INDIAN JOURNAL OF PUBLIC HEALTH

Official Quarterly Publication of the Indian Public Health Association

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CONTENTS

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FIFTH ANNUAL CONFERENCE OF THE INDIAN PUBLIC HEALTH ASSOCIATION

The Fifth Annual Conference of the Indian Public Health Association was held between 27th and 29th December, 1960, at the Public Health Institute, Patna. The conference was inaugurated in the gaily decorated hall of the Rajendra Surgical Block adjoining the Institute by Sri D. P. Karmakar, Union Health Minister. Col. Barkat Narain, Health Adviser, Ministry of Community Development and President of the Association presided over the function. A large number of distinguished medical and public health workers from different parts of the country, members of the Association and representatives of national and international organisations attended the function.

The Chairman of the Reception Committee Sri K. R. Bhide, Adviser, Public Health Engineering, Bihar, welcomed Shri D. P. Karmakar, Union Minister of Health and the delegates attending the session. In his welcome address Sri Bhide stressed the urgent need for supply of safe water to the population. He said that if water borne diseases were to be controlled effectively in villages and towns, the first essential condition was to ensure sufficient supply of wholesome water. He added that this problem was mainly economic and the extent of achievement would largely depend upon the funds placed at the disposal of the various State Health Ministries to provide safe water supply to the population.

In inaugurating the Session the popular Union Minister of Health Sri D. P. Karmarkar gave a most stimulating address which embodied many useful suggestions for the improvement of public health in the country. Sri Karmarkar briefly touched upon the efforts made by Government in control of communicable diseases—small-pox, cholera, tuberculosis and leprosy. He also said that nearly 2,500 primary health centres would be established by the State Governments to provide comprehensive health care to the people by the 2nd plan period. He, however, regretted that nearly 10 per cent of the existing primary health centres were without doctors and other ancillary health personnel. Talking about nutrition Sri Karmarkar said that in spite of considerable research carried out in the country, malnutrition and under-nutrition were still present among the people on a large scale. He was convinced that a great deal of improvement could be carried out if people knew the nutritional values of the existing available articles of diet and observe correct methods of preparation of food. He said that it was unfortunate that the knowledge that we acquire after spending large funds on research did not always filter down to the common man. The Association might consider this problem and help to find ways and means of carrying the message to the people. The mid-day meal for school children, Sri Karmarkar suggested should be mobilised on voluntary efforts. Madras Government had carried out substantial work in this field and he would like this programme to be adopted by other States also.

The education of the masses in matters of health, he said, was an essential component of health work. For the improvement of health conditions in our country, people's understanding of the problem and their participation was necessary. Health workers must learn the art of working with the people and people's organisations. The success of the health workers would depend upon the understanding and participation of the people.

Sri B. P. Patel, Minister of Health Bihar, also addressed the conference. He said that although clinical medicine had produced brilliant results, the key to health problems in India lay in the development of social and preventive medicine along proper lines. He regretted that this subject had not been given its proper place in the curriculum of medical education in the country. He pleaded for the

revision of the entire medical curriculum by the Indian Medical Association and that more emphasis should be given to social and preventive medicine. Sri Patel described the recent decision of the Planning Commission to reduce the allocation of the Health Ministry in the Third Five Year Plan as "unfortunate". He said that end of planning was the human being and the means of planning was also the human being, and expressed the hope that the Planning Commission would revise its decision and increase the allocation of the Health Ministry in the Third Plan.

The Deputy Minister of Health of Bihar Rani Jyotirmoyee Devi who also addressed the conference stressed the need for opening more maternity and child welfare centres in rural areas.

Col. Barkat Narain in his Presidential address emphasised that with the introduction of the Panchayet Raj there is need for a new orientation in public health work. He said that it would be in the fitness of things if the general cleanliness of the village, provision of drinking water, disposal of human waste, immunisation against cholera and small-pox family planning and maternal and child health services were given to the Panchayats. He suggested the creation of health committees in each village panchayat. He said that till now the Governmental agency had been carrying on the function both of the 'public' and of the 'health department'. Time had now come when the public should be encouraged to take over the public part of 'public health' and assume its legitimate responsibility.

Col. Narain said that the primary schools also should be the responsibility of the panchayats, as the schools were going to be developed as community centres. As such the role of teachers and the schools in the programme of health education could not be over emphasised. He suggested that leprosy control work should be integrated with the health services of the primary health centres of the community development blocks. He regretted that no provision had been made for the school health service programme in the Third Five Year plan. The departments of health and education should make a joint effort in this regard.

On behalf of the Association Dr. S. C. Ray, Secretary of Patna State Branch of the Indian Public Health Association thanked Sri D. P. Karmarkar for very kindly consenting to inaugurate the function in spite of his multifarious engagements, and for his stimulating address which contained valuable advise to public health workers in the country. He thanked Col. Barkat Narain for his dynamic leadership and his illuminating presidential address. He also thanked all who had made it convenient to attend the session, and the international agencies for sending their representatives. He also expressed the association's gratitude and thanks to the various individuals and institutions who had helped the Reception Committee in providing tea parties and cultural entertainment for the delegates attending the session.

The Scientific Session was held on the 28th December 1960 at the Public Health Institute Hall. The programme for the Session included Symposia on (i) School Health Programme, (ii) Rural Sanitation, and (iii) Industrial Wastes Disposal and River Pollution Control.

Besides the tea arranged by the State Public Health Engineers a reception was accorded to the Minister of Health and the delegates by Bihar Branch of the Indian Medical Association. As in previous years, the Association Dinner was held on the 28th December 1960. Cultural show and whole day excursions to Nalanda, Rajgir and Pawapuri had also been arranged for the benefit of the delegates.

The addresses of Sri K. R. Bhide, Chairman of Reception Committee, Sri D. P. Karmarkar, Union Minister of Health who inaugurated the function and the Presidential address of Col. Barkat Narain are reproduced in the following pages.

WELCOME ADDRESS

By

K. R. Bhide

Chairman—Reception Committee

Hon. Union Health Minister, Hon. Health Minister for Bihar, esteemed guests, friends, colleagues, ladies & gentlemen!

I have the honour and privilege, as Chairman of the Reception Committee, to extend to you, Sir, and all, a hearty welcome to this Fifth All India Annual Session of the Indian Public Health Association, that is being held here in Patna, the Capital of Bihar and the successor of the ancient and historic city of Pataliputra—then the proud Capital of India and Kabul—from to-day for 3 days, to deliberate on matters vital to the maintenance and promotion of Public Health throughout this vast and populated Indian Continent.

I need not explain in detail the aims and objects of this Association, which was ushered 4 years back in Calcutta, under the auspices of the then Central Health Minister, Raj Kumari Amrit Kaur. The parent Institution has held so far its three Annual Sessions in Calcutta and the 4th one in Poona and done valuable work under the able guidance and direction of Lt. Col. C. K. Laxmanan in 1957, of Dr. B. C. Das Gupta in 1958, of Col. Jaswant Singh in 1959 and of Col. Barkat Narain in the current year. This arduous office is now being conferred upon Dr. T. B. Patel, whose intimate knowledge of matters on Public Health—will be a great asset to the Association and the country.

The Association has been brought into being on the lines of other Health Associations in Europe and America, like the Royal Sanitary Institute of Great Britain. The purpose of the Association is obvious—"to restore healthy conditions of living in our families and communities and to educate the general public in the maintenance of those standards of health conditions"—which have been prescribed partly by law and partly by recommendations of the Health Ministries of different States.

Being connected as Head of the State for development of Public Health Engineering Works pertaining to Water Supply and Drainage—with certain aspects of Health—which lead to the compulsory maintenance of prescribed sanitary standards, I shall restrict my observations briefly to these aspects for their proper appreciation.

It is an accepted principle that prevention of disease is better than its subsequent cure. One of the main cause of this disease in communities—sometimes in serious epidemic form—is dirty and impure water. Infectious diseases like cholera, typhoid, dysentery are mainly water-borne and caused by use of suspicious and polluted water. In some cases this precious fluid may be sparkingly clear in appearance, but it may still be suspicious as containing harmful bacterial colonies, which are only discernible through a microscope. If, therefore, waterborne diseases are to be controlled, if not entirely prevented, in communities, in villages and in towns, the first essential condition is to ensure sufficient, if not abundant, supply of wholesome water. Modern techniques have developed methods, in this branch of Public Health Engineering to their highest efficiency. Water of prescribed sanitary standards could be made available to all concerned and for every community, village and town by the adoption of those techniques. The problem is, however, economic and the extent of achievement will depend upon the fund, that could be placed at the disposal of the Health Ministries, to introduce protected piped water supply.

Piped water supply introduces in its train the problem of drainage, for, if waste water is allowed to flow through insanitary and *kacha* drains and *nalas,* creating stagnant pools in its passage to the outfall, it creates other nuisances and unhealthy conditions which have to be tackled by another set of Public Health Engineering Works. Our capital town of Patna is a specific instance in this respect. While we have copious pure transparent water from the sandy understrata of the Gangetic region, there is no adequate drainage worth the name to carry the wastes from the piped water supply to the outfall without creating nuisance. The result is the growth of millions of mosquitoes which have to be controlled by application of insecticides

at a very heavy cost to the State. Moreover, impure wastes generally generate insanitary streams and rivers polluting the whole atmosphere in regions connected with several towns and villages. To make matters worse, raw effluents from the industries like sugar factories, paper factories, leather works and dye-works are let into these streams: here again the problem is economic because if adequate drainage works have to be designed and constructed by the adoption of latest sanitary methods of carriage and disposal, the communities must be able to produce the money for financing the undertaking.

Our industries—small and heavy—are rapidly growing in public and private sectors, and this has created another problem of adequate industrial housing with amenities for roads, water and sanitation. If adequate funds are not available to meet the bare needs of industrial labour, we shall be multiplying and perpetuating industrial slums to the detriment of health of these industrial sectors. One has to visit a modern industrial town like Jamshedpur in Bihar to witness its overgrowth in Jugsalai and other uncontrolled satellite bustees beyond the Subarnarekha river. And this is in a place, where the highest attention is being paid by the Tatas to the amenities of their labour.

I have merely touched the fringe of the few sanitary problems that pertain to Public Health Engineering. There are scores of others which have to be tackled by this Health Association. The motto for our nation is to achieve 'Victory of Health over Disease" and this can only be done with the co-operation of the Public, whom our Association has been started to serve, by educating them and stimulating their interest and concern in this sacred task.

You, Sir, as distinguished Union Health Minister, have been constantly sponsoring and fighting for the cause of health from all angles, and have observed how poorly inadequate the funds are—that the Planning Commission is able to provide in the successive Plans, to meet the crying needs of the States towards this cause. During your eventful regime at the Centre, you have achieved remarkable progress in the matter of preventive and curative measures for the betterment of healthy living. We are grateful to you, Sir, for sparing some of your valuable time in responding to our call for inaugurating this Fifth Annual Session, and I assure you that your presence amongst us will serve as a great impetus and incentive to us all to attend to our assigned tasks for the progressive achievement of healthy living.

INAUGURAL ADDRESS

By

Shri D. P. Karmarkar.

Union Minister of Health, Government of India

It gives me great pleasuse to associate myself with the Fifth Annual Conference of the Indian Public Health Association, and I am happy to meet the public health workers who have assembled here from many parts of the country. I consider these annual conferences very useful because they enable the public health workers to come together and widen their outlook by discussing various health problems and seeking their solutions. This results in healthy exchange of views. I understand that at each of these conferences, you hold scientific sessions on certain importtant health subjets. This shows your keen desire to keep abreast of modern developments in the field of public health. The most significant thing about your Association is that it provides a forum for the presentation of views on experience in matters pertaining to health and health services and invites all categories of workers—social—medical—public health—nursing, to participate actively in

the task, so that a combined effort may be made to promote the health of the country and improve professional and scientific knowledge.

By now, all of you must have studied the Draft Plan for the Third Five Year. The allocation made for 'Health' has been a great disappointment to all of us. However inadequate the allocations, we must begin our work on the premise that in a planned development of economy, we should be prepared to make use of what is available after meeting the pressing needs of the increasing production. It will be interesting to read that in fixing the pattern of priorities in the First Five Year Plan, the Planning Commission stated—

> "To the extent that the accent of the Plan is on increasing production, the limitation of resources available would restrict the scope for expanding social services. And yet it is obvious that no plan can succeed unless it 'invests' in the improvement of the human material. Even from the point of view of increasing production, social services like education, technical training and health bring in significant returns. Considerable advance in these directions can be made if the necessary urge to improvement is created among the people. The problem is partly psychological. There is also large scope in this field for direct community effort. The improvement of public health is often a matter of imparting elementary knowledge regarding sanitation and hygiene".

Another point which even a cursory study of the Five Year Plan reveals that the pattern of the health schemes is predominantly preventive and that is as it should be. With the limited funds at our disposal, we must allocate priorities, and involve the community in accepting and participating in our health programmes.

As you know, we have been laying great emphasis on the provision of drinking-water supply and improvement of sanitation. Freedom and planning have little meaning if we cannot provide adequate and safe drinking-water to our people. Next in the order of priority comes the control of communicable diseases like malaria, filaria, tuberculosis, leprosy, small-pox, cholera, V. D. etc. It is obvious that we should be able to eradicate malaria as soon as possible and make every effort to control the other communicable diseases.

A very important matter which I would like to invite your attention to is the eradication of small-pox from the country during the Third Five Year Plan. You might be knowing, we have established small-pox pilot projects in all the States and one in the Union Territory of Delhi. For these projects, a district in each State has been selected. These projects when completed will give us details about the methodology for the mass eradication programme. These projects will give us information about the cost in money, requirements of personnel and their training, manufacture of lymph vaccine, its storage and transportation and requirements of transport and other essential equipment. I may mention that the entire cost of the programme will be borne by the Central Government. I am sure the members of this Association will give their whole-hearted support to the authorities in this programme.

Family Planning is another programme in which you all can be of great help, in dissemination of information on family planning to the people and seeking their acceptance and implementation. Family Planning Day was observed on 18th December, and I am sure all of you must have observed the increasing popular interest in this regard.

Nutrition:

Inspite of great deal of research that has been carried out in the country, mal-nutrition and under-nutrition are still prevalent among our people on a large scale. I am convinced that a great deal of improvement can be carried out if people know the nutritive value of the existing available articles of diet and observe the correct method of preparation of food. It is unfortunate that the knowledge that we acquire after spending large funds on research does not always filter down to the common man who waits for it. This Association may consider this problem and help to find ways and means of carrying the message to the people.

Primary Health Centres:

It is our aim to provide a net-work of Primary Health Centres and sub-centres in the rural areas to carry comprehensive health care to the people. Nearly 2,500 Primary Health Centres will be established by the State Governments by the end of the Second Five Year Plan. It is a matter of great regret that nearly 10 per cent of the existing Primary Health Centres are without doctors, and other auxiliary health personnel. The State Govern-

ments are looking into this problem, and trying to find ways and means to attract doctors and other health personnel to the rural area.

The gap between the requirements of these personnel for a reasonable health service, and their availability in the country is staggering. And yet these para-medical and auxiliary personnel—sanitary inspectors, health assistants, public health nurses, auxiliary nurse-midwives and technicians form the vanguard of health campaign in the country. I regret that the urgency of this problem has not been fully recognized, and the funds earmarked are not fully utilized. I suggest that a concerted effort must be made to train these personnel in large numbers.

Scientific Session :

I see from the agenda of our conference that you are holding a scientific session to discuss the important subjects of school health, industrial waste and river pollution and rural sanitation. We are anxious that we should embark on a programme of comprehensive school health services and it was with this object that we set up a 'School Health Committee' under the Chairmanship of Shrimati Renuka Ray. The Committee has submitted an interim report and the final report is expected early next year. In connection with the mid-day meal for the school children, I will strongly suggest that voluntary effort should be mobilised. The Madras Government has carried out substantial work in this field and I would like that this programme is adopted by other States also. I will also advise the State Governments to take up the extended nutrition programme with the UNICEF assistance. Some States like Orissa, Andhra, and Uttar Pradesh have already taken advantage of this assistance.

With the increasing industrialisation, the disposal of industrial waste assumes a great significance. We do not want our rivers and streams to be polluted and create a health-hazard to the people living down-stream. The Health Departments should see that all the industrial concerns make adequate arrangements to treat waste water before discharging into the rivers and streams.

A great deal of morbidity and mortality from gastro-intestinal dieases can be prevented if we can develop a programme of rural sanitation. A suitable pattern of hand-flush latrine has been evolved through the efforts of the Research-cum-Action Centres. I understand it is cheap, acceptable and also satisfactory. This pattern has been approved by the Public Health Engineers attached to my Ministry and also by the All-India Public Health Engineers Association. I suggest that efforts should be made to develop this programme in the rural areas.

Health Education:

I now come to a most important subject of 'Health Education'. The education of the masses in matters of health is an essential component of health work. For the improvement of health conditions in our country, people's understanding of the problem and their participation are necessary. Health workers must learn the art of the working with the people and people's organisations. The success of the health workers will depend upon the understanding and participation of the people.

To encourage the spirit of self-help amongst the people, we recently observed a NATIONAL CLEANLINESS DAY for the organisation of a 'Drive' for cleanliness. We have had encouraging reports from all over the country about this 'Drive' and the participation of the people in the Cleanliness Week was most satisfactory. I feel that such drives should become a permanent feature of the health programme.

Association Journal:

I should like to say that I appreciate your idea of conducting a Journal for the promotion of your objectives. I trust you will be able to maintain the high standard of the Journal as you have done before. I am glad to note that in this short period of the existence of the Association, you have been able to establish 4 branches—one each in West Bengal, Bihar, Andhra Pradesh and Bombay,—and I understand that efforts are being made to establish a branch in every State.

In referring to some problems of basic importance I have shared my thoughts with you this afternoon. I am hoping that your Association may be able to concern itself with bringing about conditions essential to meet the challenge of health problems in the country.

Friends, I have great pleasure in wishing you a very successful session. I will look forward with interest to learn the results of your scientific deliberations, which, I have no doubt, will give good guidance to fellow-workers in the field.

PRESIDENTIAL ADDRESS

By

Col. Barkat Narain

Hon. Shri B. C. Patel, Hon. Union Minister of Health, Shri Karmarkar, Fellow-members, Ladies and Gentlemen ;

To begin with, I express my gratitude to the members of the Association for having conferred upon me the honour of electing me the President of the Association for the year 1960. During this year, I have tried my best to be worthy of the trust and faith placed in me. The year 1960 has been a memorable one for the health workers of our country. There have been two general and one extra-ordinary meetings of the Central Health Council. The Ministry of Health has set up a "School Health Committee" under the Chairmanship of Smt. Renuka Ray, a National Nutrition Advisory Committee and a National Water Supply and Sanitation Committee. In addition, there was a meeting of the "Health Panel" of the Planning Commission. All these activities reveal the very keen interest which our Union Health Minister is taking for improving the health of the country. Another important event was the finalization of the Draft Plan for the Third Five Year Plan. By now, I am sure, all of you know that a meagre sum of Rs. 300 crores has been allotted for the Third Five Year Plan. No doubt, it is more than Rs. 140 crores of the First Plan and Rs. 225 crores of the Second Plan, but on the percentage basis of total plan allocation, it is less than the previous two plans. It is a matter of great disappointment to all of us, but at the same time it is a challenge to produce the maximum out of the minimum.

While on the subject of allocation of funds, I may mention that per capita expenditure on health services including curative services on an all-India basis is Rs. 1.72 now; it was Rs. 0.85 at the time when India attained independence. This per capita expenditure varies from Rs. 1.00 to Rs. 2.66 in different States. I have discussed the question of allocation of funds for health programme in our country with some of our experienced public health workers and have come to the conclusion that a minimum allocation of 10 percent of the State's budget and 10 percent of the total plan allocation would be a modest demand to tackle satisfactorily the vast problems of health. I am certain that an investment of this order will pay very high dividends in improving the overall standards of health of the people.

It has not been sufficiently realised that in a programme of socio-economic development of the country, health of the people plays a very predominent role. The health of the people in a community is a measure of human resources available for production of food, operation of industries and for maintaining the standard of living. Poor health not only keeps away workers from the fields and other places of employment, but it generally burdens the low family income and brings suffering and unhappiness. Unless people are healthy they not only stand in the way of their economic development but also cannot enjoy the benefits of their improved economic status. Ancient Indian texts on the Science of Medicine always laid great stress on the attainment and maintenance of health. In one of the texts, it is said :—

> "For the development of the artistic, the ethical and the economic and spiritual activities of man, the first essential is "Arogya" (Health).

In another,

> "Physical prowess is essential for any kind of development".

We can, however, derive consolation that there is increasing emphasis and rightly so on the preventive aspect in each succeeding Five Year Plan and I am certain that in the not too distant future preventive services will play a dominant role in our country. Integrated health care is gradually being accepted as the correct pattern to carry health care to the people.

Following the good examples set by my illustrious predecessors, I would now like to put before you the progress that has been achieved in some of our major health fields and enumerate what still has to be done.

HEALTH PROBLEMS

Environmental Sanitation:—

Here, I will discuss the programme of water supply and sanitation only. Freedom to most of our people can have no meaning unless we can provide safe and adequate drinking water to everyone. The Union Health Ministry started a national water supply and sanitation programme which has been in operation during the last two Five Year Plans. A substantial amount of work has been done in providing water supply to urban and rural areas, but a great deal more has yet to be done. The problem is of very great magnitude, but not unsurmountable. The Second Plan included a provision of Rs. 63 crores for urban schemes and Rs. 28 crores for rural areas, the former was subsequently reduced to Rs. 55 crores. In the Third Five Year Plan, an allocation of Rs. 78 crores has been made for the entire urban programme including Rs. 15 crores for the Corporations and a sum of about Rs. 23 crores for spill-over schemes. This leaves an amount of about Rs. 40 crores to meet the cost of new schemes both for water supply and sewerage.

It is a matter of regret that no provision whatsoever has been made for the rural sector except a sum of Rs. 2 crores for the spill-over schemes under the National Water Supply and Sanitation Programme. It has been mentioned in the Draft Plan for the Third Five Year that funds for rural water supply have been provided under the Community Development and local development works programme and the provision made for the welfare of backward classes. These funds, however, were already provided in the first two plans and found inadequate.

Rural Sanitation:—

A great deal of research has been carried out at the three Research-cum-Action Training Centres at Poonamallee (Madras), Najafgarh (Delhi) and Singur (near Calcutta) for developing a cheap and acceptable type of hand-flush latrine. Such a pattern has been evolved and was approved by the All-India Association of Public Health Engineers. Further research continues in Kerala and Lucknow. W.H.O. has been associated with Sanitation Project in Kerala which has now been taken over by the State Government. The RcA Centres have also carried out research in motivation of the rural people for acceptance of these latrines.

The Ministry of Community Development and Co-operation have issued instructions to all the Development Commissioners in the country that the provision of a sanitary latrine and urinal should be made a condition for grant-in-aid in all the primary schools. The role of public health workers and public health engineers in the promotion of this programme is very vital.

River Pollution:—

With the increasing emphasis on industrialization we have to be on our guard against pollution of rivers and streams. No industrial concern should be permitted to discharge industrial waste into any stream or river without taking adequate steps to ensure that there is no health-hazard involved in this discharge. A number of research units have been set up by the I.C.M.R. to develop methods of treatment and lay down standards for such discharge. I understand that most of the industrial concerns are willing to co-operate in this effort. We are grateful to the I.C.M.R. for conducting researches in this and in a number of other health fields.

Central Public Health Engineering Research Institute:—

It is a matter of great satisfaction that this Institute has come into existence under the Ministry of Scientific Research and Cultural Affairs. The Institute will have four field centres to begin with, Delhi, Lucknow, Hyderabad and Poona. This number will be increased later on. In addition, field units will work at Bombay, Rohtak and Borivali.

The problems taken up for research, in the first instance, will pertain to the treatment of water for domestic and industrial purposes, treatment of sewage and industrial wastes to abate stream pollution.

The institute will maintain co-ordination with the Central Public Health Engineering Organisation under the Ministry of Health and other centres doing research in the field of public health engineering. It will be ready to take up any problem for research referred to by the various public health departments in the country.

Nutrition:—

Mal-nutrition and under-nutrition are still prevalent in majority of our people. Statistical data reveal that per capita calorie consumption has increased from 1,500 in 1955 to

2,000 in 1960. Inspite of this, there is considerable amount of protein deficiency. Efforts are being made by various State Governments to increase the production of protective foods like milk, meat, fish, eggs, fruits and green leaf vegetables. With the assistance of UNICEF a few States have executed a "Plan of Operation" to improve the milk supply and also develop pisciculture. In any case, it should be the duty of health workers and social education organisers to see that expectant and nursing mothers, toddlers and school age children are given the highest priority for consumption of milk and other protective foods.

A great deal of research has been carried out in this subject in India but somehow the results of the researches have not reached the villages. Some thought must be given to this problem.

Food Adulteration :—

Inspite of the Prevention of Food Adulteration Act 1954, this evil is spreading all over the country. Time has come when the State Governments should take stringent contorl measures and heavy penalties should be awarded for offences under the provisions of this Act. A term of imprisonment for the very first offence with or without fine and higher sentences of imprisonment and fines for the subsequent offences, may act as a great deterrent.

COMMUNICABLE DISEASES

National Malaria Eradication:—

I will not take much of your time on this subject, as a special conference of all the malaria workers has just concluded in Hyderabad. I will only plead that every effort must be made to complete this eradication programme as quickly as possible so that we can achieve our objective before mosquitoes develop resistance. I am also anxious for the successful conclusion of this programme because it will release a large amount of funds and personnel which go into this programme—funds and the personnel so released can, with advantage, be utilised for other health programme.

National Filaria Control Programme:—

This programme continues to progress satisfactorily. There are, at present, 46 units working in the country covering a population of 13.8 million. An additional important step necessary for the control of filariasis is underground drainage which can only be taken up when more funds are allocated by the Planning Commission.

Arrangements have been made by the Union Ministry of Health to train Medical Officers and Inspectors to be employed by the States for implementation of this programme. A Filariasists Training Centre has been set up at Ernakulam in Kerala State.

National Tuberculosis Control:—

B. C. G:—This programme has made satisfactory progress in the country. So far about 144 million people have been tested and 51 million people vaccinated. The susceptible population of our country is about 170 millions. I am sure that after the target is achieved, B. C. G. vaccination will continue to be a routine measure for the new susceptibles and the new-born.

T. B. Clinics:—The establishment of these clinics need greater emphasis than before. It is a matter of great concern that all the district headquarters have not yet been equipped with T. B. Clinics. With the present limitation of funds, it will be a long time before we can build and equip sufficient hospitals to accommodate the tuberculosis patients. As such, it is imperative that greater effort should be devoted to the establishment of T. B. Clinics, so that domiciliary services can be organised forthwith. I suggest that highest priority be given to construct, equip and staff a chain of such clinics throughout the country in a phased manner. To meet the problem of shortage of doctors, I suggest that services of general practitioners should be utilized.

The recent National Tuberculosis Survey has revealed that incidence of tuberculosis is not as uncommon in the rural areas as imagined. This has brought out a problem of considerable magnitude. Fortunately, experience has shown that domiciliary treatment, if properly carried, out can give very good results. As such, the establishment of tuberculosis clinic assumes greater importance. In addition, use should be made of the Primary Health Centres. In a number of Primary Health Centres in the Community Development Blocks clinical side rooms are being developed, which should be utilised for sputum examination. In places where the incidence is high, it will be necessary to

appoint a laboratory technician, who can, in addition to examination of sputum, carry out other clinical "side-room" work. In sputum positive cases, anti-tuberculosis drugs can be distributed through these centres. I will go further and suggest that anti-tuberculosis drugs should be distributed free to those who cannot afford to buy them.

To our experts in tuberculosis, I will plead that let hospitals, sanatoria and rehabilitation centres be built when adequate funds are available, but not at the expense of the domiciliary treatment. For the success of domiciliary treatment, it will be necessary to train adequate number of health visitors and other para-medical personnel and provide mobility.

Leprosy:—

Leprosy control programme was started during the last years of the First Five Year Plan and continued during the Second Plan. Nearly 130 centres have been established all over the country including 4 treatment and study centres. It is proposed to establish 100 additional leprosy control units in the Third Five Year Plan in the endemic areas. Training of Medical Officers in charge of these units and para-medical personnel and social workers will receive greater emphasis during this period. I have always advocated that leprosy control work should be integrated with the health services of the Primary Health Centres of the Community Development Blocks wherever necessary. I may mention that this is also one of the recommendations of the "Health Panel" of the Planning Commission.

Small-pox:—

All the public health workers are aware of the decision of the Government of India to launch a mass small-pox eradication campaign in the country. As a result of this decision, an Expert Committee was appointed by the Union Ministry of Health in 1958 to examine the problem of small-pox and cholera and recommend ways and means for eradication of these diseases. In pursuance of the recommendations of this Committee, the Government of India has decided to take steps, in the first instance, to eradicate small-pox from the country. The entire eradication programme has to be carried out in two phases. The first phase started on 1st April, 1960, and will conclude on 31st March, 1961. It is proposed to undertake the second phase in the first two years of the Third Five Year Plan.

During the first phase, 16 pilot projects, one each in 15 States and one in Union Territory of Delhi have been started. For the purpose of this project, one district in each State with a population of 12 to 15 lakhs has been selected. The object of the pilot project is to work out details of the methodology of mass eradication programme and to work out requirements of personnel, training, expenditure, production, storage and transport of lymph. On the basis of the reports submitted by the pilot projects final programme will be chalked out by the Expert Committee in consultation with the State Governments. I have the privilege of serving on this Expert Committee. The members of this Association, wherever they are working, will be called upon to help in the successful execution of this mass campaign. The entire expenditure on the pilot projects as well as for the mass eradication programme will be met by the Union Ministry of Health. I am happy to mention that both UNICEF and W.H.O. will be helping in this programme. In fact, through the efforts of these two international organisations, two plants for preparation of dry freeze vaccine are going to be established in the country.

In the month of November this year, the S.E.A. Regional Office of the W.H.O. organised an Inter-regional Conference on Small-pox Eradication, in which representatives from Eastern Mediterranean Region, South East Asian and Western Pacific Regions participated. Eradication programme has been carried out in some of the countries in these regions and we were able to gather some useful information which can be embodied in our eradication programme.

Other Diseases:—

The Third Five Year Plan includes schemes for the control of goitre, trachoma and cholera. The incidence of goitre in the sub-Himalayan region is considerable. Supplies of Iodised salt are being distributed for controlling this disease.

Trachoma has been found to be prevalent in several parts of the country. Experiments to control the disease in pilot areas have been successful. On the basis of this experience, the control campaign is being extended.

For the control of cholera, apart from immunisation programmes, steps are being

taken and will continue to be taken to improve the environmental sanitation.

A great deal has yet to be accomplished to control viral diseases.

V. D. Control:—

This programme in the Second Five Year Plan is a Centrally-aided project. A provision was made for establishment of 75 district and 8 headquarters clinics. Against this target 53 district and 4 headquarters clinics have been established till now. The existing facilities for training in V. D. work at the Institute of Venerology, Madras, and at the V.D. Training and Demonstration Centre at Delhi are not being fully utilised by the State Governments. It is necessary to train a sufficient number of medical officers and auxiliary staff in V.D. control work so that there is a pool of trained workers to man the clinics when established. Central assistance is available for this programme and the State Governments can utilize this assistance provided their schemes conform to the prescribed pattern.

Maternal and Child Health:—

Progress in this field continues to be satisfactory, but a great deal more has yet to be done before we reach the total population. In most of the rural areas the services have been integrated with the Primary Health Centre. It will take a long time before the State Governments can provide adequate domiciliary services for the rural people: but a great deal can be done, in the meantime, by training the indigenous women—called *dais*—who are performing domiciliary midwifery today in the villages. These untrained women have become a part of the social structure in most parts of rural India. These *dais* apart from doing domiciliary midwifery also assume the duties of the "Home Helper" who help in disposal of soiled linen and also help to wash the clothes and perform other domestic duties. A few States have taken advantage of the Government of India's scheme for training of *dais* but response has been rather poor. The target was to train 36,000 such women during the Second Plan period, but only 8,400 have been trained so far. All that is necessary is to teach these *dais*, preferably on their cases, to wash their hands with soap and boil the rags, thread, and the scissors. They should be encouraged to seek guidance from the Health Visitor and other qualified medical personnel in the neighbourhood in cases of difficult labour. Further, they should be encouraged to get the expectant mothers to make use of ante-natal and post-natal clinics. The part which the *dais* can play in reducing maternal and infant mortality and morbidity in our country cannot be over-emphasised.

Experience for the past few years has indicated that Medical Officers in charge of the Primary Health Centres will be able to perform their duties more efficiently if they receive training during their under-graduate period in domiciliary midwifery and paediatrics.

Family Planning:—

The programme of family planning continues to make substantial progress, but this progress varies widely from State to State. The Committee of the Working Group on Vital and Health Statistics of the Planning Commission has estimated that the 1961 Census population figure will exceed 430 millions and by 1966 the population of India will reach the figure of 480 millions. During 1960-66 the population may increase annually by 10 million with an overall growth of 2.1 per cent per year. This is a serious matter and, as such, highest priority should be given to Family Planning in the States. Family Planning is a personal matter, and, therefore, is essentially a people's programme with government assistance. Family Planning should be an integral part of any programme designed to improve the socio-economic conditions of the people. Help from voluntary organisations should be welcome. The field staff employed in the Commnity Development Blocks can be of very great use in spreading the message of "children by choice and not by chance". The most important part of this programme is to let the people know that advice on family planning and suitable contraceptive material is available free to those who cannot afford to buy, and at cost price to others. *Panchayati Raj* (Democratic Decentralization) can play a vital role in educating the masses and their electorate.

The Government of India is ready to give substantial financial assistance to any organisation which is prepared to adopt and work this programme. Training programmes have been arranged for all categories of workers. All this information is available with the Administrative Medical Officers, Directors of Public Health in each State. There are Family

Planning Officers at the State headquarters who can give full information and assistance, for the execution of this programme.

There are, at present, 507 clinics in the urban areas and 939 clinics in the rural areas. Every Primary Health Centre should be able to give advice and distribute contraceptives free or at subsidised rates. The Government of India has also offered a grant of Rs. 1,500 to all the State Governments for distribution of approved contraceptives at Primary Health Centres, hospitals and dispensaries and a token grant of Rs. 1,000 for distribution of contraceptive to each commercial organisation, manufacturers, mills, factories, etc. Each one of us present here should make an effort for the success of this programme.

School Health :—

This service, even though considered essential, is just beginning to develop. The importance attached to this programme can be realised from the fact that the Union Ministry of Health set up an Expert Committee under the Chairmanship of Smt. Renuka Ray to advise on school health including school feeding programmes. Some States have made a beginning but are handicapped for want of funds to develop adequately. A school health service can only succeed if arrangements are made for a "follow-up" and for correction of defects, if any are detected during the physical examination. So far no provision has been made for this programme in the Third Five Year Plan.

The Departments of Health and Education should make a joint effort to develop this programme.

Rural Health :—

An integrated and comprehensive health care programme is being developed in the rural areas through the establishment of Primary Health Centres as part of the multipurpose Community Development Programme. There are, at present, 2,400 Primary Health Centres and about 5,000 sub-centres. According to the programme, it is expected that by the end of the Third Five Year Plan, there will be 5,000 Primary Health Centres and 15,000 sub-centres in the country in addition to the existing services. This programme is based on establishing one primary health centre with three sub-centres in each Block. It is expected that by the end of 1963 all the 5,000 Blocks would have been allocated covering the entire country.

Health Education—a basic approach :—

To solve and minimise some of the health problems stated above, it is essential to have a continuous programme of health education. In fact, health education is an integral part of every health programme.

"Health education, like general education is concerned with change in knowledge, feelings and behaviour of people".

"The importance of health education is to help people to achieve health by their own actions and efforts".

"In its most usual form it concentrates on developing such health practices as are believed to bring about the best possible state of well-being. In order to be effective, its planning, methods and procedures must take into consideration both the processes by which people acquire knowledge, change their feelings and modify their behaviour and the factors that influence such changes".

The success of any health programme would depend upon the understanding and co-operation of the community.

Our Association :—

The Indian Public Health Association has just entered the fifth year of its existence. It is gratifying that a new branch was inaugurated in Andhra Pradesh in July this year and another one is about to be established in Delhi in the near future. Recently I have had personal discussions with some of our colleagues in Mysore, Madras and the Punjab, and I expect that branches will be opened in these States during 1961. I must, however, confess that the membership position is not satisfactory since several members have not paid the annual subscriptions. The Central Committee must look into this problem critically and find a solution. I feel that it will be easier for the State Associations to collect the dues promptly. Moreover, the establishment of branches in every state will create a more stable membership. Therefore, it is essential to establish branches in every state as early as possible; pending this I appeal to each one of you to help in enrolling members.

Our Journal has maintained a very high professional standard since its inception. The increasing cost of paper and printing have created some problems. We have, therefore,

set up a sub-committee to review the position and make recommendations for maintaining the standard and for making the Journal self-supporting. An Advertisement Committee was specially created to secure more and suitable advertisement for this purpose. The recommendations of the Sub-Committee have been approved by the Central Committee.

I am happy to say that since the inception of our Association, we have maintained very good relations with the government departments, local bodies and voluntary organisations. Health knows no boundaries, professional, national or international. Our aim is to establish "Healthy India" in a "Healthy World".

We are very grateful to the Hon. Union Minister of Health, Shri Karmarkar, for the generous grant to our Association for our Journal and for other creative activities to improve the health of the people. I take this opportunity to thank all the International Agencies who have been helping us in our efforts to improve and intensify the health services in the country. On behalf of the members of the Association, I would like to convey our thanks to Dr. Dasgupta for having agreed to our request to continue as the Editor of the Journal and I may also mention that it is only due to his efforts that the Journal has achieved an international status.

During the year as your President, I have done my very best to put the Association on a sound footing and I can assure you all that even after I hand over charge, I shall continue to do whatever I can to supplement the efforts of each one of you.

I have now great pleasure in handing over the responsibilities of the Association to Dr. T. B. Patel and I am certain the Association will continue to thrive under his able guidance.

SYMPOSIUM ON SCHOOL HEALTH

EYE STRAIN AND VISUAL HYGIENE IN THE HEALTH OF THE SCHOOL CHILD

By

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The most important work for a school going child is to study *i.e.* to read and write, and for this the eyes are the most important organs. So 'Visual Hygiene' plays a vital role in the health of the school child.

Of course those children of school going age who are totally or almost blind require special schools where there are facilities for *BRAILLE TRAINING* etc. There are about two lacs of such children in our country.

For an average healthy school child the most important eye-trouble is eye strain. The most important symptoms are difficulty in sustained studies, inattentiveness, headache, malaise and sometimes vomiting. Important signs are—irritability and watering of the eyes, sometimes low grade chronic infections like chr. conjunctivitis, chalazia etc.

Causes of eye strain may be briefly summarised as follows:—

(A) Errors of refraction:—

This is the commonest cause of eye strain. Fortunately with the introduction of School Health Clinics in increasing numbers this defect is being diagnosed early and necessary correct-

ing glasses prescribed. This should be done as early as possible to help the child to encounter the increasing strain of school life.

Other ocular causes which need detection and treatment are difficulties in accommodation and fusional inadequacy.

(B) Environmental Factors:—

These depend on illumination and nature of work in which the eyes are engaged.

(i) Illumination:—

Quantity of Illumination—should be sufficient for easy and efficient performance of the task. Normally the eyes are best adapted for daylight vision. But cloudy or misty weather requires the help of artificial lighting. With the advancement of civilisation the schools are depending more and more on various artificial lighting aids. So there should be a standard.

The relation of basic Visual Acuity (Ba) to Illumination (I) is expressed as—Ba=Klog I. In England, Regulations (1945) under the Education Act (1944) governing school lighting prescribe 10 feet—candles at the working level of the class-room.

Quality of Illumination—The ideal light for a class-room is daylight. This is however not direct sunlight, but diffused sunlight through doors and windows etc. So the doors and windows should not be obstructed by very close walls or other buildings. Adequate number of skylight windows supply uniform illumination in a much more satisfactory way than side windows.

Distribution of Illumination—is important for providing a balanced illumination in the background and surrounding and avoidance of glare. In very high illumination the acuity of vision is diminished owing to glare. Care should be taken to avoid direct reflection of light into the eyes.

Also reflected light from pages of books made of shiny paper causes a distressing glare. So books for school children should not be printed on very glazy papers. It is best to place the source of light laterally on the left hand side and slightly behind.

Type of light:—The light should be steady and uniform. Flickering light should be avoided. As regards colour, acuity of vision is best in white light. Fatigue comes on earlier with coloured lights, sooner with red and yellow than with blue and green. Highly fluorescent light must be avoided in a class-room.

(ii) Nature of the Object:—

Size of the object studied is very important, not so much for its actual size but for the visual angle it subtends which should be adequate for comfortable study. The types of the prints, the clarity of the diagrams and the proper—not too stooping posture of the child, are various points to be taken care of in this respect.

(C) Constitutional Factors:—

(i) Physical:—Eye muscles get easily fatigued in the feeble and undernourished child. Deficiency of vitamin A brings about a rapid onset of such fatigue.

(ii) Functional:—Children of psychological and nervous instability suffer more from eye strain.

(iii) Masturbation and Spermatorrhoea: Sir William Mackenzie in 1843 described this as one of the causes of eye strain. This factor, though rare, may be taken into consideration for adolescent school boys, suffering from eye strain. A close watch is to be kept on their associates and habits.

These are a very brief resume of the problems of eye strain and visual hygiene so far as a school child is concerned and it must be remembered that a child inattentive to his studies, and complaining of stomach ache and nausea—must not be chastised as a malingerer, but his ocular condition and the immediate surroundings as regards lighting, print and posture etc., are to be investigated and necessary correcting measures adopted. This will help the child in getting through the most important ordeal of his life.

HEALTH EDUCATION IN SCHOOL

By

Dr. J. Nath, M.B., D.P.H., M.P.H.

A school health programme in the real sense of the term is in a rudimentary stage in India. Some states have progressed while others are lagging behind.

Organisation of an effective school health programme is difficult, for, it requires a unique understanding between the Health and the Education Departments and the parents. Any unilateral action may cause temporary enthusiasm but will ultimately end in failure.

Health education is one of the three component parts of a school health programme and is also the ultimate objective of the other two parts i.e. health service and healthful school living. It is inherent in all the three phases of the programme. Therefore an effective school health education can only occur when all the opportunities are utilised in the context of the existing community health service and in the background of the socio-economic status and cultural patterns of the people.

Today we find that in those states where there exists a statewide programme of school health activities, health service is the concern of the health department and the other two aspects are the concern of the education department. Though there is much scope for these two departments to come together for the purpose of attainment of a common objective yet they have remained apart. The result is that health education through schools has not progressed much and there is colossal ignorance regarding healthy habits amongst student population. The health department should therefore take leadership in bridging up this gap. In the State of West Bengal this has already been started.

Since 1958 a separate section of School Health and Health Education had been created with an Assistant Director in charge, at the state level. At the district level the Chief Medical Officer of Health had been entrusted with all preventive and curative health activities including school health. A separate officer designated as Medical Officer, District School Health Unit had been placed under his disposal for organisation and supervision of school health activities. This officer is to work in close liaison with the district educational organisation, the publicity and other welfare departments. His name had been suggested to be included in the District Development Council.

At the periphery, the Medical Officer of the health centre had been made the school medical officer of the centre's public health jurisdiction since the inception of these centres thereby giving earliest effect to the recommendations of the Bhore Committee. The integration of the school health activities with those of the community health activities had already been conceived of through this set-up

How is this administrative set up responsible for health education in schools? As has already been stated a health centre's activity is limited to its public health jurisdiction. In the non-health-centre areas and in the municipalities there is no health service for the students rendered by the health department. Two municipalities receive grants from the state for rendering health service to the school students. For Calcutta the health department of the Calcutta Corporation renders health service to the students of the Corporation schools and a number of schools are given service by the state. Some of the schools have their own doctors for medical examination. A part of the salary of the medical officer comes from the Education Department. The majority of schools have no health service. The health centres had covered 13.06% of the total school student population of the state by medical examination in the year 1959-60.

The procedure of health examination of the students by the M.O. of a health centre is as follows:—He intimates to the teacher by post or through messenger that he will examine a certain number of children on a particular afternoon and requests him to select the students and inform their parents or guardians to be present during the time of examination. His aim is to utilise the examinations as educational opportunities for the pupils, parents and the teacher. When the teacher is interested, he selects the students, informs their parents through them verbally or by writing letters or through personal contacts. If he is not interested, he receives information but does nothing. So when the M.O. visits the school on the specified day he may

find some parents, the students and the teacher waiting for the examination or in the other case he will have to approach the teacher again to permit him to examine the specified number, without the presence of the parents or the teacher. In the latter case his objective is only partially fulfilled. A clear directive is therefore desirable as to who should be responsible for the arrangement of medical examination of the students and informing their parents. It should also be found out which is a better method of communication for motivating the parents to attend the medical examination of their children. It is suggested that such methods of communication have to be used before the parents realise the value of their presence during health examination.

Sometime the M.O. fails to keep his appointment due to health centre emergencies. In such cases the Health Assistant should always visit the school and explain to the teacher and the parents why the M.O. failed to keep his appointment. This will remove any mis-understanding and will maintain good public relations. Often this is not done.

Morning sessions in the schools present much difficulty for health examinations. Out of 180 days in the school academic year 30 to 50 days are spent as morning session.

As long as there is only one M.O. in each health centre, examination of children in morning schools will perhaps not be possible. Reassembling the required number of students in the school by the teacher in the evening is being tried at present but the results are yet to be seen. The same problem arises when any school has a double shift.

The load of health examinations per year on each M.O. is 1200 students. Their schedule is 10 examinations per day, each examination lasting for 10 minutes including taking history, recording and imparting health education to the students and their parents. M.O. who are at a handicap for attaining this figure for several reasons e.g. pressure of the O.P.D., public health emergencies like epidemics or natural calamities, inclement weather conditions or absence of other field staff or lethargy for doing public health works, sometime try to make up this number by curtailing the time of examination thereby sacrificing the educational aspects.

After the health examination is over, the M.O. gives a list of defective students and the nature of the defects to the teacher. He is requested to intimate to the guardians who were absent during the examination about the nature of the defect detected and also to follow up all the defective students in the class-room so as to see whether they had attended the school health clinic of the health centre for treatment and if so whether they are progressing. This is only a request by the M.O. and not obligatory. Not much response from the teachers has so far been obtained.

The major defective students who require special treatment or examination or care, or those who do not attend the clinic inspite of requests by the teacher or the M.O. are followed up at home and the parents or guardians are contacted. A few of them whom he cannot tackle at the health centre are referred to the subdivisional or the district hospitals. During home follow up by the health assistant, M.O. or the public health nurse there is much scope for health education of the students and parents. But sometimes education imparted to parents fail on account of economic reasons—e.g. a student who is referred to the district hospital for treatment cannot be taken there by his father for lack of money or cannot buy special medicines and appliances prescribed for the child. Hence the health of these children are left to fate. These parents are to be helped and means are to be found out.

When the health staff visit the schools for immunisation, the opportunity may be appropriately utilised for health education. Flannelgraphs, flip charts or filmstrips may be used for a talk and followed by a short discussion. Teachers should cooperate and participate in organizing such a class. Filmstrip projectors had been supplied to every subdivisional health officer from where these may be loaned. Flannelgraphs or flip charts may be prepared locally and some can be made by the school health section.

There is no health service for teachers. If teachers receive health service from the health centre and if it be a requirement of the Education Department there may be a spontaneous interest developing in them for taking interest in the health of school children. Besides this, parents and students will be influenced by the example of the teachers.

It is known that schools must provide a healthful environment. "To give formal class-room instruction regarding cleanliness without providing necessary facilities for the children, to put into practice what they are taught is worse than useless. Apart from the

harm it causes by failing to give the child proper instruction in hygienic mode of life, such a divorce of practice from precept will have a serious detrimental effect to the outlook of the growing child".

In the State of West Bengal there is no code of sanitation for the primary schools. As such the majority of the primary schools have no water supply of their own, no latrines and urinals and no washing facilities. The primary and junior basic schools have type plans prepared by engineers which have provision for latrines and water supply. Regarding the secondary schools the health department has a sanitary code. For all new constructions and extensions of old buildings sanction of the plans by the school health section is necessary. Such plans are received through the District Inspectors of Schools The main items on which detailed scrutiny is made are: (1) floor space, (2) a potable source of drinking water supply, (3) sanitary latrines and urinals in adequate proportion. No matching grants for construction are given unless the plans are sanctioned by the school health section.

It is understood that all the primary schools will be basic schools in future. But since that time the present primary schools will continue with the present standard of sanitation. It should be seriously considered by the Development Department as to how a tube-well, and one or two sanitary latrines can be provided for every school. There is already a UNICEF proposal to supply tube-well pipes for a certain number of primary schools of this state.

In the basic schools or in the primary schools where latrines and urinals are provided there should be careful supervision about their use and maintenance.

The sanitary condition of all schools falling within the public health jurisdiction of the health centres are inspected by the M. O. once a year and the reports are submitted to the Medical Officer, District School Health Unit. The latter with his remarks sends them to the District Inspector of Schools for necessary action.

Action taken by the D. I. of Schools in respect of individual schools is not yet known especially the primary ones but it is expected that some action is likely to result if the inspection reports are sent regularly.

Nutrition is the most vexed problem of a good school health programme of our country and to preach balanced diet to the underfed is hypocrisy.

In West Bengal it is very unusual to find any arrangements for school tiffin or lunch in rural schools. Mal-nutrition is one of the commonest defects of our school going children. What type of nutrition education should be given for our children? If we are to give them nutrition education we should teach them something which they can practise at home. If a teacher gives by rote that a child should take two glasses of milk every day, immediate disregard for the school and the teachers will grow in the parents' mind.

Therefore nutrition education should be based on an actual survey of local foods, eating habits, superstitions and beliefs regarding foods, and ability to procure them by the families. Such surveys may be carried on region or district-wide basis by nutritional experts who will suggest as to how best the local food-stuffs can be utilised. On the basis of the reports nutrition curriculum may be built.

In those few schools where there is a school tiffin programme including UNICEF skimmed milk, advantage should be taken of the educational opportunities in the following ways:—

(i) All students should wash their hands and bowls before taking,
(ii) All students should learn about reconstitution of the milk in hygienic manner,
(iii) Learn social service by distributing among themselves in an orderly manner,
(vi) Learn about food borne diseases and rodents,
(v) Learn the value of milk as a food especially for young children,
(iv) Learn about food borne diseases and how to prevent them.

Teachers should participate with the students and during supervision much incidental teaching may take place.

In those schools where there are kitchens and the school tiffin is prepared there, students should be allowed to participate in the preparation of the menu. Teachers are very much reluctant to do this as they have got a notion that they will never come to a decision.

Growing of food in the school compound is always encouraged and has educational value. But this does not always become practical due to lack of money for fencing and protection of the plants against cattle and sometimes theft. It has been successful in some of the basic schools where the teachers stay in the compound.

In West Bengal, UNICEF skimmed milk is distributed to a certain number of schools. The principle of allotment is that all the schools situated within the public health jurisdiction of a primary health centre within a development block receive the milk. The milk has to be reconstituted in the school and the students must drink it during tiffin hours each getting $\frac{1}{2}$ lb. in reconstituted form. The utensils and fuel required for the purpose of reconstitution have to be supplied by the school. Students have to bring their own bowls. Those students who bring something from home to eat supplemented with this milk get a fairly substantial tiffin.

It is desirable that sanitary inspectors or health assistants should frequently visit the schools during tiffin hours and take advantage of the educational opportunities. But the difficulty is that these field staff come back for their lunch from their field duty during tiffin hours of the school. The tiffin hours during the morning sessions may however be utilised.

So far we have seen, that whatever educational opportunities that are available are hardly utilised. Teachers are not trained to utilise opportunities for health education. Hence one of the duties of our health staff should be to point out to them how advantage can be taken of such situations.

Health Instruction:—in the class-room is entirely within the jurisdiction of the Education Department. But the contents to be taught have to be determined very carefully according to the developmental needs of the students. Hence, health education consultants have to be included in the curriculum committee to frame the health curriculum. If health is to be taught through other subjects such as science, home economics, social science etc. then there should be health education representation in those areas of the curricula. Health education should be made to fit naturally and with proper balance into the entire curriculum.

It is encouraging to note that the Central Health Education Bureau has taken the lead in curriculum development in health teaching. It had already developed draft syllabii for three age-groups—6 to 11 years, 11 to 14 years and 14 to 17 years which were circulated to all State departments of education and health for their comments. It had made a survey of the primary school syllabii of 8 States and two centrally administered areas and has made the following recommendations:

(i) "The whole of the problem of teaching of health education needs reorientation. It should be given the same status as the teaching of other subjects and it may not be discarded to any other one.

(ii) Considering the environmental situation and the significant difference in the standard of living in cities and villages some special topics may be given weightage in village schools and some of them in city schools.

(iii) When the family planning experts are suggesting that a 15 year old woman should be taken to a family planning clinic, the importance of giving them sex and family life education prior to that is necessarily suggested.

(iv) In short the syllabus may be formed not only realising the present day need of so many topics but also after giving some consideration to environmental, social, psychological and religious situations in existence throughout the area in which it is intended to be introduced".

The curriculum guide made at the state level should be flexible so that it can be modified to meet the local needs. It should constantly relate the material to be taught with the experience of the student and presented in a way which helps to solve specific problems.

The Central Health Education Bureau had recommended the formation of state health education bureau in every State. In the set up of the state bureau there is a section of student's health education unit. This unit will serve as a liaison between the Education and the Health Departments in initiating, organising and strengthening the school health education programmes in the State. The unit jointly with the Department of Education will plan, test and develop suitable health education curriculum for different grades of primary and secondary schools.

For the purpose of bringing the Education and Health Departments together it had recommended the formation of a School Health Education Committee. The D.P.I. is the Chairman, A.D.H.S. Health Education is the Secretary, D.H.S., President of the I.M.A. State branch, O/C school health programme, O/C M.C.H. programme, and O/C Secondary Education are members. The decisions of the Committee should be implemented.

In West Bengal the State Health Education Bureau had been sanctioned recently. It is expected that it will be able to take up the student health education programme on the lines suggested.

Training of the health staff and teachers in health education is essential to make a school health programme successful. In West Bengal the M.O.s and the sanitary inspectors and the health assistants are now being trained in batches in the reorientation rural training centre at Burdwan. Training in school health education emphasises the utilisation of the opportunities of education in health service and healthful school living. The teachers training curriculum contains very little about health, and the methods and principles of school health education. The Training Unit of the State Health Education Bureau will arrange for pre-service and in-service training in health education for all categories of health and social welfare personnel and teachers.

Unless the parents and guardians participate and lend their active co-operation, school health education programme cannot thrive. For the participation of the parents, the teachers will have to take leadership to form parent-teacher associations. The M.O. of the health centre can act as the health counsellor. Small problems of students' health can be solved through these organisations. Parent education regarding health of school children can be efficiently given through these organisations. The M.O.s of health centres had been instructed to help the teachers in formation of these associations and a few had been formed.

Each health centre in the State of West Bengal has got an Advisory Committee. It is suggested that this Committee can co-opt other members interested in school health education and function as the local School Health Council for the group of schools within the jurisdiction of the health centre. Such a committee can act in an advisory capacity by suggesting policies and practices that will strengthen the existing school health programme.

The teacher is the key person on whom is pivotted the educational activities in the schools. We have to make him interested in the school health education. His interest should be created in the following ways:—

(i) By suitable training,

(ii) By having his health examined and defects corrected by the M.O. of the health centre,

(iii) By giving him an extra remuneration for school health work,

(iv) By making health education achievements of the students a compulsory criterion in reporting about efficiency,

(v) By giving him recognition and rewards for health education achievements of the students in the form of certificates, prizes, increment in salary and promotion in service.

SYMPOSIUM ON INDUSTRIAL WASTES.

PROBLEMS OF INDUSTRIAL WASTE IN BIHAR

By

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The problem of industrial wastes in Bihar is assuming major importance with the rapid expansion of industries. The State of Bihar can be broadly divided into three zones for the purpose of industrial wastes. Zone I includes the districts of North Bihar. A large number of sugar factories, rice mills and a few distilleries located in this region present difficult waste disposal problems. These factories are located at places where there are no rivers with sufficient flow, or no suitable agricultural land available for discharging the wastes without creating appreciable nuisance in the locality. The small rivers in

this area are polluted heavily rendering the water unfit for any use. Daha river in Saran District is a good example of such rivers. The river is polluted due to sugar factory and distillery wastes. Fish which was once so abundant and cheap has disappeared and the water is unfit for use even by animals. The total volume of wastes discharged by sugar factories in Bihar is about 19 mgd. and is equivalent to the amount of sewage from 30 lakh persons daily. A method of proper treatment and disposal of sugar factory effluents has been evolved by the local unit of the Public Health Engineering Research Unit, Indian Council of Medical Research.

Zone II comprises of the districts of Shahabad, Patna, Monghyr, South Bhagalpur, Gaya and Palamau districts. These areas are mainly agricultural with concentration of industries at Dalmianagar and a few other isolated places. The industries at Dalmianagar include a number of factories like paper, sugar, chemicals, which produce about 40 mgd of liquid waste per day which is equivalent to sewage from a population of about 43 lakhs. These are discharged into the Sone river leading to serious pollution during summer and winter months. A pollution survey of the river Sone has revealed that the river is polluted upto a distance of about 34 miles. Black colour and bad odour exist throughout the first 2 miles stretch of the river. The effect of pollution is most pronounced in the summer season when the samples collected from the river showed significant bad odour due to presence of Hydrogen Sulphide. The B.O.D. is also high and Oxygen contents are also not satisfactory for fish life. The river recovers itself in about 40 miles. A stretch of the river which was once clean and sparkling has been rendered useless by industrial wastes and people have been deprived of their right to use the river as a source of water.

The third Zone is the heavy industrial belt of Chhotanagpur. This area is highly rich in minerals and is rapidly being industrialised. With the growing of industries the problem of industrial wastes disposal is also becoming acute. Recently the river Damodar which is the principal river in this area has become entirely black due to the wastes coming from Karagli Coal Washery Plant and Bokaro Thermal Plant. Not only the water has become unfit for use by villagers but the cost of treating such waters at Public water works is also increasing. With the completion of three more washeries, the problem may become very acute. Besides these, there are a large number of Coal mines in this area. Drainage from acid mines is a source of serious trouble. A number of coke oven plants also exist in this area. Discharges from coke oven plants may contain phenol which produces a disagreeable taste and is very difficult to remove. Extremely small concentrations of phenol of the order of 10-3 ppm. may produce bad taste in water.

With the setting up of heavy industries at Hattia and a steel plant at Bokaro, the problem may become very serious unless proper waste treatment plants are installed by the factories. Lac is also an important industry in this region. The wastes from these industries are very obnoxious and produce bad environmental sanitation. However, a suitable method of treatment of lac waste has been evolved by the Indian Council of Medical Research.

The industrial wastes problems in Bihar are varied and many. Each problem requires careful study and research. An organised programme of research towards proper treatment and disposal of industrial wastes is urgently required. Unless this is done the water courses will be polluted and rendered harmful for domestic purposes and for use in industries. Most of the industries require much process water and if all the water courses become polluted there will also be a set-back in development of industries. Therefore it is essential that methods of proper treatment of various industrial wastes in this state are worked out atonce. Hence we are grateful to the I.C.M.R. for establishing a field unit in this State to carry out surveys of the different types of waste and to evolve proper type of plant for treatment of these wastes based on experimental pilot plant and laboratory research.

TREATMENT AND DISPOSAL OF SUGAR FACTORY EFFLUENTS

By

N. DAS, Research Officer

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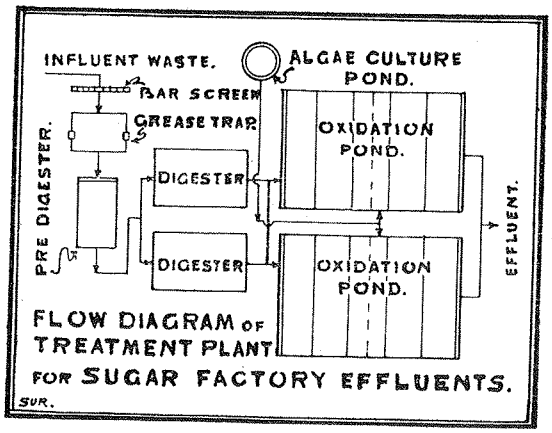
Sugar industry is one of the principal industries of Bihar. There are about 32 sugar factories in Bihar having a crushing capacity of about 30,000 tons of cane per day. Sugar factory which produces on one hand the sweetest thing in the world produces a waste which is equally bad. The pollution load of all the sugar factories taken together is equal to the pollution from sewage of about 3 lakh persons. Bad environmental sanitation and heavy pollution of rivers are caused by these effluents. Sugar factories are generally situated by the side of small rivers to which these wastes are discharged. The oxygen of river water is depleted, fish die, colour may be imparted to the water and the whole river becomes unfit for use either by animals or human beings. Daha river in North Bihar is a good example of it. Once a very useful river it has been made useless by sugar factory effluents.

The waste disposal problem has evoked little interest from the millowners partly because the additional cost involved in installation of treatment plant, and partly because of the lack of technical know-how. They are also not fully aware of the damage to environmental sanitation and other national losses arising out of indiscriminate disposal of these wastes.

Cheap and efficient methods of treatment are not available. To understand the pollution due to sugar factory effluents, one must have some idea of the manufacturing process of sugar. Sugar is obtained from sugar canes which are collected from fields and crushed in mills in a series of rollers. The juices are collected below. The crushed fibre is termed 'bagasse' and used as fuel or raw materials for paper mill. The juices are mixed with lime to raise the pH to 8 and then heated to 220°F. It is then clarified by settling and the bottom muds are sent to filter press. The filtrate is re-cycled back, and muds etc. thrown out as waste. The filter clothes are periodically washed and washings discharged intermittently. These contain a large amount of suspended matters and some organic matters. The clear liquid from sedimentation tank is evaporated in multiple effect evaporator to concentrate it from 16% to 65% solids. The final solution is evaporated in vacuum pans and crystalised in crystalliser. The mother liquor is termed molasses. The condenser water is cooled and reused. But a sizeable amount flows out and adds to pollution load. Other sources of waste are washing of equipments, pipes machineries, crystallisers, and leakage from them. Some surplus mollasses also spills over and adds heavily to the pollution load.

To find out a suitable method of treatment the work was undertaken by the Public Health Engineering Research Unit in the year 1956. A survey of the sugar industry showed that the average volume of waste discharged is approximately 650 gallons per ton of cane crushed. The B.O.D. of the effluent varies



from 500-600 ppm. which is highly pollutional. After 4 years pilot plant study at South Bihar Sugar Mills, Bihta, and laboratory studies at Patna, a cheap method has been evolved which will reduce the pollutional load to a minimum.

The treatment plant consists of a bar screen to separate the big floating matters, a grease trap to separate out the grease coming from the washing of machineries. The effluent from the grease trap is let into a predigester with a detention period of 1 day and then to a digestion tank having a detention

period of 6 days. The effluent from the digestion tank is finally let into an oxidation pond having flow of up and down type. Water hyacinth is to be grown in the first part of the oxidation pond which brings about an effective clarification of the waste. An algae culture tank for continuous seeding of the pond in the second half has also been included. The effluent obtained by this treatment is clear and sparkling having a B.O.D. less than 50 ppm after dilution with condenser water. The plant is cheap, easy to instal and does not require much skill in operation. The full scale plant should be tried out in one or two sugar factories before the method is widely adopted throughout the country.

WASTE DISPOSAL AND RIVER POLLUTION IN DEHRI-ON-SONE

By

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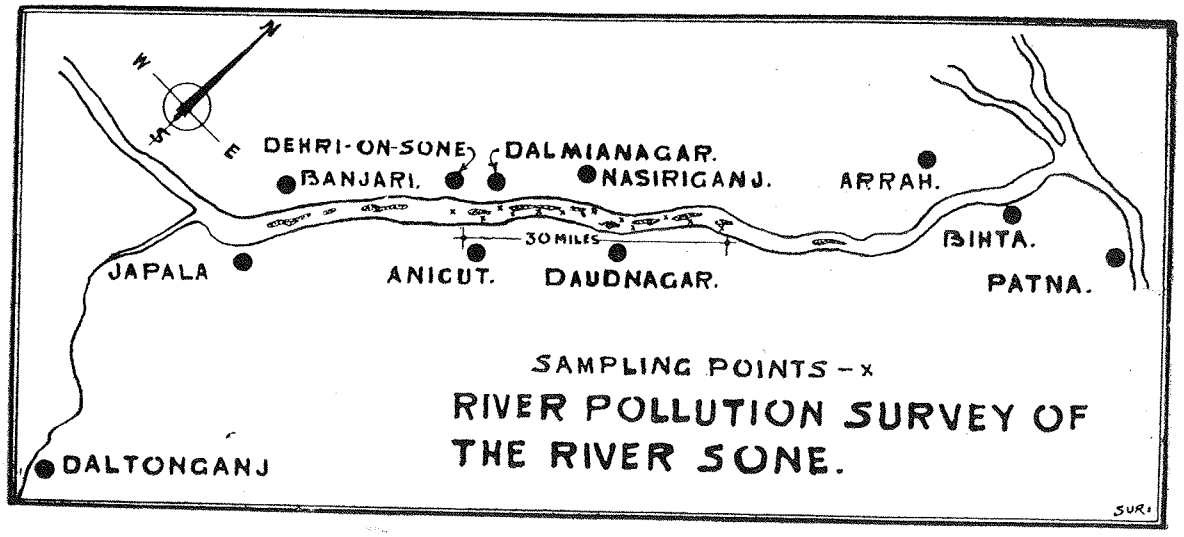
The Indian Council of Medical Research established a field station at Dehri-on-Sone in 1958 to survey the liquid wastes produced by Dalmia Industries in Dehri-on-Sone and their effect on conditions of the river. The present paper is based on the results obtained from this field study.

Survey of the liquid wastes:

Various factories have concentrated in Dalmianagar, such as (i) Paper and pulp, (ii) Sugar, (iii) Vegetable Oil products, (iv) Soda recovery, and others such as cement which do not produce any liquid wastes. On conducting a detailed survey of the ground of industries the total amount of wastes discharged into the river Sone was found to be about 40 million gallons per day, which in terms of pollution load is equivalent to 72,000 lbs, of B.O.D., the population equivalent being 432,000 per day. Untreated sewage of about 5000 persons living in the factory area is also being discharged into the river.



Sedimentation of paper wastes:

All the above wastes are flowing through a big drain culminating in the river. A Sedimentation study revealed that 20% of the total B.O.D. and 50% of the C.O.D. can be removed by allowing the wastes to settle for one hour in a tank and removing the settled solids at suitable intervals. The settled sludge contains mostly fibres escaped from the meshes in the paper mills and pulp mills. The factory is losing materials worth several lacs of rupees, which can be usefully utilised for the manufacture of card-board in the factory. This colossal national loss has been brought to the notice of the factory authorities. A scheme for reclaiming these wastes has been submitted to them for implementation. If the scheme is implemented, it can not only save this waste but can also considerably reduce the pollution load on the river.

River Pollution Survey:

A survey of the river Sone was carried out for a whole year to ascertain the extent of pollution in the river during different seasons, 70 miles stretch of river extending from Anicut above Dalmianagar was taken up for detailed survey. A number of sampling points were established in the stretch of the river.

Samples of water collected from these points were analysed for pH, Solids, Dissolved oxygen, B.O.D. and other items.

The results obtained from the survey show that during summer, 15 miles downstream up to Nasiriganj is the zone of gross pollution, and upto a distance of 25 miles the river cannot be used for any purpose. The water which is clean and sparkling above the point of discharge of the waste is imparted dark colour and bad smell which persist upto 30 miles in the river downstream. During rainy season the flow in the river is so great that the question of pollution does not arise. During winter season when the canals take up water from the river at the anicut, and downstream the discharge of the river water goes below 500 cusecs the pollution extends in the river upto 10 miles or more depending upon dilution of the liquid wastes.

On the basis of work carried out at Dehri-on-Sone, the following remedial measures are suggested.

(i) Installation of a "Save all"

(ii) Construction of Oxidation Pond on the bed of river Sone during winter and summer seasons.

The wastes from the factories will enter into a "Save all separator" and all settleable organic and inorganic matters will settle down removing 50% pollution load from the liquid wastes, and the effluent from the plant will be stabilised in the oxidation ponds to be constructed on the bed of the river. It would appear from the survey that treatment of wastes may not be required for a few months in the year when sufficient dilution is available. It was observed that every year a big plot of sand is left in the bed of the river where oxidation pond with sand bunds can be easily constructed. The estimated cost of construction is about Rs. 50,000 and this cost can be well met from the valuable fibres recovered from the wastes.

Treatment of the factory wastes to remove pollution will lead to many fold gains. The usefulness of the river to the people in this region will be restored. Fish which is a good source of protein in these localities will again flourish in the river.

INDUSTRIAL WASTES—LEGAL ASPECTS

By M. K. Roy

Chemical Inspector of Factories, Bihar

Discharge of sewage and industrial wastes without adequate treatment can and does lead to very serious consequences. Apart from the more obvious effects—the destruction of fisheries, the spoiling of natural water etc., it may seriously impair the health of the community and also the use of a river or stream as a source of water supply for domestic, industrial and agricultural purposes.

Factory legislation, for the prevention of

industrial accidents and occupational diseases, for the promotion and preservation of the health of the community including the workers cannot be readily standardised and so have always been and still are indefinite and unstandardised. The results of this lack of standardisation are; that manufacturers and employers have no specific standards which they can follow, and they are always in doubt as to the exact meaning of the law; that inspectors are unable to enforce the provisions of the law without arbitrarily setting up their own standards; that discretion must necessarily play an important role.

The chief reasons for lack of standardisation of such factory legislation are that there are no such standards laid down by the scientists themselves. Even if such standards could be scientifically specified, it would be unjust and impracticable to have these standards embracing all industries, all kinds of industrial processes, and all sorts of industrial establishments. Industrial conditions, operation techniques etc. differ so much from place to place, and from time to time, that no single standard made by any scientific body can possibly apply to all cases.

If provisions are to be made, standards are to be set, and rules promulgated, then they must be such as to cover definite conditions, different industries and at times different industrial processes.

The difficulty is overcome:—

1. By giving the proper authority the power to issue from time to time special rules and regulations, to set standards, and to make such standards applicable to the industries under the force of law.
2. By selecting highly trained experts as factory Inspectors, and leaving the application of the general provisions of the law to their sound judgement and ripe experience. This, of course, is only possible if such highly technical and trained persons are available in the number required.
3. By creating commissions and boards with powers to make rules and regulations and set up such provisions and standards as, after proper investigation, they may deem fit.

Factory regulations abound with general provisions, with terms such as "proper", "adequate", "suitable", "sufficient", "if practicable", "whenever necessary", "in the discretion of" etc., etc., which are of little value.

Almost all industries discharge waste waters from one stage or the other of their manufacturing processes. Consequently the range of industrial effluents is very wide and expanding. The effects of different types of wastes, when discharged to a stream or a river, are very complex.

Indian Factories Act 1948 Section 12 reads:—

(1) Effective arrangements shall be made in every factory for the disposal of wastes and effluents due to the manufacturing process carried on there-in.

(2) The State Government may make rules prescribing the arrangements to be made under sub-section (1) or requiring that the arrangements made in accordance with sub-section (1) shall be approved by such authority as may be prescribed.

Now in considering the disposal of an industrial waste we have to, at the very initial stage of site selection and design, consider the practicability and the cost of disposal of the waste products, otherwise, the plant to be provided is often costly—so much so that in some industries it may render the process of manufacture uneconomic.

Section 6 of the Indian Factories Act 1948 has necessary provisions for making rules requiring approval of site plans and specifications.

Modifications in the manufacturing process, may at times help in reducing the quantity of polluting matter to be treated and may also help in changing the composition of the effluent for the better. Thus the question of disposal of wastes should always be borne in mind when considering the merits of the alternative processes of manufacture.

The methods adopted for treating an industrial waste will depend not only on the character of the waste, but to a large extent on the degree of treatment required. Many methods, though capable of giving only partial purification, are frequently found sufficient.

Choice of site of a factory is particularly important, and so is the question of deciding which of the many materials that can be used in the manufacturing process are best suitable from the industrial wastes disposal point of view.

Section 87 of the Indian Factories Act 1948 has provisions for prohibiting, restricting, or controlling the use of any specified materials or processes in connection with dangerous operations.

The question of industrial wastes treatment requires examination of:—

(a) The possibility of making changes in

the plant process which may eliminate such of the polluting wastes or may reduce their volumes and concentration.

(b) The nature and character of the wastes and effluents.

(c) The capacity of the receiving stream, if any, during various seasons, particularly when the flow is lowest.

(d) The pollution condition of the receiving stream, if any, before the wastes and effluents enter the same i.e. the character of the water in the receiving stream.

(e) The limitations and advantages of the different methods of treatment that can be applied.

(f) The possibility of co-operation among the industries, situated close to each other.

(g) The feasibility of utilizing the untreated effluents for irrigation of agricultural fields.

(h) The problem of controlling odour by chlorination etc.

(i) Such other problems as may arise.

Thus it is seen that industrial wastes treatment is not a static science, and each industry has its own problems to be solved. It is, therefore, desirable that an Advisory Board for Industrial Wastes Treatment and Water Pollution Control should be formed to go into the details of each industry or unit individually so that the department responsible for statutory control of the problem may be benefited by their advice. Such a Board may appear to be essential.

4. The following should be the normal duties and functions of the Board:—

(a) Examination of schemes received under Section 12 of the Factories Act, 1948, by the Chief Inspector of Factories for treatment and disposal of industrial wastes and effluents.

The Board may approve the scheme or may make recommendations for modifying the same. The recommendations of the Board would be given effect to, by the Chief Inspector of Factories under statutory powers.

Where the Board can not come to a final decision on any problem it may make provisional recommendations for reducing the nuisance likely to be caused by the wastes and effluents, and may make final recommendations at a later date.

Since the statutory function is to be performed by the Chief Inspector of Factories for whom the Board will act as the adviser, the work should be done most expeditiously, and every scheme should be examined by the Board within a month of the date of submission by the Chief Inspector of Factories.

(b) To initiate, guide, and control study of problems for which solutions are wanted.

(c) To refer problems to Public Health Institutes for advice or for conducting necessary investigations or research.

(d) To initiate setting up of pilot plants and full scale plants for study of problems.

5. For any specific job or for studying any particular problem, or for conducting any particular survey the Board may appoint a committee or sub-committee consisting of members of the Board, industry or other persons who may not be in the Board.

6. The Board should meet at least once in three months or earlier as necessary.

7. The Secretary of the Board should take the initiative in calling a meeting of the Board

The expenses involved in the routine functioning of the Board and in providing staff for day to day administration of the Board should be borne by the State Governments.

PREVENTION AND CONTROL OF RIVER POLLUTION

By

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The natural water resources of the country and particularly the rivers are called upon to serve many purposes such as source of water supply, for bathing, recreation, fisheries, agriculture, industries and navigation as well as to carry away the wastes from communities. But with the development of industries and growth of urban population, the rivers are polluted by indiscriminate discharge of liquid wastes from industries and communities. The damage caused by such pollution from sewage and industrial wastes is not only restricted to public health, but extends to the entire programme of development in the region. The

usefulness of the river for national development therefore depends on maintaining good sanitation of the river. With the large emphasis on industrial development, the problem of water pollution control has assumed major importance in India and demands immediate attention.

The experience in other countries has shown that in matters of stream pollution control 'Cure is far more costly than prevention'. One of the most effective measures to combat this problem is to regulate stream usage according to the capacity of stream to purify the wastes. Location of industries and urban development should, therefore, be planned on this principle. A study of the self-purifying capacities of different bodies of water is thus fundamental for effective control of water pollution in the country.

Water pollution problems arising out of improper disposal of wastes are tackled in other countries by prescribing certain standards of effluents that are discharged from the communities and industries and the receiving waters used for different purposes. These standards have been worked out on the basis of actual survey of wastes, facilities available in the locality for their disposal, capacity of streams to assimilate waste without detriment, water uses of the stream in the regions and economical methods of treatment of wastes. Extensive and well co-ordinated surveys and research work have been necessary before satisfactory standards are evolved for the purpose.

At present there is no organised programme for control of river pollution in the country. There are no clear-cut legal provisions or proper administrative machinery for enforcing them. Some sections of the Indian Penal Code provide police power against public nuisance and fouling of natural waters. Without a proper scientific definition of these terms to the satisfaction of the law courts, these provisions have not been of much use in prevention and control of water pollution, Rule 18 of the Factories Act also empowers the State Inspectorate of Factories to ensure proper treatment of industrial effluents before disposal. However, this has not led to any effective measures for want of data on the degree of treatment of trade effluents required in different regions and the methods to be adopted for the purpose.

The basic needs for an effective river pollution control programme are a technical organisation to provide scientific data, some legal provisions and proper administrative machinery for enforcing them. The technical organisation is required for collection of data on the nature and magnitude of the pollution problem, to study the self-purifying capacities of different bodies of water, uses of water in different regions and to carry out research on methods of treatment and disposal of industrial wastes. The work of this organisation will provide the basis for developing standards for effluents and receiving river waters. When some standards are available, a suitable administrative machinery such as River Board in England or statutory Effluent Board now working in U.P. State may be set up for control of river pollution in the region.

In India the waste disposal and river pollution problems differ from state to state. The effectiveness of the measures adopted for pollution control at State level will largely depend on the ability of the State Governments to suggest economical methods of treatment and other practicable pollution abatement measures. For this purpose, the State must have a proper technical organisation to study the problem on the spot and suggest suitable remedial measures. The science of stream sanitation has developed a great deal in recent years. If the new knowledge and technique are to be properly used in the country it is desirable that the technical organisation is developed as an integral part of the State Public Health Engineering Department.

The experience gained by the Public Health Engineering Research Unit of the I.C.M.R. during the last five years indicates that the pattern of State organisation for this purpose may be similar to what has been developed in the U.P. and Bihar States. Similar organisations should be developed by all the States for effective control of river pollution within the States. The Union Ministry of Health may provide the necessary incentive, guidance and financial support at the initial stages, as has hitherto been done by the I.C.M.R. for the proper development of these organisation in the States of U.P., Bihar and West Bengal. It is also desirable to establish under the Union Ministry of Health a Water Pollution Control Board for developing a properly integrated programme of river pollution control throughout the country.

SYMPOSIUM ON RURAL SANITATION

HOW TO POPULARISE LATRINES IN INDIAN VILLAGES

By

Sudhendu Mukherjee,

Anthropologist, R.C.A. Project, Singur

The subject is creating an enigmatic interest in itself—both to those who deal with it directly and those who listen to it from a distance. Enigmatic because many sophisticated people think latrine-popularisation in villages is next to impossible and some over-enthusiasts paint a too rosy picture about it. It is, therefore, interesting to probe into the problem scientifically and logically.

Latrine-popularisation in villages is largely a worry of the public health administrators because of the colossal ravages of the gastro-intestinal diseases in the country-side. It has been estimated that, on an average, about 2 million people die annually and about 50 million people suffer from various gastro-intestinal diseases in India. Moreover, from a consideration of the factors like the total sickness load, the economic loss due to wastage of man-days, susceptibility of millions of sick people due to hookworm infestations and to decaying diseases and the huge drainage of financial and personal resources of the Health Administrators of our country, the gravity of the problem in the village-dominated Indian society can hardly be denied.

Agreeing to the seriousness of the problem, we find, in the next stage, a variety of approaches to the solution of the problem. Such approaches may broadly be divided into the following categories:—

(a) Efforts of the health engineers in evolving a suitable, sanitary and cheap design of rural latrine;

(b) Administrative-cum-educational efforts of the health authorities for raising the motivations of the villagers, and,

(c) lastly, the efforts of various social philanthropic agencies specially dedicated to the uplift of rural India. It might not be out of place here to emphasise the efforts of this last category, i.e., of the social reformers in bringing about changes in the sanitation standards of rural India. More on this would be dealt with subsequently.

In the present paper, observations would be made from a comprehensive study of the entire 'motivational complex' of the villagers towards the problems of latrine, largely basing on the the research experience of the Rural Sanitation Project at Singur, better known as the RcA Project. It may be observed that three above-mentioned 'approaches' namely, engineering, health-educational and social-philanthropic-movemental, should conform to the 'motivational-complex' of the villagers.

A base-line survey amongst the villagers of Singur area reveals interesting features about the villagers' knowledge about gastro-intestinal diseases and attitude and awareness about the different facts of latrine-problem.

Awareness about gastro-intestinal diseases:

An analysis of the survey-data shows that the villagers are more aware about the causation of cholera, are largely vague or harbour fallacious ideas about dysentery and are mostly ignorant about the cause of hookworm. With regard to the causation of cholera, the frequency of responses scale down in the following order: bad food (mentioned by 31% to 38%), flies (mentioned by 20% to 24%), drinking bad water (mentioned by 17% to 21%), infection through contact (mentioned by a little less than 20%) and correct answers like germs were mentioned by a little over 10% respondents and sick persons' feces were mentioned by as low as 4% to 7% respondents.

On the other hand, over three-fourth of the respondents and about 50% important villagers are ignorant as to how hookworm infection is caused. But, unlike dysentery, they do not carry fallacious ideas about it; for instance, only about 7% stated that it can be caused by bad food or through contacts. Correct replies like 'walking bare-footed', worms and human feces were mentioned by about 10% to 20% ordinary villagers and about 40% important villagers.

There appears to be a strong belief that dysentery is caused by heat-producing foods and chillies or excessive internal heat. As in the case of cholera, bad food was mentioned by a number of respondents. Drinking bad water was mentioned by as low as 3% to 10%

of the respondents. Correct replies like flies from sick persons and infection through contact as causative factors for dysentery were mentioned by less than 4% respondents. Germs are hardly known to anybody and about 21% to 28% respondents could not state any cause for dysentery.

Regarding prevention of gastro-intestinal diseases, the knowledge about preventive measures for cholera and small-pox is comparatively high (over 60% of the total respondents mentioned immunisation) and for that of hookworm and dysentery is low, while the villagers are not quite clear about prevention of typhoid. It is interesting to note that sanitary disposal of excreta as a preventive measure against cholera and typhoid is mentioned by hardly 1% respondents.

Knowledge about preventive measures against hookworm is extremely low. About 80% to 90% of the ordinary villagers and about 55% of the important villagers could not give any reply. Less than 7% ordinary villagers and about 23% important villagers mentioned sanitary disposal of excreta.

It is interesting to note the specific awareness about dangers from human feces. About 72% of the villagers broadly associate feces with spread of diseases. However, they are not clear about the specific diseases that can be caused by it. Further, among the carriers of disease from feces, villagers are largely aware of flies—about 40% of the villagers mentioned fly as the disease-carrier.

As a strange contrast to this poor state of knowledge about gastro-intestinal diseases, as much as 75% to 85% of the villagers are willing to have latrines, if available at a low cost. It may be noted that the response in favour of latrines is highest from the Muslims, possibly because of the importance attached to privacy. The *Harijans* who have limited experience with latrines and whose knowledge-score is also comparatively low, have shown the lowest inclination for latrines.

Considering along with the willingness to pay for latrines, we find that about 5% to 10% respondents are willing to spend above Rs. 50/- for a latrine and another 11% to 22% are prepared to spend only Rs. 5/- to Rs. 9/-. Moreover, about one-fifth to one-fourth of the respondents, though they want a latrine, are not willing to pay for it. The range of variation in peoples' willingness to pay for latrines tends to question the desirability of providing only one type of latrine for all strata of the village community. While the question of reducing the cost is, for example, vital for introducing latrines amongst the poorer people and the *Harijans*, a section of people would be more attracted towards better type of latrine. It may be stated that about 1% to 2% of the villagers in Singur area have already constructed septic-tank latrines, costing about Rs. 400/- or more.

Asked about the cost of latrines, the villagers revealed a good deal of ignorance, or they harbour an exaggerated view about the cost of a latrine, though a large number of them have either seen or even used a latrine. While as many as 64% to 72% of the ordinary villagers and 86% *Harijans* could not indicate the cost of a latrine, about 7% to 16% of such villagers mentioned that a latrine costs Rs. 200/- or more. Perhaps, this view of high cost is based on their knowledge of cost of septic-tank latrines, which is not uncommon in rural areas.

The villagers associate the following advantages of having a latrine, mentioned in order of frequency of responses:

It is more convenient and provides privacy for defecation; prevents spread of diseases, provides protection against snakes and leeches, promotes to the general cleanliness of the village (from aesthetic point of view) by preventing open defecation within and around defecation-area. Privacy for women is emphasised more by Muslims.

Those villagers who have ever used a latrine were asked to mention the difficulties they experience with latrines and also to state such social factors that limit the use of latrine.

The difficulties include the following:—

(1) Latrines give bad odour (mentioned by about 50% to 60% of the villagers);

(2) It breeds flies (mentioned by about 20% to 30% of the villagers);

(3) Non-availability of required flush water;

(4) Pan difficult to clean.

Such minor difficulties like pit filling-up too rapidly, splashing, not right size for children etc. are mentioned by less than 10% villagers. These difficulties may be broadly divided into 3 types: viz. (1) structural mechanical defects, (2) water requirements and (3) maintenance of latrines. It may be noted that 30% to 40% respondents stated that they have had no difficulties with latrines.

The social factors that limit the use of latrines include (a) fields are more convenient during work, as mentioned by 23% to 29% respondents, (b) latrines are unhygienic; stated by 12% to 14% and (c) problems of privacy

(latrines have either no enclosures or it is without door or incomplete) mentioned by 8% to 20% respondents.

A few other factors mentioned by them are: neighbours don't use it, not habituated to latrine-use contrary to religious customs, religious, prejudices, etc.

As many as 45% to 33% responded that there are no social barriers to latrine-use.

The knowledge, attitude, experience and interest of the villagers, as revealed in the above analysis, show some significant variation according to the social and economic status of the villagers, to their literacy-status and the influence of urban contacts on them and to a smaller extent, on factors of age and sex.

Against such a background of the villagers' knowledge about the problem, it would be interesting to reflect on some of the significant features of the successes achieved in the RcA Project at Singur. Following an intensive action-programme of latrine popularisation we find the following picture.

The average coverage or saturation with latrines in a village is about 20%. This low percentage of saturation indicates two aspects of a latrine programme.

1. Who are the people, we must tackle first for latrine acceptance.
2. Programme for the rest of the villagers.

High co-relation has been revealed with such factors like better economic and educational status, urban contacts and spirit of the villagers. Negative factors like poverty, lack of site, poor image about latrines and low sense of priority for latrine also indicate that a large number of villagers cannot be motivated for latrines in the first instance. It will be futile to think for this latter category at this stage of our public health programme. It is wiser to concentrate on the first half of the villagers who are in a position, in one way or another, to be motivated for latrine acceptance. Roughly these two groups viz.:—possibles and improbables constitute 50:50. Of the 50% possibles they may further be divided into three classes:—(a) those who can be motivated very easily—constituting about 10% of the families in a village, (b) group of acceptors who constitute about 15% to 20% who can be motivated for latrines provided the first group is satisfied with latrine use and (c) the last group of 20% is quite difficult for being enlisted in a Latrine Promotion Programme. In this way, we reach a 50% saturation in a village which should be our maximum target. Under the present circumstance, we can place higher target than a 50% saturation only when we have extra-ordinary resources for doing so or where such efforts are needed for some demonstrational value to the rest of the country.

Thus, in a nut-shell, battle for latrines in villages should start with the first 10%, then in two stages we should reach to a 50% saturation. Such a picture of vertical penetration within a village should be kept in mind side by side with the picture of rapid dissemination in a wider area. While considering a group of villages in an area for latrine popularisation, we should, in the first instance, be careful in selecting more receptive villages which are expected to spur latrine acceptance in the less receptive group of villages. In these two pronged attacks—vertical and horizontal—Latrine Popularisation Programme would get a country-wide momentum.

We have emphasised on the importance of having good image of latrine and also on the influence of urban contacts on latrine acceptance. This takes us to the city and municipal systems of excreta disposal. If villagers come in contact with cities and towns and get a good impression of sanitary latrines, not a dirty public latrine, idea of latrines would spread fast among the villagers.

Latrine popularisation is possibly a major bottle-neck in the entire public health programme and the battle can be won only if carried out logically and scientifically, carefully avoiding the two extremes of over enthusiasm and scepticism.

THOUGHTS ON HOW TO POPULARISE LATRINES IN RURAL AREAS

By

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By now we have a glimpse of the problems faced by our people in the rural areas specially regarding acceptability of latrine. For the programme to be acceptable by the people, it is essential to think in terms of the thinking of the people. Study of the people in general has to be made. We should know people's knowledge, their attitude and desires, various traditions and cultural practices. Knowledge of individual, group reaction of a man to his human environment should not be ignored. I am reminded of observation made by an eminent malariologist working in the Panama Canal, who said "If you wish to control mosquitoes, you must learn to think like a mosquitoe". The truth of this advice is evident. It applies, however, not only to mosquito populations one seeks to destroy but also to human populations one hopes to benefit. If we wish a community to improve its health, we must learn to think like the people of that community. Before asking a group of people to assume new health habits, it is wise to ascertain the existing habits, how these habits are linked to one another, what functions they perform and what they mean to those who practice them.

The worker and his environment

Environmental factors also deserve equally careful attention. All of us are subject to the influence of people. Our hopes, needs and efforts are bound up with the lives of other people whose paths we cross. Their ways of thinking also affect us. In fact, we are a part and parcel of the community. We have to work in situations which are not perfect, and there may be many factors which we may not like. We may have to undertake activities which may not seem desirable for us. We are sandwiched between the wishes of people and the goal which we have to achieve. At times our selfishness plays a large part in making decisions and plans. Our behaviour is determined by our system of values. Life is a series of compromises. No single individual, or group of individuals, has complete control over everything. So under all these varying conditions we have to work and popularise our programmes.

Adapt But Not Adopt

Many a time methods which are successfully executed elsewhere when adopted in a different situation, may become failures. This is because no two situations are indentical. We should adapt rather than adopt. The important principles of the programme which have been successful elsewhere may be taken and the same may be applied in the new situation with suitable modifications. Some of the techniques which I feel may be important in handling people may be:—

1. Ask Question. 2. Be brief. 3. Have a confident bearing. 4. Be earnest. 5. Be friendly. 6. Cultivate good feeling. 7. Accept criticism. 8. Honour other's self-esteem. 9. Use encouraging praises. 10. Know your people. 11. Any thing which you feel might have been missed.

Common errors in our approach

A common error that we make is that we fail to get full facts about new situations, before taking action. It is easy for us to assume that all the enterprises are basically similar. In many new situations we feel secure in drawing line of action from our broad experience. When we enter a new situation we take a quick look at it, and may jump to a conclusion without gathering full facts and data applying to it. If so, we are making a great error. A thorough study of the problems faced is essential.

The Psychology of the People

We have to probe the motives, desires, and emotional drives of the people. We should try to find out why people think and act in a particular way. Effects of emotional factors like desire, fear, love etc. should also be considered.

Language even at the best is inadequate to convey ideas. Even the most careful and intelligent effort on the part of each of us to say the right word at the right time is never

entirely successful. Nevertheless most of the time we assume that what we say is fully understood by those with whom we talk. For instance when we use the words "dugwell latrine" or "machine" we take it for granted that the person who hears us has in his mind the same kind of latrine or auger machine that we have. Fortunately, we are assisted in the use of the spoken word by gestures, facial exprerssions and other means. These help us to make our meaning clear. Words, to be effective, must describe the things they name, the actions they represent and must be easily understood by the people.

Group behaviour constitutes a virgin field of study and experimentation for action. A person in a group who is in communication with its members is far different in his actions and reactions than when he is alone. Face-to-face contacts with others has some effect on his nervous system, his thought processes, and his sensitivity to his environment. He feels differently, he talks differently, and he decides differently.

In a face-to-face group discussion two or more people are in communication with one another, over a certain time period, committed to a common goal or need which no member can hope to reach alone.

Programme Planning

Our first task is to make a careful study of the community. The strong personalities in the community, the cross current of the prevailing public opinion, the major trends representing its interest must be taken into account. An appraisal of the community's general attitude towards the project can be made through informal interviews, consultation and a careful survey of the past records. A scientific and exhaustive study must be made to an extent it is applicable to the community. Its values, services and range of acceptability must be given weight. Perhaps a prize contest and awards may be encouraged. The basic approach of community is dependent upon the efforts of individuals. There is no substitute for face-to-face contacts by persons who are familiar with all the facts about latrine. There must be the approval of the people of the latrine programme before it is launched on a mass scale.

The effectiveness of the programme will depend particularly on its careful planning, fixing responsibility on the various workers, and places where co-operation by the people is needed should be emphasised.

We have to determine the needs of the community and objectives which have to be achieved; (1) Over-all view of the local situation; (2) Objective of the Programme and people's responsibility in achieving it to be defined; (2) These responsibilities should be acceptable by the people; (4) Giving advice to the people; (5) A good working relationship and liaison with different groups and subgroups tackling similar activity; (6) The Programmes should be evaluated in terms of the objectives.

I would like to caution you with regard to the use of the Audio-Visual Aids. Many a time Audio-Visual Aid has been the sole method of imparting education.

We must confess that the Audio-Visual Aids are important tools in the hand of the educator but it's value is limited. Some of the important values of Audio-Visual Aids are to: (1) Arouse interest and invite attention; (2) Enlarge horizons by eliminating factors of distance, time, and space and (3) Facilitate learning and increase retention. We have to keep a list of the resources which may be available from outside and how to use them. Every time it should be followed by discussion on what was shown and how it should be incorporated in the present programme of making adequate and proper use of the latrine by the people.

Evaluation

Lastly, the programme has to be evaluated from time to time. A study should be made to ascertain how it works; whether it produces measurable significant results. If the answer is yes, perhaps, the programme is getting acceptable to the people. The evaluation programme should be related to the objectives fixed and to the acceptability, the use of latrine by the people. Direct observations, face to face talks, various tests and rating scales are some of the useful procedures to measure the progress. The people of the village can themselves make a self-appraisal of the progress made. They may be supplied with some check list in the local languages. This will arouse interest in them and make them check their own behaviour, specially with regard to acceptability of latrine and improvement in the sanitary condition. Direct involvement of the people from the very beginning of the programme is absolutely essential.

Lastly, it is not possible to give a universal prescription for popularising latrines under

different situations, but that different ways and means have to be adopted depending upon the situation and resources available. Programme should be built on the people's own knowledge and beliefs. Thus the programme may be tailor-made for the community, rather than giving them a programme which is most suited to them.

EXCRETA DISPOSAL IN RURAL INDIA

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Eighty per cent of the people of India live in the rural areas in about 5½ lakhs villages, where the incidence of diseases presents a grim picture. A health survey conducted in 1958 in the Union of Singur of West Bengal revealed a sickness rate of 44.8 per cent.. Most of these diseases can be controlled, if not totally eliminated, by providing the villagers with safe water supply, and arranging for proper disposal of the human excreta.

It has been estimated that a substantial portion of food that is consumed by the Indian villagers is wasted in feeding the intestinal parasites thriving within the human hosts. With the scarcity of food in the country this certainly is a great drain on the human nourishment which should otherwise be available for building a strong and healthy nation. Apart from the large number of deaths that occur every year due to gastro-intestinal diseases, a great deal of misery results due to loss of vitality and earning capacity of the individual.

The man is the host of these diseases. Disease germs are excreted and they find their way to the food or the drink, which when ingested by healthy person cause disease in man. Unless food and drink are protected from contamination by human excretion, the disease cannot be effectively controlled. A satisfactory health programme for rural area therefore must include provision for protection of food and drink.

Present Position

In recent years, there has been some progress in the field of water supply in rural areas whereas hardly any progress is noticed in respect of satisfactory disposal of human excreta. No wonder, the efforts of the health workers have not been adequately rewarded since one important link still remains unattended. Sanitation programme of excreta disposal therefore should be intensified in villages if any tangible results in improvement of health are to be achieved.

Whereas the villagers have accepted the need for improved water supply and have actively participated in such programme, they have not shown the same enthusiasm towards acceptance of latrines. If one ponders over this situation one realises that latrines have certain inherent characteristics which make them repulsive to the villagers. Some of the factors which contribute to the non-acceptance of the latrines by the villagers are: (a) age-old habit of going to the field for evacuation, (b) non-availability of a suitable place close to the house for construction of latrines, (c) nuisance that may be caused by an insanitary latrine, (d) fear of an accident due to collapse of the pit and (e) feeling of stuffiness in an enclosed space. The acceptance of latrines by the villagers is also greatly dependent on the design of a latrine suitable for rural areas. It is, therefore, essential that the approach to the problem be oriented in terms

of the above objections and unless suitable answers are found for these problems, a satisfactory implementation of sanitation programme in the villages cannot be hoped for. Some of these problems are indeed difficult to tackle.

Latrine Design

Studies undertaken in different parts of the country have given some light on the correct approach to the villagers which will be discussed subsequently. Several centres have studied the design of rural latrines. The work done by RcA centre, W.H.O. pilot projects in Kerala and U.P., I.C.M.R. project and some others have made significant contributions in this respect. They all have recommended pit latrines for rural areas where soil conditions permit digging of pits to depths of 10′ or more. They also suggest that the pit be located away from the latrine and the pan be connected to the pit with clay, stone-ware or concrete pipes. In loose soils the pit is lined with locally available materials like bamboos, pottery rings etc. The geometry of the pan has undergone many changes and the dimensions suggested by RcA or I.C.M.R. may be considered fairly satisfactory. Concrete pans and traps have been recommended by RcA, while I.C.M.R. studies have suggested that mosaic finish is desirable, though it is slightly more costly.

Personnel

The success or failure of a programme greatly depends on the sincerity of the field staff. In village health work the key person is the sanitary inspector. He has multifarious duties and he hardly finds adequate time to spend on sanitation programme. Unless his responsibilities are reoriented and sanitation is given a greater priority in his duties, not much headway can be made in respect of sanitation programme in rural areas. The training of sanitary inspector makes him the most suitable auxiliary person in the field of sanitation. A great deal can be achieved if he takes interest and works sincerely for the programme. The role of other auxiliary personnel such as public health nurse, health visitor, vaccinator and mistry is also vital in creating proper atmosphere for the acceptance of latrines in rural areas. Individual contacts are far better than mass contacts and tangible results can only accrue by frequent contacts with the villagers at their homes.

Engineering staff for rural sanitation work are very few today. Overseer is available at the block level and he, like the sanitary inspector, has to attend to different types of work and cannot devote much time to sanitation programme. The programme of latrine construction in rural areas requires concentrated effort and where the effort is diluted it bears almost no fruit. The overseer should be made use of in the actual construction programme, for proper supervision of the work done by the mistris, and also for training of masons and labourers in the art of casting of plates, pans and of digging of holes. The digging of the pit, fixing of the plate and pan and construction of the superstructure require simple engineering technique and can be well learnt by the labourers and masons available in the villages. They however require training which has to be given by the overseer at the block level. A correct construction of latrine is the keynote to its successful operation and to that end the part played by the mason and the labourers is no less important than that of the administrator or the engineers at the headquarters. Sincerity and missionary spirit should be the essential qualities of a field worker in rural sanitation. The work of the peripheral staff needs to be supervised for which the senior officers at the headquarters of a block should be responsible. He should devise suitable procedures for checking up the work of his staff in the field. A set pattern of supervision applicable to all areas is not desired.

For various reasons there is a dearth of health personnel in the rural areas. As we motivate the villagers to accept latrines there should also be enough motivation for the staff to work in the field. Additional remuneration for their hard work may serve as a good incentive for them.

Training

It has already been stated before that the success of sanitation programme in the rural areas depends upon the skill and sincerity of the field workers. They require special training not only to be conversant with the technical details of such a programme but also to be conversant with the art of building human relation. They should learn these techniques before actually entering upon an active programme. The training centres are few and Government should encourage establishment of regional centres where field workers can be trained. The training at these centres should be more in the form of demonstrations and practicals rather than didactic work. The worker drawn from

the urban areas needs considerable orientation before he is fit to go for a rural assignment. This applies not only to the auxiliary staff but also to the senior officers who are in charge of administering the programme in the rural areas. They should learn to look at simple constructions such as rural latrines with the same amount of interest that their fellow colleagues do when they look at complicated structures requiring high degree of technical knowledge.

Resources

Villagers are often poor. Implementation of a sanitation programme with the expenses on latrines to be borne totally by the villagers is difficult to expect. A subsidy is very often needed. Free latrines were offered by the health workers to the villagers in some States. Results have not been very encouraging. A free gift is seldom honoured and these latrines often remained unused. The proper use of a latrine can be expected only when the villager shows his genuine interest in having it and spending on it. Reasonable subsidy is needed to encourage the villagers in constructing latrines for their homes. Rate of subsidy however depends upon the local conditions. One should normally expect that the villagers should be able to contribute one-third of the total expenditure, on this account.

Though the amount to be spent by a family on a latrine is fairly low, it is difficult to obtain this in cash from the villagers. The villager's contribution may be in the form of materials and labour which can be readily had in the villages. If only the health workers take sufficient initiative to tap the latent resources available in the villages they might not be facing the problem of finance needed for sanitation programme.

The necessity of a subsidy cannot be underestimated. It is also true that the Government cannot subsidise construction of latrines for all times and it is also not required. Once the people get used to the latrines and appreciate the usefulness of such a facility in their homes they will come forward of their own and contribute to the total cost of the latrine. In the first and second Plan periods funds were made available through the National Water Supply and Sanitation Programme for subsidising latrines in rural areas. In some states they had a composite programme of water supply and sanitation and a tube-well was offered free to the villagers, when a requisite number, say 50 latrines, were built in the area at the cost of the villagers. This however is not a very desirable practice. The villagers spent the money to get a tube-well and not for the object of getting latrines. Such latrines remain unused and have not helped in the progress of sanitation in the villages. In the third Plan, it is understood that no specific allotment has been made for sanitation in villages under N.W.S. & S. Programme. This is certainly discouraging when rural sanitation needs all the support of the Government. Funds are, however, available with C.D.P. which should be made use of for popularising latrines in rural areas. The conditions laid down for the utilisation of this fund sometimes make it difficult for its effective utilisation in the villages. The programme should be more liberal so that more people can make use of the facilities provided by the Government. Yet, another approach to the problem of financing of rural sanitation programme is the formation of co-operatives and financing corporations with adequate Government support which can advance loans on easy terms. This will not be a big drain on national budget since the capital is expected to roll. When large sums of money have been earmarked for industrial development in the country and for other national projects, there is enough justification for diverting some reasonable amount of national revenue for the environmental sanitation programme in the rural areas, where the majority of the people live and contribute to the nation's economy in terms of farm produce.

Scope for Rural Sewerage Schemes

During the third Plan period piped water supply for rural areas has been emphasised. A larger consumption of water can therefore be expected in future years in these villages. Septic tank latrines can then profitably be used in the villages. So far, absence of adequate water for keeping the sewers clean has been one of the major difficulties in undertaking any sewerage schemes in rural areas. In many instances villages have so developed that they compare very well with urban areas though the population of the community falls below that required by the definition of an urban community. Land is hard to find within the compound to locate a pit without endangering the structure in the adjoining compound. Sewerage is ideally suited in such areas and will be in the long run cheaper than pit latrines. Possibility of sewerage

schemes for such areas should not be lost sight of.

Conclusion

Much has been said about the poor state of health in villages. Of late there has been an awareness amongst the administrators and the people in general for the improvement of the health of the villagers. One of the major fields in which our health efforts should be intensified is the field of satisfactory excreta disposal. Though significant improvement has been noticed during recent years in respect of safe water supply in the rural areas, very little has been achieved there in respect of excreta disposal. Amongst many factors contributing to this poor progress are the people's attitude towards latrines, absence of a satisfactory design of latrine for rural areas and adequate resources in the villages. Studies are in progress, which have indicated a proper approach to this problem and the people's reactions to the latrines have been given adequate cognisance. The design of the latrine has undergone many changes during recent years. Today we have a fairly satisfactory design for rural latrines. Villagers, though poor, can afford a part of the expenditure for construction of this essential amenity in their homes. The balance needs to be met from other resources like those provided by Government or co-operatives. Absence of a definite provision for rural sanitation in the third Plan is disheartening to the health workers of the country. It is hoped that the Government will reconsider the matter and give adequate financial assistance which the programme deserves. The success of sanitation programme in rural areas depends a great deal on the sincerity and integrity of the staff, particularly those who are in direct contact with the villagers. Choice of personnel and their proper training are essential for the success of this programme. Co-operation of all concerned, the politician, the administrator, the engineer, the doctor, peripherial health workers of all categories, *gram-sevak* and *sevika,* social scientists, health educators and many others is essential for a successful programme of rural sanitation in India.

FIFTH ANNUAL CONFERENCE

NOTES & NEWS

WORK OF W.H.O. IN 1960

The most noteworthy activity of the World Health Organization in 1960 was the help given to the Republic of the Congo to enable it to meet the emergency that occurred after the attainment of independence.

"The way in which W.H.O. responded to this challenge is one of the best proofs of the soundness of its structure and of the maturity it has reached in the barely twelve years of its existence", said Dr. M. G. Candau, W.H.O. Director General, in his introduction to the Organization's Annual Report for 1960, which will be submitted to the Fourteenth World Health Assembly that opens in New Delhi, 7 February 1961.

Dr. Candau added that it was clear by September that through an efficient co-ordination of the work of the United Nations, of W.H.O., of the International Committee of the Red Cross and of the League of Red Cross Societies, the best possible use was made of the international resources which were put at the disposal of the newly independent country.

W.H.O. also was able to work out a programme for the training and education of Congolese medical and paramedical personnel, at the same time recruiting the foreign personnel needed now to staff basic health services.

Communicable Diseases

There was significant progress in 1960 in the various fields related to W.H.O.'s vast *malaria eradication* programme. Sixty-one countries or territories are known to be fully engaged in malaria eradication work, and in another nineteen the health authorities are on the point of adopting their final plans. In the majority of these countries W.H.O. is giving direct help, advisory services, fellowships and other means of training, and supplies and equipment.

Progress was also registered in the control of other communicable diseases. Efforts to improve the diagnosis, treatment and prevention of *tuberculosis* were continued. Results of comparative trials of domiciliary and institutional chemotherapy for tuberculosis, conducted by the Tuberculosis Chemotherapy Centre, Madras, with W.H.O. assistance, confirm that in suitable circumstances domiciliary chemotherapy is by no means inferior to institutional treatment.

The two methods were found to be equally effective as regards improvement after one year of treatment, relapse rate during the second year and new cases among family contacts.

Satisfactory progress was maintained in the national campaigns for the eradication of yaws, and it is estimated that over the last ten years half the 200 million people living in yaws-endemic areas have been examined and, where necessary, treated.

Increased incidence both of venereal *syphilis* and of *gonorrhoea* has been observed in several countries. The fact that attack rates are higher in the lower age-groups presents new social problems.

Veterinary Public Health

In veterinary public health, main emphasis was on the extension of research on *brucellosis*, which is still an important cause of disease in certain areas where infected sheep and goats cannot be eliminated for economic reasons, and on *rabies*. The reliability and accuracy of the laboratory methods for diagnosing rabies have been much improved in recent years, but more rapid and reliable method of diagnosis in dogs is required, and W.H.O. efforts are directed towards finding a solution of this problem.

Virus Diseases

The rapid progress in the study of live poliovirus vaccines reported in 1959 was accelerated in 1960. By mid-summer it was estimated that more than seventy million persons had received the vaccines. The largest studies were in the U.S.S.R. where a strain developed in the U.S. was administered to fifty million people, with an impressive record of safety and strong indications of efficacy. A meeting of the W.H.O. Expert Committee on Poliomyelitis, in 1960, decided that all strains of the orally administered vaccine had been shown to be safe for administration to children and thus safe for use where poliomyelitis was predominantly a disease of childhood. In areas where polio affects a proportion of adults it was recommended that, for the time being at least, primary vaccination should be continued with the inactivated vaccine and that the oral vaccine should be reserved for the reinforcing dose.

Progress was made towards the eradication of *small-pox*, but rather slowly. India, where the disease has been endemic and where the highest number of cases has always been reported, is taking energetic measures to organize and develop a national eradication programme. Afghanistan, Indonesia and Pakistan also are intensifying anti-small-pox campaigns.

In the three years from mid-1957 to mid-1960 the causal agent of *trachoma* has been isolated in at least seventeen laboratories throughout the world. This important breakthrough, coming after fifty years of negative or inconclusive attempts, has opened up new fields of research. During 1960 W.H.O. continued its assistance to trachoma research in various ways, as well as continuing assistance to governments in carrying out field projects for the control of trachoma and other eye diseases.

Environmental Sanitation

W.H.O. sanitary engineers and consultants visited countries in all six regions to promote the W.H.O. programme for the improvement of *community water supplies*. Technical help was given to Peru on an important water supply project: a consultant in waterworks design helped the national water authority in Cuba to extend water supplies rapidly: in Ghana a team of experts is helping with the development of the national water supply programme and to set up a water and sewage board: plans were made to help the Malagasy Republic to organize and execute a national water supply programme, especially for the capital, Tananarive.

Public Health Services

W.H.O. is advising governments on the planning of public health services sometimes as independent programmes, but often as part of a wider scheme of social and economic development in which health, education, agriculture and other programmes are co-ordinated. The demand for nursing services, especially in the developing countries, is continually increasing, and in 1960 W.H.O. provided 163 nurses to 45 countries to help with nurse and midwife training, nursing administration at national and state levels, and as members of teams with public health programmes and communicable disease control.

Health Protection and Promotion

Considerable progress was made in the large-scale programme for the *prevention of protein malnutrition* in infants and children, which is still the world's most important nutritional problem. This programme is being sponsored jointly by FAO, UNICEF, and W.H.O. and its chief purpose is the production of cheap and suitable protein-rich foods. The practical results are perhaps most evident in Guatemala, where the Institute of Nutrition of Central America and Panama (INCAP) has developed a mixture of vegetable proteins called "Incaparina", which is well accepted and is being distributed on an increasing scale, and in Africa, where mixtures of vegetable protein and skim milk are becoming popular in Nigeria and Uganda.

The part W.H.O. can play in assisting work on *cardiovascular diseases*, particularly research, has become more clearly defined. The Organization's Advisory Committee on Medical Research considered that priorities should be accorded to coronary heart diseases, arterial hypertension, pulmonary heart disease, cardiomyopathies, fundamental research into factors controlling circulation, and research into cardiovascular diseases in animals.

In order to further *cancer* research a scientific group that met in 1960 indicated, in order of priority, what studies on animal tumours should be undertaken in order to obtain information relevant to the solution of analogous problems in human beings. Some work was also done on the therapy of canine tumours, on the carcinogenicity of food additives, on lung tumours and soft tissue tumours.

Education and Training

In all 1,006 fellowships were awarded for the period 1 December 1959 to 31 August 1960. The fellows came from 122 countries and territories; they studied in 83 countries and territories abroad. About 80 per cent were financed from the regular budget, 20 per cent from Technical Assistance Funds and 0.5 per cent by UNICEF. The acute shortage of physicians and other fully-trained personnel in the greater part of the world still imposes a high priority on training large numbers of auxiliary workers, and much attention was given to this matter during the year, as well as to medical education and graduate training in public health.

Medical Research

Highest priority has been given to research on communicable diseases in the Organizations's newly-developed medical research programme, particularly those prevalent in the tropics, and then to research on cancer, cardiovascular diseases, radiation medicine and human genetics. As far as the type of work that W.H.O. should support in this field, the Thirteenth World Health Assembly decided that services to research should be given priority over actual conduct of research—such as the standardization of nomenclature and techniques, the setting-up of reference centres, the improvement of communications between scientists and the training of research workers.

Radiation and Human Genetics

W.H.O. work on ionizing radiation and atomic energy in relation to health is concerned mainly with radiation health, which involves the health problems of the effects of ionizing radiation on man, radiation medicine, or the applications of radiation and radioisotopes in health work, and human genetics.

Facts and Figures

Regular budget for 1960—$18,113,760.
Membership—100 Member States; 2 Associate Members.
Total staff as of 30 September, 1960—2,041 of 63 nationalities.
Headquarters staff—639.

SANITATION "KEYSTONE OF PROGRESS"

"Improvement of sanitation is a fundamental requisite of economic advance", Dr. C. Mani, W.H.O. Regional Director, S. E. Asia, told public health experts from various States of India who assembled at Vigyan Bhavan to consider the problems of training and utilization of sanitation workers in India.

The five-day conference, sponsored by W.H.O. and the Government of India, was attended by W.H.O. Sanitarians working in various health projects in India.

Dr. N. Jungalwala and Mr. K. S. Krishnaswamy, both Deputy Directors-General in the Directorate General of Health Services, Government of India, were elected Chairman and Deputy Chairman respectively. Mr. Narayanan Nayar, Executive Engineer, Public Health Engineering Department, Trivandrum, was elected Rapporteur.

Quality of Workers

Dr. Mani in his address of welcome said that there were several causes of unsatisfactory sanitary conditions. They included economic, social, educational and administrative factors. An important factor—and one which could be remedied—was the quality and proper use of the staff employed in sanitation work.

In India people were generally fastidious about cleanliness in their personal life and in the household but they were not so particular about keeping their surroundings clean. The public found little encouragement from the authorities in improving their environment. Public money spent on social services was often inadequate and the staff employed in these services was insufficient or not fully trained and not always well directed or supervised.

India had made much progress during her first two Five Year Plans and was about to launch her third. However, a realistic programme in environmental sanitation had yet to come.

There were a number of questions, Dr. Mani said, to which the conference had to find answers. Was the training given to sanitation workers realistic and in accord with the work they should undertake? Was it desirable to have a variety of categories among auxiliary sanitation workers? Were sanitation workers employed in conditions which would enable them to make effective contribution in their field of work?

Dr. Mani expressed the hope that constructive answers would be found to these and other problems and that the deliberations of the conference would effectively contribute towards the improvement of sanitation in this country.

Situation in India

Mr. K. S. Krishnaswamy, speaking on the importance of the conference to India, said that the preventive side of medicine was assuming more and more importance in the health plans of the country as compared with the medical-curative side which had for long been dominant.

"Any major development in the field of public health", he said, "cannot be achieved without an emphasis on the control of the environment in all its aspects".

Public health today included a variety of

subjects and considering the wide field to be covered India had not even touched the fringe of the problem. Some progress had been made in such fields as town and country planning and urban water supply and sanitation but rural sanitation had progressed much less.

However, during the past several years awareness among village people about their sanitary needs had considerably increased and had begun to be reflected in the country's health plans.

Lack of Co-ordination

Mr. Krishnaswamy said that there had been lack of cohesion and co-ordination among various departments responsible for rural and urban sanitation and this had to be remedied.

He felt that with the progress of time health programmes would find an increasingly important place in India's Five Year Plans and one could look forward to a time when rural and urban sanitation would demand greater attention from the people as well as the Government.

"In fact", he added, "the people would expect an effective sanitation programme throughout the country to be completed within the minimum period of time".

It was only proper, therefore, that public administrators should start planning for an effective organization to cope with the expanded programme and to give thought to such details as the type of staff required, its training and proper utilization.

Need for Supervision

Mr. Walter Tabosa, Environmental Sanitation Adviser in the W.H.O. Regional Office for South East Asia, speaking on the objectives of the conference, said that the papers submitted by a number of participants indicated that the lack of proper co-ordination and supervision in sanitary programmes was widely recognized.

This was especially true in rural areas where sanitation activities were the responsibility of multipurpose health workers. Besides working as vaccinators and collectors of biostatistics they were expected to look after environmental sanitation in more than 100 villages. The training of these people varied from State to State and very often they did not have the necessary direction or supervision to make effective contribution in promoting sanitation.

Team Work

"Rural sanitation cannot be developed satisfactorily unless full attention is given to the problem by a team of public health workers, using a methodical approach", Mr. Tabosa said.

Referring to training and utilization of sanitarians he urged "the exclusive dedication of the sanitarians to sanitation work". Sanitarians, he suggested, should be relieved of all work not directly related to their speciality and left free to devote full time to their main function.

This principle, he felt, should be the basis on which a sound training programme for sanitarians in this country should be built up.

THE HEALTH INSPECTOR—MAN WITH A FUTURE

Recommendations to relieve "the pressing need for improvement of environmental sanitation" throughout India were made at the close of a five-day conference, sponsored by the World Health Organization's S. E. Asia Regional Office in co-operation with the Government of India.

The conference, in Vigyan Bhavan, New Delhi, was attended by public health experts from various states of India and was concerned primarily with the training and utilization of auxiliary sanitation workers.

Better training for this class of worker, *more security* in his job, and *better prospects of* advancement, backed by *opportunities* for *continued education* . . . . all these are envisaged in the recommendations, which begin by clearing away the tangle of designations at present attaching to sanitation workers.

Two main denominations are proposed: first, "Health Inspector" this being a field worker who has passed a standard health inspector's course, and secondly "Health Assistant"—a field health worker who is under the direction of a health inspector. This term would thus cover such varied current designations as vaccinators, disinfectors, etc.

Training: It is recommended that fully-fledged training institutes, with adequate facilities for theoretical and practical field training of health inspectors, should be established in each State.

To promote a uniform and more effective training programme throughout the country, on a continuing basis, a Central Council—on the lines of the All-India Nursing Council, should be set up. For health inspectors, the minimum period envisaged for the training course is one calendar year which should include three months' intensive practical training.

Nation-wide facilities should, it is urged, be

developed so that health inspectors may be able to receive specialized and advanced training. There should also be adequate provision for refresher courses and in-service training.

More jobs: In view of the urgency of improving environmental sanitation in rural areas an *additional* health inspector should, it is recommended, be appointed *in every Block* exclusively for this work, with senior health inspectors *in every Block* exclusively for this work, with senior health inspectors at district or appropriate level.

Advancement: It is recommended that the services of health inspectors should be provincialised. This, the conference agreed, would give them necessary protection, tenure of office and chance of promotion.

GONOCOCCAL RESISTANCE TO PENICILLIN

Among venereologists and bacteriologists the disturbing news has been circulating for some years that the treatment of gonorrhoea with penicillin is only partially effective because of increasing resistance of the gonococcus to this antibiotic. Much work has indeed been published to show that some recently isolated strains of gonococcus tolerate dose of penicillin that would have destroyed all members of the species. Theoretically, of course, there is nothing surprising in this, for ever since chemical substances have been used to prevent microbes from developing, microbes have met the challenge by evolving a multiplicity of ways and means of adapting themselves to the new situation.

To many venereologists gonococcal resistance has seemed to explain at least in part, the epidemiological situation of gonorrhoea in the world. In spite of penicillin treatment (says the fifth report of the W.H.O. Expert committee on Venereal Infections and Trepanomatoses) "the numbers of reported cases of gonorrhoea have remained virtually static or have increased—in some countries substantially". In 15 out of 22 countries and territories reporting figures to W.H.O. there has been a rise in numbers, and in another four the situation appears static. The annual incidence ranges from 10 to 50 per 10,000 inhabitants. Far from being a disease in regression, gonorrhoea is widespread, and in many parts of the world is one of the most challenging of health problems. Among the reasons for this are "increasing difficulties in the treatment and management of the disease", while "lessened sensitivity or resistance to penicillin by the gonococcus may become a growing problem".

An appeal for caution in the face of what may be over-hasty conclusions, is, however, made by C. M. Carpenter in a critical analysis of the chief studies published in the subject, which will appear in a forthcoming number of the W.H.O. Bulletin.

In Carpenter's view, evidence of resistance is unconfirmed, for those who adduce it have not always taken all the possible causes of error into account. These causes are enumerated and reviewed in turn. It must be certain that the infection combated is indeed due to the gonococcus, and therefore the micro-organism must be isolated and identified *in vitro*. The possibility of reinfection must be eliminated. The penicillin level must be adequate and maintained for a sufficient length of time.

The action of penicillinase produced by other micro-organisms present—it has been shown to occur with E. coli in a case of gonococcal proctitis in the female—must also be excluded. It must be certain that the drug is fully active and has suffered no deterioration. The resistance of the gonococcus must be proved *in vitro*—and it must be remembered that the cultural characteristics of this bacterium make an evaluation of sensitivity tests difficult. It should also be borne in mind that gonococci, living within the cell, may be protected from the action of penicillin. They can live in closed foci and develop afresh if the foci re-open. They can remain inactive in unfavourable conditions and multiply when conditions again become favourable. In some persons the defence mechanisms against gonococci may be weakened. Immunological antagonism stimulated by a previous injection may result in inactivation of penicillin.

Lastly, diagnostic error cannot be excluded. Gonorrhoea should be clearly distinguished from other infections, particularly non-specific urethritis. Pleuro-pneumonia-like organisms have been isolated from some cases of this condition, and some authors regard these as developmental forms of the gonococcus. They are possibly associated micro-organisms which multiply when the gonococcus disappears and cause similar symptoms. These infections are common enough to be kept in mind while diagnosing gonorrhoea.

After reviewing the main laboratory studies on gonococcal resistance, Carpenter concludes that the amount of resistance shown by gono-

coccal cultures does not suffice to explain the way in which gradually resistant strains able to defy treatment are produced *in vivo. We* do not have as convincing data for the gonococcus as we have for other bacteria that are resistant to antibiotics.

Clinical evidence of gonococcal resistance is not irrefutable, if judged by strict standards. The possibility of a non-gonococcal secondary infection of the urethra or vagina continuing to develop after the disappearance of the gonococcus cannot be scouted. When symptoms of urethritis persist after antibiotic treatment, the causative organisms of these conditions must be sought before gonococcal resistance to penicillin is incriminated.

(W.H.O. Chronicle)

SENSITIVITY TO PRIMAQUINE

Of all the 8-aminoquinolines so far synthesized primaquine is the most active against relapses of *Plasmodium vivax* infections. Primaquine has been used successfully in the Korean War, and, given in combination with other antimalarials to troops crossing the Pacific, it has helped prevent malaria from being reintroduced into the U.S.A. Its drawback is that, in the usual doses, it may cause haemolysis; this haemolysis is generally self-limited if the daily dose of the drug is not excessive, because newly formed cells entering the circulation are relatively resistant. Occasionally, when the drug is given in an excessive dosage the haemolytic effect may be severe. In a paper shortly to be published in the W.H.O. Bulletin A. F. Alving *et al,* who since 1945 have been engaged in research into the 8-aminoquinolines, discuss various dosage schedules for these drugs in terms of this sensitivity phenomenon. Primaquine is not the only drug that causes haemolysis: so do compounds like naphthalene, acetanilide, some vitamin K derivatives and para-aminosalicylic acid (PAS), the clinical effects usually being mild. The ingestion of partly cooked broad beans, or even the inhalation of the plant, may also cause haemolysis in persons who have the same genetic pattern of blood biochemical and enzyme abnormalities as is found in primaquine sensitivity; but broad—bean sensitivity is not always associated with primaquine sensitivity. This haemolytic sensitivity reaction occurs in certain ethnic groups: among North American negroes, some groups of Jews, Sardinians, and Caucasians, for example. The inborn error of metabolism involved is characterized by a deficiency of glucose-6-phosphate dehydrogenase which affects the oxidation of glucose and certain other functions, and, it is suggested, may be the expression of a more fundamental but as yet unknown abnormality directly determined by a mutantgene. Complete expression of the genetic defect is common in affected males, affected females being usually heterozygous experiencing less severe haemolysis.

The toxicity of primaquine is diminished if it is given once a week together with standard suppressive dose of chloroquine or one of its equivalents. This dosage increases the effectiveness of the drug in the radical cure of vivax malaria. A weekly dose of 45 mg for 8 weeks proved to be highly effective against severe infections with the Chesson strain of *P. Vivax,* curing 90% of the infections but producing no clinically demonstrable haemolysis in primaquine-sensitive adult males.

Various tests have been devised to find out what individuals are sensitive to primaquine, and most of them distinguish clearly between normal males and males susceptible to this kind of haemolysis. But up till now it has been difficult, if not impossible, to make this distinction in females, since most affected females have an intermediate susceptibility to haemolysis and extremely variable biochemical changes in their erythrocytes. In a paper following that of Alving *et al,* in the same issue of the Bulletin, Brewer and his colleagues describe two modifications of a new, simple test called the methaemoglobin reduction test, based upon the oxidation of haemoglobin to methaemoglobin by sodium nitrite and subsequent enzymatic reconversion to haemoglobin in the presence of methylene blue.

This test has one essential advantage: it distinguishes, more accurately than any test hitherto employed, between females sensitive to primaquine and normal females with erythrocytic reactions. The simple modification of the test can be used in the field in general surveys. The more accurate modification requires a photo-electric colorimeter or a spectrophoto-meter, and is more suitable for laboratory use.

(W.H.O. Chronicle)

TUBERCULOSIS CONTROL IN THIRD PLAN

The Union Ministry of Health proposes to open 200 more T.B. clinics, 5 demonstration and training centres, 7 rehabilitation work centres and 25 mobile clinics, in addition to

increasing the number of isolation beds by 5,000, during the Third Plan. A total of 100 million will be covered by BCG teams.

PILL THAT CONTROLS PROGENY

A group of scientists recently warned us that the end of the world would come about not because of a nuclear explosion or collision with a wandering star but because of sheer numbers of human beings.

Today it is family planning; sometime in the future it will be mankind planning. And just as vitamins are being added in foodstuffs, may be, antifertility chemicals will be added in tea and coffee and cooking fat and 'atta'.

We cannot, however, wait in the hope of such a day. Our research for easy ways of checking births must continue. Several scholars in our country are indeed at work on finding an inexpensive pill that can be swallowed and that will prevent pregnancies.

Dr. S. N. Sanyal of the Calcutta Bacteriological Institute, reports encouraging results from tests so far carried out with such a pill. The pill consists of a chemical called 2.6 dimethylhydroquinone—a chemical which is also to be found in the common field pea.

The chemical was tried out for 25 continuous months in a test conducted in U.S.A., and also in a Calcutta maternity hospital some years ago. A second trial was organised more recently in our country by the All-India Institute of hygiene and Public Health, Calcutta, which showed that the pill would reduce the rate of conception by 60 per cent.

Any such chemical, besides preventing conception, should not cause harm to the body or lead to permanent sterility. Also, if in any particular case it fails to prevent a pregnancy, it should not harm the child in the womb or cause miscarriage, Dr. Sanyal says that the pill that is now being used in the experiments has all these qualities. It is safe and it is effective.

The Calcutta Bacteriological Institute has developed a process by which the pill can be sold at less than two naye paise—cheaper than aspirin. In view of its vital importance to the country, no patent has been taken out on the process.

(*Yojana*)

EXPERT COMMITTEE OF MENTAL HEALTH

A WHO Expert Committee on Mental Health met in Geneva from 4 to 10 October 1960. One of its tasks was to review present resources in personnel and facilities for mental health work in the various countries of the world. An enquiry made before the meeting showed that these resources were in general inadequate. Out of 32 countries supplying information, only 4 have anything approaching the desirable proportion one psychiatrist per 10,000 population. There are also serious shortages in psychiatric nursing personnel, and even in highly industrialized countries there are psychiatric hospitals without appropriately trained staff.

The Committee devoted much time to considering types of research, both national and international, which must be given priority if further advances are to be made in preventing mental illness. These included investigations into brain function, social attitudes, effects of cultural change, psychoses of the aged, effects of nutrition, and genetic factors.

(*W.H.O. Chronicle*)

EUROPEAN SEMINAR FOR SANITARY ENGINEERS

Some 50 sanitary engineers and administrators of national environmental sanitation programmes from 23 European countries took part in the seventh European seminar for sanitary engineers sponsored by the W.H.O. Regional Office for Europe and held, from 6 to 13 October, at Ciudad Universitaria, Madrid, in cooperation with the Spanish Government.

Previous seminars, including those at Rome (1951), London (1952), Opatija (1954), Helsinki (1956), and Nice (1958), discussed the training and functions of sanitary engineers, water supply and purification, sewerage and sewage treatment (both domestic and industrial) solid waste or refuse disposal, prevention of water and air pollution, standards for drinking water, biological and chemical relationships, housing sanitation, and the increasing use of radioactive substances.

The main theme of this year's seminar was research needs in sanitary engineering, and the measures which should be taken to meet such needs by governments, research institutes, universities and technical schools, and industrial or municipal establishments. It is recognised that present day methods of sanitary engineering, however successful, are still too empirical and based on insufficient knowledge. The resulting high costs and inefficiency tend to make sanitary improvements less accessible to large groups of the population, particularly in rural areas. In the urban areas, current methods are becoming less and less effective in dealing with such growing problems as water and air pollution.

The seminar also discussed the treatment of small community sewage wastes, a field of great interest and importance in Europe and one in which considerable technical progress has been made in recent years, and sanitary engineering requirements of atomic energy developments.

Fourteen working papers were presented by experts from Czechoslovakia, the Federal Republic of Germany, the Netherlands, Spain, Switzerland, the United Kingdom, the U.S.A. and the U.S.S.R., and by W.H.O. technical staff.

(W.H.O. Chronicle)

COLONEL AMIR CHAND TRUST FUND PRIZES FOR MEDICAL RESEARCH

Lieut.-Col. Amir Chand,, lately principal of Lady Hardinge Medical College, New Delhi, donated Rs. 50,00,000 to the Indian Council of Medical Research for creating a prize Fund. From the interest earned by this sum, prizes are awarded for the best published research work in medical sciences. The Governing Body of the Council has constituted a Trust, called the "Colonel Amir Chand Trust" for the administration and management of the Fund.

The prizes are awarded annually on an All-India basis for the best published research work in any subject in the field of medical sciences including clinical research. The term 'Clinical Research' covers research into the mechanism and causation of disease and its prevention and cure, and includes work on patients in hospitals, field studies in epidemiology and social medicine and observations in general practice.

It has been decided to award *four prizes in 1961* each of Rs. 300.00 *to graduates of not more than 40 years of age on 1st January, 1961* for the best research papers in medical science published by them during 1960. These prizes will be known as 'Shakuntala Amir Chand prizes'.

Those eligible for the prizes are medical or non-medical graduates.

Selections for the award of the prizes will be made by a Selection Board.

In the case of a joint authorship of a publication, the prize shall be divided between the authors in such proportion as the Selection Board may decide. The role of the person who applies for the prize 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 of the prizes will be announced at the meetings of the Council's Advisory Committee in November/December, 1961.

Candidates, for award of prizes are required to submit, 10 reprints of their papers published during 1960. These should be sent to the Director, Indian Council of Medical Research, P. O. Box 494, New Delhi, so as to reach him not later than 1st September, 1961. The papers should be accompanied by a short biological sketch and two copies of passport size photographs of the candidate/candidates concerned.

ELEANOR ROOSEVELT INTERNATIONAL CANCER FELLOWSHIPS

The International Union Against Cancer, through funds made available by the Eleanor Roosevelt Cancer Foundation, will award annually fellowships for research on cancer. These fellowships have been created in the belief that the international exchange of scientists between centres with kindred interests will facilitate the sharing of knowledge and thereby contribute to the control of cancer.

These are senior postdoctoral awards designed for the support of persons who, as full-time members of the staff of universities, teaching hospitals, research laboratories or other institutions, have demonstrated interest and outstanding ability or promise as independent investigators in the field of research on basic cancer, its experimental and clinical aspects, and who wish to broaden their experience by a period of study in another country. The duration of the fellowships ordinarily will be one year but this period may be extended or shortened in special circumstances. The stipend will be based on the current salary of the applicant and the salary of persons of comparable qualifications in the place where the applicant expects to study. An allowance will be made for dependants and for costs of travel to and from the the fellow's residence and the institution where he will work.

Application forms and additional information may be obtained from "International Union Against Cancer, P. O. Box 400, Geneva 2 (Switzerland)".

INDIAN PUBLIC HEALTH ASSOCIATION

Report of the General Secretary for the Year 1960

Mr. President, members and friends, our association has passed through the fifth year of its existence and I am to present to you the fifth annual report on the working of our association for the year 1960.

In presenting the report I would like to inform you that the association has passed through a severe crisis during the year. This fact may not have been known to many of you. This crisis involved both the financial as well as the organisational fronts and threatened our very existence. But thank God we have survived it and are on foot again.

From the statement of the consolidated accounts you will find the acute shortage of funds with which the association was working. The association with its current small membership has little financial resources. We have been publishing our Journal on a fairly high standard, and the Journal is highly appreciated by all public health workers. However, the Journal had been so long a heavy economic burden, and the slender revenues derived from the membership were not adequate to supplement fully the cost of the publication and to maintain a satisfactory administrative set up. The charges still to be met in our account upto 30-9-1960 amounted to about Rs. 18,000/- as against Rs. 3,000/- at our credit.

The Journal faced another difficulty in the matter of printing and publication. Dr. S. C. Seal, functioned as the Secretary, Managing Editor and Publisher of the Journal till he left the Institute of Hygiene for his new assignment. With a view to improving the printing, the old Press was changed. The real trouble started when the legal procedures regarding the declarations from the Presses had to be completed in the court. We regret that although the Journal (April issue) has been printed and is ready for circulation, the Journal cannot be issued due to non-registration of the Printing Press and the Publisher. We are trying to overcome both the hurdles.

On the financial side, thanks to the efforts of our President Col. Barkat Narain, we have received a grant of Rs. 10,000/- for the improvement of the Journal from the Ministry of Health. The position has been further strengthened by the kind help of Lt. General D. N. Chakravarti, Director of Health Services, West Bengal, by subscribing for 211 copies of the Journal to be supplied to each Primary Health Centre and specified Medical Officers of the State. You will also be glad to know that the Reception Committee of the third annual conference of the association held in Calcutta, have donated the sum of Rs. 752/- to meet our financial difficulties and specially to help in the purchase of a Typewriter. We are thankful to all our benefactors. The financial aspect of the journal need not perhaps worry us any more. Along with liquidation of arrear charges, the journal hopes to get further revenue next year from subscriptions which are expected from the Directors of Health Services and Directors of Public Health of all other States. The drive for more advertisement by the Journal Committee would certainly produce satisfactory results next year. The Journal Committee would also maintain the journal as a self-supporting one within the revenues derived from advertisements and subscriptions for Journals. On the Printing and Publication problem, due to unhelpful attitude of the Printing Press, Dr. Ghosh Hazra the Assistant Editor has been made both Printer as well as Publisher of the Journal and we have circumvented some of the legal difficulties created by the old printing press. The date for passing of the order of the Court has been fixed for next week. We hope the unsatisfactory state of affairs with regard to the publication of the journal will now come to an end and the work of the Journal Committee headed by our esteemed member Dr. B. C. Das Gupta, will continue to be the best symbol of the activities of our association.

Organisation and Administration

The Registered Head Office of the Association is in the All-India Institute of Hygiene and Public Health, Calcutta. We have continued to maintain our office in the Institute through the kindness of D.G.H.S. and Dr. (Mrs.) Sen, Director of the Institution. The association is thankful to them for their kind assistance. In this connection, we should again request the Director of the Institute to arrange for a separate room for our office. I am glad to report that the Director is sympathetic to our request.

Administration

Due to the effects of such crisis the level of administration in the head office was low.

I crave your forbearance for all the shortcomings which the members have experienced during the year. We hope the tone of administration will improve and be geared to the needs of the expanding activities of our association.

I have so long presented to you a gloomy picture of our association. But every cloud has its silver lining. We have also made some remarkable progress during this year.

We have now four state branches. The inauguration of the Andhra Pradesh State Branch has been a notable event during the year. Mysore State is now eligible for a separate branch in the State and the Association will soon be witnessing the inauguration. Other States have also reported considerable progress regarding formation of branches in their area. The Delhi Branch is perhaps coming soon.

Association has to be more active in enrolement of members and improving the organisation and administrative set-up. Our thanks are specially due to our dynamic President Col. Barkat Narain and to the members of Council and the various Committees who have helped in tiding over the crisis this year. I thank you for your forbearance for all the shortcomings of the year. The next year may start on a brighter and less hazardous path and the association may grow stronger and stronger.

J. K. BHATTACHARJEE,
General Secretary.

INDIAN PUBLIC HEALTH ASSOCIATION

Budget estimate for the year 1960-61 (from 1st October, 1960 to 30th September, 1961)

INCOME			EXPENDITURE		
Membership—600	...	Rs. 6,000.00	Establishment ...	...	Rs. 3,500.00
Associate Membership—300 ...	...	Rs. 600.00	Postage ...	...	Rs. 1,500.00
Subscription for Journal	...	Rs. 3,000.00	Auditor's fees ...	...	Rs. 100.00
Advertisement ...	...	Rs. 8,000.00	Printing and Blocks	...	Rs. 9,000.00
			Advertisement Commission	...	Rs. 1,500.00
			Office furnitures and Stationery ...	...	Rs. 1,000.00
			Annual General Meeting	...	Rs. 500.00
			Miscellaneous ...	...	Rs. 500.00
TOTAL ...		Rs. 17,600.00	TOTAL ...		Rs. 17,600.00

Sd/- J. K. BHATTACHARYA,
Secretary.

Sd/- T. R. BHASKARAN,
Treasurer.

INDIAN PUBLIC HEALTH ASSOCIATION,

Receipts and Payments Accounts for the year ended 30th September, 1960.

RECEIPTS	Rs. nP.	Rs. nP.	PAYMENTS	Rs. nP.	Rs. nP.
OPENING BALANCES:			ESTABLISHMENT		2,241.33
Cash in hand	725.08		ADVERTISEMENT COMMISSION		752.20
Cash at Bank	2,568.60		STATIONERY & PRINTING		6,770.45
(include Rs. 460.42 nP. on account of Souvenir)		3,293.68	POSTAGE		749.42
SUBSCRIPTION FROM MEMBERS		4,176.48	CONVEYANCES		618.48
RECEIPTS FROM ADVERTISEMENT ...		4,507.06	MISCELLANEOUS EXPENSES (Rs. 460.42 paid to Dr. Seal against Souvenir) ...		1,255.62
DONATION		752.39	CLOSING BALANCES:—		
MISCELLANEOUS		890.00	Cash in hand	247.01	
			Cash at Bank	985.10	
					1,232.11
TOTAL ...		13,619.61			13,619.61

Sd/- J. K. BHATTACHARYA,
Secretary.

29, WATELOO STREET,
CALCUTTA-1
Dated, 24-12-1960.
Sd./-T. R. BHASKARAN,
Treasurer.

In terms of our separate report of even date.
Sd./- M. K. MUKHERJEE & CO.,
Chartered Accountants

PROCEEDINGS OF THE FIFTH ANNUAL GENERAL MEETING

Proceedings of the Annual General Meeting of the Indian Public Health Association held on the 28th December, 1960 at the Public Health Institute, Patna under the Chairmanship of Col. Barkat Narain, President of the Association.

A large number of members attended the meeting.

The Chairman welcomed the members and the agenda were taken up for consideration.

1. *Confirm the proceedings of the Fourth Annual General Meeting*

The proceedings of the last annual general meeting which had been circulated to members were confirmed.

2. *Receive, consider and adopt the annual report of the General Secretary for the year 1960*

In presenting the General Secretary's report Dr. Bhaskaran highlighted some of the important points. The report was then discussed by the members present and adopted unanimously.

3. *Receive, consider and adopt the annual accounts of the past year (1st October, 1959 to 30th September, 1960)*

The accounts were adopted unanimously by the general body. In this connection, it was suggested that in addition to receipts and payment account, it is desirable to have the income-expenditure account, as well as the balance sheet prepared by the Auditor.

4. *Consider the budget estimate for the ensuing year*

The budget proposed by the Central Council was adopted:

5. *Announcement of the names of office-bearers of the Association for the year 1961*

The President announced that the following members were duly elected to their respective office:—

President Elect—Dr. C. R. Naidu
Vice-Presidents—Dr. M. N. Lahiri
Dr. K. C. Patnaik
General Secretary—Dr. T. R. Bhaskaran
Jt. Secretaries—Dr. A. K. Roy
Dr. K. K. Sinha
Treasurer—Dr. K. K. Mathen

6. *Election of 10 members of the Central Council*

The General Body accepted the Central Council's proposals and the following were elected unanimously as members of the Central Council for the year 1961.

1. Dr. (Mrs.) Muktha Sen
2. Mrs. Uma Mitra
3. Col. N. D. P. Karani
4. Dr. A. Ramdas
5. Prof. N. Majumdar
6. Dr. W. C. Mathur
7. Dr. S. L. Sharma
8. Dr. G. C. Patnaik
9. Dr. S. E. D. Masilamani
10. Dr. T. R. Bhaskara Menon

7. *Consider the resolutions brought forward by the Central Council and by the individual members.*

The resolutions brought forward by the Central Council and the members were discussed and adopted with some modifications.

The resolutions which were finally adopted by the General Body were as follows:—

RESOLUTION—I

A person desiring to be a life-member may subscribe a lump sum of Rs. 200/- or by instalment of Rs. 50/- per year consecutively for 4 years.

RESOLUTION—II

In order to improve the membership position, a special concession may be allowed for the defaulters upto 1st October 1961 to rejoin the Association without paying the arrears.

RESOLUTION—III

Resolved that in order to be eligible to be an Office Bearer of the Association, a person must be a member of good standing for at least two consecutive years preceding the year of election.

8. *Fix the venue and time of the next Annual General Meeting*

The President suggested that the venue for the next Conference may be decided later on, when there are definite proposals from the Branches to hold the Annual Session in their regions. In this connection, the members also suggested that annual conference should be held preferably sometime in early part of February so that it will not clash with other annual meetings of Medical and Public Health workers. The General Body approved both the suggestions.

9. *Appointment of Sub-Committees for the year 1961.*

The following Sub-Committees were appointed for the year 1961.

Membership and formation of Branches Sub-Committee:

1. Col. Barkat Narain—Chairman.
2. Dr. A. L. Saha—Member
3. Dr. K. C. Patnaik—Member.

Medical Education Sub-Committee.

The General Body approved the President's suggestion that the existing Sub-Committe may continue with the following additions.

Dr. Lakshmikant and
Dr. Prasad—Bihar State.

10. *Any other business*

As there was no other business the meeting terminated with a vote of thanks.

Dr. S. C. Seal proposed a vote of thanks to the outgoing General Secretary Dr. J. K. Bhattacharya and the Committee.

BOOK REVIEW

A Doctor's Approach to Industrial Medicine by Dr. H. P. Dastur, Published by the Tata Institute of Social Sciences, Bombay—1960, pages 160—not priced.

This booklet is a compilation of papers written by the author at different times. It reflects the mind of a true Industrial Physician. These thoughts, Dr. Dastur has expressed, came probably from his own experience in the field of industrial medicine and thus have backgrounds of observed facts.

There are sixteen chapters in the book, *viz.*:—

1. Industrial medicine and its aspects of integrated medicine.
2. Industrial medicine and modern civilisation.
3. Industrial medicine, its religious aspects.
4. Public Health aspects of industrial medicine.
5. Industrial Health—a scientific approach.
6. Industrial Mental Health.
7. Industrial Health Programme; its bearing on Industrial relation.
8. Industrial Health Programme of Tata Industries.
9. Industrial Health Problems and Services in Tata Service Private Ltd.
10. Medico Social Problem of Industrialisation in India.
11. The impact of Industrialisation on women.
12. Occupational health in India.
13. A Nutritional Survey of Industrial Workers.
14. Occupational diseases of dyers and bleachers.
15. From the diary of an industrial physician. 1.
16. From the diary of an Industrial Physician. 2.

The chapters provide food for thoughts for both the industrial managements and for industrial physicians.

Even other public health workers will find many philosophic ideas and scientific reasoning in this book.

(A.L.S.)
