his home and pays them mostly by result. The worker here is a mere wage earner. There are no regular hours of work and the weaver has no guarantee of employment. Those workers who are not indebted to the master-craftsman are at liberty to determine their contract of labour at will but the others—and this class is numerically the stronger—have no freedom of employment. They are bound to work for him at least so long as some work, sufficient or insufficient,

is given. There is nothing different in the conditions of the workers of this group from those of the workers in the commission system. But it is generally said that this system is less rigorous, less exacting and less inhuman than the former.

However, one redeeming feature of this system deserves notice. Wherever the master-craftsman is rich and intelligent enough he equips the workshop with all labour-saving devices and thus helps the weaver in increasing his productivity, reduces the cost of production, increases his profits and the wages of the worker as well. But such rationalisation of production by the master-craftsman is rare, for he finds it difficult to expand his market if the output is increased. Generally, his means also are slender.

This system is much in vogue in the silk weaving industry and in the weaving of costly cloths. In Salem among carpet weavers this is common. But the small workshop system with the master-craftsman is a feature of that branch of the industry which requires the constant intelligent guidance of the master-weaver or where strict supervision of the work is required in order that lace and silk are not embezzled by workers.¹

4. THE HAND-LOOM FACTORY.

The cottage workshop is the forerunner of the hand-loom factory. Great hopes are entertained of the factory as a means of reviving hand-loom weaving. It is just here that the scope and functions of capital, labour and organization become definite. In all systems mentioned above management has hardly any place in the economy of production. Even here the owner of the business is not different from the organiser or the entrepreneur. The joint-stock principle has

¹ The small workshop obtains in other countries where the workers can get some advantage by co-operation: as in finishing in Switzerland, dyeing in Italy, common ownership of costly plants in Netherlands.

This system often leads to sweating and slavery of the worker to the advantage of the employer. This is again a point for fuller investigation (wherever this system obtains) regarding the outturn of the worker from day to day and the wages he is paid from time to time and the loans he is advanced. All this will indicate how he is worked in busy seasons, under-paid when the market is dull and under-employed in some months of the year. If the study is continued for a sufficiently long period it would yield useful results regarding the influence of the conditions of their employment on their economic, social and moral progress.

not yet been extended to the hand-loom organisation. It is very common that the owner of the business is also the organiser. The functions of the industrial organiser and the business organiser are not distinct.

Hand-loom factories are chiefly found in the Malabar district, though they are now slowly springing up in other parts of the Presidency; cotton hand-loom factories in Tanjore, Salem and Madurai; silk hand-loom factories in Ganjam; woollen factories in Mysore and Bellary; and coir factories in the West Coast. The cotton hand-loom factory is by far the most important system in Malabar. In Cannanore alone there are nearly 50 factories. Five of them employ more than 100 persons each. All the hand-loom factories are producing coatings and shirtings and are competing directly with the power-loom. With the advent of rayon new hand-loom factories are springing up in other parts of the province. The introduction of rayon inaugurated new patterns, and extended the market for goods. More capital and organisation followed the extension of the market for hand-loom products.

Here all the operations—from winding to finishing and packing—are done in the factory itself. The real advantage of the factory organisation lies in the possible economy of time and cost effected by introducing labour-saving appliances as the hand-driven bobbin winding machine, the warping mill, the beaming machine, etc. Another advantage lies in the employers' command of resources enabling them to make such fabrics as are in demand or to explore the possibilities of the market for new manufactures. It is worth noting that most of the hand-loom factories in this Presidency and some of the hand-loom factories in the Punjab have the monopoly of the trade in shirtings and certain types of coatings in Upper India. The third advantage is the possibility of employing technical experts and departmentalising production and distribution. The weaving section, the dyeing section and the commercial section are even now the common departments in hand-loom factories. There is also an increasing division of labour. The progress is more satisfactory in respect of commercial organisation. The mail order house, the travelling canvassing agent, the commission salesmen, effective

advertisement, participation in exhibitions and attractive showrooms are the common features of these factories.

Such elaborate organization requires a large capital for the erection of the factory and up-to-date weaving and other appliances. Here caste weavers meet with a strange discipline; for the factory is open for work between specified hours. They are paid piece-wages. Some members of the special staff e.g., the dyeing expert, the weaving master, the manager and the sizer are paid monthly salaries.

However, there are some short-comings in the factories as at present organized. The workers have to submit themselves to the factory discipline and have to come to the factory punctually and work regularly. This is said to cause hardship to the caste-weavers who are never accustomed to such a discipline. Therefore the factory fails to attract hereditary weavers with skill. In most factories, it is interesting to note, the workers are mostly non-weavers by caste and hereditary profession. A new class of workmen has thus been brought into existence, especially in the West Coast. In Madura, Salem, and Tanjore, on the other hand, the workers are weavers by caste.

Another defect is that most of the factories are small with limited resources. They cannot employ technical experts with proper training and qualifications. Most of them are very poorly paid. Besides, many factories are factories only in name. Where only a few weavers are employed complete technical equipment is not possible. Even where there are many factories in one place there is very little co-operation among them and each works as an independent unit on a ruinous competitive basis.

The beginnings of the hand-loom factory can be traced to the efforts of the Christian Missions in India to provide work and honest means of livelihood to those who had embraced Christianity. The German Basel Mission in the West Coast was the first to start a factory at Cannanore and their example was soon followed by other Missions. Weaving schools, which are in essence hand-loom factories, were first started. A great deal has been since done for the development and organisation of the hand-weaving industry by the Christian Missions in India, especially the Salvation Army.

It is only quite recently that other private non-missionary organisations have come into existence to develop the industry on commercial lines.

It was thought in the beginning of this century that the revival of hand weaving against the competition of the power-loom was possible only on its organisation on factory lines. Accordingly, the Government of Madras started a hand-loom factory in Salem in 1906. The Government explained that it was an experiment to ascertain whether it was possible to improve the condition of the hand weavers in South India (a) 'by substituting for the native hand-loom improved looms which enable the weavers to produce a greater length of the cloth in a given time without in any way sacrificing the essential characteristics of native hand-woven goods, (b) by introducing the factory system among the weavers, so that they may work under the management of men with commercial and manufacturing experience and so that capital and organisation may be introduced into the industry to render hand labour more productive, and (c) by introducing, if possible, improved preparatory processes to diminish the cost of preliminary warping and sizing which the yarn undergoes before it is placed on the loom'.¹

This factory worked for about five years and was closed down in 1910 on the ukase of the Secretary of State for India disapproving in strong terms the industrial policy of the Government of Madras.

Government succeeded in making improvements in the preparatory processes and popularising to the weaver the use of the fly-shuttle, the warping mill and other useful weaving appliances evolved by the Industries Department. But the experiment was in fact a failure in so far as it did not succeed in introducing the imported automatic looms or in substituting power-sizing and central warping for the indigenous methods. It had also failed to attract the hereditary weavers to the factory. Efforts were made subsequently by private individuals to establish hand-loom factories, and excepting the one at Tondiarpet managed by the late Sir P. T. Chetty, all others failed. Their failure is due to the lack of technical knowledge on the part of the management,

¹ Sir Alfred Chatterton's paper in the Indian Industrial Conference, 1907.

to the inability of the directors to work harmoniously together, and to the dislike of the weavers to subject themselves to discipline and control. But these difficulties are neither inherent nor insurmountable as is shown by the recent rapid growth of hand-loom factories in the country, some owned, managed and worked by weavers themselves.

Generally men are employed for sizing and weaving while women, for bobbin and pirn winding. In some factories children are employed for doubling the thread and knotting the ends. The fear, that the organisation of the factory will eliminate women labour or that women would not come to the factory for work, is unfounded. For, in the West Coast the success of the hand-loom factory is due to the greater readiness of women and men of non-weaving castes to come and work there. It must be noted that in Kumbakonam and Madura women are unwilling but this conservatism is slowly disappearing. Another interesting fact is that in Kumbakonam and Salem there are factories which are run and owned by weavers themselves while in the West Coast most of the factories are owned by capitalists belonging to the non-weaving communities.

It must however be noted that with the growth of hand-loom factories the basis of ownership of the business has not been altered. The common characteristic of the artisan, the commission agent and the cottage workshop is that the business is privately owned by an individual and therefore the capital is insufficient for the technical and commercial development of the industry. Nor do these types of organisation permit of expansion; and so there is very little need for large capital. But in the hand-loom factory the capital required is large and one would naturally expect that the ownership of the business would be on the joint-stock basis with limited liability of share-holders so as to attract more capital. But that does not obtain at present.¹ The future of the hand-loom factory depends on its joint-stock basis of organisation for it would then alone be able to attract enough

¹ The joint-stock principle has not yet been applied in this country to small organisations for reasons, (i) their promoters are not well-known to the investing public, (ii) banks are not very much attracted by their business and (iii) the legal obligations imposed by incorporation are often too exacting for small concerns.

capital and develop the business on scientific lines. The application of the co-operative principle to the hand-loom factory deserves careful consideration; but it may not, at this stage of development of the industry and the condition of workers, attract the amount of capital necessary to organise a first-class hand-loom factory on co-operative basis.

5. CO-OPERATIVE HAND-LOOM PRODUCTION

Co-operation as the basis of the hand-loom industrial organisation has not yet been given a fair trial. Some weavers' societies for credit and a few non-credit societies are found but they are languishing for want of proper guidance and support. The experiment of co-operative production in Madura, Conjeevaram, Salem and Itchapur and the causes of the failure of the experiments in some centres are dealt with in a subsequent chapter. But suffice it to mention here that the weavers' co-operative societies for production and distribution are very small and they are weak both financially and commercially. They are ill-equipped; they are never organised on factory lines; and they have not as yet attracted the services of men of industrial experience and ability. The experiments so far made have undoubtedly failed; but power mills are not suited to Indian conditions and to the genius of Indian craftsmen, and co-operation offers the best basis for organization of the weaving industry. The opinions of Textile Experts, Directors of Industries and co-operators are unanimous on this point. 'The weaving industry', writes Mr. Maxwell-Lefroy, 'seems to me to be eminently suited to the Indian craftsman working in his own village if his circumstances can be bettered. If I am correctly informed the success achieved by Japan has been due largely to a splendid organisation of the cottage weaving centred round factories which only collect and finish the fabrics. Whether we achieve the similar result by the individual weaver, the group of weavers or the hand-loom factories is a matter of local circumstances purely—but it cannot be ordinarily obtained by any development of mills'.¹ Mr. Davies and Sir Alfred Chatterton, formerly Directors of Industries, Madras, have declared time and again that co-operation offers the best

¹ Report on Silk Industry in India.

solution and the weavers must be organised in hand-loom factories formed on a co-operative basis.

6. THE POWER-LOOM

The mills differ from the hand-loom factories in four important respects: (1) their use of power, (2) economies due to their larger outturn, (3) their mass production and (4) their increased specialisation and employment of technical and business experts. A more detailed enquiry of the organisation of mills is out of place here.

This survey of the systems of production brings out certain facts in the light of which the re-organisation of the industry must be attempted. The domestic system, the cottage workshop and the system of commission agents are the most dominant types of production at present. The entire handicraft is tending to become more dependent on a class of specialised entrepreneurs. While the rise of this class means much to industries in other countries, as persons of this class provide capital, standards and management, or supervise some of the processes, or see that goods are made according to certain standards and made in time, or bear certain risks of organisation, its rise in India has not been beneficial to the industry to the same extent. Besides, the evils characteristic of small industries carried out in isolated homes of the workers are not eliminated. The weavers are sweated—not in the sense that merchants get rich but in the sense that the workers get less than what is necessary for a bare living, not to speak of a decent living. Further, the fortunes of these industrial units are subject to violent vicissitudes. They suffer from a chronic dearth of capital. The tools are simple and primitive. The methods are crude and wasteful. The *morale* of the worker is anything but satisfactory. The present conditions of work can inspire nothing better. The workers are tempted not only to pawn but to steal their employers' goods when they are in distress. On the top of all, as a result of the disappearance of their economic independence in the industrial world, the workers have little or no choice of

employers, and when hungry, cannot refuse work if wages are low. They are helpless without a strong association of their own. But the system of production is not easily susceptible to trade union organisation which can better the conditions of the workers, nor to an organisation of producers for the preservation of the standards, regulation of prices, wages and output and, in general, the betterment of the industry. The revival of the caste and the craft guilds is well nigh impossible. But the creation of an organisation, for bettering the conditions of the workers and of the industry without prejudice to the work being done in villages and in the homes of workers and without creating all the evils of modern industrialism, is one of the problems of the re-organisation of the hand-loom industry.



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