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CHRONIC BRONCHITIS IN RELATION TO DURATION OF EMPLOYMENT—A SURVEY CARRIED OUT IN GLASS BANGLE FACTORIES IN FIROZABAD

BY

J. S. MATHUR*, B. G. PRASAD**

and

N. S. N. RAO***

Chronic bronchitis is an illness lasting several years and may have few constant symptoms and signs on which a definition can be based. The incidence of chronic bronchitis varies considerably in different countries and occupations. Industrial pollution is a major problem in all the industrialised countries. Literature of industrially advanced countries point out that industrialisation has increased the incidence of respiratory diseases. The contamination of breathing atmosphere inside and outside the factory environment by industrial pollutants has been held responsible for increase in chest diseases by most of the workers in the field of industrial health.

Rapid industrialisation has been going on in India since Independence in 1947. The pace of industrialisation is likely to be further accelerated in future years. Recent reports show increased incidence of respiratory diseases in industrial towns in the country (Mathur, 1962; 1963). But the study of the effects of atmospheric pollutions has not received sufficient attention from the workers engaged in the fields of industrial and preventive medicine.

* Reader in the Department of Social and Preventive Medicine, College of Medical Sciences, Banaras Hindu University, Varanasi.

** Professor and Head of the Department of Social and Preventive Medicine, K. G. Medical College, Lucknow.

*** Statistician, Department of Social and Preventive Medicine, College of Medical Sciences, Banarsa Hindu University, Varanasi.

Material and Methods

The present study was undertaken in the glass bangle industry of Firozabad, Uttar Pradesh. It is one of the biggest industries of Uttar Pradesh and the biggest industry of its own type in India.

The present work was carried out on glass bangle workers of Firozabad from June 1962 to June 1964. It is a town in the district of Agra measuring about four square miles in area and has a total population of 76,000 persons with approximately 500 industrial units of various types. About 70 per cent of the glass products in Uttar Pradesh are manufactured in this town alone. A random sample of six glass bangle factories was taken for the study, out of the factories working at the time of the enquiry. In each of the six factories every alternate worker listed in the factory attendance register was included in the study.

560 workers were employed in the six factories and out of them 280 workers were included in the sample. Fifty of them either refused to co-operate or were persistantly absent. The final information was obtained

from 230 workers covering 41.1 per cent of the total workers. The sample included workers employed in various job in the glass bangle industry.

Workers complaining of cough with or without other symptoms lasting for two or three months for the last two years or over were classified as cases of chronic bronchitis.

There does not exist however a complete definition of bronchitis which would satisfy all the clinicians or field workers. Criteria used for the diagnosis of bronchitis in the present work matches with the definitions used by The Medical Annual (1963) Stuart (1963) Fletcher (1962) and Lawther (1960). Workers were interviewed on specially prepared proforma based on questionnaire designed by the Medical Research Committee of Medical Research Council of Great Britain (1961). The questionnaire included apart from other information, the details on chronic bronchitis and period of employment in glass bangle and other industries.

Person suffering from bronchitis were clinically examined and investigated to exclude the possibility of any other chest diseases by routine blood, E.S.R. sputum and flourescopic examinations as and when necessary. Flourescopic examination revealed increased bronchial markings in cases of chronic bronchitis. Besides cough, symptoms of expectoration, weather effect on cough, breathlessness, nasal catarrh and wheezing were considered symptoms of chronic bronchitis.

Results

The youngest worker employed in the factory was sixteen and the oldest was sixty years. Out of 230 workers interviewed 52 or 22.6 per cent were suffering from bronchitis.

All the factories in the city of Firozadad are located in various residential localities. Each factory has only one chimney to remove smoke. The chimneys were not functioning efficiently for various reasons which lead to the accumulation of the flue products within the factory environment. Ventilation was highly unsatisfactory and air drafts were cut off as they were lowering the efficiency of production.

Period of employment in factories was considered to be a sufficiently good index of the period of exposure of workers to the various harmful substances in the breathing atmosphere in factory. Extent and incidence of bronchitis among workers has been studied on the basis of their duration of employment in the glass bangle factories and total period of employment in all types of factories (present and past). In the past workers were employed in factories manufacturing glass products other than glass bangles, mills and in various other subsidiary process connected with the bangle manufacture.

Analyisis of employment in glass bangle factories show that the period of employment in symptomatic group is longer than in the non-symptomatic group (difference between the total workers and the smptomatic workers) (Table I).

The frequency distribution of workers according to their period of employment reveals a shift to the right in the service period symptomatics when compared with non-symptomatic (the difference between the total workers and the symptomatic workers).

It is revealed that with higher period of employment, the percentage symptomatics are on the increase. This increase is highly significant (X^2=243.11, $P < 0.001$). It can safely be concluded that glass bangle factory has very important bearing on bronchitis. Some of the workers had been working in factories other than glass bangle factories before they sought present employment in glass bangle factories. The total period of employment (present and past) has also been taken into consideration. The proportion of symptomatics gradually rose with the increase in the period of total factory employment.

A comparative study of the frequency distribution of non-symptomatics and symptomatics workers according to their total period of employment in factories reveal gradual decline for non-symptomatic workers (difference between total workers and the symptomatic workers) for each rise in the total period of employment.

The rise in bronchitis for the total factory employment is highly significant ($X^2 = 97.53$, $P < 0.001$). The earlier observation on the period of employment in glass bangle factories and rise in bronchitis incidence is further supported by these findings.

A comparative study of proportions of symptomatic workers to the total number of workers for each service period in glass bangle factories and for total factory employment has been further evaluated (Table I, Columns 6 & 11).

though the rise in bronchitis is not always gradual but is higher.

Discussion

The working conditions in glass bangle

Table I

A Comparative study of the frequency Distributions and Proportion of Symptomatic workers to the total number of Workers for the Different periods of Employment (Glass Bangle and total Factory Employment)

Period of employment in years	Glass Bangle Factories					All Factories				
	Total workers		Symptomatic workers			Total workers		Symptomatic workers		
	No.	%	No.	% to total symptomatics	% of total in each period	No.	%	Number	% to total symptomatics	% of total in each period
1	2	3	4	5	6	7	8	9	10	11
1-2	72	31.3	9	17.3	12.5	26	11.3	1	1.9	3.8
3-4	53	23.0	8	15.4	15.1	40	17.4	—	—	—
5-6	43	18.7	6	11.5	13.9	33	14.3	2	3.8	6.1
7-8	33	14.4	10	19.2	30.3	31	13.5	3	5.8	9.7
9-10	14	6.1	7	13.5	50.0	29	12.6	6	11.5	20.7
11-12	2	0.9	1	1.9	50.0	19	8.3	4	7.7	21.0
13-14	4	1.7	4	7.7	100.0	13	5.7	6	11.5	46.1
15-16	6	2.6	5	9.6	83.3	13	5.7	8	15.4	61.5
17-18	2	0.9	1	1.9	50.0	12	5.2	8	15.4	667.
Over 18	1	0.4	1	1.9	100.0	14	6.1	14	26.9	100.0
Total:	230	100	52	100	22.6	230	100	52	100	22.6

Incidence of bronchitis among the various employment groups except one (17-18 years employment group) is higher among workers employed in all type of factories. Incidence of bronchitis among glass bangle workers upto eight years duration of employment varies between 12.5 to 30.3 per cent. The workers in same service period for total factory employment reveal incidence of bronchitis between 3.8 to 9.7 per cent only. In glass bangle industry 50 to 100 percent workers suffered from bronchitis for period of employment ranging from nine to sixteen years. There is a gradual rise in bronchitis for the rise in service period for total factory employment. In glass bangle factory employment, factories are highly unsatisfactory. The pollutants sulphur dioxide, smoke and dust measured by the technique of Mathur and Chaturvedi (1963) showed that the pollution level is highest in factory environment (Mathur, 1965). Therefore period of employment is a good indication of the duration of exposure of ambient atmosphere.

It has already been observed that the duration of glass bangle factory employment and total factory employment are significant in symptomatic workers. Pemberton and Goldberg (1964), Daley (1954), Hewitt (1956), Heimann (1961), and Kapp (1963) consider that duration of exposure becomes significant

even in exceedingly low concentrations of pollutants.

The working conditions in glass bangle factories are more unsatisfactory than in other factories and consequently the workers therein are subjected to longer duration and heavy exposure to pollutants. The workers employed in glass bangle industry are in particular prone to develop bronchitis. Stuart (1963) and Lawther (1960) considered occupational factors important in the causation of bronchitis.

Summary

Two hundred and thirty out of 560 or 41.1 per cent workers employed in six glass bangle factories at Firozabad were investigated. Fifty-two or 22.6 per cent workers suffered from bronchitis. Period of employment in glass bangle factories and the total factory employment were highly significant in the causation of bronchitis. With the advancing period of employment and consequently longer exposure to pollutants, the chances of getting chronic bronchitis increased.

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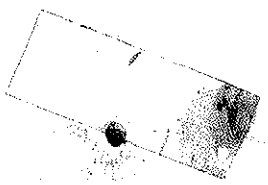

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A STATISTICAL APPRAISAL OF CARDIO-PULMONARY DISEASES OF WILD RHESUS MONKEYS

RAJ KUMAR VOHRA*

Growing use of monkeys as a laboratory animal has made it essential to study spontaneous and acquired diseases of this specie. Hence quantitative and qualitative statistics of such diseases needs to be established. In this report an attempt has been made to study this aspect. This study was carried out to investigate natural incidene of disease in wild rhesus monkeys because in the past statistical reports were made on animals dying in zoological gardens or on animals belonging to special colonies where selected healthy young animals were generally used. (1.2)

Material and Methods

The present study comprises analysis of diseases of heart and lungs in 100 animals of both sexes. The duration of study was approximately one year. Animals were trapped by professional trappers around Delhi, Moradabad and Saharanpur and these were immediately transported to the Institute. Most of the monkeys appreared to be healthy but some of them suffered from diarrhoea. Their body weight varied between 1 and 10.5 kg., average weight being 3.04 kg. (S.D. 2.42). There were 52 males and 48 females. The average weight for males was 2.17 kg., (S.D. 2.28) and for females 4.01 kg., (S.D. 2.56). Two broad categories of these animals have been made according to their body weights. One group comparised all monkeys weighing less than 5 kg., (approximate age 5½ years), their average weight being 1.47 kg. (S.D. 0.20) and the other group considered of monkeys with weights equal to or above 5 kg., average being 6.98 kg.. (S.D. 1.44). Out of 28 monkeys which were in the second group 25 were females.

For making a diagnosis detailed antemortem clinical examination and electrocardiographic studies were made after anesthetising the animals with sodium pentothal. Detailed examination of the viscera on autopsy and histopathological examination of the various organs confirmed the clinical diagnosis. A detailed account of these studies will be published in a separate communication.

Comments

The body weight of monkeys in relation to to incidence of various types of heart disease is given in Table I. The class intervals were of 1 kg. and the lower end of each class was included in the same class interval. Out of 100 monkeys investigated, 26 were found to have heart dieases. The following classifications of heart disease were made:—

(i) Congenital heart disease
(ii) Specific pyogenic infection of heart
(iii) Parasitic infection of heart
(iv) Degenerative heart disease
(v) Hypertensive heart disease.

TABLE I

Relationship of weight and sex with heart diseases.

Disease category	No. of monkeys	Sex		Weight (Kg.)	
		Male	Female	5	5
I	4	3	1	4	—
II	6	2	4	1	5
III	4	1	3	1	3
IV	10	4	6	3	7
V	4	1	3	—	4
Total	*26	11	15	8	18

* Two monkeys were suffering from hypertensive heart disease along with nutritional cardiomyopathy in one case and fatty change of myocardium in the other.

* Department of Experimental Medicine, Institute of Post Graduate Medical Education and Research, Chandigarh.

It was observed that heart disease was present in all weight groups. Chi-square (X^2) test was applied to the two weight groups. The calculated value of chi-square was 21.80 ($p < 0.001$) for one degree of freedom which was highly significant. Thus it can be suggested that heart disease in monkeys were more prevalent in the higher weight group than in the lower weight group. The sex distribution was male: female 11:15. Since there were more females in the upper weight group this explains the excess of females having heart disease over the males.

Out of 28 monkeys whose weight was equal to or more than 5 kg., 17 had heart disease. As expected congenital heart disease was exclusively present in very young animals (weight 1 to 2 kg.). In category IV the results are self evident. In category II and IV the probability of getting such results was very low ($p < 0.02$) indicating thereby that these disease were more frequent in the higher weight group. However, in category III the value of p was 0.069 which was, therefore, not significant at 5% level. In this case the result is not conclusive statistically because of smaller number of observations.

The incidence of lung disease in monkeys was found to be much more than heart diseases. Out of 100 monkeys investigated 53 were affected. Pulmonary diseases were classified into three main categories.

(i) Pyogenic pulmonary infection
(ii) Other inflammatory conditions
(iii) Tuberculosis.

For the two weight groups the calculated value of chi-square was 2.54 (d.f = 1) which was not significant. The value of chi-square for the two weight groups in I and II disease categories were 6.67 ($p < 0.01$) and 3.89 ($p < 0.05$) respectively. Both these were significant. Thus the present set of date provided an evidence that pyogenic pulmonary infections were more prevalent in the higer weight group. on the other hand, non-specific inflammatory conditions of lungs were more seen in animals of lower weight group. For tuberculosis the probability of obtaining such distribution according to weight was less than 0.01 showing thereby that incidence of tuberculosis is more in the upper weight group. Since there were 25 females out of 28 animals in the upper weight group this explains the odd sex distribution.

Summary

This study has shown that congenital heart diseases were seen only in young animals. Other pathological conditions of the heart were frequently seen in animals of the higher weight group. Apart from the congenital heart disease 17 monkeys out of the remaining 22 suffering from heart disease were in the upper weight group. Pyogenic infections of lungs were more frequent in older monkeys. Non-specific pulmonary infections were, however, more common in the younger group. There was an overall incidence of 26 per cent of heart disease and 53 per cent of lung diseases in these monkeys. Both in the case of heart as well as lung diseases there was no overall differential incidence according to sex.

TABLE 2

Pulmonary diseases in Monkeys and body weight.

Disease category	No. of monkeys	Sex		Weight (Kg.)		X^2 for weight
		Male	Female	< 5	≥ 5	
I	23	11	12	11	12	6.67
II	22	16	6	20	2	3.89
III	8	1	7	2	6	$p < 0.01$
Total	53	28	25	33	20	

Statistically there is no evidence to suggest a differential incidence of lung diseases accord ing to sex or body weight because out of 52 males 28 were affected and out of 48 females 25 were affected and in case of weight groups out of 72 monkeys 33 were affected. For sex distribution chi-square value was very low.

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PHYSICIANS IN PUBLIC HEALTH

By
DR. N. JUNGALWALLA,*
H. R. SHARMA,**
DR. KRISHNASWAMI RAO***

Introduction

During the last 100 years or so public health practice has advanced from the application of principles of sanitation to the present day "application of knowledge derived from biological, physical, social and other sciences in an organised community activity designed to promote or restore health of the people". With the modern outlook on public health changing from curative to preventive and then to positive health, the public health administration and organisation has become a complex structure with a large number of specialities included in it. Public health practice is a teamwork involving the collaboration of a number of specialities under the unifying supervision of a public health physician. The promotion of public health practice would undoubtedly receive a setback if suitable physicians not only having training in public health but also having belief in the philosophy of public health practice are not available for the work.

Definition

Under this study public health physician refers to a person who, in addition to recognised medical qualifications, has a degree or diploma in Public Health like D.P.H., M.P.H., B.S.Sc. etc. The term "Public Health Officer" used under this study refers to an officer who holds a public health appointment whether he has public health qualifications or not. "Jobs" or "Posts" referred to physicians in public service whether under the Government or under a local body. A vacancy refers to a physician without any incumbent in composition.

Historical Background

Public Health administration in India has been in existence for about a century. It is common knowledge that in the earlier stages of development of health organisation there was greater emphasis on the curative services than on the preventive services. Gradually this trend has been changing but the progress has been slow. At the time of the Health Survey and Development Committee (1943-46), i.e. after about 80 years of the initial establishment of public health organisation in the Government of India there was only one trained public physician employed for 700,000 of the population. Now the ratio has, however, imroved and there is one trained public health physician for a population of 400,000. The situation in different states shows wide variations as can be observed from table I.

In a study conducted sometime back regarding the availability of medical manpower for public service in the country it was observed that a large number of posts created by the State Government have remained vacant for want of suitable candidates. This lacuna has been particularly brought to light by the fact that a large number of primary health centres in the rural areas are without doctors. The number of vacancies in the medical and health field as compared with the total number of assignments is indicated in table II.

* Additional Director General of Health Services.
** Statistical Officer, Directorate General of Health Services.
*** Professor of Public Health Administration, National Institute of Health Administration and Education.

Table I

Population per public health physician employed in different States in India

Name of the State	Population per qualified public health physician (in 1000's)		Population per Public Health Officer (in 1000's)	
	1944	1961	1944	1961
Andhra Pradesh	..	455	..	278
Assam	—	—	70	264
Bihar	1298	562	1172	125
Gujarat	1390	577	1303	115
Maharashtra	1390	1043	1303	196
Jammu & Kashmir	—	590	—	295
Kerala	—	623	—	278
Madhya Pradesh	—	828	—	970
Madras	—	829	—	240
Orissa	1090	605	623	236
Mysore	—	413	—	413
Punjab	—	420	—	32
Rajasthan	—	1119	—	22
U. P.	306	252	306	189
West Bengal	957	280	443	—
Delhi	102	1768	66	421
Himachal Pradesh	—	158	—	52
Manipur	—	766	—	156

Table II

Shortage of Medical Man-Power

State	Period	Sanctioned strength gazetted & non-gazetted	Post vacant	Propotion of post vacant
1. Andhra Pradesh	23-10-63	2330	93	3.99 %
2. Assam				
3. Bihar	30-9-62	283	113	39.93 %
4. Gujarat	26-6-63	74	13	17.57 %
5. Jammu & Kashmir	4-5-63	196	43	21.94 %
6. Kerala	16-7-63	13410	260	1.94 %
7. Madhya Pradesh				
8. Madras				
9. Maharashtra	10-9-63	854	218	25.53 %
10. Mysore	27-2-63	419	223	53.22 %
11. Orissa	20-11-62	2016	370	18.35 %
12. Punjab				
13. Rajasthan	16-12-63	605	147	24.29 %
14. Uttar Pradesh				
15. West Bengal				
16. Naga Land	20-8-63	60	4	6.67 %
17. Andaman Islands				
18. Delhi	31-3-63	302	176	58.28 %
19. Himachal Pradesh	19-10-63	+	7	
20. Laccadive Islands	15-10-52	198	36	18.18 %
21. Manipur				
22. Tripura				
23. Pondicherry	1-4-63	60	2	3.33 %
24. Goa, Diu & Daman	30-10-62	41	28	68.29 %
25. Central Instt. of Communicable Diseases, Delhi				

The Statistical data quoted above undoubtedly reveal a very depressing state of affairs. It is, therefore, considered necessary to examine as to how best physicians can be interested in public health. At the present stage of development of public health organisation in India, three important aspects deserve attention:

(1) Large-scale programmes of public health taken up as a part of national development require a large number of physicians orientated to the philosophy of public health and trained to manage different aspects of it.

(2) Physicians are reluctant to come forward for service in public health because of certain conditions obtaining in the country. Some of the conditions are to be found in the social environment and others might be due to the faulty administrative principles and procedures.

(3) In addition to the augmentation of the output of medical graduates through the extension and expansion of facilities for medical education there is need for creating a congenial environment, so that more and more of the physicians turn to the philosophy of public health and come forward for public health service.

Objectives of the present study

The personal experiences of the public health worker in the field do point to the factors involved in the environment which militate against physicians coming to public health. However there is need for pinpointing the factors involved and to find methods of dealing with them. It is not practicable to direct the enquiry to find out the reasons why physicians do not join public health, because it is difficult to get at the physicians who have not joined public health out of choice. It is easier to turn the question round and examine what motivates a physician to join public health and what type of people opt for this field. This indirect method might lead to the objectives of the study. The following points therefore were taken up for investigation:

(1) What are type of people usually available for jobs in public health;

(2) What are the factors which motivate the public health physicians to select public health as a career.

(3) What are factors which make public health work unattractive for physicians, and

(4) What steps should be taken to attract graduates to this branch of medicine.

The first two questions involved the collection and analysis of facts about the physicians in public health and the last two questions are of the nature of an opinion survey, opinion of course being based on the personal experience of the physicians in this field.

Methods and Material

Public health work in India is largely the responsibility of the State, notwithstanding the significant contributions from the voluntary organisations. It was, therefore, decided to send the questionnaire to the public health physicians serving in different agencies of the Government at the Central, State and local levels. The questionnaire contained 18 questions covering identification details, details about medical and public health training, experience and responsibility for the respondent's choice of public health as a career. Questions also attempted to elicit opinion of the respondent as to what factors make public health work unpopular with physicians and what should be done to attract medical graduates to this branch of medicine.

These questionnaires were sent through the various public health organisations, particularly the Director of Public Health in the States, the Chief Medical Officers of Railways, Medical and Public Health Organisations and other agencies and Departments of the Government to the physicians who are largely employed in public health work. The number of questionnaires issued was roughly of the order of 3,500 which is the estimated number of public health physicians employed of which 1,000 were qualified in public health. The questionnaire was issued sometime in 1961 and by the end of April, 1962, 1088 replies were received.

It is important to emphasise that these 1088 respondents are a self-selected group who have chosen to express their views. In the absence of more details about the people who were addressed, it is difficult to say how far these 1088 respondents could be considered "representative" of the public health physicians in India. We are also aware of the fact that in an opinion survey, at times, the respondent is tempted to say, what he would like to do rather than what he actually did. Subject to

these limitations, the analysis presented in the following paragraphs is only in the nature of a probe for further studies and is by no means intended to support a particular point of view or to test a particular hypothesis.

Items of information asked for in the questionnaires were extensive and, therefore, some replies received were incomplete in one or more respects as the respondents were permitted to withhold their names if they so desired, a follow-up or repeated reference was not possible. Therefore, the omissions could not be taken care of. Also the number of omissions for different classifications differ. But in any case, the number of questionnaires rejected in a particular classification is so small that it would not affect the result materially.

Qualifications and Age of the Public Health Physicians

The accepted public health qualifications taken for this study is D.P.H., M.P.H. and B.S.Sc. It is observed that there is greater number of physicians with public health qualifications in the age group 30 and above than physicians without public health qualifications. But in the age group less than 30 a very small proportion are with public health qualifications as compared with the proportion of those without public health qualifications.

The total number of doctors in the country in 1961 is estimated to be 71000 to 72000. According to the survey conducted by the Ministry of Labour of the Government of India 22270 doctors were employed in public sector as on 30th September, 1962. It is already mentioned earlier that 3500 physicians were working in public health in 1961-62. Needless to say that all these public health physicians would be in the employment of the official agencies. In other words 30 per cent of the total number of doctors in the country are in public service and less than one per cent are in public health. Thus even the public sector is very heavily weighed in favour of curative medicine.

The age structure of all the doctors in India and those working in public health is as follows:—

Table III

Age distribution of public health physicians and all doctors in the country

Age	Proportion of all doctors in age group	Proportion of Public Health physicians in group.
Less than 30	19.38 %	15.9 %
31-40	30.06 %	40.7 %
41-50	20.95 %	26.7 %
50-60	16.39 %	16.7 %
60 and above	13.22 %	—

There is greater proportion of public health physicians in the age group 31-50. This difference is due to the fact that public health physicians enter public health field a little later, after exploring other avenues of employment when a general practitioner starts his practice immediately after his graduation. A lower proportion of public health physicians in the age group of above 50 years is due to the fact that public health physicians remain in their profession only up to the age of their retirement from public service whereas a private practitioner continues to be active much longer.

Among the public health physicians the age distribution of those with public health qualifications is different from those with-out public health qualifications (Table IV).

Table IV

Age distribution and Public Health Qualifications of the Public Health Physicians

Age	With Public Health qualifications		Without Public Health qualifications		Total	
	No.	%	No.	%	No.	%
Less than 30	44	4.2	124	11.7	168	15.9
30-39	264	25.1	164	15.6	428	40.7
40-49	211	)20.1	69	6.6	280	26.7
50	101	9.6	73	7.1	174	16.7

In the age group below 30 there is much greater proportion of those without Public health qualifications because as indicated earlier, a public health physician makes a late start and it takes a few more years before he is deputed for public health training by his employer or decides to settle down in public health work and proceeds to obtain the needed training on his own.

Age and Medical Qualifications

There is smaller proportion of licentiates among the public health physicians than among all doctors in the country (see table No. V).

licentiates in public health is 42.6 years and that of the graduates in public health is 36.6 years, indicating that licentiates are proportionately less in younger age group than the graduates.

In a study carried out by Directorate General of Health Services on the wastage in medical education in medical college it was observed that only 35 to 40 per cent of the students passed the Degree examination in the minimum period of five years; after a further period of 6 months study another 26 to 30 per cent got through. After another six months i.e. after a total period of study of 6 years a further 25 per cent passed, thus 85 to 90 per cent of the medical students obtained their

Table V

Age distribution and medical qualifications of public health physicians and all doctors

Age	All Doctors		Public Health Physicians	
	Licentiates	Graduates and higher qualifications	Licentiates	Graduates
Less than 30	1.59	17.79	3.1	12.9
31-40	7.58	22.48	11.8	28.9
41-50	11.59	9.00	11.7	15.0
50-60	10.37	6.22	9.2	7.4
60%	9.91	3.57	—	—
Total	40.94	59.06	35.8	64.2

The argument has often been advanced that for meeting the shortage of doctors particularly in rural areas (where the functions will be more of public health nature rather than curative nature) the licentiate course should be re-introduced, assuming that less qualified doctors will prefer to work in rural areas.

degree after a period of six years and by the end of 8 years about 95 per cent qualified. The remaining 4 to 5 per cent given up their medical studies in the course of the years. A comparison between public health physicians and all students is carried out and is indicated in table No. VI

Table VI

Time taken by doctors in completing their education

	Period taken for Graduation			
	5 years	6 years	7 years	Total
Public Health Physicians	48.15 %	33.04 %	18.69 %	100.00
All Doctors	39.47 %	55.79 %	4.74 %	100.00

However, it is seen from the table above that overall percentage of licentiates in public health is lesser than their percentage among all doctors. However, for the age group up to 40 years proportionately more of the licentiates take to public health. The medium age of

If the time taken for graduation is an indication of the calibre of the persons it will be observed that on an average a public health physician has taken almost as much time for graduation as a general practitioner. The average time taken by the public health physi-

cians is seen to be 5.70 years and the average for all doctors is 5.66 years.

Choice of Career

The study of the preferences in respect of choice of career by the public health physician is made on the basis of answers to questions that deals with employment since graduation and satisfaction of Public Health as a career. This information is incorporated in table VII.

TABLE VII: CAREER PREFERENCE
Immediately after graduation

	Private Practice	Medical Service	Public Health	Total
Private Practice	7	5	10	22
Medical Service	9	228	38	275
Public Health	36	340	235	591
Total	52	573	283	888

A large number of the public health physicians had medical service i.e. the curative service in a medical institution as their first choice immediately after their graduation but a much smaller number would now prefer medical service to public health. On the contrary only a small number of the public health physicians have public health work as their first choice immediately after graduation; now a very large number of them gave public health work as their first choice. Initially very small number of them gave preference for private practice and given the choice a still small number would choose private practice as the career. In other words it is clear that public health physicians are not those who could not succeed in private practive and switched over to public health. However a large number of them wanted to work on the medical side to begin with and have later changed their opinion in favour of public health. We may perhaps conclude that a young graduate having undergone a course of curative medicine and not oriented with public health during that period would naturally think of only curative services. It is his later experience in public health work that cultivates in him the liking for it. It is an important factor to be taken into consideration while looking into the revision of curicula for the undergraduate medical education.

Rural Urban Background

A large number of public health physicians indicated their place of birth as urban and almost an equal number are employed in urban areas (see table VIII).

TABLE VIII: PLACE OF BIRTH AND PLACE OF EMPLOYMENT OF PUBLIC HEALTH PHYSICIANS.

Place of Birth	Place of Employment			
	Urban	Rural	Urban & Rural	Total
Urban	405	151	36	592
Rural	212	227	19	458
Total	617	378	55	1050

Reasons for Choice of Public Health as a Career

To the question as to the reasons for choice of Public Health as a career, four possible answers were anticipated:—

1. Influence of a friend, relation, teacher or someone else.
2. The need for becoming an earning member immediately after graduation and/or absence of opportunity in the curative side of medical service.
3. The experience of Public health work or experience with a specific disease programme which might have led to public health as a career of choice, e.g. during war days experience in preventive medicine might have cultivated a liking for this branch of medicine.
4. Any other reason.

One thousand and twenty two of the respondents gave replies to this question. In many cases more than one of these factors were cited (see table IX).

TABLE IX SOURCE OF MOTIVATION

	Number of Respondents	Proportion in the Group.
A. Influence of another person	410	45 %
B. Need for Immediate Employment	659	73 %
C. Public Health Experience	328	36
D. Other reasons	679	

In resume, it is seen that Public Health physicians are not inferior in calibre to other general practitioners. Also they are not those who after failure in other more lucrative avenues of employment have taken to public health. Their choice of a career in Public Health was motivated by a variety of reasons. In order to uncover the reasons for unpopularity of public health work, the respondents are divided into two groups as those who are satisfied with public health work and those who are not. The two groups are then compared in certain pertinent respects.

Job Satisfaction

No response was available to the question whether the respondent is satisfied with public health work as a career or not from 66 cases. 60 per cent of the respondents replied in the affirmative and the rest in the negative. The two groups are compared in certain pertinent respects. The items picked up for comparison are:

Median age, place of employment (whether urban, rural or urban-cum-rural) place of birth (whether urban or rural) public health qualifications, type of experience, career preference after graduation and at the time of enquiry, length of public health/medical service, the factors which motivated for joining public health.

The data could not be had for place of birth and public health qualifications for the two groups separately. The comparison with regard to the other items is as follows:

	Satisfied Group	Not satisfied Group
(i) Median Age	38.7 years	38.0 years.
(ii) Place of employment		
Urban	60 %	58 %
Rural	35 %	37 %
Urban/Rural	5 %	5 %
(iii) Average length of:		
Public Health Service	6.3 years	3.0 years
Medical Service	5 years	5.2 years
(iv) Type of Experience		
(a) Private Practice	(1) 0.18 %	(2) 0.57 %
(b) Medical Service	(58) 10.38 %	(66) 19.13 %
(c) Public Health Service ..	(159) 28.44 %	(64) 18.30 %
(d) Private Practice and Medical Service	(3) 0.53 %	(3) 0.86 %
(e) Private Practice and Public Health Service ..	(5) 0.90 %	(4) 1.14 %
(f) Medical Service and Public Health Service	(304) 54.38 %	(203) 58 %
(g) Private Practice, Medical Service and Public Health Service ..	(29) 5.19 %	(7) 2.00 %
	559	349

	Satisfied Group		Not Satisfied Group	
(v) Career Preference	Before	Now	Before	Now
(a) Private Practice	33	9	19	13
(b) Medical Service	305	114	267	161
(c) Public Health Service ..	220	436	63	175
Total	559	559	349	349

It is observed that the two groups differ only in respect of career preferences after graduation and the type of experience so far. The satisfied group has longer average experience in public health and a larger proportion among this group are those who preferred public health as a career immediately after their graduation.

For further probing into the reasons for dis-satisfaction the results of the opinion survey regarding reasons for dis-satisfaction and suggestion for removal of dis-satisfaction are examined. The opinion expressed by each respondent in this regard might not essentially be the result of his personal experience but might be based on his observation of general condition. Both the groups have ascribed the dis-satisfacstion to poor remuneration unattractive conditions of service, absence of permission to public health officers for private practice. For instance, in some states there is no public health cadre and the officers employed under local bodies in isolated posts have nothing to look for in the future. Conditions of service are irksome in many respects i.e. the work of a public health officer being supervised by a lay person who has little appreciation for his difficulties.

Table X

Opinion on Reasons for Dis-satisfaction

	Satisfied		Dis-satisfied		Total	
	No.	%	No.	%	No.	%
A. Remuneration Poor	334	58	239	64	600	58
B. Medical knowledge not utilised ..	142	25	114	30	263	26
C. Conditions of Service	177	31	144	38	327	32
D. Future Prospects Poor	47	8	64	17	130	13
E. Private Practice not permitted ..	112	19	65	17	184	18
F. Not practising Allowance not given ..	41	7	39	10	84	8
G. No respect among people	89	15	69	18	158	15
H. Cannot practice after retirement ..	23	4	29	8	52	5
I. Reasons other than these	312	54	210	56	530	51
Total:	579	375	374		1031*	

In order to find out ways of attracting young graduates to the public profession, opinion of the two groups is analysed separately. Both the groups have emphasized with general frequency the need for offering attractive emoluments, non-practising allowance for public health officers as for medical officers, better administrative control, integration of preventive and curative side and minimum urban facilities in rural areas (see table XI).

Table XI

Suggestions for inducing young medical graduates to the public health profession

		Satisfied		Not Satisfied		Total	
		No.	%	No.	%	No.	%
a.	Attractive emoluments	442	76	288	77	760	74
b.	A central cadre for Public Health ..	42	7	36	9	92	9
c.	Private practice may be allowed ...	39	7	46	12	92	9
d.	N. P. A. as for medical departments ..	131	23	77	21	216	21
e.	Better administrative control ...	62	11	45	12	113	11
f.	Status respected	81	14	59	16	148	14
g.	Integration of preventive and curative side	123	21	103	28	225	22
h.	Public Health may be added to graduate curriculum	87	15	31	8	125	12
i.	Urban facilities in rural areas. ..	74	13	41	11	..	..
j	Conveyance or transport in rural areas ..	32	6	23	6	—	—
k.	All others	321	55	200	53	536	52
	Total	579		374		1031	

Summary

In this paper an attempt is made to investigate what considerations weigh with the public health physicians who take up public health career. Analysis is based on 1088 replies received from public health physicians to whom a questionnaire was sent. 620 of the respondents had public health qualifications such as D.P.H., M.P.H. or B.S.Sc. and 430 had no public health qualifications. 376 of the respondents were licentiates and 674 were with M.B.B.S. or higher medical degree. 48% of these degree holders had completed their degree in the minimum period of 5 years. 630 of the respondents were satisfied with the public health work, 392 were dis-satisfied and the remaining 66 expressed no opinion. Stating the reasons for their choice of public health as career, 45% ascribed it to the influence of a teacher, a friend or some one else; in case of 36% the experience of public health work, created in them the desire for public health as a career; 44 per cent were influenced by the need for immediate employment after graduation; 50% gave other different reasons for their choice. When called upon to express opinion regarding the reasons for the unpopularity of public health work with the physicians, 58% ascribed it to poor remuneration, 26% to lack of opportunity for utilising medical knowledge; 13% to poor prospects, 18% to lack of permission to private practice; 51% ascribed it to other miscellaneous reasons. For attracting young medical graduates to public health, 74% recommended that emoluments should be more attractive, 21% suggested grant of non-practising allowance to public health physicians on the same scale as for the medical departments, 52% gave various other suggestions.

EXECUTIVE BOARD MEMBERS
World Federation of Public Health Associations

At Head Table—Left to Right:—Dr. Alexander Hutchinson (*Vice-President*), Dr. K. N. Rao (*President*), Dr. Ernest L. Stebbins (*Executive Secretary*) and Mr. P. Arthur Wells (Royal Society of Health).

From Right:—Prof. Andrew Semple and Mrs. Tressor.

INDIAN JOURNAL OF PUBLIC HEALTH

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Editorial

WORLD FEDERATION OF PUBLIC HEALTH ASSOCIATIONS

The formation of the World Federation of Public Health Associations has become a reality. The possibility of the development of a World Federation of Public Health Associations was explored in May 1966 in Geneva at a meeting of the various National Associations. At this meeting an Interim Committee with Dr. K. N. Rao as Chairman was formed. On November 28th, 1966 a second meeting was held in San Francisco at the time of the American Public Health Association Meeting. Eighteen National Associations were represented at this meeting and tentative Constitution for the proposed World Federation was discussed. The final organisation and establishment of the World Federation of Public Health Associations was done in May 20th, 1967 at a meeting specially called for this purpose during the time of the World Health Assembly Meeting in Geneva. An Executive Board with Dr. K. N. Rao as President, Dr. Alexander Hutchinson as Vice-President, Dr. Ernest L. Stebbins as Executive Secretary and Dr. Andrew Semple as Treasurer was constituted through elections. The Executive Board decided to have the registered office of the World Federation in Geneva.

The World Health Organisation from the very beginning encouraged the formation of the World Federation of Public Health Associations. Dr. Ernest L. Stebbins of the American Public Health Association, Dr. P. Author Wells of the Royal Society of Health of England and Dr. K. N. Rao of the Indian Public Health Association took an active part in this endeavour.

The Editor welcomes the formation of the World Federation of Public Health Associations and congratulates Dr. K. N. Rao, Dr. Alexander Hutchinson, Dr. Ernest L. Stebbins and Dr. Andrew Semple on their election to the Executive Board.

The formation of the World Federation paves the way for representation of the public health profession in the Assembly of the World Health Organisations paradoxically absent till now. The tasks awaiting this new organisation are many. Amongst others, it could bring about a uniformity in the education and

training of public health personnel throughout the world by a world-wide accreditation of educational institutions imparting training in Public Health. The Federation could also encourage and assist Nations having either no Public Health Association or relatively inactive ones in their development.

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ROLE OF HEALTH EDUCATION IN FILARIA CONTROL

S. D. GAUR*
and
S. M. MARWAH

Unlike malaria eradication, dynamic public participation is absolutely essential for filaria control. This is illustrated by the fact that inspite of the national filaria control programme, the problem is showing a steep rising trend. Raghavan (1955) estimated that 25 million population was exposed to the risk of filariasis. Filariasis control assessment committee report's (1961) estimate was over 64 million and recent estimate (Basu 1965) was 122 million. The sheet anchor for national filaria control in the country is control of filaria transmission through antilarval and anti-adult mosquito measures and reduction of reservoir of infection through mass therapy. However no insecticide is yet available to effectively intercept the transmission; and diethylcarbamazine mass therapy has very limited value in filaria control. On the other hand, urbanisation and industrialisation with associated deterioration of environmental sanitation in general and drainage in particular are leading to increase in mosquitogenic conditions and hence to increase in filariasis problem. The problem is further complicated by population exploison and detection of filariasis foci even in some of non-endemic urban areas of Punjab and Rajasthan. As such in the opinion of the authors, unlike malaria eradication, it is not possible to achieve filaria control without involving public participation at all levels for increasing control of the mosquitogenic conditions. The health educational approach for reduction of the mosquitogenic conditions at all levels needs to be incorporated in national filaria control in addition to the recommended measures for control of transmission through anti-mosquito (antilarval and anti-adult) and reduction of reservoir of infection through mass therapy.

[* Department of Preventive and Social Medicine, College of Medical Sciences, Banaras Hindu University, Varanasi.]

Educational Approach to Filariasis Control

Owing to the chronic nature of the disease, health education presents a problem of its own type. The educational methods suggested are outlined under the following heads.

1. General methods for the endemic areas.
2. Specific methods based on the authors experiences of the epidemiological studies made in the Banaras Hindu University (BHU) township (Marwah et al).

General Methods for Endemic Areas

The following noted points are recommended for incorporation in the educational approach for filariasis control.

Basic knowledge about transmission in general and role of the drainage in particular for control of the mosquitogenic conditions should be well emphasised.

In addition, on the lines of the classical antimalaria measures recommended before launching of malaria eradication programme, the role of personal protection in terms of use of mosquito nets and antifilarial drugs during filaria like fever also need due emphasis.

The points mentioned above should be incorporated in the school textbook, school health curricula and health education channels of the general public.

In addition general practitioners in hospitals, dispensaries or private clinics should be made to realise the preventive basis of the individual and the mass diethylcarbamazine therapies.

The block development agency and the primary health centre staff should be given

inservice training in national filaria control, hygenic disposal of waste water and personal protection.

The urban and the rural administrators, planners, engineers and other workers should be educated to realise the importance of hygienic disposal of sewage, sullage and waste water.

In addition in industrial areas, the businessmen, managers and the factory inspectors should be educated for proper disposal of the wastes to avoid the mosquitogenic conditions.

And in no case public representatives like village panchayats, block samities, zila parishads, municipalities, assemblies and parliament members should be neglected. All possible avenues and opportunities should be utilised to make them understand the need for cultivation of hygienic disposal of the waste water in their respective areas through community participation. In educational approach the potentialities of the public representatives should be realised.

Health education for elimination of pistia plant will be needed in restricted areas with Brugia malayi infection.

Specific Methods Based on Experiences : In BHU Filariasis Studies

Marwah *et al* (1964) analysed that 695 (1.8%) out of 63,489 university township dispensaries outpatients attendances for the years 1962 and 1963 were clinically diagnosed as filaria and scrotal swelling cases. Subsequently filaria survey (Marwah *et al* 1965) showed that the infection rate in the township was 8.7%. Mosquitoes density per man hour was 22.2. Mosquitoes infection rate was 13.44% and infectivity rate was 1.3%. This was inspite of the weekly antilarval measures and liberal anti-adult measures by BHU township health office. The following noted educational methods were utilised during the epidemiological studies in aggregation in filariasis by the authors and they are recommended for incorporation in the filaria control programme.

University authorities and the township P.W.D. were intimated the lapses in drainage and the easily avoidable breeding places through normal correspondence channels.

The laboratory technicians and assistants utilised for night survey were briefed to educate the residents about the need for check up and preventive diethylcarbamazine treatment during carrier symptomless stages of the disease.

The residents were encouraged to know about microfilaria by looking at their own or positive slides in the laboratory. This was useful in emphasising for early diagnosis and treatment during asymptomatic stages.

The microfilaria carriaers were requested to attend the 'filaria clinic' established as part of the studies and as per recommendations of the filaria assessment committee report (*loc cit*).

The clinic had models and charts depicting the spectrum of the clinical disease and was utilised to emphasise completion of the treatment inspite of the drug reactions and subsequent periodic preventive night blood check ups.

At the clinic Professor of Surgery joined the authors to examine, swelling cases for operative relief, hydrocele cases for plastic surgery and to established cases for therapeutic relief where considered practicable.

At the entry of the township, a big board was provided to emphasise the various aspects of the township's filariasis problem.

In short, it might be emphasised that the workers with filaria control units should be re-oriented to incorporate the educational approach during their survey, field and laboratory work. The filaria staff must also establish necessary links with an area's surgical relief centre so that the functional and the educational integration exists at all levels.

Conclusion

In the opinion of the authors, unlike malaria eradication, it is not possible to achieve filaria control without arousing dynamic public participation at all levels especially for simultaneous control of the mosquitogenic condition and personal protection. Some methods to incorporate the educational approach in the national filaria control programme in the

(Continued to page 137)

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REPORTS

PIPED WATER SUPPLY FOR RURAL COMMUNITIES AN EXPERIMENT IN A SOUTH PACIFIC ISLAND

N. MAJUMDER*

Protected water supply for rural communities have presented a difficult problem to the health workers all over the world. Need of adequate quantity of protected water to each individual in a community does not require any justification. Location of a suitable source, collection, conditioning and distribution of the water to the people are the usual problems to be solved by the water engineer. The sparse development, a characteristic of the usual makes matters worse. The cost of water supply in such communities is often too high to be economically feasible.

Piped water supply have many merits and is invariably the choice. Decentralised system is inconvenient to operate and is also expensive even if a moderate demand of water of the community is to be met. The greatest advantage of such a system however is the flexibility in its installation. To begin with, the supply may be limited to and thereafter as the funds become available the sources may be added and the supply augmented. The system when complete costs more than a piped water supply with a centralised source. Maintenance of water supply and control of water quality are much better achieved in a centralised system than in the other.

The water supply of the island of Tongatapu is an excellent example which has demonstrated the feasibility of piped water supply for a village community. It has given today to the village community a supply of protected water fairly adequate in quantity and within easy reach of the villagers.

The island of Tongatapu is the largest of 150 islands in the Kingdom of Tonga. It is one of the coral islands in the South Seas. The country is flat and there is no river or fresh water lake in the island. The annual rainfall of 60 to 100 inches is fairly spread over the entire year. Ground is highly porous and rain water soaks in soil readily. Geological formation of the area is such that salt water is encountered at depths below 20' to 30'.

Because of conditions stated above inspite of a fairly high rainfall, no surface water source exists in the island. Ground water is also not readily available and water in wells even at shallow depths taste saline due to intrusion of sea water. Rain water collected from roof tops meets the water requirement of the families. It is collected in storage tanks which exist in almost all houses. Some provide overhead tanks to which the water is pumped from the storage tanks at ground level. The supply is then piped to the fixtures in the house.

Such supply being entirely dependant on the occurrance of rain the availability of water to the household members is very meagre, since collecting surface and storage reservoir have to be otherwise very large. Rain water separators on the line as are normally recommended to divert the first wash to waste are seldom used. The quality of water is questionable and the supply is inadequate. Conservation in the use of water to tide over dry days

* Propessor of Sanitary Engineering, All-India Institute of Hygiene and Public Health, Calcutta.

brings additional strain on the people. Cost of water supply for individual home collection is approximately £60 per family. The operating cost is however low since manual pumping is usually resorted to. It is not possible to impose any control of water quality by either the civic or Government bodies.

Attempts were made by the people in Tongatapu to tap ground water in dug wells. The wells were seldom provided with lining; parapets were often absent and the wells received surface flows. The water tasted saline due to intrusion of sea water. Most of these wells are now not in use and the others supply water for washing of animals and for gardening.

Health Department was concerned of the lack of protected water supply in the villages. Health statistics also revealed high incidence of water-borne diseases. Gastro-intestinal diseases in the year 1961 were reported to be 3253 for a population of 65,620. Water supply in the islands of Tonga was far from satisfactory. Improvement of water supply was consequently given a very high priority in the health programme. The Health Department in 1961 with assistance from UNICEF and WHO launched a pilot project of water supply in two of the villages in the island.

The project engineer on the scheme undertook an intensive study of the ground water in the area. It was observed that fresh water in certain areas was available at shallow depths although the depth of fresh water lenses was limited to a few feet only. This information has been useful in planning for water supply with ground water as the source. Shallow wells are now built avoiding salt water. The wells are provided with concrete steining upto about 10′ from ground. The soil below is sufficiently strong to hold without any lining. The depth of water being shallow a chamber approximately 4′ square and 1′-6″—2′-0″ in depth is built to serve as a sump for the pump. The walls and the floor of this chamber are made of concrete to prevent any inflow of ground water at this level since salt water is likely to be present at this depth. (see figure)

The wells are also protected against the inflow of surface water. They are covered and fitted with pumps. Hand pumps of the Philippine type are used in areas where supply is not piped. These deep well pumps are sturdy ones and are fitted with a delivery line feeding a tap placed 20′—30′ away from the well.) The waste water drains through a hole in the platform in the soil which is highly porous. Wherever piped water supply exists diesel, windmill or electricity is used as power to pump the water to an overhead tank. House connections are allowed and public fountains are located at convenient points. The supply is safe and is not dependant on the occurrance of the rains.

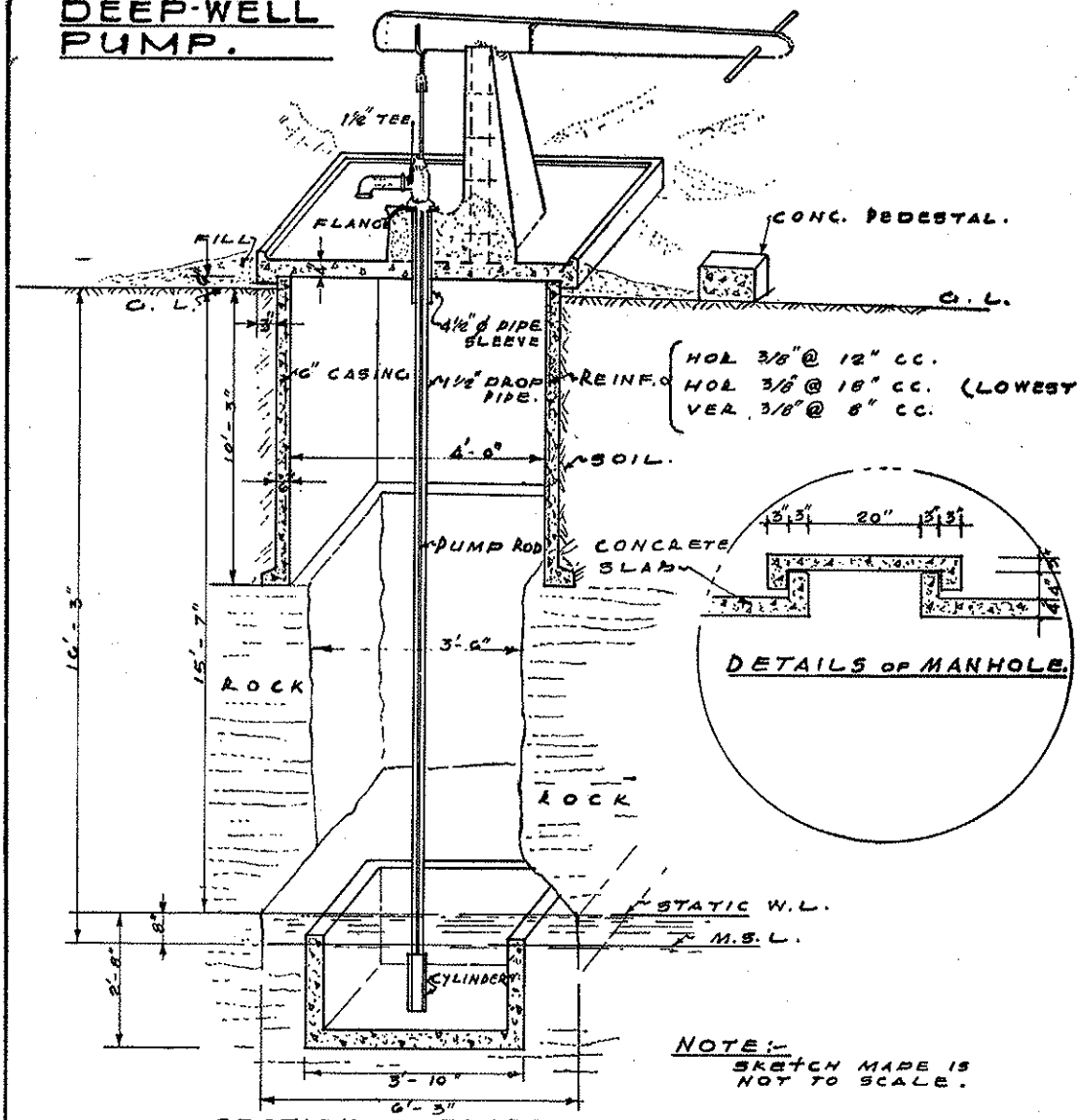
The introduction of piped water in the community has resulted in a great change in the way of life of the Tongans. They are not required to depend on the collection of rain water from roof tops. Now, a bath a day which was considered a luxury once is not uncommon with the people of all ages. House connections are requested and bathing enclosures with improvised showers are common sights in houses in these villages. A house connection is readily given to the villager provided he bears the cost of materials. The water supply is looked after by the village committees guided by the Health Department. With the introduction of piped water supply the rain water storage tanks have gone to disuse and collecting systems have rusted. Hand flush latrines which could not be used before for want of water are getting popular with the villagers. The sanitation in general has improved considerably. The elders recall the miserable plight they had to suffer because of dearth of fresh water. The programme of protected water supply has spread very rapidly in the villages of the island. Most of the villages in the island today have piped water supply and the remaining areas depend upon wells fitted with hand pumps. This indeed is a great achievement considering prior to 1961 piped water supply was unknown in the villages.

It is indeed gratifying to note how a well planned water supply scheme meets with a ready acceptance even in village communities where it is generally believed that acceptance of a health programme is slow.

The success of the programme depended on planning and approach to the community. There existed a felt need for supply of water adequate in quantity and of desirable quality.

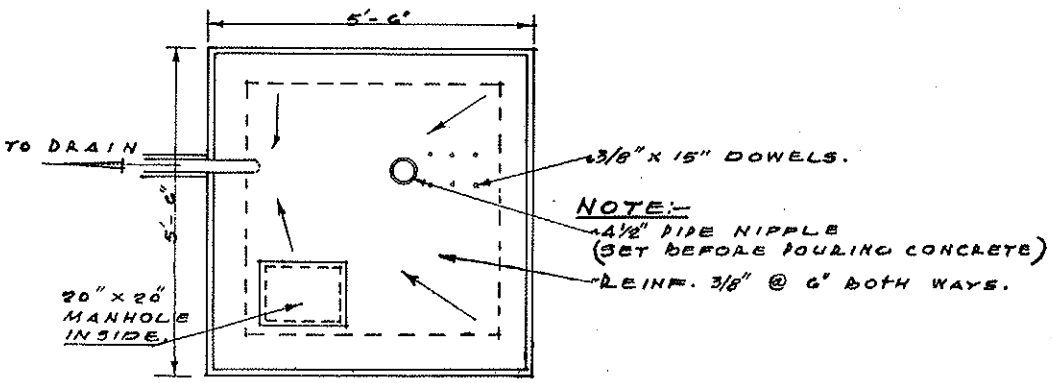
PHILLIPINE TYPE DEEP-WELL PUMP.

DR. No- W/40



NOTE:-
SKETCH MADE IS NOT TO SCALE.

SECTION OF PROPOSED WELL (LAKEFA)



PLAN OF PLATFORM.

Because of high salinity of water in the wells which were built in the earlier days, the wells were not popular. An extensive survey of the ground water aquifer was undertaken. Quality of water in the existing wells was examined. The depth of fresh water lens in different parts of the island was determined. Depth of these wells had to be shallow to avoid intrusion of salt water. For the same reasons, drilled wells could not be considered for supply. Instead shallow dug wells were tried. Investigations indicated that water had reasonably tolerable taste and with adequate protection of the wells, the water could be rendered safe.

Since the soil is made up primarily of coral, the walls of the well for the top 10 feet or so are to be impervious. The flow of water into the wells is from the sides below 10′ from ground. The top is roofed over and is fitted with a man hole. Water level being low, deep well pumps are used. Deep well pumps of the Phillipine type are used in many installations and these are popular. The water is delivered at a point approximately 10′ away from the well.

Cost of these wells is fairly high and it is not feasible to have many in a village. The people often have to carry water over long distances. It is therefore suggested that piped water supply system be introduced with wells as the source of supply. Water is usually pumped into an overhead tank which feeds a distribution system. Oil engines or electric motors operate these pumps. A few of the pumps depend on wind power. The low operating cost and need for very little mechanical attention have made these wind mill pumps attractive although the initial cost for installating these pumps is fairly high.

Piped water supply of these villages on an average cost approximately £3.00 per capita. The water supply programme is assisted by the Health Department. Technical guidance has been provided by WHO and UNICEF has assisted the programme by providing the pipes. People are required to pay their share in the form of materials and labour. At the request of the villagers the Health Department prepares a scheme after conducting an investigation. The scheme is implemented by the Health Department. Maintenance of the system rests with the local bodies. Technical assistance needed for the maintenance of these services is offered by the Health Department.

House connections are encouraged. Public taps generally of waste-not type are placed at convenient points. A concrete platform is placed below the tap. Waste water drains readily through a hole located at the centre of the platform into a soakage pit just below the platform. Soil is porous and water table is low. Consequently the soakage pits function satisfactorily without causing any nuisance. The tap is protected from all sides by fencing to avoid animals soiling the taps. In some of the villages drinking water fountains have been provided alongside main roads.

Rural water supply programme in the Kingdom of Tonga has proved that an intelligent planning of a scheme which is otherwise considered not feasible becomes a successful programme. Acceptance of the programme by people is ensured if the scheme is well conceived, satisfactorily executed and the people are motivated to participate in the programme. Much of the success of the water supply programme in the island has been due to the efforts of voluntary organisations of which the Langa fanua, a women's organisation, has been the most effective. The approach to people and a very tactful handling of the situation yielded the desired results. As is usually the case the staff in the Health Department faced considerable opposition both from the Government as well as from the people to suggest a programme which was new to the people in the area.

The approach to the community was planned by the Health Educator who was not only associated with the preparation of the programme but also was responsible in presenting the scheme to the villagers. His sincere and tactful presentation of the programme meant its acceptance by the villagers. The success of the programme has brought love and respect to him from the villagers. He is one of the most sought after person in the area and is highly respected by the villagers.

Experience in Tonga suggests that a concentrated effort in a limited area even if it is for a short period yields good results on the long run. Attempt to cover a large area leads to dilution of efforts and it does not register satisfactory results. This has been so also in many of the rural sanitation services in India. The health education techniques need to be designed to fit into the local setting. A care-

ful study of the local conditions is extremely important to devise suitable educational methods for an area.

Environmental health services in the rural areas whether in India, Tonga or elsewhere do require a careful study and planning. The human element is by far the most important factor contributing to the success or failure of a project. Rural sanitation projects must be technically sound, precise in its planning and phasing and must be executed by the people themselves with the assistance of local health staff. In this respect rural sanitation differs from urban sanitation which although demanding a highly technological solution does not have to depend to that extent on active participation of the people benefitted.

It is also observed that one successful programme paves the way for the other programmes. Demonstration is best obtained by presenting a successful programme. A successful programme in any one aspect of health services leads to ready acceptance of programmes in other aspects. This is well demonstrated in Tongatapu as the successful programme on water supply was closely followed by programmes on excreta disposal and school sanitation. The latter two programmes are making good headway and before long the island can feel proud of its rural sanitation services.

The lesson that is learnt from Tonga is that environmental sanitation programme in the rural areas can be successful only if it is approached with the understanding of the local conditions and with the use of local resources. Above all it needs the determination of the staff to see the job well done.

Acknowledgement

The author wishes to acknowledge his grateful thanks to the staff of the Health Department of the Government of Tonga and to the WHO staff assigned to WHO assisted pilot project on Environmental Sanitation in Tonga. They had furnished him the information and had taken great care in showing him round the project during his visit to the island. The author also acknowledges his gateful thanks to Government of India for permitting him to avail himself of the foreign assignment which was kindly offered to him by the World Health Organization.

A STATISTICAL APPRAISAL OF CARDIO-PULMONARY DISEASES OF WILD RHESUS MONKEYS

(*Continued from page 118*)

Dr. R. N. Chakravarti for permitting me to use the data and for necessary guidance.

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ROLE OF HEALTH EDUCATION IN FILARIA CONTROL

(*Continued from page 132*)

endemic areas were outlined and briefly discussed in the paper.

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PREVENTION AND CONTROL OF TETANUS IN A RURAL COMMUNITY

K. K. Sound,*
L. Ramachandran, **
B. S. Mittal.***

This is a report of the incidence of tetanus among the new born and infants in a rural setting and the measures taken to control it.

Introduction

Infant mortality rate is of great significance as an indicator of the level of health. In recent years the perinatal and neonatal mortality rates have further helped in locating specific health problems effecting the most vulnerable groups of the community. Despite the difficulty in diagnosis of conditions in the new born and infants, attempts are continuously made in most countries to investigate the causes of death to maintain as reliable a classification as possible. Mortality in early childhood has been classified and reported by W.H.O. for selected countries by age, sex and cause between 1959-61.[1*]

In following a more or less similar classification the general picture in India has shown gastro-intestinal infections and respiratory infections as predominant causes of infant mortality.[2] Tetanus neonatorum has also been a major cause of infant deaths in some parts of the country[3]. Early reviews of the morbidity and mortality figures for tetanus have reported larger incidence of tetanus neonatorum in rural areas than in urban—due probably to greater contact with soil and cattle and primitive obstetric care.[4,5]

In the three primary health centres functioning under the community development block of Najafgarh a high rate of tetanus neonatorum was observed in the preceding years. The pattern of MCH services in this area is able to provide postnatal care in almost every case though as far as possible confinements are conducted in the homes. Skilled attendance for midwifery is available in about 50% of cases. The remaining cases are conducted by local or indigenous dais, who adopt their own traditional methods.

The problem

The prevalence of tetanus neonatorum as a special problem in the rural community around Najafgarh is brought out by the following tables :

Table I

Causes of Infant Deaths (Najafgarh)

	1963	1964	1965
1. Diseases of respiratory system ..	67	65	41
2. Dysentery, Diarrhoea & enteritis	67	20	30
3. Prematurity	44	29	39
4. Fever	42	97	36
5. Tetanus	39	53	24
6. Marasmus & General debility	21	29	32
7. Measles	5	2	4
8. Typhoid	—	6	—
9. Others	77	10	37
Total	362	311	243

* Public Health Nursing Supervisor.
** Officer In-charge.
*** Statistician.
Rural Health Training Centre, Najafgarh.

Table 2

Incidence of Tetanus as percentage of morbidity
P.H.C. Najafgarh

	1962	1963	1964	1965
Cases of tetanus	45	64	54	15
Total O.P.D. Attendance (new cases only)	32679	33953	36652	39333
Percentage of tetanus cases to total OPD attendance	t0.14%	0.19%	0.15%	0.4%

Table 3

Age & sexwise distribution of the cases of Tetanus.

	1962		1963		1964		1965	
	M	F	M	F	M	F	M	F
0-1	18	15	26	19	18	13	6	4
1-12 months	3	2	1	1	3	2	2	
1-5 years	—	—	5	1	3	2	—	1
6-15 years	2	2	5	2	3	2	1	—
16-25 years	1	1	—	1	1	2	—	—
36-45 years	—	—	1	—	1	—	1	—
46-66 years	—	—	—	—	—	—	—	—
55 & above	—	—	—	1	—	—	—	—
Total:	25	20	38	26	32	32	10	5

Table 4

Mortality due to tetanus

	1962	1963	1964	1965
No. of total cases of tetanus ..	45	64	54	15
No. of deaths due to tetanus ..	39	53	45	14
No. of cases of tetanus neonatorum	39	47	36	12
No. of deaths	37	43	34	12

Detection of cases and treatment

Every case was diagnosed only from the objective symptoms. In some cases diagnosis was not difficult because of the typical symptoms viz., the baby thrown rigid into convulsions and rendered completely unable to suck milk. Because of the risk involved, every case was immediately administered a dose of pencillin injection and a sedative and rushed to the hospital at Delhi for further treatment. Almost all the cases were confirmed as tetanus by the attending doctors in those hospitals, though no further bacteriological confirmation was attempted.

Epidemiological Exploration

The quality of midwifery and infant care and the nature of cutting the cord and dressing of the umbilical stump were ascertained under each case as also the person who was responsible. The enquiries revealed the following :

(1) All the cases had occurred after home delivery.

(2) The attendant was an untrained person.

(3) The implement used for cutting the cord was neither cleaned nor sterilised, apart from it being a crude implement.

(4) The umbilical stump was covered with mud or ash or cow dung paste.

Preventive Measures

It may be ideal to have every delivery conducted in an institution. But this is not possible in our country yet. This problem was, therefore, tackled in the following manner :

It was immediately necessary to bring under supervision all the local indigenous dais who were otherwise left alone to resort to their own crude methods of midwifery and unclean habits. These dais were taken in batches and given 6 months training at

the health centre. They were oriented thoroughly towards asceptic midwifery and were supplied with clean and sterilised equipment by the health centre which was replenished periodically.

Immunization of the pregnant mothers with tetanus toxoid was started since this has been advocated for high risk populations.[5,6] In 1963 the Central Research Institute, Kasuli, desired this centre to take up a study to find out the titre of immunity in the blood after administration of toxoid. Such a study was not found possible because there was objection for removal of blood. However, the immunization programme was persevered with. Though there were some initial difficulties in persuading antenatal mothers to have this immunisation, it has now become a routine since 1964. To produce high levels of circulating tetanus antitoxin by the time of delivery it is essential to have 3 injections of 1 cc each of a potent tetanus toxoid at an interval of 4-6 weeks between each injection. A very ideal situation would be to give the first dose in the first month of pregnancy, the second dose at the end of the second month and the booster dose at the end of the eight months of pregnancy. But due to the difficulties already faced in early registration of antenatal mothers the schedule recommended is, first dose as early as possible in pregnancy, second dose 4-6 weks after and the third dose 12-16 weeks after and preferably 4 weeks before delivery. This recommended procedure was followed in immunising the antenatal mothers. The number of mothers protected in 1964 and 1965 were 308 and 1358 respectively giving a coverage of 36.2% of mothers immunised and 63.8% of unprotected antenatal mothers.

Improvement of environmental sanitation

There is a dire need to improve the housing conditions to avoid huddling together of human beings with cattle and to minimise infection of the soil.

Health Education

Education of the mothers was very necessary in making them aware of the problem and involving them in its solution. Obstetrical care, sanitation in the homes, infant care, immunization and other preventive programmes could succeed only with the cooperation of the mothers.

While it is noticed with gratification that there has been a marked decline in the occurrance of infantile tetanus as a predominant cause of infant mortality it is also expected that tetanus neonatorum will cease to be a problem in coming years.

Summary and Conclusion

The occurrence of tetanus neonatorum as a major cause of infant mortality in the rural areas of Najafgarh is mentioned. Its incidence is given for the preceeding three years. The measures that were taken for prevention and control of tetanus neonatorum are described. Immunization of the antenatal mothers with tetanus toxoid and training of the attendants in aseptic midwifery care and use of clean and sterilised equipment and dressings appear to be quite effective in preventing the infection. Improvement of sanitation may help in the eradication of the disease. But under the existing insanitary conditions in rural areas the above two measures are of great value in preventing the infection. The need for health education stands by itself.

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HEALTH EDUCATION: THEORY & PRACTICE*

The meaning of Health Education is deeper than the sum of the meanings of words 'Health' and 'Education'. Health generally means a state of the body in which various organs function harmoniously. W.H.O. has defined health as a state of physical, social and mental well-being and not merely an absence of disease or infirmity. Education essentially means a process of intellectual growth. Briefly expressed health education means translation of scientific knowledge about health into practical behaviour by the individual and the community. Health education has been also defined as 'the sum of our efforts to modify human conduct and attitude so as to raise the health levels of the individual and of the community.' Academically Public Health Education is defined as a process of introducing a planned change in a community with the idea of improving their health. It is a democratic process and pays due regard to the individuality, dignity and liberty of each individual. The main aim is to help the community to help itself. The aim of Health Education as defined by W.H.O. is to help people achieve health by their own actions and efforts.

Health Education has to be built around biological and social facts and principles which release to man's existence, survival and adjustments. The roots of health education are to be found in the biological and physical sciences as well as in the social and behavioural disciplines.

Health is only one facet of life though it is probably the most important one and its value is discovered when it is lost. Health education is a part of every health programme and a very important one for the success and its speedy execution. Health education has to be a part and parcel of the planning of any health programme from its inception to its consummation.

Health education is one of the more recent specialities of public health. It originated in the United States during 1889 when Hermann M. Biggs wrote for the general public a pamplet on Contagious Consumption, probably the first popular health pamphlet to be published. The underlying philosophy of health education is based on the fact that a repetitive action for promotion of health, prevention or cure of disease must come from within the individual or the community concerned through understanding of the process. It is not possible to apply compulsion or law for such repeated acts. Examples are: daily brushing of teeth for prevention of caries and pyorrhoea; long continued domiciliary treatment to be carried out by patients of tuberculosis or diabetes and in family planning programme the repeated, recurrent use of contraceptives.

The emphasis in health programmes is slowly changing from the control of environment to the control of self by each individual concerned. It may be quite easy to get the latrines made by compulsion or through legislation but it is very difficult to make the people use them. It is here that health education has a part to play. It has to produce an understanding in the individual and in the community for use of latrines voluntarily and has to find out the factors that help or hinder their use and rectify those that act as barriers.

Scientific facts have to be communicated to the common man in a simple, palatable and interesting manner so that he can understand and accept them. An understanding of the process of communication thus forms a very

* An abridged version of the talk given by Dr. D. Bhatia, Director, Health Services, Punjab, at the Fifth Health Education Conference at Bangalore on the 1st July, 1966.

important part of health education. The mere imparting of information, however, will not do the trick. The individual has to be motivated to make a decision to use these facts in his practical life. Health education lays special emphasis on the study of motivations and the process of decision making.

Public Health deals with the groups and communities though individuals make these congregations. The study of group dynamics is another facet of health education. In health education we believe that every individual is capable of learning, though the potentialities and capabilities of different individuals vary.

The behaviour of individuals is the result of complex determinants of the ideas, customs, beliefs, attitudes and values acquired through the process of socialization. The individual is usually caught in the net work of social complusions and needs a feeling of support and security if he wants to make a departure from the accepted norms. Those individuals who make a departure from the accepted norms are called leaders or innovators. One of the important task of health education is to facilitate the location and identification of community leaders. Social sciences have developed techniques of identifying and motivating these leaders for adopting new health practices and thus setting a pace for the change in the desired direction.

The behaviour of individuals is prompted by their needs and instincts. The fundamental needs of each individual are food, shelter, sex and security. Each individual wants acceptance and social approval. In health education we recognize the needs of the individual and the community and try to see a relationship between the satisfaction of these needs and his health.

The health itself cannot be represented by a point or a line. It is a range in which the individual carries on his activities till he is unable to perform them efficiently and recognizes that state as a disease or disability. Paradoxically enough he feels conscious of health more in its absence than during its vibrance. Health itself, therefore, does not offer the necessary motivation for adopting particular health behaviour. The motivation for health has to be rather indirect in the form of need-satisfying or ego-satisfying complex i.e. to give the person concerned a perceptible gain, recognition, status, prestige or power. In health education these factors are recognized, analysed and applied as motivating forces. The health educator helps the individual or the community to see the health need and the resources for dealing with the problem.

Health is the result of hereditary factors, environment and the ways of living. The environment are physical, biological, social and economic. Man is constantly acting and reacting with the forces of environment and modifying them to his advantage. The foundation of health progress lies in research, health education and the availability to health services, facilities and supplies. Health education provides a bridge between the health institutions and the public by making the latter aware of the former and making them take advantage of the services and supplies.

Who should do the Health Education

Every one of us is doing Health education even though at times one may not be aware of it. When a mother shouts at the child "Don't go near the fire", she is educating the child regarding the how and why of preventing burning of his hands. When a father promises the child a reward for getting up early morning every day, he is educating him to inclucate punctuality. These threats and rewards are a few of the methods employed for directing behaviour since antiquity for children as well as for adults. Health education aims at giving the individual a chance for understanding and acting differently. It employs the principles of social science to ensure participation and involvement of individuals and groups in defining the problem, assessing the resources and making a decision to plan a programme on the basis of priorities and evaluating the performance in terms of stated aims.

Unfortunately the clinical work in medicine has been glamorised and the clinical physician has been recognized and eulogised as practically the only person who serves the ailing individual. Emphasis has not been laid on community health and avoidance of disease through Health education.

Health education and community health are both of recent development. Since 1947, the

number of medical colleges has increased from 20 to 87, but there has been no corresponding expansion in the schools of Public Health. More and more funds have been spent for providing services for the treatment of the sick, but not so much for the community health. This imbalance must be rectified. Community medicine should no longer be the cindarella amongst the other disciplines. More and more should be invested in training, research and creation of experts in community medicine.

The youth and talent must be presented with the picture that research, study and therapeutics of Man in Disease are as exiting and gratifying as that of Disease in Man. The understanding and manipulation of determinants of human behaviour are intellectually as stimulating as the study of D.N.A. and R.N.A.

The image of the community physician must be changed. He should be offered the best rewards in terms of emoluments, advancement and prestige.

It is not off the tangent to say that training schedules in our Public Health Institutes also need drastic revisions and strengthening with emphasis on Behavioural and Social Sciences.

How can Health Education be made a mass movement specially for Family Planning

Health education to be effective has to permeate all strata of society irrespective of their socio-economic levels. The entire personnel of the Health Department, be they doctors, nurses, sanitarians, social workers, nutritionists, A. N. Ms. or health educators have to have a conviction regarding the efficacy and application of the philosophy of health education. They have to practice what they preach. The most important element is the development of good social relations with the individuals and the communities so that the health workers is accepted by them in the local situation. It is only by ensuring his acceptance as a person that he can win their confidence and promote the acceptance of health programmes.

The methods of health education are mainly one way communication or diadectic, through the media of lectures, films and film strips, exhibits and exhibitions, radio, newspapers, pamphlets and posters, etc. The application of these media presumes that the dissemination of information is sufficient for motivating people to action. It is, however, not quite so. While the information-giving power of these mass media cannot be questioned, their power to motivate individuals is rather poor.

The second method of communication is two way or Socratic, by discussion with individuals or with new small groups. This method is more effective specially when experience are provided in a life situation for the individual or the group to learn for himself the new health behaviour. Examples are demonstration and practice of washing the eyes of the children, digging a latrine, etc.

To make health education a mass movement we have to involve other Government Departments, Voluntary Organizations, Local Bodies and above all the leaders and elected representatives of the people such as M.P.s., M.L.A.s., Members of Zila Parishad, Block Samities and Panchayats. In Family Planning particularly the first step is to bring out the discussion on the subject as shyness is the biggest barrier to the understanding of family planning. The subject of family planning deals with the deepest emotions of men and women and probes their intimate, personnel and private life. In the programme of family planning there is no question of eradication of births or families as is the case with smallpox, malaria, etc; It is a question of moderation of fertility. This naturally needs more time, more understanding, co-operation and voluntarily compulsive and calculative action on the part of parents.

To make a success of the Family Planning Programme it has to be a mass movement as achievement of small size families by a section of the population will not solve the problem. Their effort may be neutralized by the prolific fertility of the rest of the population.

Health Education specialists have to be provided at various levels and have to be adequately trained and reasonably paid. The work of health educators in the context of promotion of health programmes is no less important than that of the medical personnel. They need status and recognition accorded to the medicine. They have to be able to provide a leadership for Health Education specially in family planning.

The senior members of the health staff do not know the functions, duties, roles and res-

ponsibilities of the Health Educators, simply because the senior Health staff have neither the training in health education nor the experience of working with the Health Educators. The senior members of the health staff need exposure to health education through reorientation courses and teaching and practice of health education needs to be introduced in the curriculum of medical undergraduates immediately.

The use of mass media has opened up new horizons for dissemination of information regarding health programme specially family planning. Under the community development scheme a net-work of Radio sets have been provided practically to every Panchayat. The newspapers are also supplied to almost every village. The use of these media as well as suitable preparation of posters and pamphlets needs the services of experts and artists who are in extreme short supply.

For making family planning a mass movement the role of mass media, community organization and group discussions are very important. However, we have to recognize that speech is the exclusive privilege and gift of man and individual contacts where the word of mouth plays the most important role in convincing individuals specially regarding practice like that of family planning has to be carried on by all the health workers to achieve success for the programme. The change of behaviour is only possible by changing the preceptions and the values that bring about the behaviour pattern. They must practice what they preach.

Any dilution of conviction in advocacy or self practice would reflect on the acceptance of their advocacy.

To be effective they must be first convinced about the social need for family planning. They must be convinced that fertility can be controlled and that it is desirable to do so. They must be convinced about the efficacy of the conception control methods that they advocate.

Programme Planning

It has been said ironically and sarcastically that the administrators usually mean by health education printing of posters or showing of films. This attitude is now changing fast and programme planning is being recognized as the most important activity of health education. Several principles of education planning especially pertiment to adult health education are succinctly summarised in the twentieth year book of the American Association of School Administrators:[1]

1. **Programme should be based on the needs** and interests of people.
2. Programmes should reach the people wherever they are.
3. The people themselves should share in programme planning.
4. Adult health education should be an integral part of the total community health programme.
5. Adult health education should be an integral part of the total adult education programme of a community.
6. Leadership of high quality should be provided.
7. Programmes of adult health education should point toward action.

The above principles have to be put into practice for effective implementation of any health programmes specially its health education component.

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ASSOCIATION NEWS

ANNOUNCEMENT

Mrs. Tarulata Das Gupta has earmarked a sum of Rs. 10,000/- to the Association, the interest proceeds of which are to be utilised of arranging an oration every year by an eminent person at the time of the Annual Conference of the Association in any field of Public Health with emphasis on Environmental Hygiene. The donation is to perpetuate the memory of her late husband, Dr. B. C. Das Gupta who played an active part in the work of the Association both as its first President and as the Editor of the Indian Journal of Public Health.

NOTICE TO MEMBERS

Dear Member,

We are very glad to inform you that the Twelveth Annual Conference of the Indian Public Health Association is going to be held on 16th, 17th and 18th December, 1967 at Poona, with the Maharashtra State Branch of the Association playing host for the same. The venues of the Annual Conference are the B. J. Medical College and the Armed Forces Medical College, both at Poona. The detailed programme of the Conference will be intimated to you in due course.

The subject for the Scientific Session is "URBAN HEALTH PROBIEMS—With Special Reference to India". Topics under which the subject is split up are given in a separate sheet enclosed herewith. Members desirous of presenting papers on the topics of the subject are requested to intimate their willingness to contribute with the subject of their contribution to the Scientific Session Committee, 12th Annual Conference, I.P.H.A., C/o. Department of Preventive & Social Medicine, B.J. Medical College, Poona by **23rd October, 1967, under intimation to us.** The complete paper, in duplicate, also must reach the above Committee by **15th November, 1967.**

As in previous years, we are approaching the Railway Board for railway concession (single fare double journey) for members attending the Annual Conference at Poona. If you wish to avail yourself of the concession, please write to us as early as possible so that we could send you the concession form in time to enable you to make your reservation in advance.

Regarding accommodation at Poona, we have written to our Organising Branch for its arrangement and details of the same will be intimated to you by either the Organising Branch or us in due course.

To ensure large gathering at the Conference, we are writing to the State Government, Corporations, the Port Commissioners and public hector enterprises either to depute or allow Special Casual Leave to our members to enable them to attend our Annual Conference.

Election of President-Elect and two Vice-Presidents

As per Rule 20 C(a) of the Constitution, I invite you to nominate one member of the Association for the office of the President-Elect and two members for the offices of the Vice-President for the year 1968. All nomination papers must reach the office of the Association at Calcutta by **23rd October '67** at the latest.

Resolutions :

Notice of resolutions from members to be moved at the ensuing Annual General Body Meeting should reach the General Secretary by the **23rd October, 1967** at the latest.

INDIAN PUBLIC HEALTH ASSOCIATION
12th Annual Conference

SYMPOSIUM ON "URBAN HEALTH PROBLEMS—With Special Reference to India"

1. **The Effect of Urbanization on Health.**

   A Brief Introduction. .. .. 10 mt.

2. **Demographic Study of Urban Development.**

   (a) Growth of Urban Population in India, and Projection for Future. 20 mt.
   (b) Rural—Urban Migration.

3. **Urban Health Problems and their Remedies.**

   (a) Slums, all aspects. .. .. .. 40 mt.

   * (b) Morbidity ; Medical Care provided by Local Authorities. .. 20 mt.
   (c) Industrial Hazards, Air Pollution and their control. .. .. 30 mt.

   120 mt.

   Discussion 120 mt.
   180 mt.

   * Includes Infectious Disease Hospitals Municipal Diagnostic Laboratories and Special Clinics (Tuberculosis, Venereal Disease, Leprosy, etc.)

Second **Day**

   (d) Water Supply : Problems and Solutions. .. .. .. 15 mt.
   (e) Drainage and Waste Disposal : Problems & Problems & Solutions. .. 15 mt.
   (f) Industrial Waste Disposal, River Pollution : Promblems and Solutions. 25 mt.
   (g) Robert and Insect Menace and its control. .. .. 15 mt.
   (h) Food Contamination, Food Adulteration and their control .. 15 mt.

4. **Other Health Services**

   (a) Health Statistics, Planning and Evaluation of Health Services .. 25 mt.
   (b) Town Planning .. .. .. 15 mt.
   (c) M. C. H. Services and Mamily Planning. .. .. .. 25 mt.
   (d) School and University Student Health Services. .. .. 10 mt.
   (e) Health Education. .. .. .. 10 mt.
   (f) Urban Recreation Facilities. .. .. .. 10 mt.

5. Public Health Emergencies in Urban Areas (Epidemics, Floods) .. 20 mt.
   200 mt.

   Discussion 100 mt.

Goa Daman & Diu Branch

A state Branch of the Association has been formed in the Union Territory of Goa, Daman of Diu with 32 members on its roll. The office bearers of the state Branch are :—

President

Dr. A. C. Vaga, Director of Health Services, Goa, Daman and Diu.

Vice-President

Dr. Emidio Afonso, Chief Medical Officer, incharge of Public Health Laboratory, Panaji.

Secretary

Dr. Guiridora Quenim, Assistant Director of Leprosy Control Programme, Panaji.

Joint Secretary

Dr. Damodar Bounsule, Epidemiologist, Health Services, Panaji.

Treasurer

Dr. Norman Pereira, Chief Medical Officer, M.C.W. Programme, Panaji.

Members of Executive Committee

Dr. Estevao Afonso, Chief Medical Officer, incharge of Vaccine Institute, Panaji.

Members of Executive Committee

Dr. Naraena Porob Bhembre, Medical Officer, Health Inteligence Bureau, Health Services, Panaji.

Members of Executive Committee

Dr. Dinanata Siurama Rau, Medical Officer, incharge of V. D. Control Programme, Health Services, Panaji.

Members of Executive Committee

Dr. Prabhakar Cuvelkar, Health Officer, Ponda, Goa.

Members of Executive Committee

Dr. Kamalakanta Janu Sinal Kharangate, Health Officer, Vasco da Gama, Goa.

BOOK REVIEW

"The Nation's Health" by Dr. K. N. Rao, published by the Director, Publications Division, Old Secretariat, Delhi-6 ; pp. V+ 81 ; 1966 ; price Rs. 1.50. . . . . . .

The book seeks to present the historical background and trace the health conditions of India with available supporting health indices and brings together at one place as much as possible of the latest information pertaining to health planning and rational health administration during the fourth plan.

The book is commended to all medical and public health workers here and abroad for correct understanding of India's health—retrospective and prospective.

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NOTES & NEWS

A National Conference on Iron Deficiency Anaemia will be held from Friday, 15th November to Sunday, 17th November, 1968 in Bombay. The subjects to be discussed will be.

1. Iron Metabolism :
   - (a) Iron Absorption
   - (b) Iron Stores
   - (c) Iron utilization
   - (d) Estimation of body iron
   - (e) Experimental iron deficiency
2. Iron Deficiency Anaemia
   - a. Prevalence in hospital patients, general practice, obstetric patients, surgical patients pediatric and Geriatric practice and in general population in various socio-economic groups, in rural and urban populations.
   - b. Aetiological factors: Role of Ankylostomes other parasites, malabsorption, blood loss, dietetic deficiency, etc.
   - c. Clinical features.
   - d. Associated deficiencies of vitamin B_{12}, Folic Acid, Proteins, vitamin C, etc.
   - e. Red cell survival in iron deficiency anaemia.
   - f. Diagnostic parameters and hypochromic anaemia not due to iron deficiency.
   - g. Treatment :
     - (i) Oral-different salts, their advantages and disadvantages,
     - (ii) Parenteral - different preparations, total dose infusion
     - (iii) Diet
3. Iron deficiency without anaemia-diagnosis and clinical features
4. Prophylaxis : Nation-wide.
5. Hemosiderosis & Hemochromatosis

For each of the paper accepted for the conference one of the authors will be paid first class return fare to Bombay and will be provided lodging and boarding at M.L.A. Hostel by the Organizers of the conference. Last date for receiving the summary of papers is 31-7-68. Complete paper should reach the organizers on or before 31-8-68.

Those intending to participate should intimate the subject of their paper to the organizers before 31-7-67.

Organizers :

Department of Hematology
King Edward Memorial Hospital
Parel, Bombay 12

List of Tentative Recommendations made by the Committee on essential drugs which require to be referred to all interests concerned for eliciting views in the matter

1. The use of lozenges and penicillin ointments for topical use would not be advisable. Antibiotics which are meant for systemic use and sulpha drugs should not be permitted to be marketed in formulations intended for local use. Ophthalmic ointments of antibiotics, with the exception of Penicillin ointment, and sulphacetamide ointment and drops would however be necessary in the opinion of the

Committee especially for the treatment of Trachoma and other infections of the eye. The use of antihistaminic preparations for external application was also recommended to be discouraged. The Committee, however, felt that the use of Neomycin, Polymixin, Bacitracin, Hamycin, Soframycetin and Nystatin including combinations of these would be useful for topical applications.

2. The use of therapeutic sera for immunisation purposes should not be resorted to. State Governments may be apprised that adequate stocks of all toxoids including Tetanus, Diphtheria and Triple antigen are available and that they should encourage the use of these toxoids through their primary Health centres so that there could be substantial saving in the use of sera and that sensitisation could also be avoided.

3. A provision should be made in the Drugs and Cosmetics Act whereby it should be made mandatory on the part of the manufacturers of drugs to show on the label the toxic effects or other side-effects of drugs, the special precautions if any to be observed in the use of drugs etc.

4. Phenyl Butazone and Pyrazolone derivatives should display a suitable warning legend on the label setting forth their toxic and side reactions.

5. The use of Cyanocobalamin in oral formulations should be stopped. If, however, administration of cyanocobalamin in an oral form is indicated in any specific cases, such preparations should be got dispensed against prescriptions from pharmacies. Folic Acid preparations shold be made available only against doctors prescriptions in order to avoid any harmful effects to the Central nervous system due to self medication.

6. There is need for avoiding the use of readymade formulations of potent drugs and combinations of such drugs, as far as possible, as the dosage of active ingredients required in a particular case may vary from patient to patient. The Committee felt that to avoid multiplicity of drug formulations manufacturers should be asked to furnish data to justify their rationale and give evidence of the efficacy of such formulations as are not included in the latest edition of the National Formulary.

7. The co-operation of the medical profession should be sought in achieving the objective of the Committee which is to reduce the drug bill of the country without compromising on the therapeutic efficacy of the drugs used. The medical profession should be particularly requested to prescribe drugs by their generic names. The existing laws should be changed so as to ensure that generic names are shown more conspicuously on labels than the trade names. The Medical Colleges, while imparting knowledge about therapeutics, should also strictly adhere to the generic names of drugs. Medical associations should be requested to encourage the use of generic names only and even advertisements that appear in the professional journals should be considered from this angle.

8. Nikethamide for oral use was not considered necessary. The manufacture of Nikethamide for oral use for purposes of export may, however be permitted.

9. The use of Olive Oil was also not considered essential and refined Arachis Oil or coconut oil could be used instead.

Printing of Indian Medical Register

You are aware that the Medical Council of India is charged with the maintenance of all India Medical Register which shall contain the names of all persons who are for the time being enrolled on any State Medical Register and who possess any of the recognised medical qualifications. In pursuance of this statutory obligation, the Council has published the Indian Medical Register 1960, and its supplements up-to the year 1965. The supplement for the year 1966 has been forwarded to the Press for publication in the Gazette of India. As per decision of the Medical Council of India the Indian Medical Register as a whole will be revised during 1970 and it is, therefore, of utmost importance that adequate steps are taken to ensure that the next issue of the Indian Medical Register which will be a voluminous publication is correct and up-to-date. This office is taking every precaution to compile the Indian Medical Register correct and up-to-date as per the State Medical Registers but it has been observed that the doctors whose names are borne on the State Medical Registers are not intimating the changes in regard to registration of additional qualifications, change in their addresse etc. to the State Medical Councils with which they are registered, with the result that the State Medical Registers as well as the Indian Medical Register which is complied from the State Medical Registers remain incomplete.

Dr. B. C. Roy National Award for 1969

On the demise of Dr. B. C. Roy, one of the founder members of the Medical Council of India and first elected Indian President, a person of great political foresight and outstanding merit, the Medical Council of India created an Award Fund known as "Dr. B. C. Roy National Award Fund", to perpetuate the memory of this great son of India in a befitting manner. Subsequently the fund has been registered under the Societies Registration Act XXI of 1860 and is being managed by a Management Committee.

The Management Committee has decided that the following 3 awards may be given during the year Oct.-Nov., 1969 :

1. To recognise the merit of a good and capable teacher in Medicine (Civil or Military in various branches) by rotation.

2. To recognise best talents in encouraging the development of specialities of different branches of Medicine.

3. To recognise the best services in the field of Socio-medical relief and in the establishment of medical organisations and medical institutions (both civil and military).

The Management Committee fixed an award of Rs. 2,000/- each for the above 3 categories—one award to be given in each category once in 5 years from 1969 onwards. The above awards will be made by the Committee of Management on the advice of an Expert Committee constituted by the Management Committee. All these awards will be made to deserving and suitable persons eminent in their fields. The Management Committee shall be entitled to distribute the award between 2 or more candidates if in their opinion they are equally meritorious. The role of the person nominated for the Award should be clearly indicated so as to make it easy to determine whether the major part of the work has been done by that person. The award or awards may not be made if suitable persons are not found. The decision of the Committee of Management shall final in this respect. The award will be made on the basis of nominations of candidates to be submitted alongwith evidence of work done including copies of monographs and reprints of special study. Nominations for Dr. B. C. Roy National Award for the year 1969 are now open. Citizens of India and other nationals who have spent considerable time in India, male or female are eligible.

Blank nominations will be available from the Secretary of Dr. B. C. Roy National Award Fund, Office of the Medical Council of India, Temple Lane, Kotla Road, New Delhi-1 from November, 1967 and completed nominations forms should reach him not later than 31st March, 1969 through registered A.D. Nominator's are requested to forward the Nomination Forms complete in all respect as indicated in the instructions.

Regulations governing "The Shanti Swarup Bhatnagar Memorial Award for Scientific Research"

Preamble

(i) The award is named after Dr. Shanti Swarup Bhatnagar, and is known as the "Shanti Swarup Bhatnagar Memorial Award for Scientific Research".

(ii) The award is made each year for outstanding contribution in science, including engineering and technology.

Nature of the Award

(iii) Five prizes each of the value of Rs. 10,000 in the following disciplines will be awarded annually for notable and original research, applied or fundamental:

(a) Physical sciences; (b) Chemical sciences; (c) Biological sciences; (d) Engineering; (e) Medical Sciences and (f) Mathematics.*

Purpose of award

(iv) To create incentive for research workers in India and to recognize outstanding scientific work.

Eligibility:

(v) Any citizen of India below the age of 45 years engaged in research in any field of science shall be eligible for the award. The upper age limit may be relaxed to 55 years in certain disciplines like Medicine or Engineering.

(vi) The award shall be bestowed on a person who, in the opinion of the Council, has made conspicuously important contributions to human knowledge in the particular field of his endeavour, as revealed in books, monographs, papers or any other unpublished account of his or her research work, inventions, discoveries, etc.

(vii) The award shall be made on the basis of contributions made during the five years preceding the award.

Judging Committee:

(viii) In making the award, the Governing Body of the Council shall be assisted by a Judging Committee consisting of the scientist members of the Governing Body.

(ix) The Judging Committee shall appoint a Chairman from among its members and the Chairman shall have a casting vote in addition to his vote in the event of the number of votes being equally divided.

(x) If any member of the Judging Committee himself is to be considered for the award of the prize, he shall cease to be a member of the Judging Committee for the year in question.

(xi) The sole function of the members of the Judging Committee shall be the selection of the recipient of the award.

Nomination

(xii) Names of candidates may be proposed by members of the Judging Committee, and by any learned scientific society in India including University Faculties and Post-Graduate Councils. Each such nomination shall be accompanied by detailed statements of the work and attainments of the nominee.

(xiii) The Judging Committee shall make such arrangements as may be necessary for selection of a name to be recommended to the Council for the award.

(xiv) The award of the prize may be withheld by the Council in any year if, in the opinion of the Judging Committee, no sufficiently meritorious candidate is forthcoming in that year.

(xv) The Secretary of the Council, on receipt of nomination from the members of the Judging Committee and of the recommendations from the various learned societies, circulate the list of names along with the detailed statements of the work and attainments of each candidate to members of the Judging Committee and request their individual recommendations in order of merit.

(xvi) Where the recommendation for the award is unanimous or not less than 2/3rd of the members of the Judging Committee have agreed on the name, the Secretary of the Council shall submit the recommendation of the Judging Committee to the Governing Body of the Council at its next meeting. Otherwise, the Secretary of the Council shall call a meeting of the Judging Committee at least a month prior to the meeting of the Governing Body, and at such a meeting the Judging Committee shall make the selection of a name to be submitted to the Council subject to the proviso that at least 2/3rd of the members voting shall have voted in favour of the candidate selected.

Presentation

(xvii) After the approval of the recommendations of the Judging Committee by the Governing Body of the Council, the name of the recipient shall be mde public.

(xviii) The Govering Body of the Council may prescribe the arrangements for the formal presentation of the prizs. At the time of the presentation, the recipient may be invited to give an address on the subject in which he had made notbale contributions. The Council may also decide to publish in suitable manner the subject matter of the address for the benefit of those who could not attend the address.

(xix) At the formal presentation, a suitable citation on the recipient of the award may be read out ; but the citation shall have the prior approval of the Judging Committee.

NAME OF DISCIPLINE :

1. Name of the Nominee.
2. Date of birth and age as on 1-1-1966/ 1-1-1967.
3. Academic qualifications beginning with Master's degree.
4. Present employer and post held.
5. Details of outstanding achievements during the last five years (Max. of 1,000 words).
6. Whether the achievements recognised/ awarded by any Learned Society/Institution.
7. Mention benefit derived by the Industry/Nation on account of achievements.
8. If academic achievements, whether Internationally recognised.
9. (a) Papers published and reprints. (40 sets).
   (b) Details regarding standard review of articles and books in which the work of the candidate is referred to.
10. Remarks.

Silver Jubilee Research Award for 1966

To commemorate its Silver Jubilee in 1959, the Medical Council of India had created a Silver Jubilee Research Award Fund. The fund has now been registered under the Societies Registration Act XXI of 1860, and is being managed by a Committee of Management. The Management Committee has decided to make the next award during November, 1969. This award will be open to all citizens of India and foreign nationals who had spent considerable time for research in India, and who had distinguished themselves by outstanding original research in the field of medical and allied sciences. The value of the award will be Rs. 25,000/- and a gold medal of the value of Rs. 1,000/-. The award, for the present, will be presented once in 5 years at a ceremonial function at which the successful candidates would be required to make an oration.

The award will be made on the basis of nomination of candidates to be submitted alongwith copies of monographs and reprints of nominees' special study and research. These would be scrutinized by an Expert Committee which will be constituted by the Committee of Management as and when necessary and they would make their recommendations to the Committee of Management. The decision of the Committee of Management of the Silver Jubilee Research Award Fund of the Council shall be final.

In case of a joint research, the award shall be divided between the workers in such proportion as they be decided. The role of the person nominated for the award should be clearly indicated so as to make it easy to determine whether the major part of the work has been done by that person.

Nominators are requested to forward nomination forms complete in all respects as indicated in the instructions.

Blank nomination forms can be had from the Secretary, Silver Jubilee Research Award Fund, Office of the Medical Council of India, Temple Lane, Kotla Road, New Delhi-1, from November, 1967, and completed nomination forms should reach him not later than 31st March, 1969, through registered A.D.

INTERNATIONAL COURSES IN HEALTH DEVELOPMENT AND IN INTERNATIONAL PUBLIC HEALTH

The international courses in health development were founded in 1963 for the purpose of giving doctors working or about to work in developing countries a wider knowledge of public health and tropical hygiene directed towards the development process. Besides medical knowledge, insight into social,

cultural and economic factors of development is considered to be an equally indispensable part of the intellectual equipment of a doctor working in these territories, since these factors after all help to determine the success of an effective policy with regard to public health. In essence it is immaterial whether this policy regional or international. The course have been set up in collaboration between the 'Prins Leopold' Institute for Tropical Medicine, Antwerp; the Institute for Tropical Hygiene, Amsterdam; the Asocition of Institutes for Tropical Medicine, Leyden/Rotterdam; the Office for Development Co-operation, Brussels and the Netherlands Universities Foundation for International Co-operation (NUFFIC), The Hague. They were held for the first time in 1964. The place where the courses are given annually alternates between Amsterdam and Antwerp. In 1968 it is Amsterdam's turn again, followed in 1969 by Antwerp. There are two sections with French and English respectively as the language of instruction. Both of them prepare either for the diploma in health development (curriculaum from February to July) or for the diploma in international public health (curriculum from February to December).

The course begin with the treatment of the pathology of the developing countries from a public health point of view. Then a survey is given of the economic, social and cultural factors of development, followed by a discussion of various aspects of applied international co-operation. Finally the principles of health development and the most important factors of public health are dealt with.

The second part of the course (July to December) offers the possibility of specialization by means of individual study (research and observation), on which the participants have to draw up a final report.

As part of the courses visits are paid to a number of medical institutions in the Netherlands and in Belgium.

So far the courses have been attended by 130 doctors from 36 countries throughout the world.

INDIAN JOURNAL OF PUBLIC HEALTH

Note to Contributors

Manuscripts

Articles are considered for publication on condition that these are contributed solely to the Indian Journal of Public Health. Articles must be type-written, double-spaced, on one side only of foolscap paper and may not ordinarily exceed 16 pages. Two copies of type-scripts are to be submitted. Graphs, charts diagrams or pen drawings must be drawn in Indian ink on white drawing paper. Blue or coloured inks cannot be reproduced. Photographs not suitable for half-tone work will not be reproduced. Illustrations should be numbered and legends clearly typed or written.

In the selection of papers and in regard to priority of publication, the opinion of the Editor and the Journal Committee will be final. The Editor shall have the right to edit, condense, alter, re-arrange or re-write approved articles and other communications before publication, without reference to the authors concerned. The Editor and the publisher will not be responsible for the views and statements of authors of articles and other communications. In the event of not accepting a paper for publication, one copy of the type-script will be retained for our records.

Reference . .

Reference to authors in the body of the papers should contain the name of author with the serial number of the reference following it.

For the list of references at the end of the communication the American system will be followed. The references will be enumerated in the same order and sequences as given in the text. Following is the order recommended : Surname and initials of author, title of paper, name of periodical, year of publication, volume and page. In case of references from books : surname & first name of authors, title of book, place of publication, name of publisher, year of publication.

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Review

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