

into his mother's hands at the back door. Gabe himself would not stay to be questioned.

"There's some trouble yonder," he said. "I's fur hum."

Sammy's story was drawn from him with difficulty. They had not seen John Broom: the house was very quiet; but before they began to play they thought they heard moaning. When the noise began someone screamed. After a time they stopped and listened at the gate, and then the moaning was louder. They were coming away then, but some of them were trying to look through the cracks in the garden door at the lighted window within. Sammy was nearest the door; suddenly it opened and a long arm came out; his cap was snatched off, and the door closed again. Then they ran away as fast as they could.

Mrs. Barnes put Sammy to bed, but she could not rest herself. Her mind was filled with a vague dread, and she kept listening and waiting through the night for she knew not what. It was still early morning, and long before the village was astir, when she had lit the fire, set the house in order, and roused the sleepy maid-servant. She was just making herself a cup of tea when the sound of wheels at the front made her hurry to the door.

"Good-morning, Mrs. Barnes," said the old doctor, in his cheery way. "I hardly expected to find you up. Can you give me a cup of tea? I have been busy all night, and I can't get home for a couple of hours yet."

"To be sure, sir," said Mrs. Barnes briskly. "I've just this very minute made some, and you're welcome to a cup. Is anyone ill, sir?" she added, as he passed into the house.

The old man shook his head.

"It's a sad case—a very sad case," he said. "You know John Broom of Boggart's End? his wife was taken bad last night, and she died this morning. The child will live, I think, poor little chap, but I must find a nurse for it, and I came down really to take Nurse Bradford back with me, if she's to be had."

"And Mrs. Broom—when was she took bad, sir?" faltered Mrs. Barnes.

"Last evening; it was about ten when John Broom

came for me. She was not very ill when he left, but she was unconscious when I got there. I did not expect anything of this sort, though she's been ailing ever since she came. There must have been a shock of some kind, but Broom knows of nothing, and of course his sister can't throw any light on it."

"A *sister*, did you say, sir?" Mrs. Barnes' hand shook violently as she poured out a second cup of tea.

"Yes, the cripple; don't you know her?" replied the doctor. "Broom tells me she fell out of a tree when she was a child, and she is not only dwarfed, but her brain is affected. She's very kind and affectionate, it seems, but of course she isn't fit to look after the child. That poor young fellow! I can't get his face out of my mind. What did you say about Nurse Bradford, ma'am?"

"She's out, sir, and her time's not up for a week; but if you'll let me, I'll go myself. There's not a body in the village I'd like to trust, sir; and—and—I'd rather go myself, if you don't mind, sir."

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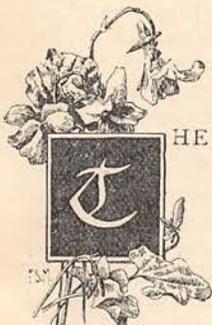
John Broom's simple gratitude was at times almost more than Mrs. Barnes could bear. Doctor Bell had told him he owed his child's life to her, and he felt that her kindness in his great trouble had been such as he could never repay. Of the serenade which had had such tragic results he never knew. In her terror and remorse, Mrs. Barnes had told the doctor everything, and after careful thought he had counselled her not to add this bitterness to the young man's sorrow. He had thought it well, however, to give a wholesome lesson to the ringleaders, and Gabe Short and his friends believed that they only escaped the terrors of a court of justice by the making of certain very solemn promises, which they have since shown no desire to break.

Mrs. Barnes, after careful searching, found Sammy's cap in the coal-hole at Boggart's End, and after that her fear that John Broom should discover something gradually subsided, for the little creature who had put it there was never known to make any allusion to the tragic events of that night.

J. T. KINGSLEY TARPEY.

HOW TO AVOID INFECTIOUS DISEASES.

BY A FAMILY DOCTOR.



THE family doctor is unfortunately called upon to treat numerous cases of infectious disease every year. I say unfortunately, because in a large proportion of cases the illness might easily have been avoided by the exercise of a little care and forethought. Besides, he is often hindered and thwarted in his treatment by the well-intended, though misdirected, energy of those who nurse the patients, and he is often disheartened

by the ignorance which spreads and intensifies the suffering he is trying to alleviate. There has, however, been great improvement within recent years in this respect: depending partly upon a better knowledge of the causation of such diseases, partly upon the better education which prevails. Infectious diseases attack children chiefly; and they appear in a regular order. Whooping-cough comes first, closely followed by measles, and then by scarlet fever. Many a child is, in consequence, disabled and rendered unfit for the battle of life, even if it does not die, before the

fight really begins, and a happy prosperous life is sacrificed because it was needlessly exposed to the merciless ravages of a severe illness.

We owe much of our exact knowledge of infectious diseases to the researches of Pasteur. He began by investigating the phenomena of fermentation. He found that the process of fermentation, whether it leads to the production of alcohol from sugar, or of light porous bread from a heavy mass of flour, water, and yeast, is due to the activity of minute living vegetable cells—the yeast-cells; and that when these are absent, fermentative changes do not occur. Moreover, it was discovered that not only does putrefaction depend essentially upon the presence of vegetable cells, but that many forms of disease were similarly intimately associated with living organisms. A large number of different forms of these germs (as they are technically known) have now been described, though they are so small as only to be visible by means of powerful microscopes. If they are round or oval, they are called *micrococci*; if shaped like short rods, *bacteria*; and if they are like fine thin threads, *bacilli*. All belong to the great class of vegetable parasites known as fungi. In many infectious diseases—*e.g.*, in those that are sometimes known as zymotic or ferment diseases—we find that the blood or the organs of the patient contain large numbers of these small organisms, particular organisms corresponding to particular diseases. The organisms can grow outside the body on various substances; and when introduced into a susceptible animal, they reproduce the original disease. It is obvious, therefore, that the disease is due to the presence of organisms; and in order to escape an infectious disease, it is necessary to exclude them from the system.

We have consequently to inquire, first, how these organisms obtain admission into the system, and then to consider what precautions avail to exclude them. Disease germs may generally be said to get into the system in one of three ways: (1) They may be transferred by actual contact with persons or objects already infected by them; or (2) they may be conveyed in articles of food and drink; or (3) they may be carried by the air.

It would be easy to multiply instances of the first method of infection: for instance, measles and small-pox may be conveyed from person to person or may be spread by infected clothing. The close dependence of an epidemic of typhoid fever upon an impure water supply is notorious, and is an excellent example of the second method. Many epidemics—*e.g.*, of scarlet fever—have been traced to an impure milk supply. With regard to the third method of infection, there is some dispute as to whether disease germs can travel far through air; but it is certain that the germs of small-pox and of some other fevers may be transmitted some distance in that way.

How then can the occurrence and spread of infectious fevers be prevented? First of all, in the event of being attacked, a rigid system of isolation must be enforced. The patient must be kept in a

part of the house which can be completely shut off from the rest—all superfluous furniture, clothing, carpets, and ornaments being removed from the room.

The nursing must be delegated either to a trained nurse or to another member of the family, who must be content to live almost as isolated as the patient. She must not mix with the rest of the household, nor take her meals with the family. It is scarcely necessary to emphasise the importance of excluding children from the sick-room; but I protest here against the practice of bringing the playmates of a dying child into the sick room to wish good-bye with a kiss.

Not only must the measures of isolation be enforced during the acute stages of the illness, but must be continued until convalescence is complete. It is well known that in many diseases there is risk of infection even after the bodily health has been restored: in scarlet fever, for example, the danger continues until all the peeling has ceased. It is wise for the children of an infected household to be excluded from both day and Sunday schools. School propagation of infection is too frequent, and is too often due to wilful recklessness.

Disinfection must be practised during and after the illness. The clothing and discharges of the sick person, as well as the furniture and room, require to be efficiently disinfected. The usual method of disinfecting a room is to burn sulphur in it—a pound of sulphur being allowed for every thousand cubic feet of space. These means are not sufficient; the paper ought to be stripped from the walls, which must then be washed; the door, window-frames, floor, etc., must be well cleansed, and the ceiling lime-washed. It is better to add to the water some active disinfectant, such as carbolic acid. Clothing which can be washed must be first soaked for a few hours in water containing a germicide. Blankets, bedding, etc., are best disinfected by heat—preferably by being exposed to the influence of superheated steam. The windows must be opened wide for at least three days. We hope by these means not only to localise an outbreak of infectious disease, but also to diminish the probability of future infection.

If we consider generally what are the chief means by which infectious diseases may be prevented, we may sum them up under two heads: cleanliness and the preservation of health. Dirt of every kind favours the growth of the minute organisms to which I have made reference. It is among dirty people and in dirty houses that these diseases mainly flourish. Light and fresh air are the deadliest foes of disease organisms, for they die if exposed to bright sunlight. We know that there is least disease in houses where there is most sunshine, for a house with plenty of windows is being constantly disinfected, especially if the windows are often open. Bacteriology teaches us that the number of germs found in any room depends simply upon *habitual* cleanliness and ventilation.