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10th June, 1927.

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**Mrs. M. R. JANAKI**
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# HEALTH.

## LECTURE ON FLIES.

BY MAJOR F. W. CRAGG, M.D., I.M.S.,

The subject to which it is my privilege to invite your attention is the common house fly, and the part which it plays in the spread of disease. It has always seemed to me that the house fly has not received its fair share of blame among the insects which are responsible for the spread of disease in India. It is so familiar a creature, so ubiquitous a nuisance, that the mind does not readily attach to it the idea of a potentiality for evil. The diseases in the spread of which it plays so important a part are common and widespread, present almost everywhere, and do not, therefore, attract attention in the same way as does, for instance, an outbreak of plague. But though these diseases do not so often occur in startling epidemics, the total sickness and death for which they are responsible is, none the less, great. The house fly is present almost everywhere, and is very numerous for a great part of the year, and wherever it is found in considerable numbers one may be certain that the diseases which it spreads are taking their constant toll of human life. It will be my endeavour this evening to explain to you what these diseases are, how the fly serves to spread them from one person to another and from place to place, and what measures we should take to combat the fly and to arrest its harmful activities.

**The principal diseases with which we are concerned at present are cholera, dysentery, typhoid fever, and most important of all, from our present point of view, infantile diarrhœa. The importance of** cholera and dysentery I need hardly emphasise, but a word is necessary with regard to the diarrhœa of infants. It is not, perhaps, so widely known or so well recognised a condition in India as it is in Europe and in America, though it is doubtless just as prevalent. Of all the diseases to which children are liable, this is *the* one of greatest importance. In the early stages, the first day or two, the child may not appear very ill, and often the condition is not taken very seriously, but the illness is very often fatal, and it will be safe to say that in this country, as in Europe, more children die of it than of any other single disease. In one year, in America, it was estimated that out of all the children under five years of age who died, one out of every three died of infantile diarrhœa. We have not exact figures for India, but there is no reason to doubt that here, as elsewhere, it is one of the most widespread and fatal diseases from which children suffer.

Now all these diseases, cholera, dysentery, typhoid fever, and the diarrhœa of infants, have this in common, that they are diseases of the intestines. The germs of the disease are taken in with our food or drink, and, passing into the bowels there multiply and produce their harmful effects. As the disease proceeds the germs multiply enormously, and find their way out in the motions of the patient, increased in number not a hundredfold or a thousandfold, but by millions of times. Once they reach the outer world these germs or ready to infect another person, if they reach him in his food and drink, and thus one sick person may be the means of spreading the disease among a large number of others. It is because it takes an active part in the spread of these germs from place to place and from person to person that the common house fly is so dangerous. It is probably by far the most important agent in the dispersion of the infective germ-containing matter, and in the contamination of the food we eat.

Now, I would ask you to think for a moment of what we all know and can see for ourselves every day of the habits of this familiar insect. It is fond of sweet things, and of most of the things we ourselves eat, and in the warm weather one sees thousands of them in every bazaar, unless the sanitation of the place is very well looked after. The stalls of the sweatmeat seller or a favourite haunt. Meat is also a favourite food, and unless the butcher's shop is properly enclosed with fly proof doors and windows the meat exposed for sale may be covered with them, despite the futile efforts of the man to keep them off with a fly flap. The vegetable and fruit stalls are also very attractive, and here you will notice if you watch for it, that the flies very much **prefer the fruit which is over ripe. But it is not only food which attracts flies. Go into any place where filth of any sort is allowed to accumulate, where foul substances are exposed, and there you will find** the flies at least as numerous as they are in the bazaars. To a large extent the fly is a foul feeder; dead and rotten things, animal or vegetable, attract it strongly. Whatever substances are revolting to the human mind are a delectable meal for the fly, and with a fine impartiality he flits from place to place, taking now a meal from offal or worse, and now a meal from food exposed for sale or from the food already prepared for us in our houses. As you all know, the fly is characteristically a restless creature, flitting about all day from place to place, never ceasing to taste whatever choice morsels come his way.

I may mention by the way, since I have much to say in blame of the house fly, one point in its favour. Contrary to what is often affirmed, it does not and cannot bite. The common belief that it does is due to the fact that there is another fly, called the stable fly, which is very like it, and which does bite. The stable fly is a confirmed bloodsucker, and lives entirely on blood which it obtains from the living animal by means of its strong piercing proboscis, which is a substantial and business-like organ, well able to pierce even a thick skin. This species lives almost entirely on cattle and horses, and only occasionally bites man, but the fact that it sometimes does so leads to the house fly, which is quite harmless in this respect, being blamed. The conspicuous proboscis held out in front of the head distinguishes it at once from the house fly. The absence of such a proposcis, however, does not necessarily mean that a fly is not a biter. There is another kind which is very common on cattle in some parts of India, which has no conspicuous piercing organ, but carries its biting aparatus concealed within the head when not in use. This species, however, never attacks man, but lives entirely on cattle.

To return to the common house fly. Let us now analyse its movements a little further, and see what necessarily must happen when it feeds. The insect, as you will see, has six legs, and when he alights on his food he stands on all of them. The legs and feet are covered with small stiff hairs, and his feet are provided with a special sticky little pad which enables him to cling to slippery surfaces such as glass. When the fly settles on a moist and foul substance all his six legs inevitably become fouled, and pick up some of the material. With so many spines and hairs on his legs and feet the fly cannot but carry away some of the soft substance on which he stands, just as we cannot walk along a muddy road and keep our shoes clean. Further, the mouth of the fly is a very elaborate sucking apparatus, and as he feeds that gets fouled too. Like the legs it is provided with a large number of hairs and bristles. Suppose the same fly, having **made a meal from some foul substance, as one can see happen every day, now moves to the bazaar or to a house, attracted by the smell of the food or blown that way by the wind.** When he alights again in his search for another meal some of the substance which has stuck to his legs and mouth must inevitably come off just as certainly as the dust from the streets comes off our feet. Now, I would ask you to consider carefully what must occur if by chance there happen to be in the neighbourhood persons suffering from one of the diseases which I have mentioned, for instance a child suffering from diarrhœa. Unless the persons responsible for the care of the child take proper precautions, which a great many do not do, through ignorance of the risks there is every opportunity for the fly to pick some of the germs of the disease, and carry them to the house in which it happens to go to next, and to deposit them on food within that house. It is because of this habit of flitting to and fro, and feeding alternately on foul substances and on the food of man, that the common house fly is so dangerous an insect, and so efficient a carrier of the germs of disease. The wise man, seeing a fly alight on his food, will ask himself where that fly has come from, and where it got its lost meal.

There is one very interesting peculiarity about the feeding habits of the fly which I should explain to you. The mouth of the fly is so constructed that it can only feed on fluid substances. Nevertheless, the

fly can, as you know, feed on sugar and sugary substances, which are quite dry and solid. To make a meal of such a solid substance, the fly must first of all have it dissolved. It does this in a rather remarkable way, and one which is of importance as affecting its capacity to carry about and to scatter the germs of disease. Inside the body of the fly, near the stomach there is a large bladder-like chamber, into which the liquid food is sucked as the insect feeds. The contents of this chamber are of course always liquid. Now when the fly wants to feed on such a substance as sugar he uses this liquid to dissolve it. A large drop is ejected out of the mouth on to the sugar a little of which is dissolved, and the drop is sucked up again. The fly can go on ejecting this fluid on to the sugar and again sucking it up until it has obtained as much of the sugar as it wants for the time. It requires, I think, little imagination to understand how well adapted such a method of feeding is for the spread of disease germs to our food. Whatever liquid the fly last picked up is used again whenever it wishes to feed on solid but soluble substances. Each time the droplet of fluid is ejected, some of the germs which it contains must be left behind.

I would like to lay special emphasis on one very favourite food of the house fly namely, milk. Among the ordinary foods in houses, there is hardly anything so attractive to it. It is not only the liquid which attracts them ; dried milk, in an unwashed vessel, or the dried film on the spout the milk jug, is just as good, for the fly can obtain nourishment from the dried film quite easily by means of the process to which I have just referred, by ejecting on to it a little drop of fluid to dissolve the soluble parts of the milk. If I may repeat my remark, the wise mother, seeing a fly partaking of the baby's milk, will ask herself where that fly came from, and where it obtained its last meal, and whether there are in the neighbourhood any children suffering from diarrhœa.

In addition to these two methods by which the fly may contaminate our food, there is a third, which is perhaps more important than either. I have already emphasised the fact that the fly is a foul feeder, and that under circumstances which occur commonly enough it feeds on matter containing the germs of the intestinal diseases which I have enumerated. When the fly makes a meal from such a substance, it of course swallows the minute germs along with the fluid which it sucks up, and these pass into its stomach and intestine. But whereas in a man these germs would set up the disease, to the fly they are harmless. They produce no disease in the fly, and are not themselves destroyed. They may even multiply in the intestine of the fly to a certain extent. In due course, as the insect digests its disgusting meal, the germs are passed out, more frequently than not at a time when the fly is actually engaged in making another meal. Germs taken in with a foul meal may, in fact, be again passed out, with their virulence undiminished by their stay in the stomach of the fly, when the insect feeds again, this time, perhaps, on human food. Flies can thus transport the germs of disease, not only on their legs and mouths, but also within their bodies, swallowing them at one place and depositing them at another. It requires little thought to understand how dangerous such a power may be.

The habits of the fly are, in fact, as dangerous as they are disgusting, as each of us may convince himself by observing their habits closely for himself. But I hasten to add that the case against the house fly does not rest on such observations alone. The whole question has been gone into by modern scientific methods, and careful experiments have shown that these insects can and do transfer micro-organisms in the ways which I have indicated to you. It would weary you to go into the technical detail of these experiments, but I may say that the organisms of typhoid fever and dysentery, for instance, have actually been recovered from the legs and from the intestines of flies exposed to contamination. Further, there is a very large amount of very strong evidence regarding the relations of flies to epidemics of these diseases. The experience of the war has most fully confirmed our knowledge in this matter. Epidemics of dysentery, the scourge of armies in the old days, have practically always been found to be associated with enormous numbers of flies, and when it has been possible to take effective measures against the flies the epidemics have been cut short. No doubt remains in the minds of those who have had to do with sanitation in war that the common house fly is directly responsible for at least the majority of outbreaks of epidemic dysentery among troops in the field.

I should mention here that the intestinal diseases which I have enumerated do not by any means exhaust the list of ailments for which the house fly has been blamed, on more or less strong grounds. Among other diseases, it has been urged by some authorities that flies are partly responsible for the spread of tuberculosis. Undoubtedly, flies are strongly attracted by sputum, and feed on it greedily. This is a matter of common observation. The sputum of persons suffering from tuberculosis of the lungs often contains the germs of the disease in considerable numbers, and it is quite possible that a fly, after feeding on such sputum, may carry away some of the germs on its body or in its stomach, and subsequently deposit them on food. Medical men will see at once that such a risk of contracting tuberculosis applies specially to children, who are more liable to tuberculosis disease of the alimentary tract than are adults.

Another disease for the spread of which flies are at least partly responsible is Ophthalmia, or inflammation of the eyes, an affection which all too often leads to partial or complete blindness. In this malady the inflammation gives rise to a constant oozing of inflammatory matter from the eyes, and this discharge of course contains the germs of the disease. If flies are numerous in the place where the unfortunate patient lives they are certain to worry him, and to feed or attempt to feed on this discharge, and in doing so pick up some of the infective matter. If it happens that they then settle on the face of another person, perhaps on the face of a sleeping child, they may easily enough get rubbed into the eyes, and so set up the disease. What makes the spread of the disease in this way the more likely is the extraordinary indifference which children so often show to the annoyance of flies buzzing round them and sitting on the face.

We have now to consider what measures are to be taken to combat the house fly, and to avoid the dangers to which we are exposed through its agency. I may say at once that there is only one way which offers a sure hope of success, and that is, to prevent the flies from breeding. This must always be the main line of attack. If we can, by a thoroughly efficient sanitation, make it impossible for flies to reproduce themselves and multiply, we will have achieved most important results, and have abolished one of the most fruitful causes of disease in an Indian town. It follows, of course, that if we can stop flies from breeding other steps against them will be unnecessary.

In order to understand how this most desirable objective is to be attained it is necessary that we should first know how and where flies breed, for only if we are armed with such knowledge can we hope to devise really effective measures. **I will first, therefore, give you a brief account of the life history of the common** house fly.

As is the case will so many insects, the life history of the common house fly consists of a series of remarkable transformations, which we call, in technical language, a complete metamorphosis. Flies are not born as flies ; when they emerge from the egg they are nothing but minute active maggots, having no resemblance whatever to their parents. These maggots grow rapidly, and when they are full grown, they pass into a resting stage which we term the pupa. Within the hardened skin of the pupa the insect undergoes, without further growth in size, an almost complete remodelling of its structure; legs and wings are formed and in due course the perfect fly is produced, and escapes from the shell which has given it shelter during its transformation.

The egg of the fly is a minute body, just visible to the naked eye, fairly easily seen because of its dense white colour. They are laid in batches of a hundred or more, and each female may lay several batches during her life. It often happens that several females will be attracted to the same spot, and lay their eggs together, with the result that one finds large clumps of eggs, the produce of many females. The eggs hatch within a day or half a day, and out of each emerges a minute but very active little maggot, which at once crawls away

*(Continued on page 9.)*



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For God, Crown and Country.

# Wealth & Welfare.

Lucknow, Friday, 10th June, 1927.


**NOTICE**

**"Owing to The King Emperor's Birth Day there was no issue of 3rd June."**—Ed. W. & W.

# EDITORIAL.

## SLAVES TO FILES.

He is strong who is not afraid of being called weak. The quest for Truth is the Summum Bonum of Life. All that appears and happens about and around us is uncertain and transient. The attention of those who regard themselves as the 'trustees' of the lakhs of subordinates in services and seek to dominate over them in perpetuity, deserves to be drawn to the following:

"Love and Fear God. Honour thyself. Obey the Laws. Prepare to advance the highest interests of the subordinates. Cherish Patriotism. Regard the rights of all equally. Learn Justice. Follow Duty. Consider duties before rights. Acquire knowledge. Think broadly. Practice Judicial frame of mind. Forget and forgive faults. Subdue self. Work for others. Consider the poor and suffering."

The Government cannot indefinitely keep men in detention in service without promotion. Such men have actually served what amounts to a fairly long period of imprisonment without promotion. It is not justice for any Government to deprive a man of his legitimate promotion without specifying a precise charge against him and without giving him any opportunity of vindicating his innocence. It is not justice to keep him in duress vile for several years notwithstanding every representation that could be made and addressed to the men in the enjoyment of uncheked authority. It is not justice now, neither to admit that the Head of the Government responsible for such injustice was innocent nor to make any attempt to prove that he was guilty. And it is not magnanimity for the habitual and professional 'Slaves to Files' and writers of drafts against subordinates to betray a morbid anxiety to make out that the unfortunate man really deserved being kept up in the same position in his official life. If Reforms have done any real good by the appointment of Ministers, there is very good reason for reconsidering the position of several Medical Officers and Subordinates in Madras Medical Service. Those subordinates who are kept down without any promotion, and those inspite of their being senior in service being posted to bad stations deserve to have their past records now perused and reconsidered. We think it is wrong to expect certainties in this world where all else but God that is Truth is an uncertainty. Only there is one Supreme Being hidden therein as a Certainty, and one would be blessed if one could catch a glimpse of that Certainty and Truth and hitch one's waggon to it. Inspite of the 'Reforms', 'Slaves to Files' are evidently not affectionately disposed towards Officers and Subordinates. It would, at all events, appear that the old unsympathetic tendency towards the subordinates still persists in several cases in the Madras Secretariat. The Government cannot indefinitely keep subordinates in detention without promotion. We ask seriously for how much longer this scandal is to be kept alive. Surely there should be a time limit even for detentions in office without promotion. Certain Medical Officers, on account of family difficulties and circumstances, could not readily accept certain appointments. Such people were punished and condemned. Certainly it cannot be for ever. All their abilities are nowhere now! Though years have elapsed, men of such temperament are still detained in their office without any promotion. How long will these men be detained in their office? Will they be without any promotion **during the life time of the present Reform Act? A man here and a man there may now and then be unobtrusively be** promoted out of communal favour or official and non-official recommendation. But, evidently, nothing is done as a matter of equity. No tribute is to be paid to justice. Is this so? Is it to remain so? Must it? Will not the Government descend a step from its giddy eminence and reflect upon the enormous harm and injustice the 'Slaves to Files' have been doing to the Subordinates who are efficient, honest and hardworking? We would make a personal appeal to the Ministers-new Ministers. We are emboldened to make as the new Ministers have declared their policy in a right manner. We hope they will not be scared away by the thought of being accused of deviating from being 'Slaves to Files'. "The most valuable result of all education is the ability to make yourself do the thing you have to do when it ought to be done whether you like it or not; it is the first lesson which ought to be learned and however early a man's training begins it is probably the last lesson which he learns thoroughly–" Huxley The question that now comes in for the serious consideration of the Hon'ble Ministers of the Madras Government, is to show their expression of their readiness to rise above their being 'Slaves to Files and Office notes' and call for the records of several Officers whose claims have been overlooked and reinstate those and render justice to them. We trust that the new Ministers do recognise as clearly as any one the necessity of a spirit of compromise, of adjustment, of 'give and take.' We are not backward in our appreciation of the courage and patriotism of the offer of the Ministers to do without communal feelings. Neither is it our intention to condemn the work of the Madras Government Secretariat. But we reiterate our conviction of the necessity of greater care, greater caution, more thoughtfulness in the matter of the consideration of the subordinates' claims for promotion than we think has been bestowed upon them by the Government. If however the course of events should show the Ministers have been wiser than the counsellors of sympathy, we shall rejoice indeed.

## WATER HYACINTH.

Water hyacinth (*Bilati or Kachuri Pana*) is an aquatic plant and is to be found in various parts. It is believed that the plant is a native of tropical or sub tropical South America. It is readily recognised by its thick, glossy leaves and purple coloured flowers several of which are to be found on a stalk rising above the leaves. The plant thrives luxuriantly both in shallow and deep waters and rises two or three feet above the water in tanks, canals, etc. It can propagate itself both by seeds and suckers, and spreads rapidly by shooting out branches in large numbers. The leaf stalks by folding up air keep the leaves afloat. By its abundance of leaves and the rapid growth of the roots the plants can so obstruct the flow of water or block up canals, etc., as to interfere both with navigation and irrigation. Various measures, such as the application of chemicals, hot steam, use of submarine saw (to cut down the plants), etc., have been tried in different places to cope with this growing nuisance, but without much effect. The eradication of this evil consists in the removal of the plants, and it depends on organised effort on the part of the people. Although this is a very painstaking business, as it entails the employment only of manual labour, it allows the plants, which usually do not attach themselves firmly to the bed of tanks, etc., to be easily collected and dragged to the side of the pond or canal by means of a rope held at both ends and then removed from the water. Such a work can best be undertaken by the co-operative societies or by villagers who have the welfare of their country at heart, as by this means they are calculated to remove much of the agricultural distress.

As the plants are rich in potash salts which have a high manurial value it is desirable that they should be utilised after being removed from the water for rejuvinating the soil. It has been found that in places in East Bengal where this process has been adopted the yield of jute per acre has increased by three to four maunds. The plant can be used as manure either after decomposition or burning. For rotting (decomposition) the plant should be spread out and dried in the sun for two or three days. If not dried before stacking much of the valuable juice is squeezed out from the heap and lost. It has been estimated that a hundred maunds of green plant will yield about six maunds of well-rotted material which is about six times stronger than cow dung. But the best way of utilising the plant is to prepare ash by burning it after drying it in the sun. When burnt it leaves a whitish ash which has a market value as it can be sold at about Rs. 5/- per maund. One hundred maunds of water hyacinth will yield about a maund and a half of good ash. It is generally considered that water hyacinth is responsible for much malaria but evidence on this point is lacking. All that these plants can do is to afford shelter to mosquito larvae and so to protect them from being devoured by small fish which are their natural enemies. There is also no reliable evidence in support of belief that as the plants grow they pollute the water. "P. B. O".

# ON THE LINE.

### ROADS AND BOARDS.

### TEXT OF GOVERNMENT'S LETTER.

The following is the text of letter No. 265 — IX/147, Local Self-Government department, dated Allahabad, April 6, 1927, from Sir Ivo Elliott, Bart., I.C.S., secretary to Government, United Provinces, to commissioners of divisions, regarding the proposed resumption or assumption by the Government of the management of certain roads now under the control of district boards :—

SIR,— A number of district boards have, from time to time, proposed to the Government that certain local roads should be provincialized. A similar suggestion was made recently at a district board conference at Jaunpur to the effect that all roads which connect one district headquarters to another should be provincial. It is necessary to determine, on comprehensive lines and on principles which would be uniform and fair in their application to each district, what should in future be the respective liabilities of provincial and local administrations for the maintenance of communications. I am directed, therefore, to ask that you will put the following tentative scheme before the district board of . . and ask the board to state their views on it by June 1. The following paragraphs will show, approximately, the financial effect of the scheme on the district board of . . The figures of maintenance have been calculated by the Public Works department and may be taken as substantially correct, though they would be liable to alteration if it were decided to adopt the scheme. The district board would be consulted again if any material alterations were made. But the figures, as they stand, should enable the district board to realize, with sufficient accuracy, what will be the financial effect of the proposals, and whether, therefore, the board would be prepared to accept the scheme. I am to add that if the district board desire to propose any changes or additions they are at liberty to do so.

2. It is proposed that there should be two main groups of provincial roads. The first would comprise class A—the inter-provincial roads, including the metalled roads which lead from certain Indian states to the nearest district headquarters. The group would also comprise class B—which are roads from the headquarters of one division to the headquarters of another division, and class C—which are special roads to places of great religious and archaeological importance and are of interest to the province as a whole Under the present scheme the full cost of maintaining roads in classes A, B, and E would be borne by provincial revenues and no charge would be made on the district boards.

3. In the district of there are no roads of this group which are not already provincial.

4. The second group of provincial roads will comprise C—all roads leading from the headquarters of a division to the headquarters of a district within the division, D—roads leading from the headquarters of one district to the headquarters of an adjacent district (except in those cases where through communication is at present impossible owing to the nature of the country and in particular to the difficulties of a river crossing), and F—roads connecting the headquarters of a district with the headquarters of a tahsil.

As the roads in this second group are not only important from the provincial point of view, but are important for ordinary local traffic, it is proposed that, as a condition of provincialization the district board should be required to pay to Government a contribution equal to half the cost of maintaining that portion of these roads which lies between district headquarters and the headquarters of the tahsil. The cost of the remaining portion of these roads would be borne entirely by provincial revenues.

5. In the . . district the roads in question are those to . . . . the cost of maintaining which would be Rs. . . . . Under this scheme the district board should contribute Rs. . . . being half the cost.

6. In addition to the provincialization of the roads in classes A to F it is also proposed that all metalled feeder roads which serve this system should be provincialized. These will be defined as metalled roads of less than five miles in length which connect the main roads of the system to the nearest railway station. These feeder roads are partly of provincial and partly of local interest, and it is, therefore, proposed that the district boards should contribute half the cost at the proposed rates of maintenance. These roads are, in the case of the . . . district to cost . . . . and the local contribution would be Rs. .

7. The total cost of maintenance of the roads, which would be transferred to provincial under this scheme, would be Rs. . . . to which the district board of . . . . would be required to contribute Rs. . . . The board would, therefore, save Rs. . . . The board should also understand that they will be relieved from all liability for the reconstruction of these roads as apart from their regular maintenance.

8. The settlement with the district board would be embodied in a contract, the period of which should be five years. The contract would be subject to the following conditions :—

(1) During this period the district board of . . . . . should contribute Rs. to Government.

(2) The maintenance of the local metalled roads left in the control of the board should be the first charge against the saving which this proposal would give. The cost of maintaining all these roads in the Partabgarh district is estimated at Rs. . The district board should draw up a programme of their annual expenditure on these remaining local metalled roads and should adhere to it during the five year's period.

(3) If the district board wish to metal a new road they should first obtain the approval of the Board of Communications and should show the Board :—

(*a*) that they have the necessary funds after maintaining the existing metalled roads at a proper standard ; and

(*b*) that they have funds for maintaining the new road in a reasonable condition of repair.

(4) The proposed rates of maintenance would be recalculated at the end of the period with a view to continuing the contract for another five years and the board's contribution would be recalculated accordingly.



### COUNSEL'S PRIVILEGE.

The privilege of a counsel to put unpleasant questions to a witness was discussed at the Calcutta High Court. A barrister, in defending an accused in a criminal case before a deputy magistrate put a question to witness regarding the moral character of witness' mother. Witness complaining, the magistrate issued a process charging the barrister with defamation. In quashing the proceedings their lordships held that though in India barristers, vakils and pleaders did not enjoy the same unqualified privilege as enjoyed by their brethren in England but they had the same privilege when questions were put by them in entire good faith and on instructions received. At the same time they ought not to abuse their position.

### A NEW SCHEME IN MYSORE.

The Mysore Government have just sanctioned a co-operative scheme called The Agricultural Colony Scheme whereby 20 families of depressed classes in a locality would be given eight acres of land free and a grant for purchasing bulls, seeds, implements, manure and also provisions for families till the first harvest. Each colony scheme will cost Government, Rs. 3000. Being the first practical scheme of its kind in elevating the landless poor in the country, the Colony Co-operative Society undertakes co-operative purchase, sale and cultivation.

### WIDENED AND LOWERED FRANCHISE.

"Ignorance is a defect which may be cure. The cure is likely to be the more speedy the greater the number of sufferers whom politicians wish to influence." We agree with this opinion that the franchise should be widened and lowered. The mass of people, of all classes and both sexes, should have the vote as the means by which to bring about better conditions of life for the masses. This will transfer the real power from the bureaucracy to Indian Legislative Bodies. The fantastic division of the electorate into Muslim and Non-Muslim, the reservation of seats for majority communities such as the Non-brahmin, special representation for zemindars and merchants and Universities and separate representation for Europeans will only lead to weaken the legislature and strengthen the executive. Any further devolution of powers in India should be accompanied by a widening of the franchise, and the authorities should not be detered from this task by allusions to an ignorant electorate.

### LIQUOR TRADE AND POLITICAL POWER.

Trade influences the public through the press, controls the electoral machinery and counteracts the influence of the Church. The liquor interests are powerful enough to defeat Government and menace public life and block social progress. Their existence not only involves social and economic injury but creates political corruption as well. True temperance reform progress will develope when the elected Ministers become the master of the situation in every province. The moments we forego eternity itself cannot retrieve. The practice of perseverance is the discipline of the noblest virtues. To run well, we must run to the end. It is the long steady pull, the unconquerable purpose, the unbroken effort that win the battle of life. The more difficulties one has to encounter, within and without, the more significant and the higher, in inspiration his life will be. Temperance reformers must, therefore, be unceasingly at work and a time is bound to come when they will succeed.

### INTELLECTUAL ACTIVITY IN U. P.

The total number of books registered in 1912-13 was 1,706, in 1920–21 it was 1,918 and in 1925-26, 2,653. Hindi books totalled 952 in 1920-21 and in 1925-26 they numbered 1,394. In this period the output of Urdu books increased from 338 to 479. In the field of journalism the growth of the Hindi press has been remarkable. In 1912-13 Urdu journals occupied the leading position. In that year the number of Urdu newspapers and periodicals was 79 while that of Hindi was 56. In 1920-21 the number of Urdu periodicals was 151 and that of Hindi 175. By 1925-26, however, the number of Hindi papers increased to 246 while that of Urdu rose to 196. The figures indicate that the increase in the popularity of Hindi papers has been much greater than in the case of Urdu. The number of newspapers and periodicals has more than doubled since 1912-13 when it was 278. In 1925-26 their number was 580. The number of English papers, which was 15 in 1912-13, rose to 99 in 1925-26.

EVIDENCE of the growth of intellectual activity in the United Provinces is furnished by the notable increase in the number of books and periodicals published during the last 15 years.

### POSTAGE STAMPS.

The sale of ordinary postage stamps has increased since 1915-16 by over Rs. 3½ Crores. During the year 1925-26 it increased by a little more than Rs. 20 Lakhs. The number of quarter anna adhesive stamps decreased by nearly fifty millions as compared with the previous year. The financial result of the working of the Indian Posts and Telegraphs department during the year 1925-26 was a net surplus of over Rs. 37 lakhs. The postal branch was run at a profit of Rs. 48,88,402, while the telegraph and telephone branches had a deficit of nearly twelve lakhs rupees. These results cannot be compared with those of other years, because the system of accounts was changed during the year. The enormous fall in the sale of quarter anna adhesive stamps in 1925-26 requires the serious consideration of the Postal Department and the Legislators.

### AGRICULTURAL EDUCATION IN ENGLISH SCHOOLS.

The resolution of the Government of Bengal on the working of the department of Agriculture states that a scheme for agricultural education in high English and middle English schools on Punjab lines was finally approved by the Government after the close of the year. Funds for the purpose have been provided in the budget for the current financial year and it is hoped to give effect to it as soon as possible. It has now been definitely decided to proceed with the scheme for higher agricultural education and construct the necessary buildings for the purpose. The Government have recently decided to appoint seven additional district agricultural officers for extensive propaganda to induce a wider adoption of the improved methods recommended by the department.

### CLEARING HOUSE FOR RAILWAYS.

The financial commissioner of railways said, 'it was necessary that whenever the

clearing house was situated, it should be in a place where vouchers could reach as quickly as possible.' It is demanded that this office be located at Lucknow as the vouchers from 1,411 stations as against 988 on the four railways on which the clearing house system is already introduced will reach Lucknow sooner than Delhi. The financial commissioner's assertion that 2,500 stations were nearer to Delhi as against only 1,000 nearer to Lucknow is not borne out by facts as altogether 2,399 stations exist on these four railways and not 3,500 as stated by him. If it is contemplated to extend at once the clearing house system to the B. B. and C. I. Railway as well, even then the total number of stations on these five lines will fall considerably short of his figure as there are only 550 stations on the B. B. and C. I. Railway. When once the clearing house system is introduced, it will have to be gradually extended to all the Indian Railways and very soon on the B. N. W. and R. K. Railway lines as they have many junctions with the railways on which it is already in force. The B. N. W. Railway has junctions with the E. I. Railway at Cawnpore, Burhwal, Sitapur, Shahgunj, Jaunpur, Benares, Allahabad, Mokamaghat and Manharighat, with the E. B. Railway at Katihar and with the G. I. P. and B. B. and C. I. Railways at Cawnpore. The R. K. Railway has junctions with the E. I Railway at Moradabad, Bareilly, Shahjehanpur, Sitapur and Lucknow and with the B. B. and C. I. Railway at Kasgunj. The number of stations on the B. N. W. Railway is 445 and the R. K. Railway 98, all of them except a few on the Kathgodam and Kashipur section of the R. K. Railway are closer to Lucknow. A statement is prepared showing the relative distances of Lucknow and Delhi from all the stations on the Indian railways except Burma, we will find that 4,299 stations are nearer to Lucknow against 1,966 which are closer to Delhi. This number will be still greater if the stations on Burma Railway lines are taken into account. As the clearing house has potentialities of large extentions its permanent location at a place which is most central and where the returns and the vouchers can reach in the shortest time is not only desirable but essential and thus according to the figures quoted above it is obvious that there can be no other place better than Lucknow where it should be located on grounds of efficiency. As regards economy, the financial commissioner has taken his stand only on the question of accommodation for the office and ignored the question of allowances which are being at present paid to the O. and R. Railway staff who have been transferred to Calcutta. By having the clearing house at Lucknow a considerable number of these men can be brought back to their native place and thus the Government can curtail a considerable recurring expenditure which they have otherwise to meet from year to year. It is understood that already 200 employees of the O. and R. Railway staff of the E. I. Railway accounts office have been selected for the clearing house. Thus taking only Rs. 15 per head as Calcutta allowance which they draw, there will be a recurring saving of Rs. 36,000 a year. It is given out that recruitment for the clearing house will be made in the near future from the E. B. Railway audit office staff also. If so, the Government will have to pay them an allowance for their coming over to this part of the country. There is no escape from it as it was paid to those E. I. Railway clerks who went Lucknow for a short time and though they went back to Calcutta, they still draw their allowances. Therefore, it is desirable that the staff, who are to be selected from the E. B. Railway audit office for the clearing house, be transferred to the E. I. Railway accounts office at Calcutta and an equal number of O. and R. Railway men posted to the clearing house. In this manner, the staff of the E. B. Railway will not have to leave Bengal, more U. P. men will be brought back to Lucknow and the Government will make a double saving as nothing will have to be paid to E. B. Railway men and the extra allowances which the U. P. men are at present drawing at Calcutta will be stoped. If this course is adopted and 200 more men are thus brought back to Lucknow, there will be another saving of Rs. 36,000 a year, that is a total recurring saving of Rs. 72,000 a year.



# MISCELLANEOUS.

### VACCINATION & SMALL POX.

Vaccination is said to be the only safeguard against small pox and the best time to vaccinate a child is when he has not started teething and before he can turn over. But the author of The "Wonderful Century" writes that vaccination is a gigantic delusion, that it has never saved a single life, but that it has been the cause of so much disease, so many deaths, such a vast amount of utterly needless and altogether undeserved suffering, that it will be classed by the coming generations among the greatest errors of an ignorant and prejudiced age, and its penal enforcement the foulest blot on the generally benificent course of legislation during our century.

To talk of amending such legislation is a mockery. Absolute and immediate abolition is the only rational course open to us—Everyday the vaccination laws remain in force parents are being punished, infants are being killed. An act of a single clause will repeal these vile laws; and I call upon every one of our legislators to consider their responsibilities as the guardians of the liberty of the people, and to insist that this repeal be effected with out a days unnecessary delay.

And Professor F. W. Newman says "against the body of a healthy man, Parliament has no right of assault whatever, under pretence of the Public Health, nor any the more against the body of a healthy infant.—

Balgobind.

[Facts appear to be otherwise—Ed. W. & W.]



(**HEALTH** *Continued from page 4*)

in search of food. This is what one may term the growing stage of the insect. Within a week, more or less according to the climate, these maggots grow to a length of half an inch. As the body increases in size the maggots grow new skins and cast the old, much as a snake does. Usually they show a tendency to collect together in considerable numbers at spots where the food supply is specially abundant and suitable, and one often finds clumps of a hundred or more, an active wriggling heap. When the maggot has attained its full size it ceases to feed, leaves its feeding ground, and seeks out some quiet spot in which to undergo its final transformation. The outer skin hardens and becomes of a dark mahogany red colour, and the body becomes shorter and stouter, and more compact. This stage is one of outward rest and quiescence. The insect neither moves nor feeds. But inside this hardened skin the entire organism is undergoing changes which lead to the formation of the perfect fly. If one opens the pupa case at a late stage, when the fly is almost formed, one sees a curious mummy-like object, in which the parts of the perfect insect can be made out quite well. The legs are at first simple and without joints, and the wings are small and closely folded. Usually, in warm weather, the whole transformation of the maggot within the pupa case takes about a week. When the whole process is complete, the fly bursts open the end of the pupa case, and emerges into the outer world, complete and ready to begin its adult life, and to again reproduce its species.

**Thus, the whole development of the fly** from the egg to the perfect insect occupies about a fortnight. The time taken depends to a very large extent on the climate and the season of the year. Cold weather, and very hot dry weather, are not favourable for the house fly. It thrives best when the weather is warm and moist, as for instance at the season of the rains, when, as you will have often observed, flies are more numerous than at any other time of the year.

Flies are able to commence egg-laying within a short time after they emerge from the pupa case, and each female may lay five or six batches of egg. If one takes the average number of eggs in a batch at a hundred—it is usually much more—that means that from each pair of flies, male and female, five hundred or more flies may be produced. Before the parent pair are dead some of their descendants will be also reproducing their kind. No wonder, then, that when circumstances provide them with an abundant food supply their numbers may increase so rapidly and so enormously.

Such, then, is the manner in which the house fly reproduces its kind. We have now to consider the question, all important from the point of view of attacking it, of where it breeds. If we can find and abolish its breeding places the fly nuisance will be done away with, and we will no longer run the risks of contracting fly-borne disease.

The fly maggots require certain quite definite conditions for their growth and development. Briefly, these are an abundant food supply and the moisture and heat provided by the fermentation and decay of animal or vegetable matter. They cannot thrive on dry materials, or on perfectly fresh substances. The food may be any kind of animal or vegetable refuse; but it must be fermenting, or it will neither attract the females to lay their eggs on it nor will it provide a satisfactory food for the maggots. But once these necessary factors are present, the fly has a wide range of choice.

Of all the substances which are commonly present in towns and villages and near our houses the one which most fully supplies the necessary conditions, and which is present in the greatest amount, is stable litter. In the ordinary circumstances of town or village life this is by far the most important breeding ground for flies and is responsible for the great majority of the flies in the bazaars. As everyone who has to do with horses knows, when stable litter is piled in a heap fermentation takes place and the inner parts of the heap, which are protected from the sun's rays, remain moist for a long time, even in the hot and dry weather. The mass gradually forments and decays until it is converted into a friable block substance, the "Kala mitti" which is so valuable a manure. The ripening of mannure in a fact a fermentative process, and it is while this fermentation is going on that the stable litter forms such a satisfactory breeding ground for flies. All that they require is here easily obtainable; an abundant food supply **moisture, and the warmth produced and maintained by the fermentation. To one not accustomed to sanitary work of this** kind the number of maggots which may be found in a neglected heap of stable litter is astonishing. One sees nothing on the surface, except, perhaps, if one looks closely enough, some masses of eggs. The maggots cannot live in the dry outer layers where they would be exposed to the rays of the sun. But a few inches below the surface and right through the pile if it is not a very big one, one sees masses of maggots, heaped together wherever the manure is specially soft and moist. It is only while the mass is fermenting that it is suitable for the breeding of flies, Once the whole is fermented and decayed it no longer contains the substances necessary for the nourishment of the maggots, and no more eggs are laid on it. But, unfortunately, the litter does not reach its highest value as manure until this "ripening" has taken place, and the pile is only too often left to rot in the stable yard before removal to the fields or garden. The inevitable result is a swarm of flies.

Apart from stable litter, any kind of vegetable matter will serve, provided that it is in a sufficiently thick layer to retain its moisture while fermentation goes on. The remains of food and other debris from the kitchen, left in the receptacle too long instead of being burnt, are often found to contain enormous numbers of maggots; piles of rotten fruit, all the odds and ends of things which are allowed to accumulate around [illegible] will serve for the food of the [illegible] stage of the house fly. If people will dump to-day's refuse on the top of yesterday's in the nearest convenient place, and dump to-morrow's on the top of that, they are doing nothing less than providing the flies with a very suitable breeding place near their houses. The flies, when they finally hatch out from the pupa case, will forthwith enter the house in search of food.

I may add a word about the pupa and where it is to be found. As I have already said, the maggot leaves its feeding ground when it is full grown, and seeks a dry and sheltered place. They will often travel considerable distances to get away from the warmth and moisture which were so suitable to them during the period of growth, but which are now to be avoided, One finds the little mahogany brown pupæ always at the edges of the pile, in dry soil, or under leaves, sheltered as a rule from the sun, but well away from the place where they lived as larvæ. Often the pupæ, like the larvæ, are found in large collections. This point is of a little importance, for in cleaning up a place where maggots have been found one should remember that the pupæ will lie a little distance of, and therefore, it is wise to clean up the whole area, and sweep up and burn all loose debris in the near neighbourhood.

My remarks on this subject would be incomplete without a reference to another breeding ground for flies. one which is often of the utmost importance. I refer to conservancy trenches. If these are not properly managed—and it is **sometimes no easy matter—myriads of flies will be bred from them, and if the direction of the prevailing wind favours them they may be blown towards the town. Incinerators are often a serious source of trouble, and if they are not properly worked flies may** breed in enormous numbers actually inside the incinerator. The fact is best recognised by the finding of pupa cases around the outside of the structure.

I may add that the common house fly does not ordinarily breed in cow dung. It does not ferment in the same way as does horse manure, and the patches of it dropped in the fields dry too quickly. It may sometimes happen that it serves as a breeding ground if it is collected in large piles, but it is not often a serious source of trouble. One finds large numbers of maggots, very like those of the house fly, in cow dung, but these are mainly the maggots of flies which feed on cattle, and do not enter houses. Many flies which resemble the house fly, but live entirely on the blood of cattle, breed in cow dung. Their maggots have frequently been mistaken for those of the house fly by enthusiastic but inexperienced sanitary officers.

Now as to the measures which are to be taken to avoid the dangers to which we all, but particularly the children, are exposed from the common house fly. I think I need hardly emphasise further the very great importance of keeping all food, but especially the baby's milk, from all

chance of contamination by flies. No thoughtful mother, once aware of the circumstances of the fly's daily life and of its potentialities for evil, can willingly allow flies to have access to her child's food. Milk must of course be kept in a closed vessel, but that is not all. As I have already pointed out, flies can and do feed on dried milk, and one must be sure that the vessel in which the milk is kept is so closed up that flies cannot settle on the spout or on the rim, on which there is a film of dried milk. If rubber teats are used in feeding from the bottle they must be carefully washed after use, in order to get rid of any trace of milk which might attract the flies. Further, everything possible should be done to avoid attracting flies to the house. Refuse and kitchen debris should be destroyed by burning at the earliest possible time, and until then it should be kept in a closed vessel into which flies cannot enter. All the measures necessary in a house are essentially simple, and can be carried out with very little expense or trouble, once their principle and importance is understood.

Such domestic measures are necessary in the present imperfect conditions of our daily life. But they are at best only secondary, and can never be wholly satisfactory. Our principal effort as a community should always be directed as a frontal attack on the flies, by preventing them from breeding. Much of what is to be done to ensure this is indicated clearly enough in what I have said with regard to the breeding habits of the fly. The whole principle may be summed up in a sentence. Stable litter, kitchen refuse, and other rotting vegetable matter must on no account be allowed to accumulate, but must be destroyed by burning. But although the principle is very simple, it is not always so easy to carry it out. It needs a great deal of co-operation in matters of detail, and the education of public opinion which renders that co-operation possible. An efficient sanitary staff is of course essential, but even with best of staff perfect results cannot be hoped for unless they are aided, and indeed kept up to the mark by the people themselves. Indeed, it will not be going too far to say that in the prevention of fly-borne diseases the first essential is a spread of knowledge on the subject, until the dangers to which we are exposed from flies, and the simple measures which are necessary to prevent them from breeding, are matters of common knowledge. When this is attained, and when we can be assured of a pure supply of water and of pure milk, we can hope for a great decrease in the sickness and mortality from the diseases to which I have referred, and particularly to a great decrease in the appealling mortality of infants in this country.

## TYPHOID FEVER: ITS RESTRICTION AND PREVENTION.

Typhoid fever is an acute, infectious, continued fever, due to a specific germ (*bacillus typhosus*,) affecting principally the glands of the bowels, accompanied with marked constitutional disturbance and great prostration, typical eruption of bright rose-red spots over abdomen and severe intestinal irrigation with or without diarrhœa. It has generally been regarded as primarily a gastro intestinal infection, but it is now known that the blood, glands and other structures are invaded by the specific germ before the disease develops.

Typhoid fever is a common and protracted disease, terminating fatally in about one case out of twelve or fifteen.

The greatest number of deaths from this disease occurs in persons in the prime of life, and this should prompt greater efforts for the prevention of this disease. Persons of all ages have this disease, and even though some have it in mild form, yet they may be the medium of communication of the disease in a fatal form to others, for, although it is not one of the most contagious diseases, typhoid fever is a communicable disease.

**Period of incubation.**—The time between receiving the cause of typhoid fever into the system and becoming sick therefrom is not uniform, but varies from seven to fourteen days, and even longer.

Typhoid fever is caused by a special contagium gaining entrance into the human body, probably always through the mouth, attacking primarily the glands of the bowels. Here ulcers develop and from here germs get into the circulation and are carried to all parts of the body. The bacillus leaves the typhoid patient mainly by the excretions from the bowels and urinary organs and occasionally through sputum and other discharges.

**Mode of spreading or of communication**— In order to have a second person contract typhoid fever from a given case, it is necessary that some of the specific germs get into the intestines of the second individual. This is accomplished in various ways: By flies conveying the contagium to articles of diet, and by drinking water contaminated by the urine and other discharges from a person affected with the disease, or by leachings from the bodies of those who have died of typhoid fever. Drinking water contaminated with urinary or fæcal discharges is believed to be the most common source or vehicle of typhoid fever. The frequent outbreaks of this disease, traceable directly and unmistakably to a water-supply thus contaminated, point to this as the chief source of danger. Normally, typhoid is a warm weather disease. It recurs as an annual crop from July to October. Epidemics caused by infected water occur especially in early spring, late fall and winter months. Outbreaks caused by contaminated milk may occur at any time in the year.

The typhoid bacillus is not destroyed by ordinary drying; therefore typhoid fever may be spread through the air, by the dust of dried urine or other excreta settling on foodstuffs. The bacilli are not always destroyed by once freezing, but usually are by repeated freezing and thawing and by exposure for ten minutes to a temperature of 140° F.

Filth and bad sanitary condition of premises generally, increase the danger of spreading typhoid fever. Good water-supplies, water-closets and sewers generally restrict typhoid fever.

While typhoid is frequently disseminated by infected water, it must not be forgotten that it is a contagious as well as an infectious disease, and that it is often spread by contact from soiled hands, clothing and bedding. Infected discharges thrown upon the ground may be brought into houses on the feet of man or domestic animals and become a source of danger.

### TYPHOID CARRIERS.

In about four per cent. of all cases of typhoid, the patient continues to shed typhoid bacilli in the urine or fæces after convalescence for a variable length of time. Some persons have been known to shed typhoid bacilli without a clinical history of having had the disease.

### HOW TO AVOID AND PREVENT TYPHOID FEVER.

**Protect the water-supply.**—It is because of the fact that in nearly every vicinity there have been cases of typhoid fever which were not properly cared for, that it is necessary to take precautions to prevent contaminated material from getting into the intestines of the individual. This is only possible by boiling the drinking water (because boiling will kill the typhoid germ) and by preventing the flies from coming into contact with the food. The principle is so simple and the methods of protection so eash that it would seem that, with the warning which is being given, fewer people would have typhoid fever. We could cite a great many cases that might have been prevented by boiling the drinking water. Likewise, many cases could be cited proving absolutely that flies do carry infection from closets to the kitchen and thence to the person through food and drink. The most scrupulous care should be taken to keep the present sources of drinking water pure, and to procure future supplies from clean sources.

The general water-supply of cities and villages is a matter of the greatest concern; it should be procured from places where the can be no probability of immediate or remote contamination. When there is no general water-supply, no good sewers, much may be done to protect the wells by the abolition of cesspits and privy vaults, by the use of dryearth in privies, and by frequent removal therefrom of all their contents.

Sources of and the apparatus serving for the general supply of water for drinking or domestic purposes, and also those for the removal of refuse, should be frequently inspected by sanitory officials.

The rinsing of dirty vessels, washing and every pollution, especially by domestic refuse, near a source of water for drinking or domestic purposes, should be prohibited and guarded against.

Privies often drain into wells, unsuspected by those who use the water. Should typhoid discharge pass into such a privy, an outbreak of typhoid fever among those using the water from a neighbouring well would be likely to occur. If such a well were the source of the general water-supply of a city, typhoid fever might soon be epidemic there. Care should he taken to prevent typhoid-infected discharges from entering any general water-supply from a well or small stream. The use of water from a source likely to be infected with excreta from a typhoid fever patient should be promptly stopped. There is good reason to suspect the water of a well whenever a vault is situated within a hundred feet of it, particularly if the soil be porous. In numerous instances fluids from excreta have leached into wells from much greater distances; and it has been proved that a well thirty rods from a cemetery received water which had filtered through the soil. Dangerously contaminated water may be, and often is found to be, clear and colourless, and to have no bad taste.



**Boil the drinking water.**—Whenever conditions are such that typhoid fever is threatened, the public should be promptly warned to "boil the water."

It may be necessary to prohibit the use of suspected wells, lakes and public water-supplies in localities where typhoid is present; swimming pools and public baths and lavatories may also be closed.

Immediately on the appearance of typhoid fever a careful examination should be made of the surroundings of the house and particularly of the water used to determine, if possible, whether it has been contaminated by leachings from a privy or other source of filth. Thorough boiling will destroy the germs of the disease. Ordinary filtering will not do so.

**Production of flies should be restricted.**—The common house fly, which has hitherto been regarded as a harmless nuisance, is now well known to be a disease germ carrier. That flies are frequent carriers of typhoid fever has been shown beyond any question, and they endanger the public health by spreading other diseases. They breed in filth; therefore keep all refuse, such as manure, garbage and decaying vegetables, well covered or screened so that flies cannot gain access and lay their eggs here. Screen doors and windows and keep the food well screened.

**Disinfect bowel and bladder discharges of the sick.**—This is a measure of prime importances. The bowel discharges from all cases of typhoid fever and suspicious cases of intestinal trouble should be received, in vessels and at once thoroughly disinfected by pouring upon each evacuation three times its volume of boiling water, to which should be added a five per cent. solution of carbolic acid. In this case the vessel should be covered and allowed to stand in a safe place for one hour before being emptied.

The urine of the typhoid fever patients has been found to contain large numbers of germs of the disease. Not only should the urine be disinfected, but also any garment or cloth upon which even small quantities of urine have come should be carefully disinfected before it has been permitted to dry, so that the germs may not float of as dust.

**Disinfect the privy and cesspool.**—A person coming down with typhoid fever may be able to be about the premises a week or ten days before the disease is known to be typhoid fever, still he is infected with the disease in its first stages, and probably the discharges from that person were deposited without having been at first disinfected in the privy on the premises. If so, they become a menace to the health of the family and a possible source of contamination to the well water. Flies swarming over the contents of the privy may carry the infection of the discharges to the house, where the infection may be deposited on food and conveyed to other members of the family; and surface drainage may convey the infection to well water.

The contents of the privy vault or pit, and of any cesspool which is receiving the discharges from any water-closet, slop sink, or other fixture or receptacle for excreta should be disinfected as soon as the disease occurs. For this purpose cover the contents of the privy with six inches of quicklime (lime not air-slacked), or with a sufficient amount of chloride of lime, or solution of copperas; and pour into the cesspool several pailfuls of a strong solution of copperas or cholride of lime, the amount to be proportionate to the size of the cesspool.

### SANITARY CARE OF INFECTED AND SICK PERSONS AND ROOMS.

**Isolation of the sick.**—As typhoid fever is sometimes transmitted through the air, also directly from one person to another, and indirectly by means of flies, it is wise for all who can properly do so to keep away from possibly infected premises. In about twenty-five or thirty per cent. of all cases the germs are reported to be in the urine, a very small quantity of which may infect clothing and thus spread the disease, because the germs are not destroyed by moderate drying.

It is advisable immediately to isolate persons suffering from typhoid fever as well as persons suspected of being attacked by typhoid fever.

The room in which one sick with this disease to be placed should be previously cleared of all needless clothing, drapery and other materials likely to harbour the germs of the disease; and, except after thorough disinfection, nothing already exposed to the contagium of the disease should be removed from the room. The sick room should have only such articles as are indispensable to the well-being of the patient and should have no carpet, or only pieces which can afterwards be destroyed. Provision should be made for the introduction of a liberal supply of fresh air and the continual change of the air in the room without sensible currents or drafts.

**Disinfect the sputa.**—Bacterilogic investigations have demonstrated the presence of the typhoid bacilli in the sputum in a number of instances. For catching the sputum, wiping the mouth and nose, it is best to use gauze cotton rags, which after use must be promptly disinfected or burned. Handkerchiefs and cloths used by a patient should be disinfected before sending to the laundry.

**Allow no flies to have access to sputum or discharges from the bowels and bladder infected with typhoid fever.**—The disease is liable to be spread by flies, which go from infected excreta to bread, cake and other food to be eaten uncooked. The sick room should be screened as thoroughly as possible to prevent the ingress or egress of flies and mosquitoes.

**Soiled clothing, towels, bed linen, etc.**, on removal from the patient should be placed in a pail or tub and covered with a five per cent. solution of carbolic acid (six and three-fourths ounces of carbolic acid to one gallon of water (Soiled clothing should, in all cases, be disinfected before sending away to a laundry, either by boiling for at least half an hour, or by soaking in a five per cent. solution of carbolic acid. Each patient should be supplied with a set of eating utensils for his exclusive use, and these should be well scalded with boiling water after each meal.

**Perfect cleanliness of nurses and attendants** should be enjoyed and secured. As the hands may become contaminated by the germs of the disease, after attending a patient the hands should be thoroughly washed with soap and hot water and then with a $\frac{1}{1000}$ solution of corrosive sublimate (one dram corrosive sublimate to one gallon of water), or a two per cent. solution of a carbolic acid (two and three-fifths ounces carbolic acid to one gallon of water). As far as possible, when nursing a case of typhoid fever, keep away from the general public, and keep the general public away from your patient. Take an antiseptic bath, including your hair, and thoroughly disinfect your clothing before going among healthy people.

**Personal Precaution.**—Do not drink unboiled water from any doubtful source. Do not drink from the same cup, or use any article that has been used by a person sick with typhoid fever, until it has been washed or otherwise disinfected.

(*To be continued.*)

# ENEMIES OF HEALTH.

## ALCOHOL.

Alcohol is a Poison.
Even a moderate use of this is harmful.
Alcohol is injurious even to the next generation.
It has a favouring influence upon venereal disease.
It aggravates the evils of famine.
It is useless as a preventive of any disease.
Alcohol lowers the resisting power against the parasites of any disease.

Alcohol predisposes to heat-stroke in hot weather.
Alcohol produces defective vision.
Alcohol tends to age men prematurely.
Alcohol impairs digestion.
Alcohol has a very injurious effect on the liver and kidneys.
Alcohol produces 'Hob-nailed liver'.
Alcohol produces chronic nephritis.
Alcohol produces Brights Disease.
Alcohol affects the heart.
Alcohol produces 'alcoholic heart.'
Alcohol causes the hardening of the arteries and 'arterio-sclerosis.'
Alcohol makes its victims susceptible to diabetes, gout, pneumonia and typhoid.

Alcohol causes much damage to the property, accidents, fires and loss of lives.

## TESTIMONIALS.

**Napoleon Bonoparte** :—"It is only a sober army that can succeed," and "the foe is less to be feared than wine."

**Field Marshal Lord Roberts** :—"Alcohol confuses prompt judgment...hastens fatigue, lessons resistance to disease and exposure."

**Mr. Lloyd George** :—"We are fighting Germany, Austria and Drink, and as far as I can see the greatest of these three deadly foes is Drink. Drink is doing us more damage in the war than all the German submarines put together."

**Theodore Roosevelt of U. S. A.** :—"The liquor business tends to produce criminality in the population at large, and law-breaking among the saloon-keepers themselves. When the liquormen are allowed to do so as they wish they are sure to debauch not only the body social, but the body politic also."

Alcohol users have much less chance of recovery than others in pneumonia and typhoid.

Alcohol does more harm than good.

## TOBACCO.

Smoking affects the power of endurance, control, precision, markmanship, the heart the throat, the lungs,

Smoking causes paralysis, acid dyspepsia, tremor, increase of blood-pressure, cancer of the mouth, Bright's Disease, loss of taste and loss of smell, loss of memory, acuteness of vision, colour blindness, apoplexy, insomnia.

Smoking poisons the air of others reduces longivity, stunts growth, hardens the arteries a positive sign of the beginning of the old age, weakens the resistance to any disease, produces criminals, predisposes to drunkenness, ruins the nerves, wastes money and injures the mind, the character and the disposition of the user.

Smoking causes fires resulting in extensive damage to property and loss of life.

Smoking adds to a man's nervous troubles, subtracts from his physical energy, multiplies his aches and pains, and diddles his mental forces, takes interest from his work and discounts his chance of success.

**Napoleon Bonoparte** :—"Tobacco smoking is a habit fit to amuse sluggards."

**Dr. Sims Woodhead** :—Cigarette smoking in the case of boys, partially paralyses the nerve cells at the base of the brain, and this interferes with the function of the eye, of the heart, and of the kidneys. Tobacco smoking interferes with the development of the boy."

**Dr. Forbes Winslow** :—"I should put the causes of insanity in the following order: Drink, cigarette-smoking, heredity."

**Chancellor of Leland Stanford University**:—"Cigarette-smoking boys are like wormy apples—they drop long before harvest time."

**Chairmen of the Union Pacific Railway** :—"Cigarette smokers are unsafe. I would just as soon get railroad men out of the insane asylum as to employ cigarette—smokers."

**Alcohol and Tobacco are Enemies of Health :—Don't Use Them.**

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