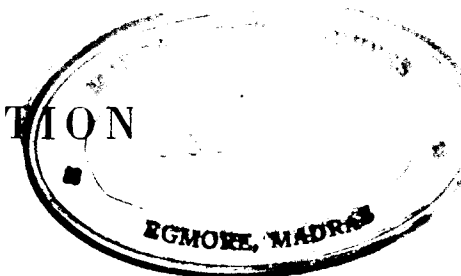


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STATE HEALTH EDUCATION BUREAU
OFFICE OF THE DIRECTOR OF PUBLIC HEALTH
MADRAS

**Report on a Random Survey conducted to assess
the Prevalence of a 'Dengue-Like' illness
in Madras City—1964.**

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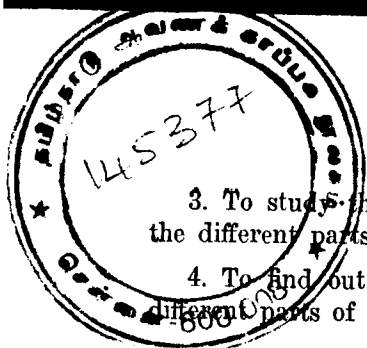
AND

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At the close of July 1964, admissions of fever cases in Madras City hospitals were suddenly on the increase and the prevalence of an epidemic of dengue-like fever was noticed. As days went on, the incidence of 'dengue-like' fever was on the increase and the epidemic spread quickly to the entire Madras city. As most of the people resorted to domiciliary treatment and treatment by private medical practitioners, the hospital figures could not furnish the correct magnitude of the incidence of this fever. Therefore, it was decided to conduct a 2 per cent random survey of houses under the direct supervision of the Director of Public Health utilizing the Sanitary Inspectors of the City Municipal Corporation.

Objectives

1. To assess the proportion of the population of Madras city affected by a 'dengue-like' fever.
2. To measure the incidence by age, sex and type of dwelling.



3. To study the variations in the degree of prevalence in the different parts of the city.

4. To find out the course of the epidemic in time in the different parts of the city.

Selection of Houses

For the purpose of this survey 2 per cent of the total houses were to be selected. Of the 147,694 houses, 3,000 houses were selected in the following manner: It was arbitrarily decided to select five streets in each of the 100 divisions and in each selected street six houses. From the key list of streets, the streets and houses were selected by systematic random sample method. The total number of streets in a division divided by five gives an interval. The first street was selected at random, and then the interval added to select the second, third street and so on. For example in a division of 49 streets, having selected the first street as third street, 13th, 23rd, 33rd and 43rd are other four streets. The sample principle was adopted in selecting the houses in each of the selected streets. By the above method, 3,000 houses distributed in the 100 divisions were selected in order to get a cross-section of the population of the city.

Stationery and Printing

A *pro forma* was designed to get the following particulars from the public:—

1. Age and sex compositions of the residents in each house.
2. Type of dwelling.
3. Incidence of fever cases as per sex, age in the preceding three months from the date of survey.
4. Duration of fever in respect of epidemic of dengue-like fever.

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Its suitability was tested before it was printed. Four thousand copies of the *pro forma* were printed and supplied by the Corporation of Madras. One copy was used for each selected house. In cases where more than four households resided in a house additional copies were used.

Briefing of the investigators

The Sanitary Inspectors of the 100 divisions of the Corporation were the investigators, each in charge of his own division. The Statistician of the Public Health Department imparted to them the necessary training for two hours duration in the ten Circle Health Offices. A copy of circular instructions covering the important points to be borne in mind by the investigators was also given at the time of training.

Duration of the Survey

Soon after the briefing the survey was conducted in 2,769 houses of Madras city during the period of four days commencing November 23rd, 1964.

Incidence

In Table I are given the details, by divisions, of the number of persons enumerated in each division, and the number and percentage affected. During the survey, 2,769 houses were visited and the inmates of 1,588 houses were found to be affected by a dengue-like fever. The houses visited comprised of all types, i.e., bungalow, flat, medium type and huts. In these houses, 6,838 families were residing and 39 per cent of the families, i.e., 2,684 were infected. Of the 38,861 persons enumerated, 8,028 persons (21 per cent) had the illness of dengue-like fever. Based on the mid-year estimated population of Madras city for 1964, i.e., 1,834,000, the estimated attacks of dengue-like fever comes to 378,871. No death was recorded in the survey. However, 17 deaths due to 'haemorrhagic fever' were reported from the Infectious Diseases hospital during this epidemic. In order to distinguish the dengue-like fever from other fevers, the persons affected by all other fevers were also enumerated. It is found that only 149 persons were affected by all other types of fevers.

TABLE I.

Number of persons enumerated in the different divisions and the numbers and percentages of the persons affected by the 'dengue-like' fever.

MADRAS CITY—1964.

Division number.	Number enumerated.			Number affected.		
	M.	F.	Total.	M.	F.	Total.
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1	226	227	453	55	42	97
2	166	159	325	84	56	140
3	261	196	457	76	52	128
4	255	235	490	64	46	110
5	391	334	725	10	8	18
6	329	311	640	19	18	37
7	383	369	752	63	35	98
8	201	189	390	66	51	117
9	168	169	334	47	49	96
10	330	313	643	59	52	111
11	233	222	455	22	22	44
12	222	189	411	28	13	41
13	285	274	559	5	6	11
14	249	125	374	15	14	29
15	286	261	547	17	15	32

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16	175	143	318	0	3	3	1
17	285	249	534	25	14	40	7
18	205	205	410	6	6	12	3
19	235	228	463	25	21	47	10
20	176	173	349	12	8	20	6
21	237	213	450	29	25	54	12
22	370	323	693	71	60	131	19
23	242	184	426	28	19	47	11
24	103	110	213	8	6	14	7
25	363	261	624	11	4	15	2
26	314	284	598	15	15	30	6
27	373	383	756	40	24	64	8
28	295	299	594	17	14	31	6
29	219	199	418	5	7	12	3
30	296	275	571	34	20	54	10
31	273	287	560	57	52	109	19
32	140	76	216	12	11	23	11
33	348	284	632	53	36	89	14
34	219	229	448	23	26	49	11
35	193	182	375	32	30	62	17
36	218	208	426	89	66	155	36
37	407	342	749	67	41	108	14
38	225	199	424	46	45	91	21
39	457	407	864	59	45	104	12
40	296	278	574	57	53	110	19
41	175	191	366	58	50	106	7

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TABLE I—cont.

Division number.	Number enumerated.			Number affected.			
	M.	F.	Total.	M.	F.	Total.	Per cent affected.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
42	192	189	381	45	30	75	20
43	131	121	252	39	21	60	24
44	175	175	350	52	56	107	31
45	186	175	361	35	28	63	17
46	113	115	228	24	19	43	19
47	206	173	379	66	48	114	30
48	361	273	634	91	67	158	25
49	203	199	402	94	87	181	45
50	252	246	498	62	50	112	22
51	59	41	100	28	17	45	45
52	115	67	182	65	35	100	55
53	148	118	266	45	48	93	35
54	122	104	226	33	31	64	28
55	83	78	161	10	13	23	14
56	66	51	117	15	13	28	24
57	151	140	291	65	47	112	38
58	212	199	411	70	58	128	31
59	179	168	347	92	76	168	48
60	214	205	419	108	100	208	50

61	24	235	480	80	62	142	30
62	125	100	225	2	0	2	1
63	161	133	294	7	3	10	3
64	186	173	359	11	14	25	7
65	237	234	471	105	85	190	40
66	362	371	733	116	100	216	29
67	123	96	219	41	27	68	31
68	229	221	450	130	102	232	52
69	213	226	439	33	23	56	13
70	385	341	736	59	40	99	13
71	217	189	406	89	89	178	44
72	182	145	327	52	47	99	30
73	178	171	349	102	96	198	57
74	171	172	343	73	74	147	43
75	146	155	301	62	58	120	40
76	267	231	498	128	101	229	46
77	261	273	534	10	6	16	3
78	152	140	292	27	18	45	15
79	125	86	211	6	2	8	4
80	84	89	173	12	10	22	13
81	92	93	185	50	50	100	54
82	157	153	310	51	47	98	32
83	181	185	366	42	27	69	19
84	206	178	384	109	90	199	52
85	103	94	197	30	29	59	30
86	114	103	217	36	32	68	31

TABLE I—cont.

Division number.	Number enumerated.			Number affected.			Per cent affected.
	M.	F.	Total.	M.	F.	Total.	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
87	83	83	166	39	40	79	48
88	56	62	118	8	17	25	21
89	142	120	262	67	62	129	49
90	92	84	176	25	20	45	21
91	126	115	241	26	25	51	26
92	43	48	91	4	11	15	16
93	88	69	157	0	0	0	0
94	128	118	246	35	32	67	28
95	156	125	281	44	39	83	30
96	134	126	260	18	13	31	12
97	86	74	160	8	5	13	8
98	141	114	255	32	32	64	25
99	99	72	171	37	30	67	39
100	91	72	163	49	44	93	57
	20,369	18,492	38,861	4,403	3,625	8,028	21

Incidence by age

The detailed age group particulars with sex break up of the persons enumerated during the survey is given in Table II. This gives the current distribution of the city population as per age groups and as per each sex. This also gives the number of persons affected in each age group. It was found that the population belonging to one of the younger age groups, i.e., 5 to 9 had the highest percentage of morbidity, viz., 23·2 per cent. The lowest percentage of morbidity of 8·9 per cent was among infants under one year. This may be due to the fact that the parents might not have differentiated the dengue-like fever from all other fevers.

TABLE II

Number of persons enumerated and number affected by a 'dengue-like' illness, by age groups, Madras City—1964.

Age group.	Number enumerated.			Number Affected.			Per cent affected.
	Male.	Female.	Total.	Male.	Female.	Total.	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Less than 1	353	404	757	28	39	67	8·9
1—4	1,761	1,805	3,566	359	315	674	18·9
5—9	2,345	2,339	4,684	577	508	1,085	23·2
10—14	2,247	2,137	4,384	512	465	1,007	22·0
15—19	1,990	1,914	3,904	494	383	877	22·5
20—29	4,001	3,613	7,614	902	810	1,712	22·5
30—39	3,108	2,509	5,627	728	531	1,259	11·2
40—49	2,271	1,683	3,954	453	289	742	18·8
50—59	1,302	1,112	2,414	185	148	333	13·8
60 and above	981	976	1,957	135	137	272	13·9
Total ..	20,369	18,492	38,861	4,403	3,625	8,028	

Incidence by sex

Twenty thousand, three hundred and sixty-nine males and 18,492 females were enumerated during the survey. Of the 8,028 persons affected, 4,403 are males and 3,625 are females. 21.62 per cent of the male population and 19.61 per cent of the female population enumerated had an attack of dengue-like illness. It can be seen from the above that the incidence was slightly more among males than to the female population.

Incidence by type of dwelling

The houses enumerated included 182 bungalows, 202 flats, 1,926 medium type and 461 huts. In order to study whether the dwelling conditions had any influence on the incidence of dengue-like fever, the population enumerated was classified according to types of houses. The details of the type of houses and persons enumerated and affected are furnished in Table III. Just as in any other epidemic the hut dwellers were the most affected.

TABLE III

Number of persons enumerated and number affected according to type of residences. Madras City -1964.

Type of house.		Number of houses visited.	Number of houses affected.	Number of persons enumerated.	Number of persons affected.
(1)		(2)	(3)	(4)	(5)
Bungalow type	..	182	101	1,690	424
Flat	..	202	125	2,741	632
Medium type	..	1,926	1,082	29,624	5,695
Hut	..	461	282	4,806	1,277
Total	..	2,771	1,588	28,861	8,028

Sex and age of first cases

An analysis of the 1,450 first cases in each of the houses visited revealed that more first cases were among male members. The sex break up of the first cases are 915 male and 535 females. The first cases were comparatively more in the age group 50 to 59.

Variations of incidence

The variations in incidence of this fever in the different divisions of the city can be seen in Table I. While only one division was free from the disease the highest incidence was recorded in the 73rd and the 100th divisions where the percentage of population affected was 57 per cent.

Duration of fever

The information on the duration of fever for each attack was collected. Excluding the 525 cases in which the above information was not furnished the average duration of fever was about four days.

Epidemiology

To study the epidemiology of the illness under reference the date of first attack in each house was recorded. From that date the earliest date of attack in each division has been arrived at as also the divisions which were affected in the first course of the epidemic. The date of earliest attack in the city as per the survey was July 2, 1964 in the 59th division. Although six divisions reported first cases in the month of July, illness started in epidemic form only in August. The dates of first attacks in different divisions are furnished in Table IV which gives an idea of the course of the epidemic time in different parts of the city. In a few divisions the first cases were in the month of October only.

TABLE IV.

Dates of first attacks of a 'dengue-like' illness in different divisions of Madras City—1964.

Division number.	Date.	Division number.	Date.
(1)	(2)	(1)	(2)
1	A 16	37	S 16
2	A 8	38	A 15
3	A 5	39	S 22
4	A 26	40	S 7
5	S 10	41	S 4
6	S 10	42	S 16
7	A 8	43	A 26
8	J 25	44	A 15
9	S 15	45	S 1
10	O 4	49	A 15
11	S 7	47	A 15
12	O 1	48	A 1
13	S 3	49	A 4
14	A 10	50	S 6
15	S 25	51	S 13
16	O 18	52	S 10
17	S 1	53	S 9
18	S 4	54	S 10
19	S 19	55	S 10
20	S 26	56	A 8
21	A 15	57	J 4
22	S 15	58	A 20
23	S 14	59	J 2
24	S 20	60	J 11
25	S 15	61	A 29
26	A 16	62	O 20
27	S 15	63	O 28
28	S 3	64	S 9
29	S 4	65	A 10
30	S 7	66	S 3
31	S 5	67	A 15
32	..	68	A 15
33	A 20	69	A 15
34	S 18	70	S 9
35	A 14	71	A 18
36	S 12	72	A 15

TABLE IV—cont.

Division number.	Date.	Division number.	Date.
(1)	(2)	(1)	(2)
73	A 6	87	A 26
74	A 6	88	O 4
75	A 18	89	A 5
76	A 2	90	S 5
77	A 19	91	A 28
78	A 7	92	O 23
79	..	93	..
80	S 2	94	..
81	S 9	95	..
82	A 2	96	..
83	O 16	97	A 16
84	A 1	98	S 14
85	J 5	99	S 7
86	J 15	100	S 28

J = July; A = August; S = September; O = October.

During a random survey in Madras City (estimated mid-year population of 1,834,000) carried out in November 1964, 2,769 houses were visited. Of the 38,861 persons enumerated 8,028 had an attack of epidemic dengue-like fever between July and October. Thus, 21 per cent of the city population sampled was affected. No death was reported. Based on the survey the estimated incidence in the city works out to 378,871. The date of the first incidence as per this survey was July 2, 1964. The percentage of attacks are more among those living in huts when compared to those living in other types of houses. It is also observed that slightly more males than the females had attacks and the average duration of the fever was only four days.

FOOD SANITATION

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Assistant Director of Public Health, Madras

Adequate and satisfactory nutrition is one foundation on which the public health must rest. The annual requirement of food necessary to feed the mankind is estimated to be 40 trillion pounds and most of it is available on earth. Food material in its natural state keeps sound and edible only for a comparatively short time. The seasonal production, poor distribution and loss due to deterioration after harvest, gather or slaughter are factors which are mainly responsible for the wide disparity between production and need of food. Among these causes deterioration is the major one. About half of the people on earth are confronted with the problem of impaired health due to quantitative and qualitative starvation. The habit of cooking food to improve its flavour and texture and consuming it soon after reduces the disability and death due to mutiandled or unfit food.

Preventive medicine must be concerned with all aspects-growing, processing, preserving, packaging, distributing and storing of foods. Direct public health problems are in relation to consumption of unsafe foods. Indirect public health problems are in relation to deprivation of food leading to starvation or debility and consequential difficulty in the expansion of agricultural production. Man must plan for more scientific utilisation of available resources. Health agencies must make their contribution in preventing or minimising the possible detrimental effects, involved in the usage of insecticides, fungicides, herbicides, fumigants, growth-regulating substances, chemical additives, germicides and radiations and also in protecting foods from contamination by pathogenic organisms.

Economics, aesthetics and public health are the main aspects of food control. Laws and regulations are intended to protect the public not only against injury to health but also against fraud and deceit. The laws restrain the sale of foods

which are decomposed, adulterated, improperly-preserved or misbranded. With this in view our Government has enacted the Prevention of Food Adulteration Act, 1954 and rules thereunder. This has been made a central act applicable to all over the country. Before this individual States had local acts. The Central Act is more comprehensive in its definition of adulteration and also provides for more severe punishment when compared to former State Acts. Besides this the food trade is also made licensible both under the Prevention of Food Adulteration Act as well as under the local acts like Madras District Municipalities Act in municipalities and other allied acts in other local bodies. Necessary byelaws have also been framed for this purpose.

Our pattern of life is fast changing and the habit of eating outside the home or hotels, canteen, etc., is becoming not only fashionable but also necessary. The bulk of our population are not discriminating or concerned with food sanitation resulting in multiple problems of environmental sanitation which must be corrected before a sound programme of food hygiene can involve. The aesthetic standards also will change with improvement of social and economic standards of the people and they will become increasingly aware of deficiencies in restaurants, hotels, etc., and demand for official action in this regard.

Physical appearances, lighting, ventilation, freedom from odours, dish washing are some of the features which require to be attended to in eating establishments. We should concentrate more on purity, wholesomeness and protection of food so as to concentrate on potential hazards to health.

Food hygiene begins with growing, harvesting or gathering of food on land or water. The technic must insure freedom from (1) gross contamination with bacteria, viruses or parasites that may cause food diseases; (2) excessive levels of toxic-residues associated with application of fungicides or pesticides or other chemical agents.

Night soil and sewage sludges are being used to particular land used for food crops. It is not safe to use them for growing any food which may be consumed without cooking. Sewage effluents are used for irrigation purposes in many parts of the world and a great variety of crops are grown in sewage farms—for example greens, vegetables, corn, etc. It is not safe to grow anything which is eaten raw by human beings. It is not safe to allow the dairy cattle to graze on sewage irrigated pastures since organisms picked upon the animals coat and under may gain access to milk.

The pollution of both fresh and seawater with sewage effluents affects the safety only of water foods which are eaten raw. The consumption of well cooked foods or vegetables from such sources are harmless. Oysters, lobsters, crabs, etc., are eaten either as salads or in partly cooked state and these constitute a danger. The consumption of those products is becoming popular in our city also.

Food materials which have been sprayed with pesticides must be washed prior to preparation, serving in clean water, preferably boiling water or washing and soaking for atleast five minutes in a 200 mg. per litre concentration of chloro-melamine or iodophor.

Fortunately radiation contamination of foods have not yet become a problem in our country but this will be one of the future problems.

The following criteria may be borne in mind and essentials of cleanliness and sanitation for public eating and drinking places:—

- (1) Avoid hand-contact with food as far as practicable;
- (2) Keep perishable food below 40 F or above 140 F.
- (3) Keep food protected from personal contact and contaminating insects, dusts and animals;
- (4) Discard all food and food products which are not perfectly sound;
- (5) Clean and disinfect equipment that comes into direct contact with food; and
- (6) Keep premises preventable and in a sanitary manner.

The successful working will depend on the following people—food trade the consuming public and sanitary administration. It requires the co-operation of all these people. The food trade must be given adequate health education to realise the need for conforming to good and healthy standards in food preparation, storage and distribution. They should realise the health hazards involved and also they must realise that in the long run it will improve their business if they establish a reputation as clean and sanitary hotel. The present day attraction in majority of hotels is one of evasion and they try to do the absolute minimum so as to avoid prosecution and that too only at the time of inspection.

The consuming public also must be given health education to demand for good food served in a sanitary manner. Ultimately it is a question of demand and supply and if the public insist on quality, the trade will be forced to conform to the demand.

Lastly the sanitary staff must be strict and sincere in the enforcement of rules and regulations. It is not merely the number of inspections made by them that will count but the sincerity and thoroughness of the inspections that will yield the desired result.

DIETS AROUND THE WORLD

DR. SHANTI SUDARSANAM,
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Idli and Drumstick Sambar for Breakfast.

Rice, Radish Sambar, Greens, Butter-milk and Tomato pachadi for lunch.

(Groundnut as a snack.)

Chappati and Potato Kootu for Night Dinner.

What an attractive menu. It is a balanced menu too, for a family in a 'low-income group' in India. That is what the Indian group demonstrated to an International group of 'Nutrition workers', a few months ago.

A menu such as the one illustrated should surely dispel the wrong notion among many people, that a balanced diet is an expensive diet—a diet that only the rich can afford and not those who came in the 'Low-income' brackets. It may be admitted here that the very poor will find it difficult to meet the daily nutrition requirement without some help. A close analysis of the menu will however reveal that to have a balanced diet, what is required is some basic knowledge of nutrition and daily planning, so that the right type and the quantity of the cereals, pulses, vegetables and fruit, are combined into palatable dishes, for each meal. There are many common, and yet cheap and nutritively rich food-stuffs available, which we are not willing to use, because of prejudice or a false sense of status, or due to ignorance of the nutritive value of foods. Balanced diet, any way, does not call for any drastic change in the food habits. In fact as Dr. C. Gopalan, the Director of the Nutrition Laboratory, Hyderabad, has mentioned in his endorsement to the Prime Minister's appeal for a change in food habits, that "One way of promoting a

change in dietary habits of our people is to encourage our traditional diets in the original form, which even according to the latest available scientific information, may be considered to be very balanced.

I had the rare privilege of undergoing an eight months course (from February to October 1965) in Food Science and Applied Nutrition in the London School of Hygiene and Tropical Medicine, London University and in Ibadan University (Nigeria). It gave me the opportunity to live with and learn about food habits from representatives from 15 different countries, all of which are developing countries. In London, learning food habits of different nations became an every day observation, because at lunch interval, there would be the international queue at the University Cafeteria, each person waiting to make a selection of food from the display of various dishes laid out, to form a lunch menu nearest his or her own national diet.

The Korean, the Philippian, the Indian, the Thai and the Taiwan, looked for his rice and curry. He found the food insipid and so he took plenty of chilly sauce. The Korean, the Tai and Taiwan added some soya bean sauce as well, because they were accustomed to the soya bean flavour. Choosing items was very difficult for the Indian Vegetarian, because almost every dish had the flavour of meat or fish in it. Some vegetarians had no objection to eggs and there was another who ate fish and yet called himself a vegetarian. The idea of vegetarian and non-vegetarian was peculiar to India and this had to be explained in many places, on many occasions even in the Radio and T.V. Programmes.

Next in the Cafeteria queue came the Muslims from Egypt, Sudan, Iran and Afganistan who looked at the meat dishes and asked suspiciously "Is this Pork?" and took bread, meats other than pork, plenty of fruits and cold salad.

Then came the Cubans, who missed the kidney beans and fried plantains but were happy with any kind of meat, fruit and plenty of cold salad. Each of them insisted on thick black coffee with no sugar and no milk. What seemed medicine to me was coffee to them!

What about the Nigerian and his companions from Tanzania and Kenya? They looked for their fried bananas, pounded yam (Iyam), Maize floor (aurala) and Cassava (Eko). These were not there, so they helped themselves to rice and curry, adding plenty of chilly sauce.

In the queue there were the Englishman and the American, too. The American had a long travel down the whole line of dish counters and finally his tray was tightly packed with grape fruit or its juice, soup, large bowl of tomato and cucumber salad, meat or fish dish, vegetable, corn pudding and coffee without milk or tea with lemon. Who would not call this a balanced diet! The Englishman was particular to have his soup, egg or meat or tomato sandwiches or fish and chips. His diet, too, was balanced but did not look so full and luxurious as the American's.

In general, the main dish for many was meat and fish and not rice or chappati or the yam that the Indian, the Korean, the Phillippian or the Nigerian is used to. We call the former a high protein diet and the latter a high carbohydrate diet and our problem is how to make our high carbohydrate diet into a high protein diet, even without meat and fish. It could be done, I learnt, with our pulses, grams and vegetable and groundnuts! It was such an eye-opener to find how different diets can be in different parts of the world and how strong food habits could be. The observation of diets of different countries was a lesson to emphasize, more than ever before, that "Your body is what you eat".

In the practical classes, when each country had to prepare a day's menu for a low income group, the Indian group demonstrated their own menu. The menu was Idly and Drumstick Sambar for breakfast; Rice Radish Sambar, Greens,

Butter-Milk and Tomato pachadi for lunch, groundnuts for snack and Chappati and Potato Kootu for Night Dinner. The calories and other nutrients were calculated and shown that this menu gave the requirement if the low income group family could take such a diet every day.

Special tributes were always paid at the tables to the Indian curries, Chappati and dhal, rice and sambar, Idly, Dosai, etc. Dr. W. R. Azkroyd who was the Director of the then Nutrition Laboratories in Coonoor during 1938-45, later retired from F.A.O. and now Lecturer in Nutrition in the London University often referred in the class to the non-fat dry chappati (Chukka roti) of India as a wholesome food and which he advocated to all the other countries to learn to prepare and eat.

It may be of interest here to know what exactly we, as a Nation in India, eat. The following figures are the results of diet surveys done in different parts of India by the National Laboratories, Hyderabad. Let us compare what we eat with what we should eat. Here is what Dr. C. Gopalan, Director of the Nutrition Research Laboratory has recommended, endorsing the Prime Minister's appeal for a change in food habits.

WHAT THE NATION EATS

(Average daily consumption of food stuffs per adult.)

<i>What we eat</i>				<i>What we should eat to provide minimum nutrients.</i>
GRAMS.				GRAMS.
Cereals	..	..	..	470
				Rice 175
				Wheat 175
Pulses	..	..	..	85
Meat, fish and egg	..	..	..	28
Leafy Vegetables	..	..	..	116
Roots and vegetables tubers	..	..	..	116
Other vegetables	..	..	..	85
Fruits	..	..	..	85
Vegetable Oils	..	..	..	28
Sugar and Jaggery	..	..	..	57
Milk	..	..	..	170

Surveys of Indian diets reveal an undue preponderance of cereals partly to compensate against marked absence of protective foods like pulses, milk, vegetables and fruits.

Differences between recommended quantities, availability and the actual consumption is the case not only in India, but in all the developing countries, as was seen from the discussions with the different persons from the different countries in the Nutrition Course of Food Science and Applied Nutrition in the London School of Hygiene and Tropical Medicine. The solutions were improvement in the economy of the country, change in the pattern of production, necessary change in the food habits and allied factors which have to be tackled. In this, everyone in the country has one's role to play, especially when more production for adequate consumption is the burning question of the day.

— O —

FREE TREATMENT AND SUPPLY OF SPECIAL AND COSTLY DRUGS FOR VENEREAL DISEASES PATIENTS

The Government on the recommendations of the Indian Delegation of the British Social Hygiene Council, introduced in the year 1928, a system of free supply of costly and special drugs to all patients suffering from venereal diseases irrespective of their socio-economic status, in a group of selected hospitals and subsequently extended the scheme to the remaining hospitals also.

Subsequently Government ordered that persons whether entitled to free medical concessions or not shall pay the cost of special and expensive drugs at certain prescribed rates and these orders have been incorporated in rule 2 (a) of the Madras Medical Attendance Rules. These orders in effect have nullified the earlier decision that drugs prescribed for venereal diseases shall be given free of cost to all patients irrespective of their socio-economic status though it was not the intention of Government. However, the practice of providing free treatment and free supply of costly drugs to all venereal diseases patients has been continued until it was objected by the Accountant-General in view of the provisions under rule 29(a) of the Madras Medical Attendance Rules. The practice has therefore been discontinued since the afternoon of 20th June 1963.

The Government have made a thorough re-examination of the whole question in consultation with the Director of Medical Services. The practice of free supply of costly drugs to all venereal diseases patients, irrespective of their socio-economic status was introduced on account of the diseases being a serious menace to the health of the people and the fact that because of the cost of the drugs being prohibitive and the nature of the diseases being stigmatised, the majority of the patients either did not undergo treatment or complete the

treatment and thus silently spread the diseases which bring in their wake calamitous results such as insanity, blindness, foetal deaths, etc. The Government of India have also pointed out that the practice of free supply of venereal diseases drugs is being followed in all the States and that the discontinuance of the system in this State will drive patients to quacks and private practitioners, thus rendering it difficult to tackle the problem of venereal diseases from the Public Health point of view. The Government of India have therefore suggested that the practice be revived. The Central Advisory Committee on venereal diseases and Yaws has also made the same recommendation which the Director of the Institute of Venereology and the Director of Medical Services have supported. The Director of Medical Services has recommended that that diagnosis and treatment for venereal diseases may be provided free of cost to all patients and that the cost of treatment provided to venereal diseases patients in respect of other ailments may be charged for.

The Government accept the recommendation of the Director of Medical Services. They accordingly ratify the action of the Heads of Government Medical Institutions in having provided free treatment including free supply of costly drugs to all patients till 20th June 1963 afternoon and direct that with immediate effect diagnosis and treatment including supply of special and costly drugs for venereal diseases be provided free of cost to all patients attending Government Medical Institutions irrespective of their socio-economic status and that the cost of treatment provided to such patients in respect of other ailments be charged, if chargeable according to rules.

[Extracts from the G.O. Ms. No. 1840, Health, dated 27th August 1965]

— Please see next page for Schedule of Treatment,

SCHEDULES OF TREATMENT OF VENEREAL DISEASES

“Venereal Diseases”: To include syphilis (all forms), uncomplicated and complicated urethritis (any etiology), chancroid, lymphogranuloma venereum, granuloma inguinale, and other local or general conditions with a venereal background.

Name of the disease. (1)	Name of the drug. (2)	Dosage. (3)	Remarks. (4)
1. Syphilis ..	.. Procaine Penicillin G in oil with two per cent aluminium monostearate conforming to W. H. O standards.	2 ml. or 6 lakh Oxford units IM daily for ten days.	Ambulatory treatment for adults and prenatal syphilis aged over 2 years.
	or Benzathine Penicillin G ..	1 ml. or 3 lakhs Oxford units IM daily for ten days. Or 2.4 m.u. IM in a single session.	For prenatal syphilis aged less than 2 years.
	or Broad spectrum antibiotics preferably chloramphenicol or tetracycline or terramycin.	2 capsules or 500 mg. q. d. s. for ten days or 1g. of Chloramphenicol IM daily for ten days.	For mufussulites and/or those available once only for therapy. When syphilis are allergic to penicillin.
	Neutrapen (Penicillinase) ..	..	For penicillin reaction.

<i>Name of the disease.</i>	<i>Name of the drug.</i>	<i>Dosage.</i>	<i>Remarks.</i>
(1)	(2)	(3)	(4)
Syphilis— <i>cont.</i>	(a) Bismuth Oxyhydrochloride preferably Bisoxyl.	2 ml. or 0.2 g. Bismuth IM once a week for ten weeks.	For late syphilis concurrently with PAM iodides orally or I. V.
	(b) T. A. B. curative vaccine instead of malarial blood (non-availability).	1st session—25 million dead bacilli. 2nd session—25 million followed in 3 hours with another 25 mil. if the temperature does not rise to 103°F. 3rd session—50 million. 4th session—50 million and 25 mil. if the temperature does not rise to 103°F. 5th session—75 million and 50 million if the temperature does not rise to 103°F. 6th session—125 million and 75 million if the temperature does not rise to 103°F.	For induction of fever in the management of GPL. Tabes Dorsalis, I.K., O.A., etc.
NOTE.—The apyrexial interval between the successive bouts of fever should not be less than 24 hours. Cases chosen for this therapy should be examined for purposes of exclusion of Pulmonary Tuberculosis.			

2. Gonorrhoea	.. P.A.M. ..	(c) A. C. T. H. (d) Enteral tablets. Prednisolone (e) 1 per cent hydrocortisone eye drops or eye ointment and 1 percent atropin ointment.	40 units in an IV drip of a pint of N. saline daily for five days. 2 t. d. for one week or longer. Topical steroid ointment or drops for the eye.	For optic atrophy and spinal cord syndromes when CSF reveals pleocytosis and increase in total protein content. As umbrella to ward off allergy, J.H. Reaction and therapeutic paradox. For I.K.
	Or	Chloromycetin ..	2 ml or 6 lakh Oxford units IM daily for four days.	It is essential first to determine the antibiogram and estimate the MIC.
Gon. Vulvo-Vaginitis.	Stilboestrol ..	..	IG IM daily for five days. 0.25 mg. b. d. for twelve days.	For cases of Gonorrhoea resistant to penicillin therapy. This hormonal therapy is given in addition to PAM and Pyretotherapy.
Gon. Ophthalmia Neomatorum.	P.A.M. ..	..	1 ml. or 3 lakh Oxford units IM daily as for congenital syphilis.	No topical penicillin indication; approved eye toilet.
Prophylaxis ..	(rude's treatment with Azne No. 3 solution.	..	..	For incitillation into either eye.
3. V.G. or Donovanosis.	Streptomycin Sulphate ..	..	1 G IM b. d. for ten days 2 t. d. for ten days currently.	To forestal stenosis of physiologic orifices.
	Prednisolone 5 mg. tablets,	..	..	..
	Or	Broad Spectrum Antibiotics as for 1.	500 m.g. 6th hourly round the clock for ten days enterally.	For cases of V.G. resistant to Streptomycin therapy.

<i>Name of the disease.</i> (1)	<i>Name of the drug.</i> (2)	<i>Dosage.</i> (3)	<i>Remarks.</i> (4)
4. Chaneroids and 5. L.G.V.	.. Long acting Sulphonamides.. Short acting Sulphonamides e.g. Sulphadiazine. 6 oz. of 20 per cent suspension of Sulphaguanidine- enema for ten days per rectum.	Midikel or equivalent- one tablet once a day for seven days orally. 2 tablets thrice daily for seven days. ..	.. For L.G.V. proctitis with or without stricture.
6. Non-Gonococcal Urethritis. Or Non-Specific Urethritis	1. Streptomycin Sulphate. 2. Sulphadiazine .. 3. Mist. alkaline to alkalinise the urine-BDH. wide range test paper is employed to determine the ph.	1 g. IM. daily for five days. 2 t.d.s. for seven days. One oz. thrice daily.	All the three are given concurrently.
7. Trichomoniasis	.. Flagyl ..	1 t. d. s. for seven days for oral use.	Sex partner must be treated simultaneously. ..
8. Genital Herpes	.. Vaccine Lymph (King Institute of Preventive Medicine, Guindy). Or Polivirin (Glaxo) ..	One ml. SC injection once a month for three months. 2 ml. or 6 lakhs Oxford Units daily for 4 days.	..
9. Fusospirillosis	.. P.A.M. -- ..	..	..
10. Warts, Genital	.. Podophyllin ..	0.4 gram Mapharsen in 1 oz. of cod liver oil for topical use. i. 20 per cent suspension in tincture benzoin for topical application. ii. Dust with VIT. K. powder. For external use .. 1 ml. to be injected locally on alternate days, 5 injections. ..	
11. Non-specific Balanitis	Chloromycetin applicaps ..	..	..
12. Induratio penis plastica.	Hydrocortisone injectable ..	..	..
13. Prophylaxis specifies in addition to soap and sheaths.	Mechanical, Chemical Antibi- otic.	..	..
14. Reaction to penicillin.	Liq. adrenaline antihistaminic, steroid.	1 ml. IM. or IT. stat parenterally and oxygen inhalation.	..

PRINCIPLES OF PROGRAMME PLANNING

Benefits from the activities of an organisation vary directly with the quality of planning. Administration or management consists of conducting the affairs of an institution, directing the execution of its activities. An important part of the process consists in planning the programme or programmes of action designed to achieve the *objectives* and *accomplish* the *purpose* of the organization. Programme planning, then, involves first, an understanding of the purpose for which an organization exists as well as the objectives it seeks to accomplish.

Purpose may be thought of as the reason why an organization exists. When the purpose is accomplished, the reason for the existence of the organization ceases. Purpose states the **need**.

An *objective* is that which is sought to be achieved. It is "that segment of the road towards meeting the need which we think we can travel".

A *programme* is a *plan*.

A plan is an arrangement of a *series of steps* or actions designed to reach an *objective*. It therefore becomes of fundamental importance clearly to define objectives, before the series of steps—the programme—can be intelligently planned.

Background for planning.—Intelligent planning for public health programmes can be done only with a knowledge of certain basic characteristics of the area or region involved. These facts include—

1. Population characteristics.
2. Vital statistics.
3. Health facilities.
4. Health personnel.

5. Existing health programmes.
6. Governmental structure and politics.
7. Social and cultural characteristics.
8. Economics.
9. Geographical conditions and climate.

Collection of such data is difficult and time consuming and therefore often neglected. It is important that it should be kept current.

Steps in programme planning—

1. The establishment of need.
2. Definition of the problem.
3. Inventory of available resources.
4. Determination of additional resources required.
5. Estimates of costs and sources of funds.
6. Assignment of priorities.
7. Plan of action.
8. Implementation of plan.
9. Evaluation of achievement.

Establishment of need.—This is closely related to but not the same as, definition of the problem. Need is usually **established in one of two ways; What others think ought to be done or what we think ought to be done.** Indicators of need may be pressure from particular groups or the public in general, official policy expressed by governing-bodies morbidity and mortality data, the availability of knowledge and tools to meet a particular problem, the availability of money.

Definition of the problem.—This involves first the establishment of the fact of the existence of the problem, then, in order, the determination of its nature, extent and distribution, importance, and amenability to solution.

Inventory of available resources.—Resources include facilities, and we need to know the kinds available, their **adequacy**, accessibility, extent of use, and factors affecting their extent of use. Resources also include personnel—how many, what kinds, their adequacy of preparation and training.

They include the availability of knowledge. And they include administrative machinery for mounting and conducting a programme.

Determination of additional resources required.—New resources required may be more of the existing kind of new sorts not currently existing in the community or in the Health department. Again they may be in terms of facilities, personnel, knowledge, or administrative machinery.

Estimate of costs and sources of funds.—Should be done on as sound a basis as possible using as nearly as possible, cost-accounting methods. Requires a knowledge of material costs, salary ranges, work loads that can be expected and where applicable, travel costs and building.

Assignment of priorities.—Priority must be assigned for the specific programme under consideration within the entire programme of the organisation. Priorities within the particular programme must also be assigned. The determination of priorities is based upon urgency of need, costs and expectations of results.

Plan of action.—Plan should be set down in writing and should include a statement of the purpose of the programme long-term objectives, short-term and intermediate objectives including a time schedule with fixed target dates. A plan should be precise, but should permit flexibility with changing conditions. It should include a built-in mechanism for evaluation of results.

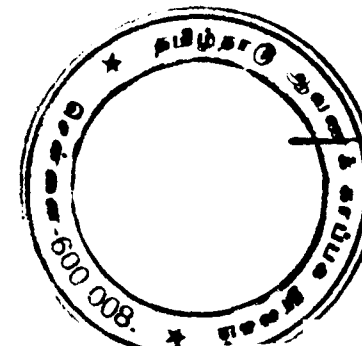
Implementation of plan.—The first stage of the activation of a programme plan involves communications—seeing that those concerned are informed. This begins with the involved staff as early as step one—the establishment of need. It continues (with careful attention to timing) with the Board of Health, other concerned community agencies (including the medical society), the political authorities, and finally the public. Consideration should be given to any legal steps necessary, such as the drafting, publication and promulgation of any necessary rules, regulations or laws.

Implementation of a plan also requires the definite assignment of specific responsibilities together with delegation of appropriate authority. Provisions should be made for periodic review of progress and, if necessary, revision of plans or procedures.

Evaluation of achievement.—The final, but perhaps most important stage of programme planning “*Evaluation briefly is the appraisal of the effectiveness of the means in achieving the objectives and the comparison of what was achieved with the current characteristics of the need.*” Evaluation should be a continuing process and should be based on the achievement of specific objectives, the efficiency of day-to-day operations and the integration of the particular programmes, both with and outside the department. Such an evaluation may result in a revision of the objectives, revision of the programme the abandonment of the programme, or the development of new programmes.

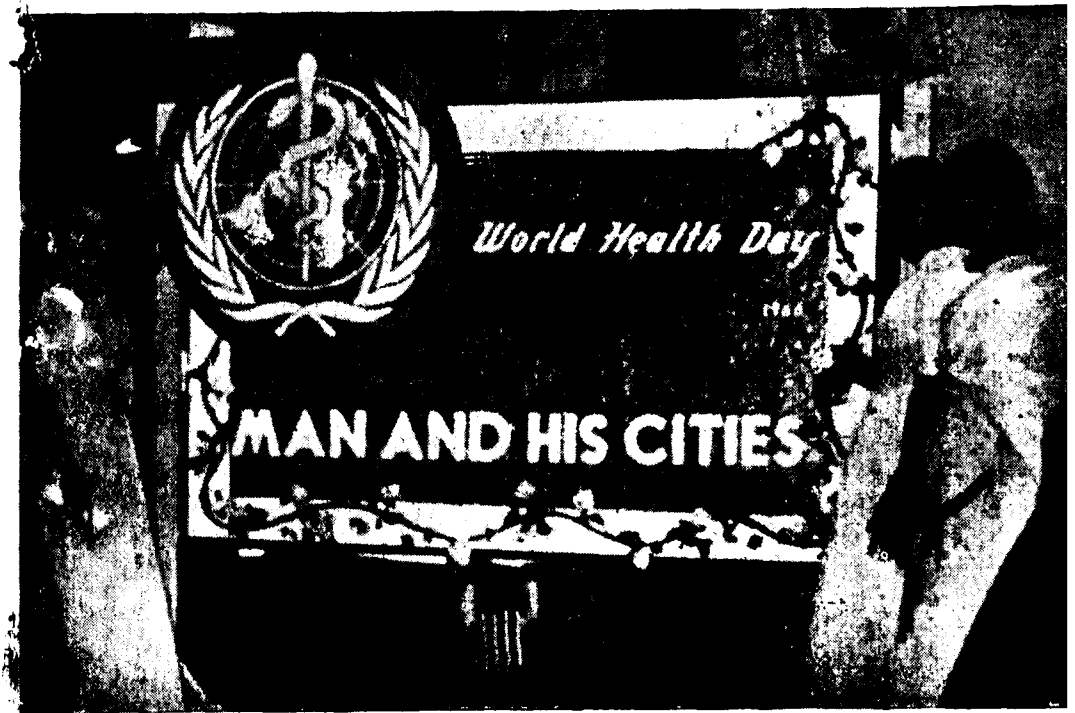
Evaluation requires that measures of accomplishment be devised. It is important that such measures actually be measures of accomplishment and not just measures of work done or time expended—“not the number of time the bird has flapped his wings, but how far he has flown”.

[Source :Papers from University of North Carolina School of Public Health.]



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WORLD HEALTH DAY '66 CELEBRATIONS

As in previous years, the City celebrations were arranged by both the Directorates of Medical and Public Health Services.

From the planning stage, the representatives of Director of Medical Services and the officials of Health Education Bureau, Corporation Health Department, Inspector of Factories, Police Department, Director of Town-Planning and Superintendent, Government Mental Hospital, Madras, have participated in arranging for the celebration.

The celebration in the City was arranged at Children's Theatre on 7th April 1966 at 6-30 p.m. The worshipful Mayor of Madras has presided over the function and opened an Exhibition that was arranged in this connection. This Exhibition was arranged by the State Health Education Bureau, in collaboration with the Inspector of Factories and Superintendent, Government Mental Hospital, Madras. The Commissioner, Corporation of Madras, the Health Officer, Corporation of Madras, the Deputy Commissioner of Police (Law and Order), Madras, have addressed the gathering. The Welcome Address and Vote of Thanks were delivered by the Student-Presidents of Stanley and Madras Medical Colleges, respectively.

At the end of meeting, there was also a film show in the theatre.

Folders on 'Man and His Cities'—the Theme of this year World Health Organization Day were distributed to the public who attended the celebration.

Cover photo showing the panel on World Health Day '66 Theme erected at Children's Theatre on the eve of the celebrations

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WORLD HEALTH DAY

(7TH APRIL 1966.)

“MAN AND HIS CITIES.”

MESSAGES

Dr. M. G. CANDAU,

Director of the World Health Organization.

“Over the last hundred years, mankind has doubled in numbers, but during the same period the world's city population increased five times.

These figures amply illustrate the swift advance of urbanization that is so characteristic a feature of the world today. In the process, health may tend to be forgotten. World Health Day, 1966, is to draw attention to human needs, particularly mental health needs, in our complex urban settings today and to the contribution that health workers in co-operation with other professional people can make towards creating a more harmonious human environment in cities today and tomorrow.

All over the world, the mushrooming city growth has given rise to slums and shanty towns, in which as much as one-third of today's city population are herded together in conditions contrary to the requirements of healthy living. But even when a minimum of basic physical requirements are met, the modern city threatens the health of its citizens in a number of ways.

Many a person coming to the city from the country has to learn to put up with less space, less daylight, less fresh air, less greenery, more noise, but less liberty to make noise. Both work and play are different. Old established patterns of communal living are disrupted. The newcomers may fail to

keep up with city ways, and adjustment problems of various kinds may arise. Psychosomatic and neurotic disorders are undoubtedly largely associated with the congestion and noise, the hectic rhythm of city life, its vast enormity and its many strident appeals to the individual to do this or that. Furthermore, as a counterpart to the glamour of the modern city, to its employment possibilities, its educational wealth and its cultural achievements, we have delinquency, crime, prostitution, cities better places to live in."

The health worker clearly has his part to play in dealing with these problems. At the present state of knowledge, many questions still remain unanswered in this field. But much can be done, by the professions, the authorities and by civic groups, but also by the citizens at large to make our cities better places to live in.

Dr. SUSHILA NAYAR.

"The World Health Day this year has for theme 'Man and his Cities'. Its object is to focus world attention on the needs of people, particularly health needs, mental and physical, in our complex city life of today and the contribution that health workers, in collaboration with those in other disciplines, can make towards creating a more harmonious human environment in cities.

Although 80 per cent of India lives in its villages, there is a constant movement of people to the cities, which offer opportunities for employment, education and entertainment. Cities are growing fast, and they present problems of housing, sanitation and recreation and also problems, psychological and social, peculiar to city life, such as increase of crime, delinquency, prostitution, alcoholism, etc. The old modes of communal living, so natural to rural life, are disrupted in the cities. A rustic coming to the City may find himself lost in a medley of situations of social re-adjustment.

Perhaps the most pressing problem in our cities today is the acute shortage of housing. It has been estimated that our country falls short of the urban demand by about five million houses. The urban population, thanks to our developing economy, has grown rapidly from 62.4 million in 1961 to about 80 million in 1961. Practically half the total urban population is concentrated in 112 cities and towns having a population of one lakh or over. It is also estimated that by 1961 the urban population will reach the 200 million mark as against 80 million in 1961. The enormity of the problem is seen in its true perspective when it is realized that in the city of Calcutta, for example, 79 per cent of the people are living in a house having only one room. Surveys conducted in 20 cities with a population of more than one lakh on an average show that only 25 to 45 per cent of the families have water-supply within their houses and only 30 per cent have independent or common latrines. In Calcutta, one latrine is shared by 30 to 50 persons. In a number of cities, there is complete lack of drainage system. There is paucity of water-supply and inadequate medical and educational facilities. A constant source of danger to public health in some cities is the flow of open drains existing close to wells which supply drinking water.

The formidable problems of psychological and social readjustments to city life impose greater strain on the rural population migrating to the cities. The absence of a warm family atmosphere, new and unfamiliar ways of urban living, social and financial insecurity, all contribute to a feeling of frustration and futility, resulting in all kinds of complication.

How shall we solve these problems? There have been pioneering attempts in the field of urban community development to deal with the problems of urbanization in other countries and some attempt in this direction has been made in India also. The task is a stupendous one. It is heartening to learn that 20 pilot urban community development projects will soon be started in different cities. I feel it is the duty of the corporations in the cities to address themselves to the task

of battering the lives of the urban population. They should work in collaboration with the voluntary organizations that are already doing good work in the field. The educational aspect of the programme should never be lost sight of. It is primarily a programme of developing the citizens' interest and participation in the management of their own affairs and bringing about conditions for a better, purposeful and meaningful life.

The main responsibility for keeping our cities clean and well-provided with civic amenities, so essential for the growth and healthful living of our people, is that of the local bodies. Unfortunately most of the urban local bodies are ill-equipped and ill-suited to perform their functions efficiently. They have to be strengthened and their working improved so that they can discharge their responsibilities satisfactorily, and the citizens too have to learn to discharge their responsibilities in the civic life of any city.

Let us, on this World Health Day, dedicate ourselves to the cause of urban betterment and contribute our services, individually and collectively, to the solution of the pressing problems of rapid urbanisation.

I wish the World Health Day celebrations all success."

"MAN AND HIS CITIES"

GROWTH.

Cities are growing at an even faster rate than the so-called world population explosion. An extreme example is the city of Caracas in Venezuela which increased to five times its size of Caracas in Venezuela which increased to five times its size like the urban agglomeration which was Manchester at its 19th century worst.

Around the year 1800, there were not more than 50 cities of more than 100,000 inhabitants in the world, concentrating a mere 2 per cent of the world population. Today, the very shanty towns of more than 100,000 inhabitants at the fringes of our modern cities concentrate 12 per cent of the world population, more than one-third of the world's city population.

The city rush is a modern development. By the end of this century the city population is predicted to exceed 60 per cent of an estimated world population of six thousand million inhabitants.

Urbanization is the twin sister of industrialization. Consequently, Europe, the first continent to go through with this process, is more highly urbanized than the world as a whole. One of the reasons for this fabulous growth is of course the rise in world population figures. A census in remote, prehistoric times might have revealed 10,000 human beings or so. According to an American specialist, Marston Bates, man made his appearance 600,000 years ago, but for the first 590,000 years the total number of human beings probably at no time was more than 10 million. Not before the year 1800 was there any spectacular rise. This followed ages of slow increases with periodic relapses due to epidemics, wars and natural calamities.

The spectacular rise of cities has been accompanied by the growth of slums and shanty towns which are a universal wen on urban centres. In certain cases they account for 50 per cent of the population. According to UN estimates, while 30 million dwellings will have to be built to ease the housing crisis in developed countries, no fewer than 150 million human beings need re-housing forthwith in the developing world.

In India, in order to decently house the additional population of towns of more than 100,000 inhabitants during the twenty-five years ending in 1975, no less than 22,000 million dollars would be necessary, i.e., four times as much as the International Bank for Reconstruction and Development has lent its members as a whole during the 16 years of its existence. Transport organization and collective development would entail at least as much.

Limits to urbanization

While industry is enticing country people into manufacturing districts, the mechanization of agriculture is reducing the number of farm hands required per acre. Thus the migratory trend from country areas will increase in the years to come since it is estimated that by the end of the century a rural community of 8 to 12 per cent of the total population will suffice to satisfy collective needs. This means that most of the 3,000 million additional humans inhabiting the earth by the year 2,000 will be city dwellers.

Crowding

The housing problem, though most acute in developing countries, is serious everywhere. The industrial revolution and accelerated urbanization have profoundly affected ways of life during the past century. Overcrowding, evil housing conditions, the spread of slums, the dwindling of parkland and open spaces, traffic paralysis, the accident toll, water pollution, time wasted on journeys between home and work—all these drawbacks hamper the Parisian and the inhabitant of Tokyo alike, the New Yorker as much as the man from Calcutta.

Thus the housing shortage is a source of uneasiness, especially in underdeveloped countries where an increasing number of persons flock into squatter camps.

New conceptions needed

While the shanty town is the makeshift and chaotic response of migrants to a situation that calls for industrial planning beyond the reach of local authorities, the suburbs growing round towns and cities since the industrial revolution began are themselves little better than glorified shanty towns. Suburbs which offer all the drawbacks and none of the advantages of either town or country, which nullify the reduction of working hours by adding to the time required to travel between home and work are the dismal legacy of industrial civilization in the nineteenth century. True, efforts have been made to discipline suburban growth by means of garden cities and more recently by housing and shopping centres forming little towns of their own. Unfortunately the latter, like garden cities, often do not differ from dormitory towns. Thus new town-planning conceptions are needed to meet living conditions quite different from those of the past; they will have to be thought out carefully by specialist teams from many disciplines: geography, sociology, architecture, public health, psychiatry and economics, to mention a few.

IMPACT

The impact of the city on man is both negative and positive. To the pollution of air, water and soil must be added what could be called mental pollution. But cities are also stimulating. As centres of industry, art, science and political power, they are the focus of progress. By reducing the aggressive impact of the city on the individual, the essentially positive aspects of city life could be greatly intensified.

It is a trite accusation that the modern city—and especially its embryos the new neighbourhood unit with its large blocks of flats gives rise to psychological disturbances that may lead

to suicide. Yet WHO experts are agreed on this point: there is no form of mental disease peculiar to the neighbourhood unit. What has been called "housewife's neurosis" is just as frequent in detached suburban villas and garden cities as it is in the new neighbourhood. Although the scientific cause of the complaint has yet to be ascertained, it does not seem to lie in urbanization but rather in the wrench of migration which tends to break up the family nucleus, separate married women from their parents, and children from their grandparents; it also isolates individuals in a new environment which may easily appear to be hostile. The change from the life of the farmer or craftsman to that of the modern factory worker causes just as much mental unrest as the transition to urban from rural dwellings. Many people have the impression that mental disease is comparatively more frequent in urban than in rural areas. Yet there is good reason to believe that in proportion to the population these disorders are equally prevalent in non-industrialized countries.

Some factors in city life no doubt tend to bring out mental defect. The abundance of mechanical devices such as traffic lights, complicated regulations such as govern some public transport systems, and the need from time to time to do things quickly may make life difficult for the person of limited intelligence. Some of these persons would no doubt be happier in a smaller community where everybody would know them and where they could fill a modest but useful role, whereas the city may tend to turn them into social misfits. However, the advantage of the city is that it can and often does offer good educational facilities for the mentally handicapped child.

Pollution

The most urgent problems relate to environment. UN surveys show that they have to do with inadequate water and sewerage installations, unhealthy dwellings in insanitary

residential zones, ill-chosen sites for factories or housing developments, and the pollution of air and water by chemical wastes.

The water problem is even more serious. More than 200 million human beings are short of drinking water. A decade from now there will be 300 million unless great efforts are made. One hospital bed out of four in the world is occupied by a patient who is ill because of polluted water. Poor water supplies and disease are inseparable. A WHO report points out, for example, that in a large tropical city, a cholera breeding-ground has existed for several decades; so long as the water-supply and sewage system remain inadequate, the world will live in constant danger of this serious disease spreading from the city concerned.

In 75 developing countries, only 33 per cent of townfolk have running water indoors or in the yard, another third have easy access to public outlets and the remainder have to be content with what they find. In the wake of industrialization and urbanization, water pollution continues to increase the world over.

Cities as waste basket

The amount of refuse grows all the time: food, empty tins, bottles, vegetable matter and rubble are heaped indiscriminately to the satisfaction of rodents and insects. The cost of collecting and disposing of garbage in the United States costs \$10 a head per annum.

In many large tropical and sub-tropical towns little or no attention has been paid to waste water, hence the proliferation of the *Culex fatigans*. This mosquito adapts itself to urban conditions and the denser the population of the city the more it proliferates. It lives in human dwellings, thrives on human blood, and has led to an unprecedented increase in filariasis. Whereas 25 million persons in India were living in danger zones in 1953, the figure had risen to 64 million by 1960.

Indeed, in one large city in Asia, the number of filariasis cases has increased sevenfold in less than 20 years. The road to prevention is to build sewerage and drainage networks, but the cost of such projects is far too great for most of the countries concerned. Indeed, in a majority of developing States, the public authorities cannot afford to supply the population with good drinking water. And those who succeed in doing so are often hard put to dispose of waste water—a no less disastrous drawback. While sewerage is sometimes satisfactory in developed countries, the likelihood of water shortage is a fact to be faced in many large cities.

The noise factor

Noise, another source of urban "pollution" may be put down in the mental column. The main cause is motor traffic which so substantially contributes to nervous disease, insomnia, nervous tension, ill-temper and accidents. The undue extension of the older cities contributes to the increase of noise by obliging people to drive over long distances. These trips are a liability and serve to offset the time gained by reduced working hours; in certain cities, it may take 4 hours a day to travel to work in the morning and to return home in the evening. These comings and goings have a perturbing effect on family life—the father may be more of a guest in the house than a member of the family.

Leisure—Blessing and menace

Misuse of leisure can be considered part of "mental pollution". The impact of films in developing countries is tremendous yet the films produced or imported are generally devoted to violence, robbery and sex. Another danger of the cinema is that it encourages passivity in all too many teenagers and contributes to putting them out of touch with their real situation. At the same time, television and transistorized radio sets may play a vital part in developing countries by enabling

illiterates to hear what they are unable to read. Thus television, radio and the cinema are exceedingly valuable and at the same time dangerous, offering as they do to many people the only opening on modern culture.

So far as liquor is concerned, it would be unreasonable to contend that its ravages are specifically urban. Country districts are equally affected and, in certain cases, considerably more so.

New togetherness

It would be quite wrong to conclude from this gloomy description that modern urban living has no positive aspects. Poverty, illiteracy and unemployment are none of them specifically urban. Quite the contrary, the outstanding problem in towns and cities is that of rural difficulties transplanted into alien surroundings. Migrancy is not necessarily bound up with destitution and ignorance: to go to the town will appeal to the most go-ahead and active villagers. Nor need industrialization be an evil. Far from it. It is often progressive in promoting stable jobs and stable income. While townlife does tend to destroy the tribe and large family, it favours the more restricted unit comprising husband, wife and children. The urbanized family ceases to be a unit in the economy and loses some of its educational importance; its affective ties grow more complex, parents are content to be loved by their children instead of demanding obedience.

Source of stimulation

Cities have always been the hub of innovation, the home of creative thought; new creeds, art forms, political ideas spring up in towns. However, this dynamic impact of city life originates with a minority; there are just as many conservative ideas and hidebound customs in urban as in rural areas. Even so, city life lends itself better to progress. The standards of living and education are higher than in the country. The death rate is lower among city dwellers inasmuch as preventive

measures are more effective and medical attention more rapid and easier to obtain. Comfort and hygiene are more highly developed.

As wireless, television and newspapers are designed for urban tastes, it follows that rural habits increasingly resemble urban patterns in all industrialized countries. The ultimate effect of this trend will be to reduce current stress due to migration. The process is already under way in the developed countries.

TOWARDS A BETTER CITY

Cities, like the people who live in them, are living organisms, growing constantly but not always developing harmoniously. For an improved balance, the better city requires good location, green belts around it and parks within, abundance of drinking water, pleasant dwellings and smooth traffic flow, among other features. Far reaching environmental improvements will make it easier for man to adapt to his cities and in the urbanized world of to-morrow, city health must have priority.

For the past forty years, sociologists and town-planners have been saying that the towns we inherited from the nineteenth century are unfit for habitation in the twentieth. The time has come to find new conceptions. This conviction, shared by such architects as Tony Garnier, Auguste Perret and Le Corbusier, long met with quasi-universal hostility. Yet the new town-planning dogma which they set forth has conquered the world to-day. All modern towns are built in accordance with principles laid down in the nineteen-thirties: dwellings must have sunlight and air; they should not be huddled together; gloomy courtyards should be avoided; industry must be kept away from housing areas; parkland is a vital necessity. Noise and pollution will thus be reduced. Moreover, a minimum of comfort guaranteeing hot water,

central heating, bathrooms and disposal of refuse has introduced hygiene into certain layers of the population who previously were unfamiliar with it.

Correcting past mistakes

Even so, the desire to build modern towns egged on by necessity has led to mistakes which should be avoided in future. Thus it has become an absolute requirement of modern architecture that there should be bay windows facing south: a sound enough conception in cold countries but rank absurdity in a hot climate. Le Corbusier, after advocating sunshine in the home, had to revise his conceptions.

Many new neighbourhoods, set up on open sites, condemned their inhabitants to dwell in windy or foggy areas unsuitable for housing purposes. These plots had been ignored in the past by builders who knew their trade. The proper use of building sites should be studied by town-planners first of all. In hot countries, green belts with stretches of water or fountains at regular intervals ought to be multiplied. In cold countries, building sites should be chosen on sunny slopes. Two factors are peculiarly favourable for town-planning schemes, namely: water points such as reservoirs, lakes and rivers on the one hand, and woods and forests on the other. Motorways should circumvent urban complexes and communicate with them by link roads.

Fighting pollution

It was believed, in the nineteenth century, that pollution was an incurable evil attendant on civilization. We know to-day that new towns, when properly designed, can do away with pollution and that older ones can be rid of it to some extent. Yet the elimination of waste and refuse remains a problem in developed countries even to-day. During the past decade, hundreds of new chemical products which waste-water disposal leaves intact have become a serious problem. New detergents have been invented to counteract this source of

pollution yet fish continue to die by the thousand in certain waterways, beaches are polluted by fuel oil, and anxiety is evinced concerning the sea, an indispensable reserve of flora and fauna, as it tends to become a refuse dump for radioactive waste.

THE FUTURE

The city of to-morrow is not far off. Its early realization, according to the town-planners of to-day, is a prerequisite for the fruitful development of our civilization. This city of the future will be spatial, that is, erected on several levels; mobile, that is, no longer confined to rigid principles; and expendable, in accordance with the rhythm of life in constant development. In architecture, only the modifiable elements are renewable. We may be about to conquer outer space but we do not have the right to neglect the search for the habitat appropriate to the twenty-first century.

PLANNING THE CITY

C. S. CHANDRASEKHARA,

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Most of our towns have grown from small villages with the growth of their importance, as markets of transport terminals or industrial centres, they have grown gradually larger and larger ending up, in what we see to-day, as giant metropolitan centres or large industrial complexes. This process of growth has taken place in most cases in an unconscious way. Each stage of growth represents the efforts of the town to meet the needs of a particular function, or a group of people, or a catastrophic event. For instance, a small town has an extension added on to it, mainly because some people who could afford to build houses to better environmental standards have brought pressure on the town to promote such an extension. In another case the location of an industry and its ancillary uses around it have pulled the town to grow in another direction. In a third case the dangers from floods have caused the entire town to pursue a new direction of growth dictated solely by the needs of protection from floods. Thus at each stage, the growth has been engendered by motivating forces, whether it be industrial development, or housing expansion or needs of protection of the city, which limited such growth to certain functions or to specific areas, causing, in that process, a mixture of different types of activities; a mixture not arranged in any conscientious manner but resulting from a set of activities undertaken in an unrelated way to one another both in point of time and in time of space.

Problems of growth

In some cases the type of growth described above, owing to some foresight on the part of the people responsible for such growth, have not had serious adverse effects but in the majority of cases, the growth of the town has created a larger number

of problems starting with the deterioration in the living environment of the people and leading to long distances of travel between work and home, acute congestion of industrial areas leading to serious disadvantages in the future expansion of industrial activity, traffic bottlenecks, irrational development of utility services, and unsatisfactory flow of goods and services within the city as well as from outside into the city and from the city to outside areas. These problems have become in some cases explosive as in the case of Calcutta and in practically every case have resulted in a large amount of waste of effort and investment affecting the urban economy in an unhealthy manner. The process of overcoming these deficiencies in the city and the same time providing for acceptable standards of living environment for the different groups of people and assure a satisfactory level of services involves comprehensive urban planning. Such planning will have to deal firstly with the present problems in their present severity and secondly with the likely future problems that will arise as the city experience further growth in a foreseeable period of 15 to 20 years.

Functional Planning

Comprehensive urban planning has to initially recognize the functions located in various parts of the city and their inter-relationships. It has also to take into account the present level of activity in regard to each function and its future growth pattern. A city contains by its very nature a large number of functions which involve both individual as well as collective activity. There is the function of living which involves the family, the house, the environment around the house, the neighbourhood and the requirements to be provided for living within the neighbourhood such as the primary school, the local shopping centre, the health clinic, recreational facilities, etc. The individual has also to be assured of a means of living which should be within his easy reach. As the individual is a part of a family which is the basic planning norm sociologically, the

activities of the family as the primary collective group of individuals at the neighbourhood level has to be taken into account and there comes the normal chores of domestic life, the children going to the school, the housewife doing her shopping, etc. At the community level, we have the needs of the community as a whole in the way of the community recreation, parks, play-grounds, civic centres, libraries, and other cultural, social facilities.

From another direction, we can conceive of a different set of collective functions, namely, the industrial activity, the commercial activity which can be both at the local level as well as the city level, or the activity of flow of goods and services. There is also the city administrative function, keeping of law and order and various other responsibilities connected with the management of the city. The several functions stated above have to be arranged in a pattern which is satisfactory both from the point of people working or living together. A neighbourhood has to be satisfactory from the point of view of living conditions for families as well as groups of families. Similarly the industrial area must be satisfactory from the operation; growth, and relating activities of the industry. Similarly, a wholesale market must be so arranged as to satisfy the function of the wholesale trade, which includes the collection of goods from outside, and its distribution within the city and its transportation to other centres.

The Urban Pattern

The evolution of a pattern in which these activities of the groups and individuals proceed in a satisfactory manner results in a plan which is sometimes called a Development Plan, Master Plan or a General Plan. This plan lays down a physical pattern for development on the basis of detailed studies of the economic, social and physical needs of the city as a whole as well as its individuals and communities and taking note of the likely future growth of the city in different directions during the period for which the plan is made. The essentials

of such a plan are primarily (1) the living environment (2) the working environment and (3) the socio-economic environment.

Living Environment

The living environment uses as its primary basis the present accepted planning techniques, using the family as the basic unit and a neighbourhood consisting of a large number of families as the primary group for collective activity. The needs of the family can be set down in simple terms as a dwelling unit, which is commensurate with the income of the family and at the same time is located in an environment which promote physical and mental health. Such an environment would necessarily include good sanitary conditions, fresh air, light and aesthetic arrangements in and outside the house, and natural surroundings suitably landscaped to bring man in touch with nature, even in his normal daily routine. For the community itself, i.e., the neighbourhood, the same requirements to serve a larger number of people are aimed at. The community as a whole, has certain aesthetic quality reflecting the people living in the community, their needs, their aspirations, and their feasibility.

Working Environment

Speaking of the working environment where a man has to spend a substantial part of the day in the present pattern of urban living, the most important consideration is that the work centres have to be conveniently and closely located to the living centres. But at the same time, the work centre must satisfy central environmental conditions in terms of sanitation, hygiene, and aesthetic and recreational qualities. Within the industry, conditions must be achieved to see that the workers are not affected adversely either in mind or in body: outside in the neighbourhood of the work places, the environment should be so designed as to make it as little different from the living environment as possible.

Economic Environments

The economic environment, the third aspect, is basic both to the living and the working environments and deals with a large number of activities that sustain the life of the city. It represents the "blood system", the "nervous system", and the "sealth generation" centres of the city. The economic environment must be such as to make it possible to eliminate all bottlenecks in the flow of activities, whether it be in terms of wholesale and retail commerce or transporation of goods and services from one part of the city to another or the production of goods, generation of services, etc. All these activities must proceed with a view to achieve maximum results with the minimum effort and investment. The idea of maximisation of benefits at minimum cost has to be kept in view in planning the economic environment. Economic environment does not always express itself in physical dimensions and it has many dimensions and many faces, all of which have to be taken note of in comprehensive urban planning.

Synthesis

The integrated planning of the living environment, the working environment and the economic environment of the city produces a living city, a symbol of the cultural life attained by civilization at each stage of its development and as it projects itself towards a future, ensure sustained healthy growth, expansion, and evolution of better and still better standards of urban living.

TOWN AND COUNTRY PLANNING ACTIVITIES

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“The visible pattern of our cities has power to shape the society which inhabits them whoever determines the form of our cities determines also the temper of our lives”—

DEAN HUDNUT

What is Town and Country Planning ? That is the question one may put. In the words of Lewis Keeble it is “the art and science of ordering the use of land and the character and the siting of buildings and communication routes so as to secure the maximum practicable degree of economy, convenience and beauty”. Planning occurs when there is conscious attempt on the part of man to mould his environment. The ultimate social aim of planning is “to create a physical environment which conduces to health, which allows convenient and safe passage from place to place, which facilitates social inter-course and has visual attractiveness.”

Why “Town and Country”?

It is not possible to isolate the two elements—town and country—in any true study of human environment. These two elements are physically, socially, economically and aesthetically complementary to each other. A town can be properly planned only in relation to its rural setting. The convenient unit for planning is thus the region which has an element of town as well as of country. Pursuing this logically an assembly of regions would cover the entire country and the ultimate goal of town and country planning should be a national physical plan covering the entire country.

Apart from this, there is an element of country in each town, for example, the landscape influence of the town shown by its rural setting and country features like lake, open spaces, ridges, etc. Similarly, there is an element of “town” in every village such as regularity of plan, formality of the building, scale of parts and use of standard type of materials and design.

Consequences of not Planning

Some of the main consequences of not planning are loss of valuable resources like good agricultural land, forests and minerals by reason of buildings being erected indiscriminately over them intrinsically bad uses of land, slums, ribbon development, traffic jams, factory chimneys puffing obnoxious fumes into some one's kitchen or bed-room and similar “anarchic messes”. Urbanisation is like a flood. If it is controlled and properly channelled it can bring lasting benefits. If it is left unchecked to go wherever it likes it can cause much devastation. The cost of not planning is thus enormous when compared to the cost of planning.

Advantages of Planning

By planning, it can be ensured that the right amount of land is earmarked for the right use at the right place, proper spatial relationship is established between homes and work places; homes and schools, homes and shopping places of various levels; homes and places of entertainments and there is a successful arrangement of the town's road system.

Country planning in essence boils down to where to build and where to farm. By proper planning, it can be ensured that the best farm land is preserved for agriculture, the country-side is unviolated and is free from all unnecessary, ill-designed and ill-sited objects; areas of great natural beauty and land-scape value could be preserved; it can also be ensured that the country side is punctuated by towns and villages of different sizes with clear and clean edges without peripheral

clutter at their approaches; it could also be ensured that the national highways and State highways are kept clear from build-up areas and one is able to drive along them without going through congested areas and encountering dangerous and uncontrolled inter-sections with minor roads.

Town Planning can ensure that there is proper balancing of population and employment, i.e., the town is able to provide employment to all its workers and there is no need to import workers; the town can also have a clear structure and pattern of land uses and communication routes designed for maximum accessibility and convenience and minimum congestion and danger. The town centre, work centres and community facilities can be so located and designed as to meet full and conveniently the daily needs of their users. A well articulated minor road system can also be designed. Modern shopping centres with pedestrian precincts to keep shop-gazing and traffic avoidance apart, can also be designed. Even in industrial design certain advanced designs can be adopted which would enable factories being built in attractive settings, properly landscaped without the usual ugly looking and ill-designed chimneys and work-sheds. The residential areas can also be planned to have a variety of dwelling units so that every family has a chance of securing a home of the kind and size it wants; play-fields and parks can also be made accessible to the residential area without exhaustingly long journeys; proper landscaping by means of trees and bushes and ensuring that even objects such as hedges, walls, fences, lamp-posts, etc., are designed properly would also add to the visual attractiveness of the town. In short, there could be a place for everything and everything could be in its place. These are some of the ingredients which an ideal plan can be expected to have. A new town like Chandigarh which is designed and built as a whole from the very beginning certainly offers an unique opportunity for architectural and social experiment and it is possible to introduce a genuine originality and grace to such a new town. The general atmosphere of modernity and

prosperity is exhilarating. More pleasant factory conditions, more comfortable houses and short journeys to home will ensure less absenteeism and better health among factory workers which in turn will result in notable increase in production.

Even if it is not possible to implement the plan by carrying out specific works of improvement, it would be worthwhile preparing a plan purely for ensuring that conditions do not deteriorate from bad to worse. As soon as the plan comes into operation, future development can be controlled and well-regulated in accordance with the plan. For example, if the plan says that a road should have a right-of-way of 100 feet, it is not necessary that all buildings which fall within this right-of-way, should be straightaway acquired and demolished. But it can at least be ensured that no fresh construction takes place within this right-of-way. If any existing building is to be re-built such re-building may be allowed only after the prescribed right-of-way is left clear.

Modern town planning is no longer concerned merely with aesthetics or improving surface appearance. A City Plan has to be based on an intimate understanding of the social and economic needs of the citizens. The ultimate aim of the Plan is not so much improving the visual appearance of the town as improving the more deep-seated social and economic problems which rapid urbanisation entails.

Achievements of T.C.P.O.

Town and country planning activities have received greater impetus with the establishment of the Town and Country Planning Organisation (TCPO) at the Centre as disciplined technical advisory body advising the Ministries of the Government of India, the Planning Commission, State Governments and the local bodies in the formulation of policies and programmes concerning town and country planning. At the State level, almost all the States have State Town Planning Departments whose functions include advice to the State and local

bodies on all matters concerning town and country planning, preparation of development plans, town improvement schemes, layouts for housing scheme and so on. At the local level, bigger Municipal Corporations like Delhi, Bombay and Madras, have their own Town Planning Units which are responsible for the preparation of development plans and development schemes following from these plans.

The Model Town and Country Planning legislation prepared by the Central Town and Country Planning Organisation has provided the necessary basic framework to the State Governments to improve their existing Acts and introduce new legislation wherever necessary. It is anticipated that in the next two or three years, practically, all the States would have comprehensive town planning legislation which would enable them to promote rational development in accordance with the comprehensive development plans.

As a first step towards the preparation of development plans, work on about 180 important cities and towns is now in progress and some of the plans have already been prepared. Several new towns have been established in the post-independence period, some of them such as Chandigarh and Bhubaneswar as new State capitals and some like Bhilai, Rourkela and Durgapur as centres large public sector industries. Another outstanding achievement has been the completion of the Master Plan for Metropolitan Delhi which has been approved by the Central Cabinet and is now being implemented by various agencies whose activities are co-ordinated by the Delhi Development Authority.

Town and Country Planning is not a luxury but a vital necessity as a means of bringing into focus and improving for the community as a whole resources in employment and housing, education and other social facilities, health and convenience. But there is still only vague awareness of the more fundamental considerations. The problems of town and

country planning can be adequately tackled only when town and country planning is regarded as an aspect of over all administrative planning and its scope and objectives are more clearly understood by politicians and responsible officials who ultimately take decisions. Town and Country Planning can succeed only if daily decisions are influenced by it and each operating agency is guided by considerations of overall planning.

Courtesy "Swasth Hind"

MENTAL HEALTH

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Mental Health, the gravest of public health liabilities is the most neglected of all. Politicians talk from platforms about the great reawakening and understanding the cause of the poor and theories programmes for social uplift. Sociologists academic, and otherwise an aglow with feelings of sympathy with the needy and enthusiasm for improving conditions for slum dwellers, cheering up the sick, and arranging for the education of the poor. Psychologists are engaged either in full time research and teaching, or in improving the interests of industrial concerns, in labour welfare or in education. Medical men are immediately concerned with communicable diseases—with cancer, tuberculosis, leprosy and family planning. This fact seems to have failed to attract attention, that woven intricately into the fabric of the human body and astute, off society and culture, is the important factor called the psyche; which is responsible for discipline and indiscipline, delinquency and socially accepted behaviour, war and peace, disease and death. Mental Health is not the concerns of a few medical men allotted to look after an ostracised community is asylums; it is the concern of the whole medical department. Government and voluntary, of society and Government. All Public Health programmes seek to prevent physical illness but similar aspects of mental illness have received scant attention, not because medical men are oriented incorrectly, but because public enlightenment (which is born out of interest) is at a very low level. It is immediately necessary that there is authority to recognise the need for, and implement schemes for the education of the public on mental

health. This aspect of the individual and the nation is bound to suffer in future days because industrialisation—break up of family systems, “tempo” of modern living and the stress of composition will not fail to show their damaging effects sooner or later. With the artificial environment as has created around him, man has scored enormous gains over his less ambitious ancestors, but in doing so he has also produced mental disturbances. In moving into the City with its buildings, and machines, monuments of his ambitions and intelligence—man has estranged himself from the elements, and created an eternal challenge in to his ‘emotional’ rights. The result is evident in the enormous number of mentally disturbed individuals in society, and the incidence varies directly with the increase to modernisation. And what we see is only the visible part of the teachers.

The impact of war on the human race, culture and society is very sudden, the effects very drastic, and help required urgent, comparatively, the subtle changes involved in urbanisation are worked up very insidiously, and the effects are seen so late and spread as wide that the relationship between cause and effect can hardly be recognised.

Medical men are now shifting the interests of their research from the men with the diseases, to the surroundings in which as is placed, having understood that the cause of illness lies in anything from the water and air around to the situation of the work place, type of job, and most important of all, interpersonal relationships. Sociologists on the other hand are shifting their attention from the wide field of “environment” to the individual, to seek the effects of the former on the latter. It is obvious therefore that health has been recognised as intimately dependent and controlled by the social structure. In practical, clinical academic and teaching programme is medicine, the “Social” aspect of medicine has gained ground. If so much emphasis is placed on the importance of social conditions in physical health, how much more important would they be in mental health.

The effect of his City on the man is resisted to "urbanisation" industrialisation change in social habits, family system and job demands.

In rural areas living is simple, thinking is simple, competition not stressful, and unity and group feelings, better. The intra and interpersonal relationships are optimum in the villages. Every member in the family works and has a role to perform in the family, and the ego satisfaction achieved, in being responsible for family uplift and welfare, goes a long way to contribute to emotional security and mental balance. The three generation system exists in country households, the grand parents—parents and children working together for a common interest involving less competition and strata. The family works as an unit. The "neighbourly" feeling exists to advantage, and as long as gross deviations from acceptable customs are avoided, one family can depend on another in times of need. Social and emotional heads are recognised and security assured.

With urbanisation, living with such large groups is difficult. The family unit is split up and each one is left to himself to make his own adjustment and interpersonal relationship. Responsibility and authority which in rural living is vested in senior members of the family is no longer shared in urban life, but has to be shouldered by one individual, the wage earner—and the others hardly realise the difficulties involved in making both ends meet. Values change completely, and money centred attitudes deprive the individual of clear thinking in terms of allotment of funds, social behaviour and attention to the home. Prestige is directly related to financial position, and unless one "Keeps up with the Joneses"; frustration overtakes the household. The family is thus reduced to living up to artificial goals which deprive the members of essential requirements like food and medical attention. Financial requirements are ever soaring high, with the result

that the wife starts going out for work. Children do not receive the care they require, and seek other methods (far from healthy), to satisfy their emotional needs.

The urban society is a very complex structure. Its demands are often unreasonable and not consistent. Social restraints hinder natural emotional growth and outlets, resulting in pent-up feelings which cause the neurosis. Cultural advance which is too rapid to cope with, results in mental disturbance. The tempo of living in modern Cities is very rapid, men move as automations and leave their emotions behind locked up to cause trouble later. Unsatisfied desires, uncared for feelings and all that is rejected by society and work demands, accumulate to work their ravages when poor physical health or physiological traumata trigger off the sensitive mechanism.

"The greatest task before civilisation at present is to make machines what they ought to be,—the slaves thereon instead of the masters of men". Men work like machines and become slaves to time. The shift system of work disturbs natural habits of food and sleep. Very often the husband and wife go out to work and their hours of work are so demanding and variable that they hardly meet. Family cohesiveness and understanding are bound to suffer under such circumstances and is reflected on both parents and children.

Industrialisation has resulted in a one generation culture where the individual works for a boss, and the boss works for stock-holders. This results in an employee-employer relationship which when not favourable or lacks understanding causes frustration. Chronic invalidism is often due to such unhappiness at work centres.

Facilities provided in City life in a way endanger the health of the individual. Clubs which are meant for people to meet and exchange views and for recreational activities are used differently, and what should have restored vitality and

interest in life and work, actually saps the individual of his energy, because he stays into the late hours of the morning gambling or drinking,—losing both sleep and money.

Parents have no time for children, who are therefore not given necessary advice and emotional support especially during the adolescent period. Immature individuals of both sexes are thrown together at work places. (If the family is poor the adolescent is sent out for work), or educational institutions. Ignorance of sex leads to misuse of liberties given, and results in delinquencies and sexual crimes or misbehaviour.

It must be accepted that accidents are much more common in the Cities. The use of vehicular transport the “bravado” exhibited by drivers, the need for rapid movement due to the demands of time and work, drugs and alcoholism may be responsible for road accidents. Industrial accidents are due to faulty equipment, failure to adopt provocative measures was “accident processes”. Quite a significant number of accidents also occur in the home due to modern gadgets for cooking and luxury equipment and the use of gas.

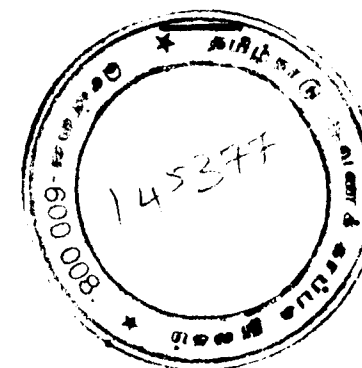
Industrial poisons and by-products is the use of chemicals in industrial concerns often cause mental illness. Accidents, alcoholism, absenteeism and aggravation are the main concern of the industrial physician.

We are aware of the danger existing in city life. We are also aware that we can no longer remain content with “sufficient for the day” in the villages. All we can do is to learn and teach the citizens to grow with time in a healthy manner. Public health education programmes will need the recognition they have not yet received,—and health must be understood in terms of 60 per cent “mental” and 40 per cent “physical”. Educationists, Sociologists, Psychologists and Medical men must divert funds and energy towards public enlightenment on mental health. Prevention has been accepted as better than cure. As much attention must then be diverted to preventive aspects of mental illness as is now

being channelled to eradication of malaria and communicable diseases. It is unwise to control progress—It is difficult to control or predict human reactions, but it will help to be trained for healthier living and warned of the dangers that are involved in the life to come.

As in previous years, the City celebrations were arranged by both the Directorates of Medical and Public Health Services.

From the planning stage, the representatives of Director of Medical Services and the Officials of Health Education Bureau, Corporation Health Department, Inspector of Factories, Police Department, Director of Town-Planning and Superintendent, Government Mental Hospital, Madras have participated in arranging for the celebration.



HEART ATTACK

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What do we mean by a heart attack?

The word "heart attack" is usually used for a condition when there is *severe chest pain* due to insufficient blood supply to the heart muscle. As is well known the heart is a muscular organ and it is supplied by blood by means of two vessels called Coronary arteries. If there is an obstruction of flow to the blood in these vessels we get a heart attack which on a scientific level is called Coronary Thrombosis.

Who are the type of people, prone to get this disease?

This is a disease essentially of males. Females are much less affected up to the age of 50. The usual age group is between 40-50. Younger people are also liable to get it but not so often as the older age group. People with sedantry habits and with lot of mental strain, anxiety and people who have to make important decisions on the spot have been known to get the disease more frequently. People who are engaged in occupations which call for physical exertion are known to suffer much less from this disease.

What is the cause of this disease?

There is no one cause which is known to produce this disease. Certain facts are known about the disease. Of course this is not the final word. And because we do not know the exact cause we are not able to prevent the disease in a definite way even to-day.

What are the known factors about the disease?

They are: (1) *Heredity*.—It has been noted that heredity plays a role in the cause of the disease. If both the parents had "heart attack" the chances are very high for the children to get it—and when they get it they do get at a much younger age than the parents.

(2) *Obesity*.—Increased weight predisposes for this disease. People who keep to the optimum weight for their age and height are less prone to get it than those who are overweight.

(3) *Diabetes*.—A diabetic patient who does not control his disease falls an easier prey to heart attacks than normal people.

(4) *High blood pressure*.—Just like diabetes if this is uncontrolled high blood pressure it predisposes for a heart attack.

What is the role of diet in this disease?

One of the most controversial subjects to-day is the relationship of diet to the disease. There is no definiteness about the exact role.

Vegetarians and non-vegetarians do get it almost to the same degree.—The role of animal fat particularly stressed in the West is not applicable to our country.

It has also been found that it is not any one single item to be tabooed but the total in-take in 24 hours which to be restricted.—It is absolutely uncertain whether one should restrict any particular item including fat in an individual who is not overweight, who is not a diabetic and who has no high blood pressure.

Every one is now overwhelmed about the word "Cholesterol". There is no definite proof even to-day that in human beings it is the chief mischief-monger.—As a matter of fact there is a shift of activity in thinking from

"Cholesterol" to the oils one use ghee, coconut oil are supposed to be not good for people, since there is an idea that it may predispose for the heart attack. *It is still an idea and not a fact and there is no proof scientifically to prove it.* When one considers that and when one knows particularly in South India where the oil in-take is very much less than in the North (the coconut oil consumption of a Malayalee may be put 2-4 teaspoonful a day) there is no justification to restrict the normal food habits—even though it may have to be adjusted on an individual basis. *So that as far as food is concerned the in-take must be such that one keeps the correct weight and if one is in the habit of taking too much of ghee or oil it may have to be limited.*

Smoking has been found to contribute to this disease if there is excess and it is definitely correct to stop it if one can't have it in moderation (4-5 per day).

How can one prevent the disease?

As was pointed out, since we do not know the exact cause we cannot have a definite prevention of this disease. But the following measure may be adopted to advantage:—

(1) keep weight under control. Seek the advise of your family doctor and strictly adhere to his advise.

(2) Control both diabetes and high blood pressure.

(3) *Exercise*.—Moderate exercise is a very good measure. For the old walking is one of the best exercises. The distance may be anything between 1-3 miles or more, depending on individual circumstances.

(4) Avoid excess in smoking.

DIET AND HEART DISEASE

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The title is rather strange but it is true that food has an important place in the production of heart disease. The heart is a part of the body and hence it is logical to assume that it shares the vicissitudes of the body as a whole.

Starvation produces generalised depletion of energy reserves of body and in turn that of the heart too. Lack of vitamins in food especially "B" results in Beri Beri. Similarly obesity (over-eating) increases fat not only externally but also internally in all organs including the heart, which gets fatty, flabby and inefficient.

Obesity also increases the work of this flabby and inefficient heart as it has to move around a larger number of pounds of body weight. Evidence available chiefly from insurance and post-mortem findings show that obesity predisposes to fatal coronary heart disease. Deaths from coronary disease in obese people are 40 per cent higher than among the normal. *Obese people over-eat, consume more fat and are sedentary in their habits.* Over-eating and injudicious eating increases the blood fat which could deposit itself in the walls of vessels (artery) and close the lumen. This state is known as *Atherosclerosis* wherein a kind of fat "cholesterol" is deposited in the great arteries of the body, slowly closing the lumen, and ultimately resulting in less blood supply to various organs. Among these which suffer is *the heart*. It is rather strange that this organ which is pumping blood constantly all the 24 hours without any rest to all places of the body and is full of blood has to depend not on that but on the blood supplied by

the small coronary arteries originating from the first part of the aorta (the large vessel emanating from the heart) for its own sustenance.

Atherosclerosis can produce hypertension (commonly known as blood pressure) and coronary thrombosis (commonly known as heart attacks which result in sudden death) and also cerebral thrombosis (closure of vessels to the brain).

We shall discuss briefly the coronary artery disease. It is now known that a larger number of sudden deaths apart from accidents are due to this fell disease. We also know that the more a country is advanced in civilization (i.e.), higher standards of living better and richer food, better amenities and increased stresses of modern life, higher is the incidence of this disease.

Statistically where fat forms a higher percentage of food as in U.S.A. or sugar in-take high as in Western countries, the incidence of Coronary disease are maximum among them.

Cancer is dreaded, but this coronary disease is more subtle, more killing and starts from childhood. Women are protected to a great extent against the disease atleast up to the age of 50 years, probably due to the female sex hormones produced during this period. It is *still too early to incriminate fat alone, as smoking, stress and strain and lack of exercises also play some part in this process.*

Lack of physical exercise has been said to be an important casual factor for coronary heart disease.

Socio Economic Status.—The disease is found to be very common in *high socio-economic group* which includes well-to-do professional classes like *doctors, engineers, businessmen, landlords and high officials.*

Atherosclerosis, the end product of the above is an upset of the fat metabolism and the particular type accused is "Cholesterol". Strangely if cholesterol in-take is restricted

the body makes its own cholesterol from other sources as this forms the base for all hormones. Further it is also not proved that a high cholesterol content in blood invariably produces atherosclerosis and coronary thrombosis. But it is definite that in conditions of high cholesterol in blood as in hypothyroidism nephrosis, etc., coronary heart disease is more common.

Diet.—Incidence of myocardial infarction is more in those who consume more of *saturated fats* (i.e.), *animal fats like butter and ghee.* It is observed that hydrogenated vegetable oils forms a large part of the common diet in many of us. If the vegetable fats are saturated (hydrogenated) they also become harmful as animal fats. Animals fed on high saturated fats develop a very high blood cholesterol level and those fed on unsaturated fats have low cholesterol level which means **that taking more of unsaturated fat in our diet reduces total cholesterol which may be for our good.**

But it has not been definitely proved so far **that** low cholesterol level alone can prevent coronary artery diseases. There are also other factors required in the production of coronary artery diseases and cerebral thrombosis. They are (1) *elevated blood pressure*, (2) *excess weight* and (3) *the incidence of heart attacks.* When two or more of those factors combine or co-exist one gets heart disease.

Smoking and tobacco.—Tobacco in any form is bad. In our country apart from other uses as snuff, cigars, cigarettes and beedies, tobacco is also chewed with betel leaves. The most important ingredient of tobacco is nicotine which is responsible for all bad effects of tobacco. Smoking has some deleterious effect on the coronaries and plays a part in the production of atherosclerosis, but smoking should be heavy for it to produce the above change.

Noxious fumes of industries and the modern diesel cars have been found to have a certain deleterious effect on the coronaries.

Thus, in a nutshell, we could say that coronary artery disease increases in direct proportion to the following factors :—

- (1) Excess weight.
- (2) Elevated blood pressure.
- (3) Elevated blood cholesterol.
- (4) Excessive smoking.
- (5) Stress and strain of modern life.

Factors 1, 2 and 3 are directly related to over-eating and deposition of fat in the tissues and blood vessels, and hence one should guard one's diet (food) and weight. The fourth factor, excessive smoking is preventible and the fifth one is beyond our control.

The corollary of this articles would thus be :—

- (1) Watch your weight and keep it within the accepted limits of height-weight ratio. Over-eating produces other diseases like diabetes, arthritis.
- (2) Eat judiciously and avoid too much animal fats and dairy products and take more of unsaturated vegetable fats.
- (3) Smoke in moderation, if you have to.
- (4) Take life easy after middle age.
- (5) Have your heart examined, blood pressure taken and urine analysed periodically. If necessary have an E.C.G. done when you are above 40 years once in a way or if you have the slightest symptom of chest pain (pain under the sternum). *Thus may you live a long and healthy life.*

VENEREAL DISEASES

DR. P. N. RANGIAH, M.D., F.A.M.S., F.D.S., F.A.A.D.

According to the definition recommended by the 13th World Health Assembly, the article I reads :—

“ **VENEREAL DISEASES** ” : “ To include syphilis (all forms), uncomplicated and complicated urethritis (any etiology) chancroid, lymphogranuloma venereum, granuloma inguinale, and other local or general conditions with a venereal background.”

Nevertheless priority is given to Syphilis, Gonorrhoea, Chancroids, Lymphogranuloma Venereum and Granuloma Venereum, reserving Herpes Progenitalis, Non-Gonococcal Urethritis, Non-Specific Buboes in the vicinity of the genitalia and the several other dermatological conditions including the vulgar warts encountered over the genital territory for a later presentation, for brevity.

SYPHILIS

Definition

Syphilis is a contagious disease, endemic all over the civilised world, of great chronicity, ubiquitous in its clinical manifestations, transmissible to the second generation and constitutes a public health menace of major magnitude.

Bacteriology and Pathology.

The disease is caused by a spiral organism, the *Treponema Pallidum* (*Spirochoeta Pallidum* in the old terminology), discovered in 1905 by Schaudinn and Hoffmann. The organism is a strict anaerobe and is easily killed or rendered effete by unfavourable conditions as desiccation, and feeble antiseptics.

The several staining methods of demonstrating the organism, are only a second best and not conclusive. The *treponema pallidum* has certain special morphological and movement characteristics to distinguish it from other banal spirochetes. Under the dark ground microscope it appears as a dead white organism with regular closely set spirals and pointed ends. Three movements can be recognised: (1) a slow movement of translation from one part of the field to another, (2) a rotary movement on its long axis, and (3) a side to side bending or wavy movement. This last is very characteristic and should be observed in fresh specimens. The average length of a *treponema pallidum* is the diameter of a red blood corpuscle.

The human organism reacts in a characteristic manner to the invading organism and the essential pathology of syphilis is three-fold: (1) perivascular lymphocytic and plasma celled infiltration, (2) peri and endarteritis of the blood vessels, and (3) fibrosis and scarring resulting in an anatomical and functional destruction of parenchymatous tissues. The various clinical manifestations of the disease are easily explained by the essential vascular pathology, e.g., the induration of a chancre, the necrosis of a gumma, the development of an aneurysm or the thrombosis of a cerebral blood vessel.

Classification : Acquired and Congenital :

Acquired syphilis.—In the large majority of cases the infection is acquired during coitus with an infected person, though innocently acquired infection is not uncommon among doctors, nurses and accoucheurs in the course of their professional duties. The old chronological classification of Ricord into Primary, Secondary and Tertiary Syphilis is still followed as affording a convenient method for purposes of description though it should be remembered that syphilis is a systemic infection from the very onset even before the appearance of the initial chancre.

Primary syphilis.—The incubation period of syphilis varies from 10 days to 4 months, the average being three weeks. Primary syphilis comprises the appearance of an initial lesion in the genitals with an enlargement of the regional lymphatic glands. The initial lesion is variously known as the chancre, the hard chancre, or the Hunterian chancre.

The following are the clinical characteristics of a chancre :—

It may be papulo-erosive or papulo-ulcerative lesion. It is usually single, comparatively painless, indurated, has a shallow base with a shelving edge and does not easily bleed on pressure. This clinical appearance is severally modified in the average hospital class of Indian patients either as the result of secondary infection with fusospirillary organisms or Ducrey bacilli or the application of irritating drugs.

In the male, the chancre may appear in any part of the genitals but is most commonly observed on the prepuce and coronal sulcus. Chancres occurring on the glans penis, shaft of the phallus or the scrotum may be deceptive as they lack the clinical characteristics of chancres on the prepuce and coronal sulcus. In the female, the most common site is the cervix. Next in turn comes the labial chancre and chancres on the clitoris. As a general rule the chancre in the females is atypical, devoid of the characteristic induration, and for that reason and its common situation in the cervix, is easily missed. The regional lymphatic glands on one or both sides are enlarged, painless, discrete and have a peculiar India rubber consistency.

Extra-genital chancre.—May occur in any part of the body; the common sites are the lip, the tongue, the tonsil, the eye, the finger, the breast, the waist, etc., the frequency of its appearance depending on customs and habits peculiar to the population under study.

Early secondary or systemic syphilis.—After an interval varying from 4 to 12 weeks and sometimes before the complete healing of the chancre, systemic manifestations of the disease make their appearance, the most spectacular of which are the cutaneous and skeletal lesions.

(a) *Cutaneous syphilis.*—The patient breaks out with a rash which has the following characteristics :—

1. It is generalised and symmetrically distributed.
2. In the ordinary average Indian patient the colour of the rash is like that of unburnished copper.
3. It is usually not itchy though other co-incident infestations of the skin may confuse the picture.
4. The rash is pleomorphic, i.e., consisting of more than one variety of eruptions.
5. The eruptions are indurated and indolent looking.
6. The earliest eruptions are the fleeting macular syphilides, appearing on the flanks and backs, easily missed in dark individuals and recognised easily by oblique illumination of the skin.

The commonest eruption is the papular syphilide of varying size, domeshaped, discrete, indolent and indurated. Other varieties of skin rash observed are only a further modification of the papule :—the follicular, the annular, the papulo-squamous, the papulo-pustular, the ecthymatous and the rupioid syphilides, depending upon the virulence of the infection and the state of individual resistance.

(b) *Mucous membrane and muco-cutaneous lesions.*—Either with or without cutaneous eruptions, syphilides appear on the mucous membranes and muco-cutaneous junctions of the body. An evanescent sore throat followed by papulo-erosive lesions on the mucous membranes of the lips, tongue, palate and fauces is a frequent occurrence in this stage of infection. The papular syphilides occurring on the mucous and muco-cutaneous surfaces are of three types : the pale red erosion,

the typical greyish white mucous patch and the vegetative warty condylomatous syphilide. The first two types are usually observed on the buccal, labial and faucial mucous membranes. The last type occurs around the anal margin, on the external genitals in both sexes, in the axillae and underneath a pendulous breast. These lesions are teeming with virulent treponemes and are highly infectious.

(c) *Skeletal syphilis.*—One of the earliest subjective manifestations of systemic syphilis is severe symmetrical pains in all the joints and bones without any objective swelling and characterised by nocturnal exacerbation.

The skeletal lesions of early systemic syphilis, are commonly localised to the long bones with a large subcutaneous surface, they are multiple and sometimes fleeting. The swellings are exquisitely tender. The bones commonly affected are the tibia, the clavicle, the sternum, the posterior surface of the ulna and the shafts of the other long bones in the order of their frequency.

During the secondary or florid stage of syphilis the patient suffers from a low type of hectic temperature, malaise, mild secondary anaemia with lymphocytosis. There is universal enlargement of the lymphatic glands of the body and alopecia of the scalp, face and genitals is not uncommon.

It should be borne in mind that the manifestations of primary and secondary syphilis may spontaneously disappear even without any treatment. The involution of signs and symptoms of secondary syphilis is followed by a variable period of two to three years during which the untreated syphilitic suffers from recurrent attacks of active disease punctuated by periods of complete clinical quiescence.

Relapse or late secondary manifestations are of various types :—

1. The relapsing chancre.
2. Mucosal relapse.
3. Cutaneous relapse.

4. Skeletal relapse.

5. Relapse in a sensory organ, e.g., iritis.

6. Relapse in the supporting structures of the central nervous system (meninges and blood vessels) giving rise to meningitis, paralysis of the cranial nerves, hemiplegias, monoplegias, etc.

7. In the case of the enciente syphilitic, the relapse may take the form of the birth of a congenital syphilitic infant.

The clinical characteristics of the relapsing lesions of cutaneous syphilis: they are localised, asymmetrical, grouped in circles or segments of circles and may assume various patterns, the annular, the corymbose, the serpiginous, the circinate, the nodular, the vegetative or the ulcerative types. Syphilitic iritis or irido-cyclitis deserves special mention as it is a very frequent affection in tropical practice usually coming on just after the early cutaneous rash has faded or during the period of early latency. The condition is often asymptomatic and the patient loses a large part of his vision by the rapid development of synechial adhesions of the iris to the lens or cornea.

The ultimate fate of the untreated syphilitic is interesting from the prognostic point of view. About 20 per cent of the untreated syphilitics get spontaneously cured clinically and serologically. Another 20 to 25 per cent develop what is known as benign late or tertiary syphilis. In the third 25 per cent of cases, slow, insidious, chronic inflammatory and degenerative changes take place over a period of 15 to 20 years in the central nervous system and the cardioaortic syphilis. The last quarter of the untreated syphilitics, of which women form the majority, achieve a prolonged life long latency during which the host and the organism live side by side in a sort of symbiotic amity.

Benign late or Tertiary syphilis.—This is an allergic manifestation of chronic syphilis, in which the tissues particularly the skin and the bone react explosively and destructively.

Tertiary manifestations may appear any time from the third year up to the end of the patient's life. The cutaneous lesions of late syphilis are the localised gummata and the nodular-cutaneous ulcerating syphilides. They may occur on any part of the body but are most frequently observed on the legs round about the knee joint, clavicular and sternal regions. The typical gumma is an indolent, doughy swelling which softens and breaks down giving rise to a punched out ulcer with dirty looking slough at the bottom. The nodulocutaneous syphilides are a series of miniature gummata developing in a circular or arciform fashion, ulcerating and healing. They slowly spread peripherally while the central ulcerations heal. When they heal they leave characteristic papery scars with central depigmentation and marginal pigmentation. These scars constitute a stigma of old syphilis.

The tertiary lesions of bones are of two kinds: (a) A diffuse osteo-sclerosis of the long bones and (b) a destructive osteomyelitis of the bones of the face and skull. The latter is more common. Portions of the bones of skull and face undergo a slow necrosis leaving defects, perforations and unsightly deformities. Gumma and gummatous infiltration may also occur in the muscles, viscera and testes. Another tertiary manifestation which the student frequently comes across in tropical practice is a leuco-melano-dermia of the palms and soles. The skin assumes a crinkled parchment appearance and the pigmentary changes form a permanent stigma, uninfluenced by treatment. The student should refer to text-books of medicine for the late manifestations of cardio-aortic and neuro-syphilis.

Diagnosis.—The easiest and quickest method of diagnosing early syphilis including the chancre and the erosive ulcerative lesions of secondary syphilis is the dark-ground microscopic examination of scrapings from the lesions for active live *treponema pallida*.

Serological reaction of blood.—The serological reaction of the blood is based upon the fact that the blood of syphilitics contains a reacting substance or **regain** the presence of which can be recognised by certain laboratory tests. Two tests are usually employed, a complement fixation test known as the Wassermann reaction and one of the precipitation or flocculation tests of which the Kahn test is the most frequently performed. To-day the V. D. R. L. Slide test is recommended as a national serological test for syphilis.

A positive serological reaction is obtained in primary syphilis of more than a fortnight's duration in secondary and late syphilis. But it should be borne in mind that a negative reaction in certain forms of late syphilis, is quite compatible with active disease. The false positive serological reaction may be obtained in certain diseases usually of tropical incidence, malaria, kalaazar, amoebiasis, glandular tuberculosis, leprosy, chronic filariasis and certain as yet unidentified forms of splenomegaly. The Treponema Pallidum Immobilization Test and/or the newly innovated Fluorescent Treponemal Antibody Test is the answer to it.

The student in the tropics should also keep in mind that the infection known as Yaws is endemic in certain parts of India, which may be indistinguishable from syphilis from the points of view of the causative organism, clinical manifestations (late) and serological reaction, so much so, that it may be called a non-venereal variant of tropical syphilis.

Differential diagnosis.—In the differential diagnosis of syphilis the student should bear in mind the clinical characteristics of the various lesions of the infection described in previous pages as well as the all important fact that this infection is protean in its ravages and there is no organ or structure of the body which is immune to attack by syphilis. Syphilis is a great mimicker and the index of suspicion in any obscure

condition should always be kept at a high level, no matter what the clinical appearance suggests or the social status of the patient warrants.

Congenital syphilis.—The most tragic aspect of syphilis is the capacity of an infected mother to transmit the infection to the unborn offspring. The infection of the foetus rarely takes place before the 16th week of pregnancy. It is suggested that an infected mother suffers from bouts of transient spirochoetemia and during one of the bouts, should the woman chance to be pregnant, the organisms reach the foetal circulation from the maternal circulation by way of the placenta. The obstetrical history of a syphilitic mother is a series of miscarriages, still-births, and living children with syphilis. Recent statistical studies in a group of untreated syphilitic women have demonstrated the enormous toll (about 83 per cent) which the infection takes in life by way of miscarriages, still-births and deaths of syphilitic children after birth, not to mention the serious, various, crippling morbidity caused to the surviving children such as loss of eye sight, loss of hearing, etc.

Congenital syphilis may be divided for convenience into two groups early and late, depending upon whether the infant is younger or older than two years.

Manifestations of early congenital syphilis.—These correspond to those of early acquired syphilis except that there is no primary sore. The clinical history is as follows:

A child is born apparently healthy and the mother who has probably lost two or three children previously by miscarriages or still-births feels proud to have begotten a healthy looking infant but in a period varying from 6 to 12 weeks the child loses flesh, becomes irritable, refuses to suck at the breast, the skin of the child hangs in folds and wrinkles and the face assumes a wizened appearance like that of an old man.

Various skin, mucous membrane and bone manifestations appear :

1. Snuffles—this is syphilitic rhinitis with obstruction and a blood-stained discharge.

2. Aphonic cry of syphilitic infants is due to syphilitic laryngitis interfering with voice production.

3. Cutaneous and mucous membrane lesions. These have a predilection for three regions of the body, viz., the anogenital region, the oro-nasal region and palms and soles. The lesions may be maculo-papular, scaly (particularly on the palms and soles) pemphigoid bullous, moist erosive, moist fissured or condylomatous.

4. Lesions of the bones. These may develop very early even during intra-uterine life and consist of periostitis and osteochondritis of the epiphysial lines of long bones. They are symptomatically recognisable during the first 6 months of the child's life. The 'Pseudo paralysis' described by Parrot in syphilitic infants is merely a voluntary immobility of the limbs due to pain on motion as the result of the osteo-chondritis and periostitis. Another bone lesion occasionally met with is a symmetrical dactylitis of almost all the fingers.

Enlargement of the liver and spleen is also observed in a proportion of cases. Many of these early congenital syphilitics die of an intercurrent affection such as broncho-pneumonia or gastro-enteritis in a few months after birth.

Manifestations of late congenital syphilis

Should a syphilitic child survive the earlier disasters it may grow to later childhood and adolescence. But during the two succeeding physiological changes in the child's life, namely, the period of second dentition and the period of puberty, various late manifestations appear. Some of them are scars or developmental anomalies and some are active syphilitic processes as follows :

Eye affection

Interstitial keratitis.—The most frequent manifestation is a syphilitic inflammation of the deeper layers of the cornea affecting one or both eyes, which may appear at any time from the 6th to the 15th year of congenital syphilis. Clinically small opaque greyish white patches appear on one cornea. They increase in size, coalesce to form a uniform opacity. The condition may affect the other eye, is resistant to ordinary antisyphilitic treatment and has a tendency to recurrence. A less common and more easily missed affection of the eye in congenital syphilis is the disseminate choroiditis of the pepper and salt variety.

Gummatous affection of the skin and bones may occur as in acquired syphilis. Osteomyelitis of the palatal and nasal bones may give rise to perforations and saddle nose deformity. The square shaped skull with the frontal and parietal bosses, is included among the stigmata of congenital syphilis. But a similar deformity is not uncommon in rickets. Radiating scars around the angle of the mouth and unilateral enlargement of the inner end of clavicle, the so-called 'clavicle sign' are among the less well recognised stigmata. Symmetrical hydrarthrosis of the knees (Clutton's joints) is occasionally observed. Dental deformities affecting the permanent teeth have been described as one of the constant developmental dystrophies of congenital syphilis. These deformities are not so frequently observed in the Indian patients as European writers would make us believe. The 'Hutchinson's' incisors of the upper central set may be of several types; the classical notched incisors originally described by the British syphilologists are not so often observed as the barrel shaped and the peg shaped incisors. The Moon's or Fournier's molars affect the upper permanent molars resulting in dwarfed dome-shaped appearance of the cusps. Bilateral nerve deafness is another disturbing manifestation of late congenital syphilis usually

occurring at or about puberty constituting one of the Hutchinson's triad the other two components being interstitial keratitis and deformed incisors.

The developing central nervous system of the child is liable to be affected by the spirochetal invader. All gradations of involvement from a mild dystrophy to gross organic disease may occur. Feeble mindedness, idiocy, imbecility, juvenile paresis, tabes and the various types of vascular lesions have been attributed to the toxic effect or the direct invasion of the central nervous system.

Diagnosis

Congenital syphilis should be suspected in the presence of characteristic clinical manifestations and confirmed by the supportive laboratory findings and epidemiologic data. Autopsy studies reveal a universal spirochoetæmia and specific architectural changes in affected parts of the anatomy.

Treatment of syphilis

There are two principles to be borne in mind in the modern treatment of syphilis. The first is a public health consideration to render a syphilitic non-infectious as rapidly as possible. The second is the cure of the individual patient. Modern therapy with the antibiotic penicillin assures the clinician or the public health worker a satisfactory outcome from both points of view undreamt of prior to 1943. Procaine penicillin G in oil with 2 per cent aluminium monostearate, satisfying the W.H.O. specifications is the preparation of choice.

Prophylaxis or insurance therapy.—A single injection of 1.2 mega units of PAM, intra-muscularly soon after the suspicious sexual episode is over, besides the usual precautionary cleansing procedures, will suffice.

Curative therapy.—No matter what phase of syphilis the patient is passing through whether manifest or hidden, the standard schedule of PAM 2 c.c. or 6 lac units given I. M.,

daily for 10 days, is adequate except for infants with prenatal syphilis of less than 2 years of age; these latter require PAM 1 c.c. or 3 lac units intra-muscularly daily for 10 days. To-day the treatment of choice is Bengathine Penicillin G 2.4 mega units given IM in a single session for adults. Toxic infants may require saline, or blood and warmth and must be treated as on an emergency basis.

For late prenatal syphilis the routine schedule of standard therapy with the antibiotic PAM may require augmentation with corticosteroids and pyreto-therapy under special circumstances such as Interstitial Keratitis.

Local medication varies with the anatomical site involved. Adjuvant treatment is by way of pyreto-therapy induced with dead typhoid bacilli given intravenously. Most important of all measures in the management, is the attention given to the epidemiologic aspect of syphilis. To treat the case on hand and leave out the contacts, sexual or otherwise, is to court failure in the form of relapses and reinfections.

Reactions.—Jarisch Herxheimer reaction is an exacerbation of local, focal and general symptoms. An elevated temperature alone may be noted within 24 hours of the first injection in a number of cases. This is not a contra indication for continuation of anti-syphilitic therapy.

Hypersensitivity reactions should be anticipated wherever possible, and checked with appropriate emergent measures, chief among which is the immediate administration of 1 ml. of adrenaline 1 in 1000 given subcutaneously in addition to antihistaminics and steroids.

In the end it is well to remember that syphilis is getting submerged in the antibiotic era but not sunk and that its pattern has altered.

Gonorrhoea

It is a communicable disease of venereal origin, caused by *Neisseria gonorrhoeae* with localisation of infection in the initial stages, in the mucous membrane of the genito-urinary

tract and of the rectum, the eye or the vagina of immature girls. The infection may extend by contiguity to the *adnexae* and/or by the blood stream, to the eye, the heart, the joints and other vulnerable connective tissue structures.

Gonorrhoea in adults

A. *Gonorrhoea, simple*.—It may be acute or chronic. In the male it is an anterior urethritis. In the female it is predominantly a cervicitis with or without an accompanying urethritis or ano-proctitis, the discharge of purulent matter present at the final orifice of the genital tract, the vaginal orifice, and/or any of the other affected sites, acting as the common denominator, although all that flows is not gonorrhoea.

B. *Gonorrhoea, complicated*.—May be considered in relation to the sexes.

Male sex

(1) *Para meatal ductitis*.—A tiny bead of pus may appear on either side of the external urinary meatus.

(2) *Tyson's adenitis*.—One or both glands on either side of the frenum may be swollen and present a droplet of pus at its opening.

(3) *Littreitis*.—Littre's glands lining the urethra become inflamed; whence the discharge exuding into the urethral passage is washed out by the outflow of urine as threads in urine. One of these glands may get occluded and develop a swelling which may burst outside on the surface of the penile organ; a urinary fistula is formed.

(4) *Cowperitis*.—It is an inflammation of one or both bulbourethral glands. The involvement is manifested by a hemispherical swelling shaped like a cut South Indian arecanut; it is palpable on the corresponding side of the urethra in the region of the perineum, when apposition is attempted between the index finger passed into the anus and the thumb placed over the perineum. This may give rise to dysuria.

(5) *Prostatitis*.—The horse chestnut-like gland in relation to the posterior urethra of the male discharges pus through more than 30 tubules on either side of the verumontanum. Dysuria occurs and the patient may fail to empty his bladder owing to pain on micturition, resulting in retention of urine. Per rectum examination reveals a tender, warm and boggy prostate which, on gentle pressure, may cause the flow of pus through the urethra out at the external urinary meatus.

(6) *Vesiculitis*.—One or both seminal vesicles may be inflamed. Vesiculitis is usually associated with prostatitis. Frequent emissions may occur; ejaculation is painful and the semen may be bloody.

(7) *Epididymitis*.—One or both epididymes may be inflamed beginning at the globus minor and extending up the body to the globus major. The affected segment of the epididymis is swollen and tender. There is no suppuration in neisserian infection.

(8) *Orchitis*.—Usually associated with an inflammatory state of the corresponding epididymis, the affected testis is swollen and tender and may exhibit the presence of a small quantity of fluid in the tunica vaginalis.

(9) *Trigonitis*.—The inflammation of the trigone of the bladder is associated with frequency of micturition, strangury and the urine may show microscopic or macroscopic haematuria.

Female sex

(a) Bartholin's abscess is characterised by a painful tender fluctuant swelling of the Bartholin gland, lying in the line of the lower 1/3 of the affected labium majus, more common on the left side but occasionally involves both sides, pus exudes at the orifice of the corresponding duct of the gland.

(b) *Metritis*.—Merges usually with inflammatory status of the contiguous genital tract.

(c) *Salpingitis*.—The composite symptomatology, comprises acute pain in the lower abdomen, particularly on the affected side, fever, rapid pulse, vomiting, constipation or loose motions. When the tubal involvement is on the right side, the clinical condition closely simulates that of appendicitis; the genital examination with a speculum reveals pus per cervical os and per vaginam examination reveals tenderness of the vaginal fornix on the affected side.

(d) Oophoritis	}	the patient with any of these conditions reports usually with a vague symptomatology, elsewhere.
(e) Chronic peritonitis		
(f) Pelvic cellulitis		

(g) *Skene's ductitis*.—Pus exudes at the ductal orifice on the affected side, on pressure about the exit orifice of the urethra.

(C) Gonorrhoea (metastatic) due to circulation in blood and deposition of either the organisms themselves or endotoxins in various locale.

(a) *Synovitis-Arthritis*.—Single or multiple joints, large and/or small joints may be involved; e.g., the knee, the ankle, the wrist, the shoulder, the sternoclavicular joint or small joints of hands and feet may be affected. The involved joint is swollen fully, partially or peri articularly. Movements, both active and passive are restricted due to pain. A few joint cases exhibit fever. The Syndrome of Reiter with the triple symptom complex of arthritis, conjunctivitis and genital discharges of nongonococcal origin must be excluded in differential diagnosis.

(b) *Iritis*.—This in patients suspected to be of gonococcal aetiology and referred to for opinion, could not be confirmed as such.

(c) *Septicaemia* in a single case with a daily rise of temperature, an articular involvement and shifting cardiac murmurs, came under our observation, years ago, but the gonococcal aetiology for the systemic infection in this patient could not be established.

D. *Sequelae in gonorrhoea*.—(a) Sterility in the male and/or in the female.

(b) The fairer sex is fortunate enough to be relatively free and escapes from stricture urethra, periurethral abscess, and urinary fistulae of gonococcal origin, that annoy and invalidate the male counterpart.

Diagnosis.—The diagnosis of gonococcal infection is determined through the demonstration of neisseriae gonorrhoeae in smears prepared of the orificial discharges stained by Gram's technique and confirmed by the isolation of the causative organisms in culture; colonies of which are subjected to oxidase reaction and glucose fermentation test. Cultures of blood, if septicaemia is suspected and of diagnostic aspirate of a joint in the case of an articular involvement, are carried out.

Gonococcal Complement Fixation Test has its place if it can be performed. Fluorescent antibody test is available in Madras.

Following the diagnosis of gonorrhoea, the individual sufferer becomes an epidemiologic focus for enquiry, and the sexual partner or partners are searched for, for confrontation and other relevant studies to confirm wherever and whenever feasible, the existence of gonorrhoea in them, via circumstantial evidence or otherwise.

Gonococcal vulva-vaginitis in immature girls

Occasionally, female children of varying ages present themselves with a purulent discharge per vagina and the vulva. They are much in the prepubescent age and complain of pain in the private parts and cannot walk with ease. Pus wells out at the hymenal orifice when they cough. Even the urethra shows pus at the external urinary meatus, and the ano-rectum is liable at times to a similar extension of infection.

The vaginal smear, on examination, reveals Neisseriae gonorrhoeae confirmed by culture. The urethral and rectal smears subjected to similar tests are occasionally positive.

Ophthalmia Neonatorum in Infants

The eyes are swollen and shut with purulent discharge; marked chemosis of conjunctivæ may be observed on separating the lids; the cornea is free; the eye smears show intra leucocytic Gram negative diplococci resembling gonococci, confirmed by culture. A similar condition may occur in adults as well.

Management of Gonorrhoea

Prophylaxis—(a) Crede's treatment for the new form as preventive is still adhered to.

(b) The use of the condom by the male and if feasible the simultaneous use of a diaphragm by the female will yield a double dividend. Immediate micturition following sexual congress is useful. Oral penicillin in the form of a tablet of 250 thousand Oxford units is also advocated. PAM in oil, 1.2 mega units to ensure against the likelihood of concurrent acquisition of syphilis is advisable. The value of broad spectrum antibiotics in the form of Oxytetracycline, Chlortetracycline or Tetracycline has been confirmed.

Curative treatment

A. Specific treatment—(a) *For simple gonorrhoea, acute.*—PAM in oil 6 lac units or 2 c.c., intramuscularly, just once will suffice.

(b) *For simple gonorrhoea, chronic.*—PAM in oil 6 lac units or 2 c.c. I.M., daily for 4 days.

(c) *For complicated gonorrhoea.*—Treatment is the same as for chronic gonorrhoea but the local treatment appropriate for the anatomical condition is necessary.

Streptomycin has not found favour at our Institute in the management of gonorrhoea.

B. Local treatment in the sexes. (1) Nil for cervicitis, urethritis, or vaginitis except the usual permissible toilet.

(2) Bartholin's abscess is incised in acute cases; the affected gland requires excision in chronic cases.

Skenitis.—Electro-cautery.

Synovitis-arthritis.—In the case of an affected articular swelling with a large amount of synovial fluid, aspiration of the fluid is carried out for relief of tension; part of the fluid may be injected intramuscularly. Rest to the joints between sand bags is enjoined in the early period. No splinting is permitted. Movements are to be encouraged as soon as pain in joints, gets diminished, to prevent ankylosis.

Tyson's adenitis.—Electro-cautery.

Epididymitis.—Application of 5 per cent ichthyol in glycerine to scrotum, elevation of the scrotum with a suspensory bandage and a course of calcium gluconate injections are permitted.

Prostatitis.—If retention of urine occurs it is relieved through Catheterization when the prostate is tender and enlarged, Ichthyol and atropine suppository and gentle prostatic massages are recommended.

Other complications and sequelae are dealt with according to principles underlying surgical management.

Adjuvant treatment.—Whenever no contra-indication exists pyretotherapy is induced in the management of certain complications such as articular involvement with a course of injections of dead typhoid bacilli given in graded doses intravenously, ranging from 25 to 200 million with rest intervals of 24 hours between successive sessions.

Diet.—No drastic restriction is imposed: lacto-vegetarian diet and citrus fruits are allowed. Fluids are permitted in plenty. A ban on alcohol is unnecessary to-day as prohibition has done the trick. Condiments are definitely to be reduced, or even totally cut out of the menu.

Rest.—Strict injunction to observe rest, both physical and sexual, in reality as well as in imagination, has to be enjoined.

Criteria of cure.—The most reliable criteria are repeated negative cultures of relevant discharges in the male and the post-menstrual cervical material so examined on three successive occasions in the woman.

Comments.—Gonorrhoea, the most ancient venereal disease known to afflict man, inflicts a more serious damage to the body of the woman. Though the causative agent was discovered by Neisser in 1879 and *Neisseria gonorrhoeae* were isolated in culture by Bumm in 1884, the therapy of this disease had been in a quandary for long. Sulphonamides discovered by Domagk in 1937 helped to replace the decoctions, balsams, irrigations, instillations, vaccino-therapy, protein shock therapy, etc., in vogue till then. The initial spectacular beneficial effects of sulphonamides, however wore out when the *Neisseria gonorrhoeae* displayed resistance. Fleming's penicillin discovered as gonococcicidal in 1943 followed suit and overcame the defeat. This victory has so far been maintained though reports from England and elsewhere in the world remind one of the development of resistance of gonococcus even to penicillin. Madras is luckier for the absence of such resistant gonococcal strains. One may also justifiably breathe a sigh of relief when one reviews in retrospect the futility of the oestrogenic hormones once employed in the management of gonococcal vulvo-vaginitis in immature girls and appreciate the value of PAM to-day that does away with vulvo-vaginitis of gonococcal aetiology, as with magic bullets.

Chancroids

Known also as *ulcus molle* or soft sores, these have been another cause of venereal affliction in humans. This communicable venereal disease is prevalent mostly among the promiscuous of the low socio-economic order and is therefore common among the unhygienic of the population.

In 1889 Ducrey first recognised the bacillus as the causative agent and claimed to have cultivated the organism.

More men suffer from this infection than women, confirming the carrier state of chancroids in women.

Chancroids over the genitals cannot be missed, as they arrest the attention of both the patient and the physician by virtue of their triple characteristics, viz., multiplicity, painfulness and the easily bleeding nature. The lesions may be associated with a tender and painful bubo, fluctuant or burst.

The causative agent, *H. ducreyi* is not easily demonstrable nor is it easily cultivable. On microscopic study of the Gram stained lesional discharge, may be observed the strepto-bacilli, grouped in the pattern of shoals of fish.

Owing to difficulties in obtaining the essential bacteriologic aids to confirm the morphologic diagnosis of chancroids the following procedures are adopted :—

(1) Auto-inoculation as is practised at Hospital St. Louis in Paris, i.e., scarification of the skin of the forearm or thigh with a scalpel and rubbing the surface with discharge of the suspected lesions into the traumatised area, results in a papule in 24-48 hours; this may progress in stages of a vesicle first and a pustule next and terminate in a necrotic ulcer. The pus from this lesion reveals strepto-bacilli of Ducrey.

(2) A cuti test named after Ito-Reenstierna with D'melcos vaccine produces a similar reaction but the antigen is unavailable; even if this has to be purchased at an expense from abroad, the cost of diagnostic material, strangely enough, far exceeds the total expense incurred for cure or sustenance of chancroids.

(3) Exclusion of all other venereal and non-venereal diseases that may simulate chancroids is a primary desideratum.

(4) Post-management diagnosis of chancroids is usually arrived at on the basis of the therapeutic response to sulphonamides; as syphilis and *granuloma venereum*, bearing the common initial manifestation of an ulcer or ulcers, do not respond to sulphonamide therapy.

Complications.—Fuso-spirillary infection as well as other venereal diseases may be superposed on chancroids/and or a suppurative inguinal lymph adenitis may supervene in the course of the chancroidal infection.

Should a mixed infection be acquired, chancroids by reason of their short incubation period, may be the first to show up while those other venereal diseases of longer incubation period like syphilis, lymphogranuloma venereum or granuloma venereum may follow in the wake of the healing of chancroids causing the patient and the physician to become suspicious, the patient wondering at the therapeutic failure while the physician ponders over the possibility at the patient's indiscreditation !

Management.—Hygienic living and cleansing the genitalia with soap and water soon after sexual congress will ward off the infection in the majority of cases. The use of a condom to a certain extent helps the male. The specific therapy consists in the administration of sulphonamides. Elkosin 1G t. d. or 2 tablets per orally for 7 days, has given satisfactory results.

Other remedial agents.—Streptomycin 1G b. d., I. M., for 5 days may suffice but this more than vitiates the diagnosis of granuloma venereum; if the latter co-exist, sub-standard treatment may ultimately lead to the development of resistance in granuloma venereum. Broad spectrum antibiotics—Chloromycetin, Achromycin in doses of 500 mg. per orally, 6th hourly round the clock for 4 days, has cured the patients of the condition.

Suggested local measures are.—Bland dressings to the ulcers, incision of bubo if fluctuant; circumcision is carried out in the male, if foreskin is present.

Lymphogranuloma Venereum

A viral disease acquired venereally, lymphogranuloma venereum is primarily an affection of the lymph nodes and lymph channels and may commonly present genital, inguinal, anal, rectal or ano-rectal manifestations.

The incubation period is about a week.

The initial lesion is herpetiform and erythematous.

The inguinal manifestation is a tender swelling of the lymph nodes in the line of the Poupert's ligament. **More** than one lymph node is involved in the inflammatory process. **Peri-lymphadenitis** extends to deeper tissues and when the overlying skin is involved, stretching of the skin gives it a peau-de-orange appearance or a furrowing and multiple fluctuant areas may be palpated. The skin overlying the bubo yields at the weak spots and sinuses occur.

Constitutional signs of systemic upset herald the rise of the bubo; often the patient lands at the enteric ward for observation and may even confuse the physician with the report indicating a reversal of the albumin-globulin ratio.

Spontaneous subsidence of a bubo with rest has been recorded.

In untreated cases, if spontaneity of cure does not take place, the further evolution of the disease results in a chronic elephantoid condition of the external genitalia with ulceration-esthiomene.

Viral invasion of the lymphatic system around the rectum may lead to (a) proctitis without stricture, (b) stricture without proctitis, and (c) ano-proctitis with annular, funnel shaped or tubular stricture.

While male patients initially report for relief of a bubo, women more often attend with esthiomene, or a serous or a sero-sanguineous discharge per rectum, tags around anus resembling a cock's comb or complain of difficulty in defaecation, fistulae with incontinence of urine and/or faeces or a urethral stricture. Skin manifestations in the form of erythema multiform or Sonck's solar dermatitis may be noted. Lymphogranuloma venereum leading to meningo-encephalitis, iritis, cervical bubo, axillary bubo, peritonitis, to mention a few of the extra genital manifestations, is in our records.

Diagnosis.—The ætiologic agent, virus *miyagawanella lymphogranulomatis*, *atis*, is not easily demonstrable, nor even easily cultivable in the yolk sac of an embryonated hen's egg or the brain of a mouse in Madras. The Frei test is carried out at our Institute. Serum protein estimation reveals a reversal of albumin/globulin ratio and a hyper-gamma globulinaemia. The appropriate LGV Complement Fixation Test is not done here. Histopathological studies of the biopsied lymph node of a case with inguinal localisation, reveal multiple micro abscesses with stellate borders and palisades of epithelioid cells.

Management:

Specific.—Sulphonamides—Elkosin 1G t.d. per orally for a week. Penicillin and streptomycin are not specific. Broad spectrum antibiotics 500 mg. 6th hourly for 10 days suffice, but are comparatively expensive.

Local.—Aspiration of fluctuant buboes. Dressing of sinuses, cleansing enemas with pot, permanganate solution 1 in 8000 in case of proctitis. Periodic dilatation of the stricture with HEGAR'S dilators and enemas with 6 oz. of 20 per cent sulphaguanidine suspension after a clearance of the bowel contents, nightly, for 10 nights to alternate with oral sulphonamide, long or short acting, for 10 days till at least a total of 10 such sessions is over with a periodic check-up of the hemogram. Other measures are surgical, comprising internal proctotomy, palliative colostomy if stricture is not dilatable, or resection of rectum if the anal sphincter is intact. The surgical management of R.V.F. and V.V.F. has not been satisfactory.

Complications:

Acute intestinal obstruction.

Occasionally malignancy.

Granuloma Venereum nee Donovanosis

This disease was first described by Mcleod in 1882 and subsequently by Maitland in Madras. Conyers and Daniel described a similar condition in 1896 in Br. Guiana. Col. Donovan in Madras described the causative organism in 1905. Anderson and co-workers cultivated the organisms in the yolk sac of the chick embryo.

It is a mildly chronic, progressive and contagious venereal disease involving the skin of the external genitalia; occasionally extra genital with oral mucosal involvement; systemic involvement is rare but has been reported on at the Institute.

The incubation period is about 8 to 100 days.

An early lesion is small, button like or a clean, raised, velvety smooth tuft of granulation tissue situated about the external genitalia. Inguinal, perineal or perianal lesions alone may be present at the time of examination.

The margin of the lesion is sharply defined; it bleeds if traumatised. Extension of the genital lesion occurs via the crural folds; chronicity leads to pseudo-elephantiasis.

Lymph nodes in the neighbourhood are not involved. Pseudo-buboes however may appear and be mistaken for lymphadenitis.

The clinical types may be:—

1. Hypertrophic verrucous type.
2. Sclerotic or cicatricial type.
3. Fleshy exuberant type.
4. Rapidly destructive necrotic type.

Extra genital lesions have been seen around the oral cavity, on the neck, over the forearm and on the leg. Cases of systemic granuloma venereum have been recorded at the Madras Institute of Venereology.

THE DIAGNOSIS is simple through

1. The demonstration of *Donavania Granulomatis* within or without the pathognomonic Greenblatt and Pund cells in tissue smears and/or in biopsied specimens of the lesions.

2. Histologically a chronic granuloma is evident with a pseudoepitheliomatous pattern bordering on malignancy occasionally.

Complications.—Fusosporillosis; malignancy.

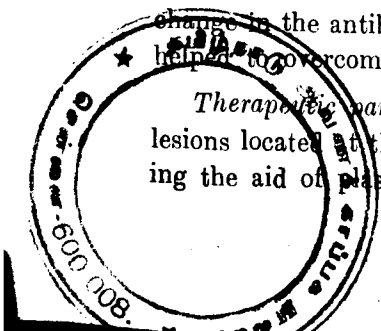
Management.—In 1913 Aragao and Vianna prescribed antimony compounds which failed to yield a permanent cure in a few. In 1947 Barton and Company of Philadelphia recorded therapeutic successes with streptomycin. Since then the specific remedy in use at the Institute has been streptomycin sulphate 1G. i.m., b.d., for 10 days. For local application shark liver oil. Other antibiotics of use have been Chloromycetin and Achromycin in doses of 500 mg. per orally, 6th hourly, round the clock for 10 days with success.

Adjuvants.—PAM is frequently administered preliminary to specific therapy to clear the banal organisms, chief of which may be fusosporillae. For anaemic and debilitated cases, blood transfusion is given.

Results.—Highly satisfactory. The organisms disappear locally within less than a week and the lesions heal in 2 to 3 weeks.

Recurrences have been noted in a few cases. Resistance has been demonstrable in a sprinkling of them. Ringing a change in the antibiotics or resort to antimony compounds has helped to overcome this hurdle.

Therapeutic paradox.—Healing with a disability occurs in lesions located at the exit or entry orifices of the body, requiring the aid of plastic surgeons.

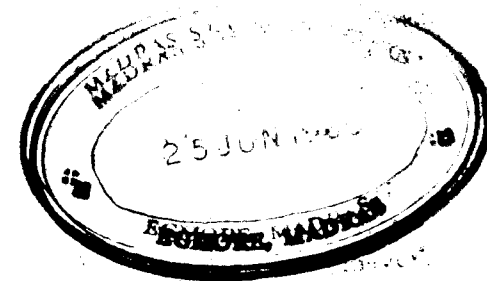


VACCINATION

THE SIMPLE AND
THE SAFE METHOD
TO
PROTECT YOUR CHILD
FROM SMALLPOX



Madras HEALTH EDUCATION



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STATE HEALTH EDUCATION BUREAU
MADRAS

CONTRACEPTIVE LOOP SAFE

No evidence of cancer has been found as a result of more than 2,000 insertions of the Lippes Loop into the wombs of those trying to plan their parenthood. Only 41 pregnancies occurred in 1,713 women using the loop after a total of 2,179 insertions during 21,909 observed "woman months" of use, Dr. Jack Lippes of the State University of New York at Buffalo said.

Dr. Lippe told the conference on fertility control, held in Buffalo, New York, that before November 30, 1964, 32 of the women had discontinued use of the loop because they wanted a child. All but three of them have become pregnant, more than half within three months. No abortions have resulted from the pregnancies, and studies of 16 children showed no abnormalities.

Dr. Raymond Ewell, Vice-President for research at the University, said, "India is undoubtedly the most vulnerable country in the world today". With a population of nearly 500 million in 1965, more than North America and South America put together, India will increase her population by at least 200 million in the next 15 years if the present birth rates continue. "In the long run, birth control is the only answer", he concluded. (From Science News Letter, 88: 374, December 11, 1965).

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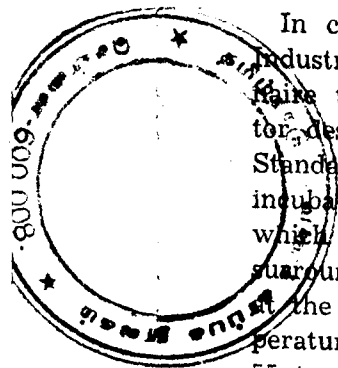
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"POPULATION CHECK."

"We are equally determined to check population growth. How can we improve the standards of living of our people if each month a million new children are born? The other day a visitor brought this vividly home to me by saying that each year we add a Sweden and Switzerland to our population. We have established 10,000 family planning clinics and recruited a large and dedicated army of medical workers. The latest device, the IUCD—is most suited to Indian conditions, and holds hope of better times. I am confident that in the next five or six years we will have made some impact on our population."

Prime Minister, Shrimati Indira Gandhi at the 22nd Session of the United Nations Economic Commission for Asia and the Far East, held in New Delhi on 22nd March 1966.

NEW INCUBATOR FOR PREMATURE BABIES



In co-operation with the Associated Electrical Industries Limited of Harlow, Essex, the Oxygenaire technical team have developed an incubator designed to comply with the latest British Standard Institute specifications (BS 3061). The incubator has a vital electronic control system which can maintain the temperature of the air surrounding the baby within 1 degree Fahrenheit of the level selected by the nursing staff. Temperature may be controlled within a range from 55 to 95 degree Fahrenheit. The temperature control precision is provided by a thermister.

The incubator has a series of warning signals. In the event of a mains power failure, a high-pitched note is sounded, powered by a reserve battery, to attract attention. If over-heating occurs the note is sounded and a red danger bulb lights up. Similarly a fan failure is indicated by a green warning light. A socket is provided for another alarm station outside the nursing ward, if required. Other features of the incubator include electrical safety in design, provision for 100 per cent obtainable humidity and oxygen limiting device for 35 per cent, circulation by electric axial flow fan, cooling by ice and a disposable filter and easy cleaning by dismantling.

The incubator weighing about 40 lb. has been tested and approved by British Medical authorities. The machine is expected to contribute towards reduction in mortality rate and relieving the pressure on nurses where acute shortage exists. (From Secptrum, February 1966, No. 21, p. 4).

STATISTICAL REVIEW OF CHOLERA IN MADRAS STATE (1954-65).

India has earned the reputation of being called the "House of cholera" owing to the various cholera evidences that have been reported from time to time. And Madras State being one of the members in this "House of cholera" has got its own share to give. This State is one among the many States in India which reports cholera infection year after year. During the period of 1954-65, the highest incidence was reported during the year 1963 (12,063 attacks and 5,002 deaths). And again Madras State comes to the reckoning by sharing 5 per cent of attacks and deaths to the total figures for India. Andhra Pradesh, Bihar, Maharashtra, Mysore, Orissa and West Bengal are the other States in India which contribute 5 per cent of attacks and deaths to the total figure. Therefore, these are the States responsible for nearly 90 per cent of attacks and deaths recorded in the country during the period 1954-64.

Cholera mortality rate

According to the available data, the annual mortality rate per milk population has varied from 0.0004 to 0.14. With the mean death rate of 0.049 during the period, the lowest rate has been recorded in the year 1956 and the highest in the year 1963. Table I shows yearwise attacks and deaths and attack rate and death rate. Table II shows the total number of deaths registered in the State and the number of cholera deaths and the percentage in the total deaths.

Incidence of cholera—District wise

Table III shows the attacks and deaths due to cholera district wise from 1954-65 and the same table shows the total number of attacks and deaths and their percentages

district wise during the period. From this table it can be seen that South Arcot has reported the highest number of attacks, then comes Thanjavur, Madras City, Madurai, Tiruchirappalli, Tirunelveli, North Arcot, etc. The Nilgiris district has reported the lowest number of attacks. Similarly the highest number of deaths have occurred in South Arcot district which is followed by Thanjavur, Tirunelveli, Tiruchirappalli, Madurai, etc. During the period, the Nilgiris has reported one death only.

Case fatality rate

During the period under review, the highest average case fatality rate, i.e., number of deaths per 100 attacks has been recorded in the Tirunelveli district. Next comes South Arcot district. The lowest figures were recorded in the Nilgiris district. Table IV shows the case fatality rate district wise from 1954-65. The high case fatality rate reported by some of the districts can be attributed to one or more of the following factors:—

- (a) Better notification of deaths than that of attacks.
- (b) Infection due to highly virulent organizers.
- (c) High susceptibility of the population.
- (d) Belated action by the Health authorities (in the control of infection) with reference to notification, isolation, disinfection, treatment, etc.
- (e) Poor coverage under anticipatory inoculation.
- (f) Endemicity and epidemicity of the disease.

Even though the case fatality rates are high, there is a gradual reduction in the fatality rates year after year.

Endemicity of cholera

Endemicity is one of the major factors which perpetuate the propagation of cholera from one place to the other. Therefore, it is essential to demarcate areas

which may be treated or considered as endemic areas. To demarcate such endemic areas, factors like (a) constant presence of cholera and (b) magnitude of incidence in that area during the period of lowest incidence should be taken into account. Based on these, the districts reporting cases in more than 20 per cent of weeks during the period were taken as endemic. Districts taking into endemic areas are further classified with hyper-endemic, intermediate and low endemic areas. The criteria for such a classification are given below:—

I. *Low endemicity*.—Districts recording level of persistence less than 10 per cent and also monthly incidence rate less than 1.0.

II. *Hyper-endemicity*.—Districts recording persistence level of 20 per cent and above and also monthly incidence rate above 1.0. Districts recording level of persistence between 10 and 20 per cent but average monthly rate of 2.0 and above are also included in this category.

III. *Intermediate endemicity*.—All other districts not included in category I and II are classified as districts of intermediate endemicity.

As per the above, the districts in the State are classified in Table V.

Endemicity of cholera

Epidemics were recorded in the years 1954-55, 1957-58 and 1963-65. It will be seen that the interval between consecutive epidemics has increased.

Seasonal variation in Incidence

According to the available monthly figures of notified cholera cases, the peak incidence has been recorded during the months of January and February and the incidence is at its lowest ebb during the summer months, i.e., from April to September.

Factors favouring the persistence of cholera

From Table III it can be seen that from 1954 to 1965 there has not been a single year in which the State has been free from cholera. Similarly there is not a single week, when cholera is not reported from one part or other of this country. So it is evident that some factors exist which keep up the infection and so are responsible for the occurrence of cholera and at times for the causation of major epidemics. One such important factor is the close contact between endemic and epidemic areas, this may be both within the State and the neighbouring States. Another factor is the lack of protected water supply supplied with poor environmental sanitation and sewage disposal systems. Apart from this, two major factors, there are certain other factors which also singly or in combination with the above said factors play prominent role in the persistence of infection. They are belated and defective notification, lack of facilities for isolation and treatment of cases, absence of lack of facilities for epidemiological investigations at the State and District level, lack of health consciousness among people. Similarly fast moving traffic, fairs and festivals, drought and famine conditions also play a vital role. The part played by most of these factors singly or in conjunction cannot be over-emphasized in the spread of infection.

Present state of affairs

It has been forecast by the Directorate-General of Health Services, New Delhi, that there will be a major epidemic of cholera during the period 1967-68. Of late, this forecast has become all the more important because of the cholera Eltor strain which was endemic in Sulawesi (CELEBES) has since started spreading to south-east Asian countries and the incidence of cholera 'Eltor' has also been reported from certain parts of India and a few cases have occurred in this State also. This strain

seems to be invading the endemic areas of classical cholera. This is a new threat which has to be faced during the period 1967-68.

To face this new threat and to combat the classical cholera in general, a Central organization at the Directorate-General of Health Services, New Delhi, with three Regional organizations is being set up to co-ordinate the cholera control work in the country. In this State, epidemiological units are being set up both at the State level at the Directorate of Public Health and at the District level. Establishment of mobile field units (cholera combat units) and appointment of special cholera workers are also under consideration. A scheme to provide protected water supply in the endemic areas has been worked out and it is being implemented.

Reference :

"Statistical review of cholera in India".
by

Dr. K. C. Patnaick and P. N. Kapoor.

(For Tables I to V please see pages 8 to 15.)

TABLE I.

Notified Cholera attacks and deaths and attack rate and death rate in Madras State during 1954-65.

Year.	Attacks.	Attack rate.	Deaths.	Death rate.
(1)	(2)	(3)	(4)	(5)
1954	3,917	0.10	2,066	0.06
1955	1,140	0.03	616	0.02
1956	29	0.0009	13	0.0004
1957	9,140	0.28	4,104	0.13
1958	6,508	0.19	3,298	0.10
1959	460	0.013	189	0.0057
1960	28	0.00077	15	0.0004
1961	78	0.0021	35	0.0010
1962	811	0.022	66	0.0019
1963	12,063	0.35	5,002	0.14
1964	10,128	0.29	3,661	0.105
1965	4,916	0.13	1,149	0.03
1966 up to April	..	..	..	..

TABLE II.

Shows the total number of deaths registered and the percentage of deaths due to Cholera during 1954-65.

Year.	Total deaths registered.	Number of deaths due to Cholera.	Percentage of death due to Cholera.
(1)	(2)	(3)	(4)
1954	502,021	2,066	0.41
1955	532,504	616	0.11
1956	435,658	13	0.003
1957	460,822	4,104	0.89
1958	429,321	3,298	0.76
1959	395,749	189	0.05
1960	408,461	15	0.003
1961	447,839	35	0.007
1962	385,796	66	0.017
1963	388,661	5,002	1.3
1964	377,224	3,661	0.96
1965	369,219	1,149	0.31

TABLE III.

Cholera Incidence during 1954-66 (up to July).

Districts.	1954.	1955.	1956.	1957.
(1)	(2)	(3)	(4)	(5)
Madras City	39	4	..	2,341
Chingleput	300	127	..	381
South Arcot	487	271	..	545
Tiruchirappalli	393	256	32	426
Thanjavur	744	478	19	282
Madurai ..	554	187	344	661
Ramanathapuram..	33	12	102	1,237
Tirunelveli ..	766	483	46	120
North Arcot	162	71	3	44
Salem ..	188	112	27	812
Coimbatore..	221	64	72	201
The Nilgiris	4	1	95	485
Kanyakumari	..	..	1	595
Dharmapuri	..	..	1	117
State total ..	3,917	2,066.06	1,140	4,104.12
			29	45

TABLE III—cont.

Cholera incidence during 1954-66 (up to July).

District.	1958.			1959.			1960.			1961.			1962.		
	Attacks.	Deaths.	(10)	Attacks.	Deaths.	(13)	Attacks.	Deaths.	(15)	Attacks.	Deaths.	(17)	Attacks.	Deaths.	(19)
Madras City ..	..	105	21	17	89	..	..	..	..	..	..	..	..	..	..
Chingleput ..	..	93	34	194	22	..	..	..	1	15	10	..	..	10	3
South Arcot ..	..	1,507	904	49	..	..	..	..	..	..	..	..	..	5	1
Tiruchirappalli ..	..	125	47	..	..	..	..	..	..	..	..	..	..	..	..
Thanjavur ..	..	867	514	..	..	..	14	8	..	..	..	..	..	7	3
Madurai ..	..	1,416	549	..	..	..	..	..	..	..	..	..	..	..	..
Ramanathapuram ..	..	235	130	..	..	..	..	..	..	..	..	..	..	..	..
Tirunelveli ..	..	463	284	..	..	..	..	..	..	..	..	..	..	..	..
North Arcot ..	..	315	160	42	22	..	9	5	..	..	..	..	..	2	2
Salem ..	..	579	311	..	..	..	..	..	..	43	19	..	..	6	..
Coimbatore ..	..	722	314	..	..	..	1	1	..	..	..	..	..	..	..
The Nilgiris ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Kanyakumari ..	..	81	30	..	..	..	..	..	..	15	6	..	..	..	..
Dharmapuri ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
State total ..	6,508	3,298	460	189	26	15	73	35	811	66	..	..	..	..	..

TABLE III—cont.

Cholera incidence during 1954-66 (up to July)—cont.

District.	1963.			1964.			1965.			1966.		
	Attacks.	Deaths.	(20)	Attacks.	Deaths.	(23)	Attacks.	Deaths.	(25)	Attacks.	Deaths.	(27)
Madras City ..	..	368	21	2,163	138	128	1,709	128	..	342	21	..
Chingleput ..	..	177	54	455	132	55	278	344	..	140	16	..
South Arcot ..	..	2,593	1,255	3,414	1,738	344	737	40	..	135	54	..
Tiruchirappalli ..	..	1,076	434	515	214	37	137	32	..	116	23	..
Thanjavur ..	..	2,832	1,327	1,409	615	172	191	141	..	32	8	..
Madurai ..	..	861	192	446	129	61	982	175	..	175	141	..
Ramanathapuram ..	..	118	192	168	79	23	185	36	..	36	3	..
Tirunelveli ..	..	1,201	603	159	71	24	60	85	..	85	24	..
North Arcot ..	..	1,201	492	757	283	101	246	90	..	90	31	..
Salem ..	..	827	304	148	88	128	267	76	..	76	31	..
Coimbatore ..	..	541	181	494	174	34	73	4	..	4	1	..
The Nilgiris ..	..	..	..	..	..	..	..	..	..	..	..	..
Kanyakumari ..	..	268	98	..	..	..	..	10	..	10	3	..
Dharmapuri ..	..	..	..	..	..	..	51	62	..	155	62	..
State total ..	12,063	5,002	10,128	3,661	4,916	1,149	1,395	318	..	..	..	..

Abstract from Table III.

From 1954 to 1965.

<i>District.</i>	<i>Total attacks.</i>	<i>Total deaths.</i>	<i>Percentage to total attacks.</i>	<i>Percentage to total deaths.</i>
(1)	(2)	(3)	(4)	(5)
Madras City	7,381	804	14.9	3.94
Chingleput	2,069	755	4.18	3.71
South Arcot	9,250	4,836	18.7	23.78
Tiruchirappalli ..	4,089	1,878	8.27	9.23
Thanjavur	8,705	4,473	17.6	21.99
Madurai	4,796	1,295	9.7	6.61
Ramanathapuram ..	783	494	1.58	2.42
Tirunelveli	3,466	1,969	7.01	9.68
North Arcot	2,967	1,245	6.00	6.12
Salem	2,609	1,279	5.28	6.21
Coimbatore	2,742	1,031	5.55	5.07
Kanyakumari	482	179	0.97	0.88
Dharmapuri	51	26	0.10	0.12
(From 1965 onwards).				
The Nilgiris	5	1	..	..
Total	493,905	20,335	..	..

TABLE IV.
Case Fatality rate during 1954-1965—District-wise.

<i>District.</i>	1954.	1955.	1956.	1957.	1958.	1959.	1960.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Madras City	10.2	..	..	18.6	21.0	32.0	..
Chingleput	42.3	..	..	46.0	36.5	45.8	50
South Arcot	57.7	59.4	..	66.2	60.0	43.0	..
Tiruchirappalli	65.1	61.9	46.4	44.9	37.6	..	..
Thanjavur	64.2	54.8	..	62.5	59.2	..	57.1
Madurai	33.7	45.1	..	27.5	38.7	..	..
Ramanathapuram	36.3	..	..	45.4	55.3	..	..
Tirunelveli	63.0	100	..	61.6	61.3	52.3	55.5
North Arcot	43.8	48.1	..	47.7	50.7	..	..
Salem	39.5	56.0	..	56.5	53.7	..	100
Coimbatore	29.0	28.4	..	39.8	42.5	..	..
Kanyakumari	..	..	..	18.4	37.0	..	..
The Nilgiris	25.0	..	..	..	..	..	..
Dharmapuri	..	..	..	..	..	..	..

TABLE IV—*cont.*
Case Fatality rate during 1954-65—District-wise—*cont.*

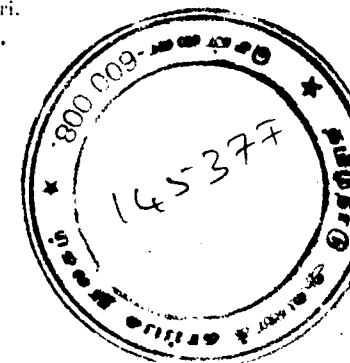
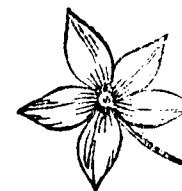
Districts.	1961.	1962.	1963.	1964.	1965.	Average.
	(9)	(10)	(11)	(12)	(13)	(14)
Madras City	..	7.4	5.7	6.4	7.4	9.6
Chingleput	..	30.0	30.4	29.0	19.8	30.25
South Arcot	..	20.0	48.4	50.9	46.4	37.6
Tiruchirappalli	..	..	40.3	41.5	29.2	30.5
Thanjavur	..	42.8	46.8	43.6	18.8	37.4
Madurai	..	..	22.3	29.0	17.5	17.8
Ramanathapuram	..	..	..	47.0	33.0	19.7
Tirunelveli	..	100	50.2	44.6	38.3	47.4
North Arcot	..	33.3	40.9	37.3	41.0	37.5
Salem	43.1	..	36.7	59.4	48.0	34.5
Coimbatore	..	..	33.4	35.2	46.5	28.9
Kanyakumari	40.0	..	36.5	..	..	12.4
The Nilgiris	..	..	..	..	..	2.08
Dharmapuri	..	..	..	..	50.9	16.9

TABLE V.

Classification of district as of low, intermediate and hyper endemic areas in Madras State.

(According to persistence level and minimum monthly incidence).

Total number of districts.	Districts of low endemicity.	Districts of intermediate endemicity.	Hyper Endemic districts.
(1)	(2)	(3)	(4)
14	1. The Nilgiris.	1. Chingleput. 2. Tiruchirappalli. 3. Thanjavur. 4. Madurai. 5. Ramanathapuram. 6. Tirunelveli. 7. Salem. 8. Kanyakumari. 9. Dharmapuri.	1. Madras City. 2. South Arcot. 3. North Arcot. 4. Coimbatore.



Handwritten notes and signatures, including the number '32' and a signature that appears to be 'L. S. ...'.

PREVENTION OF FOOD-BORNE DISEASES.

TAKING FOOD THE SAFE WAY—N.C.C. CAMP PROGRAMME

Dr. N. V. Putta Bhatta, District Health Officer, Bangalore, has undertaken a Research-cum-Action Programme in Prevention of Food-Borne Diseases.—asserts that the programme is "an urgent national need" because nearly 60 per cent of the diseases in this country are caused by contamination of food and drinks. We give below a brief summary of his first article under the series "Prevention of Food-Borne Diseases". The article gives an account of the programme started in a small N.C.C. camp held near Bangalore and its results. Brief summaries of other articles in the series will be published in the Chronicle from time to time.

A good deal of research and investigations have revealed that nearly 60 per cent of the diseases in India are caused by contamination of foods and drinks and that the bulk of these contaminations get into our body from our hands, and the crockery with which we eat and drink. This led to the idea that eating with sterile spoons and forks in sterilised cups and plates might lower the incidence of food-borne diseases. But this practice meant introducing a new discipline in the eating habits of people. Accordingly, a research-cum-action programme was taken up as a measure of practical health education.

The Programme

A small N.C.C. camp where 230 cadets were expected was chosen as the venue for the research-cum-programme. The camp was held in tents at Tarabanhalli, 10 from Bangalore. A similar small camp

where about 300 cadets were expected was selected as control for the purposes of study. This camp was held in good tiled buildings at Agaram near Bangalore.

The research-cum-action programme consisted of a lecture by Dr. Putta Bhatta to the cadets; giving them practice in using sterile spoons, forks, plates, etc.; education of the cadets through exhibitions, demonstrations and use of placards, etc.; evaluation of the knowledge gained by the cadets by administering a quiz; comparative study of the incidence of the diseases in the two camps; and a check-up of the weights of the cadets in the two camps at their commencement and the close.

Results

The response from the cadets during the first three days of the camp was not satisfactory. However, a second lecture by Dr. Putta Bhatta explaining the role of cadets as pioneers in this national campaign won the willing participation of 85 per cent of them. It was followed by a demonstration of the methods of sterilising crockery and the bacteriological tests for detecting contaminations, an exhibition and display of placards highlighting the educational features of the programme and a quiz administered on the 12th day of the programme. The questions of the 'Yes—No' quiz were somewhat difficult to answer. There were total 22 questions carrying 22 marks but one additional mark was given to those who answered the last question in affirmative. This last question pertained to their willingness in eating with sterile spoons and plates in their daily life. It was answered in affirmative by 97 per cent of the cadets.

The results of the disease statistics of the two camps (see table below) establish that the new discipline did confer substantial benefits on the cadets.

Incidence of the food-borne diseases in the two camps.

Serial number and name of the camp.	Daily average for every 100 cadets.	Stomatitis.	Pharyngitis.	Gastritis.
(1)	(2)	(3)	(4)	(5)
		(PER CENT.)		
1 Experimental (Tarabamahalli).	5.4	2.8	2.8	6.6
2 Control (Agaram).	11.2	4.7	13.0	10.7

	Dysentery.	Diarrhoeas.	Rhinopharyngitis.	Sinusitis.	Percentage of all food-borne diseases (total).
	(6)	(7)	(8)	(9)	(10)
	(PER CENT.)				
1 Experimental (Tarabamahalli).	0.0	0.9	35.8	15.0	63.9
2 Control (Agaram).	1.8	6.8	29.3	12.5	78.8

Checking up weights

The table below shows the percentage of cadets who gained weights (+) or lost weights (-) during their stay in the camps:

Serial number and name of the camp.	Percentage of cadets who gained or lost weights by.		
	1 LB.	2 LBS.	3 LBS.
	(2)	(3)	(4)
1 Experimental. (Tarabamahalli).	+11.25	+13.75	+7.50
	-03.75	-02.50	-1.25
2 Control. (Agaram).	+22.70	+12.80	+7.0
	-11.70	-05.30	-5.0

	Percentage of cadets who gained or lost weights by.		Total.
	4 LBS.	5 LBS. and above.	
	(5)	(6)	(7)
1 Experimental. (Tarabamahalli).	+18.75	+27.50	+78.75
	-01.25	-02.50	-11.25
2 Control. (Agaram).	+3.0	+4.0	+49.5
	-2.1	-2.4	-26.5

Conclusion

The action programme makes it clear that the cadets like the new discipline and understood its basic principles intelligently. It proves that they can give up their habit of eating with hands. The effort, hence, may be pursued in future N.C.C. camps as a first step in launching this important campaign throughout the nation.

Marked reduction in the incidence of diseases at the experimental camp attributed to contaminations in hands and crockery highlights the importance of eating with sterilised spoons and forks in sterilised cups and plates. The worked-out cost of sterilisation per head per day in the experimental camp was 5.4 Paise. Later experiments were made to reduce this cost which has been brought down to 0.28 Paise (details to follow in the second article of the series).

DISPOSAL OF SOLID WASTES

The development of new management science techniques offers the prospect of eventual solution of the worsening solid wastes disposal problem according to the participants in the First National Conference on Solid Wastes Management. The Conference was held on April 4 and 5 on the Davis Campus of the University of California. Speakers at the conference identified four major areas in which new concepts and practices need to be introduced. The first need, they said, is to end the fragmenting of solid waste operations among small political subdivisions, and to foster waste management integration in disposal districts embodying communities with common waste problems and often crossing State lines. Much of what is wrong can be attributed to the fact that waste disposal responsibility often is relegated to political jurisdictions too small to have sufficient resources for the job, they said.

Consolidation of waste management with planning for air and water pollution control was identified as another major need. It was said that isolated waste management planning may produce solutions which worsen air and water pollution through atmospheric dispersal of waste combustion products or the leaching of contaminants into ground water.

The third concept, according to the conference, will involve a shift in the present emphasis on the nature of the solid wastes to consideration of the environmental consequences of their disposal. In many parts of the country the capacity of air and water to assimilate new wastes is approaching zero. Therefore wastes must be managed within the assimilative capacity of the environment.

A fourth major need, said the experts, is for new emphasis on research for reduction of wastes at the source through the introduction, for example, of manufacturing processes which produce less solid wastes or the development of packaging which safely disintegrates in the environment. High priorities were also urged for research on recycling wastes in manufacturing processes and salvaging usable materials and energy from wastes as well as for the development of improved waste disposal methods.

The conference, jointly sponsored by the University of California and the United States Public Health Service was attended by 350 health authorities, scientists, engineers, and government officials from all sections of the country. The proceedings of the conference are to be published. Requests for copies may be made to Public Affairs Officer, Office of the Solid Wastes, Public Health Service, Washington, D.C. 20201. (From USPHS Press Release, 21 April 1966.)

A STUDY TO ESTABLISH BIRTH-WEIGHT NORMS OF HOSPITAL BORN INFANTS IN COIMBATORE.

REV. DR. P. C. EAPEN AND T. R. SOUNDARARJA
RAO.

(This study was conducted under the auspices of the Research Department of Sri Ramakrishna Mission Vidyalaya Teachers College.)

Introduction :

In India, scientific knowledge about the growth and developmental tasks of children are noticeably lacking. Growth of children has been most commonly studied by measurements of weight and height.

Birth-Weight Norms are standards against which thousands of individual children can be checked for diagnostic and practical purposes. The extent to which difference dietary and other factors affect physical growth of babies is not known. The birth-weight norms may probably be used as an index of such factors as nutrition or health of new-born babies. The present study is expected to accelerate further investigations on a broader and larger scale in order to establish norms of growth and development of Indian Children. Most of the time scholars heavily depend upon those norms established in other countries. We are not yet sure whether difference in culture and socio-economic status makes any difference in birth-weight norms of babies. It is hoped that this investigation may enable us to know where we stand with regard to physical growth and development of new born infants.

It seems that there are no clear ideas at present about the value and purpose of "norms". Norms are not used as criteria for optimal growth. They are statistics for basic comparisons. "They are carefully formulated mathematical devices to avoid the error of generalization from isolated cases. They are, invariably, findings of scientific surveys and as such they are indispensable scientific data which should be the basis for analysis and systematization of other information".¹

The purpose of the study is to establish birth-weight norms of infants from records kept at the maternity clinics in the Coimbatore taluk. It is expected that this study may stimulate others to take up further studies in the development tasks of Indian Children. Perhaps it may help people to collaborate to establish national norms by repeating the study simultaneously at different parts of this vast country.

Since individual difference is a fact of life it may be noted that what is normal for one individual may not be normal for another. As a matter of fact wide variations do exist. That may indicate abnormality in some cases. Hence it may be quite valid and meaningful to compare an individual with the norm in order to analyze his particular growth pattern. But it should be borne in mind that interpretation of any divergence must recognize individual growth differences.

Related Literature :

Physical Anthropometry is the science particularly concerned with the techniques and instruments for the study of Physical growth. Measuring, weighing and comparing with standard scales might easily be performed. But studies, however, have shown that routine hospital records of length at birth are seriously unreliable when

¹ L. Carmichael, Manual of Child Psychology, John Wiley Sons Inc., New York 1954, P. 296.

compared with records made by trained anthropometrists. Not only is the personal error of the novice great, but even among trained workers there is marked individual variation.¹

At birth some babies seem to be more fully developed than others. They seem to grow at different rates before birth as well as after birth. According to studies made elsewhere, a new born baby may weigh three times as much as another. The majority weigh between 6 and 9 lb.² In a study made by Meridith and Brown in U.S.A. the following information has been given: "The average weight of the new-born infant is 7.5 pounds and the average length 19.5 inches. Weight ranges from 3 to 16 pounds and length from approximately 17 to 21 inches. Male infants are generally slightly larger than female infants"³.

According to Burke, variability in birth size is dependent upon many factors the most important of which are:

(1) Maternal diet, especially during the last months of pregnancy.⁴ There is a significant relationship between the protein content of the mother's diet and the size of the infant at birth. Several studies have established that "the poorer the mother's diet, the smaller the infant will be".⁵

¹ Meridith, H. V. and L. Goodman, 1941. A comparison of routine hospital records of birth stature with measurements of birth stature obtained for longitudinal research, *child development* 12, 175-181.

² Leonard Carmichael, *Manual of Child Psychology*, New York, 1954.

³ Meredith H. V. and A. W. Brown, 1939, Growth in Body weight during the first ten days of postnatal life. *Human Biol*, 11; 24-77.

⁴ Burke 1949, Relations of maternal nutrition to condition of infant at birth: Study of Siblings: *J. Nutrit*: 38, 453-467.

⁵ Smith C.A. 1947. Effects of maternal under nutrition upon the newborn infant in Holland. (1944-45). *J. Pediat*, 30, 229-243.

(2) Gibson and Mckeown¹ have found out that "economic status of the family affects the quantity and quality of the maternal diet, and this in turn affects the infant's life."

(3) Meridith² has found out that ordinal position affects the birth size of the infant, with first-born infants averaging less than later-born. A comparison of first-born with fifth and later-born infants revealed that the first-borne were 1 per cent shorter and 9 per cent lighter than the later-born.

Delimitation :

According to Indian conditions, vast numbers of pregnant women are having their delivery at their homes attended by untrained village midwives. Wherever facilities are provided more and more ladies are going to the hospital for confinement. For a study of the kind undertaken, it is not possible to get birth-weight informations from homes. The investigators have to confine themselves to the records kept at maternity clinics and hospitals in the Coimbatore taluk. No effort is being made to verify the accuracy of the weight recorded. The reliability of the measurements recorded, have been taken for granted. Since quite a number of ladies do not seem to make use of the hospital conveniences, the sample of the study cannot be considered as a representative sample, representing a cross-section of the population in Coimbatore taluk. But this would mean that the study is limited to those infants who were born in hospitals and maternity clinics in Coimbatore taluk during the year 1963.

¹ Gibson and Mckeown, 1951, Observation of all births in Birmingham, 1947 *British Journal Soc. Med.* 5, 177-183.

² Meridith, H. V. 1950. Birth order and body size. *materials Am, Neonatal and childhood S. Thys: Anthropol.*, 8, 195-225.

Procedure :

In conference with the Doctors of Maternity Clinics, a *pro forma* an information sheet has been developed. This information sheet is designed to supply the required data regarding the socio-economic status, birth order, rural or urban residence and age of mother, besides the birth weight of infants.

Seventeen hospitals have been visited with trained personnel for data collection. Hospital records have been consulted and relevant information was copied in the *pro forma*. The data thus collected has been statistically treated for the establishment of norms and related findings.

The Sample :

The birth weights of infants born in the maternity clinics of Coimbatore taluk during the year 1963—beginning January the 1st through December 31st—have been considered for the study. From the hospital records, every tenth case of birth has been selected for the sample. Of the 18,440 cases of births recorded in all the 17 hospitals of Coimbatore taluk 1,856 cases have been selected for the study. Twenty-seven cases were then left out for inadequate information or incorrect entries. The remaining 1,829 cases have been made use of for the study. In the selection of cases only normal births have been taken. If by any chance, the tenth case happened to be abnormal, the next case is being included. Here the systematic sampling procedure is strictly observed.

Findings :

The Mean Birth-Weight of the hospital born infant has been calculated and the following presents the relevant statistics:—

The Mean weight of a new-born infant: 5.90 lb.
Standard Deviation: 1.27 lb.
Standard Error of Mean: 0.03 lb.

Since the Standard Error is very small, the mean weight established as the birth-weight norm of infants in Coimbatore taluk may be considered as very stable.

The birth-weight norm of a new-born infant is 5.90 lb. and the Standard Deviation is 1.27 lb. This would mean that about 68 per cent cases of infants at birth will weigh anywhere between 4.63 lb. and 7.17 lb. Any infant weighing between the two limits may be considered as normal in the absence of other relevant information. However, the judgment of a medical practitioner has to be considered as the last word regarding whether an infant is normal or not normal.

Sex Difference:

Sex difference of infants has been studied and the following table presents the Mean birth-weight and Standard Deviation according to sex.

TABLE 1.

Mean birth, weight and standard deviation.

Babies.	Mean weight.	Standard deviation.	N.
(1)	(2)	(3)	(4)
	LB.	LB.	
Male	6.01	1.29	996
Female	5.77	1.24	833

The difference between the birth-weight of male and female infants has been found to be highly significant. When the difference is tested for significance by using the t-test, critical ratio is 4 (which is greater than 2.58). Hence it can be inferred that the difference is significant beyond the 1 per cent level. This shows that the male infants are generally slightly heavier than female infants. Since the difference in weight between male and female infants is very significant, separate norms for male and female infants are presented wherever possible.

Mother's age and Birth-weight of infants :

Birth-weight norms have been calculated separately according to the age of mothers. Mothers have been classified into six groups, according to age, as follows :—

1. 15-19 years.
2. 20-24 Do.
3. 25-29 Do.
4. 30-34 Do.
5. 35-39 Do.
6. 40 years and above.

The distribution of the age of mothers selected for the study seems to be positively skewed while the birth-weight distribution appears to be normal. In such cases usually the linear relationship between the two variables is difficult to be assumed.¹ Hence 'r' is not calculated.

TABLE 2.

Age of mother.	Male infants.			Female infants.		
	N.	Mean weight.	Standard Deviation.	N.	Mean weight.	Standard Deviation.
	(2)	(3)	(4)	(5)	(6)	(7)
(1)						
YEARS.		LB.	LB.		LB.	LB.
15—19	112	5·58	1·42	72	5·28	1·25
20—24	304	5·94	1·17	245	5·71	1·22
25—29	313	6·08	1·29	278	5·87	1·09
30—34	158	6·10	1·40	163	5·93	1·33
35—39	91	6·28	1·27	59	5·58	1·52
40 and above	18	6·27	0·86	11	6·64	1·49

The above table seems to reveal that there is positive relationship between the age of mothers and birth-weight of infants. Younger mothers usually had lighter babies while older mothers had slightly heavier ones.

¹ Guilford J. P.: *Fundamental Statistics in Psychology and Education*: Mc. Graw Hill Book Company, Inc., New York. 1960 pp. 160-171.

The present investigation has shown that, in general, birth-weight of an infant correlates positively with the age of the mother.

Economic Status of Parents and Birth-Weight Norms of Infants :

The economic status of families has been fixed by studying the income of parents. The entire sample has been divided into five groups according to monthly income.

- A group Rs. 301 and above per month.
- B group Rs. 201 to Rs. 300.
- C group Rs. 121 to Rs. 200.
- D group Rs. 61 to Rs. 120.
- E group Rs. 60 and below.

From the selected 1,829 cases for the present investigation 180 cases have been left out at this point due to lack of information on economic status of the family.

TABLE 3.

<i>Socio-Economic status and use of Hospital Conveniences.</i>		
Socio-Economic status.	N.	Percentage.
(1)	(2)	(3)
A	18	1·1
B	75	4·5
C	130	7·8
D	824	50·0
E	602	36·5

From the above distribution of cases, it appears that most of the cases that make use of hospital conveniences for confinement are from among the lower economic groups. About 50 per cent of those who make use of hospital conveniences are from the 'D' group and 36·5 per cent from the 'E' group.

TABLE 4.

Economic States of Parents and Birth-Weight Norms.

Economic status.	Male child.			Female child.		
	N.	Mean.	S.D.	N.	Mean.	S.D.
	(1)	(2)	(3)	(5)	(6)	(7)
		LB.	LB.		LB.	LB.
A	11	6.60	1.07	7	6.93	0.94
B	39	6.16	1.01	36	6.47	0.99
C	72	6.18	1.04	58	5.96	0.98
D	454	6.03	1.26	370	5.68	1.26
E	323	5.86	1.37	279	5.65	1.29

With comparatively low percentage of frequencies from the higher economic groups, A, B and C, it may not be correct to claim that the sample selected for the present study is representative of a true cross-section of the population. Therefore, no effort is being made to establish any relation between economic status and birth-weight. However, the analysis seems to show that the higher the economic status, the heavier the birth-weight of babies.

Birth-order and Birth-weight of Infants :

The data regarding the birth-order of babies was available for 1,665 cases. One hundred and sixty-four cases have been left out for lack of information. The distribution of children according to birth-order is highly skewed. Infants were divided into ten groups according to birth-order and the data has been analysed to find out whether there is any relation between birth-order and birth-weight. Most of the cases in the sample fall in the first, second or third paragraph of birth and there are very few cases under the later paragraph of birth. Hence no attempt is made to calculate the correlation between the birth-order and birth-weight. However,

the mean birth-weight of a child for each birth-order has been calculated and the data is presented in the following table :—

TABLE 5.

Birth-order and Birth-Weight of Infants.

Birth order.	N.	Mean.	S.D.
(1)	(2)	(3)	(4)
		LB.	LB.
I	375	5.49	1.20
II	315	5.90	1.21
III	276	5.89	1.30
IV	222	6.04	1.24
V	163	5.93	1.26
VI	109	6.10	1.24
VII	78	6.05	1.31
VIII	61	6.01	1.40
XI	27	6.05	1.26
X and above	39	6.16	1.46

The above table shows that the first born child will be lighter at birth than those at subsequent births. This would indicate that there is a general trend for increase in the birth-weight of babies from confinement to confinement.

Summary and conclusions

Though the central purpose of the investigation is the establishment of birth-weight norms of hospital born infants in the Coimbatore taluk, the present investigation has helped to develop insights into several factors incidental to the main objective.

The average weight of a new born infant at birth, in the Coimbatore taluk is 5.90 lb. The average weight of a male infant is 6.01 lb., while that of the female infant is 5.77 lb., indicating thereby that male infants

are slightly heavier than female infants at birth. This difference in birth-weight between male and female has been found to be very significant.

Analysis of birth-weight and birth-order was made to find out whether there is any relation between the two. It has been found that, in general, birth-weight seems to increase from first-born to later-born children.

The study of economic status of parents has revealed the importance and need for extensive research on the quality of diet of mothers in India and their corresponding effects on the weight of babies. The present study was limited by the small size of the sample and the difficulty to get data about those who belong to the higher strata of society.

The economic status of the family is likely to affect the quantity and quality of maternal diet. This, in turn seems to have a bearing on the birth-weight of babies. The present investigation has shown that only a very small percentage of those who seek hospital conveniences are from among the higher economic groups and the weights of such infants born of mothers in the higher economic groups are found to be greater than the birth-weight of infants from those of the lower economic groups.

