POPULATION & FAMILY PLANNING IN INDIA

Dr. C. B. MAMORIA

WITH A FOREWORD

BY

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FOREWORD

THE FAMILY PLANNING ASSOCIATION OF INDIA

Metropolitan Insurance House,
Dr. Dadabhoy Naoroji Road,
Bombay 1.
31st July, 1956.

It is with pleasure that I have read Professor C. B. Mamoria's "Population and Family Planning in India." His interest in and concern for the welfare of his fellow countrymen find expression in the deep study he has made of the population pressure with which India is faced. Thinking people will, I feel sure, agree that planned parenthood is a sure way to eradicate the widespread poverty and misery that still obtains in our country. I hope this book will be read and followed by thousands of married couples who may be assured of the benefits family planning brings to individual parents.

Under the Second Five Year Plan 300 urban and 2,000 rural family planning clinics are to be established. Professor Mamoria's book with translations in regional languages would be appreciated by clinic medical and lay personnel. I wish him all success.

(Sd.) DHANVANTHI RAMA RAO,
President,
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Population Problem

The question, "How many were we in the historical past ?" cannot be precisely answered for lack of reliable statistics prior to 1871, when the first census was undertaken. Before this date the estimates about our numbers were only gestures and underestimates, and did not cover the whole country. Population was estimated at 100 million in 1600 and about 150 in 1850. It stood at 254 million in 1871. Since then it has increased but this growth has been uneven. During 1891-1921 it had been irregular and fitful due to severe famine, bubonic plague, cholera and malaria and influenza epidemic, the net increase being only 12·2 million. But during 1921-51, it was more heavy and regular due to multiple of causes, the net increase being 27. 4 million. During the 100 year period (1850-1950), our population increased by 197%, but those of other countries increased at a much faster rate. U. S. A., 553%; Brazil, 622%; Argentina 1464%. In comparison to these figures our increase does not seem to be very high ; but we had added a very large figure to our existing population in absolute number, *i. e.*, an average of 23 million per decade as against only 4. 4 million in Brazil, 13 in U. S. A., 2 in Argentina and 3 million in England and Wales. Therefore, the real problem is not the rate of growth but the net increase to the existing population every decade. This massiveness in growth in the context of our present economic set-up is a matter of alarm rather than jubilation, because it is this large net addition that constitutes the problem as it negatives all efforts to improve the sub-human low standard of living of the masses.

Table 1—Growth of Population 1891 onwards

Census	Population (Millions)		Decennial growth (Millions)		Percentage of growth	
	Undivided India	Indian Union	Undivided India	Indian Union	Undivided India	Indian Union
1891	279	235·9	29	...	...	...
1901	284	235·9	5	0·4	1·0	0·2
1911	303	249·0	19	13·5	6·1	5·6
1921	305	248·1	2	0·9	0·9	0·4
1931	338	275·5	33	27·4	10·6	10·4
1941	388	312·8	50	37·3	15·0	12·7
1951	...	356·9	...	44·1	...	13·2

(These figures are exclusive of Jammu & Kashmir.)

Table 2—Growth of Population in Important Countries

Countries	Pop. in (Mls.) 1850	1950	Rate of increase during 100 years % (1850-1950)	Rate of growth per decade in %	Rate of growth in absolute figures.
Brazil	7·2	51·9	622%	62·2	4·4
France	35·6	41·9	18%	1·8	0·6
Italy	18·4	46·3	151·6%	15·1	...
Spain	15·3	27·9	82·3	8·2	...
Mexico	7·5	25·7	242·6	24·2	...
Argentina	1·1	17·2	1463·6	146·3	1·6
U. S. A.	23·2	151·6	553·4	55·3	12·8
U. K.	17·7	43·8	147·4	14·7	3·1
India	120·0	356·8	197·3	19·7	23·0

Table 8—Population in Millions, since 1650

Continents	1650	1750	1800	1900	(?)	1947	1951	Percentage increase over 1650
Europe (Including U.S.S.R.) ...	100	140	187	266	401	569	591	491
N. America ...	1	1·3	5·7	26	81	157	168	16700
Central and South America ...	12	11·1	18·9	33	63	153	173	1341
Oceania ...	2	2	2	2	6	12	13	550
Africa ...	100	95	90	95	120	191	208	108
Asia ...	330	479	602	749	937	1238	1346	308
India ...	100	(1600)	120	152·5	235	221	356	256
World Total ...	545	728	906	1171	1608	2330	2499	358

In 1955, the population of the world was 2,689 millions, of which 411 m. were in Europe ; 238 m. in N. America ; 124 m. in Central and S. America ; 145 m. in Oceania ; 220 m. in Africa, 1,481 m. in Asia ; 200 m. in Russia and 382 m. in India.

The increase or decrease in population by immigration or emigration does not arise in India for very small minority has settled here and only 1% have gone to reside abroad. Hence, in the absence of migration as a contributory factor to the growth of population, the birth and death rates have definitely played a vital role in determining the population growth. Our net survival rate of 13 per 1000 live births is higher than those of France, U. K., Germany, Belgium and Denmark but is lower than those of Canada, U. S. A., Brazil, Ceylon and New Zealand.

Table 4—Rate of Natural Increase in Some Countries

Countries		1901-5	1936-38	1953
Denmark	...	14·2	7·8	8·8
England & Wales	...	12·1	2·9	4·5
France	...	1·7	0·5	5·8
Italy	...	10·7	9·0	7·4
Portugal	...	12·0	11·3	12·1
Switzerland	...	10·3	3·8	6·8
Ceylon	...	12·1	14·4	28·5
Canada	...	...	10·3	19·2
Japan	...	11·4	11·8	12·6
U. S. A.	...	...	6·0	15·1
Australia	...	14·6	7·8	13·8
India	...	...	11·3	13·0

The birth rate is falling a little or rather stationary but the decline in death rate is more readily evident. This shows that the attempts to reduce the death rates have been successful but little attempts have been made to control the birth rate. Hence, the disparity between the birth and death rate is more and more clearly visible.

High Birth Rate

High birth rate in India is an outcome of a number of forces—climatic, religious, economic and

social in nature. Being a hot country, girls in India attain puberty very early between the ages of 12-15, so that a lass of 15 is found to be a mother. Religious ideas and institutions have also stimulated procreative activity. Early and universal marriage has resulted in 80% of the girls in India in the most fertile period (15-20) to be found in wedlock.

Table 5—Married State in India in 1951

Age Group	Married Males % of the total males	Unmarried Males %	Married Females %	Unmarried Females %
5–14	6·3	93·5	14·6	85·1
15–24	44·5	54·2	80·0	17·2
25–34	82·9	13·2	89·1	2·9
35–44	87·7	5·2	78·6	1·5
45–54	83·2	3·8	59·8	1·3
55–64	74·8	3·3	38·7	1·0
65–74	65·4	2·8	27·5	1·0
75 & over	54·0	3·0	21·0	1·1

This condition has a great biological significance, because if the chance of a married woman below the age of 20 having a child within a year is taken as $\frac{1}{2}$, the chance between 25-29 diminishes to $\frac{1}{4}$, ten years later to 1/8 and between 40-45, to 1/14. This fertility schedule clearly explains why mothers in India are so prolific. Our rigid social frame-work characterised by the caste system and joint family system, also make for a low capillarity. Our population has a high replacement tendency as the Net Reproduction Rate is more than one, *i. e.* 1·454. This means that the population would tend to grow at the rate of 45% per generation under current fertility and mortality rates.

Table 6—Birth Rates in India since 1911–1956

Year	Population under registration (000's)	Live Births (000's)	Birth rates per 1000 of population
1911	228,810	8,887	38·8
1914	229,760	9,098	39·6
1918	231,230	8,106	35·1
1925	239,530	7,851	32·8
1932	257,184	8,719	33·9
1938	282,110	9,398	33·3
1941	292,219	9,929	32·2
1945	299,621	8,374	27·9
1948	245,459	6,196	25·4
1949	256,331	6,762	26·4
1950	269,897	6,728	24·8
1951	278,688	6,821	24·9
1952	282,717	7,017	24·8
1953	286,886	7,612	26·5
1954	290,000	7004	27·6

For 1955 and 1956, the birth rates were 27·0 and 27·4 per mille.

Table 7—Birth Rates in Important Countries

Country	Birth rates				Country	Birth rates			
	1881 1891	1921 1925	1926 1930	1931 1935		1936 1940	1941 1945	1946 1950	
U. K. ...	32·5	20·4	17·2	15·5	Canada ...	20 5	23·5	27·4	
Sweden ...	39·1	19·1	15·9	14·1	U. K. ...	15·18	16·2	17·97	
Germany ...	36·8	22·1	18·4	16·6	Sweden ...	14·8	15·4	17·77	
France ...	23·9	19·3	18·2	16·5	France ...	14·8	15·4	20·92	
U. S. A. ...	...	22·5	19 7	17·3	U. S. A. ...	17·3	20·16	24·37	
Japan ...	27·2	34·6	33·5	31·6	Japan ...	28·78	24·82	32·25	
India ...	35·9	32·7	33 3	34·4	India ...	33·3	28·3	26·0	

In 1955, the birth rate in Canada was 28·3 per mille ; 15·4 in U. K. ; 14·8 in Sweden ; 18·4 in France ; 24·6 in U. S. A. ; 19·9 in Japan ; and 27·0 in India.

Table 8—N. R. R. in some Important Countries

Country	Year	Net production rate
Germany ...	1940	0·97
Belgium ...	1942	0·85
Sweden ...	1941	0 84
Austria ...	1935	0·64
U. S. S. R. ...	1930	1·70
U. S. A. ...	1948	1·46
Japan ...	1938	1·44
Australia ...	1948	1·32
France ...	1947	1·31
Canada ...	1940—42	1·29
New Zealand ...	1943	1·2
India ...	1941	1·19
Italy ...	1935—37	1·13
Denmark ...	1943	1 14
Netherlands ...	1937	1·12
England & Wales	1948	1·07

Table 9—Reproduction Rates in India

Year	Gross Rate	Net Rate
1901	2·99	1·00
1911	3·14	1·06
1921	2·83	1·03
1931	2·99	1·25
1941	2·76	1·30

Mr. Gopalaswami estimates that the population will reach the figure of 520 million by 1980. But this forecast is most likely to prove an underestimate, as he has overlooked most of the vital social and economic forces that would increase fertility and decrease mortality rates. Population would tend to grow at a progressively increasing rate at least for two generations unless some checks fall from the heaven or are consciously applied. The old factors causing a high birth rate and economic

progress would continue to exert their influence after that new forces would begin to make their impact felt in a lower birth rate and a diminution in the rate of growth. Hence, in the transitory period the rapid growth in population should be checked.

Table 10—Population Forecast

Year	In millions	Increase in millions during preceding 10 years
1951	361	44
1961	407	46
1971	452	45
1981	515	63

Consequences of Rapid Growth in Numbers

Uncontrolled procreation has adversely affected our economy. *Firstly*, it has outstripped food supply, which is not only insufficient in quantity (the average calories supply per capita is only 1,600 or so as against 2, 200 accepted by F. A. O. as the minimum standard) but also deficient in quality, lacking calcium, necessary vitamins and proteins. People are, therefore, subject to mal-and under-nutrition.

Table 11—Consumption of Calories, Proteins, etc.

Country	Calories	Total Protein (gms.)	Animal Protein (gms.)
Canada	... 3,020	91	56
U. S. A.	... 3,160	91	61
Denmark	... 3,220	91	51
France	... 2,750	92	41
Germany	... 2,760	76	37
Sweden	... 3,090	93	59

Table 11—Consumption of Calories, Proteins etc.—(Contd.)

Country	Calories	Total Protein (gms.)	Animal Protein (gms.)
Italy	... 2,480	78	21
Switzerland	... 3,180	96	52
U. K	... 2,990	85	43
Ceylon	... 2,010	53	12
China	... 2,120 (1950/51)	65 (1950/51)	5 (1950/51)
India	... 1,620	43	6
Japan	... 2,100	53	10
Pakistan	... 1,970	54	11
Egypt	... 2,350	69	13
Australia	... 3,290 (1950/51)	98 (1950/51)	66 (1950/51)
New Zealand	... 3,380	103	78

Table 12—Per Capita Consumption of Cotton Piecegoods

Year	U. S. A.	U. K.	India
		(Yards)	
1948	65·4	37·9	14·5
1949	56·3	39·8	12·6
1950	64·8	41·5	9·7
1957	60·0	45·0	15·8

It has retarded physical and mental development of the young children and has caused deficiency diseases among the adults, which do not invariably cause actual death but certainly lead to general ill-health, susceptibility to diseases, impair efficiency which in turn affects productivity, besides reducing fecundity among females, and heavy death rate among the infants.

Secondly, it has marred the quality of population. Indians have poor levels of health, which are reflected in low vitality and a short span of life—32 years.

Table 15—Expectation of Life in India

Sex	1881	1891	1901	1911	1921	1931	1941	1951
Males	23·67	24·59	23·63	22·59	24·80	26·91	32·09	32·45
Females	25·58	25·54	23 96	23·31	24·70	26·56	31·37	31·66
Persons	25·00	23·80	22·90	20·10	24·70	26·80	31·80	32·00

Table 16—Expectation of Life in Years (at birth)

Countries		Males	Females
Australia ...	(1946—48)	66·07	70·63
Austria ...	(1947)	54·5	58·05
Canada ...	(1947)	65·18	69·5
Denmark ...	(1946—50)	67·8	70·1
France ...	(1946—49)	61·9	67·4
West Germany ...	(1946—47)	57·72	63·44
India ...	(1940—50)	32·45	31·66
Japan ...	(1949—50)	56·19	59·61
New Zealand ...	(1934—38)	65·46	68·45
Netherlands ...	(1947—49)	69·4	71·5
Norway ...		60·98	63·00
Sweden ...	(1941—45)	67·06	69 71
Switzerland ...	(1939—44)	62·62	66·96
Union of South Africa ...	(1945—47)	63·78	68·31
U. K. ...	(1950)	66·5	71·2
U. S. S. R. ...	(1945—47)	63 78	68·31
U. S A. ...	(1939—41)	61·60	65·89
Egypt ...	(1936—38)	35·65	41·48

Only superfluous millions go down to fatten the tired earth which could not fatten them.

Table 18—Death Rates in India (Per 1000)

Period	Average	Period	Average
1885—1890	26	1936—40	22·3
1890—1901	31	1941—45	19·5
1901—1911	34	1946—50	14·5
1911—15	30·2	1951	14·4
1916—20	38·2	1952	13·6
1921—25	26·3	1953	15·0
1926—30	24·6	1954	13·3
1931—35	23·6	1955	11·7

Table 14—Death Rates in Some Important Countries

Country		Death Rates						
		1881	1921	1926	1931	1936	1941	1946
		1891	1925	1930	1935	1940	1945	1950
Canada	...	19·2	12·4	12·3	12·2	9·8	9·8	9·3
U. K.	...	16·9	12·1	12·1	11·6	12·66	12 94	11·67
Sweden	...	25·1	13·3	11·8	11·0	11·68	10·64	10·15
France	...	22·1	17·2	16·8	15·7	16·28	17 32	12·95
U. S. A.	...	...	11·8	11·8	10·9	10·96	10·60	9·82
Japan	...	19·9	21·8	19·3	18·1	17·28	18·88	12 27
India	...	27·4	26 0	24 3	23 3	22·14	22·76	17·22

In 1955, the death rate in Canada was 8·1 per mille ; 11·7 for U. K. ; 9·4 for Sweden ; 12·0 for France ; 9·3 for U. S. A. ; 7·8 for Japan and 11·7 for India.

Not only our general death rate but also infantile and maternal mortality rates are high—27; 127 and 20 per mill respectively in comparison to advanced countries. Morbidity associated with the child-bearing runs to 20 times the mortality figures. Death rate is heavier among male infants up to the age of 10 after which it comes down, while those of females is greater in 51-45 period due to frequent child-bearing. Epidemic diseases account for about 56% of the total deaths.

Table 17—Census of Death Rates

Cause	1922—31 %	1932—41 %	195[illegible] %
Fevers ...	59·1	58·4	50·1
Cholera ...	3·6	2·4	1·1
Small-pox ...	1·2	1·1	4·0
Plague ...	2·6	...	·3
Dysentery & Diarrhoea	3·6	4·2	4·4
Respiratory diseases ...	5·7	8·2	8·2
Others ...	24·2	25·8	31·9
Total ...	100·0	100·0	100·0

About 50% of the death is caused by fevers. Respiratory diseases, bowel disorders and parasitic infections, malaria, venereal diseases, filariasis, etc., also take a very heavy toll. Thus Indians die early, and die in large numbers. Still more depressing fact is that those who survive suffer much from ill-health, and large numbers of them are defectives, infirms, and socially inadequates.

Table 18—Number Afflicted per 100,000 of Population

	1881		1901		1921	1931
Insanity ...	35	27	23	26	28	34
Deaf-muteness ...	86	75	52	64	60	66
Blindness ...	229	167	121	142	152	172
Leprosy ...	57	46	33	35	32	42
Total ...	407	315	229	267	272	314*

(*Excludes multiple informities, Later figures not available)

Table 19—Proportion of Medical Personnel to Population

Medical Personnel and Facilities	India	U. K.
1 Doctor	6300	1000
1 Nurse	43000	300
1 Health Visitor	400000	4710
1 Mid-wife	60000	618
1 Dentist	300000	2700
1 Pharmacist	4000000 to 3 Doctors	
Yearly Production of Drs.	2000	2800
Medical cottages per 10 million people	1.0	7.0
Hospital beds per 1000	0.32	7.14
Hospital Expenses per bed per year (Rs.)	0.5	105.0

These not only cost heavily to the nation's slender resources, through unproductive consumption but also produce children who are often subnormals. The percentage of literacy is also very low (16%). Males are more literate (24.9%) than the females (7.9%). It is higher in the cities (54.6% for males and 27% for females) than in the villages (24% and 6% respectively). What is more annoying is that in spite of literacy campaigns the number of illiterates is increasing more rapidly than those of the literates.

Table 20—Literacy Percentage of Population Aged 10 and over since 1891

Date	Persons	Men	Women
1891	6.1	11.4	.5
1901	6.2	11.5	.7
1911	7.0	12.6	1.1
1921	8.3	14.2	1.9
1931	9.2	15.4	2.4
1941	15.1	27.4	6.9
1951	16.6	24.9	7.9

Thirdly, it has affected our agrarian economy with relentless pressure, for total number of persons dependent on agriculture is very large. This larger dependence on agriculture is due to the fact that development of secondary and tertiary production is not proportionate to growth of population.

Table 21—Occupational Distribution of Population

Agricultural Classes	Self-supporting persons	Non-earning dependents	Earning dependents	Total
1. Cultivators of land wholly or mainly owned ...	45·8	100·1	21·4	167 3
2. Cultivators of land wholly or mainly unowned ...	8·8	18·9	3·9	31·6
3. Cultivating labourers	14·9	24·6	5·3	44·8
4. Cultivating owners of land and agricultural rent receivers	1·6	3·3	0·4	5·3
Total of Agricultural Classes ..	71·1	146·9	31·0	249·0
Non-Agricultural Classes :				
5. Production other than cultivation ...	12·2	22·4	3·1	37·7
6. Commerce ...	5·9	14·5	0·9	21·3
7. Transport ...	1·7	3·6	0·3	5·6
8. Other services and miscellaneous sources ...	13·6	26·8	3·6	43·0
Total non-agricultural classes ...	33·4	67·3	6·9	107·6
Grand Total ...	104·5	214·2	37·9	356·6

This structural disequilibrium has delayed the maximum mobilisation of the natural resources of the country with the result that there has been an ever-widening disparity between food and mouths, between man-power and economic power, between population expansion and resource manipulation in general. The underdevelopment of agriculture and underemployment is reflected in the low standard of living of the people, the average per capita income being only Rs. 284.

The following table gives the comparative figures for some countries of the world :—

Table 22—National Income (At Factor Cost) of Some Countries

Country	Year	Population (in millions)	National income (in millions)		In terms of rupees (crores)	Per capita income (Rs.)
Australia ...	1953	8·81	£ (A.)	3714	3928	4460
Burma ...	1953	10·04	Kyats	3928	393	206
Canada ...	1954	15·19	$	18774	9199	6056
Ceylon ...	1953	8·15	Rs.	4408	441	541
Denmark ...	1954	4·40	Kroner	23327	1607	3652
France ...	1954	42·73	Frs.	11498000	15750	3686
Germany (W) ...	1954	49·52	D. Marks	112300	12727	2570
India ...	1953–54	373·37	Rs.	106000	10600	284
Italy ...	1954	47·66	Lire	9718000	7478	1569
Japan ...	1954	88·20	Yen	6148000	8129	922
Netherlands ...	1954	10·61	Guilders	21600	2638	2486
New Zealand ...	1954	2·09	£ (N. Z.)	802	1058	5062
Norway ...	1954	3 39	Kroner	18424	1228	3622
Pakistan ...	1953–54	78·81	Rs.	19310	1931	245
Philippines ...	1954	21·44	Pesos	7438	1771	826
Sweden ...	1954	7·21	Kroner	38730	3566	4946
Switzerland ...	1954	4·92	Sw. Fr.	21900	2407	4812
U. K. ...	1954	51·07	£	15543	20720	4057
U. S. A. ...	1954	162·41	$	299700	142657	8784
Yugoslavia ...	1954	17·27	Dinars	1086000	1723	939

It varies widely between the different classes of the people. A microscopic section (2%) has command over 33% of the wealth, while the remaining 67% has been left to 98% of the population. This is responsible for poverty and ills associated with it. Housing accommodation is also very unsatisfactory. 6 persons to a house live in towns and eleven persons to two houses in a village. Besides thousands of persons live on pavements for lack of housing facilities in industrial areas as a result of which our cities are associated with the evils of overcrowding, slum problems, high infant mortality, impaired health, prevalence of venereal diseases, promiscuity and drinking habits and above all sex-disparity.

Table 23—Housing Accommodation

Year	Average population per house	Average No. of house per sq. mile.
1881	5·8	31·7
1891	5·4	33·9
1901	5·2	31·6
1911	4·9	35·8
1921	4·9	36 1
1931	5·9	39·3
1941	5·1	...
1951	5·5	50·8

Fourthly, superabundant population is productive of a trail of social and economic evils. It has created an incurable long-run malady of unemployment and underemployment leading in turn to actue economic distress and social unrest. It has also accentuated the rate at which the store of non-replaceable and exhaustible natural resources is used up, besides increasing the cost of their use.

Fifthly, it has diminished the rate of capital formation and hence retarded the industrial deve-

lopment because of the heavy age-structure. In India the preponderance of younger population is three times the eldest group and the middle age-group is exactly half of the total population. Hence, there is a shortage of working population. It has to bear a great burden of dependency (60%). Below are given the age-structure of Indian population and those of some other countries :—

Table 23—Age-Structure in India

	Age-group	% of the total population
Infants and young children	0 to 4	13·5
Boys and girls ...	5 to 14	24·8
Young men and women ...	15 to 24	17·4
	25 to 34	15·6
Middle-aged men & women	35 to 44	11·9
	45 to 54	8·5
Elderly persons ...	55 to 64	5·1
	65 to 74	2·2
	75 and over.	1·0
		100·0

Table 24—Population by Broad Age Groups (% Distribution)

Country	Date of Census	0–19	20–39	40–59	60 & over	Total
Australia ...	1951	33·62	31·05	22·92	12·41	100·0
Argentina ...	1947	40·78	32·61	20·05	6·56	100·0
Brazil ...	1950	52·47	29·75	13·53	4·25	100·0
Colombia ...	1938	52·47	29·61	13·13	4·99	100·0
England & Wales ...	1950	28·41	28·75	26·98	15·86	100·0
Egypt ...	1947	48·13	28·97	16·89	5·40	100·0
India ...	1951	47·90	29·90	16·80	5·40	100·0
France ...	1950	29·13	27·63	26·59	16·65	100·0
Mexico ...	1940	51·36	29·67	13·85	5·12	100·0
Russia (Europe) ...	1899	48·72	28·43	15·93	6·92	100·0
U. S. A. ...	1950	34·28	30·67	22·93	12·12	100·0

This preponderance of children has affected adversely the consumption pattern of the society for more protective food is required for this section than for the adults. This involves an inestimable dissipation of the nation's material and human resources, which would otherwise have been channellised into more productive use.

The whole situation may be best epitomised by saying that we in India, live a life (because we cannot escape fit !) but not a good life worth living. We are born in poverty, live in poverty and die in poverty ! We eat such inferior food that is given to pigs in other countries, wear clothes that defeat the very purpose for which they are worn and dwell in houses which make horses proud of their stalls. An average Indian is very badly nourished, inadequately clothed, unhygienically housed, poorly doctored and scarcely taught.

Is India Over-populated ?

India is not over-populated in the "absolute" sense, because all known methods of production are not employed to the fullest extent to exploit the natural resources, and hence, population has not been provided with wealth. But India is "relatively" over-populated because on account of unavoidable circumstances like illiteracy, internal dissensions, neglect of industries, antiquated methods of production, there is neither enough wealth nor means of livelihood for the existing population.

In relation to the existing stage of her industrial and agricultural resources, India is definitely over-populated. Pressure of population, which of course varies in intensity in different parts of the country, is shown and felt in various ways : by general trend of food imports ; small size of agricultural holdings and increase in the number of landless labourers—all related to the fact that the total area under cultivation has not

increased so rapidly as the population so that the per capita cultivated area, double cropped area and irrigated area has diminished—by high percentage of arable land under food crops and extremely low output per person engaged in agriculture and other occupations ; by low density of cattle, which has resulted in the deficiency of animal protein in food and the under-nutrition of the masses, and by the mounting pressure of unemployment and under-employment.

Often a number of objections have been raised against the over-population view. It is argued that not merely India is not over-populated, she can sustain even a bigger population, if her natural resources are fully exploited. Certainly true. India has the fortune of possessing natural resources in great plenitude, but the tragic fact of the situation is that they have remained idle and unexplored for generations. *This is exacly the gist of af the epigram that India is a rich country inhabited by a poor people.* The main point at issue is not what we are capable of doing but what we actually are. Potentiality and actuality are two different things. Our hidden treasures might feed the whole world if used to their full capacity ; but at this moment, we have failed to supply even the basic necessities of life to our countrymen. In the diognosis of an ill in the body economic and in the discovery of a proper prescription for it, it is the actual conditions that are relevant and can be expected to produce better judgment. It is, therefore, wise to look at the population problem from this realistic point of view.

Remedial Measures

Formulation of any programme of remedies can only follow a clear-cut analysis of the existing malady. In this respect it is desirable to take a dynamic rather than a static view of the problem. Uncontrolled procreation involves serious problems both for a nation and a

family. Hence, the population problem is not that of putting an immediate end to growth but of checking growth before the population becomes unmanageably large. The quantitative goal for the population policy in India should be that of diminishing present numbers and or slowing down the rate of growth. The problem of rapid growth can be tackled by rationalising not only production but also reproduction.

1. Development of Agriculture

In view of the large proportion of rural population, agriculture will remain the mainstay of our economy and, hence, great emphasis must be laid on the improvement of agriculture, because industrialisation can be possible only when agriculture has reached a high level of prosperity to provide self-sufficiency in food, to create a surplus for capital formation and to increase the demand for secondary products. The reorganisation of agriculture will have to be made by removing certain drawbacks for full utilisation of land resources through radical schemes of land reforms ; by extension of land through reclamation and irrigation supply ; and by intensification of utilisation of land already in use through modern scientific methods. Though these will lead to increased yield and more production, they cannot by themselves afford a better standard of living to the masses unless something is done to redistribute the occupational pattern.

2. Rapid Industrialisation

Rapid industrialisation by creating more capital and pumping a part of it into agriculture, creating markets for agricultural products, expanding secondary and tertiary sources of employment will reduce the pressure on land, increase national income, make increased investment in and higher productivity of agriculture

possible, create an abundance of badly needed commodities and transform Indian's Diminishing Return Economy to an Increasing Return Economy. It will also encourage the development of new pattern of living and changing the conditions of life will reduce fertility because the necessary concomitants of industrialisation are city life, industrial employment, and employment of women outside the home and education. Hence industrialisation plus urbanisation are bound to produce environment favourable for population control by reduction in frequency of intercourse due to greater nervous strain and alternative outlets for free time. The desire to accumulate money and achieve a social position will also be greater and hence an incentive to bring up large families will thereby be weakened. Industrial development will have to be planned in such a manner that proper correlation is established between agriculure, agro-industries and large-scale industries. Development of cottage small-scale industries and the decentralisation in the rural areas is highly desirable. The towns need not be hideous conglomerations of mean and soot-laden sheets but should be transferred into garden cities.

3. Planned Migration

Planned migration should take place from densely peopled regions of the Gangetic Valley and the coasts to the sparsely populated parts of the Deccan, Rajasthan, M. P., Himalayan Tarai and Assam where large areas of land are available for cultivation-but with scarcity of water and unhealthy climate by measures of land reclamation, agricultural engineering, irrigation, jungle clearance road making, anti-malarial operations and conservation of soil. Emigration to foreign lands can reduce the population pressure only if Indians are allowed to settle on vast empty spaces in tropical regions through the strict passage of International Immigration Act with common consent of all nations, otherwise the problem will have to be tackled within the country itself.

4. Change in Institutional Structure

The high birth rate in India is intimately linked up with its social institutions which ultimately involve the degradation of the social status of women. Our population problem is not merely a problem of numbers, it is also a problem of educational growth, in social reform and changes in our institutional structure. Rapid growth in population can be checked by spread of education because it will not only increase the earning capacity of the males, emancipate women and make them economically independent and raise the standard of living of the masses but will also lead to postponement of marriages and consequently reduce fertility. Compulsory education should be made available up to the age of 15. Social Service Camps in rural areas and military training in urban areas for both sexes should be made compulsory. Married males below 20 years should not be allowed to appear at the examinations. This will put some check on early marriages and help in reducing the growth in numbers.

5. Raising the Age of Marriage

A late marriage leads to less procreation. Hence, marrigeable age should be raised—20 for the girls and 30 for the boys—by more strict and effective legislation and any marriages below this age should not only be penalised but also that Early Marriage Tax should be imposed. The earlier the age of marriage, the higher should be the rate of tax. Those marrying between 15 and 19 years should pay 1/4 of the average expenditure on marriage ; those between 20 and 24, 1/6 and those between 25 and 29, 1/8.

6. Change in Diet

Recent investigations show that there is a close relationship between the diet and fertility. It is claimed that the consumption of rice increases fertility while the consumption of ground

peas reduces fertility. If this is true, then the dietary habits of the people-especially in lower strata of the society can be suitably altered wherein the intake of rice is reduced and the intake of ground peas increased. Besides the diet of the masses should be made more nutritious. This will directly affect the reproductive pattern of the society.

7. Provision of Recreation Facilities

Not only rich and balanced food, shelter and economic security is sufficient for the people, but the need for alternative sources of enjoyment and recreation are also very important to direct one's attention towards better amenities of life than towards sexual activities only.

8. Death Control

The programme of death control and birth control should go hand in hand. The former should be entrusted to the State, while the latter should exclusively be left to the voluntary action of the parents. The heavy death rate among the infants and females can be reduced drastically through the provision of better pre-and post-natal care, midwifery facilities, opening of Maternity Homes and Child Welfare Centres, proper spacing of children by dissemination of the knowledge of birth control and free medical aid to all. 'Hospitals on Wheels' should be equipped and sent to rural areas along with the qualified doctors and nurses. Communicable and degenerative diseases should be controlled and source of infection and mode of transmission be determined and eliminated. Proper drainage, sanitation and protected water supply improvements should take place both in rural and urban areas. Public must be educated in public health matters by all possible means. Adequate curative measures should be undertaken through specialised hospitals.

II

POPULATION POLICY

The population problem of India can be epitomised simply as one of too many births and too many deaths resulting in a low survival rate and the surviving population subsisting on a miserable standard of living due to abject poverty. In some regions like the Indo-Gangetic Plain, Madhya Pradesh and Deccan plateau the problem of poverty and population are more acute while in some others like Travancore it is less actue though their existence in them can hardly be denied. Neither the Government nor the political leaders have gathered enough courage even to face it. The problem is deep and wide and it touches on many a sore spot of the Indian socio-economic religious order. Clearly what we require is a population policy which will take into consideration the problems of spatial distribution and adjustment and a long-period programme in respect of food production. Although the inexorable logic of facts like shortage of food resources, increase in population, etc., forced the Government to take in hand a comprehensive policy with regard to land and production but curiously enough the related problem of population policy, without which we cannot succeed, seems to have been lost sight of altogether.

"A population policy can be nothing less than a social policy at large.....If practical social science is not on the watch, there is a palpable danger that population policy will be irrationally narrowed down and forced into remedial quackery. A population programme must work itself into the whole fabric of social life and must inter-penetrate and be inter-penetrated by all other measures of social change. The population crisis must, if we are to react rationally, make us rethink all social objectives and programmes.[1]

1 A. Myrdal, *Nation and Family*, p. 101.

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1 A. Myrdal, *Nation and Family*, p. 101.

General Objectives of Social and Economic Policy

Before proceeding to a discussion of the ends and the means of population policy in India it is necessary to set down as background some general objectives of social and economic policy that have been evolved and accepted by major political parties in India. These can be enumerated as :—

(1) To develop industries rapidly with an eye to their proper location and adequate provision for labour welfare ;

(ii) To raise the general standard of living and to abolish underfeeding and mal-nutrition ;

(iii) To combat illiteracy and make education widespread ;

(iv) To extend public health facilities and to combat and prevent diseases and epidemics ;

(v) To reduce improvident expenditure on social customs like dowry.

These are accepted objectives and population policy has to accommodate itself within their frame-work.

Population Policies in Foreign Countries

Several countries specially Germany, France, Italy, Japan, Belgium gave much attention in the past and even in present time to increasing the number and improving the condition of the inhabitants in their country. For this purpose effective measures were put to stimulate marriages, lessen the use of contraceptive appliances, ban abortion, and encourage large families by providing family allowances, free travelling, free education and other financial assistances and medals to mothers having more than a certain number of children. Taxes were imposed on the bachelors and in some cases drastic suppression of means formerly used to prevent births were used to breed more and more fodder for the cannon. Consequently the declining birth rate had been reversed. For instance, in France, Dr. Ed-

ward Toulouse enunciated a new plan to make the women of France bear more children. To further promote an increase in the birth rate a National League was organised which suggested : (i) a decrease in tax in the favour of large families and an extra tax on childless couples and bachelors, (ii) increase in inheritance tax on large fortunes, in case a family had 4 children no such tax was to be levied ; (iii) giving of bonuses and rewards for large families , (iv) provision of cheaper housing facilities ; (v) arrangement of special advantages for large families, such as reduction in rail-road rates, and (vi) allowance of salary bonuses for fathers of large children and permission of plural voting for fathers of large families. In 1945, De Gaulle appointed an eight-man Commission to draw up a population policy that would add twelve million babies to the population of France within the next decade, for in France death rate had consistently exceeded her birth rate during the pre-war decade. As a result of various social security measures the rate of population growth has increased in France.

The measures that have been suggested to halt the decline in population growth in Belgium are similar to those that have been discussed for France. A Report presented to the Belgian Govt., in 1947 by the Walloons Economic Council recommended[1] :

(i) Pro-family propaganda, courses in school, adult education classes on dangers of underpopulation.

(ii) A programme to offset the economic disadvantages of children which would consider *inter alia* of large family allowances, marriage loans (preferably of 5,000 francs to be cancelled on the birth of the first child) ; grants for the purchase of household equipment, layettee allowance, an

1 C. Watson, *A Survey of Recent Belgian Population Policy* in *Population Studies*, Vol. VIII., No. 2 pp. 152-59 and 186.

entirely free educational system, large income-tax rebates for children, reduced transport and other charges for parents of children, encouragement of pre-nupital savings with high interest rates ;

(iii) A programme of subsidized house building (for rent and purchase) together with assistance towards modernization and enlargement of existing accommodation and the encouragement of gardens, allotments and small holdings for urban workers.

(iv) Encouragement of a high standard of housewifery and child care (with *mere au foyer* allowances, breast feeding premium, clinics) together with services such as part-time nurseries, creches and subsidised home helps so that mothers of young children are not completely 'tied' to their homes, subsidies for the purchase of such labour-saving devices as washing machines.

(v) Special allowances to children on birthdays and certain feast days like New Year, Christmas and Easter.

(vi) The institution of a monthly pre-natal allowance and the abolition of the family allowance proper for an only child after it had reached the school age.

The United States, without specifically saying so, is stumbling towards the formulation of a population policy aiming at qualitative improvement and the maintenance of the population strength. Even U. K. is also pursuing a policy of increasing her stationary, if not declining, population. The Registrar General of England and Wales in his Statistical Review for 1940 proposed to offset the threatened decline in the British population by increasing the annual number of births in England and Wales by at least 130,000. According to him this might be achieved by increasing the fertility within the marriage, and enlarging the average proportion of women who marry, especially at those ages when births appear more likely and finally by lowering the overall age at which women

on the average marry. The recent Report of Royal Commission on population for Britain recommends that Britain's goal should be 2.4 children per married couple instead of the present 2.3 as this would be fully sufficient for replacement. To achieve this end the Commission does not recommend banning Birth Control.

What is the best for the Indian Population ?

The need for a positive policy for India based on what is best for the Indian people, both from the larithmic and eugenic point of view cannot be overemphasised. And what would be best for India could be viewed from the demands of the army for soldiers, of industry, and agriculture for workers and so on. India is not in the position of some Western countries which face the problem of stationary or declining population and which consequently have to embark upon the policies of increasing the birth rate. Our problem is quite a different one. In quantitative terms the goals of population planning in India can be three ; to increase, diminish, or maintain at the present level the existing population.

In almost every country of the world up to now the economic criterion has been used to determine the quantitative goals for population policy. But in the case of India, we are already overpopulated and hence, the economic expansion cannot for ever compensate for a constant increase of population, because economic potentialities are affected by population. The people have apparently already reached the point where density and rapid growth are impeding economic development. Therefore, it seems somewhat unrealistic to attempt to do something on the economic side alone and yet to do nothing on the population side. As Notestein has said, "If it is not the problem of doubling or perhaps even tripling, the product of backward regions that staggers the imagination ; it is the need for an indefinite continuation of such an

expansion in order to keep with an unending growth. The demographic problem is not that of putting an immediate end to growth but of checking growth before the population becomes unmanagably large *e. g.*, before the present numbers are doubled."[1] Hence, any attempt to compensate indefinitely on the economic side for population increase is bound to fail, because human beings live in a finite world. No doubt various scientific devices like controlling the rains from clouds, harnessing sun's energy or the tides may all enormously increase the food supply but they can not foreover take care of an ever-increasing population. Therefore, the quantitative goal for the population policy in India should be that of diminishing present population and/or (if the former is not possible), that of slowing down the rate of growth. In regard to the quality of population the goal obviously should be the highest possible improvement of quality of population. This goal does not conflict with the quantitative goal. Besides these two goals, the third goal (the major though by no means the exclusive goal) should be a higher per capita income and that the question of population policy is thus oriented towards the problem of mitigating Indian poverty.

As such the social optimum population for India must be one which effectively safeguards the nation against alien aggression and penetration and at the same time does not give rise to imperialist or chauvinist claims for expansion and colonies. The most desirable quantity of population is also one that attains the maximum level of living, political stability and economic security along with adequate freedom and leisure for the pursuit of cultural values.

No country or nation need lament that her

1 F. W. Notestein, *Problem of Policy in Relation to Areas of Heavy Population Pressure* in *Demographic Studies of Selected Areas of Rapid Growth*, p. 152.

population is too large or too small, as long as it can balance the twin basic physical activities of man—those of production and reproduction—for the problem arises when there is a striking maladjustment between the existing population and the available resources for its support. The quantitative aspect of population is no doubt of great significance but only as a means and a foundation of quality. One need not fear that India's population is too large or too small so long as it is healthy, well-fed, well-clothed, adequately employed and with enough leisure for healthy cultural pursuits. The question is : when India's teeming millions are going to have these basic needs ?

Dr. Gyan Chand has rightly remarked, "The population problem in India is the remaking of derelict people. Its solution depends on a complete and radical reconstruction of our entire life, but the point which is important is that the reconstruction required by the needs of the situation cannot be carried on without making the control of population an integral part of the whole scheme of reproduction."[1] Thus production as well as reproduction must be rationalised. A society must be biologically as well as economically superior and a going concern," as Prof. L. Hogben puts it.[2]

The limitation of numbers forms a more permanent and important part in any scheme of national or regional reconstruction. Prof. Goldscheid has remarked, "A deep-seated connection exists between the economies of production and those of reproduction. Production can only be rationalised if one undertakes to rationalise reproduction, just as intensively and intelligently. Economics consists of economics and merchandise and of people. It is not until we consciously develop

1 Gyan Chand, *India's Teeming Millions*, p. XI.
2 L. Hogben, *Retreat from Reason*, p. 44.

economics with reference to human beings and when we learn to put capital that lies in humanity to an economic use that we shall obtain at the same time the optimum density for a definite period and according to the culture in question, so that economics of reproduction will thus be the basis of economics generally."[1] It is interesting to recall here what Dr. Bonar has said regarding the essence of Malthus's teaching. He writes, "There might even be a summary in one phrase. He desired economy in human lives. A man who secured that would be the greatest of economists."

How to reach the desired Goal ?

We now proceed to discuss the means of achieving our desired goals. A decrease in the existing population can be brought about through an increase in the mortality and/or increased net emigration. The former might come about as a result of natural calamities like floods, famines as also because of epidemics and diseases as through increased malnutrition and underfeeding, increased deficiency of medical aid and increased infanticide or abortion. Not only are health and longevity ends in themselves, but they are a part of a high standard of living. Therefore, it would be self-contradictory to say that death rate should be increased in order to improve the standard of living. It is precisely a high death rate that a population policy is designed to avoid. If people get poorer, they will inevitably begin dying off faster and faster until their number fails to grow. At that point the problem of population growth will have been solved, but not the problem of poverty. A country like India is faced with the question of how to stop population growth before a rise in mortality automatically stops, and also how to lower mortality still more without defeating this aim by a corresponding rise in numbers. Yet low mortality is not the only element in a high

1 Proceedings of the World Population Conference (1927), p. 105.

standard of living. There are other elements having little or nothing do with longevity. Therefore, a temporary rise in mortality would not necessarily represent a regression in the total standard of living. Its effect would depend largely on the duration, causes and circumstances of rise, *e. g.* a sudden epidemic that quickly sweeps over 50 million people in India would greatly increase the average real income of the remaining population specially if its incidence were highest in the non-productive ages. Such a sudden increase in deaths would only temporarily disrupt the economy and it would just in one stroke eliminate a huge portion of the surplus population. Conceivably it might open the way to social reforms that would otherwise be more difficult and thus help to break the vicious circle of poverty. In this connection Notestein has remarked, "Policies designed to yield a rising death rate are occasionally suggested as a temporary expedient to obtain release from pressure, pending a decline in fertility. However, ...the suggestion is based on misconception of the factors governing growth. A period of increasing mortality would in fact impede the developments essential to induce a decline in fertility. Rising mortality in areas under consideration means in reality rising population pressure."[1] This implies that a heightened death rate is rejected as a policy because it lowers down the economic efficiency and a further deterioration in the health of the country. But increased mortality may not have a net adverse economic effect. Whether it does or not depends on how long it is sustained and what its causes are. If it is sustained or rises over a long period, it is a sign that conditions are getting worse. If it is sudden but temporary it may bring unusual prosperity through relief from excess number until the population builds up again to its former level. Even the immediately

1 Notestein, *Op. Cit.*, p. 148-149.

bad effects of civil war may be compensated for by a subsequent period of lessened population pressure This being true, the rejection of increased mortality as a policy does not rest on its economic effects. It rests on the fact that human life except under extreme group necessity, is viewed as an end in itself and not as a means to an end. This reason explains why official domestic policy with reference to death is nearly always in one direction, namely limitation. Therefore, it is quite clear that a reduction of the net reproduction rate cannot be attempted from the side of increasing the mortality.

The only other alternative is to limit the size of the family. This brings us to the problem of birth control or 'family planning.'

III

METHODS OF POPULATION CONTROL IN THE PAST

In its modern application 'Birth Control' means the conscious responsible control of conception. It does not, however, mean interference with life after conception has taken place, but consists solely in the use of intelligent scientific, and hygienic knowledge to determine the proper time for this important function to occur, and to limit its possibilities to those times. In its simplest sense it means control of reproduction, so that people are able to produce children when desired and prevent their procreation when they are not desired; *e. g.*, people may not desire any more children when they have already 3 or 4 of them. Ordinarily a woman would produce a child every two years or so between her age of 15 and 45 if she has normal and regular sexual relations as required by her and her husband's natural sex desire. Thus a normal healthy couple would have about 15 children during their reproductive years.[1] The object of the mo-

1 Dr. Duncan is of the opinion that many women have longer fecund periods, and some can have children at intervals of even ten months. (Vide his *Race and Population Problems* (1926), p. 270.

Another authority M. Duncan estimates that a normal woman of civilized races, living in wedlock throughout her fecund period, should under favourable circumstances, bear from ten to twelve children. (M. Duncan, *Fecundity, Fertility, and Sterility* (1866), p. 112.

That both man and woman have great fecundity is shown by the calculations made by different authorities. One sociologist is of the view that the reproductive power of the human beings is so great that a single pair of it could have produced the present population of the world in 1800 yrs. Another authority, Swinburne says, "Assuming that one couple, living six thousand years ago were the parents of all mankind, and that at the end of hundred years there were four people, and so on, the present population of the world would be more than two million billion, or 2×10^{18} or more than a thousand people per square-yard over land and sea." (Swinburne, *Population and the Social Problems*, p. 16)

Dr. H. G. Duncan opines that civilized man has an excessive fecundity and abundant fertility which is constantly understated. The fecundity of man is at least twelve hundred times as great as is needed to keep

dern birth control movement is to enable a couple to lead a normal sex life. Birth control is really "conception control," *i. e.* to allow conception to occur only when desired and prevent it when not desired. Actual scientific (technial) name is "Contraception"; but birth control, though a popular term, is rather a misnomer.

The phrase "Birth Control" was invented by Mrs. Margaret Sanger in 1914 and has come into popular vague and usage, despite its unscientific inexactitude. She means by "Birth Control" the conscious control of births by means that prevents conception, in a family in a manner proper to the condition of the parents, physical and economic, as well as the requirements of maternal health and the consideration that bringing up of children ought to be primarily a parental responsibility.[1] She emphasises over and over again "control, and not limitation" "prevent and not interfere with life after conception has started."[2] Thus birth control has brought parenthood under voluntary control. As Mrs. Sanger puts it, "Parenthood should be regarded as a fine commission, a noble trust, a splendid assignment, and it can be so considered only when it becomes a conscious responsibility." And I should say that the "bringing of children should be regarded as a privilege rather than as a right." Thus, birth control, like the control of infection by asepsis, the control of pain by anaesthesia, the control of commuicable diseases by the methods of preventive medicine, is yet another step in mankind's brilliant mastery over the blind and passive forces of nature, a measure of his civiliza-

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up population. Of woman it is at least four times as great as needed. (*Op. Cit.*, p. 272).

1 Presidential Address delivered by Vera Ramesam at the Second All India Population and the 1st Family Hygiene Conference, 1938. in *Indian Population Problem* edited by G. S. Ghurye, pp. 7-8.

2 M. Sanger in *The History of the Birth Control Movement in the English-speaking World*, published in the Report of the Fourth International Conference on Planned Parenthood (1954), p. 8.

tion and growth to maturity. This device has so revolutionised our views of marriage and morals, peace and war, that Dr. Julian Huxley puts it on a par with such great but seemingly simple inventions as the making of fire and the art of writing.

The control of numbers has been a pertinent question since time immemorial among the different races, tribes and nations. It is held with great emphasis that since the hoary past a certain percentage of the female population of the world have, for some reasons or the other, been anxious to limit their fertility. In parts of Africa, South America, and Polynesia efficacious methods must been have evolved very long ago, otherwise their fertile areas would have had far larger populations than those which existed when the terrirories were discovered by the Westerners. Each tribe, group or nation has faced the issue and although many leaders vehemently opposed any method of elimination or restriction, the members of the various groups have used one or more methods of population control. It is not easy to explain why one should prefer one method, say abortion, and another tribe in similar circumstances another method, say infanticide or one race should prefer celibacy while another the most modern methods of contraceptives just on economic and religious grounds. There has been a tendency, however, for the methods of control to change as society has advanced.

Intentional control of the size of families is not new to our age. As far back as written history goes man has always attempted to adjust the size of his family to the available means of subsistence. The travellers and explorers, ethnologists and the anthropologists have inferred from their observation of surviving races of Paleolithic and Neolithic cultures, who have been influenced little or not at all by civilization, that in primitive times communities everywhere endeavoured to limit the number of living children in accordance with the available means of subsistence and that it was only with the

coming of Copper, Bronze and Iron Ages, which brought with them, among other things, successive cataclysms and higher death rates from disease and war, that an age-old system of regulation of numbers was disrupted. In the earlier times as well as in the primitive tribes and the less developed communities of today the methods chiefly resorted to are infanticide, abortion, prolonged periods of ritual abstention from intercourse, prolongation of the nursing period, potions and mixtures made of a variety of herbs, charms and magical incantations.

(A) Control of Population by Positive Methods

1. Killing the old and witchcraft

It would not be improper if we briefly mention here the various methods adopted since very long past for limiting the growth of population. Obviously the killing of the old people appears to have been the early custom among the primitive people and to have been very widespread. The practice is known to have existed among the Tasmanians, certain tribes of Eskimos, American Indians, Africans, Fijians.[1] Among the primitive and superstitious people witchcraft is widespread and no doubt influences population from the quantitative standpoint. According to Maugham, "the belief in witchcraft was so general that deaths due to it were in the larger villages matters of daily occurrence."[2]

2. Abortion

Numerous testimonies of travellers and investigators show that abortion was almost common among the primitive tribes. Some tribes used certain magical rites to procure abortion, while others used to drink decoctions with a view to abort. Most frequently abortion was procured by various violent physical means which were both harmful and

1 Williams and Calvert: *Fiji and Fijians*, p. 145 and G. M. Theal, *Yellow and Dark-skinned People of Africa (1912)*, p. 19.

2 R. F. C. Maugham, *British Central Africa*, p. 276.

dangerous. As early civilization developed abortion apparently became more widespread. "A long chain of writers," says Lecky, "both pagan and Christian, represent the practice as avowed and almost universal."[1] Such outstanding leaders as Plato, Aristotle, and Mohammad did not oppose it and in fact "no law in Greece or in the Roman Republic or during the greater part of the Empire condemned it. The Christian opposed the procuring of miscarriage on the basis that the child in the womb had a guardian angel and possessed a soul. Opposition to abortion is now widespread, yet it appears to be practised in all countries and is common in China, India, Japan, Turkey, U. S. A., England, Russia, Sweden, and Finland."[2] For some time past the number of abortions are decreasing in countries where better and more effective contraceptive knowledge is increasing. East thinks that abortion "is decreasing in England, Holland, France, Australia, New Zealand, and the U. S. A. due to the spread of the knowledge of birth control methods."

3. Infanticide

Infanticide as a mode of controlling population is or has been more widespread than even abortion for economic measures. The practice of infanticide has a eugenic bearing in that the deformed and weak (who are considered a greater burden than normal offspring) and girls (who are regarded as being of less economic value than boys) are more likely to be killed than healthy male infants. Vari-

1 Lecky, *History of European Morals*, p. 21.

2 *Ibid*, p. 21.

3 According to Reuter and Mrs. Sanger, in 1912-13 there were 250,000 who died mainly from the consequences of pregnancy, and it was estimated that there were approximately two million abortions, in U. S. A., Court decisions have shown that there are at present two thousand persons in New York who make a profession of inducing abortions. Abortionist advertisements are numerous and abortifacients are rather freely advertised and sold. (Vide. Reuter, *Population Problem* (1923), pp. 129-30; and Report of the Fourth International Conference on Planned Parenthood, p. 7.

ous methods of disposing of the unwanted infants were employed. Some children were placed out for the wild animals, some were strangled, and others were permitted to perish.

Infanticide appears to have been common among the Jews, Babylonians, Egyptians, Syrians, Phoenecians, Greeks and the Romans, and to have met with little or no opposition. Such outstanding men as Plato, Aristotle, Lycurgus, Solon, Seneca, and Suetonius, and Pliny seem to have not opposed the practice, Pliny thought infanticide a necessity because of the overabundant fertility of women. Mohammad, however, opposed it and it has been less widespread in Turkey than abortion. Philo, in the first century A. D. entered the first protest against infanticide. Says Ross, "Abortion and infanticide were freely resorted to in the pagan world, but were brought under the ban, first of the Church and then of law, until they ceased to play much of a role in the regulation of numbers."[1]

Evidently it was one of the chief means of control among the tribes. Most families reared few children and undoubtedly the small number was often due to infanticide, *e. g.* the Abipones

1 Ross, *Standing Room Only*, 1927. p. 263.

Danish legislation allows abortions on medical, eugenic and ethical grounds. Women wanting an abortion contact their doctor or a mother-aid-agency which every year receive between 7000 and 8,000 applications out of which 40 per cent are granted.....Dr. Hoffmeyer observes that there has been a great increase in the number of illegal abortions during the last decades, so much so that today in the capital, Copenhagen, every fourth pregnancy is illegally terminated, in spite of the equally considerable increase in the number of legal abortions." (H. Hoffmeyer, *Social and Psychological Factors Limiting the Use of the Contraceptives*, in Fourth Report of P. P.) pp. 49-50.

In Sweden according to Dr. Gunnar Nycander, in 1938, when the first law regarding abortion was passed, the total number of abortions (including illegal abortions) was estimated at about 20,000 a year. In 1952, about 5,300 legal abortion were performed. (*Ibid*, p. 53.)

In Germany the number of abortions was more than the number of births. It was 103 abortions to 100 births. (*Op. Cit.*, p. 140).

As a result of the Eugenics Protection Law in Japan, abortion for health reasons is permitted. In 1952, 805,523 were reported. (*Op. Cit.*, p. 187).

of South America do not bring up more than two children to a family, the other being killed to save trouble.[1] It appears to have been exceedingly common among the Ploynesians, as not less than two-thirds of the children were murdered by their parents.[2] In China it has been quite common. Norman writes, "Infanticide is very common among the poor, and even people in pretty easy circumstances. There is hardly a family in which at least one child has not been destroyed, and in some families four or five are disposed of."[3] In Europe, infanticide survived as an accepted practice until the Christian era. It continued as one of the most common individual crimes in Europe until the 18th century. In Japan infanticide survived until the beginning of the 19th century, and the census figures of that country for the 18th century show that chiefly by this means numbers were kept almost stationary. In other parts of the East it is still used in times of pressure.[4]

Although there is no evidence to justify the assumption of widespread female infanticide in India, yet in a few cases the practice still prevails.[5]

The Census Superintendent of Rajputana observed in 1931 report, "Deliberate infanticide seldom comes to light, but there is no doubt that unwanted female infants are often so neglected that death is the result."[6] "In Western Society", says Reuter, "infanticide is no longer within the mores of the group. As a practice it still remains especially in the case of illegitimate children and,

1 Dobrizhoffer, *An Account of the Abipones*, Vol. II. p. 97.

2 Ellis, *Polenesian Researches*, Vol. I. p. 197.

3 Norman, *Peoples and Politics of the Far East*, p. 290.

4 Report of the Royal Commission on Population, 1949. p. 35.

5 The Jammu and Kashmir State as late as 1930 had to take measures to suppress infanticide in certain Rajput villages. (Vide, Wadia and Merchant, *Our Economic Problem*, 1954, p. 133).

"Female infanticide does exist in parts of this vast country, but it is of insignificant proportions, hardly important to influence the general sex ratio." (D. Ghosh, *Pressure of Population and Economic Efficiency in India*, 1946, pp. 6-7).

6 Quoted in *Census Report*, 1931, Vol. I. Part. I. p. 196.

to a certain extent, in the case of defective and deformed infants."[1]

Infanticide and abortion decreased in importance with the development of celibacy and postponement of marriage. In countries where contraceptive knowledge has spread they have come to be less important means of control.

4. War and Diseases

War and diseases have also taken a heavy toll from the people, in the past in various countries. According to Kirby Page, the human cost of the First World War was as follows[2] :

20,000,000 wounded
13,000,000 dead civilians
10,000,000 known dead soldiers
10,000,000 refugees
9,000,000 war orphans
5,000,000 war widows
3,000,000 presumed dead soldiers
3,000,000 prisoners.

Page's estimate of the loss of life in the World War is regarded as too conservative by some of the authorities. Conservative statisticians estimate that for every soldier that was killed, five civilians died of hunger, disease, massacre, exposure or heightened infant mortality. Taking all these things into consideration, the war reduced the population of the world by perhaps 40,000,000. According to Margaret Sanger in the World War Two, over 21 million young men were killed in battle ; 15 to 20 million women, children and old people killed in air raids ; 30 million wounded, mutilated or incapacitated for work ; 45 million prople evacuated, deported or interned ; 30 million homes rendered to ashes ; 150 million people left without shelter, prey to famine and

1 Reuter, *Op. Cit.*, p. 129.
2 Quoted by H. G. Duncan, *Op. Cit.*, p. 284.

disease. Up to 1946, the Second World War cost three times as much as the First War. This money could have provided $30,000 worth of houses $12,000 worth of furniture and $6,000 cash present to every family in the U. S. A., Canada, Australia, Britain, Germany, France, Ireland, the Soviet Union and Belgium, In addition every town of over 200,000 inhabitants could have been give a cash donation of$ 75,000,000 for libraries,$ 75,000,000 for schools, and $75,000,000 for hospitals.[1]

Diseases like plague, tuberculosis, leprosy, cholera, small-pox and dyphtheria. pnuemonia, malaria and various other kinds of fever have also swept away a large number of people in the prime of their life. Though of late these diseases are now disappearing, the estimated mortality due to bubonic plague during 1896-1920 was 10,022,000 while the actual estimates exceeded 13,454,000. Influenza in 1918 ond 1919 took as many lives as bubonic plague. The total estimated deaths from influenza for these two years have been variously placed at 8,419.000 by the Census Commissioner, 14,000,300 by Drs. Russel and Raja and 20,000,000 by Dr. Davis. About 100 million suffer from malaria yearly and that about 25 to 75 million more suffer from an indirect morbidity to malaria. About 2 million suffer from T. B. and the annual deaths range from 4·5 to 8 lakh per year.

5. Famine

Death due to starvation was a minor factor among the primitive tribes yet the fear of starvation was a major factor in the control of population. Famines are comparatively modern, and the world has experienced some 350 serious and an indefinite number of less serious famines since the beginning of the Biblical times. Almost every year brings a minor famine to some part of the earth. India, Egypt, Palestine, China, Russia, Ireland, and

1 M. Sanger, *Humanity of Family Planning*, in The Third International Conference on Planned Parenthood Report, 1953, p. 54.

Germany have suffered most from famines. India had quite a large number of serious famines involving a loss of very heavy lives. For the two-year period 1768-1770 about 10,000,000 people perished here. Twenty years later the "Skull famine" followed during which time the living were unable to bury the dead. About 1,500,000 died during the famine of 1866. During 1775-1900, there were 24 famines in which the mortality was estimated estimated at 32,4000,0000. Ten years latter 5,250,000 more perished. It has been calculated that in the period 1901-44 in the whole Asia 76,000,000 were affected by famine, in which India's share was 30,000,000. The number affected in Europe during the same period was 22,000,000. What is more, whereas in 125 years from 1775 to 1900 the mortality from starvation in India was 40,000,000, in forty-four years between 1901 and 1944 the mortality has been placed at 30,000,000. China sometimes loses from 10,000,000 to 20,000,000 in one year because of famines. Most famines have been due to the uneconomic occupations of peoples in wars or to a change of weather which caused a crop not to mature.

Other methods

There are other natural phenomena such as earthquakes, volcanoes, cyclones, tornadoes, floods, and wild animals that kill millions of people every year. In India alone more than 1,500,000 people die annually of causes connected with accidents, snake bites, unclassified social diseases, wild animals, and the disastrous floods that ravage the country every year.

(B) Control of Population by Preventive Methods

1. Pre-Puberty Coition

Pre-puberty coition appears to have been common among the American Indians, Eskimos, the tribes of Africa, India, Australia, and New Zealand. Though exact effect of early coition upon fecun-

dity is not known, yet it is believed to be detrimental to the health and to reduce fecundity. Carr Saunders says it is known "that, early intercourse is injurious to the general health, and it is not difficult to understand in a general way how, if this is so, the reproductive functions would be adversely effected."[1]

2. Initiation Ceremonies

In certain tribes initiation ceremonies are performed at the time of reaching puberty. According to this ceremony the genital organs are considerably mutilated and there is a probability that this has an injurious effect, reducing the fecundity and perhaps in more extreme cases causing complete sterility. But authorities are not agreed on the point that the mutilations of the genital organs in any of these ceremonies reduce the reproductive power. Carr Saunders thinks there is, "no reason to believe that this mutilation has any effect upon fecundity except possibly among the Australians."[2]

Among the number of tribes there is a general sexual indulgence with the girl when she is initiated. Just how this unrestricted, compulsory and excessive sexual indulgence affects the fecundity of the initiated girls is not known. Since prostitutes and charity girls are often sterile, it is quite probable that excessive copulation greatly reduces the fecundity. Hence, the unrestrained coition among the girls initiated probably reduces their fecund powers.

3. Delayed Marriages

Among human societies marriage usually takes place around puberty but the average age for marriage differs with different groups, *e. g.* in many tribes the average age for marriage is bet-

1 Carr Saunders, *The Population Problem*, 1922, p. 23.
2 *Ibid.*, p. 138.

ween 25 and 30 for males and around 20 for females. There are reasons to believe that marriage in civilised society is gradually being delayed. Carr Saunders opines that "there is a very large amount of evidence which shows that...marriage was often postponed both for men and women. This postponement was brought about by the pressure of social conditions, customs, and laws."[1] This extended delay in marriage limits the possible number of children. Dr. Duncan thinks that young women are more fecund than older women still in the reproductive period. Dunlop thinks that a "year's delay in the marriage when the woman is aged from 20 to 25 averages 0.45 of a child to 0.37 when she is aged from 25 to 30, 0.32 when she is aged from 30 to 35, 0.29 when she is aged from 35 to 40 and 0.19 when she is aged from 40 to 45."[2] He thinks it would take a period of forty years on the part of a man to reduce a family to one child.

4. The Prolongation of Period of Lactation

The nursing period is almost always prolonged among the tribes. It is usually extended to two or three years and often much longer as in Central Australian tribes, the Andaman Islanders, Eskimos. The habit of prolonged suckling is also common in India and in popular opinion, supported by medical testimony, it results in decreased conceptivity. In Europe and America, influenced by ideas of preservation of beauty, the mother generally does not feed the child at the breast at all or if she does the child is weaned much sooner than in India. According to medical authorities, lactation prolonged beyond nine months or a year is harmful both to mother and child, which is another reason why it is avoided in Western countries. The general prevalence of the practice in India is recognised as an appreciable factor tending to restrain the growth of population. But Carr

1 *Ibid.*, pp. 264-6.
2 Quoted by H. G. Duncan, *Op. Cit.*, pp. 304-5.

Saunders doubts the validity of lactation as a means of checking the population growth. He says, "There is a considerable amount of evidence to the effect the the continuance of lactation to some extent inhibits heat in animals and menstruation in women."[1] In some cases, observes Dr. R. M. Singh, "Conception is known to have occurred as soon as the woman came out of her confinement and lactation continued."[2] Dr. Kopp has observed 884 women in this respect and found that 56 per cent conceived during lactation.[3]

5. Tabooed Coition and Celibacy

Not only is the period of lactation extended over a number of years but that copulation is absolutely prohibited during this period. Regarding China, Gray states that among the Chinese "a husband is not expected to cohabit with his wife after she has conceived, nor after the child is born during the whole period that it is being nourished at the mother's breast."[4] There are periods such as before the crops are planted, or on religious days like Mahashivratri, Deepavali, the days of solar and lunar eclipses, or the days when a man has a shave and a bath when copulation is prohibited. Manu enjoins separation from the wife at new and full moon. But the prohibition of copulation during the planting, hunting, and belligerent periods is usually for short duration and does not affect population to any considerable degree. Sometimes, however, the period was for a year or more—when the husband absented himself from his home for months together for failure of rains or in search of employment elsewhere—and such conditions evidently reduced the increase.

Although very little celibacy among the tribes is to be found, yet evidences are available which

1 Carr Saunders, *Ibid*, p. 102.
2 R. M, Singh, *A Guide to Healthy Happy Sex Life*, 1948, p. 242
3 Marrie Kopp, *Birth Control*.
4 Gray, *China*, 1878, Vol. I, p. 185.

show that there were some religious celibates in Egypt, Chaldea, Rome, India, and Tibet such as the Persian Sun Priestesses, and the Vestal Virgins of Rome. Celibacy began to increase and laws were enacted in Greece and Rome to stop it. In spite of the laws an increasing number of Romans refused to enter the married state. Concubinage and prostitution grew by leaps and bounds as men sought to satisfy their passions without assuming the cares of married life. With the rise and spread of Buddhism and Christianity celibacy took on a religious nature, increased rapidly, and undoubtedly had an effect on population from both the quantitative and qualitative standpoints. But these creeds did not retain power long in this respect and after a time many of the religious leaders began to oppose celibacy and advocate large families.

6. The Prevention of Fertilization

Many tribes had certain practices and ceremonies which they believed would prevent fertilization. Brown writes about the inhabitants of New Britain, "The women I believe eat some leaves to prevent conception, but none, so far as I know, to increase it."[1] Junod gives an interesting account of the methods employed to prevent fertilization. The girls drink the juice of a certain herb which prevents conception and often renders them barren through life. In Africa, writes Carr Saunders, "Many races are acquainted with means of preventing fertilization. This practice is employed under two different circumstances. Measures may be taken to prevent conception by those who are not married and who do not wish to be married for some time. They may also be used by married people under certain circumstances, as for example, by parents in the Thonga tribe who may have intercourse when the child begins to crawl, but who must avoid conception until the child is weaned."[2]

1 Brown, *Melanesian and Polenesians*, 1910, p. 38.
2 Carr Saunders, *The Population Problem*, 1922, p. 17.

Without doubt the ancient Greeks, Romans, Jews, Arabs, German tribes, Chinese, and Hindus knew something of preventing fertilization and about the use of contraceptives. The methods known seem to have been used chiefly for special reasons and not to have influenced population to any great extent. Thus it may be observed that birth control in the sense of population control is as old as man. For over three and a half thousand years, man has known after a fashion not only how to control births, but also how to control conception, in one way or another—mostly by rude and rule-of-thumb methods—celibacy, delayed marriages, abortion, infanticide, killing the old, observing prolonged lactation period, human sacrifice and pre-puberty coitus. But birth control in its modern sense is only a century old.

IV

NECESSITY FOR THE USE OF POPULATION CONTROL MEASURES

Uncontrolled procreation in modern times involves serious national and personal problems, which were unknown in the old days when in all countries populations were kept down by epidemics, famines, wars and other similar causes. Since the middle of the last century the population of the world has been expanding very rapidly than the means of subsistence because of the advancement in the ways of living which have put a great check on epidemics, famine and wars, etc., as well as development in the medical facilities. The increasing population has resulted in a great burden on the resources of the country. Millions are without jobs, many millions are underemployed, while a large majority of the population is under-fed, under-clad and under-housed. Their condition is simply indescribable. Under such circumstances it is better that the future growth of the population should be checked.

According to Mrs. Sanger the population control should have three objects in view.

The first object is to achieve cultural progress rather than military advance.

Second, Research institutions should be established by the scientists classifying basic factors in eliminating harmful dysgenic births in the nation.

Third, Co-operation in educating the population to consider the cultural qualities of offspring and efface the egotistic desire to perpetuate the self in offspring.

Basic principles of the planned parenthood movement will help to achieve these results.

The need for the use of birth control methods

arises from the following reasons which may be discussed under three heads as below :—

(a) Economic. The economic reason is the chief reason for limiting offspring and perhaps underlies many of the reasons commonly offered. Owing to the changing and unstable conditions in the urban areas where the problem of overcrowding is very acute and the living and medical facilities very costly, many couples prefer to have but few children for fear that they may not be able to secure employment and support a large family ten or fifteen years hence. Certainly the father whose wage-earning power can properly feed, house and educate three, even four children, should not and cannot have eight, ten or twelve children. Many parents therefore show greater concern for their children and prefer to have a few and give them an opportunity in the world rather than have a large number of children and not be able to offer them any advantages. Their philosophy is "Quality is better than quantity." Similarly, many women folk who once enter into service, either mining, industry or instruction or any other job cannot spare the time for pregnancy, child-birth and the rearing of children.

(b) **Social.** Women have grown weary of the monotony and toil connected with cooking, washing, cleaning, and other domestic duties, and accordingly they have begun demanding socially and professionally more self-realization and as a result they have now begun taking active interest in education. The more time and energy a woman puts into education, the more likely she is to continue with her individual career. Though a few educated women forego marriage and motherhood, many do not. There is a tendency, however, for those who marry to keep family small enough to enable the mother to devote part of her time to other activities outside her house. The young wife and often the young husband have been accustomed to many luxuries during single life. Conse-

quently after marriage a contest between luxuries and babies ensues. The situation is further complicated by the fact that certain luxuries are imperative to their social positions and their income is often too low for retaining these luxuries and the rearing of children.

(c) **Physical.** Some women refrain from bearing children because pregnancy practically forces them to remain at home for several weeks and even months in case of women of weak physique. Others have a fearful dread of the pangs of child-birth, and many husbands feel it not to have any more children in the interest of their wives' health. Physicians also advise in the interest of mother's health the couples to have at least three years between child-births if they wish to produce healthy children and the mother to retain her vitality. Although child-bearing is a normal physiological function in the case of healthy women it causes an undue strain on those who suffer from certain diseases—like the heart disease, diabetes, chronic nephritis, tuberculosis, kidney disease, goitre, active rheumatoid, arthritis, grave's disease, or leukaemia—which so devitalise a woman that the added pregnancy and child birth may cause grave danger to her health and endanger even her life. The prevention of conception will in these cases result in infants not being brought into existence. Apart from any specific disease in the mother, continued child bearing with little or no interval between successive pregnancies may itself constitute an undue strain on her physical condition and spacing of birth so as to allow a return to normal health which may prove to be definite necessity.

According to Dr. Fedrick C. Holden, "Spacing children means the planning of each conception and pregnancy with a view to the best time and season for both mother and the child. Even with a healthy mother and a sound inheritance of bodily and mental endowment on both sides, too frequent

and too numerous pregancies are to be avoided as undermining to mother's health and as taking her from the care of her living children. When the mother is not entirely well and the endowment not of the best, spacing and limitation are more necessary."

It has been calculated by Dr. Woodbury in his "Maternal Mortality" that of the children born after an interval of only a year 147 out of every 1,000 fail to reach their first birthday ; after an interval of two years an average death rate of 99 per 1,000 during their first year of life ; and those born after three years only 86.5 per 1,000. In this connection are also given below the figures of infant mortality percentage as provided by Dr. Norman Haire[1] :

Of all first born children...infant mortality percent is				22.9
„	second	„	...	20.4
„	third	„	...	21.2
„	fourth	„	...	23.2

From here the infant mortality increases progressively from 26.3 for the fifth born children to 59.9 for the 12th born children.

In another table published in a Danish book by Drs. Bruine and Lange we have the following table :—

In families with	one	child	infant mortality % is		20.1
„	„	two children	„	„	19.1
„	„	three children	„	„	25.1
„	„	four children	„	„	23.4
„	„	five children	„	„	24.5

And thereafter the infant mortality increases progressively to 52.5 in the case of families with nine children.

1. Quoted by Norman Haire in *Some More Medical Views on Birth Control* from Dr. Rutger's *Eugenics and Birth Control.*

With such statistics staring us in the face, it is only blindly fatalistic persons that can be opposed to birth control. At this stage it must be remembered that the object of the practice of contraception is not merely to diminish the size of the family as a whole but to space the births, *i.e.* to provide proper intervals between two successive births. The following table from Stopes' "Contraception" illustrates this point :

Interval first one	year	infant mortality	is	35.5%
„	one to two years	„	„	25.5
„	two and over	„	„	18.5

Stopes also says, "Modern Gynaecology clearly teaches that, at least two, preferably three, and in some cases even five years should intervene between successive pregnancies in the interest of both the mother and the child". And Dr. Norman Haire says it should never be less than $2\frac{1}{2}$. Generally the first interval may be $2\frac{1}{2}$, the latter intervals should be at least four so that if a woman becomes a mother for the first time at the age of about 19 it is clear that within the age of 35 she should not have more than four or five children.

Mrs. Sanger opines that the spacing of children in a family where husband and wife are in good health should be from two to three years. If the family is plannad for four children, the first two could be a year or 18 months apart. Then a spacing of two years before another pregnancy is contemplated. Two more children 18 months apart bring both groups together with fair spacing, to consider the mother's health, the father's earning capacity, and the standard of living the parents are ambitious to maintain.

(d) **Eugenic.** Rural investigations in Lucknow district, indicate that the spacing of births is of the order of 2 to 2·5 years while urban investigations show that the spacing is 2·6 years for samples of 800

to 1000 couples. Miss Seth's study, covering 1000 couples in the cities of Lucknow and Kanpur show that the average spacing between the first and second birth is 2·2 and between the second and subsequent births 2·3 years 61% of the second births occur within a period of 2 years after the first birth. 50% of the third and subsequent births occur within 2 years.

In an epidemiological study of the population in Ludhiana, it was found that the average interval between children was 2·5 to 3 years.

In the interest of the nation it is very important that persons having a transmissible or hereditary diseases should not have children. Persons showing one or more of these conditions : epilepsy, feeblemindedness, mental deficiency, deaf-mutism, nervous disorders, asthma, blood diseases, heart disease, kidney disease, skin diseases, goitre, diabetes, cancer, tuberculosis and venereal diseases like syphilis, or gonorrhoea, etc. should be checked from undertaking the venture of procreation by strict legislation, so that the society is not full of imbeciles, idiots, infirms or socially inadequates.

It is a matter of common knowledge that social customs in the society are such that many of our eugenically fit cannot have families because of low salaries and a number of traditions to which the people are accustomed. Without doubt, "thousands of these young men and women, physically and morally strong, would gladly marry if they knew that they could restrict their family so as to rear a few children well. But their fear of large families retards and often prevents their happiness and *ipso facto*, the procreation of a better and stronger motherhood and womanhood. The woman withers away in sorrowful maidenhood, and man, yielding to overmastering sexual instincts, seeks relief from unfortunate and often diseased prostitutes with the resulting propagation of venereal diseases and all the dire consequences, sterility, extreme

physical and mental suffering, infection, pelvic disorders, miscarriage, premature labour, and a a dead child or one tainted with disease, a cripple or an idiot[1]."

Thus it is an undisputed fact today that the extended use of contraceptive measures is the most powerful weapon and direct means of controlling fertility without checking the enjoyment of sexual intercourse besides eradicating and eliminating the hereditary diseases from the society.

Contraception makes the eugenic aim a possibility without inflicting undue or intolerable hardship on the individuals, condemning them to celibacy, loneliness and unhappiness.[2] It also prevents unwanted pregnancies and does away with the necessity for the skilled and unskilled abortionist. Further, the spread of knowledge of contraception is primarily intended for the married and when such knowledge is published, in expediency, as a preventing measure against the spread of venereal disease, it would be clear that promiscuity and illicit intercourse are neither expected nor condoned by the State or Society.

1 Dr. Knopf quoted by Dr. Duncan, *Op. Cit.*, p. 349-50.
2 R. H. Boyd, *Controlled Parenthood*, 1947, p. 8.

V

BIRTH CONTROL CONTROVERSY

The problem of birth control or controlling the unprecedented fertility among the human beings is one of the live questions in the modern world. Undoubtedly there are two sides to the question, for birth control, like an automobile, can carry us in either direction. The advocates of the birth control think that by the use of contraceptives poverty can be stamped out and the feebleminded and other pathological stocks greatly reduced and the standard of living of the people raised. The opponents see in it murder and national decline besides great increase in immorality. Irving Fisher says, "There are three possibilities :—

(1) It may cause depopulation and ultimately bring about the extinction of the human race ;

(2) It may reduce the reproduction of the prudent and intelligent and the economically and socially ambitious, leaving the future race to be bred out of the imprudent, unintelligent and happy-go-lucky people, thus resulting in race degeneration ; or

(3) It may cut off the strain of the silly and selfish, the weak and inefficient who will dispense with children for the very good reason that they lack the physical stamina or the economic ability to support a large family[1]."

The commonest and the most frequent objections to the limitation of families can be stated as follows under four heads :—

(1) That the movement for birth control is irreligious and opposed to the Divine Will.

(2) That it leads to clandestine immorality, and is therefore contrary to high ethical standards of life.

(3) That it is likely to lead to race extinction.

(4) That it is unnatural.

1 I. Fisher, *Impending Problems of Eugenics*, p. 223.

1. Religious Argument

About the first objection it may be said that a large number of persons are against the use of contraceptives because they do not understand the meaning of them. They apparently believe it is murder because they do not distinguish between the prevention of conception and the dangerous, injurious and degrading practices of abortion and infanticide. It may be pointed out that by the use of contraceptives the spermatozoon is prevented from reaching the ovum, and when there is no conception there is no embryo and when there is no embryo the question of its murder does not arise. In fact, one of the strongest arguments for the use of contraceptives is that it will stamp out abortion and infanticide.

Some people argue that the use of contraceptives is impure and degrading. But to this objection it can be said that the interest in sex is too fundamental to be destroyed and any attempt to put it out of consciousness really puts it in unconsciousness and causes it to be associated with loathsomeness and sexual preversion. Blocked emotions take many forms, causing some to engage in abnormal practices; others, to develop the sex complex and to oppose anything referring to sex. Secrecy, deprivation and taboo seem to develop curiosity and impure mindedness which are difficult to remove even by sane and open discussion.

In general, the religious objection to birth control is based on the fear that the followers of other religions may outbreed the followers of the particular religion in question. The religious idea that marriage is a sacred institution and that every one should enter into it and beget as many children as possible reflects the underlying assumption that large numbers are necessary to profess, propagate and glorify their particular creed.

The Catholic Church's opposition to contraception is based specifically on Pope Pious XI's

Encylical on Marriage. He warns that, "any use whatsoever of matrimony exercised in such a way that the act is deliberately frustrated in its natural power to generate life is an offence against the law of God and of Nature and those who indulge in such are branded with the guilt of a grave sin". Thus they consider birth control as being essentially immoral because they believe that birth control implies the limitation of the family by artificial prevention of conception, This is considered an unnatural perversion, "for it goes against the order intended by God and defeats the immediate end of a natural human act." The Catholic Church has put forward a hundred other objections and Edward B. Reuter sums them up as :

"Birth control is injurious to health, leads to abortion, arises from a pagan view of life, leads to divorce, its methods are not certain, it injures the minds of men and women, it leads to prostitution, it lowers the standards of married life, it leads to mental disorders, it leads to unhappiness in marriage, it destroys mutual self-respect, it leaves no check on the passions, it is dangerous in the hands of boys and girls, it results in childless marriages, it undermines the strength of the couple, it diminishes conjugal fidelity, it seems to weaken moral sense, it weakens social relations it is incompatible with the traditions of marriage in Western civilization." It does not need any great intelligence to refute these fantastic and irrational assertions, and therefore no serious notice need be taken of them here.

Nevertheless in fairness to the Catholic Church, it must be pointed out that today their quarrel is not with the end of controlling of conception but with the means, that of scientific contraception. It sometimes considers family limitation as perfectly ethical, and sometimes obligatory and for this purpose they advocate moral restraint in marriage and if this ideal is unattainable, they advise the married man to resort to the "safe period"

or control by abstinence and continence. The declining birth rate in Catholic countries would seem to show that members of this Church use contraceptives almost as freely as do the Protestants. "A new science, writes Rabbi Wise, "has arisen to command parents not only to 'honour thy son and daughter' but also to honour life in all its sanctity and divineness as to leave a child unborn-if they be unfit for the office of parenthood." He further says, "Although the duty of parents to their child is high, the highest of all at times may be the duty of leaving children unborn. Race suicide is bad, but an unguided and unlimited philoprogenitiveness may be worse."[1]

2. Arguments on Moral Grounds

The second objection, which people often advance, is that the use of contraceptives leads to immorality, promiscuity and the spread of venereal diseases. They maintain that overt immoral conduct—especially among young unmarried people, will be encouraged since the fear of consequences —*viz.*, the arrival of children—is absent. A lurid picture is painted of what would happen : "The temptation to illicit intimacies would be made greater ; the process of seducting innocent girls would be made easier ; the ever-present lure of prostitution to the underpaid girl worker would be made more difficult to resist, if only an assurance would be felt that the arrival of a baby, hitherto a generally prevalent and effective deterrent, could be prevented by the popularization of cheap contraceptive techinques." But this fear is altogether wrong. Mr. Cox defines that "there is no ground for the fear that the knowledge of means to prevent conception would necessarily increase prostitution or the number of irregular relationships. But on the contrary some of these irregular relationships are due to the fact that many people are prevented from entering into the holy state of matrimoney by fear

1 S. S. Wise, *Child* versus *Parent*, 1922, pp. 12-13.

of unwanted children. The knowledge of methods of preventing children would hasten marriages rather than prevent them and to that extent reduce the evils of promisouity."[1] Somewhat same opinion is expressed by Mr. Chandrasekhar. He remarks, "In most civilized countries, young men and women do not marry for economic reasons ..... But some of them, being what they are, are forced to seek other channels as outlets for their normal and natural craving. This gives rise to a professional class of prostitutes to cater to the physical needs of these youths. In these circumstances, birth control will be a positive help because they can get married, lead normal and happy lives and regulate the arrival of children in accordance with their economic resources. In fact, the wide adoption of birth control will increase legal, normal and happy marriages and reduce vice."[2]

Thus advocates of the birth control point out that there is no real danger and that immorality, venereal diseases and births of illegitimate children have decreased and more definite opposition of prostitution has developed in those countries where the knowledge of contraceptives is widespread. By reducing the great number of illegitimate births or rather illegitimate parents, the birth control raises the "moral level" of a society to a higher level. So says Dr. A. Knopf, "Even our moralist must acknowledge that many a girl married early to a man of her choice, enabled by understanding to limit the number of children would be saved from what is called dishonour and in many instances from prostitution."[3]

In India Mahatma Gandhi has objected to the use of contraceptives on the moral grounds. He regards sexual union without desire for children

1 Cox, *The Problem of Population*, p. 138.

2 S. Chandrasekhar, *Demographic Disarmament for India*, (1951), p. 24.

3 Knopf, *Birth Control and the World Crisis*, Quoted by Dr. Duncan, *Op. Cit.*, p. 338.

as criminal and immoral in the case of married couples. He says, "It is one thing when married people regulate the number of their progeny by moral restraint and totally another when they do so in spite of sexual indulgence and by means adopted to obviate the result of such indulgence. In some cases people gain in every respect; in the others there is nothing but the harm."[1] It is clear that Gandhiji believed in the need for controlling births but did not approve the use of contraceptives. He granted the ends but opposed the scientific means. To him, human sex intimacies without the end-result of children were a crime. While he was anxious to give relief to women from excessive child-bearing, he felt contraceptives dangerous to the moral and nervous health of the community.

The opposition to birth control is based upon the nature of the means employed rather than with reference to the motives. There can be no more effective reply to this objection than the one given by the British Committee on the Ethics of Birth Control. "Civilization itself has been the story of man's control over nature, mainly by mechanical means. Medical opinion has been somewhat slow to support birth control but the Medical Committee of the British National Council of Public Morals has declared unanimously that "no impediment should be placed in the way of those married couples who desire information as to contraceptives, when this is needed for medical reasons, or because of excessive child-bearing or poverty." With wider use of contraceptives, health and longevity have increased and infant mortality has decreased. In this connection it is worth while to note what Dr. C. V. Drysdale of the Neo-Malthusian League of England has said, "Nothing can do away with the fact that as birth rates have declined (in the West) the longevity of both men

1 M. K. Gandhi, *Self-Restraint* versus *Self-Indulgence*, p. 8.

and women has enormously increased—from 35 to 45 years before birth control commenced to 60 to 65 years today, and that is still rapidly increasing. Moreover, recent figures have shown that the improvement in the death rates has taken place to a most remarkable extent, especially during the reproductive period, both in men and women."[1]

It has also been pointed out that birth control has resulted in the advancement of material well-being, in the elevation of the status of the wife, and in the promotion of the health and education of the children when the intervals between them are adjusted to parental health and resources.

Birth control offers simple solution to the conflict between the desire for mating and the desire for the use of birth control measures mainly on the moral grounds. In countries where birth control is being widely used, it is mainly used by married couples to prevent the birth of unwanted children. But it is true too that it is being also used for purposes which have not the sanction of the tradition. Hosts of normal persons in U. K. have not only had easy access to the means of birth control for a long time, but they have constantly applied them. But to assume that they have indulged excessively and to their undoing is in accordance neither with everyday experience nor with the Registrar General's Statistics.[2] In some countries like U. S. A., the use of birth control for pre-and extra-marital sex relations has become fairly common and presents new problems of social ethics. That is partly due to laxity of conduct on the part of less responsible members of the community but the main reason for these developments is the changing standard of sex conduct about which there is and bound to be a sharp disagreement of opinions.

1 Quoted by D. Ghosh in his *Pressure of Population and Economic Efficiency in India*, 1948, p. 105.

2 F. W. White, *Birth Control and Its Opponents*, p. 142.

Some abuse there is of the freedom from the consequences of sexual unions which contraceptives secure, but the evil does not seem to be as serious as it is made out. The opponents of birth control say, "It is checking Nature because it means having the pleasure of sex act and escaping its consequences and Nature forgives or permits its laws to be violated with impunity. Nature, they say, is already having its revenge and its lesson is writ large in the figures of broken homes owing to increasing divorce, senseless pursuits of the pleasure of senses, wide prevalence of certain venereal diseases and the general lowering of the moral tone of the community " All these results have followed because a majority of people in the countries in which the use of birth control has become common have b-en taught to regard lust as right in itself and a necessary and essential condition of human happiness and conjugal harmony.

I am, therefore, of the opinion that if contraception became popular it would at least abolish the problem of unwanted children, even if it did increase at the beginning the ever-existing, age-old problem of clandestine relations of unmarried or extramarital relations. True it is that every socially necessary device or institution is bound to be abused by a microscopic minority. But the abuse of a specially useful device is no argument against the device itself. e do not condemn razors, useful for shaving, because a few use them to commit suicide or homicide ; nor do we close up our tanks and wells because some people are drowned in them. Then why should we oppose such an important device for checking several ills ?

3. Arguments on Racial-Suicide Ground

The use of contraceptives is also objected to by those who revile birth control as "racial suicide". They are of the opinion that such measures are more likely to be practised by the

more prosperous and intelligent sections of the populations rather than by the poor who, though in great need of it, are owing to abject poverty, ignorance and illiteracy, the most reckless and improvident and among whom women occupy lower status and have to pass through the ordeal of child-bearing often against their will. This they say, will result in population increase at the wrong end of the social scale and the birth control will lead to a progressive deterioration of the people's progeny. A continued high birth rate among these classes, if accompanied by a marked fall in the rate of growth of the more energetic, intelligent and ambitious sections of the population, may be fraught with serious consequences of national welfare. But this view is not sound because it does not mean that the children of the poor will always be inferior while those of the upper classes always be superior. The fact may be due to their being not properly looked after in a poor family owing to their excessive number. Hence, the remedy is to make available to these poor the best and cheap types of contraceptives.

Some people oppose the use of contraceptives on eugenic grounds because they think there is a developing process that goes with parenthood and that because of the use of contraceptives there will be an excess of single-child families. Undoubtedly desired parenthood causes the best qualities to develop in the parents. There appears to be a physical as well as a psychical development with parenthood. On the other hand, thousands of women, because of pelvic deformation and various diseases, cannot give birth without sacrificing their own lives and as a result many die because of child-bearing. The dread of undesired pregnancy is such a nightmare in the lives of millions of women that it brings on nervous diseases and often premature death. Kirch asserts that "the continued fear of pregnancy will in most cases do more

injury to the feminine system than all the preventive measures in the world."[1]

In favour of birth control it may be pointed out that the use of contraceptives does not necessarily mean more one-child families but more small families. One strange thing of the modern civilisation is that we build many kinds of institutions to care for our unfit and at the same time seek in many ways to burden and curb our superiors. "Fostering the good-for-nothing", said Spencer, "at the expense of the good is an extreme cruelty. It is a deliberate storing up of miseries for future generations. There is no greater curse to posterity than of bequeathing them an increasing population of imbeciles." Hence, it may be maintained that in order to stop this ever-growing burden on the superior type of the stock the use of birth control devices should be made more popular by the society as well as by the government concerned.

4. Arguments on Unnatural Ground

Some say that birth control is unnatural. On this view of things every act of human intelligence should be considered unnatural. In that sense, the whole life of man from the cradle to the grave is unnatural. It is unnatural to wear clothes, it is unnatural to use motor-cars and electric lights. It is unnatural to cross the Oceans while going on a voyage in a liner (it being more natural to swim over). It is unnatural to shave, it is unnatural to read and write and it is unnatural to take medicines. To close the natural check to population by unnatural methods of inoculation against cholera and small-pox and the distribution of food against famines and floods, and then to object to artificial birth control on the grounds that it is unnatural is illogical. To feed our children on cooked foods which have none of the cleansing properties of raw food and then to oppose their cleaning teeth on the ground that it unnatural to use

1 Quoted by Duncan, *Op. Cit.*, p. 345.

brush and paste is to court the practical possibility of stinking teeth and children.

It may thus be said that our modern civilisation is nothing but a bold and daring interference with Nature. We are constantly controlling, directing and thwarting Nature to serve our purposes rather than her own. And users of contraceptives cheat Nature far less than she cheats herself, for out of over 5 million sperms ejected at each orgasm, only one finds its way to the ovum to fertilise it, and the rest die after a fruitless existence.

Those who advance this objection of unnaturalness would have us revert to the levels of animals, for animals largely adapt themselves to nature, whereas man has progressed beyond the animal level by his "interference" with Nature. Further, if it is permissible to interfere with Nature in other fields, why should we not be 'unnatural' in the intimate aspect of our personal lives, that of reproduction? Why should human reproduction alone be left to the casual vagaries of Nature's primordial impulses and animal instincts? On the contrary, this interference with the normal process of Nature should be welcomed, based as it is on planning, foresight and control.

5. The use of contraceptives is also objected to by the political and militaristic leaders because the former desire some voters and the latter some soldiers, France's, Italy's, Belgium's and Russia's attitudes for the last few years bring out this very clearly. These countries have advocated the policies for rearing large families so that their country may not be subject to the country of "dying races". For this purpose a number of measures have been adopted like the decrease in tax in favour of large families and high taxes on childless couples and bachelors; giving houses and rewards for large families, provide cheaper housing facilities, arranging special advantages for larger families such a reduction in rail-road rates, allow salary bonuses for fathers of large children, etc.

6. And last but not the least the use of birth control devices is also objected to by the class of industrialists and the manufacturers, who want to have an abundant supply of labour and to secure this end they advocate large families, a liberal immigration policy, or any other policy which enables them to have plenty of cheap labour. They see that the unrestricted multiplication of their working classes, by causing a competition for wages, will create a cheap labour market. "Family limitation by the workers lessens the number of wives and children forced into the factory, and spares the worker," writes Ross, "the necessity of taking the first job that offers. It raises wages at the expense of profits and hence is anathema to the hiring class. Employers yearn for a crowded labour market, which provides them all the labour they can use in brisk times, and, in ordinary or bad times, causes a competition for employment which gives them the whip-hand."[1]

The use of contraceptives and the eugenic measures will be opposed because the oft-repeated quotation of Professor T. N. Carver remains true, "Foxes think large families among the rabbits highly commendable. Employers who want large supplies of cheap labour; the religious leaders who want large number of their followers, military leaders who want plenty of cheap food for gunpowder, and the politicians who want plenty of voters, all agree in commending large families and rapid multiplication among the poorer classes."

1 E. A. Ross, *Standing Room Only*, p. 205.

VI

NEED FOR POPULATION CONTROL IN INDIA

The population problem in India has become shocking for some decades. India's population problem arises primarily out of an extremely high fertility accompanied by high mortality, which is happily now only slowly declining. The resulting increase which amounts to more than four or more million a year apart from the very low survival rate, need not constitute a problem if an overwhelming majority of the population not to speak of everyone enjoyed the irreducible minimum requirements of decent human existence in terms of food, health, clothing, shelter, education, employment and leisure for recreation. But this is not so in India and what is worse, is the well-known and depressing qualitative aspect of our population problem. As the quality of the people is related to the quantity it cannot be improved without controlling the quantity.

Population needs to be controlled for following reasons :—

1. The Ill-health of Indian Mothers

We are a much marrying people, we marry early and we marry in large numbers. This characteristic is responsible for a high fertility rate among our females. According to the countrywide sample census of births and deaths an average Indian woman gives birth to between six and seven children during her reproductive period as against only 5·3 in Japan, 3·3 in U. S. A., and 2·6 in England. Early marriage and high fertility lead to a large number of births and every child birth puts enormous strain on the health of a woman and quick following pregnancies not only damage and shatter the health of the mother but also encroach upon the care and attention which each child

should properly receive from its parents. In such cases there is evidently a large field for the use of contraceptives so that the married couple is relieved of the haunting fear of unwanted children and give them opportunity to cultivate beauty and delicacy in sex life. And with this freedom will come a new feeling of responsibility both in respect of sex association and of the children who may be born of it. Used within the context of a positive sex morality, contraceptives would elevate and not degrade human nature. Besides, the use of contraceptives will also provide necessary spacing between the birth of children so that enough time is left between two pregnancies to allow the woman to recoup her health taxed by the last pregnancy and to allow her last child to grow up sufficiently so that it no more needs her nursing and she is not burdened with babies at a time.

2. High Infantile Mortality and its Attendant Evils

In our country human life, from conception to death, is subjected to needless, preventible and incalculable misery, suffering and unhappiness. It is difficult to comprehend the tragic loss due to illness, injuries, impairments and premature deaths and the enormous economic cost of this loss and wastage to society. Every day we witness the anguish and agony of sudden loss, protracted pain, maimed bodies, warped minds, maladjusted personalities from conception through infancy, childhood and adolescence into old age. Though the causes, conditions and consequences of such human erosion and loss are extremely complex, they can be conquered by now known science and all the knowledge it has yielded us. There are unnecessary and disproportionately large pre-natal losses, still and premature births, permanent maternal disability and premature maternal deaths. Then there are infant deaths. About 50 per cent of the deaths occur among child-

ren under ten years as against only 9.7 per cent in U. S. A., and 5.3 per cent in England, the proportion of such children to total population being 26.1 in India, 19.6 in the U. S. A., and 15.7 in England. The maternal mortality rates in the reproductive ages are generally higher than those for males in almost all the States of India. Among the infants those who survive the first year or two have to undergo a catalogue of infantile ailments resulting in disabilities and handicaps, delinquency and crime. Those who survive the adolescent years have to face another set of adult diseases arising from want of public sanitation and hygiene, hunger and squalor and inadequate preventive and curative medicine. And above all is the the short expectation of life which means that life is ended just when it has begun to be useful. Hence, in a country like India the conservation of human resources is therefore a matter of primary and fundamental importance. This conservation can best be brought about by the increasing use of contraceptives both among the middle and lower class people.

3. Existence of a Large Number of Social Inadequates

In India the number of defectives, infirms and the socially inadequates and diseased persons—whose diseases and defects would be transmitted to their offspring—run to several millions. At present lakhs of such people are producing children who are doomed to suffer for life and remain burdens on the society and as a result of tainted heredity and maintenance of inferior environment among the mental defects a trail of crime, murder, pauperism, prostitution and illegitimacy is generally found on the increase in the country. Besides, we in India are adding every year to the millions of unemployed and semi-unemployed and a considerable portion of these are social inadequates and the mental defectives. Hence, some sort of

population check among the definite types–vagabonds, criminals, prostitutes, mendicants, and among the persons showing one or more of these conditions: insanity, feeble-mindedness, epilepsy, venereal diseases, and consuming diseases like tuberculosis, diabetes, heart weakness, etc. must be put. This would not only decrease the present cost of these unfortunates to the society but also diminish the economic handicaps of social normals besides reducing the number of undesirables very rapidly. Such a check can be brought about either by following a programme of compulsory segregation or sterilization.

4. Poverty of the Families

Apart from national considerations, for personal and family considerations also birth control is a necessity. A poor father with limited sources of income can hardly feed, clothe and give decent education and other comforts of life to a large number of children. Even proper medical and parental care is not available to a large number of children in a family because of the same financial drawback. It is a truism that a man of limited resources can do more for his children when they are few than when they are many. For a people so deeply sunk in poverty as our own, it is impossible to take adequate care of the children, in the shape of feeding, nursing and medical assistance, even if they were educated and familiar with the laws of hygiene and sanitation. This is the condition of not only the poor but also the middle classes and the peasantry in the country.

In my opinion therefore birth control is more essential among the middle class than among the peasantry and the proletariat. In a democratic country it is the middle class who have to wield power and it is to them that the country looks for help and guidance. The middle classes are all the more important because of the small numbers of the upper classes and the political disinherit-

tance of the very poor. But unfortunately in India the middle classes are the most wretched of all the classes. It is the middle classes with miserable moral codes, their unhealtby ways of living, their anti-deluvian conventions and their unemployment problems that stand in urgent need of controlled and well-ordered life.

VII

INDIAN PUBLIC OPINION AND POPULATION CONTROL

India's need of birth control is recognised both by our national leaders as well as the experts and the various authoritative committees set up by the Government. As early as 1931, the Census Commissioner for India had remarked, "The increase of population is from most points of view a cause of alarm rather than of satisfaction..." He suggested that, "in view of the present rate of increased efforts to reduce the rate of infantile mortality it should be preceded by precautions to reduce the birth rate and that if the luxury of "Baby weeks" be permitted, they should at least be accompanied by instruction in birth control."[1] The Public Health Commissioners of India had also issued such a warning in 1931 and in the following years.

Netaji Subhas Chandra Bose in his Presidential Address at the Haripura Session of Indian National Congress in 1936, said, "With regard to the long-period programme for a free India, the first problem to be tackled is that of our increasing population. I cannot go into details as to whether India is over-populated or not. I simply want to point out that where poverty, starvation and disease are stalking the land, we cannot afford to have our population mounting up by thirty million during a single decade. If population goes up by leaps and bounds as it had done in the recent past our plans are likely to fall through. It will therefore be desirable to restrict our population until we are able to feed, clothe and educate those who already exist. It is not necessary at this stage to prescribe the methods that should be adopted to prevent a further increase in population but I would urge that public attention be drawn to

1 *Census of India* for 1951, Vol. I. Pt. I.

this question."[1] This epoch-making pronouncement by the nation's chosen leader is a striking proof of the growth of public opinion in favour of population control.

In 1933 the All-India Women's Conference passed a resolution that birth control be included in all municipal public health services.[2] Similarly in 1935 the All-India Medical Conference also passed the resolution. "This Conference recommends that instruction in Contraception Control methods should form part of the curriculum in medical colleges and schools." In 1938 Shri B. G. Kher in his Opening Address at the All-India Population and Family Hygiene Conference said, "There are few countries where the question of population threatened to become as acute as in India. The rapid increase has provoked anxious thought in all responsible quarters. The method of birth control will help to solve this distressing problem of our populatiou to a great extent."[3]

Nation Planning Committee's Views

The National Planning Commitee with Sri Jawaharlal Nehru as its president, resolved in 1938, "It is desirable to lay stress on self-restraint as well as to spread knowledge of cheap and safe method of birth control." This Committee submitted its Report on Population in 1948 and therein it suggested the following measures[4] :—

1. The Government should insist that the courses on contraception are included in all medical college in India.

2. The women doctors, nurses and health visitors be trained in this regard.

1 Quoted by Edith How Martyn in *A Brief Survey of the Birth Control Movement in India* in Ghurye's *Indian Population Problem*, pp. 18-19.

2 Quoted by Edith How Martyn, *Op. Cit.*, p. 20.

3 B. G. Kher, Opening Address at the Second All India Population and Ist Family Hygiene Conference, in Ghurye's book, *Op. Cit.*, pp. 5 and 7.

4 *National Planning Committee Report on Population* (1948), p. 67.

3. Birth control clinics—where supplies should be given free preferably in connection with maternity welfare centres, health units and hospitals—should be established.

4. Local manufacture of material—whether rubber, cotton or chemical which will be used for the purpose of contraceptives in order to bring the cost within the reach of the masses—should be encouraged.

5. Vigorous propaganda should be carried on amongst the masses through the Municipalities, District Boards and Panchayats in favour of 2-4 years spacing of births and the limitation of the total family to 4 children in India.

6. A eugenic programme should include the sterilization of persons suffering from transmissible diseases of a serious nature.

Bhore Committee's Views

The Bhore Committee appointed by the Government—popularly known as the Health Survey and Development Committee in 1946—consisting of the top-ranking medical men, which published its report of 1,200 pages in March, 1946, unanimously recommended birth control measures for our national welfare. This Committee recommended the following measures.[1]

1. Supply of contraceptive requisites should be made free of cost by the State to necessitous women when the practice is adopted for the reasons of health.

2. The Government should have a control over the manufacture and sale of contraceptives as in the case of food and drugs.

3. Help should be taken from public funds towards research for the production of a safe and effective contraceptive.

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1 *Health Survey and Development Committee Report*, 1946, Vol II, p. 47.

4. A rational family planning and education of the masses in the birth control must be accepted as the most effective means of combating population increase.

This Committee observed in their report, "All of us are agreed that when child-bearing is likely to result in injury to mother or infant there is every justification for the practice of contraception. In such cases, it should be the responsibility of the Governments to provide instruction regarding contraception in maternity and child welfare centres, dispensaries, hospitals and any other public institutions which administer medical aid to women." What I feel is that India wants contraceptive advice on economic grounds. But even this Committee could not shake our traditional obscurantism and include poverty and the low standard of living as pressing reasons for adopting contraception and limiting the size of the family.

The Planning Commission's Views

The Planning Commission which was set up in 1949 by the Government of India, under the Chairmanship of Mr. Nehru, in its Draft Report took a courageous stand on the imperative need for family planning for our country. The authors of the Draft Outline after examining the nature and significance of India's population pressure and its bearing on national development pointed out, "While it may be difficult to say what the optimum level of population for India should be...it is clear that under present conditions, an increase in manpower "resources" does not strengthen the economy but, in fact weakens it... It is necessary in the present context only to stress the fact that unless measures are initiated at this stage to bring down the birth rate increasing amount of effort on the part of the community will be used up only in maintaining existing standards of consumption...Increasing pressure of population on natural resources (which must inevitably be

limited) retards economic progress and limits seriously the rate of extension of Social Services so essential to civilised existence."[1]

As for the family planning they rightly pointed out, "While family planning is intended to bring down over a period of time the rate of population growth immediately it is a step in the direction of improvement in health, especially of mothers and children. Frequent and ill-spaced child births undermine the health of the mother. A high birth rate under conditions of poverty and malnutrition is inevitably connected with a high rate of infant mortality and a high incidence of disease and deformity among children. In planning for a rising standard of life, the provision of their life is a matter of great importance. Family planning is thus a vital step in economic and social planning."

In their Final Report the Planning Commission observes, "A rapidly growing population is apt to become more a source of embarrassment than of help to a programme of raising standards of living In other words, the higher the rate of increase of population the larger are likely to be the efforts to raise per capita living standards." The future rate of growth in population is viewed with disapproval by the Planning Commission, for, "the reduction in the rate of growth of the population must be regarded as a major desideratum."[2]

To achieve this end, the Five Year Plan recommended certain measures for the inculcation of the need and techniques of family planning. The Commission believes that progress in the field of family planning depends first on creating a sufficiently strong motivation in favour of birth control, and second on providing acceptable, harmless, cheap and efficient methods. Two necessary requisites for the implementation of this policy are : (1) intensive studies about the attitud-

1 *Draft Outline of the Five Year Plan*, 1951, p. 16.
2 *First Five Year Plan*, p. 23.

es and motivations affecting size, and techniques and procedures for the education of the public on family planning, and (2) field experiments on diffierent methods of family planning as well as medical and technical research.

The Planning Commission provided a sum of Rs. 65 lakhs for family planning programme for a period of 5 years (1951-56). The entire programme of population control as envisaged by the Planning Commission is comprehensive and includes :

(1) The provision in Government hospitals and health centres of advice on methods of family planning for married persons who require such advice.

(2) Field experiments on different methods of family planning for the purpose of determining their suitability, acceptabilty and effectiveness in different sections of the population.

(3) Development of suitable procedures for educating people on methods of family planning.

(4) Collection from representative sections of the population on reproductive patterns and on attitudes and motivation affecting the size of family.

(5) Study of the interrelationship between economic, social and population changes.

(6) Collection and study of information about different methods of family planning (based on scientifically tested experience in India and abroad) and making such information available to professional workers.

(7) Research into the physiological and medical aspects of human fertility and its control."

Economists' and Sociologists' Views

Prominent economists and sociologists have also voiced their opinion about the need for population control, As early as 1938, Dr. Gyan Chand pointed out clearly and strongly that "a check on the growth of population of India is an urgent practical neces-

sity."[1] At another place he remarks, "Without it we would be condemning ourselves to futility and frustation. With it we may be able to make our country a fit place for human beings to live in."[2] This is more true in 1959 than it was in 1938 when these words were written.

Mahatma Gandhi's attitude towards birth control is well known. To him, "There can be no two opinions about the necessity of birth control. But the only methods handed down from ages past is self-control or *Brahamcharya*. It is an infallible sovereign remedy, doing good to those who practise it. The union is meant not for pleasure but for bringing forth progeny." Shri Nehru wrote some 20 years ago, "If India is poor, that is the fault of her social customs, her *Banias* and moneylenders, and above all her enormous population. The greatest *Bania* of all, the British Govt. in India, is conveniently ignored. And what they propose to do about this population I do not know, for in spite of a great deal of help received from famines, epidemics and a high death rate generally, the population is still overwhelming. Birth control is proposed and I, for one am entirely in favour of the spread of the knowledge and methods of birth control. But the use of these methods itself requires a much higher standard of living for the masses, same measure of general education and innumerable clinics all over the country. Under present conditions birth control methods are completely out of reach for the masses. The middle classes can profit by them as, I believe, they are doing to a great extent."[3]

Motivation Surveys in India

Random sample surveys like the ones conducted by Dr. Ghurye in the Bombay city, by Dr. Chandrasekhar in Baroda; by Dr. C. Chandrashkhran in

1 Gyan Chand, *India's Teeming Millions*, 1938, p. 323.
2 *Ibid.*, p. 359.
3 J. Nehru, *An Autobiography*, 1936, p. 444.

Ramnagaram and Lodi Colony area; by Messrs. Dandekar and Kumudini in Poona; Sample Survey in Kanpur and Lucknow; Calcutta Survey; India-Ludhiana Population Study Survey and Attitude Survey in Managadu, etc., prove that majority of the mothers are in favour of family planning.

Dr. Ghurye conducted an enquiry in 1939 into the sex habits of the middle class people of Bombay and collected information regarding the practice of birth control, the methods used by the people and the reason for such use. Of the 304 persons who furnished information, 2 gave no information as to whether they practise birth control or not, 201 persons said that they do not while 11 persons stated that though they do not practise it they liked it or intended to do so and 90 persons definitely practised birth control. Of these 90 persons, 54 did not give reasons which prompted them to this practice. 11 persons stated the reason of their practising birth control as economic, 4 as wife's health, 3 as regulation of the size of family, 2 as free enjoyment and only one spacing of births. If a conclusion may be hazarded with such a small sample of replies, it is clear that there is very little ground to think that persons resort to birth control for the sake of pleasure.[1]

Dr. Chanderasekhar addressed a questionnaire to Baroda mothers between the ages of 15 and 45. Of the proposed five per cent sample of 2,435 mothers, 55 had been interviewed out of a total of 211,416. He found that large majority among the Gujratis and the Marathis, 63 and 77 per cent respectively were in favour of birth control or planned parenthood; 18 per cent of the Gujrati mothers and 5 per cent of Marathi mothers were in favour of moral restraint or self-control, while about twenty per cent of the Gujrati and 18 per cent of Marathi mothers were against any kind of control. Analysis could not be

1 G. S. Ghurye, *Indian Population Problem*, p. 12.

made of the reasons given by them for their negative answers. They ranged from "opposed to my religion," "and immoral to meddle with such things" down to superstition and ignorance. However, if generalization could be made it is clear that a great majority of Baroda mothers are in favour of population control through scientifically approved devices.[1]

U. N.-Govt. of India Motivation Survey

As a part of a joint study by the U. N. Organisation and the Government of India on the interrelationships of population, economic and social changes, a detailed investigation was undertaken into the attitudes and motivations of the population of Mysore State in regard to fertility. In this investigation about 400 couples, married only once and with the wife aged between 18 and 43 years, were selected from rural areas ; about 1200 couples satisfying the same conditions were selected from the five social and economic strata into which the population of Bangalore was divided for the purposes of the study. Two schedules were used for the Fertility Survey—one for the wife and the other for the husband. The wife's schedule obtained detailed information as to whether or not she wished to have more children. Of women with 4 to 6 living children 72% in Bangalore city and 59% in the rural area 'did not wish to have more children.' Among women with 1 to 3 living children, 42% in Bangalore city and 26% in the rural area wanted no more child. Men were equally keen to limit family size. Of men with 4 to 6 living children, 56% in Bangalore city and 48% in rural area wanted no more children. In both the areas 40% of the women wanted to have no more children because of

1 S. Chandrasekhar, *Attitudes of Baroda Mothers towards Family Planning in the Proceedings of Third International Conference on Planned Parenthood*, 1952. p. 70.

the difficulty in obtaining basic necessities; 14% on the ground of inability to give personal care to children; 13% on the ground of required time for other household duties. Other reasons for which family limitation was required were 'hard as woman's health,' and 'too frequent pregnancies.' In spite of an overwhelming desire to limit family size, the practice of family limitation was extremely limited. Less than 3% of the couples in the rural areas and about 10% in the Bangalore city had practised methods of control, most of them by means of abstinence. Knowledge of methods of family limitations was equally restricted. In the rural areas 90% of the women and 85% of the men had no knowledge of family limitation. In the Bangalore city the women who had no knowledge varied from 52 to 72% in the four strata selected for survey. Among men, 51 to 77% in the different strata had no knowledge of methods. It was also significant that the method best known in both the rural and urban areas was sterilization of women. Next in importance was sterilization of the husband, followed by 'condom' in the urban area and 'safe period' in the rural area. Knowledge of coitus-interruptus was extremely vague.[1]

Pilot studies in the rhythm method of family planning have been undertaken by the Government of India with the technical assistance from W. H. O. and U. N. O. One of these studies was undertaken in Ramnagram in Mysore State and the other in Lodi Colony, New Delhi. In both these areas couples less than 40 years old were interviewed to find those who express readiness to avoid, or to postpone pregnancy for the next two years, and who show willingness to learn a method for doing so. In Ramnagram 78 per cent of the couples interviewed expressed the desire to avoid or postpone pregnancy, and to learn a method for

1 C. Chandrasekhran. *Culture Patterns in Relation to Family Planning in India* in *Ibid.*, pp. 75-76.

doing so. In Lodi Colony the percentage was 72.[1]

Fertility Survey in Poona District

Another survey for determining the attitude of the people towards family planning was undertaken by the Gokhale Institute of Politics and Economics. In the city sample, out of 850 men questioned only 9 thought that contraception was immoral and 59 thought it was against the will of God while in the non-city survey, out of 855 men questioned only 8 thought that contraception was immoral and 85 thought it was against the will of God. Among the 511 females in the city sample only 9 thought that contraception was against religion and 55 thought it was against the will of God. While in the non-city survey, out of 240 women 11 thought contraception was against religion and 29 thought it was against the will of God. The survey showed that as many as 99% of male heads of households in certain groups in Nasik district and 92% in certain groups in Kolaba district were not informed about contraception ; but 53% of the females and 65% of the males wanted information on birth control. Only 9% of a group of city men and women, and less than 2% of a group of rural men and women had used or were using some form of birth control. Commenting on the attitude towards family planning the authors of the report point out : "The most significant fact about the situation, therefore, is that the larger number of persons, both males and females, in the city as well as the non-city area who said they would welcome information on the subject of family limitation and the substantial number among them who voluntarily said that they would immediately adopt the methods in practice."[2]

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1 C. Chandrasekhran, *Op. Cit.*, p. 77.

2 V. M. Dandekar and Kumudini Dandekar, *Survey of Fertility and Mortality in Poona District*, 1953. p. 142 and 172.

India-Harvard-Ludhiana Population Study Survey[1]

In the Punjab villages near Ludhiana it was found that about 25% of all non-sterile wives aged 15-44 have used birth control at some time since marriage (mostly foam tablets) for 12 to 15 months, but less than 10% were using contraception at the time of enquiry. It was also found that 88% of the population were in favour of the use of contraception. Of husbands, 35% and of wives 57% accepted the use of contraceptives (rhythm, withdrawal, foam tablets, Balt and pad, contraceptive paste and pad).

Attitude Survey in Mangadu (Madras)[2]

An attitude survey was recently undertaken in 1956 by Dr. Chandrasekhar and his colleagues in Mangadu rural area. The questions were addressed to couples, between the ages of 15 and 50 who were living together with at least one child. Of these 692 couples questioned, 72% expressed that they did not want any more children, while others replied that they wanted more children-especially sons. Of the 692 husbands, 55·06% were in favour of family planning; 44·65% were against it and 0·29% were in favour of moral restraint. Of the wives, 58·11% were in favour, 41·6% were against and 0·29% were in favour of moral restraint. The reasons given by these women for wanting to limit their family size can be summarised under three categories : (i) 'we cannot afford another baby since we don't have the means for even children we already have' ; (ii) 'my health is poor to have another baby' ; or (iii) 'everything is in such a pass that we can't cope with another baby.'

Those practising limitation of families were using several methods of contraception, *viz.*, cotton tampons and oil, salt solution, foam powder and sponge.

1 J. B. Wyon, *Motivation for Family Planning* in *Third All-India Conference on Family Planning Report*, 1957, pp. 105-106.

2 S. Chandrasekhar, *Family Planning in An Indian Village*, *Population Review*, Vol. 3, No. 1, Jan. '59, p. 63.

These surveys undertaken in different parts of the country reveal the changing attitude of the people towards limiting the size of the family. Such developments are but the expressions by the common man and woman of the stress and strain which large family imposed on an industrialising economy. They point towards only one goal, the establishment of a 'Small Family Pattern.'

Calcutta Survey

The fertility study conducted by the All India Institute of Hygiene and Public Health in some selected groups of the Calcutta population also brings out marked differences between the numbers of children born and the number of children desired. In Benitola area, inhabited by 'lower' middle class people, the average number of children born to women who were in the 'married' state and had completed 40 years of age was 5.6, but the number desired was only 3. In Ballygunge area, inhabited by 'upper' middle class people, the average number of children born was 5·4 while the desired number was 3. Men in two areas also desired small families. Among them, 65% desired 3 or less children, 78% desired 4 or less and 84% desired 5 or less children. The majority of men who wanted to limit the family gave "economic conditions," "education of children" and "health of children" as the important motivations. About 20% of the women in the 'lower' middle class area and about 50% in the 'upper' middle class area had some knowledge of family limitation methods. The practice of family limitation was also more frequent in the 'upper' middle class area as compared with that in the other. About 96% of those surveyed were in favour of free distribution of information on family planning.[1]

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1 Dr. C. Chandrasekharan, *Opinion Research in Human Fertility*, in *Report of Second All-India Conference on Family Planning*, 1955, p. 45.

Motivation Survey in U. P.

A sample survey conducted by Miss Seth at Kanpur, among the 560 mothers mostly from the working class, showed that only 37 mothers were found opposed to family planning; 176 were indifferent, but as many as 347 or 62% favoured planned parenthood.[1]

Near Lucknow, the Research Pilot Project showed that though nearly 80% of the parents believed that fertility was a divine dispensation and man can do little to control it; less than 2% of the mothers and 12% of the fathers considered it to be dependent on man's volition, yet 60% of the methers and 65% of the fathers wanted to know the technique of contraception. 70% of the 1,000 rural people advised showed eagerness to learn methods of contraception and to have not more than 3 to 4 children, at an average spacing of 3·5 years.[2] This shows that there is an unmistakable evidence of the fact that parents in Indian villages would like to limit the size of their families. Women in villages do not like to bear any more children after the age of 30 or 35 years if they already have already had a few surviving children at that age.[3]

In favour of Planned Parenthood, nothing would be better than to quote our Vice-President's speech on the occasion of Third International Planned Parenthood Conference held at Bombay in 1952. He observed:

1. "In a country like India, already populated to an alarming extent and where the national productivity is practically on a stand-still level since long, if a man compels a woman to procreate

1 B. Singh, *Family Planning Work in U. P.*, in *Report of the Second All India Conference on Family Planning*, 1955, p. 60.

2 *Ibid.*, p 61.

3 B Singh, *Action Research in Family Planning* in *The Fifth Report of the International Conference on Planned Parenthood*, 1955, p. 72.

frequently he would be guilty of "cruelty to human beings". By frequent child births you will impair the family happiness and injure the marriage which otherwise would have been much happy. If, therefore, the health and the happiness of the family life is to be safeguarded the time of child-birth, spacing of the arrival of the children must be determined.

2. To achieve the ideal of Welfare State at the earliest, it becomes a sheer necessity to limit population and sooner it is planned, the better it would be in the interest of the ideal itself.

3. Again, in a Democratic State theoretically all individuals are equal in the eyes of the Constitution and there are not "Reserves", "Earmarks," and "Privileges". But socially speaking this equality seems to be a fallacy. Small families are always better placed and stand fairly good chances to acquire the best of the best qualities meant for an ideal citizen as compared with the large families. Even the most even distribution of National Dividend may, nay, is bound to fail to achieve the ideals of Democratic Welfare State, in case there is no uniformity in the size of the average family. This demands planned parenthood.

4. Economically speaking an enlightened, well-fed, well-clothed and properly housed population of half than the actual size is better than a crowd of 360 million, most of whom do not know the meaning of education and culture, are economically thinking more dead than alive. Under such like state of affairs the need for family spacing needs no detailed reasoning.

(5) In India millions tramp the streets and find no employment, produce nothing, spend days of life in public parks, consume normally by legal or illegal means. They are just like uninvited and unwanted members of society. It is better to learn something from their shocking tales and cold sighs and to plan tomorrow's Indians.

(6) Biologically assessing, we can say that poverty and adversity give keener edge to multiplicity of species at a rate unknown in the circumstances of greater comfort. When the social conditions improve the death rate reduces and a fever-stricken area is converted into a health resort. This fact leads to the conclusion that it is death rate that regulates the birth rate and both are reduced with the improvement in the standard of living. Logically all this can be achieved only by means of family planning."

VIII

DIFFICULTIES IN THE WAY

Popularity of Contraceptives in the West

In Europe and America birth control has come to stay for several reasons such as the desire to provide the best for the children within a limited family budget, to safeguard the health of the mother, the desire for social advancement, increasing urbanisation, the eagerness to enjoy life and leisure without the burden of too many children, economic insecurity and finally limiting the number in a family for its own sake. In fact, in the West the population began to adapt extensively using the contraceptives only after 1870, because of the change in the mental attitude of the people, the remarkable and rapid change in living conditions due to large-scale development of industries and the consequent urbanization, the growth of the spirit of individualism and social ambition, the growing prestige of science, which disturbed traditional religious beliefs, development of popular education; higher standards of living the growth of humanitarianism and the emancipation of women.[1] So that in the West birth control has become a means of assuring healthier mothers and children, of reducing destitution and dependency, of improving the race by eugenic control or preventing population pressure and thereby preventing one of the causes of war, and above all else the best means of guranteeing a fundamental human right—the right of a woman to say how many children she shall bear and when shall she bear them. "Having babies by choice and not by chance is increasingly becoming an integral part of Western cultural mores."

Case in India

Unfortunately in our country we still lack that

1 *Royal Commission Report on Population*, 1949.

mental and psychological attitude among the masses which makes possible the rapid spread of the contraceptives. Whatever contraceptives have been used have only been used in the urban centres and that too among the upper and middle classes. This has been due to certain prejudices against their use. Therefore, if birth programme is included as a health measure in India, it will not only bring down overall death rate to a civilized level by controlling our terrific infant mortality, but will also reduce maternal deaths by providing proper spacing of births among the mothers. And by eventually reducing the total population, it will drastically cut down the general death rate. In a word, if we adopt the birth control programme we would be able to put an end to the sad statistical probability in our country that "in many cases children die because many are born, and many are born because comparatively few survive."

Difficulties in the Way

In spite of great urgency for the adoption of the birth control devices among the population, there are various difficulties in the use of contraceptives in our country. Generally speaking the spread of contraceptives depend on efficiency, availability and cheapness of contraceptives. But in India the unobstructive use is rendered difficult because of the following factors :

1. Birth control usually is associated with a high standard of living, because when the people are accustomed to a high standard of living, they become reluctant to give it up and hence voluntarily restrict the size of the family to escape the inevitable logic of reduced rations and other amenities of life. But unfortunately in India our standard of living is very low. Hence, people often find it difficult to raise their standard of living in view of the large family. Thus the dilemma before India is that whereas, birth control is needed to check the threatened decline in the already poor

living standard of her people, successful practice of birth control methods requires a far higher general living standard than is the case in India. The way out of this vicious circle is to have birth control form a part of an overall programme of economic development.

2. It is a matter of common knowledge that whatever contraceptives are available in India are not easily accessible to the common man in India because of their heavy prices which common people, as a rule, cannot pay due to poverty.[1] Besides the average person cannot afford to meet the cost of a clinical consultation or the services of a Gynecologist. The Government must, therefore, explore the possibility of distributing free contraceptives to needy mothers through our Women's Hospitals, Child Welfare Centres, Family Planning Clinics, and the Red Cross Centres. I am conscious of the fact that this suggestion implies an expenditure of crores of rupees, but even then it may be cheaper in the long run. Once the population growth is arrested the total national medical bill can be cut down to a very great extent.

3. Even if majority of persons are in a position to purchase contraceptive goods, yet they do not use them effectively because it calls for a large amount of foresight, self-control, care and cleanliness and this is relevant in India as most of the people are illiterate and lack the mental equipment for the effective use of available contraceptives. It will take time to develop an attitude of mind in which such self-control is willingly made.

4. There are certain groups of people who look with disfavour on contraception for religious and other reasons. They are of the view that "He who

1 For example, Preceptin and Cooper Jelly are available for Rs. 3·75 and Rs. 2·75 with applicator. In up-country towns they are even dearer. Gynamin, Contab and Plantib foam tablets are available at 1·50 N. P. for 12 tablets; 50 N. P. for 12 and 94 N. P. for 12 respectively. Volpar is available at Rs. 1·10 for 24 and Sampoon for Rs. 1·50 for 16 tablets. These prices are not within the reach of an average Indian.

provides children also provides them with proper food and hence there is no reason for anxiety about limitation of number by birth control". The fact is that public opinion has not yet realised the connection between poverty, unemployment and the reckless pr duction of children for whom the parents cannot even provide the basic needs. The belief that population growth is beyond human control dies hard and the economic waste of high birth and death and infant and maternal deaths is not yet recognised.

5 We do not possess any organisation—social or administrative—which can be used to propagate ideas and instruments of control. The medical organisation of this country is extremely inadequate and nearly completely dissociated from the birth control movement. Most of the male and female doctors are singularly ignorant of the teaching of birth control and they have proved untrustworthy guides of the people in the matters of birth control. However, there are more than 352 birth control clinics of the modern western type situated in various cities of India.[1] Madras was the pioneer city where birth control propaganda and clinical work were vigorously started by the Madras-Neo-Malthusian League, in 1930. During the same year a Government-sponsored birth control clinic was set up in Bangalore city. Bombay and Poona followed suit. Since 1950, birth control clinics of one kind or another, have been functioning in Bombay, Poona, Madras, Bangalore, Mysore, Hyderabad, Nagpur, Lucknow, Kanpur, Allahabad, Delhi, Calcutta, Ajmer, and other big towns of India.

The battle for birth control cannot be won on public platform or by well-intentioned people passing resolutions. For this purpose it is necessary that women doctors should train women doctors

1 Of these, 147 clinics were opened during the First Plan Period and 205 clinics maintained by the State Govts., Local Bodies and Voluntary Associations.

all over India and the courses of contraception should be included in all Women's Medical Colleges.[1] Birth control clinics should be spread over the whole area where the needy women may be given demonstrations and proper instructions regarding the availability and use of the contraceptives. Besides, sufficient pressure must be put on the Government and local bodies to incorporate birth control service in all its Maternity Welfare work.

6. Further the unobstructive use and practice of contraceptives require privacy in the houses which is hardly available in urban centres where more than one family have to live, eat, drink, and sleep in one single tenement. Besides, the facilities of bathrooms, lights and running water are also not available.

7. It is even now doubtful whether such contraceptives as are available in the country are safe and efficient. No doubt their effects on the women as the a result of prolonged use have not been fully investigated and determined, but before the use of contraceptives is actively promoted, it seems essential to ensure that those made available to the people are harmless. Hence, if the contraceptives are to be largely and successfully used by the Indian masses on a large scale, it is necessary that simple and absolutely more fool-proof and aesthetically saitsfactory contraceptives should be manufactured in the country itself and made available not only in the cities but throughout the rural areas. Such indigenous devices can keep in view some of those special and difficult conditions under which Indian women live.

1 Of 338 Schools in India imparting training to nurses, health visitors and mid-wives, only 18 have family training clinics attached to them. There are about 3368 Maternity and Child welfare centres serving urban and rural areas but none of these offers family planning facilities.

IX

PHENOMENON OF CONCEPTION AND ITS CONTROL

Having realised the desirability of birth control let us consider the methods by which it is possible. To understand birth control, one must know how conception takes place. At the end of the sexual act very large numbers of living male cells (sperms) flow from the man's sex organ into the vagina of the woman. These sperms are too small to be seen by the naked eye. They are like little tadpoles and can swim. Before conception takes place, one or more of them must swim up through the mouth of the womb (os) into the womb, where it meets the female cell (ovum or egg) coming down from the ovary (where the female cell is formed) down through the Fallopian tube or in the womb itself. The male cell enters the female cell, and they form one cell capable of dividing and growing until a child is completely formed Birth control then really means preventing the sperm from meeting the ovum by entering the mouth of the womb and fertilising it.

The Phenomenon of Conception

Pregnancy begins with conception and ends with parturition, the birth of the child.[1] The average duration of pregnancy is about 9 calender or 10 lunar months or from 275 to 280 days. It is usually calculated as 280 days from the beginning of the last menstruation (also called "periods" or "the monthlies"—when discharge composed chiefly of blood and mucus from the female generative organs

1 There are two kinds of changes in the body, indicative of the pregnancy. (i) The probable signs consisting of (*a*) the cessation of the menstrual flow, (*b*) nausea and vomiting, and (*c*) changes in the breasts. (ii) The direct signs consist of enlargement of the womb, changed colour of birth canal lining, movements of the child, and the sounds of the child, and the change in the colour of the nipples.

takes place. It occurs normally, every 28 days and lasts from 3 to 5 days, throughout the woman's child-bearing period. It has been estimated that the quantity of blood expelled during a menstrual period averages from one and one-half to three ounces. In every full-blooded woman, it may be considerably more.[1]

Normal Span of Fertility

From the *menarche* (or onset of menstruation) to beyond the *menopause* (or cessation) at the change of life, pregnancy can occur. Even during the few months' respite from periods in nursing mothers conception can and often does occur; so, too, in young women whose periods have temporarily stopped. After a woman passes the age of 30 the chances of a first pregnancy decrease year by year and it is never wise to defer a family indefinitely. Proper spacing is much better and safer plan.

For the women in temperate climates the commencement of menstruation (and puberty) occurs between the 10th and 13th years and the usual time for menopause is between 47 and 50. In the warmer climates and in India puberty occurs much earlier with a correspondingly early menopause. Excessive child-bearing and some serious illness bring on the change of life in the late thirties or forties; whilst removal of both ovaries by operation or destruction from X-'ray or Radio treatments may induce the change at any time.

1 W. J. Robinson, *Woman*, p. 73.

Dr. Boyd enables us to know the approximate ages at which the menopause appears and the puberty is onset[1] :—

Age when Menstruation appears	Menopause should occur
10	Between 50 and 52
11	„ 48 „ 50
12	„ 46 „ 48
13	„ 44 „ 46
14	„ 42 „ 44
15	„ 40 „ 42
16	„ 38 „ 40
17	„ 36 „ 38
18	„ 34 „ 36
19	„ 32 „ 34
20	„ 30 „ 32

By the time of change of life the ovaries have become fibrous and so completely covered over by scars that no further ova (or female germ-cells) can escape to offer themselves for fertilization in the tubes or womb. Hence, pregnancy is no longer possible. In addition, the fibrous ovaries make less and less of the female sex secretion and monthly periods cease ; but for some considerable time (varying from 3 to 20 years) libido (or sex desire) and sensory pleasure remain, oftentimes unchanged in intensity or more frequently showing gradual decline. Persisting libido, and sex desire and feeling do not mean that pregnancy can occur.

In men a change of life also occurs but is usually unnoticed, though it may, at times, be abrupt and show itself in a complete alteration of character. A gradual decline in potency and fertility commences in the late fifties or early sixties and is usually complete by 65 or 67. Often libido remains long after sustained erection is possible and in these cases the urethral moisture

1 Reynold H. Boyd, *Controlled Parenthood*, 1947, p. 25.

that comes with excitement (though there may be no erection and penetration), often contains some active spermatazoa capable of moving upwards one inch every 8 minutes.

While conception during any period of the month is possible, it is generally agreed that the first days after menstruation are the most favourable for conception. Dates show that as the date of the next menstruation is approached, there is a progressive decline in the frequency of conception. Just before the flow it is less likely to occur than at any other time.

Dr. Hensen, a European authority, draws the following conclusions from case studies of a number of females, in which the date of the fruitful intercourse was exactly known :—

(1) The greatest number of conceptions follow coitus effected during the first few days after the cessation of the menstrual flow.

(2) When coitus is effected during menses, the probability of conception increases day by day as end of the flow is approached.

(3) The number of conceptions following coitus effected shortly before menstruation is minimal.

(4) However, there is no single day either of the menstrual period or of the inter-menstrual interval, on which the possibilty of the occurrence of conception can be excluded.

In human beings it is extremely difficult to tell the exact date of conception, if intercourse has been indulged in with more or less frequency. Even when the date of coitus has been noted, if a specific act can be attributed to conception, there is no telling when fertilisation takes place. The spermatozoon may not meet the ovum for several days, during which interval the male fertilising element remains alive in the woman's sexual organs. The longest survival of human sperma-

tozoa so far known, according to Dr. L. Alexander Stone, is three and a half weeks.[1]

Various methods have been adopted by different people to prevent this conception. But while some are undesirable because they are normally or legally objectionable, injurious or otherwise harmful, some others are unreliable because they fail more or less frequently, some of these being altogether worthless, yet there are others that are quite safe and suitable.

The major step in contraception was probably the development of the practice of *Coitus Interruptus*. Dr. Norman Himes points out that two contraceptive practices were found in Kahun Papyrus (1850 B. C.) and Eber Papyrus (1550 B. C.)[2] According to the findings of the Royal Commission on Population the most commonly used method till recently in England was *Coitus Interruptus*. of which common knowledge goes far back in history. Investigations on similar lines in Sweden, U. S. A., and other countries show that there also *Coitus Interruptus* was the most common method until recently. The fall in the French birth rate which began in the 18th century long before the modern improvements in contraceptives, is attributed to *Coitus Interruptus*.[3] Thus it is recognised on all hands that this practice was widespread in many parts of the world. It is mentioned in the Bible in connection with the story of Onan,[4] and

1 L. A. Stone, *Sex-Searchlights and Sane Sex Ethics*, 1923, p. 231.

2 N. E. Himes, *Medical History of Contraception*, (1936), p. 59 and 63.

3 *Report of the Royal Commission on Population*, p. 37.

4 The Biblical account in Genesis, 38, viii, ix and x, leaves no doubt about the attitude of the Diety toward this practice :

"And Judah said unto Onan, Go in unto thy brother's wife, and marry her, and raise up seed to thy brother.

"And Onan knew that the seed should not be his : and it came to pass, when he went in unto his brother's wife, that he spilled it on the ground, lest that he should give seed to his brother.

"And the thing which he did displeased the Lord ; wherefore he slew him also."

it is still one of most frequent contraceptive practices today.

The second major advance was the development of Condom or Prophylactic Sheath. The condom was first described in 1564, nearly 400 years ago, by the Italian anatomist, Fallopius. He recommended the use of a linen cover on the penis to prevent venereal infection. Later this device began to be made of animal membranes and finally of rubber, and came to be widely used not only for the prevention of diseases but also for the prevention of conception as well. References to the use of Sheath occur in European writings of the 16th, 17th and 18th centuries, and in the latter half of the 18th century this device was sold openly from a warehouse in London. Today also it is one of the most frequently used methods in Western countries.

Several decades passed before the next development in contraception took place. In 1832 an American physician, Charles Knowlton, published a booklet entitled *The Fruits of Philosophy* in which he recommended a Vaginal Douche as a contraceptive measure. The purpose of the douche was to dislodge the seminal fluid from the vagina and to destroy the fertilising property of any semen that may have remained in the vaginal canal. The 'douche' is a female method. Its use transfers the responsibility for protection from the husband to the wife. It is very widely resorted to in Western countries and ranks high on the list of household methods.

The fourth major step in contraceptive technique was the development of the modern 'vaginal diaphragm' and 'jelly method.' Vaginal plugs and suppositories of one type or another have been in use since ancient times. They were generally made of cotton, wool, sponges or vegetable material and were impregnated with gums, honey, oils or fruit acids. In fact, the first contraceptive pres-

cription known, one which appears in an Egyptian Papyrus dating back some 3500 years, recommended the use of a vaginal suppository made of tips of acoacia and honey. Soranua, a Greek physician who practised in Rome in the second century also suggested the insertion of a tampon made of soft wool, dipped in honey or oils. Francis Place, in the famous "handbills" which he distributed in England in 1823, recommended the use of a "piece of sponge about one inch square" to which a narrow ribbon was attached to facilitate removal. Other references to the use of various vaginal plugs appear in the literatures of people in many parts of the world.

In its modern form the Vaginal diaphragm was first described by Dr. William Mensinga in 1880, and the contraceptive jellies and creams have been introduced only at the beginning of this century. The diaphragm provides a mechanical barrier to the entrance of the spermatozoa into the cervix while the jelly acts as a chemical spermicide. Early in 1920s, Margaret Sanger introduced the diaphragm method into the U. S. A. With certain modifications this method has become the method of choice in birth control the world over.

In more recent years, with the development of newer spermicidal substances and vehicles, improved suppositories, jellies and creams are being recommended for contraceptive use without a diaphragm. The jellies and creams are introduced with a special applicator. These chemical contraceptives are intended to act both as physical and chemical barriers to sperm entry into the uterus.

These have been the main developments in contraceptive techniques up to the present, Today progress is being made along two lines : methods already available are being further improved and a search is being made for newer techniques. Many advances have been made in recent years in both mechanical and chemical contraceptives. New types of diaphragms, cervical caps and other

occlusive devices have been developed and instruments to facilitate their insertion and removal have been devised. The consistency and spermicidal qualities of jellies have been gradually improved, and now dehydrated jellies have been prepared in powdered form to lessen cost and facilitate transportation. In India where the question of availability and cost of supplies are of great importance, cotton tampons or pieces of cloth dipped in either vinegar, oils or jellies are being recommended by the medical experts.

X

METHODS OF CONTRACEPTION

METHODS TO BE USED BY HUSBANDS

The selection of method depends upon the necessity of contraception in each case, individual preference, intelligence. co-operation of husband and wife, and socio-economic factors.

Methods of Contraception

Broadly speaking, comtraceptive methods can be divided into :—

1. Those that can be used by the husband: and
2. Those that can be used by the wife.

Methods to be used by Husbands

Those used by the husbands are chiefly :— (i) Coitus interruptus, (ii) Coitus reservatus, and (iii) condoms or sheaths.

(i) Coitus Interruptus

Is generally referred to as "the practice of withdrawing" or 'husband' careful" or "Holding Back" This means that towards the end of the intercourse the male organ is withdrawn from the vagina when the ejaculation is about to occur so that the semen is discharged outside the genital canal. It is the most widely and extensively practised method of contraception all over the world. For men who prefer prolonged coital play without any contraceptive apparatus to complete satisfaction during the last few moments, the method may be fairly satisfactory. For the woman who can attain complete satisfaction before the man withdraws the method may be apparently good, specially if she is thinking only of her own enjoyment. But simultaneous orgasm (interrupted intercourse) with complete mutual satisfaction is practically

impossible when coitus is stopped by withdrawal. Dr. Max Huhner, specialist in sexual disorders, writes in his book, "The practice of withdrawal is one of the oldest and most widespread sexual sins. It is practised mostly because it comes most handy. It requires no preparation, no appliance, and no expenditure, and is always available."

Other advantages are : This method is simple ; available at any time and place ; entails no preparation and involves no handling or after-care of materials and appliances. A combination of these advantages with a very high degree of reliability explains its enormous popularity and widespread prevalence.

Disadvantages

As a method of birth control it is undesirable because it is injurious to the health of both the parties. It suffers from the following defects :—

(i) When the male organ is withdrawn at the critical moments and the discharge occurs outside, the orgasm is marred and the man does not get full relief and satisfaction, and his congested sexual centres are not fully soothed and relieved of their tension.

(ii) When the withdrawal is practised repeatedly the sexual centres become chronically congested and irritable, and sexual weakness (impotence) in the form of weak erection and immature ejaculation is the result.

(iii) Similar harm is done to the woman if withdrawal is made before her orgasm. Where through insufficient time no orgasm is reached by the female, systic ovaries, pelvic pain and nervous irritability are prone to develop ; and deprivation of the seminal secretions which are absorbed from the vagina may prevent full genital development in young women in whom the uterus is undersized and immature. Thus withdrawal can be a cause of subsequent ill-health and sterility.

(iv) Holding back leads to eventual frigidity, and always leads to a condition of nervous tension and jumpiness attendant on insomnia.

(v) In addition, a state of congestion in the uterus, tubes and ovaries is caused, with the result that the periods become irregular, excessive and painful. The correction of this congestive state is both tedious and difficult.

(vi) Besides causing harm, it affords poor satisfaction to the partners. And the object of birth control methods is to make the normal gratification of sexual desire available to both the partners without incurring the risk of unwanted pregnancy. So a method that does not allow full satisfaction is not a suitable and desirable method of birth control.

(vii) It is also unreliable. When practised regularly without other safeguards it fails in majority of cases. The cause of failure may be an unexpected and precipitate discharge so that the man is not able to withdraw in time. If one drop of semen reaches the woman, even on the surface of her body near the passage, the sperms may swim all the way up the vagina and enter the womb. And before the real flow takes place, and before the man has withdrawn, a leakage of sperms may take place entirely unknown to him and result in pregnancy. Thus there are many chances of failure.

Regarding the ill-effects of withdrawal, Lady F. E. Barret says, "It produces definite nervous results in a woman, such as sleeplessness, irritability and other nervous symptoms." Prof. Lousie Mc Ilroy says, "It is undesirable and exceedingly harmful. Its repetition causes serious permanent harm." Margaret Sanger says, "A woman physician examined a vaginal passage and found sperm deposited when absolutely no ejaculation had taken place." While Dr. Hannah M. Stone points out, "The act of withdrawal itself and the constant tension and anxiety on the part of both mates lest it

be delayed too long interferes seriously with the normal physiological process of sexual relation and may give rise to organic or emotional disturbances. Furthermore, if withdrawal occurs too soon it may prevent the woman from experiencing an adequate response and thus affect her sexual reaction."[1]

Contrary to these opinions there are some others like Terman who have expressed the view that this method is physically and mentally harmless to both partners.

In view of its many disadvantages and persistent failure, we have no hesitation in condemning this method of birth control.

(ii) Coitus Reservatus or Karezza

It is another method adopted for limitation of births. But it has received less attention in modern birth control literature due to its apparent impracticability. This method was originated by a very remarkable and deeply religious man named Noyce of the Oneida Community in Upper New York State. Dr. Dickinson defines this method as "prolonged intercourse accompanied by maximum and varied excitement, with orgasm for the woman if desired, with no seminal emission or rare external emission but with the substitution of a gradual subsidence of feeling for the man."[2] The mutual avoidance of orgasm is only employed when the couple wishes to prevent conception. Dr. Alice points out in this connection thus, "The caresses lead up to connection; and the sexes unite quietly and closely. Once the necessary control has been acquired, the two things are fused and reach sublime spiritual joy. This union can be accompanied by slow, controlled motions, so that voluptuous thrills do not over-

1 H. M. Stone, *Birth Control—A Practical Survey, Health and Hygiene* (April, 1937). New York.

2 K. L. Dickinson, *Techniques of Conception Control*, 1932, p. 62.

balance the desire for soft sensation. If there is no wish to procreate, the stormy violence of the orgasm will thus be avoided."[1]

Advantages and Disadvantages

"The prolonged intercourse is, no doubt, highly agreeable to the woman partner, and without the slightest evil results for she is left entirely free and is not precluded from experiencing the orgasm at its own good time. All women who have had experience of this method seem to approve of it..... But greatly prolonged coitus may produce some of the same nervous results, though usually in a minor degree, as Interrupted Coitus. The practice is usually not easy except for men with sound and well balanced nervous systems."[2] Further this method requires considerable understanding and self-control, and it also involves no expense. This method can be successfully taught verbally to small groups in family planning clinics, provided it is not carried to the excess.

(iii) The Sheath Method

The other male method is the use of *Sheath, Condom*, or *French Letter*. This method was devised by a Italian Catholic physician. Thin rubber sheaths are generally referred to as *Condoms* or *French Letter*, whilst the thick ones are known as *Washable Sheaths*. Good quality condoms are extremely thin, strong, comfortable, cheap and absolutely reliable for they are all individually pressure-tested. Their use greatly lessens the incidence and risk of venereal diseases. These condoms are worn on the male organ before entering into coitus. It prevents the sperm from being deposited in the vagina of the wife. They are so worn that some room is left at the end of the covering to contain the ejaculated semen. They are taken off at the

1 H. Ellis, *The Psychology of Sex*, 1946, p. 289-90
2 A Stockholm, *Karezza*, 1903.

end of the act and thrown away or washed and kept for further use. The reliability of the Sheath obviously depends on the quality and durability of the rubber employed.

Advantage. The use of good sheath is the safest method of birth control. Generally speaking, it is satisfactory, reliable and harmless method. Mrs. Sanger opines, "They really act as a protection against conception". Dickinson says, "They are the best known and simplest method of birth control. A good Sheath ensures 100 per cent success."

Disadvantage. But the sheaths may be of an inferior quality or defective. Sometimes, the method may cause physical discomfort or interfere with the normal sexual responses. Further, the male methods present the general objection that they make the woman dependent upon the man for protection in matter that affects her own health most vitally. Should the husband be indifferent, or careless, or in an irresponsible condition, the wife subjects herself to grave risks. This is one of the reasons why methods for the prevention of conception which can be used by the wife are generally considered to be the methods of choice today.

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1 For continued reliability the following discipline must always be observed :

(1). The rubber of the sheath should be tested before use, and the simplest way is to blow out the rubber like a child's balloon, hold the open-end tightly and watch that the blown out shape does not shrink.

(2). The sheath must be put on before there is any contact between regions of the two. It should be lubricated well with a contraceptive jelly, which may be placed inside the tip of the condom and and also smeared well on its outside.

(3) The presence of the sheath not only diminishes the sexual sensations of the man, but effectively prevents any contact of the penis with the vagina,

I consider the condom a clean and reliable method of birth control and should be preferred to all other methods by every husband who can afford the expense and privacy required for this method.

(4) After ejaculations the sheath must be carefully removed so that no semen is allowed to leak into the vagina. This can be easily avoided by holding on to the sheath and while removing the male organ from the vagina.

(5) The penis must be thoroughly dried before any further contact—physical contact—can be safely allowed. Because it is known that since active sperm cells remain in the male urethra for an hour or two after ejaculation, re-entry into the vagina may result in conception unless the passage is cleared by urination beforehand.

XI

METHODS OF CONTRACEPTION *(contd.)*

METHODS TO BE USED BY WIVES

For conceptien to ensure the sperms of the male, after they have been introduced into the vaginal canal during the sexual act, must enter into the uterus or womb and from there pass into the tubes there they meet the egg-cell. Consequently as long as the spermatozoa can be prevented from entering into the womb, conception will not occur, and it is upon this fact that the female methods of birth control are used. Both the mechanical and the chemical methods are employed for this purpose. The mechanical appliances prevent the sperm cells from entering the womb and reaching the upper genital passages. The chemical methods immobilise or kill the sperms in the vagina while the cervical os is being protected by a mechanical barrier from direct insemination during ejaculation.

The methods used by wives can be divided into :—

(i) Mechanical, method.
(ii) Chemical method, and
(iii) Biological method.

(i) Mechanical Methods

To Casanova is given the credit of inventing a Vault Cap. He is alleged to have advocated the use of a scooped out half-lemon. Vault Caps or Check Pessaries are difficult to place accurately, and being frequently of a hardish rubber they cause an unwanted awareness of their presence. Cervical Caps or Check Pessaries which fit closely over the mouth of the womb are often difficult to apply. Rubber contraceptive appliances for insertion into the vagina are termed Pessaries and are of three types.

1. *Vault Caps* are difficult to place correctly in position. They are easily displaced and are frequent-

ly uncomfortable. Hence, their use is not recommended.

2. *Cervical Caps* or *Check Pessaries* are in popular use. Check Pessary is a rubber cap with a thick solid rim which fits on the cervix (the neck of the womb) which protrudes into the vagina like a bottle-neck. The rim grips the cervix and the mouth of the womb is covered by the cap so as to prevent the entry of the sperms. The pessaries are available in three sizes : small, medium and large. The *small size* is for the women who have not given birth to any child ; the *medium size* is for those who had one or two children ; and the large one for those who have had several children. There are several Check Pessaries on the market. Spring rim, solid rim and air rim are those most frequently used. The insertion of such pessaries requires a kind of training. Besides the specialist has also to be consulted for the selection of the right size of the cap and for learning to fit it properly, for many women make mistakes in these matters and they have to suffer the consequences of an undesired pregnancy.

A rough rule for determining a suitable size of the pessary, necessary for different women according to number of pregnancies they have gone through, has been given by Dr. Swaroop. It is like this.[1]

"A woman who has had either no pregnancies, or only once will need size number 1 ; if she had either two or three pregnancies she will need size number 2 ; and if she has had four or more pregnancies she will need size number 3.

The size of the pessary is given below :—

No. of Pregnancies	Size in Millimeters
Recently married	55 to 60
Married for some months	60 to 65
After one pregnancy	65 to 70
After two or three pregnancies	70 to 75
After four or more pregnancies	75 to 80

1 R. Swaroop, *Birth Control for the Layman*, 1955, p. 62.

3. *The Dutch Cap* or *Vaginal Diaphragm* is made with a rubber-covered watch spring rim or preferably with a coiled spring of greater flexibility and stability. This type of pessary is meant to fit in the vagina near the cervix so that it blocks the vaginal passage completely. Instead of fitting on the cervix, this type isolates it and shuts the whole of the upper vagina. This type is also made in many sizes for different ages of women. This type of pessary is shallow and not deep as the cervical cap. It can be worn both ways, the dome being up or down. The use of an occlusive vaginal diaphragm combined with non-greasy contraceptive jelly lubricant, is both aesthetic and efficient.

The using of caps by the females have got the following advantages:

1. No testing of the cap by the female is needed. One cap, properly cared for, lasts for years.

2. The cap together with the chemical is inserted privately by the woman in the process of undressing without any emotional involvement.

3. The presence of the cap is completely unconscious to both partners, and therefore not only does nothing to spoil sexual sensations, but gives the woman a far greater chance of enjoyment because of her knowledge of security.

4. After ejaculation it is essential that the cap be left in place and so there is no interference with post-coition affection and relaxation.

5. The cap is moved hours later and in privacy, and the process is very soon regarded by the woman as an ordinary part of her toilet.

Technique of the Use of Pessary

The Family Planning Manual has given the following technique of application of the Diaphragm[1]:—

1. Bladder and bowel should be emptied first.

2. Assume a squatting position or stand with one foot on edge of the chair, to insert the diaphragm.

3. Squeeze out one teaspoonful of orthogynol or any other contraceptive jelly into the dome of

1 *Family Planning Manual*, Government of Madras, 1957, pp. 24-26.

the diaphragm and spread it inside the cup and around the rim and also smear it on the outside of the diaphragm so that both sides are covered.

4. Holding the diaphragm in left hand (with the hollow of the cut facing you), squeeze the rim between the middle finger and the thumb of the right hand, steadying it with the fore-finger.

5. Keeping it squeezed with right hand, separate the vaginal lips with the other hand, insert the free end of the diaphragm and continue to push it backward along the back wall or floor of the vagina as far as it will go. The end that enters first passes behind the cervix, while the front end is pushed upward under the pubic bone. (Make sure, the diaphragm is not caught in front of the cervix).

6 Diaphragm should completely cover the opening of the uterus and form a rubber curtain in vagina and the cervix must be felt through the rubber. If the diaphragm is of correct size it fits snugly behind the pubic bone.

7 Conjugal union may take place immediately after insertion or any time within 4 hours. After 4 hours, additional jelly should be applied either with nozzle or finger.

How and when to remove the Diaphragm

"1. The diaphragm should preferably be left in place for 8 hours after conjugal union. It may then he removed without taking a douche. Never leave it in for more than 24 hours.

2. If diaphragm must be taken out before 8 hours, a warm, slightly soapy douche must be taken. Half of the douche should be taken before removing the diaphragm and the remainder afterwards.

3. If a second union occurs during the night or morning, additional jelly or cream should be used with finger or a nozzle, and it should be made

sure that the top rim is pushed back under the pubic bone.

4. To remove the diaphragm, same position as for insertion is assumed. The index or middle finger is hooked under the front rim and diaphragm pulled down and out. Sometimes, bearing down slightly helps to get the diaphragm within easier reach."

Care of the Diaphragm

"1. After removal, wash with soap and warm water, rinse and dry. Powder with talcum and keep it in a box.

2. Examine the diaphragm for any defects or weaknesses, just before use each time (by holding it before a strong light and stretching it slightly).

3. Oil, cold cream and vaseline should not at all be used on the diaphragm, since they will spoil the rubber.

4. The life of a diaphragm is quite long being 6 months to 2 years, depending upon the care taken."

Other Necessary Instructions

"1. Success of the method depends upon the woman's following the instructions carefully.

2. She must make certain, by constant practice, that she knows how to use the diaphragm and she must use it each time.

3. She must go back to the doctor within week after getting a new diaphragm for the first time, to to see if the diaphragm fits properly and if she has understood the use of it and if it is comfortable for her and her husband.

4. Refitting is necessary after delivery, abdominal and pelvic operations.

5. She must equip herself with a continuous supply of contraceptive jelly."

Advantages

According to Mrs. Sanger, "In my opinion a well-fitted pessary is one of the surest methods of preventing conception" With a little instruction a woman can easily be taught how to use this device, which has proven to be a highly reliable and satisfactory method. Its use does not interfere with the marital relation or the sexual response, nor does it impair the fertility or child-bearing power of a woman. When a wife wishes to have a child she can stop using this method. After childbirth the wife must return to her physician or clinic for re-examination and refitting. The diaphragm is best used with a spermicidal jelly. This is the best method endorsed by the highest medical authorities. The diaphragm does not interfere with the actual process of conjugal union, since it can be inserted even two hours or so before union and removed 6 to 8 hours afterwards. If properly fitted and inserted its presence is not even felt.

Disadvantages

This method suffers from certain drawbacks, *viz.*, (i) It is not suitable for homes where privacy is lacking and running water facilities do not exist; (ii) It requires an amount of leisure and patience which are often unavailable; (ii) The most serious limiting factor is the need for individual fitting by a doctor. Unfortunately even many doctors do not possess knowledge of the technique; (iv) It is also more costly than the sheath, but it can be used very much longer without replacement.

Some other mechanical methods recommended by some authorities are the use of Sponges, cotton wool, etc. These articles are soaked in some antiseptic lotion containing potassium permanganate, alum, vinegar, lemon juice, neem oil or castor oil, glycerine or salt solution (two teaspoonful of common salt in 2 ozs. of water) and are then inserted into the vagina at the mouth of the womb

so as to block it. But these devices are not cent per cent effective, so they cannot be recommended for regular use.

(ii) Chemical Devices

There are a number of different kinds of chemical methods of contraceptions. The function of the chemical is to add to the natural sperm-killing acidity of healthy vaginal mucus and so to be able to kill all sperms within a reasonably short time. No chemical method alone is safe method of contraception, but chemical contraceptives have a useful place in the combined method which employs diaphragm and suppository or jelly. There are several forms of chemical pastes, jelly, ointment, soluble powder and foaming or effervescing tablets. The principle is that a definite dose of the chemical is placed above and below the cap when it is inserted into the vagina. The tablets are easiest to handle. They are easily placed inside the vaginal canal before conjugal union. They dissolve in the vaginal moisture and give rise to a foam which has a spermicidal effect. But foam tablets and suppositories are not recommended for they depend upon time and temperature and the closeness of the vaginal wall for their successful action. Foam tablets present somewhat larger risk of failure than jellies and creams for there is the risk of failure to dissolve and inadequate foaming. Contraceptive jellies have the advantage of not depending on time or temperature, but have the disadvantage of requiring the applicator which has to be inserted high into the vagina until the nozzle is near the mouth of the womb. The tube is then squeezed to deliver an amount of jelly. This quickly spreads out and films over the cervix, os and vaginal vault and walls. The advantages of a jelly over a tablet or a foam powder are :—

(i) The disintegration of the jelly is much more rapid and much more certain since it does not

depend on its action on the moist condition of the female passage.

(ii) Because of its immediate action, the jelly can be introduced in the family passage immediately before the intercourse and there need be no waiting, whereas the tablet or the foam powder have to be introduced for the best results, at least a quarter of an hour before.

(iii) It can also be used to smear the pessary and the external surface of the condom to give a double protection.

These jellies and spermicidal substances appear to be generally harmless though a few women are said to be allergic to one or more of the jellies. Jellies and creams need careful storage and handling as well as adequate privacy, time and patience for applications. Moreover, they are apt to be messy, in the hot weather They are usually used as 'Supplementary' with 'Diaphragm' method.

It must be stressed that no suppository or jelly can be safely relied upon as the sole method of contraception. In all cases unless a condom is used a combination method is advised.

(1) Safe Period+Gelatin-Suppository or Foam Jelly with Abstinence or condom during fertile week.

(2) Safe Period+Diaphragm with Diaphragm and Gelatin Suppository during the fertile period. This is the better and safer method.

To be effective and usable in all climates, a chemical spermicide must have at least four characteristics.

1 It must kill all sperms in the vagina in a comparatively short time after ejaculation.

2 Unlimited use must have no harmful effect on the male and female genital parts or by absorption into the tissues.

3 The efficacy of the preparation must not deteriorate when kept in the container for long periods of time and it must be usable in all kinds of climate.

4 Commercial productions must be on such a scale of cheapness that they are easily within the buying range of families of low income groups.

XII

METHODS OF CONTRACEPTION *(contd.)*

Biological Methods

Under this head may be discussed :

1. Safe Period or Rhythm Method.
2. Oral Contraceptives.
3. Abstinence.
4. Abortion.

1. Safe Period

It is a method of conception control which requires no appliances or medication at all but which depends for its effect upon the normal physiological rhythm of fertility and infertility during the woman's menstrual cycle. It is now generally accepted that there are certain days in the menstrual month when a woman is fertile and other days when she cannot become impregnated. This concept is based on three physiological assumptions.

1. Ovulation occurs only once during the menstrual cycle, *i. e.* the wife produces and releases from her ovary one and only one egg during her every monthly period.

2. Human ovum lives for not more than 48 hours

3. That the human sperm cells also do not retain their fertilising capacity for more than 48 hours.

Therefore, if conjugal union takes place more than two days prior to or after egg release, no pragnancy is said to result because the sperm and the egg loses its vitality within 48 hours.

If the existence of this rhythm of fertility and infertility is to be utilised for the control of conception, the chief problem is to determine the

exact day on which ovulation occurs. Once ovulation time is known, then it is quite simple to calculate with a fair degree of accuracy the fertile and infertile periods. With due co-operation on the part of both husband and wife, the rhythm method can thus provide a simple, costless and fairly effective means for conception control. At present there are three methods available for determining the ovulation time :

1. Some women can identify the time of ovulation by the occurrence of cramplike feelings in the lower abdomen, or the appearance of slight vaginal discharge or even bleeding. If these symptoms occur regularly on a definite day of the menstrual month, they may signify that the woman is either ovulating or is about to ovulate at that time.

2. The time of ovulation can better be determined on the basis of a woman's menstrual record. This requires an accurate recording on a calendar of the menstrual cycles for a number of months. According to present-day opinion ovulation generally takes place 2 weeks before the onset of menstruation. If the length of the cycles is known, ovulation time and the safe period can accordingly be calculated.

3. The more accurate method of determining the time of ovulation is by means of taking rectal temperature each morning on waking, before any kind of physical or emotional activity. At that time the temperature is at its lowest (in healthy woman it will be 980 F or less) and represents what is called the "basal body temperature." During the first two weeks or so of the cycle depending upon its length, the temperature is between 97°-98° F. Then it frequently shows a drop of several tenths of a degree, followed the next morning by an abrupt rise from $\frac{1}{2}$° to 1° degree. Thereafter the temperature stays at a high level, usually between 98° and 99° F during the remaining days of the cycle, and drops again a day or so before the onset of the next period. Therefore, the time to abstain

from intercourse or to use special precautions is when the temperature shifts from low to high. While the egg cell may leave the ovary from the 8th through the 19th day, most ovulation occurs from the 12th through 15th with the largest number on the 14th day.

Ovulation occurs at a fairly definite time, some 13 to 15 days before the onset of the next menstrual period ; ovum after release survives for only about 24-48 hours unless it is fertilised and sperms retain their capacity to fertilise the ovum for about 4 days in the upper female passage. There are thus 8 '*fertile days*' in a month[1]—3 days before the ovum arrives, the day ovum is released and two days afterwards and one extra day for safety on each side. For example, if it is assumed that a woman who menstruates every 28 days ovulation takes place 15 days before the onset of menstrual period, conception can occur from the 19th day to the 12th day inclusive, before the onset of the anticipated menstrual period. The rest of the period is considered to be safe.

But the whole trouble is that the existence of a "safe period" in a woman's menstrual cycle is itself doubtful. Dr. Ogino, a gynecologist of Japan and Dr Knaus of Germany after studying the quiescence of the uterus that follows ovulation, have reached the conclusion that fertilisation can only occur between the 11th and 19th day continu-

1 *The Family Planning Manual*, issued by the Government, of Madras, points out that there are 5 days which constitute the 'Fertile Period'. This period consists of the day of egg-release, two days before and two days after interval of time after the disappearance of menstruation and before the commencement of the 'Fertile Period' will be a 'safe period' during which conjugal union can take place without risk of pregnancy

Similarly the interval of time between the end of the 'Fertile Period' and the onset of next menstrual period will be another 'Safe Period'. Thus the two 'Safe Periods' of every menstrual cycle may be distinguished from one another as the "After-menses Safe Period' and the 'Before-menses Safe Period', 1957, p. 4.

ing from the onset of menstruation, among the women with regular 28 days cycles, and that conversely the first 10 days and the last 10 days constitute the "sterile" or "safe period". According to Dr. Van de Velde also in normal cases ovulation occurs on the 12th day of the cycle generally.

But this theory is only true in "normal cases" and "generally". For it cannot be easily determined for women whose cycles are irregular or not four weekly type. Menstrual cycles in normal women vary from 21 to 38 days and four-fifths of women vary an average of 8 or 9 days in the lengths of their cycles. The woman's rhythm is usually upset by unusual physical exercise, a change of climate, nursing, chronic afflictions or anaemia, severe emotional upsets or separation from husband for more than a few days, or abortion or miscarriage or birth of a child for up to 6 months. The calculation of the 'Safe Period' is also difficult especially during pueperal, lactating and menopenal periods.

Thus if the duration of the menstrual cycle is exactly known, the 'Safe Period' method may be employed. But women using this method should fulfil the following requirements :—

(i) The woman should have recorded her menstrual cycles for 8 months to 1 year :

(ii) No cycle should be more than 40 days in length ;

(iii) No cycle should be less than 24 days ;

(iv) The difference between the shortest and the longest cycles recorded should not exceed 9 days.

If the above conditions are fulfilled the safe days can be worked out with the half of the following tables :—

Fertile Period Key Numbers

No. of days in Shortest Menstrual cycle.	The menstrual cycle day on which fertile period begins.	No. of days in Longest Menstrual cycle.	The menstrual cycle day on which fertile period ends.
25	7th	30 or less	19th
26	8th	31	20th
27	9th	32	21st
28	10th	33	22nd
29 or more	11th	34	23rd

N. B. :—For mothers with menstrual cycle of 24 days or less, there is no 'After-mensus Safe Period'.

N. B. :—For mothers with menstrual cycle of 35 days or more, there is no 'Before-menses Safe Period'.

Supposing that a wife gets her menses on 1st Jan. The husband also knows from her wife that the shortest menstrual cycle of his wife is 27 days, and so according to the first part of the table his first key number is 9. Her longest period is 32 days and so his second key number is 21. Remembering these two numbers 9 and 21, he should count 9 days from 1st and locate the 9th January, as the beginning of the 'Fertile Period'. Similarly he locates 21st January as the last day of the 'Fertile Period.' For all these days of fertile period—from 9th January to 21st January—therefore be avoided for conjugal union All days between the disappearance of menstruation and 8th January are 'Safe days'. Again, all days from 22nd January until the appearance of the next menstruation are 'Safe days'. All the days in between these two periods are 'Unsafe' and are therefore to be avoided.

The following simple rule will prove useful in this connection :—

"If the day of menstruation for a woman is on Monday, the next Monday will be her *'first risky*

day' ; the Monday following the '*first risky day*' will be the '*most risky day*' ; and the Monday following the '*most risky day*' will be her '*last risky day*'. Intercourse can, therefore, be resumed on Tuesday after the third Monday, *i.e.* the last risky day." Dr. Dickinson says, "Although every woman has a long series of infertile days in her monthly cycle, there is enough variation between different women so that no general rule can be formulated that will safeguard all women. It can be stated with a definite certainty that during the week preceding the menstrual period the chance of pregnancy is one-fifth as great as during either of the first two weeks." Thus if pregnancy is to be avoided the coitus can be had during the "safe period".

This method involves no expense or bother and it permits complete satisfaction to the desire for conjugal union without physical interference of any kind.

But it cannot be used by women whose menstrual cycle is irregular. This method can also be not adopted when the occurrence of another pregnancy is likely to endanger the health of the wife ; or for other reasons the avoidance of pregnancy is an imperative necessity.

Dr. Griffith reports that conceptions may occur from coitus on any day of the menstrual cycle. Dr F. Weinstock states that out of the 416 cases studied by him at the University Clinic of Ludwig, 14.9 % of the women conceived on the first to the fifth days of the cycle ; 31.7 % on the 6th to the 10th days ; 28.6 % on the 11th to the 18th days, and others (25%) on the remaining days of the cycle. "From this stand-point of practical experience", he concludes," it is evident that there is no sterile period within the menstrual cycle".

2. Oral Contraceptives

Since time immemorial various kinds of plants have been used for making a woman sterile, when their liquid extracts are taken by mouth. But it is

only recently that intensive research has been begun on specific species. In India experiments are being carried out on Oil of Pisum, (*Matar Dal*). In England thorough investigation is now in progress into the effects of extracts of two kinds of *Lithospermum*. Dr. Henry de Laszlo reports that by now more than 50 plants are said to have been used for making the woman sterile by primitive tribes in various parts of the world. But so far no reliable source has been found out.

Recently investigations were in progress at the All-India Institute of Hygiene and Public Health, Calcutta—on oral contraceptives. The price of the contraceptive at present is about 10 N.P. a tablet of 100 mg. Three tablets of 300 mg. are said to be required to be taken at one time.[1]

3. Abstinence or Moral Restraint

Religion inspires moral restraint in persons by glorifying both reproduction and virginity. Moral restraint in married love is a true spirit of co-operation, making a clear distinction between sex life for pleasure and planned reproduction. It is a definite understanding by husband and wife of when their love is for pleasure and when it is for conception. Children are born according to moral restraint only when both partners earnestly desire to raise a family. Herein is given the Indian method of moral restraint[2] :—

1 *Free Press Journal* 19th March, 1959.

2 Mr. and Mrs. William I. Battin, *Eighteen Ways to control the Size of Your Family*, 1948, p. 12

Indian Method of Moral Restraint

Day of monthly course	Description of the period	Policy and Procedure
1, 2, 3, 4. 5	Beginning of the monthly course (5 days of menses)	Satisfy husband by mutual masturbation
6, 7, 8, 9	Post-menstrual period (3 or 4 days for intercourse)	Satisfy husband by intercourse
10, 11, 12, 13, 14, 15, 16, 17, 18, 19	Mid-cycle (Ten "teen" days for mid-cycle abstinence)	Satisfy husband by ejaculation and orgasm from embraces, kisses motions and other love play
20, 21, 22, 23, 24, 25, 26, 27, 28, 29	Rhythm Period (seven to eleven days for intercourse)	Satisfy husband by intercourse

Control of births without artificial means might be brought about by increased continence. The extent of continence required for affecting fertility in any significant manner will have to be very large but the proportion of those who can follow successfully this method of family limitation is infinitesimally small. It is said that every act of self-restraint strengthens our moral fibre and elevates our nature. Nobody will contradict this general proposition. The sex instinct in the normal man is immensely strong and deep-rooted. Even a single act of sexual congress in a year may fertilise the ovum and keep up an yearly flow of

birth. Besides, abstinence is harder in normally sexed men and women than in rigid, ascetic or or intellectual type. Dr. Marrie Stopes thinks that, "the man of sex vitality below par or the man engaged on very absorbing and strenuous intellectual work is, on the whole, likely to achieve this enforced celibacy within marriage without any material disturbance of his physiological functions but with the probable result that if it is extended over for many years his potential fertility may be reduced or totally lost. And even with the best will in the world he will hardly prevent himself getting at least a little "queer" and fidgety if not actually irritable and the woman will develop some form of sleeplessness, digestive complaint, nervousness, hysteria, ovarian congestion, thyroid and endocrine disturbances, sexual neurasthenia, anxiety neurosis and fully developed psychoses."[1] In men continued abstinence causes debility, impotence, congested glands and insomnia besides which a permanent barrier is established between husband and wife and destroys the self-confidence and spontaneity which are so essential for a man's normal functioning. In the face of these facts continence would seem to be extremely imperfect means of restricting population growth, though abstinence is necessary during days when menstruation would be due for the second and third time, the period when spontaneous abortion is most likely to occur and during the later months of the pregnancy.

Prof. Erb considers that undoubtedly innumerable older single women of refinement and education become sick or ailing from the stifling of their sexual life. The most common disturbances due to abstinence are chlorosis (a form of anaemia,) female diseases, nervousness in its many phases, cramps, hysteria, with a tendency to alternate laughing and crying, hilarity and sadness, halluci-

1 Mary Stopes, *Contraception.*

nations, and melancholy." Dr. Higerisch has written, "Although I agree with Malthusian appreciation of womanly virtue, I must as a physician express as my opinion that the enforced abstinence of woman nevertheless is a crime against nature and often is followed by serious functional disturbances and symptoms of diseases."[1]

The effectiveness of abstinence is negligible in limiting the size of the family or in spacing of births.

Firstly, the high infant mortality reduces drastically the prescribed period of abstinence and the necessity of its observance; and the same tragic process further shortens spacing after an infant death.

Secondly, the period of forced abstinence is cut short by premature weaning.

Thirdly, an escape is provided from the superstitious abstinence by various forms of so-called magic.

An improvement in literacy and the supposed imitation of elite, while a wide gap in the structure of values remains unbridged also tend to shorten the period of customary self-restraint.

4. Abortion

The post-conception control comprises of the efforts at ending conceptions after they have occurred by artificial means. Abortion means the premature expulsion from the womb of the *embryo* or foetus, before it is viable (*i. e.* capable of living outside the mother's body). Abortion is intentional and destroys the foetus. This objectionable method of birth control is much more frequently employed than usually supposed.[2]

1 Quoted by W. J. Fielding, *Sex and the Love Life*, 1948, p. 199.

2 There are three different classes of abortion: (1) *Spontaneous abortion*, which takes place without any outside interference; (2) *Induced abortion*, which is brought about by artificial means, either by the woman herself or someone else; and (3) *Therapeutic abortion*, which

In the West abortion is resorted to for various reasons. The great majority of the women applying for an abortion are married. Bad housing conditions, unemployment, financial difficulties, disease, and alcoholism are the most important motives forcing women to ask for abortion. In Denmark abortions are allowed on medical, eugenic, and ethical grounds. In Finland, pregnancy may be terminated with the consent of the woman : (a) when because of illness, bodily defect, debility or fatigue, pregnancy it would constitute a serious danger to the woman's physical or mental health ; (b) when the woman has been raped or coitus has taken place under circumstances covered by the penal law, or when there has been a gross violation of her own liberty of action, provided she immediately informed the authorities before she discovered the pregnancy, (c) when it can be reasonably assumed that the parents of the expected child have some hereditary disease which will pass on to the child. Here roughly 60 per cent of the women asking for an abortion are married. Over 60 per cent of the married and less than 40 per cent of the single ones, unmarried, divorced or widows, obtained abortion. For Great Britain, the Royal Commission on Population suggest that in the British Isles, the total wastage from abortion lies somewhere between 10 per cent and 16 per cent of all conceptions and that 2 per cent to 5 per cent are criminal, about twice as many spontaneous and the remainder therapeutic. But in round and rather uncertain figures this gives an estimate of 100,000 abortions per annum—30,000 criminal, 60,000 spontaneous and 10,000 therapeutic. It is a matter of common knowledge that abortions are even now common in India, but accurate figures are not

is produced artificially by a doctor or a surgeon as a means of saving the woman's life, and for this reason is legally permissible, while induced abortion is called 'illegal' or 'criminal' abortion and when a case of this kind is discovered, the woman and the person who performed the abortion are liable to severe punishment.

readily available. However, Dr. Spackman estimates that the abortion rate for general population in India is not lower than 10 per cent of the total pregnancies. According to him if the live births are taken at 14 millions per annum, and if *1 million* is added for still-birth making the total to 15 million total births, then the total pregnancies would be 16½ million, and the total abortions about 1,650,000 per annum. This is really a very sad state of affairs.

The mortality from induced abortion is high, as there is always danger of infection, or complication, and the hazards are worse because of the unhygienic conditions under which they are often performed, not infrequently by amateurs. Even those who have an illicit business of it are rarely competent gynecologists. Dr. Spackman estimated that the death rate percent after abortion is about 1.5 %, *i. e.* three times that after labour at full term. After criminal abortion it is far higher.[1]

Illegal abortions and many spontaneous abortions, on the other hand, not only result in direct pregnancy wastage but in many cases affect the health of the woman adversely and often results in permanent sterility.

The effects of abortion, according to F. J. Taussig, are[2] :—

"When pregnancy is prematurely interrupted the human race suffers loss and damage in three ways.

"*First*, an infinite number of potential human beings are destroyed before their birth.

"*Secondly*, abortion carries with it a considerable death rate among expectant mothers.

"And finally, abortion leaves in its wake a high incidence of pathologic conditions, some of which

1 Lt. Col. W. C. Spackman, *Medical Problem of Abortion*, in *Indian Population Problem* edited by G. S. Ghurye. p 1.

2 F. J. Taussig, *The Abortion Problem*, 1944, p. 39.

interfere with the further possibility of reproduction."

Among the other dangers of abortion are haemorrhage, perforation of the uterus, retention of an adherent placenta, sepsis and tetanus. Permanent after-effects that occur are the irregularity of the monthly cycle leading to sterility and other pelvic disorders, anemia, malignant diseases and neuroses.[1] Hence, abortion as a means of preventing fertility cannot be advocated in any case.

1 W. J. Fielding, *Sex and Love Life*, p. 134.

XIII

METHODS OF CONTRACEPTION (*contd.*)

STERILIZATION

However, the cheapest and the best and safest method of birth control today is that of sterilization This is accomplished by an operation either on the male or the female. In the male, this is best achieved by an operation called 'Vasectomy.' Vasectomy does not interfere with the regeneration of the spermatozoa, but prevents them from entering the seminal vesicles, to form the normal semen. Vasectomy or cutting of the vas is a very minor operation and is usually completed within 10 to 15 minutes with local anaesthetic. The sperm conveying tubes are found by opening the skin at the grains, and are cut and their ends tied, and the skin stitched. As a result the sperms cannot be discharged since their passage is blocked, and when there are no sperms in the semen conception cannot occur. So vasectomy is the best and perfect method of birth control.

In the female the operation is known as 'Salpingectomy' and is somewhat difficult. It consists of surgical removal of a small piece of each of the two tubes (one on either side) conveying the egg-like female germ. It is best done within 24 hours after delivery because immediately after child-birth the female internal organs of reproduction are enlarged and prominent so that the operation is comparatively easier to perform at this time. Moreover, as the woman is already confined to bed at this time, hence no extra time is lost. The operation is done generally under Spinal Anaesthesia.

Advantages

(i) It enables man to dispense with all appliance, drugs, douchings, etc. There are no recurring expenses and no botheration at all. It is worry-free and care-free method.

(ii) Sterilization does not affect the sex impulse, nor does it interfere with sexual pleasure. There is unfortunately a superstition that it has an unsexing effect on the male. This, of course, is not true. The effect of operation is to prevent the microscopic spermatozoa from leaving the body. They come into existence as before male harmones come into being but they are absorbed by blood as impurities and discarded like any other waste. The semen in which they swim is not diminished in quantity by sterilization but it becomes free of spermatozoa. Dr. Norman Haire, the famous British surgeon, writes, "These operations are quite harmless and do not at all decrease sexual desire, potency or pleasure." Several series of cases carefully followed up, however, have shown that for the average patient the only change which he or she can detect is the desired one that children are not produced. Woodside interviewing 48 sterilized women, found that five, who told of moderate decreases in sexual activity, were outnumbered by eight who reported increases.[1] The remaining 35 had no change. Similarly, Garrison and Gamble, interviewing 50 vasectomised men, found that four telling of less sexual activity were fewer than the eight who considered that it had been on increase. (iii) An omission or incorrect carrying out of the physician's suggestions cannot cause undesired pregnancies. (iv) Also important is the absence of further cost for supplies or further effort for their application. At current prices the diaphragm method is likely to cost between Rs. 30 to 40 per annum (*i.e.* roughly Rs. 1,000 for the child-bearing life of a married couple). The sheath method is likely to cost not less than one-half of that (*i.e.* not less than Rs. 500 for the child-bearing of a married couple) But according to Madras Family Planning Board, the average cost per case of vesectomy would be only Rs. 10.

1 In Bombay Dr. Shirodkar could make 1/5 of the 50 operations fertile again after vasectomy.

Defects

(i) Though sterilization is sometimes called the best and safest method of birth control, it has got some defects too. It is difficult to restore the procreating power of the man if he again desires to have children, though in some cases the power has been successfully restored by rejoining the several tubes after several years.[1] (ii) There is a second difficulty. Should a man lose his wife and remarry, the second wife cannot become a mother. But here again the chances of a man losing his wife will be considerably less as she will not be subjected to frequent and ill-spaced pregnancies often resulting in premature death. (iii) When compared with temporary methods it has the disadvantage of high initial cost. The services of a surgeon are necessary. (iv) If the patient is a woman and sterilized by the usual methods, she must spend a few days in the nospital while the wound is healing. Unlike other forms of birth control, sterilization cannot readily be abandoned.

It is obvious that this operation should be undergone voluntarily by those persons who want a technique of permanent conception control. But in cases of epilepsy, insanity, leprosy, or mental defect, venereal diseases, criminality, the sterilization should be made compulsory by the State.

The number of sterilization operations reported to have been performed in different States during 1956 and 1957 is 4,171 and 10,214 respectively, and 2,214 up to the end of March 1958. Of these, operations performed on male were 2,171 and on females 2,008 in 1956 ; 3,415 on males and 6,777 on females in 1957, and 1,185 on males and 1,029 on females during 1958 (up to the end of March).[2]

1 Quoted by C. J. Gamble in *Permanent Birth Control by Surgical Sterilization*. In the Fourth International Conference on Planned Parenthood, p. 67.

2 *Indian Information*, May 15, 1958, p. 264.

Conclusion

Unfortunately "birth control" is the most important and difficult task for the Government because the methods suitable for the West are not suitable for the Indian conditions for they are expensive and need education, skill and care not available among the masses and because of the lack of privacy and sanitary conditions, and the low standard of living. Hence, what is needed more than anything else is the oral method of contraception, which should combine six features: it should be wholly effective, harmless to the users and children later born, fool-proof, aesthetically unobjectionable, within the means of the poorest user and acceptable on moral grounds. In my opinion the oral method would come nearest to satisfying the first five and possibly the last of these requirements. No method short of permanent sterilization is completely fool-proof or proof against extreme forms of improvidence and fickleness. But a pill or capsule which is swallowed by the woman once a month most conveniently on the first day of her period could prevent pregnancy in ensuing month.

The most desirable quantity of population will be one that attains maximum level of living, political stability and economic security along with adequate freedom and leisure for the pursuit of cultural values, and which effectively safeguards the nation against alien aggression and penetration and at the same time does not give rise to imperialistic claims for expansion and colonies.

The birth control programme should exclusively be left to the voluntary action of the parents, while the Government should be entrusted with the task of finding out most reliable, effective, fool-proof means of contraceptives especially a perfect pill or a capsule.

XIV

IMPROVEMENT OF QUALITY OF POPULATION

The improvement in the quality of population itself can be divided into two categories : (i) the quality of the existing population, and (ii) the inherited or biological quality of the population.

1. Improvement of Existing Population

The former can be improved by the development of health services throughout the country and by concerted efforts at combating malnutrition and under-nutrition. "No preventive campaign against malaria, tuberculosis or leprosy, no maternity relief of child welfare activities are likely to achieve any great success unless those responsible recognise the vital importance of the factor of defective nutrition and from the very start give it their most serious attention. Abundant supplies of quinine and the multiplication of the T. B. hospitals, sanatoria, leprosy colonies, maternity and child welfare centres are no doubt desirable but none of these go to the root of the matter. The first essentials for the prevention of diseases are a high standard of health, a better physique and a greater power of resistance to infection. These can only be attained if the food of the people is such as will give all the physiological and nutritional requirements of the human frame."[1]

Besides improving the diet of the people it is also essential that the existing medical facilities should be increased. An effective system of modern health service is impossible without an adequate professional personnel and the institutional equipment and research institutions to keep abreast of

1 *Report of the Public Health Commissioner for India,* 1933, p. 36.

scientific changes and progress achieved in other parts of the world. Health development programmes must include modern. uptodate and large special clinics on a nation-wide scale such as T. B, sanatoria, leprosarias, mental asylums, birth control clinics, psychiatric departments, mothers' and children's Health centres.

2. Negative and Positive Eugenics

The improvement in the second type of quality can be promoted to a great extent through scientific control of human breeding. There are two lines of approach, one negative and the other positive.

Negative Eugenics would prevent the increase in numbers among those classes of population that are clearly defective like idiots, imbeciles, feebleminded persons, criminals, etc.

There is ample justification for selectively sterilising the entire group of hereditary defectives, where a couple have already a fair-sized family ; where there is bad heredity ; or danger of deformed children ; or where the husband and wife is suffering from a chronic disorder, or where the permanent conditions of life and work make the parenthood inadvisable. Selective sterilization would not only decrease the present cost of these unfortunates to the society but also diminish the economic handicaps to the social normals besides reducing the number of undesirables very rapidly.

Hence, it is highly desirable that India must investigate the possibility of eugenical sterilization. It should be undergone voluntarily by those persons who want a technique of permanent conception control. But in case of hereditary defects, it should be made compulsory by the State.

Positive Eugenics aims at promoting the reproduction of our best stocks but it is more difficult rather definitely impossible for India for it concerns the cultivation of desirable human traits,

and no agreement can be reached upon as to what constitutes the most ideal human qualities. Nevertheless the society has to set up certain standards on social, religious or racial lines which do influence marriage. The policy for India should be such that it makes such legal, social and economic adjustments that (i) a larger proportion of superior persons will have children than at present; (ii) that the average number of offspring of each superior person be greater than at present, (iii) that the most inferior persons will have no children, and lastly (iv) that the inferior persons will have fewer children than now.

These measures will lead to a selective fertility. "If the birth control exercised by individual parents," writes Prof. Fisher, "could itself be controlled by a Eugenics Committee it could undoubtedly become the surest and most supremely important means of improving the human race so that we could breed out the unfit and breed in the fit."[1] Then and then only we could in a few generations conquer degeneracy, dependency and delinquency and develop a far superior people than at present.

No doubt these measures when put into practice would prove highly useful to the society but with an overwhelmingly illiterate population attempts at nation-wide medical or social reforms are bound to be fruitless. Hence, a national educational policy should also be formulated to cover the education of every child of school-going age, the education of adult illiterates and the maintenance of the literacy standards thus obtained.

1 Quoted by Duncan, *Op. Cit.*, p. 352.

XV

SUMMARY

Necessity of Family Planning

In view of the (i) increasing pressure on population on the land and other resources in the country which result in poverty, disease and starvation, and a consequent general low standard of living and the short span of life, huge infant and maternal mortality ; (ii) the existence of a large number of defectives, infirms, or inadequates and diseased persons as a result of which a trail of crime, murder, pauperism, prostitution and illegitimacy is increasing in the country ; (iii) low income of the family to support a large number of children in any decent way ; and (iv) the ill-health of the mothers due to frequent child bearing and the need of spacing of child birth, the necessity of preventing further growth of population is keenly felt. This can be done by adopting some form of birth control measures by the population concerned, specially the middle and the lower class people.

The basic idea behind family planning is that the parents should be get children by choice and not by chances. Family planning is in fact planning of the family by the family and for the family. Family planning may be defined as *Planned regulation by a married couple of the pregnancies which are liable to result from their conjugal union, through the adoption of precautions calculated to avoid unplanned pregnancies.* It consists in providing a means of satisfaction of the desire for conjugal union, avoiding the occurrence of an unplanned pregnancy.

The practice of family planning is necessary because :—

(i) It is the means of spacing pregnancies and safeguarding the health of mothers thereby en-

abling every husband to discharge his duty to his wife.

(ii) It is the means of limiting the size of the family, thereby enabling every married couple to discharge their duty to their children.

(iii) It is the means of stabilizing the size of the nation, thereby promoting national welfare and assuring the success of national planning and thus enabling every married couple to discharge their duty to the nation.

The married couple can help the nation to achieve a planned balance between births and deaths. They can do so by adhering to the following determinations :—

(i) That the interval between the end of one pregnancy and the beginning of next does not fall short of three years.

(ii) That when they have given birth to three or more children, they refrain from having any more (except in exceptional circumstances).

Difficulties and their Removal

But (i) the low standard of living, (ii) the ignorance and illiteracy of men and women, (iii) the lack of privacy due to overcrowding in towns, and lack of housing facilities, which is essential to the unobstructive use of contraceptives, (iv) lack of cleanliness, bathrooms, and running water (which are necessary for the use of contraceptives and which require cleaning after every use), (v) the absence of any organisation, social or administrative, which can be used to propagate ideas and instruments of control thereby changing the mental and social atmosphere (which is generally hostile to the spread of contraception), (vi) the difficulties of taking the message of birth control to the villages, (vii) the costliness of the available contraceptives are some of the formidable obstacles to the wide use and spread of birth control appliances in the country.

These difficulties can be removed by (1) raising the standard of living of the masses by removing the imbalance between agriculture and industry, and providing other sources of employment by planned industrialisation, adequate dietary changes and proper education, (2) by developing the mental and psychological background through appropriate social and educational policy, (3) by inventing cheaper, reliable, harmless and acceptable contraceptives, which should provide adequate protection against conception besides being simple, practical, and aesthetically satisfactory to the people who use them, (4) by supplying these requisites free of cost by the Government Hospitals, Maternity and Child Welfare Centres, Clinics and Municipalities to the necessitous women when the practice is advocated on the ground of health. The Government should also have a control over the manufacture and sale of contraceptives as in the case of food and drugs. And lastly, a rational family planning and education of the masses in the use of contraceptives must be accepted as the most effective means of combating population increase. The opening of the clinics throughout the length and breadth of the country would help a great deal towards the solution of this urgent problem.

Methods to be used

Regarding the methods to be adopted for prevention of conception there are various devices : (i) those that are to be used by the husband like condom and interruptus coitus, and (ii) those that can be used by the wife like mechanical devices, such as vault caps, cervical caps or dutch caps ; use of sponges or cotton pads soaked in some antiseptic lotions chemical devices, such as the use of jelly, ointment, soluble powder, foam producing tablets, etc., or douching after intercourse ; or biological devices like having coitus during the safe period or rhythm, oral contraception, or

observing abstinence and practising abortion. The other method is sterilization. But of all these methods only the use of a condom and some sort of chemical substance with it is suggested.

Oral method of contraception in the form of some perfect pill or a capsule may also be experimented upon.

It may be emphasised that the quality of population is closely related to the quantity, and therefore it cannot be improved without controlling the quantity. Hence, planned parenthood should be necessarily incorporated as an essential element in any programme that actually raises the standard of living to maximum possible extent. Our unwillingness to do it will necessarily result in perpetual poverty or in absolute catastrophes. In other words, the alternative to this method is more poverty, more misery, more mortality, more diseases, more epidemics, more scarcities, and in a word, "More Wretched Living."

XVI

GOVERNMENT AND FAMILY PLANNING

The Government of India has probably been the first country in the world to give recognition, on a state level, to the family planning programmes. Not only the Government but also the Planning Commission has viewed with disapproval the rapid growth of population in the country for "the reduction in the rate of growth of population must be regarded as a major desideratum," if the per capita living standards are to be raised. To achieve this end, the Planning Commission has recommended certain measures for the inculcation of the need and techniques of family planning. The Commission believes that progress in the field of family planning depends first on creating a sufficiently strong motivation in favour of birth control and second on providing acceptable. harmless, cheap and efficient methods. Two necessary requisites for the implementation of this policy are :

(i) Intensive studies about the attitudes and motivations affecting size, and techniques and procedures for the education of the public on family planning, and

(ii) Field experiments on different methods of family planning as well as medical and technical research.

The objects of the family planning programme, as laid down by the Planning Commission, are : (i) to obtain an accurate picture of factors contributing to the rapid increase of population in India ; (ii) to discover suitable techniques of family planning and devise methods by which knowledge of these techniques can be widely disseminated ; and (iii) to make advice on family planning an integral part of service in Government hospitals and public health agencies ; (iv) to conduct field experiments

on different methods of family planning for the purpose of determining their suitability, acceptability and effectiveness in different sections of the population.

On the recommendations of the Planning Commission, the Government of India, under the Union Ministry of Health, has set up the Family Planning Board to direct the family planning programme under the Second Five Year Plan. Its functions are to advise on the following matters :

(i) Research and studies on inter-relationship between economic, social and population changes, on reproductive patterns, attitudes and motivations affecting the size of the family.

(ii) To educate the public opinion on matters of family planning.

(iii) To advise and provide necessary service in the family planning programmes as an integral part of the public health activities through hospitals, health centres and clinics.

(iv) To provide facilities for the training of personnel in family planning.

(v) Formulation of schemes for the improvement of the health of the mothers and children and for bringing about better conditions of family living.

(vi) Research on the production of contraceptives.

(vii) Literature and periodicals in furtherance of the objectives of the scheme.

This Board has suggested : (i) the formation of an Executive Committee to implement the policy formulated by the Family Planning Board ; the appointment of a Family Planning Officer in each state ; with a central subsidy for three years, to co-ordinate Family Planning activities throughout the State and to act as a liaison officer of the

Central Family Planning Organisation ; and (ii) the provision of financial assistance to voluntary organisations after examining requirement of each case.

The Board has also recommended the provision of thirty publicity vans equipped with Audio-Visual aids along with Propaganda Teams to selected areas as an experimental measure to educate public opinion and the appointment of an additional woman doctor in selected Primary Health Units to implement the family planning programme.

During the Second Plan, a provision of Rs. 497 lakhs has been made—Rs. 400 lakhs in the public sector and Rs. 97 lakhs in the States' sector. Of this amount, Rs. 3·3·25 lakhs have been provided for family planning clinics ; Rs. 15·75 lakhs for training ; Rs. 50 lakhs for education ; Rs. 50 lakhs for research and Rs. 8 lakhs for Central organisations.

About 2,500 clinics—2,000 in the rural and 500 in the urban areas—are to be opened during the Second Plan period.

The pattern of Central grants to the State Governments, local bodies and voluntary organisations in this respect is as follows :

Non-recurring expenditure : 100%.

Recurring expenditure : as indicated below :

	State Governments and local bodies	Voluntary Urban	Organisations Rural
First Year	80%	100%	100%
Second Year	70%	80%	100%
Third Year	50%	80%	100%
Fourth Year	30%	80%	100%
Fifth Year	20%	80%	100%

Grants-in-aid for family planning work were given as indicated as below :

	1954-55	1955-56	1957-58
State Govts.	Rs. 2,70,339	Rs. 1,79.592	Rs. 6,75,400
Local Bodies	Rs. 1,40,520	Rs. 1,33,886	Rs. 1,94,345
Voluntary Organisations	Rs. 1,04,598	Rs. 3,12,367	Rs. 13,53,638
Research	Rs. 2,15,632	Rs. 2,17,570	...
Total	Rs. 7,31,089	Rs. 8,43,415	Rs. 22,23,343

During the First Plan period, 147 clinics were opened (21 rural and 126 urban). and 205 clinics, maintained by the State Governments, local bodies and voluntary organisations received grants. Out of the Plan target of 2,500 clincs, 309 in rural and 163 in urban areas were established during 1956-1958. Inquiries regarding clinics not receiving Central Grant show that there are about 265 such clinics in different parts of India. The latest available number of clinics sanctioned is as follows :

	Sanctioned during 1956-57		Sanctioned during 1957-58	
	Rural	Urban	Rural	Urban
State Governments	19	21	192	55
Local bodies	...	1	...	18
Voluntary Organis.	1	3	22	45
Total	20	25	214	118

It is proposed to provide one well-equipped and adequately staffed centre for each urban area with a population of 50,000 subject to the condition that where a number of centres are opened in a large city, one doctor will look after 5 centres. In the rural areas, the centres are to be associated with the Primary Health Units. Such clinics will be given a non-recurring grant of Rs. 500 for stocking

contraceptives for sale and another Rs. 1,000 for the distribution of contraceptives free of charge as recurring grant per year. A sum of Rs. 1,25,000 has been sanctioned for the purchase of two million foam tablets for distribution free of cost. For family planning work during 1958-59, a provision of Rs. 46 lakhs has been made and 300 rural and 80 urban clinics are to be opened.

Besides the Central Family Planning Board at Delhi, Family Planning Boards are also working in the States of Andhra, Assam, Bihar, Bombay, Kerala, Madras, Mysore, U. P., West Bengal and the Union Territory of Himachal Pradesh.

The states of Andhra, Assam, Bihar, Bombay, Madras, Mysore, Punjab and Rajasthan have also appointed full-time Family Planning Officers.

Training in the technique of family planning is imparted at the Family Planning Training, Demonstration and Experimental Centre at Ramnagram (Mysore), the Family Planning and Research Centre at Bombay and the All-India Institute of Hygiene and Public Health at Calcutta. Grants to open regional training centres have been given to the States of Kerala, Madras, U. P., M. P., West Bengal and Punjab. During 1957-58, 247 persons were trained in family planning.

Demographic Teaching and Research Centre has been opened at Bombay in collaboration with Sir Dorabji Tata Trust. This centre is being developed as a regional organisation in collaboration with the United Nations to serve the needs of other Asian countries as well. A Demographic Research Centre has also been opened in Delhi School of Economics. The research programmes include a number of studies on attitudes and motivations affecting fertility and economic and social determinants of population trends and long-range efforts of family planning.

2,90,000 posters in two designs in English and

regional languages were printed, pamphlets were distributed to different agencies, films were exhibited in different cinemas and radio programmes were also started. A number of indigenous drugs have been screened for their oral and contraceptive effects and research in contraceptives has yielded promising results. Efforts have been made to develop community health and welfare activities, around family planning clinics and to educate the people by personal contact and in groups by trained workers and natural group leaders.

Appendices for Population And Family Planning in India

APPENDIX ONE

Distribution And Density of Population in India

States.	Land Area. (Sq. Miles)	Population. (000)	Density per sq. mile. 1951	1941
U. P. ...	113,409	63,216	557	502
Bihar ...	70,330	40,226	5 2	519
Bombay ...	111,434	35,956	323	255
? ...	60,119	35,734	594	390
Madras ...	30,775	24,810	806	741
W. Bengal ...	130,272	21,248	163	151
M. P. ...	63,417	20,508	323	N. A.
Andhra ...	60,136	14,646	244	230
Orissa ...	37,378	12,641	338	336
Punjab ...	85,012	9,044	106	165
Assam ...	...	...	...	...
Hyderabad ...	82,168	18,655	277	198
Rajasthan ...	130,207	15,291	117	104
Mysore ...	33,673	9,849	293	249
Travancore-Cochin ...	9,144	9,281	1,015	820
M. B. ...	46,478	7,954	171	153

Distribution and Density of Population in India—(Contd.)

States		Land Area (Sq. Miles)	Population (000)	Density per sq. mile. 1951	1941
Saurashtra	...	21,451	4,137	1,732	163
Pepsu	...	10,078	3,494	347	339
Vindhya Pradesh	...	23,603	3,575	151	136
Delhi	...	578	1,744	3,017	1,599
Himachal Pradesh	...	10,978	1,109	102	88
Bhopal	...	6,878	836	122	113
Ajmer	...	2,417	693	265	243
Tripura	...	4,032	639	158	126
Manipur	...	8,628	578	67	59
Kutch	...	16,724	568	34	59
Coorg	...	1,568	229	145	106
And. Nic. Islands	...	3,215	37	10	11
Sikkim	...	2,744	131	50	44
Total	...	1269,640	356,829	281	246

India, 1955, p. 11-12. The figures for 1941 have been computed from Census of India, 1941 Vol. I. The 1951 Census did not cover Jammu and Kashmir, its population was estimated at 4,410,000 and area 32,730.

APPENDIX TWO

Approved Contraceptives

The following list contains the recommendations on specific contraceptives based on the information avilable from recognised agencies in India, U.S. A., and U. K. These products have satisfied the laboratory tests and have proved to be harmless.

I. Jellies & Pastes

Jellies can be used alone by means of an applicator or with a diaphragm to ensure a greater degree of protection.

Name	Manufacturer	Importer
1. Volpar Paste	British Drug House, London	Imperial Chemical House 8, Graham Road, P. O. Box, 1341 Bombay, 1.
2. Koromex	Holland Randoz Corporation, New York	Herbans Ltd.—Prospect Chambers, Hornby Rd Fort, Bombay, 1.
3. Orthogynel jelly	Ortho Products, Raritan, N. J., U. S. A.	Imperial Chemical Industries, Dougal Road, Bombay, 1.
4. Perception	Do.	Do.
5. Protecto	Cipla Chemical Industries and Pharmaceutical Laboratories Ltd. Byculla, Bombay, 8.	

Name	Manufacturer	Importer
6. Cooper cream	Whittaker Laboratories, I.N.C., New York.	Dr. Jai Singh's Sin & Co., Ltd. 18/4 Asaf Ali Road, New Delhi.

II. Foam Tablets

1. Volpar	British Drug House, London	British Drug House Imperial Chemical House, Bombay, 1.
2. Fomos	Fomos Laboratories Inc, 98 Beckmam Street, New York	Representative—Mr. Reuben Posner, Taj Mahal Hotel, Bombay, 1.
3. Semori	Leuitpold—Work, Munich Germnay	Neo Pharma Ltd. Kasturba Bldg., Jamshedji Tata Road, Churchgate Reclamation, Bombay, 1.
4. Sampoon	Nipon Eisai Co., Ltd., 88, Jakechayache, Bunkye-Ku, Tokyo	Shah & Jani, III Dhobi Talao Lane, Bombay, 2.
5. Bymestor	Lamberts (Dalsten) Ltd., 200-202, Queens Bridge Road, Dalton, London, E. 8.	...
6. Contab	Smith Stainstreet & Co., Ltd., Convent Street, Calcutta.	...

Name	Manufacturer	Importer
7. Durafoam	Durax Products, I.N.C., 684, Broadway, New York.	Beddle Sawger & Co. (India) Pr. Ltd., 25, Dalal Street, Fort Bombay-1.
8. Planitab	Hind Chemical Ltd., Sircar Road, P. B. 227, Kanpur.	...
9. Gynamine	Coates & Cooper Ltd., London.	...
III. Condoms		
1. Durapac	Durex, England	L. D. Seymour and Co, Ltd., Apollo Bunder, Bombay, 1.
2. Gold Coin	Watch & Co., Ltd., Japan.	Bhogilal Premchand & Co., 24, Princess Street, Bombay.
3. Primeres	...	Choksey & Co., 76. Princess Street, Bombay, 2.
4. Condoms and Washable Sheaths	Prentip Ltd., Long's Court, St. Martins Street, London W. C. 2.	M. Valab & Co., Botawala Chambers 4 Sir P. M. Road Fort, Bombay-1.
5. Rex	Aarhus Comivare Fabrik Ltd., Denmark.	Dr. Jai Singh's Sons & Co., Pr. Ltd., 18/4, Asaf Ali Road, New Delhi.

Name	Manufacturer	Importer
6. Regard	Aarhus Comi-vare Fabrik Ltd., Denmark.	Dr. Jai Singh's Sons and Co., Pr. Ltd., 18/4, Asaf Ali Road, New Delhi.
7. "Protectives" Transyl, Silvine and Lion	London Rubber Co., Ltd., Hall Lane Chingford, London, E. 4.	L. D. Seymour & Co., Ltd., Apollo Bunder Bombay.
8. Three Knights	...	...

IV. Check Pessaries and Diaphragms

1. Durex	Durex Products, 684 Broadway, 12, New York, U. S. A.	M. Valab & Coltd. Botawala Chambers, Sir P. M. Road, Bombay, 1.
2. Koromex	Holland Randoz Corporation, New York.	Herbans Ltd., Prospect Chamber, Hornby Rd. Fort, Bombay-1.
3. Kemi	Kemi Products Corporation, N. J., U. S. A.	Bombay Surgical & Co., Charni Road, Bombay.
4. Vaginal Diaphragms, latex Spiral Dutch Cap (tye.)	Ortho Pharmaceutical Ltd., Lane End, England.	Imperial Chemical Industries (India) Ltd., Bombay-1.
5. Plastic Caps. Dumas type (8 sizes)	Lamberts (Dalston) Ltd., 200/2, Queensbridge Rd. Dalston, London, E. 8.	Do.

Name	Manufacturer	Importer
6. Check Pessaries	Rubber Industries (India Ltd.), 243 Abdul Rahman Street Bombay–3.	...
7. Cooper	Whittaker Laboratories, 898, Washington Street, New York.	Dr. Jai Singh's Son & Co., Ltd., New Delhi.
8. Dutch Caps (Durax) flat or spiral spring	London Rubber Corporation Hall Lane, Chingford London, E. 4.	Imperial Chemical House, Bombay.
9. Cervical Caps	Do.	L. D. Seymour & Co. Ltd., Bombay.

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