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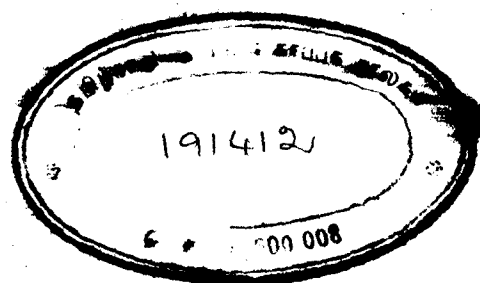
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Temperatures in India

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LYING straddled across the Tropic of Cancer, India is essentially a warm country. Nevertheless, a large portion of the country becomes quite hot during the Northern Hemisphere summer, while during winter the temperatures become lower to some extent over the entire country, becoming very cold over the thousand miles long ranges of the Himalayas to the north and the north

east, where considerable snowfall occurs during this season.

If we imagine a straight line drawn through Phalodi in Rajasthan to Visakhapatnam on the Bay of Bengal coast and take some ten places lying approximately on this line and examine the temperatures recorded at these places the results would be somewhat as shown in Table 1.

TABLE 1

June and December Temperatures

Station	Altitude in Metres	June			December		
		Mean* oC	Daily Range oC	Mean** Re- duced to Sea Level	Mean* oC	Daily Range oC	Mean** Re- duced to Sea Level oC
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Phalodi	234	35.0	12.7	35.9	16.5	15.5	17.4
Jodhpur	224	33.8	11.9	34.7	18.4	16.1	19.3
Neemuch	496	30.7	11.5	32.7	18.2	16.2	20.2
Bhopal	501	30.4	11.1	32.5	18.4	16.5	20.5
Hoshangabad	302	31.7	10.6	32.9	19.9	14.6	21.1
Panchmari	1,075	26.3	8.9	—	15.5	14.3	—
Nagpur	312	31.4	12.1	32.7	21.0	13.7	22.3
Brahmapuri	229	33.5	12.6	34.4	22.3	14.7	23.2
Jagdalpur	553	28.3	9.7	30.6	18.6	16.3	20.8
Visakhapatnam	38	30.0	6.1	30.2	23.7	7.2	23.8

* (Max. + Min. + T₀₃ + T₁₂)/4

** Correction applied 1°C for each 205 m.

June Temperatures

It will be seen from Table 1 that during the month of June the mean temperatures at these places lie in the range of 30°—35°C. The only exception is Panchmari where the mean temperature is 26.3°C. The elevation of Panchmari is 1,075 m above sea level. Also Jagdalpur which is 553 m above sea level shows a mean temperature which is nearly 2°C below this range. A closer examination will show that differences in the elevation of the places cause, at least in part, deviation in the regular sequence of temperature along our imaginary straight line. In order to remove the factor of different elevations, if we reduce the temperatures to the mean sea level by using the approximate relation 1°C=250 metres height we obtain the figures shown in column 5 of Table 1. The above relation is very approximate hence it is not used for reducing temperatures of stations whose elevation is 900 metres or above. The reduced mean sea level temperatures along this straight line are nearly the same except a noticeable rise at one end and a fall at the other end. One infers from this that during June which is a representative month of the summer conditions, the same hot air envelopes a considerable portion of the country.

In the fourth column the daily ranges of temperatures are given which show that during the course of the day, the temperatures vary through the same limits at all these places except coastal stations and the high level stations where the range is smaller.

December Temperatures

During the month of December the temperatures are lower by more than 10°C (Table 1, col. 6 & 8). Further, during this month there is a noticeable rise of the mean temperatures as we travel from Rajasthan towards Andhra Pradesh which is opposite of what

was seen during the month of June. Here too we notice the exception of Panchmari and to a lesser extent for Jagdalpur. The gradient of the temperatures is more clearly shown by the mean temperatures reduced to the mean sea level. The daily range of temperatures during December is a few degrees higher than during June.

Highest Temperatures

The highest temperature recorded in India seems to be 50.0°C, touched at Shri-ganganagar in Rajasthan on 14-6-1934. A close second is 49.4°C recorded at Bikaner, also in Rajasthan, on 28-5-1914. The temperature can at times rise quite high even further east, for example, Sambalpur in Orissa experienced a maximum temperature of 47.2°C on 27-5-1892. Along the West Coast the highest maximum temperatures appear to be lower, Mangalore shows 37.8°C recorded on 28 February 1920, the highest recorded at this place during May being 1°C lower. Map 1 shows the highest maximum temperature recorded along with the date of occurrence at a few representative places; the temperatures examined were for period 1891-1957.

During more oppressive spells in the summer the minimum temperature during the course of a day is also found to be quite high. An examination of the minimum temperatures at a number of places for a period (1933—1945) shows that at Barmer (Rajasthan) the highest minimum temperature of a day was 36.7°C during the month of May. The same highest minimum temperature was recorded at Kanpur (U.P.) during the month of June. The physical meaning is that the air at these places never cooled below 36.7°C during the course of 24 hours on these occasions. Table 2 gives the highest minimum temperatures recorded at a few places.

TEMPERATURES IN INDIA

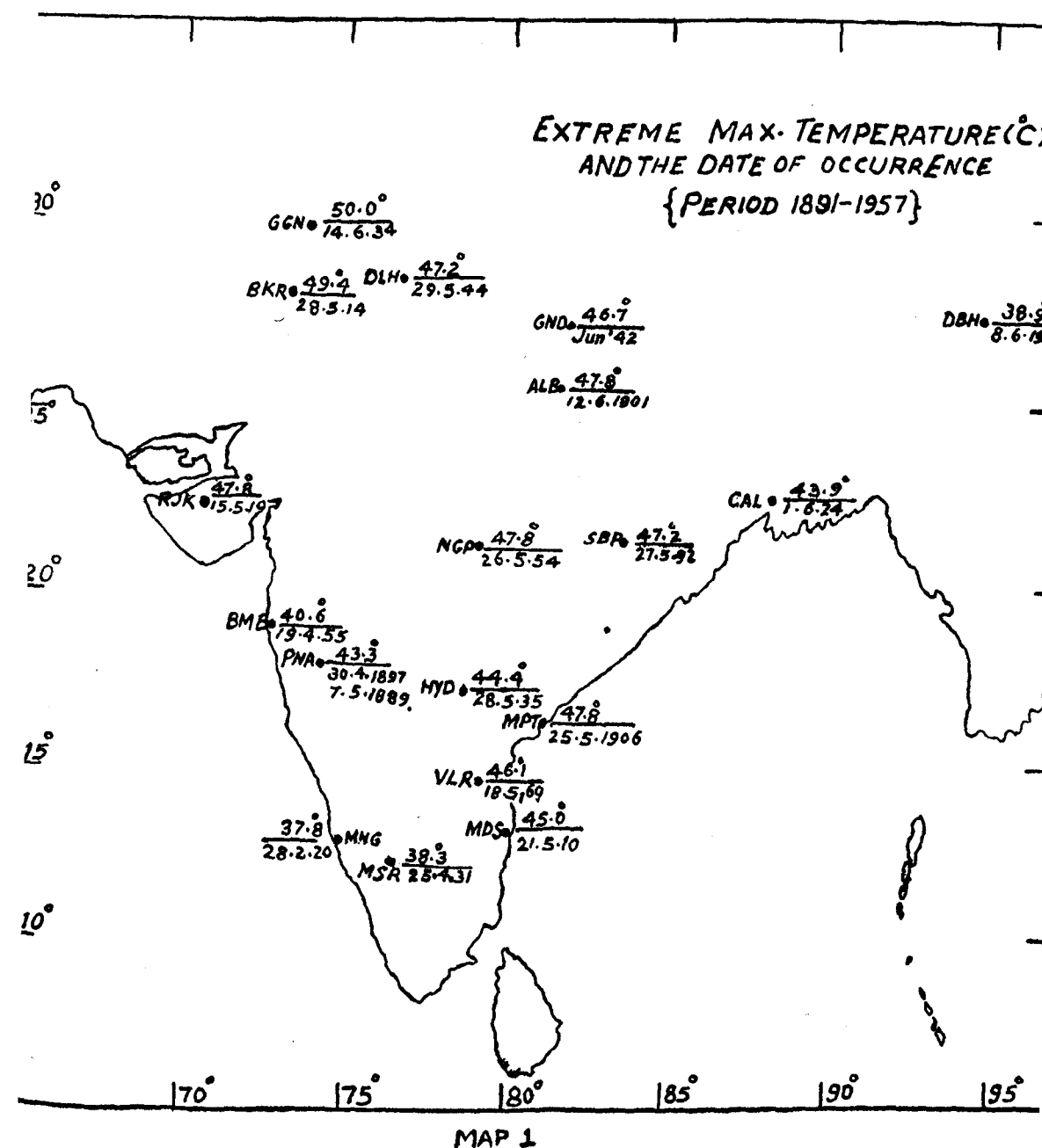


TABLE 2

Highest Minimum Temperature
(Recorded during period 1933—1945)

Station	May °C	June °C
Agra	34.4	36.1
Barmer	36.7	33.3
Bikaner	35.0	34.4
Cuddappa	32.8	32.2
Jhansi	35.6	36.1
Kanpur	35.6	36.7
Madras	31.7	30.6
Nagpur	33.9	33.9
New Delhi	34.4	36.1
Nellore	32.8	33.9
Rentichintala	34.4	35.0

In some years the summer is more severe than usual. For example, recently during 1958 the temperatures over several States reached record values for those areas. In Table 3, the highest maximum temperatures recorded at various places in the different States are shown.

TABLE 3

Highest Maximum Temperatures in 1958

Station	1958 May °C	June °C
<i>West Bengal</i>		
Krishnagar	46.1	—
Suri	46.1	45.4
<i>Orissa</i>		
Baripada	46.9	47.8
<i>Bihar</i>		
Gaya	46.1	46.1
Dehri	—	46.1
Chaibasa	45.0	46.1
<i>Uttar Pradesh</i>		
Gonda	49.9	—
Bahraich	—	46.7
Mainpuri	47.3	47.3

Station	1958	
	May °C	June °C
<i>Punjab</i>		
Hissar	44.7	47.4
<i>Rajasthan</i>		
Dholpur	46.2	46.0
Shriganganagar	48.1	47.1
<i>Madhya Pradesh</i>		
Nowgong	46.7	45.6
Chanda	46.3	—
Sutna	—	45.6
Nagpur	46.7	45.8
Gwalior	—	45.9
Shespurkalan	47.7	—
<i>Andhra Pradesh</i>		
Ramagunda	45.3	—
Badrachalam Road	—	48.6

It will be seen from these figures that the hot-spell was quite extensive. Such spells of varying intensity and extension occur every few years and are caused by a combination of special meteorological situations.

Lowest Temperatures

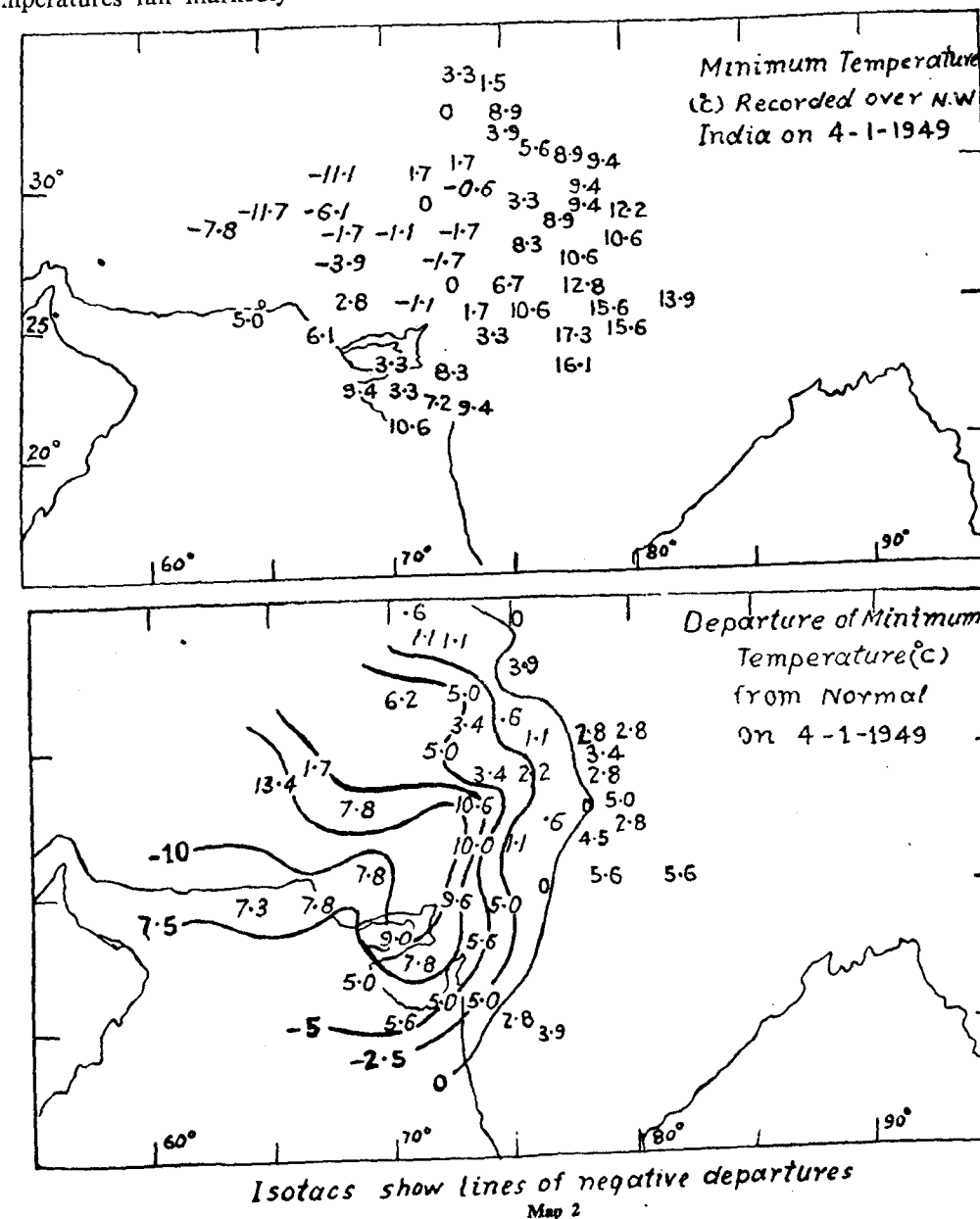
In columns 6 and 8 of Table 1 are shown the mean temperatures during December. These lie in the range of 16° to 20°C. This is also the approximate range of winter mean temperatures in plain stations throughout the country.

However, during winter every year there are a number of spells of cold weather when the temperatures go down markedly. The minimum temperatures are known to have gone below zero in Rajasthan, Gujarat and Delhi. Bikaner recorded -2.8°C on four occasions, Shriganganagar recorded -2.8°C on 11-2-1950, Rajkot recorded -0.6°C on 16-1-1935 while for Delhi we find -0.6°C on the same day (16-1-1935). The lowest minimum temperature on record at Dibrugarh in northeast Assam is 4.4°C on 13-2-1905. In coastal areas the lowest minimum temperature lies in the range $14-16^{\circ}\text{C}$.

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It is believed that these cold waves, as they are called, are associated with the incursion of intensely cold-air mass from across the mountains to the northwest.

As this air mass spreads over India from that northwest towards east and south, the temperatures fall markedly with the arrival of the cold air. Map 2 is an interesting example in illustration of this point. It shows the minimum temperature recorded on 4-1-1949 at several stations in Northwest India as well as the departure of this temperature from the normal. The isoline drawn clearly demarcates the cold



air mass. However, this cold air is soon heated up to the normal temperature in Indian area by solar radiation. The minimum temperature recorded at Jodhpur on this date (4-1-1949) was 0°C having fallen by 19°C overnight. The radio-sonde observation on the 3rd evening revealed that the temperature at 3 km above ground level was -2.8°C. However, on the 5th the minimum temperature was 3.9°C and it rose to 9.4°C by the 7th January. Other examples of such cold waves can be found in the records for earlier and later years. Temperatures below freezing are experienced more frequently over the mountains even at the inhabited places.

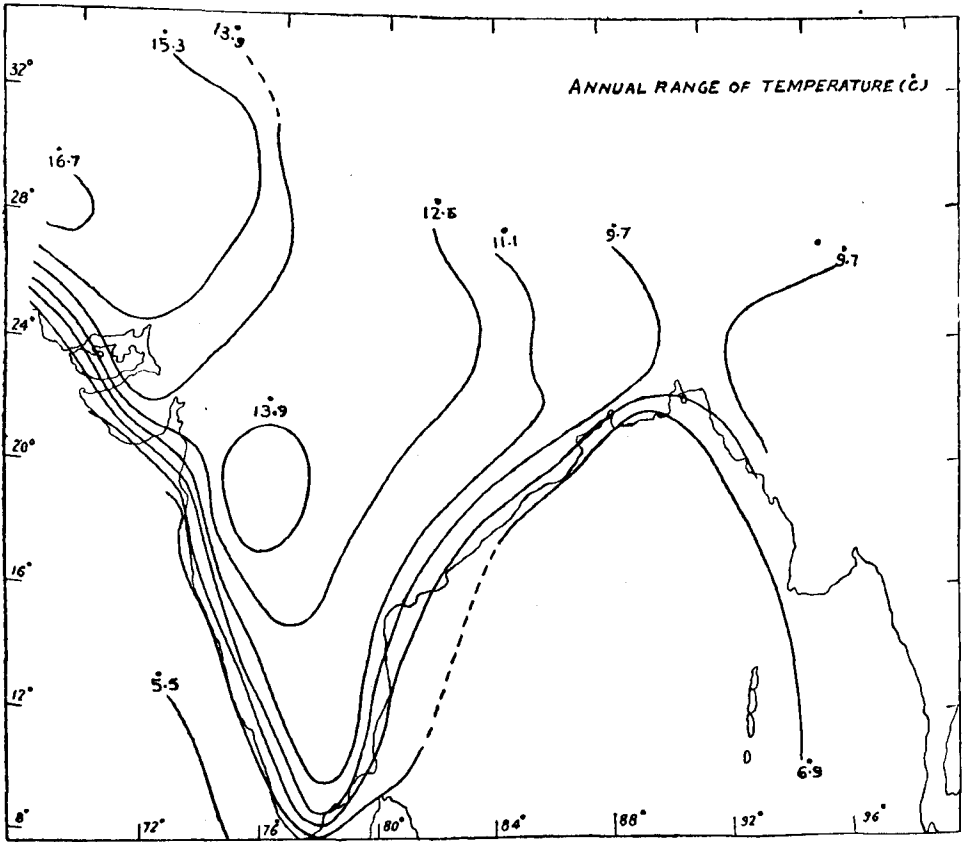
Annual Range of Temperatures

Map 3 shows the annual range of temperatures over India. The annual range is

defined as the difference between the mean maximum and the mean minimum temperatures. Punjab, West Uttar Pradesh and Gujerat have a range of 14°C. There is a decrease towards the east and south. Bihar, Bengal and Assam show a range of 10-11 °C. In the Peninsular India the iso-range lines closely follow the shape of the Peninsula. Over the Deccan plateau the range is as high as 14 °C. It decreases to about 11 °C at some distance from the coast and is nearly 8 °C along the coast.

Diurnal Variation

The diurnal run of temperature at a place can be roughly represented by a sign curve with varying amplitudes. On clear sunny days followed by clear nights the amplitude is large whereas on an overcast day the amplitude becomes very small. The diurnal



MAP-3

TEMPERATURES IN INDIA

run of temperature at New Delhi during the months of May, June and December are separately represented in Fig. 1. These are based on eleven years' data of hourly temperatures recorded with a self-recording thermograph.

All these curves show a steep rise of temperature upto a few hours after sunrise. After sunset the temperatures begin to fall but more gradually. From the slope of these temperature curves at points 2 and 3 hours after sunrise the rates of increase of temperature per hour have been determined and are shown in Table 4. In a similar manner the rates of cooling 2 and 3 hours after sunset were determined.

TABLE 4
Rates of Change of Temperature
(°C per hour) at New Delhi.

Month	After Sunrise		After Sunset	
	2 hrs.	3 hrs.	2hrs.	3 hrs.
May	1.7	2.2	1.3	0.9
June	1.2	1.6	1.9	0.7
December ..	3.0	2.6	1.4	1.0

The figures for the rate of rise of temperatures show that during all these three months the air gets quickly heated up after the rising of the sun. While the rates of cooling of the air 2-3 hrs. after sunset, though perceptible, are much smaller. Also the rates of heating and cooling in December have higher values than the other two months. The higher rates of rise of temperature during December when the heating power of solar radiation is low is understood if we remember that part of this rise in temperature is due to the churning of the air during the process of wiping out of the winter ground inversion of temperature. Our awareness of temperature depends, among other things, on the

rate of change of temperatures. The explanation of this may perhaps be sought in the need for the continuous physiological readjustments needed in such a situation by the body. Also the high rate of change of temperature is responsible for the feeling of discomfort during the summer forenoon and the feeling of pleasant warmth in winter mornings.

It is now fairly well known that the feeling of comfort or otherwise depends on the temperature, the moisture content as well as the movement of the air. Therefore, optimum comfort conditions will be determined not by the temperature or the rate of change of temperatures but by suitable combinations of the parameters representing the temperature, the moisture content of the air and its movement. The same remarks apply to the feeling of discomfort in sub-freezing temperature conditions.

October Heat

A study of the march of temperature through the year at a particular place is of considerable interest. In Fig. 2 the average temperatures at Poona for all the months of the year are plotted.

The temperature can be seen rising from month to month as the sun travels northwards till the temperature reaches the highest value in the month of May. But the intriguing feature of the curve is the second hump showing a secondary maximum temperature in the month of October. This feature is more pronounced in the case of a place to the south of the Tropic of Cancer. The second rise is associated with the approach of the sun overhead, this time from the north on its southwards journey. In this particular case the pronounced decrease in the cloud cover during October is also a contributory factor.

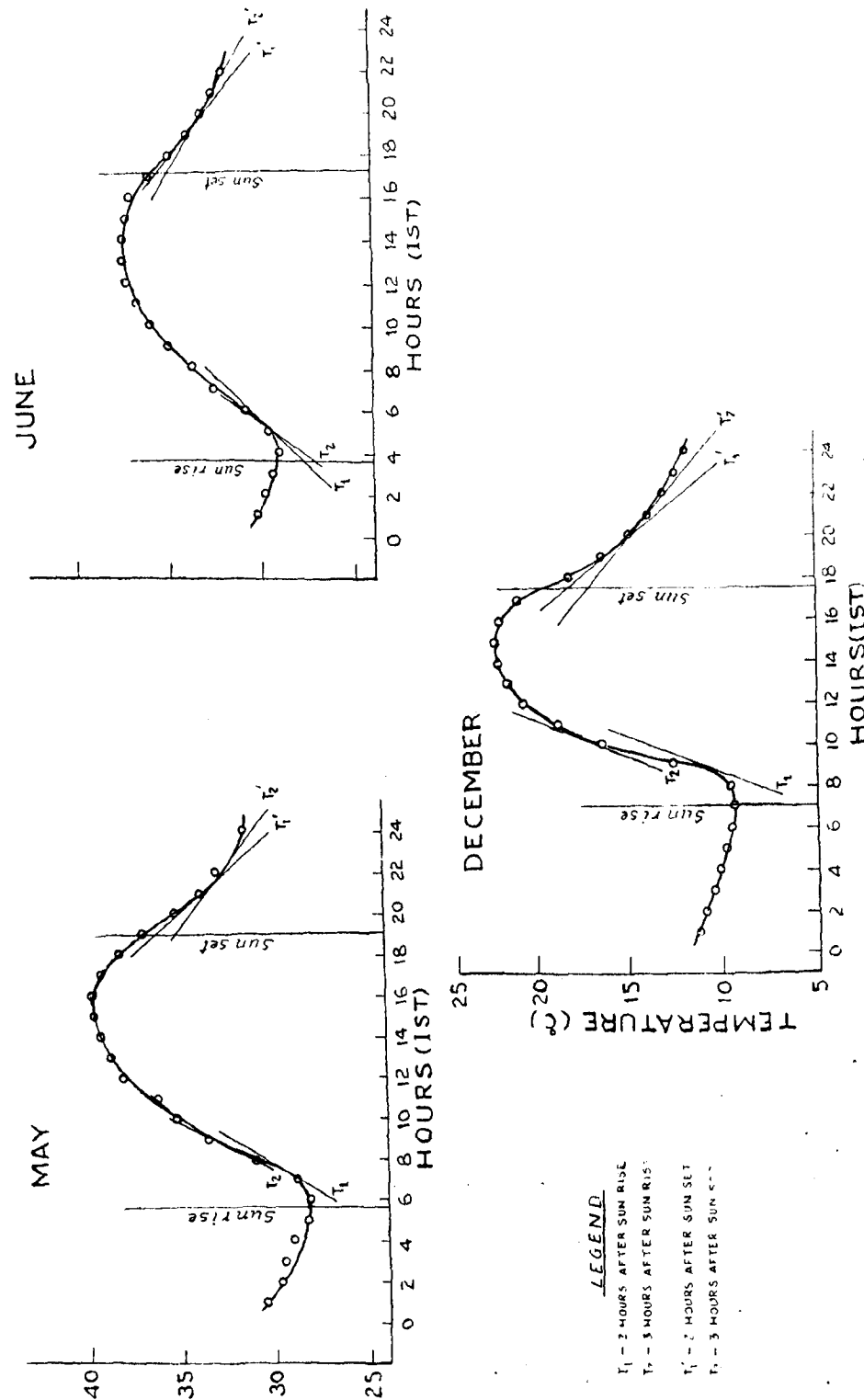
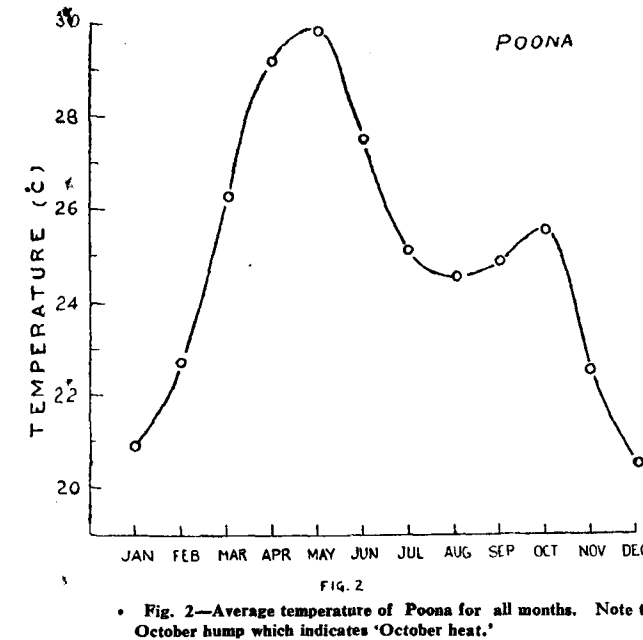


Fig. 1—Diurnal Variation of temperature at New Delhi during May, June and December.

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Is India Getting Hotter

A question often asked is : 'Is the temperature of the country rising during recent times?' Before attempting to answer this, it may be worthwhile to explain a basic point at some length. When we talk of the temperature at a place we refer to the ambient air temperature. When measuring this temperature one has to free carefully the observed value from all disturbing local influences, such as direct radiation, radiation from below or neighbouring bodies, excessive or insufficient flow of air past the temperature sensitive element etc. Therefore, temperatures recorded at a meteorological observatory are measured under very strictly specified conditions of exposure. These are faithfully reproduced at all the observatories for the sake of uniformity. Any deviation from these specifications would cause changes in the temperatures recorded at that observatory.



Height and Temperature

Attention was drawn earlier to the fact that there is a perceptible decrease in the temperature with an increase in the elevation of the place. As a matter of fact, during summer we can expect to find a larger decrease in temperature by a change of altitude by, say 1 or 1.5 km, than by a very large lateral displacement in any direction.

Fig. 3 depicts comparative figures of average temperatures each month at the pairs of stations Delhi-Simla, Lucknow-Nainital and Nagpur-Panchmari. It will be seen that there is a difference of more than 10 °C between the pairs of places, although the pairs of places are not far apart from one another. If a bird was to judiciously migrate from any one of the pairs to the other and back, it could fly throughout the whole year in air of more equitable temperature than either of the places as shown by the thick line on each of the three diagrams.

As a result of urbanization or artificial alteration of the local environments a significant change in the exposure of the meteorological instruments can be effected, in which case the records would show a significant change. This change should not be confused with the change implied in the context of climatic change of a country, a continent or the whole world. Climatic changes over geological time-scale are well established on the basis of evidence brought forward from different scientific disciplines. Difference of opinion exists regarding theories which try to explain these climatic changes. And the matter becomes still more controversial when we consider 'climatic changes' in recent times.

As far as change of temperatures is concerned, a number of investigators in various regions of the northern hemisphere are of the opinion that there is definite evidence of a slight warming of the air temperatures

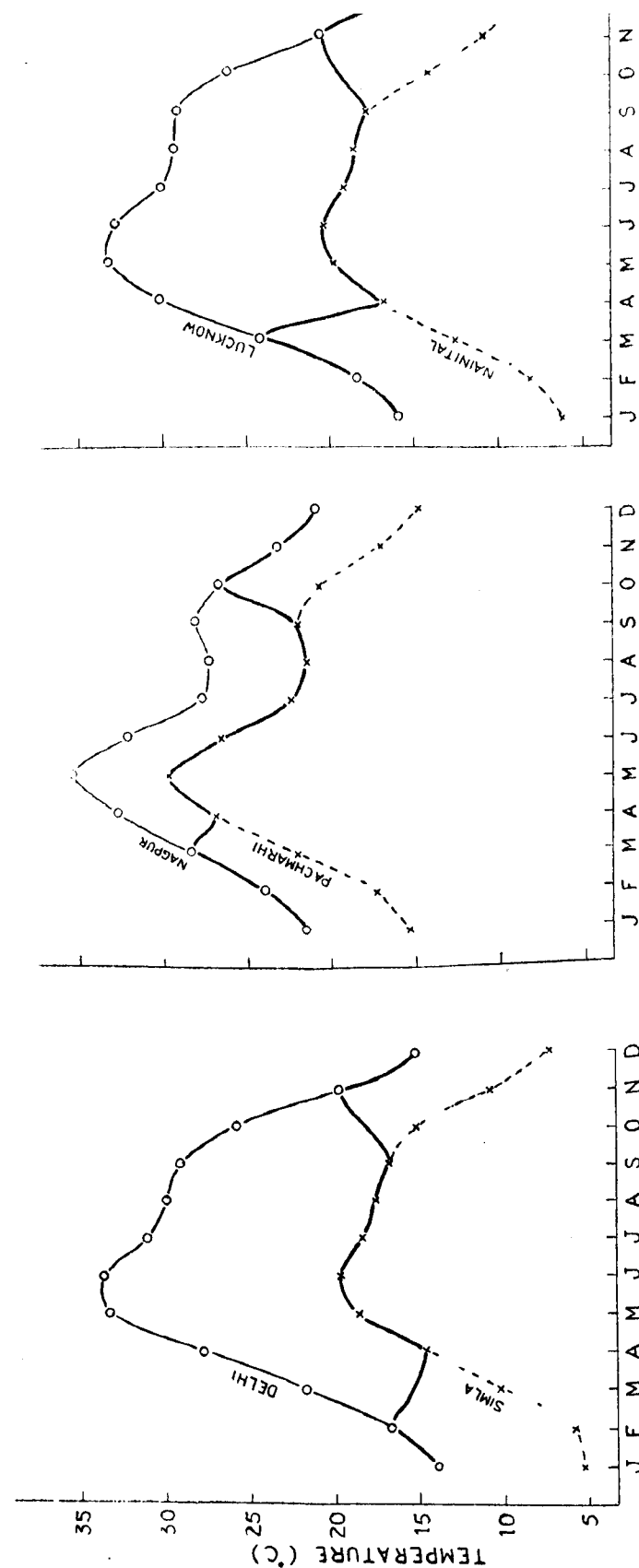


Fig. 3—Shows effect of height on temperature.

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and that the warming has been most pronounced in the higher latitudes. In a recent study with records of American stations, carefully chosen to eliminate the influences of urbanization and other local effects mentioned above, it has been established that the annual temperature changes show a noticeable zonal variation and the zones in the higher latitudes show larger changes. Stations in the zone north of 40° N latitude average a value +1.0° F (0.56° C) in zone 35°–40° N change is +0.7° F (0.39° C) and in zone south of 35° N change is +0.5° F (0.28° C).

A number of investigations have been undertaken in India also using temperature records over a large number of years and at a large number of stations well distributed to represent the different regions of the country, and fairly advanced methods of statistical analysis have been employed. The results obtained are that there is no general significant change of temperature over India in recent times. This does not contradict the findings of the other workers referred to in the previous paragraph when we take the latitudinal extension of India into consideration.

Magnitude of Change-over

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New Delhi

FROM 1 October 1960, the use of metric weights has become compulsory in certain areas already notified and in the more important industries. Each State and Union Territory has some area which has 'gone metric'. The areas range from large Divisions of many districts to small towns. It would be interesting to analyse State-wise and Union Territory-wise the proportion of the population which has now gone over legally to metric weights.

In industries, preference has been shown for those employing large labour force like the jute, textile and iron and steel industries or where the impact would be felt by the general public as in the case of

vanaspati, cement, woollen mills and the like. In view of the rapid industrialization of the country, an estimate of the labour force which has to deal in metric units may prove of help.

An analysis of these two aspects of the change-over would be useful in assessing the future demand for weights and in taking steps to correct any deficiencies that may arise, particularly as the entire country would go over to the compulsory use of metric weights from April 1962.

Population Changing Over

In Table 1 is given an analysis of the population changing over in various areas. The figures have been obtained from the

various reports dealing with the 1951 census and particularly *Census of India*, Paper No. 1, 1957, General Population Tables and Summary Figures by Districts of Reorganized States, 1951 Census. The population of India has increased since 1951 and according to some estimates, the urban population in general may have increased substantially. The exact figures of such increase could be analysed only when the results of the next census become available later this year. Till then, the data gathered now may serve to indicate the extent of population in each State and Union Territory using only metric weights.

The figures show that among the States, Bihar tops the list with slightly over 52 percent of the population being covered by the reform, while Andhra Pradesh with over 38 percent comes second. Punjab and Kerala vie for the third and fourth positions. Among the Union Territories, Delhi and Pondicherry with 100 percent top the list, while Himachal Pradesh with 43 percent comes next. Of the entire Indian population, some 22.1 percent have begun the change-over to the metric system from October 1960. The remaining 78 percent or so would have to change over before April 1962.

Industries Changing Over

In Table 2 are shown figures for the labour force changing over to the metric system from October 1960. The total labour force involved in the change-over is slightly over 40 percent of the total, although only about 15 industries are involved. These include major labour employing industries such as cotton textiles which account for about 20 percent of the labour force, as also jute and engineering industries which together account for some 10 percent of the total labour.

It has been somewhat difficult to collect the figures for the labour employed as the type of industry covered under a particular heading is often nebulous. For example, under engineering industries, one may include electrical machinery as well as other machinery. In the latter category come mechanical and general engineering industries, industrial machinery, tools, diesel engines, pumping sets, air compressors, automobiles and ancillaries etc. In the cotton textiles industry, not only are the textile mills concerned but also cotton ginning and pressing establishments to some extent. Every attempt has been made to collect the figures from various sources but it is possible that they may not fully cover the entire industry involved.

The labour figures are generally for the year 1958-59. Since then there may have been large variations in the labour position. A case in point is that of the iron and steel industry. With the partial commissioning of the three new steel mills, the labour force under iron and steel industry would have increased substantially. The figures given here may, however, serve as a pointer to the total labour force involved in the change-over. Here again from April 1962, all industries would have to change over to the new weights.

Future Demands

From an analysis of the table it is seen that nearly 80 percent of the population will have to be supplied with weights by April 1962. The experience gained in the pioneering change-over from October 1960 would be valuable in arranging the supply of weights to traders in the rest of the country.

It has been estimated that the requirements of weights by the trade and others for the October 1960 change-over was of

MAGNITUDE OF CHANGE-OVER

the order of 70 lakh pieces of weights. Assuming that the requirements for the April 1962 change-over would be proportional, the number of weights required additionally would be 280 lakhs. This means that within the next 15 months, a monthly average production of 19 to 20 lakh pieces of weights is necessary and the off-take of the weights produced has to be ensured by planning it judiciously. Similarly, the requirements of industries not only for weights, but for measures has to be satisfied.

There are now over 450 manufacturers of weights and many more are being licensed. A conservative estimate of the present production capacity available in the country is 15 lakh pieces per month. But this can be increased substantially if the demand for weights is steady and continuous. It would, therefore, be possible to supply the needs of India if the production is properly dovetailed. In other words, the demand for weights can be fully met by April 1962, if the existing capacity is in-

creased suitably by giving more licences to capable manufacturers and ensuring optimum production from the present licensees. It is clear that huge stocks of weights cannot be piled up by the manufacturers and dealers as most of the factories and shops have neither the physical nor the economic facilities.

The best solution, as recommended at the recent Conference of Controllers at Bhubaneswar, would be that without waiting for the last date *i.e.* April 1962 for effecting the change-over all the major towns, as also district and taluq headquarters or selected districts should change-over fully well before that date according to a planned programme. Through this process the areas which are left over for the final date would be comparatively small and their requirements could be met with ease. The success of the full adoption within the next 15 months depends on the smooth flow and offtake of weights. That is the crux of the problem.

TABLE 1
Population Using Metric Weights From October 1960

Sl. No.	State	District/City/Town	Population Covered	Population of State	Percentage Covered
(1)	(2)	(3)	(4)	(5)	(6)
(1)	Andhra Pradesh	 Dist.		3,12,60,133	
		Visakhapatnam	20,72,698		
		Krishna	17,79,484		
		Guntur	25,49,996		
		Kurnool	16,18,621		
		Hyderabad	15,96,750		
		Warangal	15,81,326		
		Nizamabad	8,33,611		
			1,20,32,486	3,12,60,133	38.49
(2)	Assam	 Town Gauhati	43,615	90,43,707	
		Dist. Nowgong	8,86,955		
			9,30,570	90,43,707	10.29

TABLE 1—contd.

Sl. No.	State	District/City/Town	Population Covered	Population of State	Percentage Covered
(1)	(2)	(3)	(4)	(5)	(6)
(3)	Bihar	Divisions Bhagalpur Chhotanagpur Municipal & Notified Areas in Divisions of Patna & Tirhut	1,04,33,717 85,44,259 12,45,893	3,87,83,778	
			2,02,23,869	3,87,83,778	52.15
(4)	Maharashtra	Towns		3,20,03,086	
		Bombay	28,39,270		
		Poona	4,80,982		
		Nagpur	4,49,099		
		Aurangabad	66,636		
		Sholapur	2,77,087		
		Kolhapur	1,36,835		
		Akola	89,606		
		Amravati	87,099		
		Wardha	39,827		
		Yeotmal	35,980		
			45,02,421	3,20,03,086	14.07
(5)	Gujarat	Towns		1,62,62,135	
		Ahmedabad	7,88,332		
		Rajkot	1,32,069		
		Baroda	2,11,407		
			11,31,808	1,62,62,135	6.96
(6)	Kerala	Dist.		1,35,49,118	
		Kozhikode	1,58,724		
		Ernakulam	15,44,486		
		Quilon	29,66,514		
			46,69,724	1,35,49,118	34.47
(7)	Madhya Pradesh	Dist.		2,60,71,637	
		Sehore	5,21,116		
		Indore	5,96,622		
		Gwalior	2,41,577		
		Jubbulpur	10,45,596		
			24,04,911	2,60,71,637	9.22
(8)	Madras	Dist.		2,99,74,936	
		Madras	14,16,056		
		Chingleput	18,53,619		
		South Arcot	27,76,767		
		North Arcot	28,59,157		
			89,05,599	2,99,74,936	29.71

TABLE 1—contd.

Sl. No.	State	District/City/Town	Population covered	Population of State	Percentage covered
(1)	(2)	(3)	(4)	(5)	(6)
(9)	Mysore	Dist.		1,94,01,193	
		Bangalore	21,27,061		
		Raichur	9,53,640		
		Dharwar	15,75,386		
			46,56,087	1,94,01,193	24
(10)	Orissa	Towns		1,46,45,946	
		Berhampur	62,343		
		Cuttack	1,02,505		
		Sambalpur	23,525		
			1,88,373	1,46,45,946	1.29
(11)	Punjab	Dist.		1,61,34,890	
		Amritsar	13,44,427		
		Jullundur	10,55,600		
		Ludhiana	8,08,105		
		Ambala	9,43,734		
		Patiala	5,24,269		
		Gurgaon	9,67,664		
			56,43,799	1,61,34,890	34.98
(12)	Rajasthan	Dist.		1,59,70,774	
		Ajmer	6,93,372		
		Bikaner	3,30,329		
		Jodhpur	6,91,786		
		Jaipur	16,56,097		
		Kotah	6,70,060		
		Udaipur	11,91,232		
			52,32,876	1,59,70,774	32.77
(13)	Uttar Pradesh	Towns		6,32,15,742	
		Meerut	1,58,407		
		Agra	3,33,530		
		Lucknow	4,44,711		
		Bareilly	1,94,679		
		Moradabad	1,54,018		
		Varanasi	3,41,811		
		Kanpur	6,36,443		
		Jhansi	1,06,333		
		Allahabad	3,12,259		
		Gorakhpur	1,23,844		
			28,06,035	6,32,15,742	4.44
(14)	West Benga	Cities		2,63,02,386	
		Calcutta	25,48,677		
		Howrah	4,33,630		
			29,82,307	2,63,02,386	11.34

Sl. No.	State	District/City/Town	Population Covered	Population of State	Percentage Covered
(1)	(2)	(3)	(4)	(5)	(6)
(15)	Andaman & Nicobar Islands	Town Port Blair etc.	8,014	30,971	25.88
(16)	Delhi	Whole of Delhi	17,44,072	17,44,072	100
(17)	Himachal Pradesh	Dist. Mandi Sirmur	3,10,626 1,66,077	11,09,466	
			4,76,703	11,09,466	42.97
(18)	Manipur	Town Imphal	2,862	5,77,635	0.50
(19)	Tripura	Town Agartala	42,595	6,39,029	6.67
(20)	Pondicherry	Whole of Pondicherry	3,17,163	3,17,163	100
	India		7,89,02,274	35,70,37,796	22.10

TABLE 2
Labour Force Changing over to Metric System from October 1960

Industries	Labour Employed	Percentage of Total Labour Force
(1)	(2)	(3)
Cotton Textile Mills, Cotton Baling etc.	8,85,472	19.19
Engineering Industries	1,92,379	4.17
Iron & Steel Factories	1,15,158	2.50
Heavy Chemicals	12,054	0.26
Cement	27,084	0.59
Jute Mills, Presses, etc.	2,45,719	5.32
Salt Refineries	9,801	0.21
Paper, Pulp and Paper Board	31,081	0.67
Refractories	15,104	0.33
Non-ferrous Metals (Copper, Aluminium, Tin, Lead, Antimony, etc.)	17,871	0.39
Vanaspati Factories	6,271	0.14
Soap Factories	8,428	0.18
Woollen Mills, Woollen Baling and Pressing	15,761	0.34
Petroleum Refineries, Distribution, Storage, Kerosene etc.	13,474	0.29
Plantation		
Coffee Curing Works, Coffee Plantations etc.	2,03,441	4.41
Rubber Plantations	63,034	1.37
Total and Percentage of Industries and Plantations Covered by the Introduction of Metric System	18,62,132	40.36
All Industries and Plantations in India	46,15,258	100.00

Metric System in Higher Technical Education

A Conference of representatives of various universities and engineering and technological colleges and institutions, Ministry of Education, Ministry of Commerce and Industry and others concerned was held on 23 October 1960 in Udyog Bhavan, New Delhi.

Prof. M. S. Thacker, Secretary, Ministry of Scientific Research and Cultural Affairs, presided over the meeting. In his opening remarks, Prof. Thacker said that the question of introduction of metric system in technical education had been discussed earlier at the APTI (Association of Principals of Technical Institutions) meeting which was held at Gauhati. As a result of those discussion, the present Conference was being held to assess views and make recommendations.

Prof. Thacker said that the metric system would be adopted in commercial transactions throughout the country by the end of 1966. It had already become compulsory in law to use metric weights in trade in selected areas. On 1-4-1962, metric weights would be compulsory throughout the country. Difficulties had been experienced in the supply of weights but the supply was expected to improve in the next few weeks. The metric system had also been adopted in all the major industries in the country. All the steel plants both in the public and private

sectors had begun producing metric steel sections. Very soon the entire production of steel in the country would be in metric sections. By 1966, he expected a substantial part of the productive equipment in the country to be capable of manufacturing products according to metric specifications.

The need to introduce the metric system in higher technical education had, therefore, become urgent. At the same time, he recognised that for several years to come, the foot-pound system would also have to be taught. Thus it was necessary that both the systems would have to be used simultaneously in engineering colleges. This might impose an extra load on teachers and students, but this was unavoidable. He invited the Principals to suggest a specific programme for adopting the metric system in technical education.

Phased Programme

The Principals agreed that there would be no major difficulty in adopting the metric system provided they were given sufficient time and assistance for the replacement or recalibration of equipment. The Conference unanimously recommended the adoption of the metric system in teaching in the first and second year classes commencing from the Academic Session 1962-63. The following year, i.e. 1963-64,

it would be introduced in the third and fourth year classes, to be followed by the introduction in the fifth and final year classes in 1964-65. Heads of technical institutions would take preparatory action to implement the programme.

It was suggested by the Committee that from 1970 onwards the metric system should be fully used for the All India Engineering Examinations. Both the metric and FPS systems may be used for the All India Engineering Examinations from 1965 till 1970. These suggestions may also be made to universities and other engineering examination bodies. The Ministry of Commerce and Industry would take the necessary steps for the production of measuring tools and instruments calibrated in metric units for the use of technical institutions. The instruments now in use would be re-calibrated wherever necessary and possible. All instruments to be purchased in future would be in the metric system. Steps would be taken to encourage the production of textbooks either by translation from German or Russian, or by adaptation of English textbooks.

(The following list of firms claim to be either able to supply or manufacture various types of instruments that may be needed by technical institutions. This list does not cover all firms. It is realised that there may be others who could also supply the requirements. If there are any others, *Metric Measures* would be glad to publish their names. It is, however, hoped that the present list will prove useful—*Editor*).

Small Tools

- (1) The Indian Manufacturers Ltd., 101, Sion Road, Bombay.
- (2) The New India Tools Manufacturing Co., 48, Gariahat Road, Calcutta—19.
- (3) The Small Tool Manufacturing Co. of India Ltd., 33/IA, Upendra Chandra Banerjee Road, Calcutta—1.
- (4) Hindustan Small Tools Ltd., 4, Nandeville Gardens, Ballygunge, Calcutta—19.

- (5) The Praga Tools Corporation Ltd., 17, Saifabad, Hyderabad.
- (6) Bharat Tool Manufacturing Co., Ltd., Swastik Mills Compound, Ferguson Road, Lower Parel, Bombay—13.
- (7) Addisen & Co. (Private) Ltd., 158, Mount Road, Madras-2.

Scales

- (1) National Instruments Factory, Jadavpore, Calcutta.
- (2) Cottage Industries Co-operative Society Ltd., 17, Civil Lines, Roorkee (U.P.).
- (3) Eastern (Scales) Private Ltd., 23, Ansari Road, Delhi-7.
- (4) Raj-der-kar & Co., Commissariat Building, Hornby Road, Fort, Bombay.
- (5) Kohinoor (India) Ltd., University Road, Banaras-4.
- (6) J.V. Navalakhi & Co., 533, Kalbadevi Road, Bombay.
- (7) J. Sur & Co., Private Ltd., 10, Old Court House Street, Calcutta-1.

Woven Metallic Tapes

- (1) Everest Tapes, Block No. 7, 382, Lamington Road, Bombay-7.
- (2) India Tapes, No. 5, Iswarbai Patel Estate, Goregaon East, Bombay.
- (3) National Tape Co., 188, Ikbalganj, Ludhiana (Punjab).
- (4) The Ludhiana Measuring Tape Co-operative Industrial Society Ltd., 130, Manawar Road, Ikbalganj, Ludhiana (Punjab).
- (5) Diamand Metallic Tape Co., 67-A, Netaji Subhash Road, Calcutta.
- (6) India Tapes, Sambhaji Vilas, Lashkar (Gwalior), Madhya Pradesh.
- (7) East & West Products, 184, Civil Lines, Ludhiana (Punjab).
- (8) Lawrence & Mayo (India) Private Ltd., 274, Dr. D. Naoroji Road, Bombay.
- (9) J. Sur & Co., Private Ltd., 10, Old Court House Street, Calcutta-1.
- (10) Masterman Tapes, C/o Associate Textile Engineers, 36-Chawri Bazar, Delhi.

Steel Tapes

- (1) M. Somnath & Co., 94, Lehar Chawl Bombay-2.

METRIC SYSTEM IN HIGHER TECHNICAL EDUCATION

- (2) Bombay General Agencies, Ji Ji House, Ravelia Street, Bombay-1.
- (3) Bharat Engineering Stores, Bombay—3.
- (4) Shah Engineering Stores, Bombay-3.
- (5) Jairamdas & Sons, Silver Jubilee Park Road, Bangalore-2.

Surveying Chains

- (1) National Instruments Factory, Jadavpore, Calcutta.
- (2) National Emporium, Civil Lines, Roorkee (U.P.).
- (3) P. Orr & Sons, P. B., No. 317, Madras-2.
- (4) J. Sur & Co., Private Ltd., 10, Old Court House Street, Calcutta-1.

Levelling Staves

- (1) Cottage Industries Co-operative Society Ltd., Civil Lines, Roorkee (U.P.).
- (2) Government Electric Factory, Mysore Road, Bangalore.
- (3) National Instruments Factory, Jadavpore, Calcutta.
- (4) National Emporium, Civil Lines, Roorkee (U.P.).

- (5) Kohinoor (India) Ltd., University Road, Banaras-4.
- (6) Ordnance Factory, Dehradun, (U.P.).
- (7) P. Orr & Sons, Ltd., P. B. No. 317, Madras-2.
- (8) J. Sur & Co., Private Ltd., 10, Old Court House Street, Calcutta.

Pressure and Vacuum Gauges

- (1) Government Precision Instruments Factory, Lucknow.
- (2) Industrial Gases, 138, Canning Street, Calcutta.
- (3) National Instruments Factory, Jadavpore, Calcutta.

Thermometers

- (1) National Instruments Factory, Jadavpore, Calcutta.
- (2) Scientific Glass Works, Ambala Cantt.

Hydrometers

- (1) National Instruments Factory, Jadavpore, Calcutta.
- (2) Andhra Scientific Co. Ltd., Masaulipatam.

Third Conference of Controllers

THE Third Conference of Controllers was held at Bhubaneswar on 14 November 1960. It was attended by the Controllers of Weights and Measures of the various States and Union Territories as also by representatives of the Ministries of Commerce and Industry, Scientific Research and Cultural Affairs, Law, Finance (Government of India Mints at Bombay and Calcutta), Information and Broadcasting as well as Indian Standards Institution, National Physical Laboratory and others.

The Conference was inaugurated by the Chief Minister of Orissa, Shri H. K. Mehtab, and the inaugural session was presided over by Shri Radhanath Rath, Development Minister.

Inaugurating the Conference, the Chief Minister said that India was undertaking an ambitious programme of the introduction of metric weights and measures in the country. The decimal system on which the metric system is based was not new to India. It was in vogue in Orissa during the reign of the Ganga Kings. The decimal system of measurement was used for measuring and recording inter-planetary distances by the 11th century astrologer, Shri Satanand Acharya. The architects of the famous temple at Konarak also used the decimal system of measurement in their calculations.

The metric system would unify the country so far as weights and measure were concerned. In the introduction of this reform, it was necessary, he stressed to take into consideration the conservatism of the people. The most important step was to take the metric system to the rural people and to get them acquainted with it. The problem of replacing old weights could be tackled by withdrawing old weight from the markets and making the old weights scarce. It was necessary to proceed in stages with firmness and tact.

Shri Radhanath Rath, Development Minister, in his presidential address said that even in ancient times, commerce and industry in India did not enjoy a 'no control' or 'laissez-faire' system. *Arthashastra* of Kautilya gives instances of how weight and measures were controlled in the old days. In the present-day India, and particularly in Orissa, there were a number of systems of weights and measures in use. Now that the metric system was being introduced, the old systems would be replaced by a better system. With the unification of the weights and measures system, it would now be possible to guarantee accuracy and prevent cheating in the trade which is the duty of the Weights and Measures Department. He said that the reform had to be planned carefully and cautiously, so that the change-over was effected with the minimum trouble to people. Difficulties can be overcome by co-operation.

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The Conference then reassembled to consider the various points on the agenda under the chairmanship of Shri K. V. Venkatachalam, Joint Secretary, Ministry of Commerce and Industry, New Delhi. Some of the important recommendations made by the Conference are listed below.

(1) Review of Progress

It was noted that the demand for weights of all types and denominations in the specified areas was about 70 lakh pieces and it was expected that this demand would be met within a few months. During the two year period, October 1958-60, Organizations of Weights and Measures had been set up in the country and duly equipped and they had issued licences to a number of manufacturers, dealers and repairers of weights, measures and weighing and measuring instruments. The traders were persuaded to purchase weights well before October 1960, but the smaller traders had not purchased the weights and the demand had gone up suddenly after October and was being met expeditiously. It was noted that there was eagerness on the part of the people to purchase weights and start using them, but if the entire trade of an area did not switch over, a single trader preferred to wait for all the others to proceed. However, the production of weights was now mounting up and it was expected that it would be doubled shortly.

(2) Enforcement in Other Areas

The next important step was to introduce weights all over the country by April 1962. To achieve this, it was necessary that the production of weights should not only be stepped up, but the produce is taken up by the traders without delay so that the same situation as arose in October 1960 did not come up again. One of the steps to maintain the tempo of production and introduce weights was to concentrate

on the introduction of weights in a district, meet its demand fully, see that it changes over to the metric system and go on to the next. To expedite this process, the Organizations of Weights and Measures should be fully manned and adequately equipped during the next year. Publicity should be widespread and persuasion used in getting people to change over by easy steps.

(3) Introduction of Capacity Measures

Capacity measures have up to now been introduced in the petroleum industry and the period of change-over was one year ending on 1 March 1961. It was now intended to introduce capacity measures for other materials like milk, oil, (where sold by measure) etc. It was noted that there would be enough working standard capacity measures with the States by April 1961. It was recommended that the introduction of capacity measures should start in the whole of India in April 1961, but different periods of transition should be prescribed for selected areas, the change-over being complete within two years in two or three stages.

(4) Introduction of Linear Measures

The Central Government Mint at Bombay would supply 50 working standard linear measures by April 1961 for distribution to States. Every State and Union Territory would receive a few of these measures. This limited supply of standard measures would be used mainly for verifying and stamping commercial linear measures used in organized industry, particularly the cotton textile industry. By September 1961, the Mints would have supplied 150 standard linear measures. The introduction of metric linear measures in the general and retail trade would be considered at the Fourth Conference. Since

standard linear measures would be available soon, Controllers may grant licences for the manufacture of commercial linear measures at their discretion.

(5) Supply of Weights, etc. Direct to an Actual User in Another State

A manufacturer might be permitted to sell weighing and measuring instruments directly to customers in a State other than his own. Commercial weights and measures should, however, be sold only through licensed dealers.

(6) Weighing Machines with Dual Graduations

Considerable part of India's export trade is with countries on the foot-pound system. Customers from these countries insisted on indications in the old manner. In order to satisfy this demand it was necessary that machines marked in both metric and pound systems should be used. Such permission would be given only to recognised exporters and manufacturers who packed for export. They would have to report such machines to the Controller of the State concerned.

(7) Application of Enforcement Acts to Export Trade

The State Enforcement Acts applied to transactions connected with exports also, provided the transactions took place in India. Care should be taken, however, to ensure that the Act was applied in such a way as not to hamper the country's export trade with countries like the UK and the USA, which were on the foot-pound system. Importers in these countries may not like any change being made in the sizes of packages or in the manner in which invoices were prepared. They insisted on the net contents being marked on packages in foot-pound units. Packers may, therefore, be permitted to mark the net weight in foot-pound units also on packages intended for export trade. In invoices and other docu-

ments connected with exports, quantities, prices, etc., may be shown in metric as well as foot-pound units. Manufacturers and exporters may be allowed to use weighing machines calibrated exclusively in foot-pound unit, or in both foot-pound and metric units. (See also Recommendation 6).

(8) Use of Carat Weights

Carat weights not conforming exactly to the specification laid down in the Enforcement Rules, have been in use in the diamond and real pearl trade in the country. To facilitate the diamond and pearl trade to change over to the metric system, it was agreed that the use of such carat weights might be permitted provided they conformed to the Rules as regards denominations and permissible errors. The period of allowance for such use would be not more than two years.

(9) Balances in Use in the Pearl and Diamond Trade

Many of these balances did not conform to the specifications in the Rules although they satisfied the tolerances prescribed. The State Governments have the power to permit the continued use of these balances for a prescribed period. Since these balances are of the specified accuracy, their continued use might be allowed for the time being.

(10) Inter-State Sale of Weights

A manufacturer who wished to sell weights, etc. to a State other than that in which his factory was situated was required to appoint sole selling agents in other States if he desired to sell his weights there. Where the weights had to be supplied to large States, it was found that the sole agent had difficulties in distributing the weights. In view of these difficulties, it was recommended that a limited number

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of agents may be appointed instead of a sole agent, depending on the discretion of the Controller.

(11) Production of Seer Weights

Although the use of seer weights in trade is not yet illegal, it would be illegal on 1 April 1962. The manufacture of seer weights in the country must, therefore, be actively discouraged.

(12) Repairing of Weighing Machines by Users

A user had the right to repair his own machine and was not under any compulsion to go to a repairer for the purpose. After repair, however, the machine must be offered for verification by a Government Inspector.

(13) Licensed Repairers of Weighing Machines

Every repairer must take out a licence from the Government of the State in which

he had his establishment. A licensed repairer of one State could serve customers in other States as well.

(14) Not for Trade Weighing Instruments

Weighing machines used exclusively for internal purposes in industry, and not in transactions with other parties, need not be verified or stamped by the State Inspectors.

(15) Prohibition of Wooden Beams

Wooden *dandi* type of beams did not conform to the specification in the Enforcement Rules. State Governments, however, may permit existing scales for a short period which may be determined by that State.

(16) Cast Iron Weights for Bullion

The use of cast iron weights for bullion trade was undesirable for a number of reasons and their use should not be allowed.

News & Views

Recent Notification

(1) Conversion of Weights other than Standard Weights

No. S. O. 2760 Dated 11-11-60.

In exercise of the powers conferred by clause (e) of subsection (2) of section 17 read with subsection (2) of section 16 of the Standards of Weights and Measures Act, 1956 (89 of 1956), the Central Government hereby makes the following rules, namely :—

1. Short title

These rules may be called the Standards of Weights and Measures (Conversion to Standards Weights) Rules, 1956.

2. Definitions

In these rules,—

- (a) 'Act' means the Standards of Weights and Measures Act, 1956 (89 of 1956);
- (b) 'Schedule' means the schedule to these rules.

3. Conversion of Weights other than Standard Weights

A value expressed in terms of any weights set forth in the Schedule may be converted into a value expressed in terms of a Standard Weight at the rates specified in the Schedule.

4. Manner of Conversion

All references in any contract, deed, instrument, record or other document to values expressed in terms of any weight set forth in the schedule shall be construed as references to that value expressed in terms of a Standard Weight, converted thereto at the rates specified in the Schedule.

SCHEDULE**Weights other than Standard Weights prevalent in Madras State**

1 palam	=	34.9914 grams.
1 viss	=	1.39966 kilograms
1 gundu	=	25.4011744 kilograms
1 thookku	=	1.74957 kilograms
1 podi	=	111.97248 kilograms

(b) Weights other than Standard Weights prevalent in Kerala State

1 Sovereign weight	=	8.030813 grams
1 Kazhachu	=	5.0989289 grams
1 Panamida	=	3382.42 milligrams
1 Rattal	=	489.8796 grams

(c) Weights other than Standard Weights prevalent in Maharashtra State

1 val (1/40 Tola)	=	291.5 milligrams
1 Rati (1/62 Tola)	=	188.1 milligrams
1 Dram	=	1.7718 grams
1 Scruple (20 Grains)	=	1.29598 grams
1 Dram (60 grains)	=	3.88794 grams
1 Ounce (480 Grains)	=	31.10352 grams

(d) Weights other than Standard Weights prevalent in Orissa State

1 Katki Seer	=	1.22470 kilograms
1 Katki Maund	=	48.98796 kilograms
1 Viss	=	1.39966 kilograms

(e) Weights other than Standard Weights prevalent in Mysore State

1 Mysore Seer	=	279.936 grams
1 Coorg Seer	=	317.517 grams

(2) Amendment of Indian Power Alcohol Rules, 1950 S. O. No. 2693, dated 7th November 1960

In pursuance of the provisions contained in Rule 9 of the Indian Power Alcohol Rules, 1950, the Central Government hereby makes the following amendments in the Notification of the Government of India in the Ministry of Commerce and Industry No. SRO 1601, dated the 17th September, 1952, namely :—

In the said Notification,—

- (1) in paragraph 1, for the second sentence, the following sentence shall be substituted, namely :—

“The rate of such handling charges shall be 10 nP. (ten naye Paise only) per litre until further orders”;

- (2) for the words, figures and brackets “As -/14/- (annas fourteen only) per bulk gallon” the figures, words and brackets “19 nP. (naye Paise nineteen only) per litre” shall be substituted.

Water Charges in Delhi

It is understood that the Water Supply and Sewage Disposal Committee of the Delhi Municipal Corporation has switched over to the metric system for water charges with effect from October 1.

The unit of measurement for water charges would be the kilolitre *i.e.* 1,000 litres. Previously it was 1,000 gallons. The new rate would be 11 nP. per kilolitre for I class premises, 17 nP. for class II, III, IV, and V and 22 nP. for class VI. The present rates for these categories are 50 nP., 75 nP. and one rupee per 1,000 gallons.

Marking of Containers

The manner of marking of containers weighing less than a kilogram was indicated some time back. One of the ways suggested was to mark the packages as $\frac{1}{4}$ kilo or $\frac{1}{2}$ kilo or even 0.250 kg or 0.500 kg. The matter has been examined and it was felt desirable that the package containing a $\frac{1}{4}$ kilo, or $\frac{1}{2}$ kilo should be marked 250 grams or 500 grams and not $\frac{1}{4}$ kilo or $\frac{1}{2}$ kilo or even 0.250 kg. or 0.500 kg. This practice is recommended because it would be in line with the marking on the weights to be used in trade and would not lead to confusion in the purchaser's mind.

Standards News

(Indian Standards which have a particular bearing on the change-over to the metric system are indicated here. Copies would be available from the Indian Standards Institution, Manak Bhavan, 9, Mathura Road, New Delhi or their branch offices at Bombay, Calcutta and Madras.)

Indian Standards Specification for Steel Drums and Kegs (Galvanized and Ungalvanized) (IS : 1549—1960)

The Indian Standard Specification for Steel Drums and Kegs (Galvanized and Ungalvanized) (IS : 1949—1960) published recently by ISI supersedes IS : 442—1954 Drums for Paints and IS : 618—1956 Kegs (Open Top Drums) for paints. The two latter mentioned standards were published earlier by ISI for the exclusive use of the paint industry, but it has been felt that more comprehensive specifications should be drawn up for drums and kegs for use of paint industry and other industries.

The standard covers a range of galvanized and ungalvanized steel drums and kegs up to 150 litres nominal capacity in 15 different size.

Price : Rs 3-00

Indian Standards for Copper Steel and Strip (IS : 1550—1960)

The Indian Standards Institution has recently published IS : 1550—1960 Specification for Copper Sheet and Strip for the Manufacture of Utensils and for the General purposes which covers the requirements for two grades of copper sheet for the manufacture of utensils and for general

purposes, such as roof coverings, flashings, weatherings, gutters, damp-proof courses in buildings, etc. Grade 1 includes copper sheet and strip for pressing quality while Grade 2 includes the same for hand worked articles and general purposes.

The standard is one of a series of Indian Standards on copper sheet and strip. Another standard on copper sheet and strip for electrical purposes is under preparation.

Draft Indian Standards for Steel Products for General Engineering Purposes [Doc : SMDC 6(253—255)]

The Indian Standards Institution has prepared the following Indian Standard Specifications for Steel Products for General Engineering Purposes :

- Mild Steel Plate, Sheet and Strip for General Engineering Purposes [Doc : SMDC 6(253)],
- Mild Steel Flats for General Engineering Purposes [Doc : SMDC 6(254)] and
- Mild Steel Bars—Round and Square for General Engineering Purposes [Doc : SMDC 6(255)].

The sizes and other properties to be included in these standards will be in metric units. These size have been arrived at after taking into consideration the sizes of steel products at present used in the general engineering industry. A list of sizes

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for these products has been given as a guide in the ISI Handbook for Structural Engineers—1: Structural Steel Sections. A general guidance with regard to the selection of these sizes had also been given in IS: 1138—1958 Sizes of Metal Strip, Sheet, Bars (Round and Square), Flats and Plate (for Structural and General Engineering Purposes). But, it has now become necessary to standardize the sizes for various steel products.

After these standards are published, it is intended to withdraw IS: 1138—1958.

The draft standards will be circulated by the middle of October 1960 to interested producers, consumers and technologists for eliciting technical comments. These draft standards will be open for comments for a period of three months from the date of circulation.

Draft Indian Standard for Screwing Taps [Doc: EDC 45 (552)]

The Indian Standards Institution has prepared the Draft Specification for Screwing Taps [Doc: EDC 45(552)].

This will be circulated to the interests concerned for their critical comments and suggestions for improvement.

This draft standard belongs to a series of Indian Standards for small Tools which ISI is preparing in connection with the changeover to the metric system. It includes the taps required for cutting metric screw threads with ISO profile and for BSP threads.

Indian Standard for Coated Abrasive, Glue Bond (IS: 715—1957)

The Indian Standards Institution has prepared a revised draft of IS: 715—1957 Specification for Coated Abrasives, Glue Bond at the request of some of the manufacturers.

This standard covers the requirements for coated abrasives in the form of sheets, rolls, belts, discs and converted shapes; with paper, cloth or combination backing. It was originally issued in 1957 and the main modifications incorporated in the revised draft are:

- (1) Metricization of the standard.
- (2) Recasting of the table for "Allowable Limits for the sizing of Abrasive Grains".

Indian Standard for Steel Bars and Steel Wire for Concrete Reinforcement (IS: 432—1960)

The Indian Standards Institution has just published IS: 432—1960 Specification for Mild Steel and Medium Tensile Steel Bars and Hard-Drawn Steel Wire for Concrete Reinforcement which is a revision of the same specification published in 1953. The revision of the specification became necessary in view of the considerable experience gained in working to this specification by both the manufacturers and the users. Furthermore, in view of substantial quantities of the so called untested steel being on the market, it has been found necessary to bring this category of concrete reinforcement under a separate grade having a lower ultimate tensile strength. Such a step has been considered to pave the way towards better utilization of the available supplies of concrete reinforcement.

Another important change that has been incorporated in this revision is that concrete reinforcement having an ultimate tensile strength of not less than 58 kg/mm² and not more than 90 kg/mm² has been categorized under the name 'Medium Tensile Steel' as compared to the originally adopted name of 'High Tensile Steel' which covers steels of strength in a very much higher range.

High tensile steel bars, high tensile hard-drawn steel wire, deformed bars, twisted steel bars, hard-drawn steel wire fabric and twisted steel fabric are not covered by this standard.

Price : Rs. 2.50

Indian Standard for Beam Scales (IS: 1433—1960)

The Indian Standard Specification for Beam Scales (IS: 1433—1960) belongs to a series of Indian Standards on commercial weighing instruments being prepared by ISI at the instance of the Standing Metric Committee, Government of India in connection with the introduction of metric system of weights and measures in the country. Other standards published in this series already cover general requirements for beam instruments and specifications for counter machines, platform weighing machines, weighing bridges, crane weighing machines and steelyards.

Beam scales are one of the most commonly used instruments and they are made in the country in large quantity both by large scale and small scale manufacturers.

This standard recognizes four classes of beam scales. The trades for which the different classes of scales are intended to be used are given below for the sake of guidance:

Class of Scale	Use
A	Assay purposes, fine weighments and for weighing precious stones, jewels, pearls, etc.
B	Bullion, precious metals, saffron & similar expensive commodities, chemists & druggists, perfumery, etc.
C	Base metals and relatively costlier commodities, such as cereals, tea, coffee, tobacco, jute, dry fruits, species, oil-seeds, etc.
D	Weighment of relatively cheaper commodities such as scrap iron, fuel, wood, charcoal, cotton waste, vegetables, etc.

The standard includes more important dimensions of the beam scales of classes, B.C. and D. with the exception of the beam for scale of certain capacity which are still under consideration. The standard does not cover beam of round cross-section commonly known as 'dandi'.

Price : Rs. 2.50

Indian Standard for Asbestos Cement Pressure Pipes (IS: 1952—1960)

The Indian Standard Specification for Asbestos Cement Pressure Pipes (IS: 1952—1960) published recently by ISI specifies the requirements for manufacture, classification, dimensions and acceptance tests for these pipes.

The standard mainly follows the ISO Draft Recommendation No. 149 relating to asbestos cement pressure pipes. The agreements reached at the international level, on the sizes and pressure ratings of these pipes, have been incorporated in this standard and test requirements together with the methods of test have been aligned with the international standard. As considerable quantities of these pressure pipes are likely to be imported into the country, the indigenous manufacture being very small at present, it is hoped that this standard would provide the necessary guidance for the purchase of asbestos cement pressure pipes from different sources abroad.

Price : Rs. 2.50

Indian Standard Specification for Milk Bottle Crates

The Indian Standard Specification for Milk Bottle Crates (IS: 1613—1960) published recently by ISI prescribes the dimensions and other requirements for three types of milk bottle crates namely:

- (1) Type 1—to hold twelve one-litre milk bottles,

- (2) Type 2—to hold twenty 500-ml milk bottles, and
(3) Type 3—to hold thirty 250-ml milk bottles.

The main consideration in the preparation of this standards was the interstackability of the different crates used for the different types of milk bottles. For this purpose, it was decided that the length and breadth of the milk bottle crates for the different types of milk bottles should be the same. The dimensions of the crate have been adjusted to suit the glass milk bottles as specified in IS : 1392—1959.

Price : Rs. 2.00

Indian Standard Specification for Liquor Bottles

The glass liquor bottles of a wide number of sizes and shapes are used as containers for liquor of various types. The

purpose of IS : 1662—1960 Specification for Glass Liquor Bottles published recently by ISI is to rationalize the sizes and shapes of these types so as to effect greater economy in production.

With the introduction of the metric system in the alcohol industry in the country, the need for recommending a rationalized series of capacities in the metric system has been urgently felt and it is hoped that this standard would be of help to the industry in this direction. As the packers of the liquor prefer to retain the individuality of the shapes and dimensions of the bottles they use, it has been decided not to specify the same in this standard. The tests prescribed for the liquor bottles are based on the trade practice currently followed in the country.

Price : Rs. 2.00

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Business Manager
Publications Division
Ministry of Information & Broadcasting,
Old Secretariat, Delhi-8.

Controllers etc. in States and Union Territories

Metric Measures is publishing below a list of Controllers of Weights and Measures of the various States and Union Territories. *Metric Measures* has been receiving a number of enquiries about the persons to be contacted in the States for obtaining licences for manufacturing, selling or repairing of weights, measures and weighing and measuring instruments. It is hoped that the publication of this list will prove of help to the general public.

(1) ASSAM

Shri S.R. Barua,
Director of Agriculture and Ex-Officio Controller of Weights and Measures,
Government of Assam,
Shillong.

(2) ANDHRA PRADESH

Shri Anil De,
Ex-Officio Controller of Weights & Measures,
Chirag Ali Lane,
Hyderabad-Dn.

(3) BIHAR

Shri V. N. Singh,
Controller of Weights & Measures,
Government of Bihar,
Patna.

(4) GUJERAT

Dr. C.B. Patel,
Director of Industries,
Government of Gujarat,
New Civil Hospital,
Block No. B-4,
Asarva, Ahmedabad.

(5) JAMMU & KASHMIR

Shri M. M. Siddiqui

Financial Commissioner & Ex-officio Controller, Weights & Measures,
Government of Jammu & Kashmir,
Jammu/Srinagar.

(6) KERALA

Shri T.P. Krishnan Nair,
Controller of Weights & Measures,
Office of the Board of Revenue,
Trivandrum.

(7) MADHYA PRADESH

Shri Ram Singh Bawal,
Controller of Weights & Measures,
Government of Madhya Pradesh,
Bhopal.

(8) MADRAS

Shri A.S. Venkataraman,
Controller of Weights & Measures,
19-A, Woods Road, Mount Road,
Madras-2.

(9) MAHARASHTRA

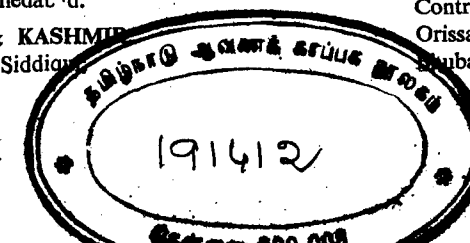
Shri V.M. Pednekar,
Deputy Director of Industries
(Weights & Measures) and,
Deputy Controller of Weights & Measures,
Old Custom House Yard,
Fort, Bombay.

(10) MYSORE

Shri Syed Ahmed Khan,
Deputy Controller of Weights and Measures
and Chief Marketing Officer,
Old Residency Building,
Bangalore.

(11) ORISSA

Shri R.N. Dwivedi,
Joint Director of Marketing and Ex-Officio
Controller of Weights & Measures,
Orissa,
Bhubaneswar.



31
X150m2, N58mm
N61

(12) PUNJAB

Shri Kanwar Jit Singh,
Controller of Weights and Measures,
Government of Punjab,
Ambala Cantt.

Near Bhagirath Palace,
Chandni Chowk,
Delhi.

(18) HIMACHAL PRADESH

Shri Gobind Sahai Diwan,
Superintendent, Weights & Measures,
Industries Department,
Himachal Pradesh,
Simla-4.

(13) RAJASTHAN

Shri K.N. Mathur,
Superintendent,
Weights & Measures,
Government of Rajasthan,
Jaipur.

(19) LACCADIVE MINICOY & AMINIDIVI ISLANDS

Shri P. Kelukutty Menon,
Secretary to Administrator,
Laccadive Minicoy & Aminidivi Islands,
Kozhikode.

(14) UTTAR PRADESH

Shri S.B. Mathur,
Deputy Secretary to the Government of U.P.,
& Ex-officio Controller of Weights & Measures
Food and Civil Supplies Department,
Lucknow.

(20) MANIPUR

Shri Pratap Singh,
Controller of Weights & Measures,
Manipur Administration,
Imphal.

(15) WEST BENGAL

Shri J.B. Sen,
Controller of Weights & Measures,
Government of West Bengal,
45, Ganesh Chandra Avenue,
3rd Floor, Calcutta-12.

(21) PONDICHERRY

Shri J. Arlanda,
Controller of Weights and Measures,
Government of Pondicherry,
Pondicherry.

(16) ANDAMAN & NICOBAR ISLANDS

Shri Pura Singh,
Secretary to the Chief Commissioner,
Andaman and Nicobar Islands,
Port Blair.

(22) TRIPURA

Shri P. C. Banerjee,
Superintendent, Weights & Measures,
Tripura Administration,
Agartala.

(17) DELHI

Shri H.L. Mehandru,
Controller of Weights & Measures,

Licensed Manufacturers, Dealers and Repairers of Weights and Measures (11)

Metric Measures has been publishing a series of lists of manufacturers, dealers and repairers of weights and measures, weighing and measuring instruments licensed by the Governments in the various States and Union Territories under their Weights and Measures (Enforcement) Act in their respective jurisdiction. This is the eleventh list. The first list appeared in the March 1959 issue.

Progressively steps are being taken for licensing manufacturers, dealers and repairers in all States and further lists of licensees would be published in *Metric Measures* as this work progresses.

The number in brackets against the name of the State or Union Territory indicates the particular instalment number of the list of that State or Union Territory. The issues of *Metric Measures* in which previous lists appear are also shown suitably.

An analysis of the licensees, including the present list, shows that the total number of licensees, in 12 States and 3 Union Territories is 478 manufacturers, 1,645 dealers, 406 repairers. The details of published information are as follows :

Serial No.	State/ Union Territory	Licensees		
		Manu- fact- urers	Dealers	Re- pairers
(1)	Andhra Pradesh.	44	67	37
(2)	Bihar ..	20	69	34
(3)	Delhi ..	22	76	19
(4)	Himachal Pradesh.	1	3	0
(5)	Kerala ..	9	219	12
(6)	Madhya Pradesh	3	160	4
(7)	Madras ..	79	210	37
(8)	Maharashtra	60	162	106
(9)	Mysore ..	37	232	27
(10)	Orissa ..	8	13	0
(11)	Punjab ..	23	81	19
(12)	Rajasthan ..	16	69	18
(13)	Tripura ..	0	12	0
(14)	Uttar Pradesh	76	126	42
(15)	West Bengal	50	146	51
		478	1,645	406

ANDHRA PRADESH

In the July 1959 and January 1960 issues of *Metric Measures* lists of manufacturers, dealers and repairers of weights and measures in Andhra Pradesh were published. The following is a list of manufac-

Manufacturers

Sl. No.	Name and Address of Manufacturer	Details of Articles Manufactured
(1)	Anantrai Hirachand Doshi, Manufacturers of Scales, Savarkundla, Saurashtra.	Beam Scales
(2)	Bhagvannarayana Iron Balance Works, Dowleshwaram, East Godavari.	Beam Scales
(3)	Bihar Agricultural Industries Regd., Cantt Road, Khagaul (BATNA).	Weights
(4)	Deccan Moulding Factory, University Road, Hyderabad	Weights
(5)	Jaya Krishna Iron Industrial Works, Dowleshwaram ..	Beam Scales
(6)	Krishna Iron Works, Dowleshwaram	Beam Scales
(7)	Lucky Weights Works, Manufacturers of Brass Weights, Charkaman, Hyderabad-Dn.	Weights
(8)	National Moulding Factory, Manufacturers of Weights, Mushirabad, Hyderabad.	Weights
(9)	Om Industries, Industrial Area, Azomabad, Hyderabad	Weights
(10)	Panduranga Engineering Works, Tadepatri., East Godavari	Weights
(11)	Production-cum-Training Centre for Moulders Industrial Estates, Vijayawada.	Weights
(12)	Rajkamal Scale Co., Kumarwada, 4th Lane, Bombay-4	Beam Scales
(13)	Riaz & Bros., 134-138, Near Post Office, Sadar Bazar, Delhi-6.	Brass Weights, Scales, Platform machines, Counter Scales.
(14)	Sarfraz Khan (Prop: Central Metal Works, Manufacturers of Measures, Feelkhana, Hyderabad.	Measures
(15)	Sectarama Engineering Works, Manufacturers of Beam Scales, Dowlaishwaram.	Beam Scales
(16)	Surya Engineering Works, Warangal	Weights
(17)	Swamy Akvolu Industries, Lakkavaram post, Razola, East Godavari.	Weights
(18)	Watan Weights Works, Manufacturers of Weights, 22-6-118, Machilikaman, Hyderabad.	Weights

Dealers

Sl. No.	Name and Address of Dealer	Details of Articles Sold
(1)	Abdul Kareem Manyar, Iron Fabricator & Hardware Merchant, Adhoni.	Weights, Measures, Weighing and Measuring Instruments.
(2)	Adavala Satyanarayana & Sons, Dowlaishwaram	Weights, Measures, Weighing and Measuring Instruments.
(3)	Anjanaya W & M Depot, Vinayak Strest, Tanali, Guntur Distt.	Weights, Measures, Weighing and Measuring Instruments.

Dealers (contd.)

Sl. No.	Name and Address of Dealer	Details of Articles Sold
(4)	Bhagwanarayana, Iron Balance Works, Dowlaishwaram	Weights, Measures, Weighing and Measuring Instruments.
(5)	Bombay Hardware Stores, 15-1-511, Siddiamber Bazar, Hyderabad.	Weights, Measures, Weighing and Measuring Instruments.
(6)	Bombay Scale Works, Barkatpura, Nizamabad	Weights, Measures, Weighing and Measuring Instruments.
(7)	Central Metal Works, 15-1-457, Feelkhana Camp Hyderabad.	Weights, Measures, Weighing and Measuring Instruments.
(8)	Chunduri Simbaiah, Pachipulusu Vari Lane, Guntur	Weights, Measures, Weighing and Measuring Instruments.
(9)	Everest Co., (Prop: Harigopal Mundra,) Nizamabad ..	Weights, Measures, Weighing and Measuring Instruments.
(10)	Favourite French Polish Centre, Murlidhar Bagh, Hyderabad.	Weights, Measures, Weighing and Measuring Instruments.
(11)	Gelli Krishnamurthy Firm, Main Road, Vijayawada ..	Weights, Measures, Weighing and Measuring Instruments.
(12)	General Engineering Store, 5/308, Bellary Road, Ananthapur	Weights, Measures, Weighing and Measuring Instruments.
(13)	K. Jaggannadha Rao, 11/100, Main Road Vishakapatnam	Weights, Measures, Weighing and Measuring Instruments.
(14)	Jaya Krishna Iron Industrial Works, Dowlaishwaram ..	Weights, Measures, Weighing and Measuring Instruments.
(15)	Krishna Iron Works, Dowlaishwaram	Weights, Measures, Weighing and Measuring Instruments.
(16)	K. Maslahuddin, Old Beat Bazar, Warangal	Weights, Measures, Weighing and Measuring Instruments.
(17)	R. Mohan Brothers, Purane Haveli, Hyderabad	Weights, Measures, Weighing and Measuring Instruments.
(18)	Mohd Taqui Hussian, W & M Dealer, Secunderabad ..	Weights, Measures, Weighing and Measuring Instruments.
(19)	National Molding Factory, Maishirabad, Hyderabad ..	Weights, Measures, Weighing and Measuring Instruments.
(20)	Pappu Weerana, Dowlaishwaram	Weights, Measures, Weighing and Measuring Instruments.
(21)	Pullakhandam Puliah Son Form, Kaman Bazar, Khammam	Weights, Measures, Weighing and Measuring Instruments.
(22)	V. Pulliah Setty, Gandhi Bazar, Ananthapur	Weights, Measures, Weighing and Measuring Instruments.
(23)	Ragi Lingamurthy, Hardware Merchant, Osmangunj, Karimnagar.	Weights, Measures, Weighing and Measuring Instruments.
(24)	Rameshchandra Amurt Lal, Shroff Bazar, Ward 13, Door No. 640, Adhoni.	Weights, Measures, Weighing and Measuring Instruments.
(25)	Ranganayaka Iron Works, Dowlaishwaram	Weights, Measures, Weighing and Measuring Instruments.
(26)	Sanyasiah & Co., Main Road, Vishakapatnam	Weights, Measures, Weighing and Measuring Instruments.
(27)	Sadrudin John Mohammad, Hardware and General Merchant, Gandhi Road, Adilabad.	Weights, Measures, Weighing and Measuring Instruments.

Dealers (contd.)

Sl. No.	Name and Address of Dealer	Details of Articles Sold
(28)	Saraswathi Iron Balance Works, Dowlaishwaram	Weights, Measures, Weighing and Measuring Instruments.
(29)	C. Satyanarayana Murthy & Co., Vellabhai Road, Kakinada	Weights, Measures, Weighing and Measuring Instruments.
(30)	Shaik Abdul Wahab, Wahab Chowk, Tenali	Weights, Measures, Weighing and Measuring Instruments.
(31)	Shaik Aziz Mohiuddin, Ongole, Guntur District	Weights, Measures, Weighing and Measuring Instruments.
(32)	Star Scale Service, Khasba Bazar, Khammam	Weights, Measures, Weighing and Measuring Instruments.
(33)	Swamy Alvelu Industries, Razole Taluk, East Godavari	Weights, Measures, Weighing and Measuring Instruments.
(34)	Syed Hussian Scale Centre, Mahboobnagar	Weights, Measures, Weighing and Measuring Instruments.
(35)	Syed Mohiuddin, W & M Dealers, Mahboobnagar	Weights, Measures, Weighing and Measuring Instruments.
(36)	Syed Nadeem, W & M Dealer, Bakaram, Mushirabad, Hyderabad.	Weights, Measures, Weighing and Measuring Instruments.
(37)	Union Agency, 4-Vulugundamvari street, Kothapet, Guntur.	Weights, Measures, Weighing and Measuring Instruments.
(38)	S.K. Veeriah, Afzal Gunj, Hyderabad	Weights, Measures, Weighing and Measuring Instruments.
(39)	Venkateshwara Weights & Measures Karkhana, Gajulavari street, Salepata, Kakinada.	Weights, Measures, Weighing and Measuring Instruments.
(40)	Vijaya Iron Mart, Main Bazar, Adhoni	Weights, Measures, Weighing and Measuring Instruments.
(41)	T.L. Vishwanathiah & Bros., General Merchant, P.B. No. 4, Hindpur, Ananthapur Dist.	Weights, Measures, Weighing and Measuring Instruments.
(42)	Ch. Yegnaiah & Sons, Park Road, 10/363, Vijayawada	Weights, Measures, Weighing and Measuring Instruments.

Repairers

Sl. No.	Name and Address of Repairer	Details of Articles Repaired
(1)	Chunduri Sambaiah, Pachipulusu, Vari Lane, Guntur ..	Weights, Measures, Weighing and Measuring Instruments.
(2)	Crescent Scale Centre, (Prop. Syed Mohiuddin), Market Road, Mahboobnagar.	Weights, Measures, Weighing and Measuring Instruments.
(3)	Everest Co. (Prop. Harigopal Mundra), Ahmedi Bazar, Nizamabad.	Weights, Measures, Weighing and Measuring Instruments.
(4)	D.R. Herman & Mohatta (India) Private Ltd., People's Building, Sir P.M. Road, Fort, Bombay-1.	Weights, Measures, Weighing and Measuring Instruments.
(5)	Hyderabad Dominion Scale Centre, W&M Repairer, Nirmal.	Weights, Measures, Weighing and Measuring Instruments.
(6)	Jamsheed Iron & Steel Co., Siddiamber Bazar, Hyderabad	Weights, Measures, Weighing and Measuring Instruments.

Repairers (contd.)

Sl. No.	Name and Address of Repairer	Details of Articles Repaired
(7)	Kadambari Appa Swami, Gagulavari Street, Kakinada ..	Weights, Measures, Weighing and Measuring Instruments
(8)	Khan & Co. (Prop: Mohd Muzaffer Khan, Station Road, Peddapalli	Weights, Measures, Weighing and Measuring Instruments.
(9)	Kojeti Subbiah, (Prop. Anjanya, W & M Depot, Venayaka Street, Tenali, Guntur.	Weights, Measures, Weighing and Measuring Instruments.
(10)	Pappu Vecraniah & Sons, Dowlaishwaram	Weights, Measures, Weighing and Measuring Instruments.
(11)	T.K. D. Prasad Babu & Co. (Prop: T. Suryanarayana Rao) Main Bazar, Mangalagiri, Guntur.	Weights, Measures, Weighing and Measuring Instruments.
(12)	Raja Scale Repairing Shop, Mandi Bazar, Warangal ..	Weights, Measures, Weighing and Measuring Instruments.
(13)	T. Rajesham, Old Beet Bazar, Warangal	Weights, Measures, Weighing and Measuring Instruments.
(14)	Shaik Abdul Wahab, Wahab Chowk Tenali, Guntur District.	Weights, Measures, Weighing and Measuring Instruments.
(15)	Iron Manufacturing Works, Ongole, Distt. Guntur ..	Weights, Measures, Weighing and Measuring Instruments.
(16)	Shaik Aziz Mohiuddin, Sk Meeran Saheb, Bestapalum, Bapatla.	Weights, Measures, Weighing and Measuring Instruments.
(17)	South India Scale Adjusting Centre (Prop: Mohd Taqui Hussian) Secunderabad.	Weights, Measures, Weighing and Measuring Instruments.
(18)	Swamy Alvalu Industries, Razole Taluk East Godavari	Weights, Measures, Weighing and Measuring Instruments.
(19)	Syed Scale Centre, Mahboobnagar	Weights, Measures, Weighing and Measuring Instruments.
(20)	Venkateshwara Scale Adjusting Centre, Karimnagar ..	Weights, Measures, Weighing and Measuring Instruments.
(21)	Yatam Chetty Uppalya, 9/78, Mandi Bazar, Warangal ..	Weights, Measures, Weighing and Measuring Instruments.

DELHI (6)

In the July and September 1959 and March, May and September 1960 issues of *Metric Measures* lists of licensed manufacturers, dealers and repairers of weights and measures in Delhi area were published. The following is a list of manufacturers, dealers and repairers subsequently licensed by the Delhi Administration.

Manufacturers

Sl. No.	Name and Address of Manufacturer	Details of Articles Manufactured
(1)	Precision Machinery Co., Delhi, 8681, Partap Singh Building, Integral Parts of Weighing Machines Paharganj, New Delhi.	

Dealers

Sl. No.	Name and Address of Dealer	Details of Articles Sold
(1)	Associated Textile Engineers, Chawri Bazar, Delhi ..	Weights, Measures, Weighing and Measuring Instruments.
(2)	Delhi Milk & Sweets Merchants Association, Bara Bazar, Kashmere Gate, Delhi.	Weights, Measures, Weighing and Measuring Instruments.
(3)	Precision Machinery Co., 51, G. B. Road, Delhi-6 ..	Weights, Measures, Weighing and Measuring Instruments.

Repairers

Sl. No.	Name and Address of Repairer	Details of Articles Repaired
(1)	Precision Machinery Co., 8681, Partap Singh Building, Paharganj, New Delhi.	Weights and Weighing Instruments.

KERALA (4)

In the November 1959, March and November 1960 issues of *Metric Measures* lists of licensed manufacturers and dealers of weights and measures in Kerala State were published. The following is a list of manufacturers, dealers, and repairers subsequently licensed by the Government of Kerala under the Kerala Weights and Measures (Enforcement) Act 1958.

Manufacturers

Sl. No.	Name and Address of Manufacturer	Details of Articles Manufactured
(1)	Associated Industries & Engineering Corporation, Near Alwaye Settlements, U.C. College P. O., Alwaye.	Weights, Weighing and Measuring Instruments.
(2)	K. I. Jacob, Jacob's Engineering Works, Thampanoor, Trivandrum.	Weights and Measures.
(3)	Menco Electricals (P) Ltd., Industrial Estate, Olvakkot, Palghat District.	Weights.
(4)	Oorampallil Engineering Works, Mundakkal West, Quilon	Weights, Measures, Weighing and Measuring Instruments.
(5)	The Electrical & Allied Industries (Trav), Under Government Management, Kundara; Quilon District.	Weights, Measures, Weighing and Measuring Instruments.

Dealers

Sl. No.	Name and Address of Dealers	Details of Articles Sold
(1)	Abdulhussein Abulkader & Co., Iron & Hardware Merchants, Cochin-2.	Weights, Measures, Weighing and Measuring Instruments.
(2)	A. Abdul Khadir & Brothers, General Merchants, Punalur	Weights, Measures, Weighing and Measuring Instruments.

Dealers (contd.)

Sl. No.	Name and Address of Dealer	Details of Articles Sold
(3)	P.M. Abdul Kader, P.M. Stores, Hardware Merchants, Main Road, Tellicherry.	Weights, Measures, Weighing and Measuring Instruments.
(4)	P. Abdul Khadir, Pazhaya Veedu, Petta, Pathanamthitta	Weights, Measures, Weighing and Measuring Instruments.
(5)	K. Abdurahiman Kutty & C.A. Assoo, Hardware merchants, Big Bazaar, Calicut.	Weights, Measures, Weighing and Measuring Instruments.
(6)	C.P. Aboobacker, News Agent, Hardware Merchants, Big Bazaar, Calicut.	Weights, Measures, Weighing and Measuring Instruments.
(7)	A. K. Ahamed & Sons., Hardware Merchant, M.A. Road, Calicut-1.	Weights, Measures, Weighing and Measuring Instruments.
(8)	P. Alikutty, Hardware Merchant, Quilandy	Weights, Measures, Weighing and Measuring Instruments.
(9)	Badagara Hardware Stores, Court Road, Badagara ..	Weights, Measures, Weighing and Measuring Instruments.
(10)	A. Balakrishna Iyer & Co., Iron Merchants, Ernakulam ..	Weights and Measures.
(11)	K.C. Balakrishna Pillai, Hardware Merchant, Pathanapuram.	Weights, Measures, Weighing and Measuring Instruments.
(12)	K.C.V.V. Bank Stores, Kothamangalam	Weights, Measures, Weighing and Measuring Instruments.
(13)	Bharath Hardware Stores, Palace Road, Alwaye	Weights and Measures.
(14)	The Calicut Iron Stores, Moideen Palli Road, Calicut-1	Weights, Measures, Weighing and Measuring Instruments.
(15)	K. Chandrasekhara Pillai, General Merchant, Market Junction, Kottarakara (P.O.)	Weights, Measures, Weighing and Measuring Instruments.
(16)	K. Chidambaram, Sole Proprietor, M/s. General Agencies, Basin Road, Ernakulam.	Weights, Measures, Weighing and Measuring Instruments.
(17)	P.H. Chidambaram Iyer, 70 ft. Road, Ernakulam	Weights, Measures, Weighing and Measuring Instruments.
(18)	A.R. Chockalingam Chettiar Sons, Merchants, Market, Alwaye.	Weights, Measures, Weighing and Measuring Instruments.
(19)	N. Damodara Rao, Goldsmith Tools Merchant, Calicut-1	Weights (Brass).
(20)	K. Daniel, General Merchant, P.O. Puthoor, Kottarakara	Weights, Measures, Weighing and Measuring Instruments.
(21)	V.P. Davis, General Merchant, Mattancherry, Cochin-2	Weights and Measures.
(22)	Devi & Co., Big Bazaar, Calicut-1	Weights, Measures, Weighing and Measuring Instruments.
(23)	T.H. Ebrahim Karim & Co., Hardware Merchants, Perumbavoor.	Weights, Measures, Weighing and Measuring Instruments.
(24)	C.N. Govinda Pai, Merchant, North Parur	Weights, Measures, Weighing and Measuring Instruments.
(25)	A.N. Guna Shenoy & Bros., Hardware Merchants, P.B. No. 167, Cochin-2.	Weights, Measures, Weighing and Measuring Instruments.
(26)	A.N. Guna Shenoy & Sons, Hardware Merchants, Broadway, Ernakulam.	Weights, Measures, Weighing and Measuring Instruments.
(27)	Hajee E. Ebrahim Koya, Paint & Hardware Merchants, Near 2nd Rly. Gate, Calicut.	Weights, Measures, Weighing and Measuring Instruments.

Dealers (contd.)

Serial No.	Name and Address of Dealer	Details of Articles Sold
(28)	Hajee P. Kunhammed, General Merchant 161-162, Thiromana Bazaar, Villiappalli, Via Badagara.	Weights, Measures, Weighing and Measuring Instruments.
(29)	Hajee K. Mammed Koya, Paint & Hardware Merchants, Big Bazaar, Calicut.	Weights, Measures, Weighing and Measuring Instruments.
(30)	C. Hamsu, Janatha Hardwares, Cannanore	Weights and Measures.
(31)	N.R. Hariharan, Hardware Merchant, Big Bazaar, Palghat	Weights, Measures, Weighing and Measuring Instruments.
(32)	Hindusthan, Hardware Merchant, Cloth Bazaar Road, Ernakulam.	Weights, Measures, Weighing and Measuring Instruments.
(33)	Hindusthan Hardware Stores, Mattancherry, Cochin-2	Weights, Measures, Weighing and Measuring Instruments.
(34)	K.T. Joseph, St. Thomas Stores, Mundakkayom	Weights and Measures.
(35)	Kalliyath Hardwares, Main Road, Tirur	Weights, Measures, Weighing and Measuring Instruments.
(36)	Kamath & Co., Tellicherry	Weights, Measures, Weighing and Measuring Instruments.
(37)	Kamath & Co., Hardware Merchants, Swamimatom Road, Cannanore.	Weights, Measures, Weighing and Measuring Instruments.
(38)	Kanaparath Abdulla, Hardware Merchants, Jubilee Tank Road, Badagara.	Weights and Measures.
(39)	G. L. Kilikar, (V/1 (B) New Road, Cochin-2	Weights, Measures, Weighing and Measuring Instruments.
(40)	A. Krishna Bhat, Hardware Merchant, Cloth Bazaar, Ernakulam.	Weights, Measures, Weighing and Measuring Instruments.
(41)	Krishna Hardware Mart, Big Bazaar, Calicut-1	Weights, Measures, Weighing and Measuring Instruments.
(42)	C.P. Krishna Iyer & Sons, Hardware and Paint Merchants, Palayam Road, Calicut-1.	Weights, Measures, Weighing and Measuring Instruments.
(43)	Kulamullathil Kunhammed, Hardware Merchant, Kakattil P.O., (Via) Nadapuram, Badagara Taluk.	Weights and Measures.
(44)	M.P. Kunhikannan, General Merchant, Court Road, Badagara.	Weights, Measures, Weighing and Measuring Instruments.
(45)	E. Kunhikannan Nair & Brother, Stationery Merchant, Kokkanasseri Bazaar, Payyannur, Cannanore Dist.	Weights, Measures, Weighing and Measuring Instruments.
(46)	K.C. Kuruvilla, Tobacco Merchant, Chengannur	Weights, Measures, Weighing and Measuring Instruments.
(47)	M.A.K. & Ittoli Saydali Koya, Hardware Merchant, Big Bazaar, Calicut.	Weights, Measures, Weighing and Measuring Instruments.
(48)	K.V. Mathew, Proprietor, K.V.M. Metal Works, Vaikom	Weights, Measures, Weighing and Measuring Instruments.
(49)	K.P. G. Menon, Sole Proprietor, M/s. Construction House, Post. Ottapalam.	Weights and Measures.
(50)	V.K. Menon & Co., Palayam Road, Calicut-1	Weights, Measures, Weighing and Measuring Instruments.
(51)	C. Mohammed, Hardware Merchants, Moideen Palli Road, Calicut.	Weights, Measures, Weighing and Measuring Instruments.
(52)	M.K. Mohammed Naina, Vessels Merchant, Chulai, Trivandrum.	Weights, Measures, Weighing and Measuring Instruments.

Dealers (contd.)

Sl. No.	Name and Address of Dealer	Details of Articles Sold
(53)	C. Mohammed Rashad, Balliapattam, Cannanore Dist. ..	Weights, Measures, Weighing and Measuring Instruments.
(54)	A.S. Money, V.P. Vilas, Parry & Co., Jn., Quilon	Weights, Measures, Weighing and Measuring Instruments.
(55)	Moonjelil Mercantile Trust, Merchants, & Commission Agents, Cherai P. O., Ernakulam Dt.	Weights, Measures, Weighing and Measuring Instruments.
(56)	Mootheden Brothers, Hardware Merchants, Punalur P.O., Quilon Dt.	Weights, Measures, Weighing and Measuring Instruments.
(57)	Mulanthuruthy Iron and Steel Industrial Co-operative Society Ltd., Mulanthuruthy P. O., Tripunithura ..	Weights, Measures, Weighing and Measuring Instruments.
(58)	C.S. Nair, General Merchant, Mylapra	Weights, Measures, Weighing and Measuring Instruments.
(59)	P.K. Narayana Pillai, General Merchant, Kulanada, Pandalam.	Weights, Measures, Weighing and Measuring Instruments.
(60)	K.R. Narayanan, Karippayil House, General Merchant, Market Road, Ernakulam.	Weights, Measures, Weighing and Measuring Instruments.
(61)	P. V. Padmanabha Prabhu, Sreemaruthu Hardware Stores, Broadway, Ernakulam.	Weights and Measures.
(62)	M.S. Pailo, Cochin Stores, Alwaye	Weights and Measures.
(63)	Palliveetil Mammed Koya & Bros., 9/88, Tobacco Street, Calicut.	Weights, Measures, Weighing and Measuring Instruments.
(64)	N.V.P. Philip, Neduvilil Bros., Hardware Merchant, Kanjirapally.	Weights, Measures, Weighing and Measuring Instruments.
(65)	P.K. Poullose, Pattasseril House, Hill Palace Road, Trippunithura.	Weights and Measures.
(66)	P.K. Pylo, Proprietor, Bonny & Co., 7/556, Court Road, Calicut-1.	Weights, Measures, Weighing and Measuring Instruments.
(67)	C.K. Raghavan, Krishna Hardware Stores, Badagara	Weights, Measures, Weighing and Measuring Instruments.
(68)	K.R. Rajan, Ilappam Moottil Veedu, Kannimelcheri, Kili-kolloor P.O., Quilon Dt.	Weights, Measures, Weighing and Measuring Instruments.
(69)	S. Rama Das Shenoy & Bros., General Merchants, Payyannur, Cannanore Dist.	Weights, Measures, Weighing and Measuring Instruments.
(70)	K.V. Ramachandra Iyer, Hardware Merchant, Palayam Road, Calicut-1.	Weights, Measures, Weighing and Measuring Instruments.
(71)	K.S. Ramiah Chetty & Brother, Palayam Road, Calicut-1	Weights, Measures, Weighing and Measuring Instruments.
(72)	C.K. Sankunny Nair, Hardware Merchant, Cloth Bazaar Road, Ernakulam.	Weights, Measures, Weighing and Measuring Instruments.
(73)	Saraswath Corporation (P) Ltd., 12/75, Palliarkavu Road, P.B. No. 143, Cochin-2.	Weights, Measures, Weighing and Measuring Instruments.
(74)	D. Sarvohama Rao, General Merchant, Muttom Bazaar, Shertalai P. O.	Weights, Measures, Weighing and Measuring Instruments.
(75)	Scales & Services, 'Sree Villa', New Road, Calicut-6 ..	Weights, Measures, Weighing and Measuring Instruments.
(76)	Shakthi Metal Depot, 3/213, Mattancherry, Cochin-2	Weights and Measures.
(77)	K.A.V. Sheik Rowther, Hardware Merchant, Big Bazaar, Palghat.	Weights and Measures, Weighing and Measuring Instruments.

Dealers (contd.)

Sl. No.	Name and Address of Dealer	Details of Articles Sold
(78)	K.H. Shenoy & Co., Hardware Merchant, Main Road, North Parur.	Weights, Measures, Weighing and Measuring Instruments.
(79)	S.S. Sheriff, Sheriff Buildings, Punalur	Weights, Measures, Weighing and Measuring Instruments.
(80)	Sree Venkiteswara Stores, Hardware Dealers, Tripunithurai	Weights and Measures.
(81)	K. S. Sukumaran, Hardware Merchant, Market, Road, North Parur.	Weights and Measures.
(82)	Sulaiman, C/o V.M. Ibrahim, Cycle Shop, Ernakulam North.	Weights and Measures.
(83)	K.P. Surendran & Bros., Palayam Road, Calicut-1	Weights, Measures, Weighing and Measuring Instruments.
(84)	P. Suria Pillai, Proprietor, M/s. The Jayaram Trading Co., Hardware Merchant, Chalai, Trivandrum.	Weights and Measures.
(85)	P.M. Syed Mohammed, Hardware Mart, Munnankulam Village, Adimaly Jn., Kottayam Dist.	Weights and Measures.
(86)	Thomas Chacko & Sons, Hardware Merchants, Thiruvella	Weights, Measures, Weighing and Measuring Instruments.
(87)	United Stores, Main Road, Tellicherry	Weights, Measures, Weighing and Measuring Instruments.
(88)	K.K. Unni, Hardware Merchant, North Parur	Weights and Measures.
(89)	Universal Hardware Stores, 9/615—Big Bazaar, Calicut	Weights, Measures, Weighing and Measuring Instruments.
(90)	Vadiyil Moideen Kutty Sons, Mohd. Abdul Rahiman Road, Calicut-1.	Weights, Measures, Weighing and Measuring Instruments.
(91)	C.M. Varieth & C. I. Iyyukutty, Hardware & Metal Merchants, Kunnamkulam, Trichur Dt.	Weights, Measures, Weighing and Measuring Instruments.
(92)	M. Veerannan Chettiar, Hardware Merchant, Main Road, Vellanghy, Nemmara.	Weights, Measures, Weighing and Measuring Instruments.
(93)	S. Velayudhan Pillai, "Mavelil", Chavara P.O., Quilon Dist.	Weights, Measures, Weighing and Measuring Instruments.
(94)	N. Vittala Pai, Hardware Merchant, East Bazaar, Kaya-mkulam.	Weights and Measures.

Repairers

Sl. No.	Name and Address of Repairer	Details of Articles Repaired
(1)	N. Appukuttan, Kulathil Purayidom, Vadayattukotta Ward, Quilon.	Weights, Measures, Weighing and Measuring Instruments.
(2)	Balakrishnan Asari, Kettungassery, Thekkethil Kottachachakom, Quilon.	Weights, Measures, Weighing and Measuring Instruments.
(3)	R. Bhaskaran Nair, Radhakrishna Motor Works, Quilon	Weights, Measures, Weighing and Measuring Instruments.
(4)	M.M. George, Kulathil Purayidom, Vadayattukotta, Quilon.	Weights, Measures, Weighing and Measuring Instruments.
(5)	P.A. Hassan Kani, Proprietor, Kerala Mechanical Works, Near Power House, Changancherry.	Balances.

Repairers (contd.)

Sl. No.	Name and Address of Repairer	Details of Articles Repaired
(6)	C.T. Joseph, Cheevalli House, Bolghatty, Ernakulam	Weights, Measures, Weighing and Measuring Instruments.
(7)	V. Krishna Prabhu, Scales Merchant, Edakattil House, 33/12/Alwaye.	Weights, Measures, Weighing and Measuring Instruments.
(8)	E.F. Mathew, Edathil House, Pezhala, Kadamakudi P.O., Ernakulam.	Weights, Measures, Weighing and Measuring Instruments.
(9)	Mighty Scale Co., Kurancherry	Weights, Measures, Weighing and Measuring Instruments.
(10)	A.S. Money, V.P. Vilas, Parry & Co., Jn., Quilon	Weights, Measures, Weighing and Measuring Instruments.
(11)	K.R. Rajan, Happtomool Veedu, Kunnimel Cheriyl, Kilikolloor, Quilon.	Weights and Measuring Instruments.
(12)	Sulaiman Vadakkath, Kalathuparathu House, Kalloor, Ernakulam.	Weights, Measures, and Beam Scales.

MADHYA PRADESH (3)

In the May 1960 and July 1960 issues of *Metric Measures* lists of manufacturers and dealers of weights and measures in Madhya Pradesh State were published. The following is a list of manufacturers, dealers and repairers subsequently licensed under the Madhya Pradesh Weights and Measures (Enforcement Act, 1958).

Manufacturers

Sl. No.	Name and Address of Manufacturer	Details of Articles Manufactured
(1)	Agrawal Engineering Corporation, Gondapara, Bilaspur	Cast Iron Weights.
(2)	Agrawal Metal Works, Morar, Lashkar	Weights.
(3)	Arun Brothers, Opposite Bharat Talkies, Bhopal	Measures and Measuring Instruments.
(4)	Bharat Metal Works, 1115, Netaji Subhas Road, Andherdeo, Jabalpur.	Brass Weights & Measures.
(5)	Bharat Brush Traders, Lane Gaushala, Belanganj, Agra	Weights & Measures.
(6)	Bharat Metric Industries, 20-Jain Mandir Road, Chowk, Bhopal.	Weights.
(7)	Bhupendra Iron & Metal Works, Binod Mills Ltd., Ujjain	Weights.
(8)	Bombay Metal Works, Gous Darwaja, H. No. 1326, Near Bori Jamatkhana, Ujjain.	Brass & Cast Iron Weights.
(9)	Girwarlal Pyarelal, Sarafa Bazar, Morena	Weights.
(10)	Gwalior Metal Goods Producer Corporation, Danaoli, Lashkar (Gwalior).	Brass Weights.
(11)	Gulabchand Chhotey Lal, Freeganj, Agra	Weights.
(12)	Ice Machinery Mart, Barafkhana, Gwalior	Weights.
(13)	S. K. Iron Foundry & Engineering Co., Rambagh, Agra	Weights.
(14)	Jagdamba Iron Foundry, Belanganj, Agra	Weights.

Manufacturers (contd.)

Sl. No.	Name and Address of Manufacturer	Details of Articles Manufactured
(15)	Malav Metal Industries, Bhindi Khow, Indore	Brass & Cast Iron Weights.
(16)	Mallomal Ram Pershad, Iron Brass Foundry & Engineering Works, Belanganj, Agra.	Weights.
(17)	Manohar Metal Works, Damoh	Brass & Cast Iron Weights.
(18)	Prabhat Iron Foundry, Freeganj, Agra	Weights.
(19)	Prakash Iron Industries, Venkat Road, Rewa	Cast Iron Weights.
(20)	Radhes Patra Udyog, Nai Sadak, Lashkar, Gwalior	Brass Weights.

Dealers

Sl. No.	Name and Address of Dealer	Details of Articles Sold
Indore Division		
(1)	R. R. Contractor & Co., Mahatma Gandhi Road, Mhow	Weights.
(2)	M. Fida Ali Mohammad Ali, Joara (District Ratlam)	Weights.
(3)	Hemchandra Dey & Co., Syaganj, Indore	Weights & Measures.
(4)	Jagannath Agrawal, Agrawal Book Depot, Mhow	Weights.
(5)	Jagdish Chandra Chandmal, Garg Niwas, Naya Bazar, Neemach City.	Weights and Measures.
(6)	M. M. Mantri & Co., Tijorigali, Siyaganj, Indore	Weights & Measures.
(7)	Modi Ramlal Balbhadra, Chhota Bazar, Mhow	Weights.
(8)	Ramesh Iron Works, 41, Malhar Ganj, Lohar Patti, Indore	Weights & Weighing Instruments.
Jabalpur Division		
(1)	Amratlal Brothers, Jabalpur	Weights, Measures, Weighing and Measuring Instruments.
(2)	Balkrishna Foolchand Kothari, Itwari Bazar, Chhindwara	Weights & Measures.
(3)	Birdichana Kanchhedilal, Kamanigate, Jabalpur	Weights, Measures, Weighing and Measuring Instruments.
(4)	Damoh District Regional Co-operative Marketing Society, Damoh.	Weights, Measures, Weighing and Measuring Instruments.
(5)	Gujarat Hardware Stores, Jabalpur	Weights, Measures, Weighing and Measuring Instruments.
(6)	Hathiwala Company, 33, Marhatal, Jabalpur	Weights & Measures.
(7)	Kunj Beharilal Ganeshprasad, Katni	Weights & Measures.
(8)	M. P. State Cooperative Marketing Society Ltd., 626, Wright Town, Jabalpur.	Weights & Measures.
(9)	Mediwala & Company, Jabalpur	Weights, Measures, Weighing and Measuring Instruments.
(10)	Mohammadali Badruddin, Seoni (Eastern Rly.)	Weights & Measures.
(11)	Moolchand Jain, Jain Store, Nainpur	Weights, Measures, Weighing and Measuring Instruments.
(12)	Swarnakar Vastra Bhandar, 775, Sarafa Bazar, Jabalpur	Weights, Measures, Weighing and Measuring Instruments.

Dealers (contd.)

Sl. No.	Name and Address of Dealer	Details of Articles Sold
Bhopal Division		
(1)	Akbarali Mousinali & Bros., Shop No. 655, Machhali Bazar, Sehore.	Weights, Measures and Weighing Instruments.
(2)	Ashta Cooperative Marketing Society Ltd., Ashta District, Sehore.	Weights & Measures.
(3)	Bapulal Gulab Chand Shujalpur, Mandi	Weights and Measures and Weighing Instruments.
(4)	Chairman Marketing Society Berasia, District, Sehore	Weights and Measures.
(5)	Chunnilal Munnalal, Pachore, (District Rajgarh)	Weights, Measures and Weighing Instruments.
(6)	Cooperative Marketing Society Seoni, Malwa	Weights, Measures and Weighing Instruments.
(7)	Dharam Prakash Iron Stores, Bus Stand, Bairagarh (Distt. Sehore).	Weights, Measures and Weighing Instruments.
(8)	Gowri Shankar Phoolchand, Namak Chowraha, Sehore	Weights, Measures and Weighing Instruments.
(9)	Haidarali Mulla Abdul Hussain, 4/5, Gandhi Road, Sehore.	Weights, Measures, Weighing and Measuring Instruments.
(10)	Hind Hardware Stores, Bhopal Road, Sehore	Weights, Measures, Weighing and Measuring Instruments.
(11)	Inder Stores Station Road, Bairagarh, Bhopal	Weights, Measures, Weighing and Measuring Instruments.
(12)	Kastoorchand Komal Chand, Near Police Station Rathi, Tahsil Budhani, District Sehore.	Weights, Measures and Weighing Instruments.
(13)	Krishna Das Jeevan Das Sarraf, 72 Sarrafa Bazar, Bhopal	Weights, Measures, Weighing and Measuring Instruments.
(14)	Kunjilal Ratanlal Agrawal, Gadarpura Chowk, Seoni-Malwa.	Weights, Measures and Weighing Instruments.
(15)	Manak Chand Gulab Chand Agrawal, Timarni Mandi, Distt. Hoshangabad.	Weights and Weighing Instruments.
(16)	Nanailal Brindawandas, Jawahar Chowk, H. No. 341-344, Bhopal.	Weights, Measures, Weighing and Measuring Instruments.
(17)	Shrikishan Das Rameshwar Prasad, General Cloth Merchant, Ashta, Distt. Sehore.	Weights, Measures and Weighing and Measuring Instruments.
(18)	Tapti Cooperative Marketing Society Multai District, Betul.	Weights.
(19)	Thanaram S/o Jawala Singh, Bagga, Bhopal Road, Sehore	Weights, Measures, Weighing and Measuring Instruments.
(20)	Zamin Hussain M. Kamalali, Chhota Bazar, Barasia	Weights, Measures and Weighing Instruments.
Gwalior Division		
(1)	Abdul Rasool Fakrooddin & Co., Scopur, Talan, District Morena.	Weights, Measures, Weighing and Measuring Instruments.
(2)	Bansidhar Vimal Chand Jain, Lohia Bazar, Lashkar (Gwalior)	Weights, Measures and Weighing Instruments.
(3)	Betal Singh Chhatri Bazar, Lashkar	Weights and Measuring Instruments.
(4)	Kisar Mohammed Khan Khurjawalan, Daulatganj, Lashkar	Weights, Measures, Weighing and Measuring Instruments.

Dealers (contd.)

Sl. No.	Name and Address of Dealer	Details of Articles Sold
(5)	Kumar Traders, Inderganj, Lashkar	Weights and Measures.
(6)	Lashkar Coop. Marketing Society Ltd. Lashkar	Weights, Measures and Weighing Instruments.
(7)	Maheshwari Iron Stores, Dabra	Weighing and Measuring Instruments.
(8)	Narendra Kumar Dharampal, Shivpuri	Weighing and Measuring Instruments.
(9)	National Engineering Works, Sindeki Chhawani, Lashkar	Weights.
(10)	Nehnamal Rajaram Iron Merchant, Lohia Bazar, Lashkar (Gwalior).	Weights.
(11)	Parasram Bhagwandas, Sadar Bazar, Morar Gwalior	Weights & Measures.
(12)	Ram Singh Dandotia, Morena	Weighing and Measuring Instruments.
(13)	Shyam Lal Gupta C/o. Prem Sadan, Naisarak, Lashkar, Gwalior.	Weights, Measures, Weighing and Measuring Instruments.
(14)	Tambat Nib Factory, Maharani Laxmibai Road, Lashkar, (Gwalior).	Weights.
Raipur Division		
(1)	Anandilal Vishnuprasad Sharma, General Merchant, Ramdin Marg, Rajnandgaon.	Weights and Measures, Weighing and Measuring Instruments.
(2)	Hiralal & Bros, Station Road, Ganjpara, Raipur	Weights and Measures.
(3)	Madhya Pradesh Industries Private Ltd., Raipur	Weights and Measures.
(4)	National Mills and Electric Stores, Station Road, Raipur	Weights and Measures.
(5)	Natwarlal Dulabhadas, Dhantari	Weights and Measures, Weighing and Measuring Instruments.
(6)	New M. P. Mechanical Industries, Station Road, Drug	Weights and Measures.
(7)	Saligram Laxmi Narain Nathani, Sadar Bazar, Raipur	Weights and Measures.
(8)	Santosh Kumar Garg & Co., Mahatma Gandhi Road, Raipur.	Weights and Measures.
Rewa Division		
(1)	Baldeo Prasad Ishwardeen, 18/7, Fort Road, Rewa	Weights and Measures.
(2)	Balkrishna Mohanlal, Galla Mandi, Chhatarpur	Weights and Measures, and Weighing Instruments.
(3)	Dwarka Prasad Raghunandan Prasad, 29/7, Fort Road, Rewa.	Weights and Measures.
(4)	Ganesh Prasad Dwarka Prasad Agarwal, Gandhi Chowk Bazar, Chhataur.	Weights, Measures and Weighing Instruments.
(5)	Hanumana Cooperative Marketing Society, Ltd., Hanumana, Distt. Rewa.	Weights and Measures.
(6)	Jain Bros. Chowk Bazar, Satna	Weights, Measures and Weighing Instruments.
(7)	Janki Prasad Khairha, Bada Bazar Tikuria Mohalla, Panna.	Weights and Measures.
(8)	Kamta Prasad Sarjuprasad Bisati, 16/2 Fort Road, Rewa	Weights and Measures.
(9)	G. D. Khanna & Sons Co., Behariji Chowk, Satna	Weights and Measures.
(10)	Kamta Prasad Surgriya Prasad, Opposite Bank of Baghel Khand, Rewa.	Weights and Measures.
(11)	Kunj Behari Ram Manohar Saraf, Panna	Weights, Measures and Weighing Instruments.
(12)	Radhakrishnan Kamta Prasad, Fort Road, Rewa	Weights and Measures.
(13)	Ramdayal Chhakaodilal Gupta, Chawahatta Bazar, Rewa	Weights and Measures.
(14)	Wazir Chand Shyam Sunder, Chowk Bazar, Satna	Weights and Measures.

Repairers

Sl. No.	Name and Address of Repairer	Details of Articles Repaired
(1)	Hiralal Brothers Station Road, Gunjpara, Raipur	Weights and Measures, Weighing and Measuring Instruments.
(2)	G. D. Khanna & Company, Satna	Weights and Measures.
(3)	Swastik Engineering & Scientific Co., 257, Jawaharganj, Garhafatak, Jabalpur.	Weights, Measures, Weighing and Measuring Instruments.
(4)	Wazir Chand Shyam Sunder, Satna	Weights, Measures, Weighing and Measuring Instruments.

MADRAS (5)

In the November 1959 and March, September and November 1960 issues of *Metric Measures* lists of licensed manufacturers, dealers and repairers of weights and measures were published. The following is a list of manufacturers, dealers and repairers subsequently licensed by the Government of Madras under the Madras Weights and Measures (Enforcement) Act, 1958.

Manufacturers

Sl. No.	Name and Address of Manufacturer	Details of Articles Manufactured
(1)	Anandan Foundry, 5/7, Vadaagraram, Aminjikarai	Weights and Measures.
(2)	C. R. Bhoopathy Naicker, 9, Errabalu Chetty Street, Madras-1.	Conical Measures (litres).
(3)	Dilawar-Akbar Industrial Works (State aided), 1/126, Moore Street, Madras-1.	Weights and Measures
(4)	Dharaniraj Cottage Industries, R. C. M. Lay Out, Petal Road, Coimbatore-9.	Litres.
(5)	Everest Engineering Works, 169, Waltax Road, Madras-1	Weights and Measures
(6)	P. Kannappa Naicker, No. C. 60, Adam Sahib Street, Royapuram, Madras.	Conical type Measures.
(7)	Kitabi Hardware Stores, Hardware & Tools Merchants, 12-13, Devaraja Mudali Street, Madras-3.	Measures (litres):
(8)	V. K. Kuppuswamy Pillai, 54, Gandhi Road, Vellore, N. Arcot Dt.	Weights.
(9)	Krishna Brass Foundry, 17/4, Nelson Manicka Mudali Road, Aminjikarai, Madras-29.	Weights and Measures.
(10)	A. Kurban & Co., 21-A, Errabalu Chetty Street, Madras-1	Measures (litres).
(11)	Madras Weights Manufacturing Company, 226, Govindappa Naicken Street, Madras-1.	Bullion Weights.
(12)	N. Mohamed Kasim, Hayath Industries, 7, Kandappa Chetty Street, Madras-1.	Weights, Measures and Measuring Instruments.
(13)	New Royal Engineering Works, 32/6 Katpadi Road, N. Arcot Dt.	Weights and Measures.
(14)	Shanmugam Industries, 64/65, Nainappa Naicken Street, Madras-3.	Weights and Measures.
(15)	South India, Gold Weights Works, 10, Yegappa Chettiar Lane, Karaiduki-1.	Bullion Weights.
(16)	S. Srinivasan, 65, Janadranar Street, Madras-19	Weights.
(17)	P. E. Thanikachalam, 121, Waltax Road, Jattapuram, Madras-1.	Weights and Measures.

Dealers

Sl. No.	Name and Address of Dealer	Details of Articles Sold
(1)	K. A. Abdul Hameed Khan, 9, Bazar Street, Chidambaram, South Arcot District.	Weights and Measures.
(2)	A. M. Abdul Malik, Bharath Hardware Stores, 10, Eda Street, Tiruvannamalai, North Arcot District.	Weights and Measures.
(3)	Anandan allas Krishnamurthi Chetty, 10, Eda Street, Tiruvannamalai, North Arcot, District.	Weights and Measures.
(4)	A. K. Arunachalan Chetty, 2/73, Bazar Street, Uthukottai Trivellore Taluk, Chingleput, District.	Weights and Measures, Scales and Balances.
(5)	Assiya Khanam, Prop. The Eastern Trading Co., 5, Linghi Chetty Street, Madras-1.	Weights and Measures.
(6)	V. P. Bala Krishnan Chettiar, 7, Bazar Street, Kallakurichi, South Arcot District.	Weights and Measures.
(7)	C. S. Balakrishnan, Opp. National Medical Stores, Gandhi Road, Arkonam, N. Arcot District.	Weights and Measures.
(8)	C. R. Bhoopathy Naicker, 9, Errabalu Chetty Street, Madras-1.	Conical Measures (Litres).
(9)	Dawood Ali & Co., 1/34, Errabalu Chetty Street, Madras-1.	Measures.
(10)	Deen Stores, 117, Bazar Street, Vridhachalam, South Arcot District.	Weights and Measures.
(11)	Dharaniraj Cottage Industries, 25/585, Range Gowder St., Coimbatore-1.	Litre.
(12)	Dhanalakshmi Coffee Works, 41, Old Taluk Office Street, Tirukoilur, South Arcot District.	Weights and Measures.
(13)	P. T. Doraiswamy Chettiar, 212, Gandhi Road, Kancheepuram, Chingleput District.	Weights and Measures.
(14)	S. Ekambaram, M/s. India Scales, 45, E. H. Road, Vysarpady, Madras-12.	Weights, Measures and Scales.
(15)	T. S. Fidaally & Co., 344, Rasappa Chetty Street, Madras-3	Weights and Measures.
(16)	M. Govindarajan, 1/61, Rasappa Chetty Street, Madras-3	Weights and Measures.
(17)	M. E. Govindarajulu Chetty, 116, Bazar Street, Chingleput	Weights and Measures.
(18)	India Hardware Stores, Bazar Street, Chidambaram, South Arcot District.	Weights and Measures.
(19)	Kaliappa Nadar & Sons, 195 & 296, Big Bazar Street, Dindigul, Madurai District.	Weights and Measures.
(20)	A. Kandaswamy Sons, Hardware Merchants, 18, West Sannadhi, Chidambaram, South Arcot Dt.	Weights.
(21)	P. Kaniappa Naicker, 60, Adam Sahib Street, Royapuram, Madras.	Conical Measures.
(22)	Krishna Brass Foundry, 17/4, Nelson Manickar Mudaly Road, Aminjikarai, Madras-29.	Weights and Measures.
(23)	Pooshnam Bros., 153-154, Market, West Tambaram, Madras.	Weights and Measures.
(24)	B.M. Krishnan, 31, Thana Street, Purasawalkam, Madras-7	Weights and Measures.
(25)	V. K. Kuppuswamy Pillai, 54, Gandhi Road, Vellore, N. Arcot.	Weights and Measures.
(26)	A. Kurban & Company, 21-A, Errabalu Chetty Street, Madras-1.	Litres.
(27)	K.A. Madhar, 2/93, Moore Street, Madras-1	Weights.

Dealers (contd.)

Sl. No.	Name and Address of Dealer	Details of Articles Sold
(28)	K.K. Manicka Achary, 65, Tennamaram Street, Vellore, N. Arcot.	Weights.
(29)	M. K. Mohamed Abdul Khadar, 89, Linghi Chetty St., Madras-1.	Weights.
(30)	N. Mohamed Industries, Huyath Industries, 7, Kandappa Chetty Street, Madras-1.	Weights & Measures.
(31)	K. M. Mohamed Sheik Dawood, No. 12-A, Dr. Naimathullah Sahib Street, Triplicane, Madras-5.	Weights.
(32)	Myers Sales Corporation, 9/22-C, Broadway, Madras-1	Weights & Measures.
(33)	Mysore Engineering Corporation, 79/10, Sembudoss Street, Madras-1.	Weights & Measures.
(34)	R. M. Nagappa Thevar and G. V. Sankarasubbu, 6/105, Panchayat Board Road, Sulur P.O., Coimbatore Dt.	Iron Weights.
(35)	P. E. Nataraju Chetty, 181, Nianiappa Naicker Street, Madras-1.	Weights, Measures & Scales.
(36)	K. Natesa Chetty, 279, Rasappa Chetty Street, Opp. Kandaswamy Temple, Madras-3.	Weights & Measures.
(37)	New Royal Engineering Works, 32/6, Katpadi Road, Vellore.	Weights & Measures.
(38)	New Weights Company, 24, Errukkancheri High Road, Madras-11.	Weights & Measures.
(39)	Pachiappa Mudaliar & Sons, Maligai, 62, Bazaar Street, Wandiwash, South Arcot Dt.	Weights, Measures and beam scales.
(40)	V. R. Rajamanicka Chettiar, Iron Merchant, 175, Bazaar Street, Vridhachalam.	Weights & Measures.
(41)	A. S. S. Prakasam, 31, Market Street, St. Thomas Mount, Madras-16.	Weights, Measures, Weighing and Measuring Instruments.
(42)	M. K. Rajanna Chetty, 194-A, Nianiappa Naicken St., Madras-3.	Weights & Measures.
(43)	T. P. Rajamanickam, 60, Chetty Street, Tirupathur, North Arcot Dt.	Weights & Measures.
(44)	Rao Sahib K. A. MAA. Kaliappa Nadar & Company, 80/81, Clock Tower, Tiruchirapalli-8.	Weights & Measures, Weighing and Measuring Instruments.
(45)	Rao Sahib KAMA Kaliappa Nadar & Sons, 78/79, High Road, Tirunelveli.	Weights & Measures.
(46)	V. Rathakrishna Chetty, 194, Santhapet, Gudiyatham, North Arcot Dt.	Weights, Measures, Weighing & Measuring Instruments.
(47)	A. Rathinam Chettiar, Iron Merchant, 108, Bazar Street, Wandiwash.	Weights, Measures & Measuring Instruments.
(48)	P. E. Rubalinga Chetty, 103, Rasappa Chetty Street, Madras-2.	Weights & Measures.
(49)	C. S. Sambanda Mudaliar, Kanakam Stores, 9, Cutcheri Road, Kattumannarkoil.	Weights & Measures.
(50)	Service Industrial Works, 33/2, Katpadi Road, Vellore, N. Arcot Dt. Branch :-278, Waltax Road, Madras-3.	Weights.
(51)	A. P. M. Shahul Hameed Marakayar & Sons, Exporters & Importers, 52, Lebbai Street, Pudupet, Mount Road, Madras-2.	Weights.

Dealers (contd.)

Sl. No.	Name and Address of Dealer	Details of Articles Sold
(52)	Shanmugham Industries, 64/65, Nainiappa Naicken Street, Madras-3.	Weights & Measures.
(53)	S. O. Shemsudeen Sahib, Hardware Merchant, 74-75, West Car Street, Chidambaram, South Arcot Dt.	Weights & Measures.
(54)	S. Srinivasan, 62, Jandranar Street, Madras-19	Weights.
(55)	K. M. Thambu Reddy, 59, Gandhi Road, Arkonam, N. Arcot Dt.	Weights & Measures.
(56)	S. M. Thandavamurthi Nayagar, 61, Chinna Amman Koil Street, Chingleput.	Weights & Measures.
(57)	P. E. Thanickachalam, 118, Rasappa Chetty Street, Madras-3.	Weights & Measures.
(58)	Tiherbhai, Kitabi Hardware Stores, 12-13, Devaraja Mudali Street, Madras-3.	Litres.
(59)	Venkateswara Hardware Stores, 25/48, Fort Main Road, Shevapet, Salem.	Weights & Measures.
(60)	G. Venugopal Chetty, G.N.T. Road, Gumudipoondy, Chingleput Dt.	Weights & Measures.
(61)	Vummi Bangaru Chetty Sons, 28, China Bazaar, Madras-1	Bullion Weights.
(62)	Zainulabudeen, 128/2, Manicka Maistry Street, Madras-14	Weights.
(63)	Zakindin, Badar Bros., 28, Perianna Maistry Street, Madras-1.	Weights, Measures (Litres) and Platform Scales.

Repairers

Sl. No.	Name and Address of Repairer	Details of Articles Repaired
(1)	A. Hirudayaswamy Pillai, 6/6, Abbaswami Naidu Street, Redfields, Coimbatore.	Scales and Weighing machines.
(2)	C. M. Joseph, 3rd Lane, Portuguese Church Street, Madras-1.	Platform Scales and Weighing Instruments.

MAHARASHTRA (2)

In the list published in November 1960 issued of *Metric Measures* the first instalment of licensed manufacturers, dealers and repairers was given. This list contains licensed manufacturers and repairers subsequently licensed under the Bombay Weights and Measures (Enforcement) Act, 1958. Separate list for Gujarat is not yet available and it is hoped to publish it in the next issue.

Manufacturers

Sl. No.	Name and Address of Manufacturer	Details of Articles Manufactured
(1)	Adarsh Engineering P. Ltd., Shivaji Road, P.O. Shri Ram-pur, Dist. Ahmednagar.	Weights.
(2)	Arvind & Suresh Engg. Works, Near Agaram Devi, Subhash Road, Nagpur-2.	Cast Iron Weights.

LICENSED MANUFACTURERS, DEALERS & REPAIRERS OF WEIGHTS & MEASURES (I I)

Manufacturers (contd.)

Sl. No.	Name and Address of Manufacturer	Details of Articles Manufactured
(3)	Avery Company of India (Private) Ltd., 16, Dougal Road, Ballard Estate, Bombay-1.	Weights, Measures, Weighing and Measuring Instruments.
(4)	Bajarang Metal Works, Itwari Bazar, Nagpur-2	Brass Weights.
(5)	Bharat Home Industries, C/o United Casting, E. 2131, Vikram Nagar, Kolhapur.	Cast Iron Weights.
(6)	Bharat Litre Mfg. Works, 43, Suleman Kasam Mitha Chawl, Round Gate, Duncan Road, Bombay-8.	Conical Capacity Measures.
(7)	Behre Mullaji Shop, 'Street Lamp Works' Bhandara Road, Itwari, Nagpur.	Conical Capacity Measures.
(8)	Central Metal & Wire Products, 60, Lamington Road, Opp. Maratha Mandir, Bombay-8.	Weights.
(9)	Fakruddin Abdulhusain, 72, Bapti Road, Mirza Chawl, Bombay-3.	Conical Capacity Measures.
(10)	Gothi Iron & Metal Works, Ltd., Shingada Tank, Nasik.	Weights.
(11)	M.K. Chavan & Sons, 1905, Tiwandha, Nasik	Weights.
(12)	Imperial Iron Works, 6th Kumbharwada, Kharwa Galley, Bombay-4.	Weights.
(13)	I.C.A. Scale Manufacturing Co., 13, Shri Niketan, Queen's Road, Bombay-1.	Weighing Instruments.
(14)	Y.M.C. Industrial Works, 2015, Yeshpushp 'Rajarampuri, 6th Lane, Kolhapur.	Cast Iron Weights.
(15)	Jayashree Metal Corporation, Kumbharwada Cross Lane, D'Souza Street, Vadgadi, Bombay-3.	Weights.
(16)	Kolte Engineering Works, Shop, Bargaon Road, Wardha.	Weights.
(17)	Krishna Co., 738, Shukrawar Peth, Poona-2.	Weights.
(18)	Laxmi Engineering Works, 197, Corner of Grant Road, Bombay-8.	Weights.
(19)	Luhar Rana Trikam Makwana, Kumbharwada 4th Lane, Dadabhai Parsi Bldg., Bombay-4.	Beam Scales.
(20)	Modern Foundry & Machine Works Ltd., Station Road, Ahmednagar.	Weights.
(21)	Mohamed Ismail Tin Factory, Near O.S. Mills, Compound, Water Tank, Nanded.	Conical Measures.
(22)	Mercury Iron & Steel Co., Pvt., Ltd. Engineers Founders, and Contractors, Globe Mills Passage, Cross Lane, Bombay-13.	Cast Iron Weights.
(23)	Nadirshaw & Bros., Silver Talkies Bldg., Khetwadi Back Road, Bombay-4.	Cast Iron Weights.
(24)	M.M. Nasib, 18/2, Kamathipura, Bombay-3.	Conical Capacity Measures.
(25)	M. Nazir & Sons, Haji Kasam Chawl, Duncan Road, X Lane, Bombay.	Weights and Weighing Instruments.
(26)	Parvat Revji Mistry, Malegaon Motor Stand, Panchavati, Nasik.	Beam Scales.
(27)	Patil Iron & Brass Works, Panchavati, Nasik	Weights.
(28)	Pimple Mechanical Works, Bassim Motor Stand, Akola (M.S.).	Cast Iron Weights.

Manufacturers (contd.)

Sl. No.	Name and Address of Manufacturer	Details of Articles Manufactured
(29)	Prabhat Foundry, 689, Sadashiv Peth, Poona-2 ..	Cast Iron Weights.
(30)	Reliable Iron & Mechanical Works, Pipe Line, Vakola, Santacruz, Bombay-55.	Weights.
(31)	Ripon Road Iron Foundry, Lamington Road, North Alana, Compound, Opp: Agripada Police Station, Bombay-11.	Weights.
(32)	Saple's Scale Manufacturing Co. (Pr.) Ltd., 180-B, Gaiwadi, Girgaum Road, Bombay-4.	Weights and Weighing Instruments.
(33)	B.G. Shinde & Co., 735, Shukrawar Peth, Poona-2 ..	Weights.
(34)	Siesta Industrial & Tracing Corpn., Bail Bazar, North Kurla, Bombay-70.	Cast Iron Weights.
(35)	Standard Mechanical Works, Jetha Street, Patel Compound, Lamington Road, Bombay-8.	Weights.
(36)	Union Metal Works, 28/30 A, Dhaku Prabhu Wadi, Ghorupdeo, Bombay-10.	Weights.
(37)	D.L. Vaid, 202, Cutlery Bazar, Bombay-3	Bullion & Brass Weights.

Repairers

Sl. No.	Name and Address of Repairer	Details of Articles Repaired
(1)	Abdul Rehman Chikte, C/o Industries Chemicals & Adhesives, 10, Sussex Rd. Byculla, Bombay-27.	Weights Measures and Weighing Instruments.
(2)	Arkay Traders No. 5, Gustad Chambers, Jail Rd. (North), Opp. J.J. Hospital Gate No. 6, Bombay-9.	Weights, Measures and Weighing Instruments.
(3)	Asgarally Akberally Kantawalla Hakim, 448, Madhavrao, Rokde Rd., Bombay.	Weights, Measures and Weighing Instruments.
(4)	Asia Engineering Corporation No. 4, Gustad Chambers, Jail Rd., Opp. J.J. Hospital Gate No. 6, Bombay-9.	Weights, Measures and Weighing Instruments.
(5)	D. H. Bagamkar, Karnal Chowki, Namdeo Mandir, Sangli.	Weights, Measures and Weighing Instruments.
(6)	Bansilal & Co., Main Road, Nasik City	Weights and Measures and Weighing Instruments.
(7)	B.A., & Brothers, 175, Kazi Syed St., Dhoble Bldg., Mandvi, Kolwada, Bombay-3.	Weights, Measures & Weighing Instruments.
(8)	M.C. Brothers, 2nd Bhoiwada Lane, Bhuleswar, Bombay-2	Weights, Measures & Weighing Instruments.
(9)	Crown Engineering Corporation, Shop No. 39, 1st Ghogari, Mohalla, Near Paydhuni, Bombay-3.	Weights Measures, and Weighing Instruments.
(10)	Damodar Bhikabhai Kantawalla, 4-A, Masjid Siding Rd., Dana Bunder, Opp: Sailors' Home, Bombay-9	Weights, Measures and Weighing Instruments.
(11)	Fidaali Gulamali, 163, Janjekar Street, Bombay-3 ..	Weights, Measures and Weighing Instruments.
(12)	B.T. Ghatse Hattimahal Road, Medhi Building, Kolhapur	Weights, Measures and Weighing Instruments.
(13)	Gold Star Engineering Co., Sherir Baug, B' Block, Shop No. 10, Babula Tank Road, Opp. J.J. Hospital Gate, No. 5, Bombay-9.	Weights, Measures and Weighing Instruments.
(14)	Gurudatta Workshop, 79, Sidheshwar Peth, Sholapur.	Weights, Measures and Weighing Instruments.

Repairers (contd.)

Sl. No.	Name and Address of Repairer	Details of Articles Repaired
(15)	Ibrahim Mulla Abdual Tayeb, 69, Sarang, Street, Bombay-2	Weights, Measures and Weighing Instruments.
(16)	G.A. Kantawala, 254, Ripon Rd., Sajan Bldg., Bombay-8	Weights, Measures and Weighing Instruments.
(17)	A.R. Kantawalla, Dhobi Galli, Mohmadi House, Bombay-3	Weights, Measures and Weighing Instruments.
(18)	N.S. Kantawalla, 175, Dimtimkkur Rd., Shop No. D-2, Bombay-8.	Weights, Measures and Weighing Instruments.
(19)	M.G. Kotekar, Somwar Peth, Hattimahal Road, "C" Ward, Kolhapur.	Weights, Measures, and Weighing Instruments.
(20)	H.R. Khan (Chopdkar), Repairing Workshop, Karvand Road, Shirpur, (Dist. W. Khandesh).	Weights, Measures and Weighing Instruments.
(21)	Krishna Company, 738, Shukrawar Peth, Poona-2 ..	Weights, Measures and Weighing Instruments.
(22)	Manohar Co., 736, Shukrawar Peth, Poona-2	Weights, Measures and Weighing Instruments.
(23)	Markanday Workshop, 79, Sidheshwar Peth, Sholapur ..	Weights, Measures and Weighing Instruments.
(24)	A.M. Master & Co., Haiderali Kasamji Chawl, 179/81, Janjekar Street, Bombay-3.	Weights, Measures and Weighing Instruments.
(25)	N. J. Mehta & Co., 10, Keshavji Naik Road, Laxmi Niwas, Bombay-9.	Weights, Measures and Weighing Instruments.
(26)	Misrilal Motilal, 71, Sarang Street, Bombay-3	Weights, Measures and Weighing Instruments.
(27)	Mohamed Ibrahim Fakirsahab, Chowdhari, 79, Sidheshwar Peth, Sholapur.	Weights, Measures and Weighing Instruments.
(28)	Mulji Laxmidas & Co., 350, Samuel Street, Bombay-3 ..	Weights, Measures and Weighing Instruments.
(29)	National Scale Co., Gokuldas Pasta Road, Dadar, Bombay-14.	Weights, Measures and Weighing Instruments.
(30)	Nobval Scale Works & Co., Farida Manzil, Shop No. 7, 26, Byculla Station Rd., Bombay-41.	Weights, Measures, and Weighing Instruments.
(31)	Ostwal Brothers, 124, Vakhar Bhag, Santli	Weights, Measures and Weighing Instruments.
(32)	Pandurang Workshop, 1309, Tangastand, Pandharpur ..	Weights, Measures and Weighing Instruments.
(33)	H.Z. Parbatani Kantawalla, Gokuldas Pasta Road, Dadar, Bombay-14.	Weights, Measures and Weighing Instruments.
(34)	J.M. Parbatani Kantawalla, 3, Gokuldas Pasta Road, Dadar Bombay.	Weights, Measures and Weighing Instruments.
(35)	Prakash Co., 65, Vetal Peth, Poona	Weights, Measures and Weighing Instruments.
(36)	Ram Samarth Workshop, Kandajiwadi, Opp. J.R. City High School, Sakri Rd., Dhulia, (West Khandesh).	Weights, Measures and Weighing Instruments.
(37)	Ram & Co., 88/90, Yateem Manzil, Dadasaheb Phalke Rd., Dadar, Bombay-14.	Weights, Measures and Weighing Instruments.
(38)	Ravji Ramchandra & Co., Shop No. 56, Surat Street, Dana Bunder, Bombay-9.	Weights, Measures and Weighing Instruments.

Repairers (contd.)

Sl. No.	Name and Address of Repairer	Details of Articles Repaired
(39)	Repon Road Iron Foundry, Lamington Road (North) Allana Comp. Opp. Agripada Police Station, Bombay-11.	Weights.
(40)	Saple's Scales Mfg. Co. (P) Ltd., 180, B, Gaiwadi, Girgaum, Road, Bombay-4.	Weights, Measures and Weighing Instruments.
(41)	Shankar Bala Dusane's Workshop, Premises of Pophale Ginning & Pressing Factory, Mosum Bridge, Malegaon, Dist. Nasik.	Weights, Measures and Weighing Instruments.
(42)	S.F. & Company, 1481, Shukarwar Peth, Poona-2 ..	Weights, Measures and Weighing Instruments.
(43)	Union Metal Works, 28/30, A, Dhaku Prabhu Wadi, Ghorapadeo, Bombay-10.	Weights, Measures and Weighing Instruments.
(44)	D.L. Vaid, 202, Cutlery Bazar, Bombay-3	Weights, Measures and Weighing Instruments.
(45)	Vasani Devji Rajani, 142, Upper Duncan Rd., Bombay-8	Weights, Measures and Weighing Instruments.
(46)	Vishwas Company, 757, Shukrawar Peth, Poona ..	Weights, Measures and Weighing Instruments.

PUNJAB (7)

In the July and September 1959, March, May, July and September 1960 issues of *Metric Measures* lists of manufacturers, dealers and repairers of weights and measures in the Punjab State were published. The following is a list of manufacturers, dealers and repairers subsequently licensed by the Government of Punjab under the Punjab Weights and Measures (Enforcement) Act, 1958.

Manufacturers

Serial No.	Name and Address of Manufacturer	Details of Articles Manufactured
(1)	Bharat Metal Industries, Near Railway Station, Bhiwani ..	Cast Iron Weights 50 kg to 100 g.
(2)	S.C. Engineering Company, Miran Kot Road, Amritsar ..	Weighing instruments of specified capacities and type. Weigh-bridge capacity 20 tonnes. Platform machines capacity 500 kg. Counter machines up to 10 kg.
(3)	Fort Industrial Corporation, G.T. Road, Ludhiana ..	Measuring tapes
(4)	Indian Scale Industries, Kali Bari Road, Ambala Cantt. ..	Spring balance capacity 100 kg circular dial type.
(5)	Krishan Kishore Kamal Kishore, Saban Bazar, Ludhiana	Beamscales : Class C up to 5 kg. Class D upto 100 kg.
(6)	Mukanda Mal Ram Ditta Mal, Industrial Area, Yamuna Nagar.	Cast Iron Weights 100 g to 50 kg.

Manufacturers (contd.)

Sl. No.	Name and Address of Manufacturer	Details of Articles Manufactured
(7)	Sansar Engineering Company, Aliwal Road, Batala ..	Cast Iron Weights 50 kg to 100 g.
(8)	Sharman Steel Works, Ambala City	Cast Iron Weights 100 g to 50 kg.
(9)	Thapar Industries, Phulahi Bazar, Ludhiana	Measuring tapes

Dealers

Serial No.	Name and Address of Dealer	Details of Articles Sold
(1)	Ashoka Cottage Industries, Saptu Road, Ambala City ..	Weights, Measures, Weighing and Measuring Instruments.
(2)	Bansal Iron and Mill Stores, Hospital Road, Nabha (Patiala)	Weights and Measures.
(3)	Behari Lal & Sons, G.T. Road, Mandi Gobindgarh ..	Weights, Measures, Weighing and Measuring Instruments.
(4)	Des Raj Roshan Lal, Commission Agent, Shahzadpur ..	Weights, Measures, Weighing and Measuring Instruments.
(5)	Dev Raj Trunk House, Mandi Road, Jullundur City ..	Weights, Measures and Beam scales.
(6)	General Hardware Stores, Kasera Bazar, Jullundur City ..	Weights, Measures and Beam scales.
(7)	Ishwar Dayal Bant Ram, Iron Merchants, Bareta Mandi ..	Weights, Measures, Weighing and Measuring Instruments.
(8)	Nathu Mal Kishori Lal, Tohana, Distt. Hissar	Weights, Measures and Beam scales.
(9)	Naurata Ram Babu Ram, Naraingarh	Weights, Measures, Weighing and Measuring Instruments.
(10)	Ram Ditta Mal Mukanda Mal, Yumana Nagar	Cast Iron Weights. 100 g to 50 kg.
(11)	Ram Labhaya Inder Mohan, Bazar Banawala, Nakodar, Jullundur.	Weights, Measures and Beam scales.
(12)	Subash Machinery & Oil Stores, G.T. Road, Jullundur City	Weights, Measures and Beam scales.

Repairers

Serial No.	Name and address of Repairer	Details of Articles repaired
(1)	Gokal Chand, Maur Mandi, Distt. Bhatinda	Weights and Measures of Length and Capacity.

UTTAR PRADESH (4)

In the July, September and November 1960 issues of *Metric Measures* lists of manufacturers, dealers and repairers of weights and measures in Uttar Pradesh were published. The following is a list of manufacturers, Manufacturers

Serial No.	Name and Address of Manufacturer	Details of Articles Manufactured
(1)	Agrawal Iron Works, Moti Lal Nehru Road, Agra ..	Weights, Measures and Weighing Instruments.
(2)	Balance Works Private Ltd., D35/66-B, Jangamban, Varanasi	Brass Weights from 1 mm. to 10 kg. and Liquor Measures.
(3)	S. Iron Foundry and Engineering Works, Ram Bagh, P.O. Jamuna Bridge, Agra.	Iron Weights 50 kg., 10 kg., 5 kg., 2 kg., 1 kg.
(4)	Kailash Foundry and Engineering Works, Delhi Road, Meerut.	Weights and Measures.
(5)	Kerey Private Ltd., 335, Nadaswar, Varanasi Cantt. ..	Weights and Weighing Instruments.
(6)	Madau Cottage Industries, Near Kumar Ashram Outside Saorab Gate, Meerut.	Weights and Measures.
(7)	Mahabir Rolling Mills, Factory Area, Fazalganj, Kanpur ..	Weights and Measures, Weighing Instruments.
(8)	Millsko Iron and Steel Foundry, 359, Civil Line, Jhansi ..	Weights.
(9)	Narain Pur Iron Works, Station Road, Moradabad ..	Weights and Measures of all Denominations.
(10)	New India Brass & Steel Industries, Khari Kuwan, Hospital Road, Agra.	Weights and Measures.
(11)	Singhal Iron Foundry, Opposite Bus Stand, Farah, Mathura	Brass and Cast Iron and Bronze Weights
(12)	Navin Engineering Works, 2A/Tripolia (Mira Gunj), Allahabad.	Cast Iron Weights.
(13)	B.L. Sinha & Sons, Jhutha Ram Ka Pathak, Kinari Bazar, Agra.	Weights and Weighing Instruments.
(14)	Vijai Iron Industries, 114/44, Brahma Nagar, Kanpur ..	Weights and Measures.

Dealers

Serial No.	Name and Address of Dealer	Details of Articles Sold
(1)	Abdur Rehman Wajahat Husain, Shahganj, Lucknow ..	Weights, Measures, Weighing and Measuring Instruments.
(2)	Agrawal and Sons, Dron Merchant, Lakhimpur, Khivi ..	Weights.
(3)	R.P. Agarwal & Sons, Sri Ram Road, Lucknow ..	Weights & Measures.
(4)	Ali Bux Batiwaris Ali & Sons, No. 16, Thathari Bazar, Allahabad.	Weights, Measures, Weighing and Measuring Instruments.
(5)	Allahabad Iron Stores, 70, Bahadurganj, Allahabad ..	Weights, Measures and Weighing Instruments.
(6)	Assaram Subash Chand, 75, Kaishan Gunj Road, Meerut	Weights & Measures.
(7)	Badri Prasad, K. 66/71, Lohatia, Baraganesh, Varanasi ..	Weights, Measures and Weighing Instruments.
(8)	Bankey Bihari & Co., K 58/13, Baranganesh, Varanasi ..	Weights, Measures, Weighing and Measuring Instruments.

Dealers (contd.)

Sl. No.	Name and Address of Dealer	Details of Articles Sold
(9)	Banar Lal Ram Swarup, 604, Muthiganj, Allahabad ..	Weights, Measures, Weighing and Measuring Instruments.
(10)	Balance Works Private Ltd. D 35/74, Jangam Bari, Varanasi	Weights, Measures and Weighing Instruments.
(11)	Bhagwandas Hiralal Iron Merchant, K58/2, Bara Ganesh, Varanasi.	Weights, Measures and Weighing Instruments.
(12)	Bharat Industries, Debipura, Chamdi Mandi Road, Hapur (Meerut).	Weights and Measures.
(13)	Calcutta Satyendro Scale Works, Halse Road, Kanpur ..	Weights and Weighing Instruments.
(14)	Chhittarmal Purshottam Dass, Iron Merchant, Ghiya Mandi, Mathura.	Weights, Measures, Weighing and Measuring Instruments.
(15)	Dayal & Company, Thaparanagar, Meerut ..	Weights, Measures, Weighing and Measuring Instruments.
(16)	Garg & Company, Balanganj, Agra ..	Weights, Measures, Weighing and Measuring Instruments.
(17)	Goyal Industries, Man Bhavan, 3681, Sultanganj, Agra ..	Weights, Measures, Weighing and Measuring Instruments.
(18)	Govind Prasad, C/o Calico Cloth House, Golghar, Gorakhpur.	Weights and Measures.
(19)	Gulab Chand Kishan Lal, Hardi Ganj, Jhansi ..	Weights, Measures, Weighing and Measuring Instruments.
(20)	R.N. Gupta & Bros., S-17/319, Nadesar, Varanasi ..	Weights and Measures.
(21)	Hardeo Prasad & Sons, 13, Nihalpur, Allahabad ..	Weights, Measures, Weighing and Measuring Instruments.
(22)	Bari Trading Company, Biseshwar Ganj, Varanasi ..	Weights and Measures.
(23)	Hasan Abbas and Bros., Bazar Qilla, Bareilly ..	Weights, Measures, Weighing and Measuring Instruments.
(24)	India Steel Industries, Baraganesh, Varanasi ..	Weights, Measures, Weighing and Measuring Instruments.
(25)	S.S. Iron Foundry & Engg. Agra Works, Rambagh, P.O. Jamuna Bridge, Agra.	Weights, Measures, Weighing and Measuring Instruments.
(26)	Iswari Prasad Ram Nath, Lohia Mandi, Agra ..	Weights, Measures, Weighing, and Measuring Instruments.
(27)	Iswaridas Khurrana & Engg. Works, Delhi Road, Meerut	Weights and Measures.
(28)	Jagdish Prasad Agrawal, Gali Bhatan, Bareilly ..	Weights, Measures, Weighing Instruments.
(29)	Jadish Saran Bartan Bhandar, Bazar Darzi Chowk, Bareilly	Weights, Measures, Weighing Instruments.
(30)	Keshi Iron Foundry, Freeganj, Agra ..	Weights and Measures.
(31)	Ralkoo Prasad, K66/71, Lohatia, Baraganesh, Varanasi ..	Weights and Weighing Instruments.
(32)	Kanai Lal Karmokar, 107/68A, Jawahar Nagar, Kanpur ..	Weights and Weighing Instruments.
(33)	Keroy Private Ltd., 335, Nadeswar, Varanasi Cantt. ..	Weights and Weighing Instruments.
(34)	Krishna Meharotra, Secretary, Halwai Sudharak Association, Sahukaru, Bareilly.	Weights, Measures, Weighing and Measuring Instruments.
(35)	Kailash Foundry & Engg. Works, Delhi Road, Meerut ..	Weights and Measures.
(36)	Lal Chand Ganga Sahai, 4/349, Big Mandi, Hawana, Meerut	Weights and Measures.
(37)	Lal Chand Ganga Sahai, Sadar Bazar, Anaj Mandi, Meerut	Weights and Measures.
(38)	Madho Prasad Kanhaiya Lal, K 58/1, Lohatia, Baraganesh, Varanasi.	Weights, Measures, Weighing and Measuring Instruments.

Dealers (contd.)

Sl. No.	Name and Address of Dealer	Details of Articles Sold
(39)	Madhu Cottage Industries, Durganagar, Near Kumar Ashram, Outside Shohrab Gate, Meerut.	Weights and Measures.
(40)	Maya Das S/o Diwan Chand, H. No. ED 7/127, Braham Pura Opposite Chameli Baghia, Bareilly.	Weights, Measures, Weighing and Measuring Instruments.
(41)	Mahavir Rolling Mills, 73 Factory Area, Fazalganj, Kanpur.	Weights, Measures, Weighing and Measuring Instruments.
(42)	Maikoolal Sangam Lal, Chowk Lunai Bazar, Allahabad ..	Weights, Measures, Weighing and Measuring Instruments.
(43)	Matin and Company, 9, Khairnagar, Meerut	Weights, Measures, Weighing and Measuring Instruments.
(44)	Modern Agricultural Implements Mfg. Co., Mankar Khera, Meerut.	Weights, Measures, Weighing and Measuring Instruments.
(45)	Mohd. Ahmad Mohd. Yunus, Chaumak-Ka-Pul, Moradabad.	Weights, Measures, Weighing and Measuring Instruments.
(46)	Moradabad Mills Stores, Station Road, Moradabad ..	Weights, Measures, Weighing and Measuring Instruments.
(47)	Neur Ram Bhoti Ram, K 63/170, Iohatia, Bara Genesh, Varanasi.	Weights and Weighing Instruments.
(48)	Nisar Mohammed Khan, 147, Civil Lines, Bareilly	Weights and Measures.
(49)	Post-War Industrial Institute, Sarojininagar, Lucknow ..	Weights, Measures and Weighing Instruments.
(50)	Roop Kamal Industries, 91/139, Gurdwara Road, Kanpur	Weights, Measures, Weighing and Measuring Instruments.
(51)	Prakash Engineering Co. and Rolling Mills, Freeganj, Agra	Weights.
(52)	Raj Narain Bagwari, 35/24, Bangali Mohal, Kanpur ..	Weights, Measures, Weighing and Measuring Instruments.
(53)	Rajendra Prasad & Sons, 17, Thadheri Bazar, Allahabad ..	Weights, Measures, Weighing and Measuring Instruments.
(54)	Ram Gopal Jaiswal, K 53/9, Shop No. 3, Raja Darwaja, Varanasi.	Weights, Measures and Weighing Instruments.
(55)	Ram Iron Stores, Koshi Kalan, Mathura	Weights, Measures, Weighing and Measuring Instruments.
(56)	Ram Krishan Iron Foundry, Sultanganj, Agra	Weights, Measures, Weighing and Measuring Instruments.
(57)	Singhal Hardware Stores, Pathwari, Agra	Weights and Measures.
(58)	Sayyed Kazim Husain, Hatta Mirza Ali Khan, Thakur Ganj, Lucknow.	Weights, Measures, Weighing and Measuring Instruments.
(59)	R.C. Samitary Stores, Bara Bazar, Galinwaban, Bareilly ..	Weights, Measures, Weighing and Measuring Instruments.
(60)	Shadi Ram & Sons, 33, Gautam Budha Marg, Lucknow ..	Cast Iron Weights and Weighing Instruments.
(61)	Shafiq Ahmad Khan Ghaffar Ahmad, 659, Civil Lines, Beharipur, Bareilly.	Weights, Measures, Weighing and Measuring Instruments.
(62)	Shanti Swaroop Raj Kumar, Near Katra Anaj, Moradabad	Weights, Measures, Weighing and Measuring Instruments.
(63)	Sharda Prasad Umesh Chandra, 74/21, Collector Ganj, Kanpur.	Weights and Measures.
(64)	Shiva Kumar Maheswari, Chaumukha Pul, Moradabad ..	Weights, Measures, Weighing and Measuring Instruments.

Dealers (contd.)

Sl. No.	Name and Address of Dealer	Details of Articles Sold
(65)	Standard Steel and Iron Foundry, Jeoni Mandi, Agra ..	Weights.
(66)	Singh Iron Works, K 66/71, Marharpura, Lohatia, Varanasi	Weights, Measures and Weighing Instruments.
(67)	B.L. Sinha & Sons, Jhutha Ram Ka Phathak, Kinari Bazar, Agra.	Weights and Weighing Instruments.
(68)	Sita Ram S/o Seth Phali Ram, Shop No. 10, Hospital Compound, Bareilly.	Weights, Measures, Weighing and Measuring Instruments.
(69)	Varanasi Sarkarigalla Vikreta Sangh, C.K. 58/55, Chowk, Varanasi.	Weights and Measures.
(70)	Vijai Iron Industries, 114/44, Brahm Nagar, Kanpur ..	Weights, Measures, Weighing and Measuring Instruments.
(71)	M. Yali Nashtar Shooters, Army, Arms and Ammunition dealer, 17, Town Hall, Bareilly.	Weights, Measures, Weighing and Measuring Instruments.

Repairers

Sl. No.	Name and Address of Repairer	Details of Articles Repaired
(1)	Abdul Samad, Chamock-Ka-Pul, Moradabad	Weights.
(2)	Arya Vert Engineering Works, Khair Nagar, Meerut ..	Cast Iron and Brass Weights, and Measures, Weighing Instruments and Measuring Instruments.
(3)	Balance Works Private Ltd., D 35/74, Jangambari, Varanasi	Weights and Weighing Instruments.
(4)	Bansal Iron Foundry, Near Railway Goods Shed, Balanganj, Agra.	Cast Iron and Brass Weights.
(5)	Bharat Industries, Debipur Chandi Mandi Road, Hapur (Meerut).	Weights and Measures.
(6)	Hindustan Balance Works, D 29/18, Dibrothpura, Varanasi	Weighing Instruments.
(7)	Calcutta Satyendra Scale Works, Helse Road, Kanpur ..	Weights and Weighing Instruments.
(8)	Chandra Metal Company, 27, Gautam Budh Marg, Lucknow.	Weights and Measures etc.
(9)	Hardeo Prasad & Sons, 13, Nihalpur, Allahabad	Weights, Measures, Weighing and Measuring Instruments.
(10)	Hari Krishan Lal M/s. Agrawal Tin Manufacturing Works, Makhania Mohal, Sadar Bazar, Lucknow.	Weights and Measuring Instruments.
(11)	S.S. Iron Foundry and Engineering Works, Ram Bagh, P.O. Jamuna Bridge, Agra.	Weights, Measures, Weighing and Measuring Instruments.
(12)	Kanai Lal Karmokar, 107/68A, Jawahar Nagar, Kanpur	Weights and Weighing Instruments.
(13)	Madhu Cottage Industries, Durga Nagar, Near Kumar Ashram, Outside Shohrab Gate, Meerut	Weights, Measures, Weighing Instruments.
(14)	Modern Agricultural Implements Mfg. Co., Kankar Khera, Meerut.	Weights and Weighing Instruments.
(15)	Society Iron Industries, Hirhana Road, Kanpur	Weights and Measures.

Repairers (contd.)

Sl. No.	Name and Address of Repairer	Details of Articles Repaired
(16)	Narain Pur Iron Works, Station Road, Moradabad ..	Weights, Measures and Scales etc.
(17)	Post-war Industries Institute, Sarojininagar, Lucknow ..	Weights and Measures.
(18)	Roop Kamal Industries, 91/139, Gurdwara Road, Kanpur ..	Weights and Measures.
(19)	Shiva Kumar Maheswari, Chaumukha Pul, Moradabad ..	Weights and Measures etc.
(20)	Society Iron Industries, Hirhana Road, Kanpur ..	Weights and Measures.
(21)	Technical Corporation, Private Ltd., Sarojininagar, Lucknow ..	Weights and Measures.

CORRECTION

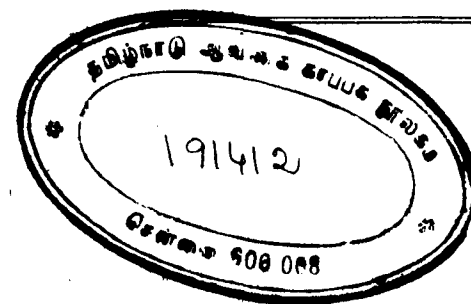
In September 1960 issue of *Metric Measures* under *Uttar Pradesh* (2).

(i) On page 39 against serial No. 24 in 'Manufacturers' for *Brass Weights from 20 kg to 1 g*, read *Brass weights from 20 kg to 1 kg*.

(ii) On page 40 against serial No. 19 in 'Repairers' for *Normal Engineering Corporation* read *Nirmal Engineering Corporation*.

For the existing words against serial No. 20 under *Manufacturers* list in *Maharashtra* (1) on page 29 of November issue please substitute.

Shree Ram Mills Ltd.,
Fergusson Road
Lower Parel, Bombay-13



SL

X 15 P m 2, NSPMM

N 6)

METRIC CAPACITY MEASURES : Conversion Tables

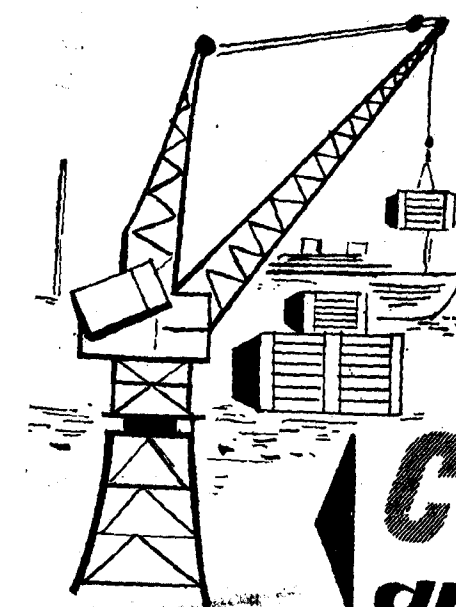
Fl. ounce	Millilitres (ml) (to nearest ml)	Gallons	Litres	Milliliters (to nearest 10 ml)	
1	28	1	4	550	
2	57	2	9	90	
3	85	3	13	640	
4	114	4	18	180	
5 (= 1 Gill)	142	5	22	730	
		6	27	280	
		7	31	820	
		8	36	370	
		9	40	910	
		10	45	460	
Gills	Millilitres (ml) (to nearest ml)	Gallons	Litres	Milliliters (to nearest 100 ml)	
1	142	20	90	900	
2	284	30	136	400	
3	426	40	181	800	
4 (= 1 Pint)	568	50	227	300	
		60	272	800	
		70	318	200	
		80	363	700	
		90	409	100	
		100	454	600	
Pints	Litres (l)	Millilitres (to nearest ml)	Gallons	Litres	Milliliters (to nearest 100 ml)
1		568	20	90	900
2 (= 1 Quart)	1	136	30	136	400
			40	181	800
			50	227	300
			60	272	800
			70	318	200
			80	363	700
			90	409	100
			100	454	600
Quarts	Litres	(Millilitres ml) (to nearest ml)	Gallons	Litres	Milliliters (to nearest 100 ml)
1	1	136	20	90	900
1	2	273	30	136	400
3	3	409	40	181	800
4 (= 1 Gallon)	4	546	50	227	300
			60	272	800
			70	318	200
			80	363	700
			90	409	100
			100	454	600

Millilitres	Fl. ounce (to nearest 1/4 fl. oz.)	Litres	Gallons	Quarts	Pints (to nearest gill)		
10	1/4	1	—	—	3		
20	1/2	2	—	1	2		
30	3/4	3	—	2	1		
40	1	4	—	3	—		
50	1 1/4	5	1	—	3		
60	1 1/2	6	1	1	2		
70	1 3/4	7	1	2	1		
80	2	8	1	3	—		
90	2 1/4	9	1	3	1		
100	2 1/2						
Millilitres	Pints	Gills	Fl. ounce (to nearest 1/4 fl. oz.)	Litres	Gallons	Quarts	Pints (to nearest pint)
200	—	1	2	10	2	1	—
300	—	2	1 1/2	20	4	1	1
400	—	3	2	30	6	2	1
500	—	4	2 1/4	40	8	3	—
600	1	—	2 1/2	50	11	—	—
700	1	0	2 3/4	60	13	1	—
800	1	1	3	70	15	1	1
900	1	2	3 1/4	80	17	2	1
1000 (= 1 litre)	1	3	—	90	19	3	—
				100	22	—	—

1 GALLON=4 1/2 LITRES Approx : 1 LITRE=1,000 MILLILITRES

1 GALLON=4 1/2 LITRES Approx : 1 LITRE=1,000 MILLILITRES

METRIC WEIGHTS : Conversion Table				
(KILOGRAM TO SEER)				
GRAMS	TOLAS	MASHAS (1/2 of a tola) (to nearest masha)	KILOGRAMS	MAUNDS SEERS TOLAS (to nearest tola)
1	—	1	1	6
2	—	2	2	11
3	—	3	3	17
4	—	4	4	23
5	—	5	5	29
6	—	6	6	34
7	—	7	7	40
8	—	8	8	46
9	—	9	9	52
10	—	10	10	57
20	1	9	20	35
30	2	7	30	12
40	3	5	40	12
50	4	3	50	47
60	5	2	60	24
70	6	—	70	1
80	6	10	80	59
90	7	9	90	36
			QUINTALS (1 quintal=100 kg)	MAUNDS SEERS (to nearest seer)
100	8	7	1	27
200	17	2	2	14
300	25	9	3	2
400	34	4	4	29
500	42	10	5	16
600	51	5	5	3
700	60	—	7	30
800	68	7	8	17
900	77	2	9	5
1000 (=1 kg)	85	9	10(=1Metric tonne)	32



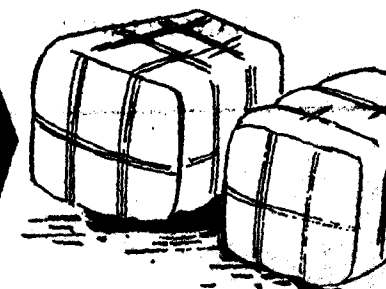
METRIC SYSTEM

in

CUSTOMS

and

CENTRAL EXCISE



The Metric System of Weights and Measures has come into force in Custom and Central Excise from October 1, 1960

Rates of duties are expressed in terms of metric units.

The rates have been converted to their nearest practicable equivalents in metric units.

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NEW THARAGUPET
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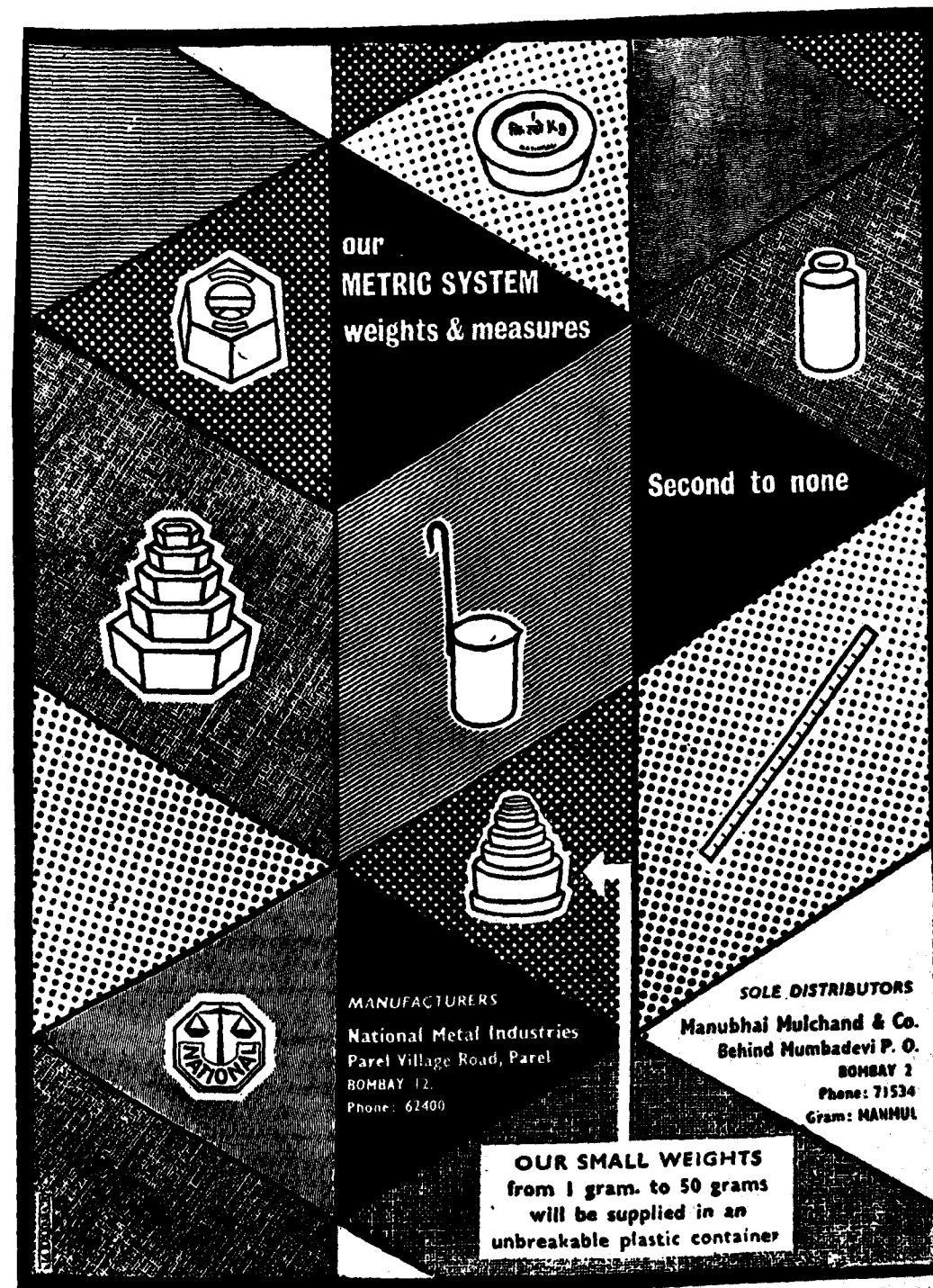


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Test Certificate of
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Circular Spring Balances
Family Scales
Personal Weighing
Machine
and
Gram Scales

in new metric system

Please write to
The Indian Scale Industries
Kali Bari Road, Ambala Cantt.



PRICE CONVERSION TABLE (Maunds to Quintals)

TABLE A

Conversion of Prices from Maund to Quintal (100 kg)

(Factor used : 1 quintal=2.6792269 maunds)

Naye Paise per maund to Rupees and Naye Paise per quintal

nP/Md	0	1	2	3	4	5	6	7	8	9
	Rs/q	Rs/q	Rs/q	Rs/q	Rs/q	Rs/q	Rs/q	Rs/q	Rs/q	Rs/q
0	0	0.03	0.05	0.08	0.11	0.13	0.16	0.19	0.21	0.24
10	0.27	0.29	0.32	0.35	0.38	0.40	0.43	0.46	0.48	0.51
20	0.54	0.56	0.59	0.62	0.64	0.67	0.70	0.72	0.75	0.78
30	0.80	0.83	0.86	0.88	0.91	0.94	0.96	0.99	1.02	1.04
40	1.07	1.10	1.13	1.15	1.18	1.21	1.23	1.26	1.29	1.31
50	1.34	1.37	1.39	1.42	1.45	1.47	1.50	1.53	1.55	1.58
60	1.61	1.63	1.66	1.69	1.71	1.74	1.77	1.80	1.82	1.85
70	1.88	1.90	1.93	1.96	1.98	2.01	2.04	2.06	2.09	2.12
80	2.14	2.17	2.20	2.22	2.25	2.28	2.30	2.33	2.36	2.38
90	2.41	2.44	2.46	2.49	2.52	2.55	2.57	2.60	2.63	2.65
100	2.68	..	..	..	..	..	..	..	..	..

TABLE B

(Factor used : 1 quintal=2.6792269 maunds)

Rupees per maund to Rupees and Naye Paise per quintal (q)

Rs/Md	0	1	2	3	4	5	6	7	8	9
	Rs/q	Rs/q	Rs/q	Rs/q	Rs/q	Rs/q	Rs/q	Rs/q	Rs/q	Rs/q
0	0	2.68	5.36	8.04	10.72	13.40	16.08	18.75	21.43	24.11
10	26.79	29.47	32.15	34.83	37.51	40.19	42.87	45.55	48.23	50.91
20	53.58	56.26	58.94	61.62	64.30	66.98	69.66	72.34	75.02	77.70
30	80.38	83.06	85.74	88.41	91.09	93.77	96.45	99.13	101.81	104.49
40	107.17	109.85	112.53	115.21	117.89	120.57	123.24	125.92	128.60	131.28
50	133.96	136.64	139.32	142.00	144.68	147.36	150.04	152.72	155.40	158.07
60	160.75	163.43	166.11	168.79	171.47	174.15	176.83	179.51	182.19	184.87
70	187.55	190.23	192.90	195.58	198.26	200.94	203.62	206.30	208.98	211.66
80	214.34	217.02	219.70	222.38	225.06	227.73	230.41	233.09	235.77	238.45
90	241.13	243.81	246.49	249.17	251.85	254.53	257.21	259.89	262.56	265.24
100	267.92	..	..	..	..	..	..	..	..	..

How to use the Tables :

Suppose a commodity is priced at Rs. 30.50 per maund. To find the price per quintal look up Table B against Rs. 30/maund. The value is Rs. 80.38/(q). Look up Table A against 50 nP/maund. The value is 1.34/(q). Add up the two (Rs. 80.38+1.34=Rs. 81.72). The price per quintal (q) is, therefore, Rs. 81.72.

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