

HOW DOCTORS ARE USING MICROBES.

Sir Ray Lankester Points Out How Doctors are Using Microbes as Aids to Digestion and How the World Depends Upon Them.

Sir Ray Lankester explains the whole mystery of sour milk and lacto-bacilline and the romance of the world of microbes in a very lucid article in the Telegraph.

"What," asks Sir Ray Lankester, "is the purpose with which the lactic bacilli or microbes are nowadays so largely taken by all sorts of people whose digestion is in an unsatisfactory state? It must be remembered that what is aimed at—in this matter—is not the swallowing of a dose of lactic acid. That is another business, and is easily accomplished. Lactic acid has been and is often given as a drug. The object in taking lacto-bacilline, or the sour milk prepared with it, is to get the living lactic microbes to establish themselves in the intestine and to grow there for days and weeks, manufacturing lactic acid, so to speak, on the spot. The effect of this sowing or 'insemination' of the intestine with the lactic organism is to make the contents of the intestine acid, instead of neutral or alkaline. Now let me try to explain the importance of this result.

The Work of the Microbes.

"Few persons can realise at first what an immense number and variety of microbes there are, not only around us, in air and dust and water, but also in us, and on us, and in and on every living thing. The work, the huge system of chemical change and the circulation of the elements carbon, oxygen, hydrogen, nitrogen and sulphur, which they carry on is incessant, varied and complex. These five elements are the main and essential constituents of all living things.

"Supposing there were no microbes, there would be no putrefaction, no breaking-down of the dead bodies of animals and plants which were once alive into gas and substances soluble in water. They—by a series of steps, in which different kinds of bacteria or microbes are successively concerned—convert the proteins and the fats and sugars of dead plants and animals into less elaborate bodies, organic acids, aromatic bodies and other compounds (some highly poisonous to man), and at last, when what were highly complex combinations of hundreds of atoms in each molecule have been reduced by the action of first one and then of another kind of microbe into comparatively simple substances of twenty or thirty atoms to the molecule, the coup de grace is given by certain special microbes, which convert these later compounds into still simpler combinations, namely, ammonia and nitrates, which are fairly stable, so that the whole elaborate chemical fabric of living matter in a few hours or days after death is broken down until it reaches the stable 'mineral' condition, practically carbonate and nitrate of ammonia—smelling-salts! If there were no microbes this would never occur.

If There Were No Microbes.

The earth would be cumbered with dead bodies of past generations of animals and plants—undecomposed. And very soon all the organic elements, all the carbon and nitrogen, if not all the hydrogen and oxygen, on the face of the earth would be fixed in those corpses, and the green plants would perish from the whole world for want of sustenance. For it is the green plants which feed on, and absolutely must have as their food, the carbonic acid, ammonia, and nitrates, into which the microbes resolve all living things when dead.

"It is the green plants which, from those simple compounds, build up again the more complex molecules, the sugars, fats, albumens, and proteins, and provide for the nourishment and increase of the most complex of all—the living matter hidden in protoplasm.

Investigating the Microbes.

"That being so, the investigations of a host of talented chemists and microscopists have been directed to these microbes. I should be sorry to say how many hundreds of kinds have been actually separated and studied, and their particular kind of chemical destructive work ascertained. As might be expected, the intestines of most animals are swarming with them. There are a dozen or more kinds in the human mouth, however much they may be kept in check by antiseptic mouth-washes. The nose and air passages contain nine or ten more, and the stomach and intestines so great a number and variety that no one would venture to say precisely how many kinds are present, but probably more than thirty. An enormous variety of kinds is swallowed with our food and drink, and survive for a longer or shorter time in the digestive tract.

The Sensitiveness of Microbes.

"Bacteria microbes are very sensitive to two conditions, which affect their activity and life. Firstly, some kinds will only live in an alkaline fluid, and are neither killed or rendered torpid by the presence of even weak acid (hence the value of vinegar with oysters); whilst, on the other hand, some other kinds multiply and cause chemical changes in the presence of acids. Now, the contents of the large intestine are, in civilised man, usually found to be neutral or alkaline. Consequently, certain microbes flourish there which will not tolerate or multiply in acid surroundings.

Acid-Fearing Microbes.

"Amongst what we may call the acid-fearing microbes are some which produce in the incompletely digested food in the large intestine a highly putrid chemical condition, and especially manufacture certain known chemical compounds which are poisonous. These compounds are absorbed into the blood and exert their poisonous effect. The name 'auto-intoxication,' or self-poisoning, is given by doctors to this result. In strong, healthy adults they merely produce lethargy, perhaps headache, and are of no serious consequence. But in the case of children, old people, and otherwise enfeebled adults, they often cause ill-health, and if, owing to special causes (such as intestinal disorder), these poisons are produced by the bacteria in excess, they may lead to the gravest consequences. Now, since these poison-producing bacteria will not flourish in the presence of acid, why not try to produce acid in the intestine, regularly and constantly? That should stop them! And so it has come about that sour milk and tablets of dried lacto-bacilli are administered by medical men.

Why Sour Milk is Good.

"There is no doubt that the contents of the large intestine can thus be continuously rendered acid, and there is no doubt that the production of the putrid poisons due to acid-fearing microbes is abolished. That has been accurately demonstrated by chemical analysis and by the study of patients in hospital in Paris and elsewhere by competent scientific men. English medical men are beginning to hear of the serious work which has been done on this subject, and some have mastered the subject. But it is at present difficult for anyone to obtain proper advice on this matter in London, since a number of manufacturers are anxious to obtain a sale for their own special preparations of the lactic

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bacillus, and wild statements are current as to the worthlessness of rival products.

A Triumph for Metchnikoff.

"The fact is, as Dr. George Herschell says in an excellent little treatise on the subject, recently published, 'We are undoubtedly indebted to Metchnikoff for the brilliant conception that the daily use of yohort (the Bulgarian sour milk) or its equivalent could be utilised in the treatment of disease.'

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Sneezed at Her.

The court room was crowded. A wife was seeking divorce on the grounds of extreme cruelty and abusive treatment. Guns, axes, rolling pins and stinging investives seemed to have played a prominent part in the plaintiff's married life.

The husband was on the stand undergoing a grueling cross-examination. The examining attorney said: "You have testified that your wife on one occasion threw cayenne pepper in your face. Now, sir kindly tell us what you did on that occasion."

The witness hesitated and looked confused. Every one expected that he was about to confess to some

shocking act of cruelty. But their hopes were shattered when he finally blurted out: "I sneezed." — Everybody's Magazine.

Comet Photographed.

2,000,000 Miles of Tail Visible. Chicago, April 18.—What is believed to be the best photograph yet obtained of Halley's Comet, was secured at Yerkes Observatory, Williams Bay, Wis., early yesterday. Prof. Frost viewed the celestial wonder for more than an hour in ideal conditions. About 2,000,000 miles of the comet's tail were visible.

MINARD'S LINIMENT FOR SALE EVERYWHERE.

Just Plain Brag.

A German, a Frenchman, and a Yankee were shipwrecked and cast upon an island inhabited by semi-savages. The chief potentate of the place informed the involuntary visitors that the post of Supreme Chief Executioner was vacant and would be awarded to that one of them who could fill it with most credit. Three condemned men were brought forth for the trials.

The German stepped forward, swung the great two-handed sword, and performed the decapitation with considerable success, although he required two strokes in which to hack off the victim's head.

The Frenchman took his position and, with debonair grace, despatched his victim with one stroke.

The Yankee went to bat. After gently feeling the edge of the big sword, he drew it back, held it poised an instant, and—swish!—a flash, a hiss, and that was all. The Yankee wiped the sword and stepped back.

"Go ahead," said the condemned man. "This suspense is terrible."

"Cough!" commanded the Yankee. The criminal coughed—and his head rolled upon the ground.—Everybody's.

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Another Queen in Trouble.

The club of amateur Thespians used to give theatrical performances which were distinguished by the local prominence of the actors. Once a social celebrity, with a gorgeous costume, as one of the lords-in-waiting, had only four words to say: "The queen has swooned."

As he stepped forward his friends applauded vociferously. Bowing his thanks, he faced the king and said, in a high-pitched voice:—"The swoon has quenched."

There was a roar of laughter, but he waited patiently, and made another attempt:—"The swoon has quenched."

Again the walls trembled, and the stage-manager said, in a voice which could be heard all over the house:—"Come off, you silly fool!"

But the ambitious amateur refused to surrender, and in a rasping falsetto as he was assisted off the stage, he screamed:—"The swoon has quenched."

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