

# CENSUS OF INDIA, 1921

Volume X,

## BURMA PART I. REPORT

BY

S. G. GRANTHAM, I.C.S.

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## PREFACE

THE taking of a census is not done by the Superintendent of the Operations but by a large number of census officers of all grades from Deputy Commissioner to Enumerator. In all parts of the country generous service has been given throughout the work by census officers of all kinds who are too numerous to be mentioned by name. The errors of slip-copying were due to the exigencies of the time, and deputy commissioners throughout the province gave their best assistance to put them right. As in the previous census the Agents of the Burma Railways and of the Irrawaddy Flotilla Company spared no pains to make a success of the enumeration on their railway and steam-boats. On many occasions Mr. Morgan Webb, C.I.E., who superintended the census of 1911, gave me his valuable advice and guidance in difficulties. Maung Ba Sein joined the office as head clerk in August 1920 when the man originally lent from the Revenue Secretary's office proved too inexperienced. I am deeply grateful to Maung Ba Sein for his assiduous and careful work whether on tour with me when preparing for the enumeration or afterwards in the office; to him I offer the high praise that he maintained the standard of excellency he had established by his previous work in No. 2 Settlement Party. He was rewarded by the Local Government by an appointment as Deputy Myoðk, and after that stayed on for four months at the cost of a possible delay of his further advancement, to assist the Accountant-General's Office in getting its census accounts put straight. Mr. L. F. Taylor, I.E.S., the Deputy Superintendent, was appointed specially to attend to the work on languages and races and has supplied Appendix B of this report; but with the assistance of Maung Lat, he undertook also the compilation of all the first fifteen tables except III and XII. He left the office before this report was begun. Maung Lat acted as Assistant Superintendent. He held a similar post under the title of Deputy Superintendent in Mr. Morgan Webb's census of 1911; and it was on account of the high praise which was given him by Mr. Morgan Webb, whom I consulted about the selection of an officer for this post, that I asked for his deputation to census again. Maung Lat fully justified the selection and deserves the same high praise again. He took a share in the work for all tables from VII onwards and under my guidance carried out the whole of the work for the occupational tables XVII to XX and for the tables of the Special Industrial Census as well as Imperial Table XII.

The actual writing of this report was begun on the 25th January 1923 and is being completed to-day on the 10th May, exactly three and a half months later, so that it has occupied just the same length of time as that of my predecessor. Like him I have at the same time been occupied with the completion of the tabulation; but I have not attempted to do at the same time any work for the Administrative Volume of this report in which notes on the conduct of the operations are recorded for the benefit of my successor of 1931. I had however practically no time to think about the figures before I began to write the report, and I had still to discover what I could about them. As the relationship between the age-distribution and the variation of the population has not previously been

discussed in Burma, and I had for reference and example no accounts of such a discussion elsewhere, I spent much time in the search for a valid substitute for a standard age-distribution and had to work out and study many more age-distributions and curves than are shown in the report. Consequently the task has been more than enough; I have had no time to polish periods and revise the style and arrangement, and I must ask pardon for repetitions and defective arrangement. The lack of pictorial representation of the statistics by human figures of different sizes or by geometrical patterns or similar devices is due partly to the need for economy but chiefly to the conception of this volume as a guide to students of the Tables rather than a complete account of the population. The usual conception of the census reports makes the Tables form an appendix to the Report; in this case the Report is only a supplement to the Tables. I hope the consequent dryness of the Report will receive compensation in the publication by others of interesting studies of the tables in which the errors which must have been made in writing this Report so hurriedly will be put right.

S. G. GRANTHAM.

RANGOON, *the 10th May 1922.*

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## APPENDIX A.

### Correction of the Age-Statistics.

(With reference to Article 88 of Chapter V.)

Bloxham's method of correcting the age-statistics, which was advocated in connection with the census of India in 1901 and used in the Burma census of 1911, was applied to the statistics shown under the heading "As recorded" in Subsidiary Table I of Chapter V. It consists of first substituting for the number tabulated at each age the average of itself and the numbers for the two preceding and two following ages; and then performing a similar operation upon the new series so obtained, but substituting for each term the average of 11 numbers consisting of itself and the five preceding and five following terms. The series obtained by taking these steps in turn are shown in the columns P and Q of the table on the next page. Finally the Q series should be plotted out and adjustments made which will give a curve free from abrupt changes of curvature. This demand for continuity in the curvature was met by plotting also the successive differences of the terms of the series, which were then so adjusted as to make the curve of the differences continuous and free from abrupt changes of curvature as well as the curve of the original terms, one advantage of this being that it afforded guidance at the numerous points at which the smoothing of the principal curve was somewhat arbitrary. The curves are not reproduced here as it is of little use reproducing them on a small scale, and the expense of reproducing on a sufficiently large scale would be quite unjustifiable; they were drawn on a scale which made them about four feet long, so as to enable the smoothed values for each age to be read off accurately. As the sum of the new series differed slightly from 100,000 its terms were multiplied by a constant factor to bring its sum to that number. The final result is shown in Subsidiary Table I of Chapter V, but it cannot be pretended that it is correct. In the first place the method of averaging cannot be applied to the earliest terms of the series; for instance there are not two terms preceding the number recorded for age 1 to be used in the first averaging of five terms for that age, and the device of using only three terms then is invalid. Similarly for the second averaging over eleven terms. The figures for ages below eight are thus obtained in a makeshift way different from the other terms of the series. When the final smoothing is done there is only one direction at this part of the curve in which there is any guidance, and the actual figures obtained made me only too painfully aware of this. Moreover, an instant's consideration of the problem of infant mortality convinces that the correct figure for age 0 could not be obtained by extension backwards even of a satisfactorily established curve for subsequent annual periods; the variations of mortality at successive stages within the first year are too great for that. Similar objections prevail at the other end of the series, and consequently both ends must be rejected. We can perhaps retain age 7 at the lower end as the direction of the curve is indicated sufficiently for that; at the other end we may as well stop at age 70 without arguing about higher ages. Then the series no longer represents the age-distribution of a definite total population, and so loses part of its value; but it might still represent the proportionate numbers at ages from 7 to 70. Even this however cannot be conceded. The first averaging over five terms is intended to distribute the excess persons shown in the original records with ages which are multiples of 5; the second averaging over eleven terms is to make a further correction for the predilection for ages which are multiples of 10. Eleven is chosen because it is desired to include an equal number of terms on each side of the substituted term, so that an odd number, either nine or eleven, is necessary for the system. The final result is to give as the substitute for each term a weighted average of itself and of the seven preceding and following terms. The average is so weighted that it consists of one-eleventh (i.e., five-fifty-fifths) of the central term and of each of the three immediately following it, four-fifty-fifths of the term after those, and three, two and one fifty-fifths of the terms successively following that, and symmetrical fractions of the seven terms preceding it. This however involves entirely unfounded assumptions as to the way the errors arose; and the results, as was noted in the Burma Census Report of 1911, cannot be taken as the basis of any detailed conclusions. The true curve must lie somewhere in the neighbourhood of the curve given by this process; but there is no reason for supposing that the distribution represented by the latter is any more accurate than that obtained by merely collecting the crude figures into age-groups as is done in Imperial Tables VII and XIV, in which case the series obtained for five-yearly age-groups would be proportional to the figures in column P for ages 2, 7, 12, 17, etc. The tendency of the process is to smooth out, not so much errors as the irregularities which ought to exist and are the points of particular interest in the series. It tends perhaps to give a representative age-distribution of no particular date rather than the age-distribution of the actual time of the census; but this is uncertain, and in any case it means that the characteristics of the distribution are lost. There is also absolute loss of the two ends of the series. In the particular case of the figures for Burmese Buddhists the simple collection of the crude figures into five-yearly groups has over all

such methods as Bloxham's the advantage of giving results which, can be more fairly and accurately compared with the equally erroneous figures for all Buddhists; the error in such a comparison is possibly quite small.

*Intermediate Stages of the Smoothing of Subsidiary Table I of Chapter V.*

P = Recorded figures averaged over periods of 5 years; Q = Column P averaged again over periods of 11 years.

Age.	Males.		Females.		Age.	Males.		Females.	
	P	Q	P	Q		P	Q	P	Q
0	2,476	2,476	2,670	2,670	50	800	782	841	780
1	2,453	2,493	2,533	2,595	51	777	741	834	751
2	2,550	2,544	2,584	2,592	52	757	701	827	724
3	2,583	2,565	2,559	2,590	53	570	676	618	608
4	2,660	2,563	2,612	2,568	54	599	642	623	663
5	2,640	2,552	2,589	2,536	55	554	617	579	631
6	2,590	2,555	2,587	2,508	56	515	594	545	597
7	2,493	2,562	2,437	2,500	57	493	572	498	563
8	2,626	2,545	2,543	2,479	58	613	536	568	517
9	2,469	2,528	2,380	2,468	59	554	517	511	489
10	2,579	2,489	2,493	2,446	60	553	493	495	460
11	2,517	2,444	2,365	2,427	61	546	469	467	432
12	2,528	2,399	2,439	2,401	62	538	447	462	405
13	2,357	2,365	2,252	2,384	63	364	429	317	387
14	2,399	2,310	2,438	2,359	64	359	398	311	361
15	2,235	2,264	2,375	2,340	65	330	370	302	339
16	2,145	2,201	2,375	2,303	66	298	341	271	318
17	2,032	2,136	2,302	2,262	67	274	312	251	269
18	2,178	2,064	2,249	2,202	68	290	275	303	269
19	2,023	2,006	2,266	2,150	69	268	253	286	252
20	1,959	1,943	2,179	2,082	70	245	230	266	234
21	1,843	1,888	1,992	2,014	71	236	210	252	216
22	1,797	1,836	1,970	1,938	72	228	191	266	206
23	1,735	1,798	1,782	1,873	73	131	174	131	186
24	1,724	1,737	1,782	1,804	74	126	154	130	167
25	1,707	1,685	1,692	1,732	75	109	136	113	149
26	1,629	1,638	1,626	1,661	76	101	119	104	131
27	1,569	1,597	1,542	1,603	77	93	103	94	114
28	1,509	1,546	1,588	1,534	78	86	84	102	92
29	1,514	1,503	1,491	1,477	79	75	75	90	82
30	1,448	1,456	1,464	1,415	80	67	65	86	71
31	1,444	1,409	1,399	1,366	81	59	56	75	62
32	1,392	1,366	1,357	1,321	82	56	48	72	54
33	1,239	1,331	1,157	1,289	83	26	43	19	46
34	1,257	1,288	1,154	1,248	84	23	38	17	38
35	1,208	1,253	1,098	1,216	85	19	34	13	31
36	1,188	1,221	1,150	1,188	86	15	31	12	24
37	1,157	1,190	1,129	1,156	87	14	28	11	18
38	1,190	1,149	1,190	1,117	88	34	23	13	12
39	1,132	1,127	1,135	1,096	89	33	21	12	10
40	1,130	1,100	1,148	1,070	90	32	19	11	9
41	1,092	1,075	1,154	1,047	91	29	17	10	8
42	1,106	1,048	1,048	1,016	92	28	16	9	7
43	944	1,027	919	994	93	2	15	2	6
44	990	994	934	963	94	2	12	2	5
45	961	964	865	934					
46	933	932	840	908					
47	894	901	809	878					
48	927	853	892	839					
49	827	821	849	822					
					95 and over	3	19	12	16

If any comparison with the Bloxhamised figures of 1911 and 1921 is contemplated it must be noted that the latter are confined to Burmese while the former include Buddhists of all kinds in the areas from which they were selected. These areas are not on record for the figures of 1911. Also the figures tabulated in Subsidiary Table I of Chapter V of the Census report of 1911 were not smoothed; they correspond not to Subsidiary Table I of Chapter V of 1921 but to column Q in the table of this appendix.

A more elaborate method of dealing with the figures, which was used by the actuary employed by the Government of India to examine the age-records of all Indian provinces after the census of 1911, is described in the All-India report of that census; but his method

too was based upon a perfectly arbitrary assumption. A special correction was made for age 5: but for every other age which is a multiple of 5 he calculated the excess of the recorded number above the mean of the numbers for the two adjacent ages and transferred one-half of this excess to the earlier of those two ages, leaving the other half untouched. This of course graduated the numbers involved, and it gave a workable series; but there is no reason for regarding it as accurate. For India proper it may be the best that can be done with a bad job; but the actuaries employed in 1901 and 1911 both remarked that the Burma returns were superior to those from other provinces.

Other methods of dealing with the figures have also been tried; for instance, on the assumption that the errors lay chiefly in the multiples of 5 and 10 years, these terms were omitted from the series and a smoothed curve was constructed from the remaining terms by which new figures for the omitted ages were then interpolated. No obvious advantage seemed however to be gained by any of the methods tried.

No uniform mechanical method in fact can be expected to furnish the proper corrections; a successful method must be adapted in its application at every age to the particular manner in which the record was corrupted. If the manner of this corruption could be discovered there would be hope of reversing the process so as to get back from the actual record to an approximately correct statement. The tables were accordingly examined again with this object. The entries for young children seem to be inconsistent amongst themselves as well as with the entries for older children. There are specially large numbers shown for ages which are multiples of 10 or odd multiples of 5, which are clearly due to persons stating their ages in such round numbers. In that case the deficiency shown in ages ending in 1, 4 or 9 is easily explained as due to persons of those ages giving the near multiple of 5 or 10; some ages ending in 6 do not seem to be avoided to the same extent—for instance age 46 is well patronised by males—but in most cases the numbers shown for such ages are small too. There is a preference for some ages ending in 2 or 3, but this is not the same for males as for females; for instance ages 32 and 33 are both particular favourites for males, but 33 is not so attractive to females as 38.\* Now everybody estimates ages by tens first of all, and if one ten is too high and another too low the half-way five is naturally thought of. Then if an attempt at accuracy is being made, some qualification will be added, showing whether the true figure is probably above or below that half-way figure. Every settlement officer has experienced this (with fifties instead of fives) in discussing the outturns of their holdings with Burmese or Karen cultivators, and it seems to be a universal human tendency. But the enumerator is not allowed to record a five-year range of ages; he must either ask for a definite age to be stated or invent one. Naturally he chooses the half-way figure again, which may end either in 2 or 3, or in 7 or 8. Thus one would expect ages ending in 1 or 4 to be in defect by losing numbers to those ending in 0, 2, 3 or 5 while those ending in 2 and 3 would also lose to those ending in 5 and still more to those ending in 0. Similarly for those ending in 6 or 9. Accordingly the actual disturbances of the figures apart from the youngest ages seemed to be just those which would occur in an endeavour to give a correct record without having exact knowledge. Another point considered was that the recognised number for a person's age amongst all the indigenous races, and thus amongst the majority of the population, is the ordinal number of the year of life,—that is, the age next birthday; and it is probable that although so much emphasis was laid upon the instruction to record the age at the last birthday ("the number of *completed* years") a certain number recorded the age as one year too great on this account. This effect however would be spread fairly evenly over all the ages or at any rate would not be very different at near ages; accordingly it would not affect the age-distribution appreciably in any year except the first, the loss to the succeeding always tending to balance the gain from the preceding age.

Enquiries were made from Deputy Commissioners and others, both European and Burmese, in many districts about the manner in which the ordinary people remember and state their ages, and as to whether and by how much they are inclined to over or underestimate. In a number of villages the census enumeration-record was checked over again, each person's age being carefully enquired into by a capable officer; the census record and true record were compared and the frequency of particular units-digits in erroneous entries was observed. Many officers took great interest in this enquiry and gave it considerable time and attention; some indeed gave assistance who had no duties whatsoever in connection with general administration and must be specially thanked accordingly. The larger number of enquirers unfortunately were obsessed by the substitution of ordinal for cardinal numbers, and thought that would account for any vagaries of the record. The general tendency of the reports of others was that, while there were naturally a few hopeless errors, such as 80 for 8 or 27 for 72, errors by one year were not numerous and errors by two years or more were rare, and that overstatement and understatement were equally common. It seems that the errors which give rise to such large aberrations in the record must be more numerous than these reports would suggest; but that may be due to an unconscious and pardonable desire to present the census work of the particular district in the best possible light. There is in the reports considerable support for the hypothesis of the origin of the errors which was reached in the preceding paragraph, and it seemed justifiable to work on that.

According to that hypothesis the numbers of persons in age-groups of five years ought to be approximately correct, if the people who state the ages and endeavour to estimate

\* The figures obtained by Bloxham's method of smoothing are useful here as they must show something near the true figures, and comparison of the recorded figures with them shows sometimes where figures are really excessive and where they only appear excessive because their neighbours are defective.

them correctly have any reliable knowledge to help them form their estimates. Odd people in Burma will make the wildest statements about their ages; but when ages are recorded for a whole family there is an automatic correction applied by the inevitable comparisons. Proceeding on the assumption that the errors in the numbers for five-yearly age-groups were of moderate magnitude, the curves shown in Article 89 of Chapter V were drawn for Buddhist females; and as noted in Article 90 of that chapter these show that although the errors in the numbers for these groups are not negligible, they are not so large as to forbid the valid use of those numbers if their limitations are borne in mind. It may safely be assumed that the figures for Burmese if collected into five-yearly age-groups are at least as accurate as those for all Buddhists.

It must be remembered that errors in the age-record are not peculiar to Burma, but are met in every country in Europe and America, where yet are based upon them elaborate calculations on which depend the use of large sums of money in insurance and public health expenditure. Wilful mis-statements of age occur in England, but they are believed to have an inconsiderable effect upon the statistics as a whole except amongst females between 15 and 35. So too in Burma there is evidence of an exaggeration of the ages of females between 15 and 20, which may or may not be wilful; but at other ages the effect of wilful mis-statement appears to be negligible, at any rate for Buddhists who comprise the major part of the population. According to the English census report of 1911 the mis-statement of the ages of infants is not universal; but it appears in England and Germany and probably also in Holland and Denmark where however it is disguised by other influences. Dr. Dunlop has shown\* that in England the number of children under one year of age as given by the census is about 4·8 per cent in defect, and that for the succeeding ages there are the errors shown in the margin. In Burma it seems that children are often described as 1, 2 or 3 years old and so on, not when they have seen so many birthdays, but when they have reached certain stages of development such as crawling, toddling, running, talking, and that these stages are actually reached as a rule, at any rate in the eyes of admiring parents, before the ages conventionally assigned to them.

Age.	Error per cent.
Under 1	-4·8
1-2	-2·9
2-3	+0·7
3-4	+2·7

\* Journal of the Royal Statistical Society, May 1916.

# APPENDIX B.

## Indigenous Languages and Races.

BY MR. L. F. TAYLOR, I.E.S.

[NOTE.—It was originally intended that this Appendix should take the form of a monograph on the Indigenous Languages and Races of Burma. It has since become necessary to confine it to a brief statistical discussion based on an examination of the figures given in the language and race tables. The preparation of the monograph will be one of the tasks of the coming "Ethnographical and Linguistic Survey of Burma."]

1. *Classification of Indigenous Languages.*—The present system of classification of the Indigenous Languages of Burma is shown in Subsidiary Table IB, Part I, at the end of this Appendix. It is also shown in Part IA of Imperial Table X. A comparison with the classification of 1911 is made in the diagram given below:—

1911.				1921.			
Family.	Sub-family.	Branch.	Group.	Group.	Branch.	Sub-family.	Family.
Tibeto-Chinese.	Tibeto-Burman.	Assam-Burmese.	Burma	Burma	Assam-Burmese.	Tibeto-Burmese.	Tibeto-Chinese.
			Lolo ...	Lolo-Mus'o			
			Kuki-Chin ...	Kuki-Chin			
	Kachin ...	Naga ...	Kachin	Sak ...			
				Mishmi	North-Assam.		
				Mro ...	Unclassed		
	Siamese-Chinese.		Tai ...	Tai ...	Tai ...	Tai-Chinese.	
		Sinitic or Karen.	(See below)				
		...	Chinese	Chinese			
Malayo-Polynesian.			Malay ...	Malay ...	Indonesian	Austro-nesian.	
Austro-Asiatic.	Mon-Khmer		Talaing ...	Mon ...	Mon-Khmer	Austroasiatic.	Austriac
			Palaung-Wa ...	Palaung-Wa ...			
		Miao-Yao	Man ...				Man
			...	Karen ...			Karen

Four new groups have been added to the Tibeto-Burman sub-family. These are the Naga, Sak, Mishmi and Mro groups. The addition of the Mishmi group necessitates the addition of a new branch, the North-Assam branch. Mro, which had previously been shown as a language of the Burma group now constitutes a group of its own. The exact relationship of this group with the other groups of the Tibeto-Burman sub-family has not yet been ascertained.

In the Tai-Chinese sub-family two changes have been made: the Karen group of languages has been removed to constitute a new family and the Chinese group has been added. The Malayo-Polynesian and Austroasiatic families of 1911 are now united into the Austric family. A Khasi group has been added to the Mon-Khmer branch while the Miao-Yao group, renamed the Man group, has been removed to constitute the Man family. A statement of the philological evidence upon which the changes have been based cannot, unfortunately, be given here. Some of the changes have been suggested by Sir George Grierson and some by myself. In every instance, however, the agreement of Sir George Grierson has been accorded save in the cases of newly discovered languages where it has not been possible to supply him with materials. The present classification lays no claim to finality; it is merely based on the scanty materials collected up to date. Nothing authoritative or exhaustive can be attempted until a Linguistic Survey of Burma shall have collected and examined and classified materials from all the indigenous languages of the Province.

2. *Classification of Indigenous Races.*—Up to the present time language has been the principal basis of classification of the races of Burma and this is as true of the present Census as it was of the 1911 Census. The races corresponding to each indigenous language group have been regarded as forming a racial group to which the same group name has been assigned. No anthropological or biological classification is yet possible as the data collected up to date is too scanty to justify such an attempt. Our knowledge of the origin and relationships of the indigenous races has not increased much during the decade and is not likely to do so until the Linguistic Survey has made much further progress and has been supplemented by Ethnographical and Anthropometrical Surveys. In the meantime races are becoming more and more mixed and the threads more difficult to disentangle.



3. *Elementary Constitution of the Races of Burma.*—The great bulk of the indigenous inhabitants of Burma are composed of a mixture, in varying degrees, of the Indonesian and Southern Mongol stocks, the Southern Mongol preponderating. Dr. A. C. Haddon describes the Indonesians as "a race with undulating black hair, often tinged with red; tawny skin, often rather light; low stature of 1.54—1.57 metres (5 ft. 0½ in. to 5 ft. 1¾ in.); mesaticephalic (index 76—78), probably originally dolichocephalic; cheek bones sometimes projecting; nose often flattened, sometimes concave. It is difficult to isolate this Indonesian type as it has almost everywhere been mixed with a brachycephalic Proto-Malay stock." The Nagas may be regarded as typical representatives. Of the Southern Mongols he writes "Hair black and lank, little hair on the face; skin colour varies from yellowish in the north to olive and coppery-brown in the south; stature varies a good deal, but is generally short, averaging about 1.50 metres (5 ft. 3 in.); often thick set; brachycephalic (index 80—85); frequently prognathic; nose short and broad; eyes often very oblique, with Mongolian fold. Most of the peoples of this group are considerably mixed with other races; they comprise the Tibetans, Himalayans, Chinese proper, and the bulk of the populations of further India and Indo-China. Those members who spread into the East Indian Archipelago are often called Oceanic Mongols, but a better term is Proto-Malays; and it is from these the true Malay is derived." Other stocks are also present but to a much smaller extent. The Kachins, for instance, often exhibit two types, one markedly Mongoloid, the other taller with long oval face, pointed chin, aquiline nose and a tendency to dark brown hair. Such features indicate a so-called Caucasian strain such as is to be found among the independent Lolos of Sze-Chuan province in Western China. The Karens exhibit both these types, but the Brek Karens show traces of yet another stock, *viz.*, the pre-Dravidian stock represented by the Veddahs of Ceylon and the Sakai of the Malay Peninsula. It is suspected that the Was also contain a pre-Dravidian strain and it is reasonable to believe that both the Was and Karens have absorbed a pre-Dravidian population on whose land they had settled down.

The Southern Mongols, as a result of mixture with other races not only in Burma but also before they arrived in Burma and possibly also as a result of changes produced by local conditions, have split up into many sub-races such as the Shans, Talaings, Kachins and Karens which correspond roughly to the indigenous Race-groups of Imperial Table XIII. These, by splitting up and by intermarriage with one another and with races of Indonesian and other stocks, have produced all the varieties which are recognized as indigenous races in the same table.

4. *Definitions.*—In an anthropological sense "Race" denotes "a main division of mankind, the members of which have important physical characters in common" (Dr. Haddon) and applies to the races or stocks denominated Southern Mongol, Indonesian, pre-Dravidian and Caucasian which have already been described. Such races are probably of respectable antiquity anthropologically considered. In Imperial Table XIII the term has been applied to much smaller units of mixed origin which are of recent formation and which might more aptly have been designated "Tribes" or "Peoples." A tribe, according to Dr. Haddon, is "a group of a simple kind occupying a circumscribed area, having a common language, common government, and a common action in warfare" while a people is "a community inhabiting any given area independent of race." Neither of these definitions are however quite suitable for census purposes. The Talaings cannot be called a "tribe" in accordance with the definition just quoted because they do not possess a common language: 58 per cent of them habitually speak Talaing whilst the remainder speak Burmese. The term "people" on the other hand implies a degree of diversity of race which would give a misleading impression of the Talaings. In the absence of any suitable term capable of exact definition, the word "Race" was finally adopted as a general-term to be defined by the units to which it has been applied. In this sense it represents variously "a group of a simple kind who at one time occupied a circumscribed area, and had a common language, common government and a common-action in warfare," "a conglomerate composed by the fusion of such groups" and "the elements into which such a group has disintegrated."

The Talaings come into the first category, the Burmese into the second and the various kinds of Shans into the last.

As regards the use of the term "Language" in Imperial Table X it is sufficient to say that the names given as separate languages are generally only dialects of parent languages to which the term "Language-group" has been applied. For instance Burmese, Arakanese, Chaungtha, Tavoyan, etc., are very similar variations of one ideal\* language and descended from a parent language which is represented by the term "Burma group."

5. *The Burma Group.*—This group has been reconstituted since 1911 by the removal of the Mro and Kadu languages and the inclusion of Atsi, Lashi, Maru and Maingna which were then classed as Kachin-Burma Hybrids. These four languages differ considerably from ordinary Burmese and, together with P'un which may be regarded as a connecting link with Burmese, form a distinct sub-group of the Burma group. The precise degree of their relationship with Burmese still remains to be worked out, but there is no doubt that they belong to the Burma rather than to any other group.

During the decade speakers of languages of the Burma group have increased by 11 per cent whilst persons of races belonging to the group have increased by 8.8 per cent., a rate which is slightly greater than the general rate of increase of the Province. The conclusion is obvious that the Burma languages are making headway amongst the non-Burma races.

Year	Race.	Language
1921	8,693,025	9,234,636
1911	7,982,063	8,304,785
Increase	700,970	927,851

\* "Ideal" in the Platonic sense much as the non-existent "Standard English" is an ideal language.

Speakers of Burmese have increased by only 6 per cent, but a considerable increase is shown for speakers of other languages of the group. The explanation is to be found in more correct enumeration. Persons who at the last census returned themselves as speaking Burmese have been questioned to ascertain their particular dialect. It is probable also that many Atsis, Lashis and Marus were in 1911 returned as Kachins speaking Kachin.

Language	1921.	1911.	Increase.
Arakanese and Yanbye	497,709	393,962	173,747
Chaungtha	9,052	2,515	6,537
Tavoyan	131,746	46	131,700
Danu	72,925	18,694	54,231
Atsi	5,663	805	5,458
Lashi	16,570	...	16,570
Maru	20,577	209	20,368
<b>Total</b>	<b>754,242</b>	<b>345,631</b>	<b>408,611</b>

The number of persons of races of the Burma group who speak languages belonging to other groups is very small, but more than half a million persons belonging to other races habitually speak Burmese as the language of their homes. The actual details are of some importance as they indicate the direction in which the Burmese power of assimilation is asserting itself. The other languages of the group are scarcely spoken by persons of races not belonging to the group. The great majority of the Shans who speak Burmese are returned from the Katha and Upper Chindwin districts. There can be no doubt that the Shans in these districts are rapidly losing their characteristics and coming to regard themselves as Burmese. If the homes of the persons shown in marginal table 4 were to be plotted on the map they would be found to envelop the area usually regarded as being typically Burmese on the North, West and South, whilst on the East the expansion is continued by the Danus whose language differs but little from Burmese. Internally there is a continued absorption of Indians and Chinese.

Persons of following Race-groups who speak Burmese, to nearest thousand.		
Chin group	...	15
Sak Kadus	...	24
Tai group	...	114
Mon Talaings	...	134
Karen group	...	103
Chinese group	...	25
Mahomedan Zerbadis	...	93
Indian Hindus and Mahomedans	...	40
Others	...	5
<b>Total</b>	<b>...</b>	<b>553</b>

Language	1921.		1911.	
	Shan Race.	Shan Language.	Shan Race.	Shan Language.
Katha	82,247	37,509	89,257	89,257
U. Chindwin	82,457	48,672	76,084	76,052
<b>Total</b>	<b>164,804</b>	<b>86,181</b>	<b>165,341</b>	<b>165,309</b>

6. *The Lolo-Mus'os Group.*—This group has been increased since 1911 by the addition of Pyin which was formerly classed as a Falaung-Wa language and of Nung and Wat'ao-khum which did not appear at all in the 1911 Census. Speakers have increased during the decade by 15 per cent, whilst persons of the Lolo-Mus'os races have increased by 12 per cent. The increase in both cases is largely due to more careful enumeration. Nungs are found mostly in the parts of Putao which were omitted from the Census operations, hence the smallness of the numbers enumerated. It is interesting to note that 25 Nung men have already been enrolled in the Chin-Kachin Battalion of the Burma Rifles. Tangsir and Hop'a are dialects of Nung, but no speakers were enumerated within the Census area.

7. *The Chin Group.*—It has always been a particularly difficult matter to classify the Chins of Burma. Many of the dialects have never been studied and classified and many of the names returned in the Hill areas are village names rather than tribal names. The more civilized Chins who live in the plains are often returned under some nickname applied to them by the Burmans. In the present Census exceptional pains were taken to make a satisfactory enumeration with the result that the classification of the 1911 Census can be extended and improved. Nothing beyond a tentative classification however will be possible until the matter has been fully investigated by a proper Linguistic Survey. Kamhow, Paite and Yo are said to be sub-dialects of Sokte. Of these the first is called after a Sokte Chief named Kamhow who collected a number of followers and founded a new clan. The language now spoken is said to differ from Sokte in minor respects. In the same way two Tashon Chiefs, Yahow and Hlunseo, established new clans which have developed dialectical peculiarities. Tiantlang and

Classification of Chin Races and Language.	
A.—Meit'ei or Manipuri	B.—continued.
B.—Chin proper	III. Old Kuki group—
I. Northern group—	Kyaw.
Tado	IV. Southern group—
Siyin	Anu.
Sokte	Chinbok.
Kamhow	Chinbon.
Paite	Chimè.
Yo	Khami.
II. Central group—	Taungtha.
Tashon of Shunkla	Yindu.
Yahow	Sho.
Laiyo	V. Unclassed—
Kwangli	Chin unspecified.
Ngong	Chaunggyi.
Kweshim	Kautadan.
Lai	Kaungso.
Tiantlang	Ledu.
Yokwa	Matu.
Lakher	Saingbaung.
Law'tu	Sittu.
Yatun	Taman.
Shentang	
Lushai	
Huxango	

Yokwa are probably tribal names only. There were no entries of speakers of a Tiantlang dialect though such a dialect has been reported to exist. The great majority of the

Tlantlangs and Yokwas have been returned as speaking Lai. Hualngo is said to be a dialect of Lushei. Of the unclassified languages almost nothing is known, but it seems probable that Kaungtso is the same as Anu shown in the Southern group.

It is to be regretted that so many entries of Chin (unspecified) have appeared for both race and language, but it has been possible to make a partial distribution of these. For instance in Imperial Tables X and XIII for the Pakokku Hill Tracts the number of Chins of unspecified Chin races and of speakers of unspecified Chin languages is shown as 19,712. A statement has recently been received from the district which distributes these in the manner shown in marginal table 7. A distribution can also be made in the cases of certain other districts where something is known of the Chins who reside in them. In this way 116,591 unspecified Chins may be reduced to 32,256 and the 105,490 speakers of unspecified Chin languages may be reduced to 29,974. These figures are, of course, only approximations. The adjusted figures for the races and languages concerned are printed in italics in the Subsidiary Tables at the end of this appendix immediately below the figures obtained by actual enumeration. During the decade the Chins have decreased by 6 per cent whilst speakers of Chin languages have decreased by 9 per cent. The former decrease is partly due to the absorption of civilized Chins by the Burmans, but principally, as marginal table 9 shows, to a serious decrease in the numbers enumerated in the Chin Hills. This decrease is, again, confined to the Haka subdivision and is attributed to the ravages of influenza, to political unrest and to consequent emigration across the border into Assam. The deduction of the figure 9,123 is explained in paragraph 153 of Chapter XI of this Report. The decrease in the number of speakers of Chin languages is partly due to the same causes as the decrease in the number of Chins, it is also due to the fact that the civilized Chins who live in the plains are rapidly adopting Burmese as their language. In all nearly 20,000 Chins were enumerated whose language used in the home is Burmese.

8. *The Naga Group.*—Nagas were enumerated only in the Upper Chindwin district. The number returned is considerably smaller than in 1911, but it is possible that some of the 809 persons recorded as Chins of unspecified race in that district may in reality be Nagas. It is known also that Nagas are rapidly absorbed when they come to live in administered areas by their more civilized neighbours. They are more numerous in the unadministered territory which was excluded from the Census.

9. *Kachin Group.*—Nine names are now included in this group; of these only Kachin was enumerated in 1911. The new names represent races and dialects recently discovered in the Putao district. The numbers are small because the Census operations were confined to the Hkamti Long plains. Mr. J. T. O. Barnard, C.I.E., the Deputy Commissioner of Putao has kindly supplied grammatical notes and vocabularies of Nogmung, Ntit and Pangu which make it certain that these languages are dialectical varieties of Kachin. He has also supplied interesting notes on the various tribes and on their traditional history. Unfortunately there is no room to reproduce them here and they must be left over to be dealt with by the future Ethnographical and Linguistic Surveys. Of the Kang, Langkhai, Nokkyo, Yoya and Tawhawng races very little is known. They are classed provisionally with the Kachins, but future investigation may result in their transfer to the Lolo-Mus'o or Mishmi groups.

During the decade speakers of the Kachin language have very unexpectedly decreased by 14 per cent and persons of Kachin race by 10 per cent. The districts principally affected are the Northern Shan States, Katha, Bhamo and Myitkyina. These are the districts where the Atsi, Lashi and Maru, who have so often been mistaken for Kachins, are most numerous and there is a strong probability that many of these races were enumerated as Kachins in 1911. The marginal table for the Northern Shan States and Katha suggests that in these two districts about 12,000 ought to be deducted from the Kachin figures for 1911 and added to the figures for Atsi, Lashi and Maru. This would still leave a decrease in these

	Administered Area.	Unadministered Area.*
Chinbok	15,006	4,331
Chinbon	1,077	..
Yindu	3,629	922
Mgan	..	650
Matu	..	8,853
Total	19,712	8,756

\* The figures for the Unadministered Area are not included in Imperial Tables X or XIII or in the Subsidiary Tables at the end of this Appendix. They are given here for information only. In both Administered and Unadministered Areas race and language figures are the same.

Adjusted figures for	Race.	Language.
Chin (unspecified)	32,256	29,974
Chinbok	15,006	15,006
Chinbon	4,077	4,077
Yindu	4,551	4,551
Sho	60,701	51,882
Chin (unspecified) as enumerated.	116,591	165,490

	Provice.	Chin Hills.
1921	288,847	108,167
1911	308,070	117,588
Apparent Decrease	19,223	9,421
Deduct	9,123	..
Actual decrease	10,100	9,421

	Race.	Language.
1921	146,079	145,600
1911	162,368	162,414
Decrease	16,289	23,796

areas of 12,000 Kachins and 8,000 speakers of Kachin.

11. Northern Shan States and Katha.	Kachins.		Atsi, Lashi, and Maru.	
	Race.	Language.	Race.	Language.
1921	63,949	64,381	13,855	13,356
1911	86,397	84,701	474	500
Increase	- 22,348	- 20,320	+ 13,411	+ 12,856

Absorption may account for some of this and emigration into Yunnan for the rest. The marginal table for Bhamo and Myitkyina indicates a more favourable state of affairs. The figure 110 for speakers of Atsi, Lashi and Maru in 1911 is probably a tabulation error, and 9,110 is a more likely figure. This correction would leave 73,229 speakers of Kachin in that year. There has therefore been an actual increase of Kachin persons and speakers in these two districts. If besides this it be estimated that 16,000 persons were returned in 1911 as Kachin persons and speakers who ought to have been returned as Atsis, Lashis or Marus, the increase in the figures for Kachins become even more striking.

12. Bhamo and Myitkyina.	Kachins.		Atsi, Lashi and Maru.	
	Race.	Language.	Race.	Language.
1921	80,265	79,925	29,382	29,426
1911	71,305	82,229	9,357	110
Increase	+ 8,860	- 2,304	+ 20,030	+ 29,316

An estimate for the provincial figures for Kachin in 1911 adjusted as stated above is given in Marginal table 13. According to this there has in reality been an increase in the number of persons of the Kachin race of 8.7 per cent. which is about that of the general rate of increase of the province, and in the number of Kachin speakers of 10 per cent. A reference to Subsidiary Table III of this appendix will show that in 1921 only two thousand Kachins spoke languages other than Kachin and that there were only one thousand speakers of Kachin who were not of Kachin race.

13. Adjusted figures for Kachins in whole Province.	Race.		Language.	
	1921	146,079	145,618	
1911	134,368	132,414		
Increase	11,711	13,204		

10. *The Sak Group.*—The classification of Kadu and Sak was a problem for many years. They were known to be similar, but Kadu was placed in the Burma group and Sak in the Chin group. Mr. Grant Brown has recently published a vocabulary and some grammatical notes of Kadu and a study of these materials has enabled Sir George Grierson to determine its place in relation to other Tibeto-Burman languages. He finds Kadu to be related to Andro and Sengmai, pre-Manipuri languages of the Manipur Valley, and has placed these languages together into a new group to which he has given the name "Lui." The Manipur representatives of the group have now become extinct and it is only in Burma that representatives are to be found. Ganans is a variety of Kadu, but it is sufficiently distinct to be separately tabulated. Finally Daingnet is the language, much corrupted by Bengali, of the descendants of Sak prisoners of war from the Valley of the Lower Chindwin who were captured by King Minda of Arakan at the close of the thirteenth century and made to settle in the Akyab district.

Of the races who speak these languages the Kadus and Ganans form the great majority and it is significant that they refer to themselves as Sak or ā-Sak. It is possible that they are the descendants of the Saks of Burmese History and the Andro and Sengmai of Manipur may have been Sak refugees who fled from Burma during times of unrest and oppression. The term Sak has been applied to the group in the place of Lui partly because of the importance of the Sak element and partly because in Manipur the term Lui has also been applied to various servile races besides the Andro and Sengmai. This change in nomenclature has been accorded the consent and approval of Sir George Grierson. The figures given in marginal statement 14 show that both race and language have increased since 1901. In 1911 the enumerators probably failed to distinguish the Kadus from the Shans and Burmese

14. Sak.	1921	1911.	1901.
Race group ...	49,726	12,219	38,273
Language group	25,145	19,068	19,472

amongst whom they live. The percentage increase since 1901 is 30 in the racial strength and 29 in the number of speakers of Sak languages. There are about 25,000 Kadus and Ganans who speak languages

belonging to other groups. Of these about 24,000 speak Burmese and 1,000 Shan.

11. *The Mishmi Group.*—The Mishmis are recorded in Burma for the first time. Their dialects, so far as Burma is concerned, constitute a new group of the Tibeto-Burman languages. In Burma Mishmis are mostly confined to the unadministered areas in the west and north of the Putao district, and the few who were enumerated were stragglers into the Hkamti Long plains. The race representing this group in Burma is the Khaman-Mishmi, the affix of Mishmi having been added in this census to prevent confusion with the Arakan-Kaman race of Akyab district.

12. *The Mro Group.*—Mro has proved a most difficult language to deal with. It bears relationships to many languages but is closely connected with none. In Volume III

15. Province.	1921	1911	1901
Mro race ...	14,771	2,708	12,628
Speakers of Mro	14,394	2,718	13,414

of the Linguistic Survey of India it is classed as a dialect of Burmese, but this is only a tentative classification pending the further light that is expected to be thrown on the subject by the coming Linguistic Survey of Burma. Materials of this as well as of other languages have recently been furnished by Maung San Shwe Bu, Honorary

Archaeological Officer, Akyab, but they have not yet been properly examined. In the

meantime Mro can safely be placed in a group of its own and this group may be placed in the Tibeto-Burman sub-family. Both language and race figures have increased since 1901 as marginal statement 15 shows, the racial figures by 17 per cent and the language figures by 7 per cent. The few Mros who do not speak their own language speak Khami Chin.

13. *The Tai Group.*—In the present Census an effort was made to ascertain correctly the numbers of the different varieties of Shans; the entry *Shan (unspecified)* was only to be made after proper enquiry had failed to identify the exact race and language of each person enumerated. Despite this precaution the entries for Shan (unspecified) were very numerous. Of the 288,984 Shans of unspecified race, 249,860 were enumerated in the Northern Shan States. Of speakers of unspecified Shan dialects, 260,445 were enumerated in the Northern Shan States, 25,471 in Katha, 8,214 in Toungon and 7,629 in Mergui. In view of this large residue of unspecified entries it will not be profitable to institute a comparison race by race and language by language of the 1921 figures with those of 1911. The groups must be compared as a whole as shown in marginal statement 17. It is somewhat surprising, when we know that the Shans have absorbed many of the Palaung-Wa races, to find that during the decade the racial strength has increased by only 2 per cent whilst speakers of Shan languages have decreased by 5 per cent. The six marginal tables that are given for different areas are designed to show the changes that have taken place during the decade in more detail. The race figure shows a decrease in the Southern Shan States and Karenni and in the Pegu and Tenasserim divisions, but there is an increase elsewhere, particularly in the Bhamo and Myitkyina districts. The inclusion of the Hkamti Long plain in Putao is responsible for 4,666 of the provincial increase. The numerical relationship between race and language is extremely complicated. The number of speakers has increased in Bhamo and Myitkyina and in the Tenasserim division and in the Southern Shan States and Karenni, but has decreased everywhere else. Even the small increase in the Southern Shan States and Karenni is much smaller than the number of Palaungs who, during the decade, have given up their own language in favour of Shan. The number of Shans who employ as their home language the languages of other groups is about 119 thousand, or 12 per cent of the whole. Of these 114 thousand speak Burmese, 2 thousand Taungthu and the rest various languages. Burmese as the language of the home, has made but little progress amongst the Shans of the Shan States. Conversely about 23 thousand persons who are not Shan by race have returned Shan as their language as shown in marginal statement 24.

16. Province.	Race.	Language.
Shan group	1,017,987	921,507
Shan (unspecified)	288,984	326,315

17. Province.	Race.	Language.
1921 ...	1,017,987	921,507
1911 ...	996,480	968,375
Increase ...	21,567	-46,868

18. Shan in S. Shan States and Karenni.		
	Race.	Language.
1921 ...	430,973	435,714
1911 ...	438,286	434,699
Increase	-7,313	+1,085

19. Shans in N. Shan States and Katha.		
	Race.	Language.
1921 ...	351,515	309,351
1911 ...	340,707	341,847
Increase ...	+10,808	-32,496

\* Including Ruby Mines for 1911.

20. Shan in U. Chindwin.			29. Pegu division.		
	Race.	Language.		Race.	Language.
1921 ...	82,457	48,672	1921 ...	22,613	15,440
1911 ...	76,084	76,052	1911 ...	29,860	18,604
Increase	+6,373	-27,380	Increase ...	7,247	3,164

21. Shans in Bhamo and Myitkyina.			28. Shans in Tenasserim division.		
	Race.	Language.		Race.	Language.
1921 ...	69,583	60,533	1921 ...	49,659	41,449
1911 ...	47,991	49,356	1911 ...	51,480	40,176
Increase ...	+21,592	+11,177	Increase ...	-1,821	1,273

24. Persons other than Shans who speak Shan languages.	
Burma group	2,500
Kuki-Chin group	700
Kachin	1,800
Sak	700
Palaung-Wa	8,000
Taungthu Karens	4,500
Other Indig. races	3,000
Non-Indig.	600
Hindus and Mahomedans.	9,000
Total	23,000

14. *The Malay Group.*—The constitution of this group is the same as in 1911, Malay and Salon being the only representatives found in Burma. The Malays show an increase during the decade in racial strength but a decrease in the number of speakers. They are almost entirely confined to the Mergui district and those who do not speak Malay as their home language probably speak Burmese. The figures for the Salons are less reliable, they are discussed in Article 155 of Chapter XI.

25. Province.	Race.	Language.
Malay, 1921 ...	4,712	3,446
Do, 1911 ...	4,239	4,190
Salon, 1921 ...	1,921	1,931
Do, 1911 ...	1,984	1,871

No.	Province.	Race.	Language.
	Talaing 1901 ...	323,509	189,263
	Do. 1911 ...	320,629	179,443

27. Talaings in Amherst and Thaton.			
	Province.	Race.	Language.
	Amherst, 1901	187,259	151,028
	Do. 1911	164,470	139,970
	Thaton 1901	69,016	36,201
	Do. 1911	80,923	34,805

28. Palaung-Wa Group.			
	Province.	Race.	Language.
	1901 ...	156,703	147,841
	1911 ...	175,940	166,912
	Decrease ...	19,237	18,371

29. Palaung.			
	Province.	Race.	Language.
	1901 ...	122,257	117,725
	1911 ...	144,139	144,248
	Decrease ...	21,882	26,523

30. Northern Shan States and Katha.			
	Province.	Race.	Language.
	1901 ...	100,530	105,139
	1911 ...	108,117	107,756
	Increase ...	+7,587	+2,617

31. Southern Shan States.			
	Province.	Race.	Language.
	1901 ...	12,380	12,336
	1911 ...	35,761	36,191
	Decrease ...	23,379	23,855

15. *The Mon Group.*—Talaing is the only representative in Burma of this group. During the decade the racial strength has increased by only 1 per cent probably on account of absorption by the Burmese. Speakers on the other hand have increased by 5 per cent. The increase is almost entirely confined to the Amherst district; elsewhere, with the exception of Thaton, there has been a decrease in both racial strength and the number of speakers. In Thaton, however, the language figures have increased, though there has been a large decrease in the number of persons returning themselves as Talaing by race. Those Talaings who do not speak their own language speak Burmese.

16. *The Palaung-Wa Group.*—The racial strength and the number of speakers of languages of this group have both decreased by 11 per cent. The race mostly concerned is Palaung whose loss more than covers the increase made by the other members of the group. The decrease has taken place in the Southern Shan States as marginal table 31 shows. In the Northern Shan States there has been a small increase in racial strength though the number of speakers has diminished. Those who do not talk Palaung have returned Shan as their home language. The changes that taken place during the decade are most probably to be attributed to a Shan absorption which has been particularly effective in the Southern Shan States. The other races and languages of group show changes such as may be attributed to the difficulties entailed in enumerating uncivilized peoples who live on the mountain tops.

17. *The Khasi Group.*—Only three Khasis were recorded and they were enumerated in the Hkamti Long plain in the Putao district. The Khasi language is related to the Palaung-Wa languages on the one hand and to the Munda languages on the other. Their home is in Assam but as it is likely that their numbers will increase in future years, a separate place has been made for them in the scheme of classification.

18. *The Karen Family.*—It has been the custom for many years to regard the Karen languages as constituting a branch of the Tai-Chinese sub-family of the Tibeto-Chinese family of languages. This view was apparently based on a somewhat hastily comparison of Karen vocabularies with those of Shan and Chinese and on the order of words in the sentence. During the last four years considerable linguistic material has been accumulated in preparation for a proper Linguistic Survey of Burma and more comparisons have been made. The Karen languages have now been reconstituted to form a separate family of closely related forms of speech which may tentatively be sub-grouped as shown in the marginal table:—

32. Internal classification of Karen languages.	
Group I.	—Sgaw, Paku, Wewaw and probably Monpwa.
II.	—Pwo, Tenasserim and Delta dialects.
III.	—Mopwa dialects.
IV.	—Karenbyu, Bwe and Brek.
V.	—Karenni dialects.
VI.	—Padaung, Yinbaw and Gheku.
VII.	—Taungthu dialects.
VIII.	—Zaycin dialects.

The groups are inter-related in a curious fashion which is indicated in the following statement—

I.—The Sgaw and Pwo groups are closely related.

II.—The Sgaw and Karenbyu groups are closely related.

III.—The Karenbyu and Padaung groups are closely related.

IV.—The Sgaw and Padaung groups are related, but less closely.

V.—The Pwo and Mopwa groups are related.

VI.—Karenni, though in many respects individual

is related to the Sgaw, Pwo, Karenbyu and Padaung groups.

VII.—Taungthu is the most independent but is obviously related to all the other groups

VIII.—The Zaycin group is individual in many respects but is also widely related.

It is interesting to note that the present classification closely resembles the much older one of Dr. Mason given in the *British Burma Gazetteer* of 1879-80.



In considering the peculiarities of the Karen languages as a whole many interesting problems arise. There are, for instance, resemblances between the structure and vocabulary of the Karen languages on the one hand and of the Chin and Sak languages on the other. These appear to be the result of contact and borrowing of one from the other rather than of common descent. Resemblances have also been pointed out between Karen and certain languages of the Nepal Himalayas designated Kiranti by Brian Hodgson and Khambu by Sir George Grierson. No complete explanation of these phenomena is yet possible, but Sir George Grierson suggests the possibility of a widespread pre-Tibeto-Burman population which was absorbed, together with parts of its language, by the later Tibeto-Burman immigrants. Such a population may have been Karen, or the Karens may have absorbed much of the older language in the same way that the Tibeto-Burman races have done. Sir George Grierson and Dr. Finot have also noticed resemblances between the Karen and the Man families of languages.

In the present census an effort was made to get all the enumerated Karens properly described with reference to their race and language. The entry *Karen (unspecified)* was only to be made after every effort to identify the race and language had failed. On the whole considerable success was attained. It is unfortunate that more Karens (unspecified) were returned from Toungoo than from any other district. Toungoo is the home of many of the smaller races and languages and had the enumerators there been better trained the numbers of many of these races would have been known with considerable exactitude. It is possible to reduce the entry *Karen (unspecified)* in many ways. Some may, for instance, be

returned by a district where Sgaws are known to preponderate; these may then be deducted from the heading *Karen (unspecified)* and added to Sgaw. Similarly a *Karen (unspecified)* who speaks Bwè may be added to the Bwè race, and *vice versa* a Bwè who speaks *Karen (unspecified)* may be regarded as being a speaker of Bwè. In this manner the entries *Karen (unspecified)* for Race and Language have been considerably reduced, the residue being made up of the heads Paku, Wewa, Monnepwa, Brek, Mopwa, and Zayein belonging to the Toungoo and Yamèthin districts and the Shan States; the great majority being in Toungoo. The adjusted figures for Sgaw and Pwo are almost complete. Marginal table 33 shows the manner in which the figure for unspecified *Karen* have been distributed both by race and by language. In the Subsidiary Tables at the end of this appendix the adjusted figures for the races and languages are given in italics immediately below the enumerated figures.

	Race.	Language.
Adjusted figures for <i>Karen (unspecified)</i>	16,761	14,861
Sgaw .. .. .	35,818	64,547
Paku .. .. .	...	759
Monnepwa ... ..	78	...
Bwè ... .. .	3,733	934
Karenbyu ... ..	24	5,373
Pwo ... .. .	6,919	12,939
<i>Karen (unspecified)</i> as enumerated,	62,697	98,713

Persons of the *Karen* group of races have increased by 11 per cent during the decade, a rate which is considerably above the general rate of increase of the Province. On the other hand speakers of the languages of the *Karen* group have increased by only 4 per cent. This may be explained by the fact that no fewer than 103,000 *Karen* now speak Burmese as shown in marginal table 34. It is fruitless to make comparisons between the individual races and languages of this census and of previous censuses because in the past the vague entry "*Karen*" without any further specification has been excessively great.

	Nearest thousand.
<i>Karen unspecified</i> ... ..	8
Sgaw ... .. .	35
Pwo ... .. .	53
Taungthu ... ..	6
Others ... .. .	1
Total ... .. .	103

*The Man Family.*—At the last census Miao and Yao, which together constitute the Man family, were treated as forming a group of the Mon-Khmer branch of the Austroasiatic languages. It is now realized that in many respects, particularly in the matter of tones, such a classification cannot be sustained. Sir George Grierson finds some resemblances between the Man and the *Karen* languages, but it is not yet known whether these are the result of contact and borrowing or of common descent. The Miao and the Yao races come from Southern China and are comparatively recent immigrants into Indo-China. The numbers recorded in 1921 were only about half of those recorded in 1911. This is largely due to the fact that in 1921 none were recorded in the Northern Shan States. From what is known of the movements of these Races in other parts of Indo-China it is probable that immigration into Burma is still continuing but that the immigrants rapidly lose their own characteristics and languages and become absorbed into the races surrounding them. It is significant that in the Southern Shan States, though the racial strength has not varied appreciably, the number of speakers has greatly increased indicating the arrival of recent immigrants who have replaced the older immigrants who have already been absorbed.

Locality.	Man races.		Man languages.	
	1911	1921	1921	1911
N. Shan States	...	555	...	555
S. Shan States	593	803	...	265
Elsewhere ... ..	4	...	...	...
Total ... .. .	597	1,358	591	...

SUBSIDIARY TABLE IA.—*Distribution of Total Population by Race-groups.*

For explanation of names and figures printed in italics, see paragraph 7 of Appendix B.

Race.	Racial strength.			Number per 10,000 of total population.		
	1921.	1911.	1901.	1921.	1911.	1901.
I	2	3	4	5	6	7
A. Burma Group ...	8,683,035	7,982,053	7,048,423	6,593	6,588	6,801
Burmese ...	7,837,985	7,179,433	6,503,681	5,952	6,173	6,230
Arakanese, Yanbye and Chaungtha...	515,038	346,629	405,432	391	286	392
Danu, Intha and Taungyo	154,194	143,288	128,776	117	118	124
P'un, Aisi, Lashi, Maru and Maingtha.	41,590	10,545	1,255	36	8	1
B. Lolo-Muso Group ...	75,845	67,693	47,107	53	56	45
C. Kuki-Chin Group ...	289,847	308,070	222,095	219	254	214
Khami ...	25,104	16,372	24,937	20	14	24
D. Naga Group ...	406	1,263	522	...	1	1
E. Kachin Group ...	146,845	162,368	64,405	112	134	62
F. Sak Group ...	49,225	12,229	38,273	38	10	37
G. Mishmi Group ...	13	...	...	...	...	...
H. Mro Group ...	14,771	2,708	12,572	11	2	12
I. Tai Group ...	1,017,937	996,420	880,750	773	822	850
J. Malay Group ...	6,553	6,223	4,308	5	5	4
K. Mon Group ...	323,509	320,629	321,898	246	265	311
L. Palaung-Wa Group ...	156,703	175,910	86,712	117	145	84
Wa ...	14,762	21,674	7,385	11	11	7
Palaung ...	142,357	144,139	56,866	93	119	55
M. Khasi Group ...	3	...	...	...	...	...
N. Karen Group ...	1,227,356	1,058,974	923,351	927	907	872
Karen (unspecified) ...	62,527	873,358	457,355	48	721	411
Karen (unspecified) ...	16,761	873,358	457,355	13	722	441
Sgaw ...	437,110	...	86,434	332	...	83
Sgaw ...	472,908	...	86,434	359	...	83
Bwa ...	7,467	8,356	...	6	7	...
Bwa ...	11,200	8,356	...	9	7	...
Karenbyu ...	18,370	790	...	14	1	...
Karenbyu ...	18,394	790	...	14	1	...
Pwo ...	411,891	...	174,070	313	...	170
Pwo ...	418,119	...	174,070	317	...	170
Taungthu ...	218,237	183,054	168,301	165	151	162
Padung, Yinbaw and Gheko.	22,169	9,427	7,825	17	8	8
Karenni ...	35,391	19,008	4,936	27	16	5
O. Man Group ...	597	1,158	...	...	1	...
R. Chinese Group ...	149,060	122,831	62,525	113	101	60
Total Indigenous Races including Chinese.	12,134,356	11,255,219	9,693,001	9,214	9,290	9,353
Total -- Non-Indigenous -- Races excluding Chinese.	1,034,743	859,593	670,122	726	710	648
<b>GRAND TOTAL</b> ...	<b>13,169,099</b>	<b>12,114,812</b>	<b>10,363,123</b>	<b>10,000</b>	<b>10,000</b>	<b>10,001</b>



SUBSIDIARY TABLE IB. PART I.—*Distribution of total population by Language groups.*

For explanation of names and figures printed in italics see paragraph 7 of Appendix B.

Order.	Family.	Sub-family.	Branch.	Group.	Total number of speakers.		
					1921.	1911.	1901.
1	2	3	4	5	6	7	8
Indigenous (or Indo-Chinese) Languages.	Tibeto-Chinese.	Tibeto-Burman.	Asam-Burmese.	A. Burma ...	9,232,536	8,324,785	7,427,105
				B. Lolo-Muso	75,616	65,221	47,250
				C. Kuki-Chin	268,390	255,113	209,999
				D. Naga ...	402	...	...
	E. Kachin ...	147,918		160,414	65,570		
	F. Sak (Lui)	25,115		12,068	19,472		
	North Assam	G. Mishmi	...	...	...		
	Unclassed ...	H. Mrs ...	14,324	2,718	13,414		
	Tai-Chinese.	Tai ...	I. Tai ...	921,507	968,375	831,544	
	Chinese ...	R. Chinese	122,162	108,877	47,444		
Austic ...	Austronesian	Indonesian ..	J. Malay ..	5,377	6,251	3,743	
Austroasiatic	Mon-Khmer	K. Mon	189,263	179,143	154,183		
		L. Palaung-Wa	117,841	105,212	77,109		
		M. Khasi ...	...	...	...		
Karen ...	...	...	N. Karen ...	1,114,016	1,066,635	881,230	
Man ...	...	...	O. Man ...	591	920	...	
Non-Indigenous Languages	X. Indian Languages			880,406	741,659	565,472	
	Y. European Languages			24,441	25,201	19,241	
	Z. Other Languages			1,004	1,112	443	
Total Speakers of Indigenous Languages				12,273,248	11,317,242	9,778,423	
Total Speakers of Non-Indigenous Languages				905,851	707,975	585,159	
GRAND TOTAL				13,169,099	12,025,217	10,363,582	

SUBSIDIARY TABLE IB. PART II.—*Distribution of total population by Languages.\**

Language.	Total number of speakers.			Number per 10,000 of total population.		
	1921.*	1911.	1901.	1921.	1911.	1901.
1	2	3	4	5	6	7
A. Burma Group ...	9,232,536	8,304,785	7,427,105	7,010	6,857	7,169
A1. Burmese ...	8,100,014	7,003,219	7,000,495	6,378	6,507	6,703
A2. Arakanese ...	247,611	312,952	393,400	188	268	370
A3. Yanbye ...	250,118			191		
A4. Chaungtha ...	9,052	2,515	1,350	7	2	1
A5. Tavoyan ...	136,746	46	5	100	...	...
A6. Merguese ...	177	...	...	...	...	...
A7. Yabain ...	...	...	...	...	...	...
A8. Yaw ...	2	...	5	...	...	...
A9. Danu ...	72,925	18,694	18,000	55	16	...
A10. Intha ...	55,007	55,000	5,851	42	46	...
A11. Taungyo ...	21,531	19,317	10,533	17	15	...
A12. Fun ...	243	342	...	...	...	...
A13. Atsi ...	5,613	205	756	4	...	...
A14. Lashi ...	16,717	...	24	13	...	...
A15. Maru ...	20,177	29	151	15	...	...
A16. Maungtha ...	339	3.6	455	...	...	...

\* Rice figures corresponding to entries in column 2 of this table are given in column 2 of Subsidiary Table III.

**SUBSIDIARY TABLE IB. PART II.—Distribution of total population by Languages—continued.**

For explanation of names and figures printed in italics see paragraph 7 of Appendix B.

Language.	Total Number of speakers.			Number per 10,000 of total population.		
	1921.*	1911.	1901.	1921.	1911.	1901.
I	2	3	4	5	6	7
<b>B. Lolo-Miao Group</b>	75,686	65,821	47,250	57	54	46
B1. Lis'aw	13,152	9,066	1,605	10	8	2
B2. Lolo	769	339	...	1	...	...
B3. Lahu	27,742	18,500	16,732	17	15	16
B4. Ako	51	794	1,168	...	1	1
B5. Pyin	927	273	...	1	...	...
B6. Kwi	3,676	3,924	...	3	3	...
B7. Akha	34,265	32,925	27,751	26	27	27
B8. Nung	64	...	...	...	...	...
B11. Was'ao-khum	40	...	...	...	...	...
<b>C. Kuki-Chin Group</b>	268,380	295,913	209,999	204	244	203
C1. Meit'ei	2,404	1,629	3,676	2	1	4
C2. T'adp	2,243	...	...	2	...	...
C3. Siyin	3,143	151	...	2	...	...
C4. Sokte	17,303	...	...	13	...	...
C5. Kamhow	8,604	...	...	7	...	...
C6. Paite	1,254	...	...	1	...	...
C7. Yo	5,449	...	...	4	...	...
C8. Tashon	7,559	...	...	6	...	...
C9. Yahow	10,045	...	...	8	...	...
C10. Laiyo	9,277	...	...	7	...	...
C11. Kwangli	3,604	...	...	3	...	...
C12. Ngorn	3,832	...	...	3	...	...
C13. Kwelshim	2,458	...	...	2	...	...
C14. Lai	19,438	1,924	...	15	2	...
C15. Tiantlang	...	...	...	...	...	...
C16. Yokwa	212	...	...	...	...	...
C17. Lakher	6	...	...	...	...	...
C18. Lawt'u	3,043	...	...	2	...	...
C19. Yotun	5,109	...	...	4	...	...
C20. Shentang	5,722	...	...	4	...	...
C21. Lushai	306	...	...	...	...	...
C22. Hualngo	3,150	...	...	2	...	...
C23. Kyaw	351	240	215	...	...	...
C24. Anu	712	474	775	1	...	1
C25. Chinbok	...	18,179	...	...	15	...
Chinbok	15,006	18,179	...	11	15	...
C26. Chinbon	683	1,600	...	1	1	...
Chinbon	4,760	1,600	...	4	1	...
C27. Chimmé	...	...	...	...	...	...
C28. Khami	26,571	16,431	24,329	20	14	24
C29. Taungtha	6,253	17,244	4,578	5	14	4
C30. Yindu	105	4,348	43	...	4	...
Yindu	4,656	4,348	43	4	4	...
C31. Sho	...	...	...	...	...	...
Sho	51,882	...	...	39	...	...
C32. Chin (unspecified)	105,490	233,684	176,323	80	193	170
Chin (unspecified)	29,974	233,684	176,323	23	193	170
C33. Chaungyi	666	...	...	1	...	...
C34. Kaukadan	9	...	...	...	...	...
C35. Kaungtso	57	...	...	...	...	...
C36. Ledu	2,011	...	...	2	...	...
C37. Matu	51	...	...	...	...	...
C38. Saingbaung	7,232	...	...	5	...	...
C39. Sittu	3,918	...	...	3	...	...
C40. Taman	92	...	...	...	...	...
<b>D. Naga Group</b>	402	...	...	...	...	...
D1. Naga (unspecified)	166	...	...	...	...	...
D2. Tangkul	236	...	...	...	...	...
D3. Senkadong	...	...	...	...	...	...
<b>E. Kachin Group</b>	145,918	169,414	65,570	111	139	63
E1. Kachin	145,618	169,414	65,570	111	139	63
E2. Nognung	168	...	...	...	...	...
E7. Nokkyo	132	...	...	...	...	...
<b>Sak Group</b>	25,145	12,068	19,472	19	11	19
F1. Kadu	18,594	11,069	16,300	14	10	16
F2. Ganan	1,022	...	...	1	...	...
F3. Sak	614	80	67	...	...	...
F4. Daingnet	4,915	919	3,105	4	1	3

\*Face figures corresponding to entries in column 2 of this table are given in column 2 of Subsidiary Table III.

SUBSIDIARY TABLE IB. PART II.—*Distribution of total population by Languages—concluded.*

For explanation of names and figures printed in italics see paragraph 7 of Appendix B.

Language.	Total number of speakers.			Number per 10,000 of total population.		
	1921.*	1911.	1901.	1921.	1911.	1901.
I	2	3	4	5	6	7
G. Mishmi Group ...	...	...	...	...	...	...
H. Mro Group ...	14,324	2,718	13,414	11	2	13
H1. Mro ...	14,324	2,718	13,414	11	2	13
I. Tai Group ...	921,507	968,375	831,544	700	799	815
I1. Shan (Unspecified) ...	326,515	897,578	750,473	248	740	737
I2. Shangale ...	474,878			301		
I3. Shangyi ...	18,074			14		
I4. Shan-Tayok ...	23,473			18		
I5. Daye ...	746	225	...	1	...	...
I6. Siamese ...	8,743	8,902	19,531	7	8	19
I7. Khun ...	33,210	48,408	42,160	25	40	41
I8. Lu ...	26,208	13,262	19,380	20	11	19
I9. Lao ...	3,851	...	...	3	...	...
I10. Shan-Bama ...	5	...	...	...	...	...
I11. Kamti ...	5,904	...	...	4	...	...
J. Malay Group ...	5,377	6,061	3,743	4	5	4
J1. Malay ...	3,446	4,190	2,425	3	3	3
J2. Salon ...	1,931	1,871	1,318	1	2	1
K. Mon Group ...	189,263	179,443	154,483	144	148	149
K1. Talaing ...	189,263	179,443	154,483	144	148	149
L. Palaung-Wa Group ...	147,841	166,212	77,209	112	136	62
L1. Wa ...	13,618	12,548	20,419	0	10	7
L2. Danaw ...	1,433	...	9,942	1	...	1
L3. En ...	...	3,684	...	...	3	...
L4. Khamuk ...	203	...	75	...	...	...
L5. Lem ...	782	...	...	1	...	...
L6. Tai-Loi ...	...	...	...	...	...	...
L7. Yang (Unspecified) ...	1,197	5,732	4,490	1	4	4
L8. Yanglam ...	12,853					
L9. Yangsek ...	...					
L10. Palaung and Pale ...	117,725	144,248	51,121	89	119	49
M. Khasi Group ...	...	...	...	...	...	...
N. Karen Group ...	1,114,016	1,066,635	881,290	846	881	851
N1. (Karen Unspecified) ...	98,713	851,655	704,835	75	702	680
<i>(Karen Unspecified)</i> ...	14,861	851,655	704,835	11	702	680
N2. Sgaw ...	368,282	...	...	280	...	...
<i>Sgaw</i> ...	432,829	...	...	329	...	...
N3. Paku ...	1,206	...	...	1	...	...
<i>Paku</i> ...	1,065	...	...	1	...	...
N4. Wewaw ...	256	...	...	...	...	...
N5. Monnepwa ...	72	...	...	...	...	...
N6. Bwè ...	10,627	9,100	669	8	8	1
<i>Bwè</i> ...	11,561	9,100	669	9	8	1
N7. Brek ...	616	...	...	...	...	...
N8. Karenbyu ...	11,160	777	...	8	1	...
<i>Karenbyu</i> ...	16,533	777	...	13	1	...
N9. Pwo ...	352,416	...	...	268	...	...
<i>Pwo</i> ...	364,705	...	...	279	...	...
N10. Mopwa ...	...	...	...	...	...	...
N11. Taungthu ...	210,535	168,326	160,436	160	139	155
N12. Padaung ...	13,713	8,516	9,321	10	7	9
N13. Yinbaw ...	5,362	2,166	...	4	2	...
N14. Gheko ...	2,570	...	...	2	...	...
N15. Karenni ...	34,488	21,203	1,363	26	18	1
N16. Zaycin ...	3,911	4,892	4,666	3	4	5
N17. T'alaing-kalasi ...	...	...	...	...	...	...
O. Man Group ...	591	920	...	...	...	...
O1. Miao ...	394	646	...	...	...	...
O2. Yao ...	197	274	...	...	...	...
R. Chinese Group ...	122,162	108,877	47,444	92	89	46
R1. Yunnanese ...	55,616	108,877	47,444	42	89	46
R2. Other Chinese languages ...	66,546			51		
X Indian Languages ...	880,406	741,659	565,472	668	611	546
Y. European Languages ...	24,441	25,204	19,244	19	21	19
Z. Other Languages ...	1,004	1,112	443	1	2	...
TOTAL ...	13,169,099	12,115,217	10,363,582	9,998	9,999	10,005

\* Race figures corresponding to entries in column 2 of this table are given in column 2 of Subsidiary Table III.

SUBSIDIARY TABLE IIA.—Distribution by Race-groups of the population of each district and natural division.

District and Natural Division.	Number per 10,000 of population belonging to the following race groups.									
	Burma.	Kuki-Chin.	Kachin.	Tai.	Mon.	Karen.	Chinese.	Indo-Burman.	Indian.	Others.
1	2	3	4	5	6	7	8	9	10	11
Province ...	6,593	219	112	773	246	927	113	91	674	252
Burma ...	7,383	126	77	273	282	829	83	104	754	90
Delta ...	6,633	18	...	96	278	1,723	133	62	1,020	37
Rangoon ...	3,019	10	...	13	8	56	697	251	5,537	406
Insein ...	7,231	15	...	191	21	1,216	113	36	1,099	36
Hanthawaddy ...	6,950	1	...	166	198	765	116	19	1,597	19
Tharrawaddy ...	8,998	16	...	69	...	555	49	31	169	3
Pegu ...	6,657	38	...	138	1,055	812	134	28	1,131	6
Bassein ...	6,979	8	...	14	93	2,281	81	83	43	8
Henzada ...	8,788	62	...	9	1	888	35	16	194	2
Myaungmya ...	6,191	1	...	5	1	2,810	121	34	534	2
Ma-ubin ...	6,839	3	...	3	7	2,578	72	24	37	2
Pynon ...	8,091	1	...	15	142	70	156	7	855	2
Toungoo ...	6,580	28	...	391	20	2,162	72	62	666	19
Thaton ...	2,353	...	...	160	1,465	5,171	94	102	642	2
Coast ...	5,417	308	...	1451	1,284	704	102	312	1,629	171
Akyab ...	5,378	432	...	1	...	...	11	431	3,494	323
Kyaukpyu ...	8,923	812	...	...	...	...	5	16	183	...
Sandoway ...	8,795	703	...	2	...	7	7	352	103	2
Amherst ...	1,695	3	...	311	4,481	2,001	202	281	985	40
Tavoy ...	8,615	1	...	4	122	652	173	102	33	16
Mergui ...	6,045	...	...	740	12	1,355	317	419	608	505
Centre ...	9,455	185	2	13	...	22	19	87	204	14
Promo ...	9,249	229	...	25	1	103	39	44	248	3
Thayetmyo ...	9,006	816	...	...	...	3	14	39	118	3
Pakokku ...	9,539	409	...	...	...	2	6	6	35	1
Mnba ...	9,077	776	...	1	...	2	18	18	105	2
Magwe ...	9,661	43	...	...	...	2	15	17	248	14
Mandalay ...	8,312	147	32	103	...	4	64	386	843	119
Shwebo ...	9,710	...	1	...	...	5	11	37	232	4
Sagaing ...	9,818	28	...	1	...	2	4	66	79	3
Lower Chindwin ...	9,919	1	...	1	...	2	7	5	64	2
Kvauskè ...	9,424	2	...	9	...	3	17	376	107	3
Meiktila ...	9,716	2	...	3	...	17	13	66	174	9
Yamethin ...	9,190	44	...	16	...	135	28	280	293	9
Myingyan ...	9,921	...	...	...	...	1	9	9	58	1
North ...	3,777	80	1,312	3,557	...	13	106	21	359	776
Bhamo ...	2,234	4	3,098	3,142	...	22	162	29	328	83
Myitkyina ...	2,869	11	2,955	2,880	...	6	194	28	812	194
Katha ...	4,266	5	245	3,246	...	19	105	22	219	1,853
Purao ...	119	1	1,959	6,081	...	...	242	1	1,401	185
Upper Chindwin ...	4,785	283	6	4,600	...	3	7	13	206	97
Chin ...	152	9,524	...	...	...	2	4	...	178	142
Hill Dist. of Arakan ...	987	7,634	...	1	...	...	...	...	373	1,005
Chin Hills ...	8	9,826	...	...	...	1	5	...	156	3
Pakokku H. Tracts ...	65	9,835	...	...	...	3	...	...	95	1
Salween ...	367	2	...	1,533	11	7,919	29	8	116	15
Salween ...	372	1	...	804	9	8,597	23	9	169	15
Karenni ...	363	1	...	2,107	13	7,385	34	8	74	16
Shan ...	1,342	2	432	4,882	...	1,253	375	7	119	1,612
N. Shan States ...	830	1	1,033	4,813	...	21	906	6	180	2,210
S. Shan States ...	1,678	1	2	4,925	...	2,065	25	7	19	1,215

SUBSIDIARY TABLE II3.—*Distribution by Language-groups of the population of each district and natural division.*

District and Natural Division.	Total population.	Number per 10,000 of population speaking languages of the following language groups.								
		Burma.	Kuki-Chin.	Nachin.	Tai.	Mon.	Karen.	Chinese.	Indian.	Others.
1	2	3	4	5	6	7	8	9	10	11
Province ...	13,169,099	7,011	204	111	700	144	846	93	669	224
Burma ...	11,496,993	7,852	108	76	183	165	742	60	749	65
<i>Delta</i> ...	4,820,745	7,204	13	...	64	78	1,522	99	986	34
Rangoon ...	341,962	3,180	3	...	4	1	45	548	5,511	377
Insein ...	293,083	7,516	5	...	158	3	1,163	88	1,010	4
Hanthawaddy ...	361,721	7,701	1	...	66	...	452	94	1,065	17
Tharawaddy ...	492,221	9,136	25	...	63	...	483	34	225	3
Pegu ...	415,722	7,185	31	...	96	10	692	100	1,077	6
Bassein ...	489,473	7,572	5	...	5	2	1,038	58	411	7
Henzada ...	500,720	9,721	47	...	4	...	725	27	166	2
Myaungmya ...	370,551	6,187	...	...	4	1	2,631	107	508	1
Maubin ...	330,105	7,185	1	...	1	...	2,140	45	327	1
Pypón ...	288,714	8,525	...	...	...	5	508	121	839	1
Toungoo ...	381,583	7,057	15	...	278	0	1,975	46	601	18
Thatón ...	471,169	3,574	...	...	106	768	4,914	42	593	...
<i>Coast</i> ...	1,598,493	5,924	305	...	137	949	693	55	1,778	159
Akyab ...	576,130	5,330	434	...	...	...	...	9	3,911	315
Kyaukpyu ...	193,873	8,938	804	...	...	...	...	4	204	...
Sandoway ...	117,029	9,203	681	...	1	...	6	5	102	2
Amherst ...	417,910	3,080	...	...	215	3,614	1,973	66	990	32
Tavey ...	156,786	8,875	...	...	3	40	654	137	277	14
Mergui ...	135,405	6,575	...	...	861	8	1,323	234	581	413
<i>Centre</i> ...	4,405,770	9,617	148	2	11	...	19	13	178	13
Prome ...	371,575	9,417	231	...	23	...	88	27	211	3
Thayetmyo ...	235,106	6,115	731	...	...	...	3	11	206	2
Pakóku ...	465,771	9,615	347	...	...	...	2	4	32	1
Mír-bu ...	274,312	9,268	618	...	1	...	2	11	98	2
Magwe ...	427,232	9,716	42	...	...	...	1	8	229	14
Mandalay ...	556,621	8,557	35	21	99	...	2	51	820	114
Shwébo ...	391,281	9,594	...	1	...	...	4	8	89	3
Sogaing ...	326,908	9,916	7	...	...	...	1	3	72	2
Lower Chindwin ...	342,780	9,913	...	...	1	...	1	4	59	2
Kyaukse ...	142,677	9,581	...	...	4	...	2	13	96	3
Msi-tila ...	280,897	9,823	...	...	2	...	0	10	147	9
Yaméthin ...	323,189	9,520	40	...	7	...	127	19	278	8
Myingyan ...	442,003	9,940	...	...	...	...	...	6	53	1
<i>North</i> ...	671,985	5,514	65	1,290	2,268	...	10	99	343	410
Bhamo ...	112,960	2,612	1	3,061	2,835	...	20	118	314	57
Myitkyina ...	118,382	3,403	7	2,469	2,400	...	4	187	843	173
Katha ...	253,725	7,041	2	243	1,478	...	15	98	191	932
Putao ...	7,773	96	1	708	7,161	...	...	241	1,392	99
Upper Chindwin ...	179,245	6,774	234	4	2,715	...	2	6	201	64
Chin ...	151,036	156	9,520	...	...	...	2	2	179	142
Hill Dist. of Arakan ...	20,914	1,015	7,604	...	...	...	...	...	376	1,025
Chin Hills ...	110,079	9	9,826	...	...	...	1	3	156	4
Pakókkú H. Tracts ...	20,043	69	9,835	...	...	...	...	...	95	1
Salween ...	114,229	440	...	...	1,578	4	7,246	28	208	6
Salween ...	50,779	489	...	...	774	2	8,556	15	158	7
Karenni ...	63,850	402	...	...	2,212	7	7,286	20	68	5
Shan ...	1,406,842	1,407	...	415	4,929	...	1,216	375	111	1,547
N. Shan States ...	559,723	906	...	1,041	4,861	...	7	907	176	2,102
S. Shan States ...	847,618	1,738	1	2	4,974	...	2,013	24	68	1,180

SUBSIDIARY TABLE III.—*Comparison of indigenous races and languages.*

For explanation of names and figures printed in italics see paragraph 7 of Appendix B.

Race and Language.	Racial* strength.	Persons of race who speak racial languages.		Persons of race who speak other languages.		Persons of other races who speak racial language	
		Actual.	Per-centage of racial strength.	Actual.	Per-centage of racial strength.	Actual.	Per-centage of racial strength.
1	2	3	4	5	6	7	8
<b>A. Burma Group</b> ..	8,683,035	8,674,762	100	8,273	..	557,874	7
A1. Burmese ..	7,837,985	7,834,359	100	3,626	..	563,735	7
A2. Arakanese ..	300,700	207,335	69	93,365	31	40,356	13
A3. Yanbye ..	168,185	167,063	99	1,122	1	82,955	49
A4. Chaungtha ..	46,153	8,438	18	37,715	82	614	1
A5. Tavoyan ..	129,287	127,816	99	1,471	1	3,930	3
A6. Merguese ..	178	131	74	47	26	46	26
A7. Yabein ..	1,774	..	..	1,774	100	..	..
A8. Yaw ..	89	..	..	89	100	2	2
A9. Danu ..	74,642	68,612	92	6,030	8	4,313	6
A10. Intha ..	56,175	53,784	96	2,391	4	1,223	2
A11. Taungyo ..	23,677	21,859	92	1,818	8	673	3
A12. Pun ..	367	242	66	125	34	1	..
A13. Atsi ..	4,857	4,670	96	187	4	993	21
A14. Lashi ..	17,010	16,438	97	572	3	132	1
A15. Maru ..	21,425	20,451	95	974	5	126	1
A16. Maingtha ..	531	306	58	225	42	33	6
<b>B. Lolo-Mus'o Group</b> ..	75,845	75,412	99	433	1	274	..
B1. Lis'aw ..	13,260	12,897	98	363	2	255	2
B2. Lolo ..	769	769	100	..	..	..	..
B3. Labu ..	22,696	22,692	100	4	..	50	..
B4. Ako ..	51	51	100	..	..	..	..
B5. Pyin ..	936	927	99	9	1	..	..
B6. Kwi ..	3,713	3,676	99	37	1	..	..
B7. Akha ..	34,265	34,265	100	..	..	..	..
B8. Nung ..	118	64	54	54	46	..	..
B11. Wat'ao-khum ..	37	37	100	..	..	3	8
<b>C. Kuki-Chin Group</b> ..	288,847	267,785	93	21,062	7	595	..
C1. Meit'ei ..	9,407	2,394	25	7,013	75	10	..
C2. T'ado ..	2,281	2,222	97	59	2	18	1
C3. Siyim ..	3,243	3,143	97	100	3	..	..
C4. Sokte ..	17,469	17,183	98	286	2	180	1
C5. Kamhow ..	8,668	8,454	98	214	2	210	2
C6. Paite ..	1,327	1,026	77	301	23	128	1
C7. Yo ..	5,559	5,444	98	115	2	5	..
C8. Tashon ..	8,270	7,520	91	750	9	39	..
C9. Yahow ..	5,408	5,377	99	31	1	4,668	86
C10. Laiyo ..	11,086	9,211	83	1,875	17	66	1
C11. Kwangli ..	4,642	3,539	76	1,103	24	65	1
C12. Ngorn ..	3,951	3,801	96	150	4	31	1
C13. Kwelshim ..	2,062	2,045	99	17	1	413	20
C14. Lai ..	9,352	8,716	93	636	7	10,722	115
C15. Tiantlang ..	8,058	..	..	8,058	100	..	..
C16. Yokwa ..	2,505	212	8	2,293	92	..	..
C17. Lakher ..	12	6	50	6	50	..	..
C18. Law'tu ..	3,043	3,043	100	..	..	..	..
C19. Yotun ..	5,112	5,109	100	3	..	..	..
C20. Shentang ..	6,892	5,720	94	372	6	..	..
C21. Lushei ..	317	299	94	18	6	7	2
C22. Hualngo ..	3,300	3,026	92	274	8	124	4
C23. Kyaw ..	351	351	100	..	..	..	..
C24. Anu ..	412	402	98	10	2	310	75
C25. Chinbok ..	1	..	..	1	100	..	..
Chinbok ..	15,007	15,006	100	1	..	..	..
C26. Chinbon ..	683	683	100	..	..	..	..
Chinbon ..	4,760	4,760	100	..	..	..	..
C27. Chinme ..	..	..	..	..	..	..	..
C28. Khami ..	26,104	26,104	100	..	..	467	2
C29. Taungtha ..	7,570	6,253	82	1,317	18	..	..

\* Language figures corresponding to entries in column 2 of this table are given in column 2 of Subsidiary Table IB. Part II.

SUBSIDIARY TABLE III.—*Comparison of indigenous races and languages—continued.*

For explanation of names and figures printed in italics see paragraph 7 of Appendix B.

Race and Language.	Racial strength.	Persons of race who speak racial language.		Persons of race who speak other languages.		Persons of other races who speak racial language.	
		Actual.	Percentage of racial strength.	Actual.	Percentage of racial strength.	Actual.	Percentage of racial strength.
1	2	3	4	5	6	7	8
C30. Yindu ...	105	105	100	...	...	...	...
Yindu ...	4,656	4,656	100	...	...	...	...
C31. Sho ...	...	...	...	...	...	...	...
Sho ...	60,701	51,882	85	8,919	15	...	...
C32. Chin (unspecified) ...	110,591	104,851	90	11,740	10	639	1
Chin (unspecified) ...	32,256	29,335	91	2,921	9	689	2
C33. Chaunggyi ...	666	666	100	...	...	...	...
C34. Kaukadan ...	293	9	3	284	97	...	...
C35. Kaungso ...	370	57	15	313	85	...	...
C36. Ledu ...	2,234	2,011	90	223	10	...	...
C37. Matu ...	51	51	100	...	...	...	...
C38. Saingbaung ...	7,519	7,232	96	287	4	...	...
C39. Sittu ...	3,918	3,918	100	...	...	...	...
C40. Taman ...	815	92	11	723	89	...	...
<b>D. Naga Group</b> ...	406	402	99	4	2	...	...
D1. Naga (unspecified) ...	169	166	98	3	2	...	...
D2. Tangkul ...	237	236	100	1	...	...	...
D3. Senkadong ...	...	...	...	...	...	...	...
<b>E. Kachin Group</b> ...	146,845	144,772	99	2,074	2	1,247	1
E1. Kachin ...	146,079	144,471	99	1,608	1	1,147	1
E2. Nongmung ...	169	168	99	1	1	...	...
E3. Ntit ...	10	...	...	10	100	...	...
E4. Pangsu ...	173	...	...	173	100	...	...
E5. Kang ...	81	...	...	81	100	...	...
E6. Langkhai ...	102	...	...	102	100	...	...
E7. Nokkyo ...	132	132	100	...	...	...	...
E8. Yoya ...	32	...	...	32	100	...	...
E9. Tawhawng ...	67	...	...	67	100	...	...
<b>F. Sak Group</b> ...	49,726	24,722	50	25,004	50	423	1
F1. Kadu ...	37,710	13,142	35	24,568	65	5,452	14
F2. Ganan ...	6,474	743	11	5,731	89	279	4
F3. Sak ...	614	614	100	...	...	...	...
F4. Daingnet ...	4,928	4,910	100	18	...	5	...
<b>G. Mishmi Group</b> ...	13	...	...	13	100	...	...
G1. Khaman-Mishmi ...	13	...	...	13	100	...	...
<b>H. Mro Group</b> ...	14,772	14,312	97	460	3	13	...
H1. Mro ...	14,772	14,312	97	460	3	13	...
<b>I. Tai Group</b> ...	1,017,987	898,946	88	119,041	12	22,561	2
I1. Shan (unspecified) ...	288,984	274,529	95	14,455	5	51,986	18
I2. Shangale ...	588,405	464,309	79	124,096	21	10,569	2
I3. Shangyi ...	29,004	17,733	61	11,271	39	341	2
I4. Shan-Tayok ...	28,701	23,080	80	5,621	20	393	1
I5. Daye ...	968	707	73	261	27	39	4
I6. Siamese ...	13,286	8,440	64	4,846	36	303	2
I7. Khun ...	33,394	33,127	99	267	1	83	...
I8. Lu ...	25,870	25,833	100	37	...	275	1
I9. Lao ...	4,506	3,697	82	809	18	154	3
I10. Shan-Bama ...	16	5	31	11	69	...	...
I11. Kamti ...	4,851	4,832	100	19	...	1,072	22
I12. Annamese ...	2	...	...	2	100	...	...

SUBSIDIARY TABLE III.—Comparison of indigenous races and languages—concluded.

For explanation of names and figures printed in italics see paragraph 7 of Appendix B.

Race and Language.	Racial strength.	Persons of race who speak racial language.		Persons of race who speak other languages.		Persons of other races who speak racial language.	
		Actual.	Percentage of racial strength.	Actual.	Percentage of racial strength.	Actual.	Percentage of racial strength.
1.	2.	3.	4.	5.	6.	7.	8.
<b>J. Malay Group</b> ... ..	6,653	5,372	81	1,281	19	...	...
J1. Malay ... ..	4,712	3,442	73	1,270	27	...	...
J2. Salon ... ..	1,941	1,930	99	11	1	...	...
<b>K. Mon Group</b> ... ..	323,509	187,700	58	135,809	42	1,563	...
K1. Talaing ... ..	323,509	187,700	58	135,809	42	1,563	...
<b>L. Palaung-Wa Group</b> ... ..	156,703	147,480	94	9,223	6	361	...
L1. Wa ... ..	14,762	13,646	92	1,116	8	2	...
L2. Danaw ... ..	1,669	1,423	85	246	15	10	1
L3. En ... ..	17	...	...	17	100	...	...
L4. Khamuk ... ..	402	201	50	201	50	2	...
L5. Lem ... ..	791	782	99	9	1	...	...
L6. Tai-Loi ... ..	2	...	...	2	100	...	...
L7. Yang (unspecified) ... ..	2,924	1,197	41	1,727	59	...	...
L8. Yanglam ... ..	13,879	12,833	93	1,046	8	20	...
L9. Yangsek ... ..	...	...	...	...	...	...	...
L10. Palaung and Pale ... ..	122,257	117,369	96	4,888	4	356	...
<b>M. Khasi Group</b> ... ..	3	...	...	3	100	...	...
M1. Khasi ... ..	3	...	...	3	100	...	...
<b>N. Karen Group</b> ... ..	1,220,356	1,208,722	99	11,628	9	5,288	...
N1. Karen (unspecified) ... ..	62,627	48,380	77	14,247	23	50,333	80
<i>Karen (unspecified)*</i> ... ..	16,762	13,750	82	3,012	18	3,171	7
N2. Sgaw ... ..	437,110	366,378	84	70,732	16	1,904	4
<i>Sgaw</i> ... ..	472,928	431,002	91	41,926	9	1,829	...
N3. Paku ... ..	1,986	1,300	66	786	40	6	...
<i>Paku</i> ... ..	1,986	1,959	99	27	1	...	...
N4. Wewaw ... ..	335	256	76	79	24	...	...
N5. Monnepwa ... ..	...	...	...	...	...	72	...
<i>Monnepwa</i> ... ..	72	72	100	...	...	...	...
N6. Bwa ... ..	7,467	6,513	87	954	13	4,874	55
<i>Bwa</i> ... ..	11,200	11,200	100	20	...	381	3
N7. Brek ... ..	618	618	100	2	...	...	...
N8. Karenbyu ... ..	18,370	11,007	60	7,363	40	153	2
<i>Karenbyu</i> ... ..	18,394	16,404	89	1,990	11	129	...
N9. Pwo ... ..	411,891	349,413	85	62,478	15	3,053	1
<i>Pwo</i> ... ..	418,110	363,366	87	54,744	13	1,339	...
N10. Mopwa ... ..	5	...	...	5	100	...	...
N11. Taungthu ... ..	218,237	206,360	95	11,877	5	4,375	2
N12. Padaung ... ..	13,753	13,723	100	30	...	...	...
N13. Yinbaw ... ..	5,751	5,353	93	398	7	9	...
N14. Gheko ... ..	2,663	2,578	97	85	3	1	...
N15. Karenni ... ..	35,391	34,306	97	1,085	3	182	1
N16. Zayain ... ..	4,147	3,910	94	237	6	1	...
N17. Talaing-Kalasi ... ..	3	...	...	3	100	...	...
<b>O. Miao Group</b> ... ..	597	592	99	6	1	...	...
O1. Miao ... ..	396	394	99	2	1	...	...
O2. Yao ... ..	201	197	98	4	2	...	...
<b>R. Chinese Group</b> ... ..	149,060	121,512	82	27,548	18	650	...
R1. Yunnanese ... ..	59,232	54,850	93	4,382	7	260	1
R2. Other Chinese ... ..	89,828	66,662	74	23,166	26	390	3

\* Made up mostly of Pakus, Wewaws, Monnepwas, Breks, Mopwas and Zayains belonging to Toungoo Yamethin and Shan-States, the great majority being in Toungoo.



## APPENDIX C

### Note on the Occupations of the Mandalay District.

BY MR. W. F. GRAHAME, I.C.S.

The enquiries on which this appendix on occupations is based were carried out only in the Mandalay District, and it must be understood from the outset that this chapter describes conditions in that district only. But similar if not identical conditions no doubt prevail in other Districts of Burma in which the same occupations are found. However some of the industries dealt with are peculiar to Mandalay. The detailed figures of the 1921 census were not available when this appendix was being written and I could therefore give only the figures that I had obtained by local enquiry, namely the numbers of families engaged on various occupations as reported by Ward or Village Headmen, modified in a few instances in the light of subsequent information. When the detailed figures were ready it was found useless to compare them with my figures because the occupation groups of Census Table XVII often include several associated occupations, and always include not only persons who practice the particular technique of an included occupation but also all clerks, watchmen, and others, whose work is ancillary to it. The time available for the examination of industries and occupations was extremely limited, and on this account indulgence is asked for the shortcomings of this appendix.

2. It must be remembered that in Mandalay District, as in other Districts in Burma, there are not distinct classes of people following definite occupations, as is believed to be the case in India. Burmans are versatile, and there is no restriction to the occupations which they can take up, nor are they averse to changing their occupations, especially their subsidiary occupations. As in other parts of Burma agriculture is by far the most important occupation in Mandalay District and is the chief source of income of about two-thirds of the population. But whereas the ample rains of Lower Burma enable cultivators (or, at least, such as are free from debt) to live in comfort on the produce of their fields, the precarious rainfall of Upper Burma makes it impossible for most cultivators to derive their entire living from their land. Being driven to supplement their income from other sources they turn to such occupations as are congenial to them, and suitable to follow, either from proximity of raw material or general demand, or otherwise. Therefore the number of persons following any particular occupation varies from year to year. Thus after a bumper harvest there will be more carters than usual carrying the grain to market in the months before the commencement of preparation for the next year's cultivation; whereas in a bad year many peasants will leave their wives or sons to reap the meagre crops, and go early into the forest to cut timber, or make bamboo mats, or spokes for cartwheels, or to twist rope, or burn charcoal, or the like, in order to get enough to live on for the rest of the year, while their wives will weave more cotton cloth than in a good year. The statistics of occupations will therefore not hold good of every year, and may be very far out in some years, except in respect of Cities or large factory centres. Citizens of Mandalay are not cultivators, and the occupations that they follow are their main (and in most cases their only) source of livelihood. Each person there acquires skill in his own occupation, and follows that year after year, rather than change to a new occupation which would be strange to him. In Amarapura Town also the predominant industry of silk weaving, which is carried on in their cottages by 626 families, out of a total number of 739 families in the town, is practically the sole source of livelihood of those families, and is continued by the same people year after year.

3. In the course of our enquiries we investigated the conditions of life generally throughout the District as well as in the City. Besides general information from well informed persons, and from every Village and Ward Headman, we got details of the income and expenditure of 235 families engaged in various occupations including agriculture. As almost invariably happens the incomes were understated, and the expenditure exaggerated. However the incomes are probably relatively correct and quite useful for comparison of incomes in 1914 with incomes in 1921, or 1931 when that comes. The same is true of expenditures. As was to be expected, wages and expenses rose very largely between 1914 and 1921. By 1922 expenses had begun to fall slightly. But expenses rose much higher in proportion than wages, and when things were at the worst many of the poor both in Country and Town had to fall back on clothing and food of inferior quality. For instance in winter cotton coverings were used instead of blankets, and many people had to be content, it was said, with gunny-sacking; cotton jackets had to be worn instead of flannel, and people had to go on wearing their old clothes because they could not afford new; some people resorted to broken rice, and others had to eke out their rice with gram, millet, beans, and other unaccustomed, and to their mind inferior, diet; for curry they had to give up their occasional fish and meat and use vegetables alone; clocks and other luxuries had to be given up and charitable offerings were severely cut down.

Wages are said to be lower in occupations that are held in general esteem and higher in occupations that are looked down upon. Also wages in steady continuous occupations are apt to be lower than in seasonal or periodical occupations. Children are rarely employed

and only in light occupations such as bead stringing, umbrella making, slipper making, sewing, and weaving; but many women in Upper Burma have to work, and frequently work as carriers, besides being even more fully employed than men in certain occupations such as weaving and cigar rolling. Their wages are usually about three quarters of the wages earned by men in the same occupations. Married women often work right up to the time of their confinement, but stay away for two or three months after childbirth, during which period of absence they are not paid. The working classes live in their own houses as a rule, but houses of a very cheap and inferior kind made of bamboo; and they live as near their work as they can for the sake of economy and convenience. Some employers of labour provide accommodation for their workers, e.g. some owners of mills and factories, and some employers of gold beaters. Educational facilities for the children of workers are practically non-existent. There is no unemployment in Mandalay, and there are no trades unions or other labour organisations, but there have been two or three small strikes. We found no sweated trades.

The proportion of Indian labourers is very small compared to that in Lower Burma. Apart from these Indians there is next to no migration of labour, only a small amount of temporary seasonal migration, and none at all from the plains to the hills or *vice versa*.

The average family was found to contain almost exactly 5 persons, and to consume about two *pyis* of rice a day divided in about the same proportions as those accepted in Europe, namely:—

Adult male	...	0.50
Adult female	...	0.43
Child between 10 and 14	...	0.43
Child between 6 and 10	...	0.35
Child under 6	...	0.25
		<hr/>
		1.96
		<hr/>

4. It is not intended in this appendix to deal separately with the classes engaged in cultivation, pasturing, or the exploitation of forests. These classes form three-eighths of the entire population of the District, and if Mandalay City is excluded nearly three-fifths of the entire population. But nearly all these excluded persons are engaged in cultivation which has been the subject of so many discussions, particularly in the Land Revenue Settlement Reports, that there is no need to treat it here where space is required for other occupations not treated elsewhere.

5. The following list shows the number of families in the whole of Mandalay District including Mandalay City and also Amarapura, Maymyo, and other towns, who derive the greater part of their income from certain non-agricultural occupations.

Corresponding group numbers in Census Table XVII.	Serial No.	Occupations.	Families.
35	1	Silk weaving	3,014
37	2	Dying (textiles)	186
44 & 83	3	Carpentry (which includes some furniture makers, some house-builders and makers of teak chests and coffins).	1,078
89	4	House building	641
83 (a) & (b)	5	Furniture making	197
77	6	Tailoring	1,000
17	7	Fishermen	1,087
	8	Shoemaking (including three distinct classes of industry) (i) Oxford shoes and Chinese shoes (ii) Tanned hide sandals (iii) Wooden clogs	440
78	9	Making of "peindan" sandals (raw hide sole surmounted by a piece of palm leaf, the whole covered with velvet or flannel).	873
88	10	Masons	487
45 (a)	11	Making of baskets for measuring paddy, and rough and smooth baskets of bamboo, bamboo sieves, bamboo trays and the like.	378
93 (c)	12	Making baskets of palm leaf ("pas")	173
46 & 48	13	Goldsmiths and Silversmiths	350
49	14	Blacksmiths	322
22 (c)	15	Brass work, chiefly making of Buddhas, bells and gongs	319
177 (c)	16	Marble quarrying	66
45 (b) & (c)	17	Marble sculpture	223
55	18	Mat weaving and fan making	263
61	19	Potters	242
98 (c)	20	Oil pressing	223
99 (b)	21	Gold leaf beaters	191
79	22	Making of Burmese embroidered cloth (Shwegyido work)	164
56	23	Umbrella making	151
52	24	Brick and tile making	145
83 (b), 89	25	Glass mosaic work	143
48	26	Painting	118
48	27	Making of iron umbrellas for pagodas	111
79	28	Ivory carving	14
45 (a)	29	Making of combs (of wood or bamboo)	103
	30	Lacquer work (manufacture of big lacquer chests and thrones for Buddhas, and repair of small lacquerware).	53

Corresponding group numbers in Census Table XVII.	Serial No.	Occupations.	Families.
96	31	Musical instrument making	13
100	32	Making of paper lanterns (for festivals)	61
70	33	Dairying	61
71	34	Jaggery boiling	15
91	35	Cycle repairing	51
50	36	Tinsmiths	84
99	37	Bead and rosary making	80
97	38	Watch repairing	39
95	39	Book binding	16
40 & 78	40	Leather work	13
98 (c)	41	Cutting and polishing of precious stones	114
29 (b)	42	Extraction of precious stones	51
92	43	Boat making	46
91	44	Cart making	81
44	45	Wood carving	151
64 (a)	46	Soap manufacture	21
100	47	Manufacture of toys and masks	22
39	48	Tanners	33
63	49	Paper making (only coarse paper for use with gold leaf)	39
40	50	Burmese saddle and bridle making	58
71	51	Sugarcane pressing	17
53	52	Eventurine or venetian glass work	15
64 (c)	53	Makers of beeswax candles and flowers	3
98 (c)	54	Niello work	5
23	55	Salt boiling	4
42	56	Horn work (handles for various implements)	2
42	57	Tortoiseshell work	2
79	58	Making of Shan and Kachin bags	48

A few brief notes may throw light on the above figures.

Paper lantern makers (serial No. 32) work in paper generally, the principal sale of paper lanterns being confined to the festival of the full moon of Thadingyut (about mid-October) and to the Tazaungdaing festival (festival of lights about mid-November). They occupy part of the year in getting paper lanterns ready for these occasions, and for casual festivals in the dry season (December to April). The rest of their time is devoted to making paper articles generally, such as paper fans and paper flowers.

Toy makers (serial No. 47) also make masks for actors and wooden figures of various kinds.

Jaggery makers (serial No. 34). A few persons, probably all of these 15 families, live by jaggery boiling alone. This can be done only where palm trees are very numerous. These people occupy themselves in the off-season by cutting firewood for the boiling season. They sometimes have to go some distance for a sufficient quantity of fuel. They also lop off and sell the leaves of the palm trees for roofing, and making fans and other small articles. They also make brooms out of the bases of the leaf stems that remain all round the tree stem; and make palm leaf baskets too. But most of the jaggery boiling is done by cultivators in the intervals of cultivation, or by members of the family not engaged at the moment in ploughing or other husbandry.

Oil pressing (serial No. 20) refers solely to the pressing of sesamum oil in home made presses each pulled by a single ox. It is a whole time occupation for quite a number of families, almost all of whom live in Mandalay City. But in most villages containing uplands (on which sesamum is grown) there is an oil press or two worked by members of cultivators' families when not otherwise busy.

Sugar cane pressing too (serial No. 51) is done in small, hand made, presses. In the Maymyo Subdivision the press is sometimes worked by a single ox, while in other cases the press is worked by water power from one of the small streams which abound in Maymyo Subdivision. In Mandalay the press is worked by a man turning a handle.

Shoemaking (serial No. 8) and sandal making (serial No. 9). There are four different kinds of shoe and sandal makers, as will be described in detail later on. Unfortunately the printed cards on which we collected our statistics provide for two classes only so all the other kinds of shoe maker have doubtless been entered as "shoe makers."

Leather work (serial No. 40) refers to cobblers in general, who make straps, repair shoes, etc.

"Extractors of precious stones" (serial No. 42) are constantly going up from Mandalay to Mogòk (where the ruby mines are), or to the jade mines, and coming back with precious stones which they get polished and sell, or with jade which they cut and export to China. While at Mogòk they hire Kadu (Shan-Burman) or Maingtha (Shan-Chinese) coolies to dig up the precious stones on areas to work which they apply to the Deputy Commissioner for permits.

"Pa making" (serial No. 12), making of bamboo baskets for measuring rice, etc. (serial No. 11) and mat weaving (serial No. 18) are done by cultivators sometimes in their spare moments, besides being the main source of living of a certain number of families.

Cart making (serial No. 44) is also done by some cultivators in their leisure.

Dying (serial No. 2) is not only the main (or sole) source of income of a number of families, but is also practised by a number of silk weavers and cotton weavers who dye their own thread before weaving.

Makers of Shan bags (serial No. 58) make jackets and do tailoring work generally when not making or selling Shan bags. The income from the latter alone would scarcely support a family.

Tailors (serial No. 6) include a number of families who live by making ready-made clothing, which is described later on.

6. Besides the above main occupations there are nine subsidiary occupations followed by the number of families shown opposite to each in addition to agriculture or some other main occupation, namely :—

Corresponding group numbers in  
Census Table XVII.

27	Cotton weaving	...	1,384	families.
29	Rope making ...	...	1,327	"
75	Cigar rolling ...	...	1,069	"
9 (c)	Cutch boiling ...	...	4	"
9 (d)	Thitsi extraction	...	7	"
9 (a)	Charcoal burning	...	117	"
45 (c)	Broom making ...	...	31	"
45 (e)	Kamauk making	...	13	"
10	Gathering of lac	...	9	"

Cotton weaving is done only for home consumption, and practically none of the cloth is sold. Rope making is scarcely a source of income. Nearly every villager, who lives in a locality where suitable bark is available can twist rope, and makes the rope that he needs for his own use. A little surplus rope is made and sold to acquaintances, but there is practically no trade in it. There are scarcely any stalls in Mandalay bazaar where rope is sold and that rope is said to be obtained from Thaman and Paungga villages in Sagaing District.

7. There are also occupations ancillary to either main or subsidiary occupations on which are employed the same persons as are employed on the main or subsidiary occupation. They are :—

Corresponding group numbers in  
Census Table XVII.

45 (a) & 29	Manufacture of fishing implements	...	392	} ancillary to fishing.
69	Ngapi making ...	...	178	
47 & 48	Dah and spear making	...	26	ancillary to blacksmiths' work.
26	Cotton Spinning...	...	225	ancillary to cotton weaving.

8. A more detailed description may now be given of the more important occupations:—

#### I. SILK WEAVING.

One of the oldest industries of Burma is the silk industry. It employs a large number of people both male and female. The chief centres are Amarapura, Shwedaung, Tavoy, and Inle Lake in the Southern Shan States. A little weaving is done at Paukkaung, Amarapura Town, Mandalay City, and Amarapura Township, between them probably contain far more persons engaged in silk weaving and its ancillary occupations than all the other centres in Burma put together.

Though it is a large and important industry the raw material is unobtainable locally except to a very small extent in Prome District (Paukkaung) and in parts of the Shan States. Burma has to depend almost entirely on China for raw silk. Fortunately efforts to improve and extend sericulture are being made by the Agricultural Department in Lashio, Maymyo, and Prome, and by Political Officers in the Shan States, and have met with success. But a great deal remains to be done before Burmese weavers can escape from the hard grasp of Chinese traders. A very few persons use raw silk from Dacca, and only in making very fine qualities such as gaungbaungs, pawas, and the like.

The raw silk imported from China is of two kinds namely "mohnyin" silk which comes *viz* Bhamo (formerly Mohnyin) and "thinbaw" silk which, as its name implies, is brought into Burma by sea. "Mohnyin" silk (akyit) is tight twisted and smooth. "Thinbaw" silk (apwa) is loose and woolly. Ordinary weavers use "mohnyin" for the warp (၁၀၀၆၅) and "thinbaw" for the weft (၁၀၀၆၅). The latter is cheaper but too coarse and woolly to put through Burmese headles. At the Saunders Weaving Institute, in the Burma Silk Company's workshop, and usually where good fabric is wanted "mohnyin" silk is used for both warp and weft. The thickness of Chinese silk is not indicated by the "denier" system used in other countries but only by division into three grades, No. 1 fine, No. 2 medium, and No. 3 coarse.

The price of raw "mohnyin" silk before the War was about Rs. 38 a viss and of raw thinbaw silk about Rs. 25. Towards the end of 1921 the former cost Rs. 50 a viss and the latter about Rs. 45, and the price was still rising then. At times during 1920 and 1921 when the supply was low and the demand great the price was raised to Rs. 70 or more a viss.

Raw silk is first boiled and then put through the various processes of dyeing, winding, warping, rolling, drafting, gaiting, and sizing, before it is ready for weaving.

(a) Boiling is needed to remove the gum and other natural impurities in the silk. The raw silk is boiled in a solution of soap and alkaline sand for 15 minutes and then rinsed in clear water. This makes it white, silky in feel, and lustrous.

- (b) Dyeing, if any colour other than white is needed. In former times only native dyes were used but as designs and colourings became more elaborate the use of foreign dyes became inevitable. This gradual resort to foreign dyes can be traced as far back as the middle of the 19th century. Being cheap to buy and easy to use foreign dyes have almost completely ousted indigenous dyes. The Burmese dyes (vegetable) were made from lac, indigo, saffron, arnotto, etc. Of these only three of any importance remain, indigo, Shan tea for producing a khaki or tussore shade, and arnotto for orange colour. The last named is also used at times in combination with aniline dyes to produce scarlet and various shades of deep red. The foreign dyes in use came most by from Germany before the war. Now America and Japan vie with Germany as principal sources of foreign dyes.
- (c) Winding means transferring the yarn from the hank to the bobbin, and is preliminary to warping.
- (d) Warping means the spreading out of a sheet of threads to the required length and width.
- (e) Rolling, beaming, or dressing, means the opening, stretching and winding of this sheet of threads evenly on a roller called the warper's beam.
- (f) Drafting means the taking of the threads of this rolled sheet through the headles in the order required for the pattern which is to be woven. Control is obtained over the individual threads by putting them through headles. After that they are taken through split reeds in pairs.
- (g) Gaiting is fixing the warp and tying the headles and peddles on a loom preparatory to weaving.
- (h) Sizing, by applying liquid paste to the threads, is necessary to strengthen the threads to undergo the strain and friction of weaving.

The warp is now ready for weaving. In the indigenous loom the shuttle containing a spool of weft is thrown across from hand to hand. The loom, and resulting cloth, is narrow, (22 inches or less) and the process slow; so the output is small. The improved looms introduced by Mr. L. H. Saunders, C.S.I. are not only double the width but the exertion of throwing the shuttle is saved for it is thrown from side to side automatically by the backward jerk to the "slay." The rate of weaving is much faster and the cloth is twice as wide, so the output is from three to four times as great as on the indigenous loom and the earnings proportionately increased.

The methods of payment by the old and new systems also differ. The Co-operative Hita Society's method is a fair sample of the latter system. They hand over one and a half viss of raw silk and Rs. 30 cash advance to the weaver at Rs. 1-4 per cent. per mensem for the cash and the value of raw silk handed over. They then buy back the finished articles from the weavers at prices fixed by a committee.

The net result of the new loom with its double width and automatic shuttle and of the new system of payment is that the average earnings of a family of four adults has arisen from about Rs. 12 a month to about Rs. 40. Formerly nearly all weavers were heavily in debt to the Yetkandaings or employers, and, what was worse, unable to get free however hard they worked. Now those who use the improved loom and take advantage of co-operation are in a very satisfactory financial position.

The first movement towards co-operation among silk weavers began in 1905. In 1911 four co-operative silk societies were founded with a capital of Rs. 2,000. These with the advice of Mr. Saunders experimented on improved methods. In 1918 an association of weavers was founded at Amarapura Shore with a membership of 300. The society buys raw silk direct from Chinese importers in Mandalay City and thereby saves a good deal of money. A saving of about Rs. 1,200 on a purchase of Rs. 6,000 worth of raw silk was effected in this way recently. But more is needed. Co-operative purchase of silk from the growers in China as directly as possible has been contemplated, and if this can be achieved it will be an enormous gain to silk weavers in Burma.

The average quantity of raw silk required to produce 50 yards (or 3 pasoes) of woven silk 22 inches wide is about 1½ viss. Besides the cost of the silk the employer or Yetkandaing or Saya has to pay the following charges:—

Boiling, 12 annas per viss.	Rolling, Re. 1 per 6 pasoes.
Dyeing, Rs. 1-4 per viss.	Placing silk in headle, Re. 1 per 6 pasoes.
Winding, Rs. 3-8 per viss.	Putting on reeds, Rs. 1-8 per 6 pasoes.
Warping, Re. 1 per 6 pasoes.	Miscellaneous expenses As. 4 per 6 pasoes.

For the finished article the Saya or Yetkandaing (employer) gets from Rs. 25 to 28 for a paso 44 inches wide (ekanan) and Rs. 15 to 17 for a paso 22 inches wide.

The number of weavers given at the Census of 1911 is considerably less than the number given in 1901. This result was possibly caused in part by people using dress of foreign manufacture. The present growth of the industry has been stimulated by the war, and by the national movement which has created a demand for Burmese silks, and thereby induced better prices and better wages.

Amarapura Town is the silk weaving centre. There in the great majority of cases the whole family join in the work, one or more at their own house according to the number of looms and the remainder at other people's houses. While some are weaving others are spinning and others dyeing or working at other processes. In a few cases the man works as a Carpenter, or at some other job, while the rest of the family work at silk weaving. Some of the houses in Amarapura Town, notably the Burma Silk Weaving Co. have so

many looms in one building that they resemble miniature factories. In Mandalay City this development has not come, and no house has more than two looms. In Amarapura Township (excluding the town) 1,529 families are returned as silk weavers, but in other townships there are very few. In these jungle villages it is very unusual to find more than one loom under a house. In Mandalay City and in jungle villages silk weaving occupies only part of the family. The adult males work at other occupations in Mandalay City, or at cultivation in the jungle.

## 2. COTTON WEAVING.

In the old days cotton weaving was a necessity and every household had its own loom, large households more than one, on which the women of the household wove the cloth needed for the use of the family when not busy with other duties, one or other woman or girl of the family being at work at the loom at intervals throughout the day. With the advent of finer and cheaper machine woven cloth the occupation has died down to very small dimensions.

Though cotton weaving in Burma is still so important in the mofussil it has to depend for its raw materials mainly on yarn imported from other countries, e.g., India, England, and Japan. The yarn used in Burma may be classified into three kinds:—

- (i) Twisted or double yarn (Taikchi).
- (ii) Single yarn (Apwa or Thinbawchi).
- (iii) Hand spun (Letkyitchi).

Of these the first variety is imported almost wholly from England. Recently a small quantity has come from Japan also, but the quality is not so good as that of English yarn. Twisted yarn is used for the warp of fine varieties of cloth. The second variety is almost wholly imported from India, but a little comes from Japan. It is generally used for warp in coarse materials and is always used for weft. The third variety is, as the name implies, spun by hand by women and as a rule a hand spinner uses up all her own handspun yarn.

The cotton cloth woven in Burma is generally of a coarse texture and the yarns imported are therefore suitable for such cloth only. In the twisted varieties 2/40s (double forty) is the yarn mostly used and imported. Very seldom are yarns of higher counts, i.e. 2/60s, 2/80s, 2/100s used. In the untwisted varieties yarns varying between Nos. 8s and 20s are used. Counts of 10s, 12s, 16s, are in general use.

In the handspun yarns there are no fixed counts. The fineness and uniformity of the yarn depend on the skill of the workman. But the yarn is generally coarse and is used for home made blankets and so forth. All the above varieties of yarns are used in grey, or are bleached, or dyed. The different varieties of cloths for which these are used are longyis, shirtings, coatings, blankets, towels, dusters, etc., the kind of yarn used depending on the variety of cloth woven.

The trade in cotton yarn is mostly in the hands of Chinese and Indian merchants. A few English firms also deal in yarn, mostly English, but they deal wholesale. The yarn having to pass through several hands before it reaches the buyer, its price is unnecessarily raised. Further the buyer is a double loser in not getting correct weight nor correct counts of the yarn he pays for. To remove these difficulties co-operative yarn stores dealing directly with the firms manufacturing yarns are the best means. At present there are not anywhere in Burma appliances to test the counts and strength of yarn. But it is hoped that the Saunders Weaving Institute, Amarapura, will soon be equipped with a complete set of testing appliances.

After the yarn is purchased from the market it has to undergo the following various processes before it is ready for weaving:—

- (i) Sizing (This in the case of untwisted yarn only is done in the hank whereas the twisted yarn is not sized.)
- (ii) Winding, (iii) Warping, (iv) Beaming or rolling, (this generally in the case of long warps is not done). The long warp in the form of a sheet is bundled in a piece of cloth, hung near the weaver and dressed in short lengths during the process of weaving.)
- (v) Drafting, (vi) Gaiting, (vii) Weaving.

These are generally done in the same way as for silk and need not be described again.

The number of families engaged in cotton weaving in Mandalay District is large, but this is a purely subsidiary occupation, cotton cloth being woven only for home consumption and the incomes of these families being earned in other ways, chiefly by agriculture.

## 3 (a). WOODWORKERS (House-Builders).

The Burmese word let-tha-ma can be and is regularly applied to Carpenters, Joiners, Builders and Furniture Makers, as well as to men who make carts, carriages, and boats, and carve wood. Owing to this ambiguity the families who live by carpentry have not been properly divided up. In the form in which statistics were collected for this appendix six headings for this kind of occupation were given, viz., "Carpenters", [ထောင်ထောင်] "Furniture Makers" [အိမ်ထောင်ထောင်], "House Builders" [အိမ်ထောင်ထောင်], "Boat Makers" [ဓမ္မထောင်], "Cart Makers" [ဓမ္မထောင်], and "Wood carvers" [ထောင်ထောင်]. No doubt those under the last five heads are correctly shown, the numbers of families concerned being 197, 641, 46, 81 and 151 respectively. But by far the greatest

number of families (1,078) is shown under the generic head "Carpenters." Probably no Boat Makers or Cart Makers or Wood Carvers are included among those 1,078, and they are probably all either Furniture Makers or Builders.

There are two Pali words used to denote those who work in wood, e.g., Carpenters, Builders, Cabinet Makers, Wood Carvers. These two words are "ဧရာဝတီ" and "ဧရာဝတီ." The former is applicable to Carpenters, Joiners and Builders only and the latter to Wood Carvers, Cart and Carriage Makers, Cabinet Makers, and the like. The term "အိမ်ထောင်တည်သူ" is never used. A person who is employed in the building of a house is called a "ထောင်တည်သူ" [Carpenter] though every "ထောင်တည်သူ" may not be able to build a house without the guidance of a Master Joiner or Sayagi.

Houses are usually built by contract. The Contractor, who is either a Master Joiner, or a Master Mason, draws the design and when it has been approved, after modification if necessary, executes it. Some of the big Contractors have capital, the smaller Contractors finance themselves by repeated advances, as the work proceeds, from the owner. The Contractor engages all the workmen and pays them, usually by a series of advances as the work progresses.

Present day Carpenters are generally not the equals in workmanship of their ancestors in the trade. This can be seen by comparing the houses built half a century ago with those built thirty or forty years later. The doors of the old houses are much better made and more lasting than those of latter day buildings. In other parts of the house also the old carpenter could give points to his successor.

The tools now used are mostly of western manufacture and their prices have almost doubled since 1914. A chisel costing 12 annas in 1914 costs now Rs. 1-8-0. The price of a two-foot saw has risen from Rs. 2-8-0 to Rs. 4. Pegs "ပဲခွံ" axes and a kind of mortise chisel "ခေါင်းတည်" are made locally. These have also risen considerably in cost.

Wages also have about doubled since the war. A man's worth is judged by the way in which he handles a plane. If he is an expert with it he gets Rs. 2 a day. Before the war the same man would only get one rupee per day. Inferior workmen got about ten annas a day in 1914 and are getting Rs. 1-4-0 now.

### 3 (b). WOODWORKERS (*Cabinet Makers*).

The use of chairs and tables though confined to the royalty and nobility in the days of the Burmese dynasty is now gradually spreading to all classes. In Upper Burma fifteen years ago furniture after western models was used mostly by Government officials and a very few of the well-to-do classes. Now in almost all the houses of Burmese officials, clerks, and people of means, one finds beds, tables, chairs, almirahs, boxes, and so forth.

There are three kinds of furniture dealers:—(1) the person who owns a work-yard as well as a shop for selling finished articles; (2) the person who keeps a shop but orders his furniture from makers giving them advances of money; (3) the person who has a shop and buys his furniture ready-made from various work-yards. Most of the work-yards are situated to the north of Mandalay Fort, and the workmen live in their own small houses near the yards. It is a cheap quarter of the city to live in. Occasionally one can buy an article or two from a work-yard but the workmen cannot quote a price, and are not authorised to make sales. Furniture shops are nearly all located in B Road or in its continuation South Moat Road, which are about the most frequented parts of the city. Burmese teakwood chests, and coffins, however form a distinct branch of the trade. The makers of these live in a group near the centre of the city. They make their boxes and coffins in their houses, and sell them there. The workmen live close by or in adjoining wards.

The workmanship is on the whole good and some of the makers can produce good copies of European furniture, getting their designs from catalogues. In every yard catalogues of well-known English furniture dealers are to be found and one has only to go through these and point out the articles wanted for reproduction.

The cost of articles has risen over 100 per cent since 1914. First quality teak is only used when specially ordered or for conspicuous parts of large pieces of furniture. The bulk of the materials used is second quality teak. One ton of 2" x 1" (2nd quality) teak costing Rs. 25 in 1914 has risen to Rs. 60 now. Even at the latter price the quality of the wood is not equal to that used in 1914. Fittings, nails, screws, etc., have also risen about 100 per cent since the war. Varnish too has risen about 100 per cent. The wages paid by owners to carpenters are now from Rs. 7 (for polishers) to Rs. 45 per mensem or 50 per cent increase on 1914 wages. One ton of teak wood (logs) costs from Rs. 75 to 300 according to quality. Most makers buy odds and ends of sawn timber in lots which come up to about Rs. 80 per ton. In some cases cabinet makers buy teak logs, have them sawn, sell the good planks back to mills and use the remaining parts for making furniture.

Furniture makers and dealers are very reticent about their earnings and profits. They say that their profits are about the same as in 1914 and this may be accepted for they seem to maintain about the same standard of living. Of the types mentioned above the type that owns its own work-yard as well as its shop probably earns as far as I can guess (the owners decline to say) over 20 per cent per annum on its capital outlay which varies from about Rs. 1,000 in some cases to over Rs. 5,000 in a few. The second type makes about 15 per cent and the third type about 10 per cent per annum on its capital, which varies from about Rs. 500 to Rs. 1,500. Persons of the second type usually have rather



more capital to lay out than the 3rd. Makers of teak chests and coffins have about Rs. 500 to Rs. 900 capital and get a nett return of about 16 or 17 per cent. per annum as far as I can judge.

Furniture is also hired out at a monthly rent. According to some of the dealers the profits from this are equal to, if not more than, the profits gained by the sale of furniture.

### 3 (c). WOODWORKERS (*Cart-makers*).

In Mandalay City the number of families engaged in this occupation is 60. They are to be found all over the city but most reside in Amaratani East, Amarasangaung, and Thiriheima East.

To make a cart the following materials are required :—

24 pieces (2 ft. x 8 in.) of teak wood.	One piece (3 ft. x 8 in.) <i>padauk</i> .
18 pieces (8 in. x 3 in.) <i>in</i> wood.	25 viss ... .. iron.

The axle is made of iron in light carts used for carrying people, which are rarely found except in Towns. The ordinary cart used for carrying goods as well as people found in every jungle village and also found in numbers in Towns, has an axle of *hpanga* wood (*Terminalia Chebula*) or *thiye* (*Shorea obtusa*) or *yon* (*Anogeissus accuminata*). The usual number of spokes is 12 to a wheel but in some carts there are 14 spokes. Prices of materials have risen greatly since 1914. Enough teak wood to make a cart (24 pieces of 2 ft. x 8 in.) cost from Rs. 7 to Rs. 8 in 1914 and costs now from Rs. 10 to Rs. 14. The piece of *padauk* cost Rs. 2 then and now costs from Rs. 2-8-0 to Rs. 3. The price of one ton of *in* wood was Rs. 50 in 1914 and is now Rs. 65. One hundred viss of iron which used to cost Rs. 25 then costs now Rs. 35. A man takes on the average about five days to finish a cart. His wages for this were Rs. 7 in 1914 and are Rs. 10 now. The price of a cart is from Rs. 45 to Rs. 50. It used to be about Rs. 35 in 1914.

Profits are about the same now as in 1914. By selling a cart at Rs. 35 in 1914 a cart-maker made a little over Rs. 10 profit. He now makes about Rs. 12 by selling his cart at Rs. 50.

### 3 (d). WOODWORKERS (*Sampan-makers*).

There are 9 families engaged in boat-making in Mandalay City and these only make sampans of various sizes according to requirement. The most usual size would seem to be about 18 feet long and 3 feet wide at the bottom. The boat and its name are of Chinese origin. The Burmese call it "hngat" probably, because it resembles a bird in shape. To carry the resemblance further eyes are painted in bright colours at the sides of the bow. It is used chiefly by ferrymen. Sampans are generally made of *shitsha* wood (*Cicca albizioides*) the ribs being made of teak. About 20 cubit feet of *shitsha* are required to make a sampan 18 feet long. Its cost was about Rs. 15 in 1914 and is about Rs. 22-8-0 now. About 2½ viss of nails are required for one boat. The price of nails used to be 4 annas per viss in 1914 and is now Rs. 1-4-0 a viss. Two oars are also supplied with the sampan. These are made of *in* wood and their cost has risen from Rs. 1-10 to Rs. 2-8. The cost of wood for the gunwale which is also of *in* has risen from 4 annas to 12 annas. In addition to the above about ¼ viss each of *indue*, petroleum and tar is required. The cost of these have doubled since 1914. Paint for the bows cost Re. 1 in 1914 and costs now Rs. 2.

It takes 5 men about 2 days to finish one sampan. Their wages were Rs. 10 per sampan in 1914. They now get Rs. 15. The price of a sampan was about Rs. 45 in 1914. Its price now is Rs. 60.

## 4. MASONRY.

Masonry work is done on contract, some of the contracts being for Government buildings, bridges, etc., and some for private buildings, pagodas, etc. Profits or losses are taken by the contractors; the masons work for daily wages according to their skill. Estimates seem to be fairly good on the whole as it is said that profits are not very great on the one hand, and losses are seldom incurred on the other.

The tools and other accessories of the masons, with a few exceptions, are obtained locally. These are large and small trowels, brick-cutters (ငွေငွေ), hammers for placing the bricks in line (ခေခေ) and a kind of trowel for drawing lines on the cement (ခေခေ) spirit level and plumb line. The last two come from Europe. A big trowel, which used to cost 10 annas, costs now Rs. 1-12-0 and the price of a small trowel has risen from 4 annas to 8 annas. A spirit level, the price of which was Rs. 1-4-0 in 1914; costs now Rs. 2-8-0.

The wages of the workmen before the war were from As. 12 to to Re. 1 per day for masons and As. 6 for female coolies As. 8. for male coolies. These latter carry bricks, bring water and the like. A master mason then got about Re. 1-8-0 a day. Now the wages have risen a great deal, in some cases by about fifty per cent. The masons get from Rs. 1-4-0 to Rs. 1-8-0 a day, female coolies As. 8 and male coolies Re. 1. A master mason gets from Rs. 1-12-0 to Rs. 2 per day now.

Contractors also get a five per cent commission from brickmakers, and the people who supply lime, sand, timber, etc.



## 5. READY MADE CLOTHING.

A decade ago this industry was confined to the making of Burmese jackets. Now this is supplemented by the making of shirts, sports coats, and long coats. The number of dealers is over two hundred and the big dealers are found mostly in Block "L" Zegyo bazaar and in the Yondawgyi facing the Zegyo on the south. The industry occupies the whole time of all the members of a household but is not in any way developing on factory lines as the work is done at home. The most skilful do the cutting out, while others paste the pieces in their places, and others again sew them, mostly on a machine, put on buttons and button loops, and so on.

The materials used are mostly from Europe: twills for shirtings, serges, tweeds, padonma or cotton lawn, taffeta, tussore, etc., for jackets. The prices of all these have about trebled since 1914. One piece of 40 yards of twill, which used to be Rs. 9-8-0 before the war, has now risen to Rs. 30-8-0. The price of a piece of padonma, ten yards in length, was Rs. 3-12-0 then and is Rs. 10 now. A box containing 12 gross of buttons, costing Rs. 3-8-0 in pre-war days, now costs Rs. 13-8-0. Sewing charges alone may be said to have remained stationary, as the extra money now paid to the workers is for the rise in the price of thread. A box containing 12 reels of cotton thread cost 12 annas before the war and has now gone up to Rs. 3-12-0.

The piece-goods merchants are mostly Indians and get their goods direct from Europe. The ready-made clothing dealers buy from them on credit, the time allowed for payment being in most cases three months. Sales have been bad since last year and are now about fifty per cent less than they were before the war. The profits are about 15 per cent. The people who reap most profit are the piece-goods merchants.

## 5 (b). TAILORS.

Work to order. They sometimes make garments for individuals, but more often sew for ready-made clothiers who have more making and sewing than their own family can manage. In most cases the whole family of a tailor joins in his work. In working for ready-made clothiers they are supplied with thread and have to do the cutting as well as sewing. The wages earned by them for sewing 100 shirts in 1914 was Rs. 20. In 1921 they are getting Rs. 30. Some even get Rs. 35 now for 100 shirts. They are paid more because by good cutting they can produce more shirts than others from a given amount of cloth. For one padonma jacket they used to get 8 annas each and are getting 12 annas in 1921 and 1922. For one tweed jacket they got Rs. 2 each in 1914 and are getting Rs. 3 now. In some of the tweed and taffeta jackets cross stitching in contrasting colours is done along the inside flaps and for this the tailors get from 6 annas to 8 annas extra. This was introduced only a few years ago, during the war. Stitching of *longyis* and *pasoes* is done for individuals. It is done in two ways, namely, "nabedat" "pashuchok." The charges for the latter are double those for the former. For sewing one *longyi* (nabedat) they used to get one anna in 1914 and are getting two annas now. For one *pasoe* (nabedat) they used to get two annas then and get four annas now.

## 6. FISHERIES.

In Mandalay District there are two kinds of fisheries,—inland fisheries and riverine fisheries. Singu Township contains 84 fisheries, Madaya Township 52, Amarapura Township 36 and Patheingyi Township 11. The majority of these 183 fisheries are riverine.

2. The industry is seasonal. Fisheries open from *Wazo* (June) and preparations commence then in the way of procuring implements, putting down screens, etc., but fish are not caught until *Tawthalin*. Ordinary fisheries are worked up to the full moon of *Tagu*, *Mayin* fisheries up to the full moon of Kason. The various methods of fishing are as follows: First by means of various kinds of nets, large and small, casting nets and hauling nets. Second by means of *yagwins*. The *yagwin* is a kind of box made of netting with no top, kept open and in shape by bamboo laths. A pole is attached to the whole at the crossing place of the two bamboos that keep the mouth open. This pole is then held by two or three men (it is too heavy for one) in a boat, and submerged as the boat moves along. At the end of the pole is a rope, and the *yagwin* is submerged deeper by letting go the pole and holding on to the rope. The deeper it is submerged the more fish are likely to get in. From time to time it is raised above the surface of the water and such fish as have got into the *yagwin* are taken out. This method can only be used in the river, and is adopted only in two fisheries of Mandalay District.

The third method is by a *myinwunse*, or long bamboo screen put as a barrier right across the outlet of the fishery, with an opening, to which a death trap is attached, in the place where the current is strongest.

The fourth method is by *hmyons*, which are cylindrical baskets made of bamboo laths closed at the top and bottom, with an opening in the side. This opening is lined with a fringe of bamboo laths converging towards a central narrow vertical slit like the entrance to some rat traps, so that fish can push their way through or be forced through by the current, but cannot get back out again. These *hmyons* are placed under water, and their doors are put against openings in *yins*, or bamboo screens fixed across the outlet of the lake where there is a current of water running out.

*Implements.*—Casting nets of all kinds are manufactured at Thayettabin and Thayagon in Mandalay City and at Wingyan on an island in the Irrawaddy in Patheingyi Township. *Limbet* or hauling nets are obtained at Myaungnabet in Myinmu. The *yis* used in the Mandalay District are supplied from Mwebongan, Shwebondaing and Shwedon in the Madaya Subdivision. *Hmyaws* or strong posts used for fixing screens are obtained from Htongyi and villages above that as far as Singu. The fishermen in Amarapura Subdivision buy their *hmyaws* from timber merchants of Mandalay. Cloth for the sails of boats is bought from Yindaw in Yamèthin District.

The chief person in a fishery is the *Indaing* or Lessee who gets the lease from Government and is responsible for the revenue. Next comes the *Swedaing*, the broker, who buys all the fish from the Lessees and sells it to fishmongers of Mandalay City. The *Swedaings* all wait every morning at dawn at the river bank at Mayangyan (near the Government Timber Depôt) in Mandalay. Third come the fishermen, and fourth come the boatmen who bring the fish from the fisheries to Mandalay Shore at Mayangyan. The boatmen get no payment in cash but they get the benefit of the difference in the size of the Licensee's and the *Swedaing's* baskets. Ten of the former contain as much as thirteen of the latter, and the boatmen get the three extra baskets as their hire (worth about Rs. 4-8); not much considering that each boat needs three men to paddle it and they often have to paddle all night. When fish are plentiful more than ten of the Lessee's baskets—perhaps twenty or more—are brought in on one trip. Fifth and last come the fish mongers who buy fish from the *Swedaing* and retail it in the Zegyo Bazaar. Of the men working at the fishery the most important man is called *Sètein*. He looks after the barriers and screens and must watch them carefully, diving into the water when necessary to see that they are not rotting or getting weak in any place. If any opening were to come from breaking of the bamboo laths, fish would escape, and if the whole screen were to fall down owing to the posts (*hmyaws*) breaking, the season's catch would be considerably reduced. The salary of a *Sètein* is Rs. 15 to Rs. 30 a month according to the size of the barrier (*sè*) which he takes in charge. The wages of other fishermen are less than those of a *Sètein*. An ordinary fisherman gets only Rs. 10 and his food. As a rule all the workers in fisheries get food free in addition to their cash pay from their Lessees. They work from early in the morning till dark, and in emergencies they work at night. The pay of the workmen in fisheries has neither increased nor decreased since pre-war days.

#### 7. BLACKSMITHS.

There are 322 families of blacksmiths in Mandalay, of whom about two-thirds confine themselves entirely to the making of iron alms bowls (*than thabeik*). The remaining one-third are about evenly distributed between makers of (*b*) shovels, (*c*) *damas* and occasionally spears, (*d*) table knives, (*e*) scissors, (*f*) cauldrons, (*g*) sickles, (*h*) adzes, axes, hammers, saw setters, screws, and cattle bells, (*s*) tweezers, pincers, earpicks, tooth-picks, small knives, and nail cutters, which articles are sold in bunches on rings.

The charcoal used by blacksmiths of all kinds comes from Shwepyi, Thekkègyin, Kangyi, Kanbyin, and Bok, villages in Mandalay District. The price per 100 baskets was Rs. 25 in 1914 and Rs. 50 in 1921.

Wrought iron alms bowls are made in no other place in Burma, and purchasers come here from all over the Province. As they are unbreakable they have become much more popular than the black earthen alms bowls, which they resemble in colour and general appearance as well as in shape and size.

The smiths buy iron sheets, imported from England, 8 feet long, 4 feet wide and one-sixteenth of an inch thick, at a cost of Rs. 10-8 in 1921 (Rs. 7 or 8 in 1914). In 1920 the price of iron rose to Rs. 20 a sheet. This wrought iron is known as "shwethan" in Burma because it is malleable like gold, other "iron" such as cast iron or steel not being malleable. The wages for making a thin alms bowl (made from sheet iron one-sixteenth of an inch thick and probably a little over  $\frac{1}{2}$  of an inch when finished) is eight annas, and for a thick alms bowl (made from iron sheeting one-eighth of an inch thick) is twelve annas. Each smithy contains not less than three members, a "master" and two journeymen, and they can finish three bowls a day between them if they work from 6 a.m. to 6 p.m. Forty alms bowls can be made out of one iron sheet. Thin sheets are used far more than thick. When the blacksmiths have finished the bowls they hand them over in large quantities to "*payeikkhaya sayas*" at Rs. 1-8 or Rs. 2 each according as they are "thin" or "thick." The *payeikkhaya sayas* (vendors of goods and apparatus required by *pōngyis*) then get them varnished with black lac (thitse) by persons who live by that work alone. At that price the head of the smithy makes a profit of 2 annas 9 pies on each thin bowl, and 1 anna 6 pies on a thick one. The wholesale dealers make larger profits.

In Amaratani Quarter of Mandalay, in which there are more blacksmiths than in any other quarter, there is a Capitalist who buys iron sheets, issues them at a valuation to a few master blacksmiths, and takes all the alms bowls they make for sale to "*payeikkhaya sayas*." As he gives his blacksmiths a trifle lower price than the "*payeikkhaya sayas*" those blacksmiths that work for him make less than others. However as far as we could discover all other master blacksmiths provide their own capital and work independently. There are pupils also working in the smithies, who get eight annas a day for their work as soon as they have acquired a little skill, but pay the master blacksmith one anna commission on each bowl that they make. From all sources an average master blacksmith earns about a rupee a day. One who has a large number of workers and pupils makes

more. One master has eight workers and pupils working for him, others have five or six, the average is about four.

(b) *Shovel-makers* are a distinct class of blacksmith and make nothing else. The usual number in a smithy is from a minimum of three (including the master smith) to about six. A master and two men can make fifty ordinary or twenty large shovels in a day between them. Owing to the great heat (the iron has to be worked red hot) they start work at 3 a.m. and work till 10 a.m. Again from 1 to 6 p.m. they work, but at finishing under mild heat with a file. The wages paid are:—

	1914.			1921.		
	Rs.	A.	P.	Rs.	A.	P.
For 100 ordinary shovels ...	1	8	0	2	0	0
For 100 large shovels ...	2	8	0	4	0	0

For 100 ordinary shovels the price obtained on sale was Rs. 25 to Rs. 27 in 1914 and Rs. 37-8 in 1921. For 100 large shovels the price was Rs. 35 to Rs. 37-8 in 1914 and Rs. 65 to Rs. 70 in 1921.

(c) *Makers of Damas.*—Mandalay *das* are not popular and there are very few *da* makers in the city. At Taungbyon village, about eight miles north of the city, there are a few *da* makers. But most Upper Burmans prefer *das* made in Mònywa District (Aungtha and Baunggya) or in Shwebo District (Alyédu and Tabayin). Tabayin *das* are the most prized. There is no wholesale dealer in *das* in Mandalay. Whereas the blacksmiths at the great *da*-making centres mentioned above continued to buy good iron even when the price rose to unusual heights during the war, wishing to keep up their reputation for good *das*, *da*-makers of Mandalay made their names even worse than before by buying up during the war refuse iron from mills at Rs. 50 per hundred viss, the pre-war price for refuse iron having been Rs. 5 or thereabouts. At that time the price of good iron was Rs. 175 per 100 viss. In the making of *das* steel is welded with iron (a slow process taking about a month). The price of steel has risen from Rs. 20 per 100 viss before the war to Rs. 60 in 1921. As in other branches of the blacksmith's craft the minimum number of workmen is three to each smithy (including the master). Each of these finishes two *das* a day. The wholesale price of *das* was Rs. 1 to Re. 1-2 in 1914 and rose to Rs. 1-8 each in 1921, but to regular retailers the makers usually sell at Rs. 1-4 per *da*. Workman's wages were 4 annas for each *da* in 1914, and 6 annas in 1921. *Da*-makers make spears also, but only when they receive an order from some intending purchasers. They imagine that they are liable to prosecution for having spears in their houses.

(d) Household knives of an inferior quality for cutting onions and foodstuffs are made by another class of Blacksmiths in Mandalay City, who make no other kind of ironware. They are made from the iron straps that come round bales. Each strap is 6½ feet long and is sold at the bazaar for 6 annas. Before the war they were sold at 8 annas for 10 straps. Ten knives are made out of each ordinary strap and they were sold at Rs. 12-8-0 per 100 before the war, while they now realize Rs. 17-8-0 per 100. Single knives are sold for 4 annas each.

The two workmen who work with the master get 8 annas a day each, which is the same wage as they received before the war. A workman finishes 10 or 12 knives a day if he works from 6 a.m. to 6 p.m. The polishing is done in the afternoons by pupils who receive 8 annas a day for that and for fixing on bamboo handles and blowing the bellows during the earlier part of the day.

The cost of bamboos for handles was Rs. 1-8-0 per 100 up to 8 feet long in 1914 and Rs. 3-8-0 in 1921. Each bamboo produces about 20 handles. The master blacksmith earns about Re. 1 a day.

(e) Scissor-makers in Mandalay are few in number. Like other classes of blacksmiths, they confine their work to making one kind of thing. The places famed for scissors in Burma are Pyawbwè, Yamèthin, Mònywa and Magwe. The scissors made in Mandalay are coarse and are used only for cutting tobacco leaf and the leaf wrappers of cheroots, whereas the scissors made in the other places named are used for cutting cloth.

They are made in Mandalay of ordinary sheet iron which cost Rs. 25 per 100 viss in 1914, rose to Rs. 100 during the war, and fell again to Rs. 40 in 1921. As in other smithies the minimum number of smiths, including the master, is three. Wages were 6 annas a day in 1914, and 8 annas a day in 1921. Scissors were sold in 1914 at Rs. 12-8-0 a hundred, and in 1921 at Rs. 13-8-0 a hundred.

(f) *Cauldrons.*—About the middle of 1921 one U Lwin of Amaratani east quarter of Mandalay (in which most of the Blacksmiths live and work) started making cauldrons as an experiment. He was formerly a maker of alms bowls like the great majority of blacksmiths in Amaratani. He found the experiment a success and has since continued making cauldrons at one of his two smithies, while he makes alms bowls as before at the other. Cauldrons are made in the same manner as iron alms bowls except for the shape, the mouth of a cauldron being much wider than the mouth of an alms bowl. Only malleable iron (shwethan) can be used for making cauldrons. U Lwin is still the only maker of cauldrons in Mandalay, and, as far as we know, in Burma. But the use of his cauldrons is gradually spreading in Mandalay and to some other parts of Burma. Hitherto Indian cauldrons, made of cast iron, have been used. The new Mandalay cauldrons are cheaper in price and last longer because they never crack when used for frying as the Indian cast iron cauldrons do. There are six sizes classified by the width of the mouth, namely: 8", 9", 10", 11", 12", and 13".

The wholesale prices to brokers are:—

8", 9", and 10" ten for Rs. 5.

11" ten for Rs. 6.

12" ten for Rs. 9.

13" ten for Rs. 10.

In U Lwin's cauldron smithy there are three Blacksmiths including himself (he is "master" in both his smithies). Each workman gets Rs. 1-4-0 for every ten finished cauldrons (with handles attached) of 8", 9", 10", and 11" size, but they seldom finish more than 8 in one day. For cauldrons of 12" and 13" size (with handles attached) Rs. 2 is paid for every ten finished, but only five are finished in a day as a rule. The cost of material is as for alms bowls.

(g) *Sickle making*.—A few Blacksmiths in Mandalay make sickles (and nothing else). As usual the smithy comprises three persons, but unlike other branches of iron work the two workmen get different rates of wages. The master values his work now-a-days at 12 annas a day and if he goes out to work elsewhere (as occasionally happens) he actually receives that amount. The second man, who does the bending of the sickle, gets 10 annas a day, and the third man, who blows the bellows and uses the hammer gets only 6 annas. Before the war they used to get 8 annas, 6 annas, and 4 annas, respectively.

Sickles are made of steel (which is bought at the prices noted in the case of *das*). The master does not buy at a time more than enough for about 30 to 40 sickles, which the three of them can make in a couple of days, working from 6 a.m. to 6 p.m. They then send their wives to sell these to the retailers at the Zegyo, and buy another lot of steel. Sickles are made in three sizes and sold as follows:—

		In 1914.	In 1921.
Small,	each ...	4 annas	6 annas
Medium,	" ...	6 "	10 "
Large,	" ...	8 "	12 "

(h) In one smithy the following articles are made and sold:—

	1914.	1921.
	Rs. A. P.	Rs. A. P.
Adzes sold at ...	2 0 0	2 8 0 each.
Axes ...	1 0 0	1 4 0 "
Hammers ...	0 10 0	0 12 0 "
Iron cattle bells (used in Shan States).	50 0 0	70 0 0 per 100.
Saw setters ...	7 0 0	10 0 0 per 100.
Screws ...	1 0 0	1 8 0 per viss.

At this forge the owner acts merely as supervisor except when there is a particularly difficult piece of work and the others seem likely to go wrong. Under him is a "master" Blacksmith who was paid Rs. 1-4-0 a day in 1914 and Rs. 1-12-0 in 1921. The trained Blacksmiths get from 12 annas to Rs. 1-8-0 a day according to the amount and quality of the work done by them. Apprentices also are entertained at 6 annas a day and when they get to know their work fairly well are usually paid half the daily wages of a trained man. These articles are made from the same kind of iron as *das*.

(k) Another group of Blacksmiths make tweezers, pincers, ear-picks, tooth-picks, small knives, and finger nail cutters which are formed into a bunch and sold at Re. 1 in 1914 and Rs. 1-8-0 in 1921. There is only one forge in Mandalay (Dawnagyan quarter) where the master knows how to make all these articles though in several others some of these articles are made. At that one forge the master works with the aid of only one workman whom he pays Rs. 1-8-0 a day. He came from Pyawbwè and started this work only about a year ago.

There is another forge in Amaratani quarter where small bunches of inferior quality articles are made, consisting of pincers, tooth-picks and ear-picks. Of these 1,000 bunches were sold at Rs. 25 or Rs. 30 in 1914 and at Rs. 35 in 1921.

One thousand small pincers were sold at Rs. 5 or Rs. 6 in 1914 and at Rs. 7 in 1921.

## 8. CHEROOT MAKING.

Two kinds of cheroots are made in Burma. One is known as *sepyinleik* (bingalaleik in Mandalay) which is made entirely of cured tobacco leaves. The other is known as *sepawleik* and made of dried tobacco leaves cut up and mixed with chopped pieces of the stem of the tobacco plant or chopped pieces of *Oakhè* wood, the whole being sprinkled with jaggery or tamarind syrup. The latter is the national Burmese cheroot.

The outer wrapper of the *sepawleik* is made of the leaves of the *Banbwè* (*Careya arborea*) at Prome, and the sheath of the maize cob *Pyauung-bu-bet* in Lower Burma generally. But in Mandalay *thanatpet* sometimes called *shanpet* because *thanat* (*Cordia myxa*) trees are rarely found outside the Shan Hills, or the sheath of the betel palm stem *kun-thi-bet* or the leaf of the Kywedo is used, as well as the sheath of the maize cob. The last named is the most common wrapping all over the Province, while the *kun-thi-bet* (sheath of the betel palm stem) is the most highly prized; indeed the use of cigars wrapped in carefully treated and highly polished *kun-thi-bet*, was formerly restricted to members of the royal family, and such cigars are still to be found only in the houses of *ex-Queens* and *Princesses* for no one else knows how to prepare them.

Tobacco is grown in most riverine Districts of Burma. Mandalay tobacco comes chiefly from Mwe-hintha and Mwe-shwegè villages in Singu Township. The cost is Rs. 50 per 100 viss.

Rollers of the *sepyinleik*, invariably women, usually work from about 9 a.m. to about 5 p.m. every day and finish about 250 cheroots a day. For completing 1,000 cheroots, some four days work, the cheroot roller got Re. 1 in 1914 and Rs. 1-4-0 in 1921. The cheroot rolling is usually done in some rich person's house by women from other houses who come and work on hire. Sometimes as many as 20 women are found rolling cheroots inside a house. The person who sets up a cheroot-rolling business got a profit of Rs. 2 when the cheroots were sold wholesale at Rs. 7 per 1,000. The retail vendors got a profit of Rs. 3 when the cheroots were retailed at Rs. 10 per 1,000.

*Thanatpet* comes chiefly from Mōng Nai, Laihka, Mōng Pawn, and Hopong, of the Southern Shan States and Hsipaw, of the Northern Shan States. The present cost of 100 viss of *thanatpet* is Rs. 132-8-0 to Rs. 225 according to quality and treatment after plucking, the cost before the war was about 8 per cent to 10 per cent less. The usual time for making the Burmese cheroot is 9 a.m. to 5 p.m., and about 125 cheroots a day are completed. The wages for 100 cheroots is annas 4 or 5 annas a day as it was before the war. The wholesale dealer gets Re. 1 profit when 1,000 cheroots are sold at Rs. 13-12-0 and the retail vendor gets Rs. 1-14-0 when he sells 1,000 cheroots for Rs. 15-10-0. This was the pre-war price (one pice a cheroot) and it has not changed.

The roller of *sepawleik* never rolls *sepyinleik*, or *vice versa*. The persons engaged on the two kinds of work are quite distinct and neither class is conversant with the work of the other. There is much more trade in *sepyinleik* than in *sepawleik*, and the number of persons engaged in rolling the former for sale is far larger than the number engaged in rolling the latter *for sale*; but those who roll the latter national Burmese cheroot for home consumption and not for sale are more numerous than those who roll *sepyinleik*. In fact practically every Burmese woman can, and does, roll *sepawleik* for home consumption. Burmans as a rule prefer their home made *sepawleiks*.

#### 9. EMBROIDERY.

Burmese embroidery, called by them Shwe-gyi-do work (literally gold thread sewing) contains modifications of what Europeans know as embroidery, inasmuch as it contains patterns made by stitching on to cloth small silver sequins (small flat discs with a small hole in the middle) and silver sequins gilded over to look like gold, and short or long lengths of tubular spirals of silver or silver washed in gold (called *bunwe*), and pieces of glass to represent jewels, and patterns made by cutting out from cloth, differing in colour from the ground cloth, figures of men or horses or elephants, etc., stitching them on to the ground cloth and further embellishing them with sequins or *bunwe* or gold or silver thread-work or glass (imitation jewels), besides patterns made as in European embroidery by sewing with gold and silver thread. Some of the figures were raised by being stuffed with cotton wool (under the cloth) before being embellished. Plainer garments, to be worn by attendants of Royalties or Officers, were adorned only with braid (*yetpya*) about half to three quarters of an inch wide stitched round the sleeves and neck, etc.; this braid is loosely woven with cotton thread as the warp and silver or gilt-thread as the weft. Similarly woven cloth, but of ordinary width (say 20 to 22 inches) called *pazunsi*, with a backing of thin red cloth was often used as a background being stitched on to the ground cloth before embellishments were added. The Burmese used their embroidered cloth for curtains (over mirrors, or over doors—there were no windows in those days), and as tapestry on the walls in the houses of Royalty or of high officials or for court robes of royal personages and officers or for trappings for their horses. It is an old industry in Burma which is said to have been started in the time of Alaungpaya, the founder of the last dynasty. The embroidery of his day was very rough as real full-sized gold coins were stitched together over coarse country made cotton cloth. Some improvements came in after the invasion of Siam (that is in the time of Alaungpaya's son) when floral designs (flowers, leaves, and stems) were introduced. Considerable change was made in the reign of King Mindon. For the ground-work was now used velvet imported from Europe, or hand woven in the palace.

Under the Burmese kings the use of embroidered clothing and articles was limited to members of the royal family and officers of the Government. Each privileged personage employed his or her own set of workers to make embroidery for his or her own use. Those people did not receive wages by the day or month but received large rewards when they had finished any article ordered if the master was pleased with the work. If otherwise their reward was small. Orders are said to have been very frequent. In those days, besides curtains and hangings were made robes for the king (*Asin-tasa*) for the chief Queen and two next senior Queens (*Mahalata*) for other Queens and senior Princesses (*Gana Mataka*) for lesser royalty (*Gana yang and Malika*) for Ministers (*Thoyin-wulton* and headdresses for Ministers (*Baung*). In olden times discs or sequins of mica were used for commoners. The use of such robes has entirely ceased now except at Shin-byu ceremonies and *sat-pwès*. Curtains and hangings too are very seldom used, and are never made now-a-days except to order. So the present day wage earners have very little chance of working those old fashioned articles. In their place are made things used by Europeans such as table covers, teapot covers, and the like, and gorgeous ceremonial robes for Indians. Embroidery is now often done on silk longyi with peacock figures, or a broad belt of floral design along the side and lower edge of the silk longyi with coils of imitation silver wire (*bunwe*).

Formerly average earnings were 12 annas to Re. 1 a day but have doubled since 1914. The worker now receives Rs. 2 for a longyi and it takes him a day and half a night to finish it.

*Burmeses* are of two kinds (*zati*) and (*pavatti*). *Zati* is real gold and silver, and cost Re. 1 a tola (now Rs. 2). *Pavatti* is imitation silver and imitation gold (*bunwe*), bought at Rs. 1/8 and Rs. 3/8 (now Rs. 3/8 and Rs. 7/8 per 10 tolas).

Imitation sequins were formerly bought at Rs. 20 per viss and now cost Rs. 80.

Burmese *Shwe-gyi-do* work includes appliqué work made by cutting figures (ministers' horses, etc.) out of cloth of various colours and attaching them to black velvet cloth hangings. The figures form pictures. The hangings are usually wide enough to form a curtain wall to an open room (with no sides), but are sometimes made about 3 feet wide for a fresco along the top edge of the wall of a room. The figures are backed with red or green or black cotton cloth or flannel to show them up.

Trappings for horses for members of the royal family or ministers were also made of *Shwe-gyi-do* work. They are still made for horses on which *Shin-laungs* (prospective Novices) are to parade their neighbourhood according to Buddhist custom.

The prosperity of this industry depends now-a-days on the prosperity of the peasantry—it is they and not people in towns who buy *Shwe-gyi-do* cloth and trappings.

#### 10. OIL PRESSING.

Sesamum is grown in every dry zone district of Upper Burma, though in some districts the amount grown is not large, and the pressing of sesamum oil is a very ancient Burmese industry practised from time immemorial. The area under sesamum is small in Mandalay District and the total number of families engaged in this occupation in Mandalay City is 126 while the District total is 223. The press consists of a roller revolving inside a bowl. The latter is made of a large heavy block of wood hollowed out in the shape of an inverted cone leading into a curved bowl. The roller presses the sesamum seed against the straight sides of the cone and the oil runs into the bowl below. Some of the seed or cake falls into the bowl too and the pressing is completed there between the end of the roller and the sides of the bowl. The *sox* or bowl is usually made of *Koko* (*Albizzia Lebbek*) a particularly hard wood, but *Htanaung* (*Acacia leucophloea*) and *Bonmeza* (*Albizzia stipulata*) are occasionally used. The roller is generally made of *Thanatkha* wood (*Rimonia acidissima*). The present cost of a *sox* or bowl is from Rs. 45 to Rs. 55 while a roller costs from 4 to 6 rupees. Before the war the cost was the same. About half a basket (9-gallon basket) of seed is placed in the mortar for one pressing. Before this is done about a pint of hot water is poured into the bowl and about the same quantity is poured in again after the seed has been put in. The hot water helps to draw the oil.

One basket (9-gallon) of seed will produce from 5 to 6½ viss of oil according to the quality of the seed. The oil-cake remaining from one basket of seed is about 6 viss.

An ox costing now-a-days from Rs. 85 to Rs. 100, can manage 3 to 5 pressings a day. The food, etc., of an ox for a day costs from 8 to 10 annas. In the villages that ox would be used to plough as well during the cultivating season, but in Mandalay the oxen are not used for ploughing as there is no land closeby to plough. The price of 100 baskets of sesamum seed was from Rs. 325 to Rs. 350 in 1914. It is now from Rs. 750 to Rs. 800. One tin (kerosene oil tin containing 4 gallons) of oil (10 viss) cost from Rs. 9 to Rs. 10 before the war. Its cost now is Rs. 16 per tin. The man who looks after the extraction of the oil and also drives the ox is paid 4 annas per pressing of half a basket. In some cases the men are paid monthly and get about Rs. 20. Besides these home made ox presses there are steam mills for pressing sesamum oil in Mandalay. Since the cultivation of groundnut was introduced, oil is pressed from that too, and cotton seed also is pressed in order to get oil, the refuse oil-cake being used for feeding cattle. But neither groundnut nor cotton seed pressing is done in Mandalay District.

#### 11. WORK IN MARBLE.

The worshipping of pagodas and images of Buddha has been in vogue in Burma since the introduction thereof of Buddhism. The tradition of Mandalay Marble Carvers is that the carving of marble images and statues has existed in India since the time of King Asoka, and that marble carving was introduced into Burma only 200 years ago during the reign of *Thalun Mindayagyi* who was the builder of the *Kaungmudaw* pagoda at *Sagaing*. The industry was well developed in the time of the *Konbaung* (*Alaungpaya's*) dynasty.

The most venerated of all images in Burma is a marble image carved under the orders of King *Bagyidaw* soon after he ascended his grandfather's (*Bodawpaya's*) throne at *Amarapura*. It is at *Taungdaman* just outside *Amarapura* and is known as the *Taungdaman Kyauktawgyi*. The huge marble image of Buddha at the foot of *Mandalay Hill* was carved under orders from King *Mindon* in imitation of *Bagyidaw's* image at *Amarapura*, and was given the same name *Kyauktawgyi* (great royal stone). Although much larger it is not so well proportionated as that of King *Bagyidaw*.

Marble of very good quality is quarried from *Sagyin Hill* about a mile from *Sagyin* village (in *Singu Township*) about 12 miles from *Madaya Town*, and 21 miles north of *Mandalay*. The quarries have been worked for several generations. Now-a-days those who wish to quarry marble have to take out permits from Government. Hereditary marble



workers pay Rs. 5 for their permits and quarry within their hereditary (bobabaing) area. Quarrying is attended with much difficulty and danger, the workers having to excavate sometimes from the face of a steep cliff, sometimes in a deep cave, sometimes on the edge of a precipice. Marble is usually extracted in cubes a yard each way. The block is cut out by chisel and hammer, and one man cannot extract more than 2 blocks a month, working all day and every day. When the block is almost ready to be broken out it has to be carefully tied with creepers and kept up, otherwise from many of the quarrying places it would fall out and be chipped and cracked. When broken out the block has to be taken laboriously to the top of the hill, and when a number of blocks are ready they are rolled down to the foot of the hill. Many blocks get chipped during this roll. Thence they are taken by boat, or by cart and light railway, to Mandalay. In some cases purchasers from Mandalay go and buy blocks at Sagyin, in other cases the blocks are brought to Mandalay and sold there. The price varies according to the size and quality of the stone. The usual pre-war price was from Rs. 5 to Rs. 10 for a cubic cubit, but now the prices are double of what they used to be.

This marble, which is said to be of very good quality is carved into images of Buddha. A few images of Yahandas were carved too in olden times, and are still made. The marble was used also for stone slabs for inscriptions, such as those in the Maha-lawkha-mayazain pagoda enclosure, and for dedicatory inscriptions at pagodas. Now-a-days figures of horses, thamin (deer), tortoises, elephants, are made of this marble and also small plain rectangles as paper weights. But these are few in number; the great bulk of the marble always has been and still is utilised for images of Gautama.

Some of the Buddhas are carved at Sagyin, but the Mandalay carvers are much more skilful and most of the images are made there, the locality south of the Arakan pagoda where the majority of the carvers live and work being called Kyauk-sit-tan (carver street). The same name is given to another locality in the west of Mandalay where there are marble carvers. A great many Buddhas are made without special order, but if a man wants a really good image he will give an order for it. The Mandalay carvers are very skilful and can carve an 18" image to be worth Rs. 50, or Rs. 100 or Rs. 150. There is no fixed or even usual rate for images of given sizes. The price varies according to the quality of marble which is by no means constant, and according to the excellence of workmanship. The demand for images has increased of late.

The wages of carvers depends on their skill, and ranged from Rs. 9 for a beginner to Rs. 30 for a skilled worker per mensem before the war. Now wages have risen, like wages in other industries, to from 30 to 60 rupees per mensem. Like other workmen marble carvers say, and apparently with truth, that they are worse off now than when they got only half their present wages, for the prices of all commodities have risen. The workers are almost all too poor to set up for themselves and merely work for wages for a capitalist who buys the marble and the tools and other requisites.

The carving tools are few and very simple. They consist of chisels and punches of various sizes made by the carvers from old files bought from saw mills. The metal of old files is found to be specially hard and suitable for carving with. Marble carvers never use hammers (with iron heads) but wooden mallets made by themselves of the heartwood of cutch, or tamarind. After carving is done the figure has to be filed (with new files) which used to cost from 12 annas to Rs. 3-8 and now cost from Rs. 1-4 to Rs. 4-8. Then it has to be rubbed smooth with three different kinds of stone in succession. First with coarse stone, which takes a day for an image about a cubit high, next with a medium stone for another day, and finally with a smooth stone which takes about half a day. Stones of the first two kinds come from Katha. The third smooth stone is the jeweller's touchstone. Finally the figure is rubbed over with sandpaper for a day and is then finished. Figures other than Buddhas are not so carefully finished; they are merely filed and then rubbed with a coarse stone.

## 12. COPPER AND BRASS.

Work in copper and brass is an important industry in Mandalay. The making of brass images of Gautama, brass bells (big and small for pagodas and monasteries), small round brass bells for hanging on the necks of cattle, flat brass gongs (*kyesi*) and gongs of the hollow circular pattern has been conducted in Tampawadi Quarter of Mandalay (just outside Amarapura fosse) longer than the residents can remember or tradition takes them. In fact the quarter has probably derived its name from tamba the Hindustani for copper. The Wetmasut Wundauk Min (a minister of King Thibaw) tells me that this industry was started in 1144 B.C. (about 140 years ago) in the reign of Bodawpaya who built his palace at Amarapura. The Wundauk Min goes on to say that when the Burmese were ruling at Ava before their last defeat by the Talaings, and before Alaungpaya arose, brass work was done at Ywataung (near Sagaing). To this day Ywataung is famous for its brass work.

At present there are 319 families occupied with copper and brass work in Mandalay City of whom 249 families live and work in Tampawadi Quarter. There are four distinct sets of workers: (a) image workers, (b) gong makers, (c) makers of big and small bells with open mouths (*kaunglaung* and *swèlè*) for use in pagodas and monasteries and flat gongs (*kyesi*) and (d) makers of round almost closed cattle bells (*chyu*) often hung on collars on the necks of cattle.

Copper is the basic metal used, only it is not used in its pure state, but as brass. For images of Gautama it is alloyed with zinc (8 viss of zinc to 10 of copper) in order to get a sufficiently hard surface to file and polish; but for gongs it is alloyed with lead (30 ticals

of lead to 70 ticals of copper) as the gongs are hammered out and softness is required. For big and small pagoda and kyaung bells and flat brass gongs lead alloy is used as for gongs, but in different proportion, 27 ticals of lead being added to 1 viss of copper. For small open mouthed bells (*swèlé*) and round cattle bells (*chyu*), the workers buy old scraps shavings of brass and brass filings from the Rangoon foundries which is sold in packets in the Zegyo Bazaar (they would buy scraps and filings of copper if they could get them but they cannot). This brass refuse they melt down with lead and get a metal softer and paler in colour than the brass used for images, though not as soft as the brass used for gongs.

All the various articles made are cast to start with, though images are filed and polished by a series of processes which cover a period of over 3 months for images 2 cubits high, and gongs are laboriously beaten out from the disc in which they are primarily cast. The moulds of gongs (both flat and hollow) are made of wood and are used over and over again. All the articles made have a central hollow and must have a core inside the mould. The moulds and cores are made of fine clay. For the core of images fine alluvial clay is powdered and mixed with an equal quantity of dry powdered horse dung and sifted to remove all coarse particles. This fine powder is made into a stiff paste with water and an outline of the required image built up, layer upon layer, each layer being put on only when the one below has fully dried, for which purpose it is put in the sun. The core is carefully moulded by hand before it is dry, the nose, ears and such like delicate portions being specially watched as the work proceeds. For larger images (from about 2 cubits in height upwards) the core is strengthened with thin flat bands of iron inserted beneath the surface of the clay. When the core is ready a layer of beeswax [mixed with *indwe* (resin) and earthoil] of the required thickness is laid on. This layer is to be subsequently replaced by the brass. The proportion is ten parts of *indwe*, four of wax, and enough earthoil to keep the layer soft and easy to mould. When it is raining the quantity of earthoil is increased, when the weather is dry and hot the quantity of earthoil is reduced because the heat keeps the wax soft. Upon this layer the sculptor exerts his skill as the brass will replace this wax statue as it leaves his hands. Over this the mould is formed, of fine red clay (not alluvial) mixed with paddy husk. No horse dung is mixed with this. The greatest care is taken to fill in every minute detail of the wax image with the clay mixture, without the slightest disturbance or abrasion of the finished wax surface. The mould again is put on layer by layer, as each gradually dries. The outermost layers are made thicker in order to sustain the weight of the metal. Finally several thin iron rods are pushed through the outer mould and wax image well into the inner core, so as to keep all in place. Two rods are put in through the points of the shoulders, two through the thighs, one through the top of the head. All this takes about a month in the case of an image 2 cubits high.

When the mould is thoroughly dry the requisite amount of copper and zinc is melted and kept hot while the image is placed carefully over a hollow in the ground and heated until every particle of the wax mixture runs out at the base through 7 holes previously left in the mould. The image is then cautiously turned upside down in the same hollow, propped with planks at the sides, and the molten brass is poured in, with care so that no air is left in bubbles, through three of the seven holes from which the wax has issued. The other four holes are left for the air to come out as the molten brass gets into place. The melting out of the wax image, and pouring in of the liquid brass, is done very early in the morning before dawn so that no cart or animal passing along the road in front of the enclosure may cause the earth to shake and thereby produce cracks in the brass. When cool the mould is carefully broken away and the fixing rods removed. The core is left in, and the upper part of the core remains in the image even when delivered to the purchaser, though the lower parts of it get broken off as the image is moved about for filing and polishing.

The brass image is now complete, but the laborious finishing has still to be done. If the weather is warm and dry this takes over three months in the case of an image 2 cubits high, four months for an image 3 cubits high, seven months for an image 4 cubits high. If the weather is wet the finishing takes decidedly longer. The time taken for the various operations in the case of a two cubit image is as follows: First the roughness and excess metal are cut out with a cold chisel. That takes 20 days. Next the entire image is smoothed over with a file which takes another 25 days. Then the correct shape of the image being clear, the holes left by the fixing rods are filled in with brass plugs, hammered level, and filed smooth. Other hollows or holes are filled in, welded into the image, and smoothed off. That takes another 15 days. Next all the re-entrant joints and angles are cleaned out and perfected, with two kinds of cold chisel, and any defects that there may be elsewhere are corrected. This work takes ten days with the broader chisel, and ten days more with the narrower chisel. After that the image is rubbed over with three different kinds of stone, of a special kind, from the Chindwin or the Shan States, a rough stone for ten days, a medium stone for another ten days, and lastly a smooth stone—goldsmith's touchstone—for another ten days. Then the image is rubbed over for two days with the ash obtained by burning fine earth, and finally it is polished with sesamum oil for a day. Then it is ready for the purchaser.

The materials are bought in the Zegyo Bazaar. Copper, which is exported from England, Japan, Calcutta, and Bombay, but chiefly from England, cost Rs. 12-8-0 for 10 viss in 1914, and now costs Rs. 22. Zinc used to be exported from England, but since the war began zinc ingots ceased to be obtainable in Mandalay, and the casing of big boxes of matches has been melted down by residents of Hledan Quarter and sold to brass workers for alloy with copper. The customs returns indicate that "zinc" continued to come during the war though the quantity imported was much reduced, but this probably refers



to "zinc" roofing. At any rate the brass workers were unable to get ingot zinc in Mandalay and cannot get it yet. For pre-war zinc they paid Rs. 35 per 100 viss and now have to pay Rs. 85 per 100 viss for inferior stuff. Lead for bells and gongs comes from Mergui and Tavoy. It cost Rs. 2-4-0 before the war, Rs. 7 in 1920, and Rs. 5 in 1921. Brass scrap shavings and filings (for small cow bells) cost for 10 viss Rs. 7-8-0 in 1914 and Rs. 15 in 1921. The price has since fallen a trifle.

In Tampawadi Quarter there are two capitalists who do not work themselves but engage men to perform all the different stages of the work, and merely provide the materials, wages and instruments, and sell the articles when made. These two capitalists get made not only images of Buddha but also large and small bells and *kyesi* (flat gongs). There are four classes of workers (a) Sculptors who make the mould, (b) Firemen who heat the images, draw off the wax mixture, and keep the image hot while brass is poured in, (c) Founders who melt and mix the copper and its alloy and pour the brass into the mould, (d) Finishers who do chiselling, filing, and polishing. A good many of the sculptors have enough money to buy materials and hire men to make images. They make the moulds themselves of course. There are however some sculptors who have not enough money to meet all expenses and merely work for hire. These earned Rs. 7 for a finished mould in 1914 and Rs. 15 in 1921. The materials are all provided by the person who hires. That was for a 2 cubit image that took a month to make the mould. Smaller and larger moulds are paid for according to size. None of the other classes of workers have enough money to make images on their own account, but merely work for hire. The Firemen (class b) got Re. 1 in 1914 and now get Rs. 1-8-0. Their work takes only a single morning. The Founders (class c) got 12 annas in 1914 and Rs. 1-2-0 in 1921. Their work takes up less time than that of the Firemen but they can only do one image a morning. Both they and the Firemen know how to finish and file and polish images, and earn their living by that when not engaged for melting out wax or melting in brass. Finishers (class d) received Rs. 12 in 1914 for a two cubit image and Rs. 35 in 1921. The rate has not fallen yet. Larger or smaller images are paid for according to size. The person who engages the workmen provides the tools.

In 1914 a 2 cubit Buddha was purchased for Rs. 125 and in 1921 for Rs. 170. Other sized Buddhas were in proportion.

Large and small bells of the European shape (*kaunglaung* and *sweld*) and small round cattle bells (*chyu*) are made in the same way except that horse dung is not mixed with the fine alluvial clay for the core of the bells, but only paddy bran, as is mixed with the fine red clay for the outer mould of an image. Flat gongs (*kyesi*) in the shape of a circle are sometimes made but do not find a ready sale. As noted above the moulds for them and for triangular curved sided gongs (the usual *kyesi*) and for hollow gongs are made of wood, not of clay, and are used many times over.

Most of the bell (*kyesi* and *chyu*) makers are sufficiently well off to make their own bells, buying all requisite materials, and tools, and hiring firemen, founders and finishers. A few moulders have not the needed capital and work only for hire. They received in 1914 Re. 1 for a big bell (absorbing 10 viss of copper alloyed with 2.70 viss of lead) that takes about three days to make the mould of, and in 1921 Rs. 2. They do other work as well such as firing, founding, or finishing, concurrently. Firemen got 8 annas in 1914 and 12 annas in 1921 for the same sized bell. Founders got 12 annas in 1914 and Rs. 1-2-0 in 1921 for the same sized bell. Finishers got 8 annas in 1914 and one rupee in 1921. If he worked diligently and steadily a man could finish such a bell in one day. Larger bells are paid for in proportion. For small bells the following rates are paid. Sculptors get now Rs. 3-8-0 for making 100 moulds of which they complete 20 to 25 in a day. For these small bells the founders do the firing as well. They got Rs. 1-2-0 in 1914 and Rs. 2-8-0 in 1921 per 100 bells, of which they get through about 50 in a day. Finishers got 12 annas in 1914 and Rs. 1-8-0 in 1921 per 100-bells of which they can finish 50 in a day. Big bells (*kaunglaung*) are sold by weight and are of three qualities. The best are made of copper and lead, the medium are made out of old trays and old pieces of brass bought in the town with a small admixture of copper and lead to improve the appearance and sound, while the third quality are made of odds and ends of brass bought up in the town without the addition of any copper, though lead is added.

A 10 viss bell realized:—

	1914.			1921.		
	Rs.	A.	P.	Rs.	A.	P.
Inferior quality	22	8	0	35	0	0
Medium quality	35	0	0	40	0	0
Best quality	40	0	0	50	0	0

Small bells sell by the 100 and are all of the same quality. They realized per 100 Rs. 22-8-0 in 1914 and Rs. 20 in 1921. The demand has fallen off since the war begun. The making of flat gongs (*kyesi*) is paid for by weight. Each workman is given 5 viss of alloy and does all the required operations to produce *kyesi* large or small, round or triangular, as may be required. For turning out *kyesi* from that 5 viss of alloy the maker is paid Rs. 1-4-0; the rate has not changed since the war begun. He works up the 5 in about a day.

*Kyese*, round or triangular, large or small, used to be sold before the war at Rs. 2-8-0 per viss, and now are sold at Rs. 4 per viss.

The practice with round cattle bells (*chyu*) is different. The maker engages a man to make moulds, cores, and wax medium, all complete, for Rs. 3-8-0 per 100 *chyu* 3 inches or

4 inches or 5 inches in circumference which take him about four days. For *chyu* 6 inches in circumference the maker pays Rs. 4, as it takes the sculptor about eight days to make the 100 moulds. The firing and the founding is done by the maker himself, who is the owner of the house where the work is done. Then he engages a man to do the finishing at one anna a *chyu* 3, 4 or 5 inches in circumference of which he finishes 10 a day. For finishing 6 inch *chyu* of which the workman finishes 8 a day, the maker pays  $1\frac{1}{2}$  annas a *chyu*.

*Chyu* are now sold at Rs. 5-8-0 for 10 of 3 inch circumference, Rs. 7-8-0 for 10 of 4 inch circumference, Rs. 9 for 10 of 5 inch circumference, and Rs. 12-8-0 for 10 of 6 inch circumference.

Gongs of the well known hollow type are made differently. First a round flat disc of the required size and thickness is cast in a wooden mould. The disc is then brought to a red heat and beaten out into the required shape with a heavy hammer. Each forge is occupied by three men including the master. The most popular size of gong, of which the largest number is made, takes  $12\frac{1}{2}$  ticals of metal. Numbers of these are sold at pagoda festivals. It is about 20 inches in diameter and the three men can make 20 of them in a day. The deep toned gong about 20 inches in diameter requires more than three men to make, and takes a deal of time and labour. One gong, about 22 inches in diameter, one of a number ordered by the King of Siam, of which I watched the making for some time, was being hammered by three men, each of whom struck one blow in turn, while a fourth held and slightly turned at each blow the red hot mass with a long pair of pincers, and a fifth worked the bellows. The heat of the red hot gong is so intense, and they have to go so near it when hammering that the men have to run water over their shins and knees every time the gong is about to be lifted off the fire to save themselves from being scorched. Only nine blows were struck, one by each man in turn three times round the group, when the gong was considered to have cooled too much, and was put back into the furnace again. In a minute or two it was again red hot and again brought down to be hammered. Progress seemed to be extremely slow, only a slight impression being made on some 8 inches or so of the surface at each hammering. When the work is nearing completion the gong is not brought to a red heat, but is hammered nearly cold, and is hung up and struck from time to time to test its sound. When it gives out a good tone the hammering ceases, and the gong is complete. No finishing is needed.

In the gong industry the master worker is never the owner of the business. In all cases the owner provides material and wages and any other expenses there may be. The master and two workmen hammer, lift, blow bellows, and so forth in turn. They turn out 20 small gongs a day between them, but divide up the wages they receive on the completion of 60 gongs for which they received Rs. 7-8-0 in 1914, and now receive Rs. 10. Of this sum the master no doubt gets a somewhat larger share than the workmen although they say that they share alike. Larger gongs are only made to order for special occasions, like exhibitions, and for them special rates are paid.

Small gongs weighing  $12\frac{1}{2}$  ticals used to be sold for 10 annas each, and are now sold for one rupee. Large gongs have increased in price too, but there are no regular rates.

#### GOLD LEAF INDUSTRY.

This is a very old Burmese industry. Its centres are Hemamala or Myetpayat quarter and Kemmendine, Rangoon. During the days of the Burmese kings it was a source of great income, Myetpayat alone contributing over Rs. 80,000 annually to the royal treasury, by a tax of Rs. 7-8-0 on each "packet" of gold leaf. In return for this the king had the whole quarter fenced off by a wooden palisade from other less fortunate quarters. The price of gold has risen a good deal during the last twenty years. While it used to cost Rs. 27 to Rs. 30 per tical twenty years ago, and Rs. 30 to Rs. 35 ten years ago, it costs from Rs. 35 to Rs. 50 per tical in 1921. The highest price paid per tical in that year was Rs. 49-8-0. The rise in price seems to have stopped now. A packet of beaten out gold leaf takes  $\frac{1}{75}$  tical of gold. But as it is impossible to beat out properly so small a quantity, the least that a *saya* or *Tazathè* requires to start with is one and a half ticals. This the *Tazathè* hands over to the stretcher (တူတူတူတူ) who melts the gold and makes a little stick a quarter of an inch wide one-tenth of an inch thick and 6 inches long. This is heated and put into a stretching machine and the process repeated, until it becomes about  $4\frac{1}{2}$  feet long. It is then beaten and stretched by hand until its length is 12 feet and its width 60 inches. After this is done the *Tazathè* cuts it into small pieces and places 400 of them between 400 sheets of  $3'' \times 3''$  paper called တူတူတူ, a strip of gold and a piece of paper alternately, and hands the packet over to the beater. This packet the latter places in two wrappers of deer-skin, one skin wrapping the packet at right angles to the other so that the two cover the packet of gold and paper completely, with two thicknesses of deer-skin on the flat sides where the blows of the hammer will fall and one thickness over the edges. The packet thus protected and wrapped he beats with a hammer weighing  $2\frac{1}{2}$  viss for about half an hour when the pieces of gold spread to six times their former superficial area. These are cut into six small bits and placed in a set of paper (1,200 sheets) called (တူတူတူ). Before this is hammered again about ten more sheets of paper (တူတူတူ) are placed on each side of the packet and it is replaced in the deer-skin wrappings. It is then hammered for two hours. After this the gold leaves are placed in a set of 900 sheets of  $6'' \times 6''$  paper two or two and a half gold leaves each on every leaf of paper according to the size of the gold leaves. About 30 sheets of paper (တူတူတူ) are placed on the

top and bottom and a deer-skin wrapped round the packet. The whole is then covered with two deer-skin wrappers as before, but these wrappers are larger than the earlier ones.

This set is hammered by a new pair of men for about three hours. After this the gold leaves are cut and placed between sheets of a kind of paper called (ငဝ်းဝဲ) thus one sheet (ငဝ်းဝဲ) one gold leaf and then one sheet (ရှေ့ငဝ်းဝဲ) and put away. When they are to be sold the gold leaves are put on (ရှေ့ငဝ်းဝဲ) cut in the size required. This is done by women called "preparers" engaged by the Master in a place fitted with glass windows to prevent the gold leaves from being blown away.

The prices of the various articles used in this industry have risen, as also have the wages of stretchers, beaters, preparers, etc. One set (900 sheets) of 6" x 6" paper costing Rs. 25 ten years ago now costs from Rs. 100 to Rs. 200. Stretching charges ten years ago were Rs. 1-8-0 per ten ticals. Now they have risen to Rs. 3. For hammering ten packets of (ဝဲ) a man then getting Rs. 3 now gets Rs. 5. A gold beater getting Rs. 9 for ten packets of 6" x 6" paper now gets Rs. 15 for the same number. In 1911 a girl or woman had to prepare (ရှေ့ငဝ်းဝဲ) 24 sets or saings of 2 inch square gold leaves or 16 saings of 3 inch square for one rupee. Now she will only prepare half the number for the same amount. The first beating or ဘေ့ထင်သည် is as before done free of charge.

The following comparisons in costs of production, wages, etc., are worthy of note :—

For ten packets of Gold.

1911.		1921.	
	Rs. A. P.	Rs. A. P.	Rs. A. P.
Gold, 7½ ticals at Rs. 32-8-0	243 12 0	At 42 0 0	315 0 0
Stretching, at Rs. 1-8-0 per ten ticals	1 8 0	" 3 0 0	2 4 0
Preparing for second beating ဝဲထင်, at annas 2 per packet	1 4 0	" 0 4 0	2 8 0
Second beating, ဝဲထင်, at annas 4 per packet	2 8 0	" 0 8 0	5 0 0
Chalking, 6" x 6" paper ငြေ့ငြိမ်း, at anna 1 per packet	0 10 0	" 0 2 0	1 4 0
Putting gold on 6" x 6" paper ရှေ့ငဝ်းဝဲ, at annas 4 per packet	2 8 0	" 0 8 0	5 0 0
Third beating, ရှေ့ငဝ်းဝဲ, at rupee 1 per packet	10 0 0	" 1 8 0	15 0 0
Divide gold leaves in halves, ရှေ့ငဝ်းဝဲ, at annas 4 per packet	2 8 0	" 0 8 0	5 0 0
Putting gold leaves on ရှေ့ငဝ်းဝဲ paper, at anna 1 per saing	5 10 0	" 0 2 0	11 4 0
[or "book" of 99 leaves. There are 9 such "books" in each packet ရှေ့ငဝ်းဝဲ or 90 in 7½ ticals (10 packets)].			
Formerly these charges were not included in calculations by Tazathès. About 625 ticals of gold dust is usually obtained from the place where the gold is being beaten and the value of this just about covered the cost of these 4 items.		ဝဲထင် paper 500 sheets. 1 8 0 Shwelaung paper, 200 sheets. 2 8 0 Cutting about at annas 8 per 100 sheets. 1 0 0 Miscellaneous expenses at Rs. 5 per packet. 50 0 0	
<b>Total</b>	<b>269 14 0</b>		<b>417 4 0</b>

One set of 900 sheets of 6" x 6" paper ရှေ့ငဝ်းဝဲ costing from Rs. 100 to Rs. 200 only lasts for about 50 to 70 beatings. This is included in the miscellaneous expenses.

The amount of gold leaf in a "packet" ရှေ့ငဝ်းဝဲ is 75 of a tical. By beating out 75 of a tical 9 "saings" of 99 leaves of gold 3 inches square are obtained as a rule. But whatever the number of gold leaves obtained from beating out 75 of a tical (the results vary from about 8 to about 10 "saings"), that amount is called a "packet" or ရှေ့ငဝ်းဝဲ. The price at which gold leaf is retailed to the public was Rs. 42-8-0 per ten saings before the war; it is now Rs. 50 per ten saings, so that a Tazathès (master's) profits then were approximately Rs. 100 on 90 saings or about Rs. 50 more than he is getting now, thus.

1911.		1921.	
	Rs. A. P.	Rs. A. P.	Rs. A. P.
Ninety saings at Rs. 42-8-0 per ten	382 8 0	At 50 0 0 p. ten	450 0 0
Cost of production	269 14 0	"	417 4 0
<b>Profit</b>	<b>112 10 0</b>		
		Add value of 625 gold dust.	38 12 0
		<b>Total</b>	<b>59 0 0</b>

There are *sayas* in the gold beating branch of the industry. The "saya" supplies the deer-skin wrappings, hammers, and other accessories and superintends the beatings. The wages earned are divided equally between him and his pupils. In addition to this he deducts about one anna in the rupee for the use of his properties. The wages, with the exception of the cutting of Shwelaung paper which remains the same, and beating of 5" x 6" paper which has risen by 50 per cent., have risen by 100 per cent. in every other branch of this industry during the last ten years. In spite of these rises the people are not as well off as they were before. The causes to which this may be attributed are (i) rise in cost of living; (2) general slump in trade with consequent lack of work for men and women. About 50 per cent. of the wage-earners are in debt. Owing to the general slackness in trade most of the Tazathes were unable to give work to the various people connected with this industry for the last five months of 1921. Things are now looking up again. At present there is no combination among the people engaged in this industry and there are no unions or guilds. Among the gold beaters however there is a certain amount of co-operation. A couple of years ago a Tazathe took proceedings against a gold beater for not producing enough gold leaves and he lost the case. The outcome of this was that the gold beaters called together a meeting and issued notices to Tazathes to the effect that they cannot be held responsible for failing to produce a given quantity of gold leaf from the gold beaten.

#### 14. EVENTURINE MANUFACTURE.

Beads, etc., of eventurine are made almost entirely of ordinary broken glass. The glass is chipped into small pieces and is placed in an oven in open crucibles made of small broken pieces of earthenware. It is heated for about thirty minutes and then stretched into small sticks about  $\frac{1}{4}$  the diameter of an ordinary lead pencil. These sticks are broken up again to make buttons, beads, or the like, and are placed as before in the oven together with other pieces of chipped glass of various colours according to the colour and design that is finally wanted. Sometimes small chips of mahaya (chalcedony) are added for colour effect. The whole is heated until the chips in each crucible coalesce. Each mass is then moulded into the required shape, being taken out of the oven for a few seconds to be moulded and put back till it softens again, and so on. When it has assumed its final shape, it is taken out and allowed to cool. The beads, or whatever they are, are then polished like precious stones on a polishing wheel.

At present only medallions, beads, buttons, small crosses, and small chunam (lime) boxes, are made. The medallions are mounted in gold rims to hang as a charm on a watch chain, or on a chain round a child's neck; so are the small crosses. The beads have a hole drilled through them (with a diamond drill) after they are cold and hard, and are threaded to form necklaces. Some have facets cut on them on the polishing stone, while others are polished as spheres; in fact they can be cut into any shape just as a precious stone can. The buttons have a small gold loop attached to them by means of a curved hole drilled through. With this loop they are fastened to the garment later on by an ordinary catch.

By using moulds other articles such as powder boxes, ink stands and the like could be made.

#### 15. SHOE MAKING.

There are four main kinds of Burmese footwear.

(i) The "*peindan*," so called because they were made only in the Peindan quarter of Mandalay in Burmese times. They are made of a raw hide sole covered with velvet, with straps for the toes of good coarse canvas covered with velvet. Strips of palm leaf are often stitched between the raw hide sole and the velvet cover to soften the tread. *Peindan* sandals for the royalty were often made in bygone days of a foundation of palm leaves stitched together (no raw hide sole) to form a sole about  $\frac{1}{4}$  of an inch thick, covered all over (below as well as above) with velvet. These gave a still softer tread.



The price of velvet before the war was Rs. 12 for five yards and a pair of *peindan* sandals could be made for Rs. 1 to Rs. 1-8-0 and sold for Rs. 1-2-0 to Rs. 2, according to size and quality. During the last four or five years the price of velvet has risen to Rs. 19 to Rs. 25 for five yards according to quality. So a pair of *peindan* sandals have lately cost Rs. 1-8-0 to Rs. 1-12-0 to make and have been sold at Rs. 2 to Rs. 2-4-0. A workman can make five pairs of *peindan* sandals a day and earn Rs. 1-12-0, or if the

demand is brisk may sometimes finish six of them in a day and earn Rs. 2. He makes other kinds of shoes and sandals also in their seasons and earns about the same when making those other kinds.

Now-a-days the covering is often made of serge, and the cost is about the same as when velvet is used. Since the national movement commenced and the coarse reddish yellow homespun cotton cloth known as '*pinni*' became a symbol of nationalism '*pinni*' has often been used instead of velvet as a covering for *peindan* sandals. These cost less to make and are sold at cheaper rates.

- (ii) "*Bombaing-ye*" (literally "Bombay leather") sandals are made of Indian tanned leather, with a velvet or serge cover only on the outer side of the leather toe straps. They are usually somewhat broader than "*peindan*." Before the war leather was cheap and a pair could be sold for Rs. 1-8-0 or less. The present cost of leather and velvet has raised the price of these to not less than Rs. 2. The *bombaing-ye* sandal can be used at any time of year.



Top view of Shedo Slipper.



- (iii) The "*Shedo*" ("thrust forward") slipper is made of a tanned leather sole with a velvet toe cap. Different kinds are sold at different rates varying from Rs. 1-12-0 to Rs. 2-8-0 a pair. A man can finish about three pairs a day, earning eight annas per pair, while a woman can finish five pairs in two days.



- (iv) Wooden clogs (*khon phanat*), are used only in the rains. There are many kinds but prices do not differ much, except that those of which the toe straps are covered with velvet cost more.

Clogs. Toe strap.



English pattern boots and shoes were unknown in Burma before the advent of Europeans, but are now frequently used in large up-to-date towns by men (not by women).

#### 16. GOLDSMITHS AND SILVERSMITHS.

Most people like to adorn themselves with jewellery and in every town there is at least one goldsmith. Many villages have one. Some goldsmiths (and silversmiths) tour round from village to village. The industry is not seasonal or subsidiary, but takes a man's whole time. The instruments are mostly obtained from Europe. The workshop is usually the ground-floor of the goldsmith's residence. Scraps and particles of gold fall on the ground which is sold at the end of a year to a gold dredger or collector who pays, according to the amount of work done in the year, a price rising to Rs. 200 or at times to even Rs. 500. The Master Goldsmith usually employs assistants whose wages vary considerably according to their skill. The average is about Rs. 2 a day of 11 hours from 6 a.m. to 5 p.m. Wages are only paid for finished articles. The master supplies materials, instruments and other requisites and takes a commission from his assistants. When the demand is brisk the more assistants he has the larger his turnover and profits. The master himself works also. The price of the gold strewn ground is his alone. Apprentices often earn nothing but their board. They take about a year to learn, by which time they acquire moderate skill and can earn about a rupee a day.

Burmese goldsmiths seldom keep ready-made jewellery in stock, but make articles to order, for which the charges vary according to the workmanship. The charges for gold rings vary from one rupee for making a plain one to Rs. 30 for one set with diamonds or other precious stones. A pair of plain gold bangles may cost from Rs. 5 to Rs. 20 to make according to size and complexity of design. A pair of bangles set with diamonds or other precious stones may cost from Rs. 30 to Rs. 125 to make. Modern European designs are now often imitated. The wages for making gold chains, necklaces or watch chains range from Rs. 7 to Rs. 100 according to size, design, and number of precious stones.

The number and importance of silversmiths grew with the spread of civilisation and the growth of the desire to possess ornaments, cups and vessels of silver. Their earnings varied with their skill. The making of a set of silver cups or bowls weighing from 10 to 30 ticals cost from eight annas a tical for a simple design to one rupee for an elaborate design. Similar rates were earned for various designs of trays and other articles. Few silversmiths keep articles in stock, but make to order. Most of the above description of the work and earnings of goldsmiths applies to silversmiths. But with the increasing use of gold ornaments, instead of silver anklets and ornaments, and the growing use of European bowls, instead of silver bowls, the number of silversmiths has declined. Goldsmiths sometimes work in silver also but silversmiths cannot work in gold. Silver work is rougher and gold work is too delicate for silversmiths to do successfully.