

NEW MICROBE IS FOE OF DISEASE

French Doctor Makes Important Scientific Discovery.

WILL BE AID IN EPIDEMICS

Ultramicrobe is Parasite on Bacteria and Effects Cure of Such Diseases as Dysentery, Typhoid Fever, Hemorrhagic Septicemia and Bubonic Plague—Added to Drinking Water It Would Play an Important Part in the Control of Epidemics.

The discovery of an ultramicrobe, which is a parasite on bacteria, and which effects a cure of such diseases as dysentery, typhoid fever, hemorrhagic septicemia and bubonic plague has been announced by Dr. F. d'Herelle of the Pasteur Institute of Paris.

This powerful, minute organism will be able to play an important part in control of epidemics, according to Doctor d'Herelle. He has been able to make men, buffaloes and birds resistant to various diseases by simply introducing into them the ultramicrobe which had become accustomed to preying upon the particular bacterium that causes the disease.

All that would be necessary to stop an epidemic of some disease, typhoid for instance, would be to pour into the drinking water supply a very small amount of the proper strain of the ultramicrobe, Doctor d'Herelle declares. This would infect all of the people with the harmless bacteria-dissolving ultramicrobe which will protect them and prevent an epidemic.

The ultramicrobe is tasteless and for all animals and man it is absolutely harmless, Doctor d'Herelle has found by experience.

This wonderful parasitic ultramicrobe has been named the "bacteriophage" or bacteria-eater by Doctor d'Herelle.

Brought to mind by this new discovery is Dean Swift's often-repeated quotation:
So naturalists observe a flea
Has smaller fleas that on him prey,
And these have smaller still to bite 'em,
And so proceed ad infinitum.

Exhaustive Researches.

Before announcing his work on the bacteriophage, Doctor d'Herelle has made exhaustive researches into the nature of this ultramicrobe which seems to hold the possibilities of revolutionizing ideas in medicine and biology.

Doctor d'Herelle explains the action of the bacteriophage as follows:
Take the case of bacillus dysentery. If a sample of the feces of the patient is taken, mixed with bouillon, and then passed through a Chamberland filter, all of the microbes visible under the microscope will be retained in the fine pores of the porcelain filter and the filtrate or the liquid that passes through will be clear, will remain so indefinitely and is in appearance sterile. Suppose that a case of dysentery is followed during its course and that such a filtrate is prepared for each of the 30 days of the illness. If 30 tubes of bouillon cultures cloudy with dysentery bacilli were prepared, and if a drop out of each of the 30 filtrates prepared each day were added to the corresponding numbered cultures, the following would be the result after 12 hours' incubation: Tubes 1 to 6, no change, cloudy with dysentery culture; tubes 7 to 18, perfectly clear; tubes 19 to 30, cloudy like the first six. A strange phenomenon has occurred in tubes 7 to 18 caused by the adding of the drop of filtrate. The bacilli have been dissolved. And at the same time that this dissolving began to take place the patient began to get well, and on the eighteenth day the cure was complete. The presence of the dissolving principle and the cure coincide. This has been found to be the case in other diseases, even those that are not intestinal in character.

And this principle that appears in the filtrate is thousands of times more powerful than the most energetic anti-septic known. A billionth part of a cubic centimeter of filtrate will dissolve a tubeful of dysentery bacilli. And unlike a chemical, the bacteriophages will multiply themselves over and over again. A mere trace of the liquid in the tube of dissolved bacilli will clear up another tube of culture, and if the process is continued a trace from the 999th tube will effectively cause the solution of the 1,000th culture.

But in the dissolved culture of bacilli there can be seen no microbes, even if the most powerful optical means are employed. In fact, the bacteriophages are so extremely small that Dr. d'Herelle declares that without a doubt no human eye will ever be able to see them and determine their form even with the aid of any instrument that may be devised in the future. The volume of a bacteriophage is practically equal to that of a molecule of albumen. It is only by diluting a culture of bacteriophages many, many times, then adding a very small amount to a culture of bacilli and counting the spots where dissolving takes place, that the number of the bacteriophage in a given volume could be determined and that its role in nature could be discovered. By this method it was found that there are at least 2,500,000,000 bacteriophages per cubic centimeter.

Trained to Fight.
There is only one species of bacteriophages able to acclimate itself to

parasitism on a very large number of species of bacteria. A strain active against one bacteria can be trained in a test tube to become virulent toward a totally different one.

The bacteriophage is, of necessity, a parasite that is not able to develop except by penetrating into the interior of a living bacterium, secreting a bacterial solvent, and then reproducing itself by feeding on the dissolved microbe. It then sends forth the young bacteriophages to prey upon other bacteria.

The normal habitat of the bacteriophage is the intestinal tracts of healthy animals, both vertebrate and invertebrate. But it can be introduced in the blood as well and act there. Whether the bacteriophages protect the animal or not depends upon whether the strain present is virulent to the particular harmful and invading bacteria. In the case of the dysentery patient it took six days for the bacteriophages to become active. In fact, the history of a case of contagious disease is the reflection of the vicissitudes of the struggle engaged in within the animal or person by the pathogenic bacteria and the ultramicroscopic bacteriophages. But some bacteria, such as those that live in a healthy animal, are able to acquire an immunity to the bacteriophages, Dr. d'Herelle has found.

The bacteriophage is transmitted in the same way as the harmful bacteria and an epidemic ends because all of the people have been infected by the bacteriophages and have become bacteriophage carriers.

Doctor d'Herelle declares that his discoveries are not antagonistic to the fact that the white corpuscles of the blood provide a defense against bacterial disease, but that the bacteriophages act in the case of animals without natural immunity or that acquired by disease or vaccination.

A monograph of Pasteur Institute now in the process of printing will shortly be issued and will give a detailed scientific account of Dr. d'Herelle's researches on the bacteriophages.

"PERFECT PHYSICAL GIRL" IS FOUND IN CAMBRIDGE



Radcliffe graduate, mountain climber and all-round athlete, Miss Barbara Bonnelle, in a series of strenuous physical and medical tests at the Cambridge, Mass., Y. M. C. A. gymnasium, passed as the "perfect girl" of 1921. She puts tennis and swimming as her favorite sports. She attributes her good health and splendid physique to simple diet, plenty of fresh air and a moderate amount of outdoor and indoor exercise.

FATHER OF HUGE FAMILY

Married Three Times and Two of His Wives Are Dead.
Mamma C. Bruner, seventy-six, is "daddy" to 33 children.
Bruner is one-quarter Creek Indian and three-quarters negro and makes his home in Independence, Mo. He is reputed to have the second largest family of any man in the Creek Indian nation.

Bruner says that he has been married three times; his first two wives are dead.
The children range from youngsters of thirteen to middle-aged men and women. Twenty of them are girls and thirteen boys. Twelve of the sons are overseas veterans of the World war.
The high cost of living did not worry Bruner as far as providing for his family was concerned. He formerly lived with the Creek nation in Oklahoma. The government allotment of \$14 a month for each man, woman and child made the provision problem simple for the veteran Indian.

Bruner served in the Union army in the Civil war.
Huge Chiclé Crop for Yanks.
The chiclé crop of the state of Campeche, Mexico, this year was upward of 5,000,000 pounds, most of which went to the United States and was manufactured into chewing gum.

JUDGES UNABLE TO GIVE PROPER CREDIT FOR WORK

(Continued From Yesterday.)

Awards made on school exhibits as follows:
First three grades—for the first three grades at the Junior high—first, Maxine Emery, third grade; second, T. D. Le Mastras, second

grade; third, Mark Koehler, third grade. For the first three at Hawthorne—first, Ruth Ashcraft; second, Ellen Franco; third, Alfred Clawson.
Fourth grade—first, Adah Perlick, Junior high; second, Delmar Hubbard, Junior high; third, Marge Marion, Hawthorne.
Fifth grade—first, Ned Mars, Hawthorne; second, Dwight Roys,

Hawthorne; third, Orpha Arnold, Junior high.
Sixth grade—first, Ellen Fraley, Hawthorne; second, Rose Alkens, Hawthorne; third, Litha Miles, Hawthorne.
Seventh grade—first, Lawrence Powell, Junior high; second, Mary Gale, Junior high; third, Raymond Cotter, Junior high.
Eighth grade—first, Robert Foltz,

second, Kenneth Hobson; third, Jack O'Connell.
High school boys—first, Victor Pieffer, on a chair; second, Elton Ramsay, on drawings; third, Marton Costly, on a table.
High school girls—first, Emily Wentner, apron; second, Katherine Pittinger, apron; third, Francis Green, apron.
Neil Creek was the only one out-

side of Ashland that contributed, and received three awards on its lower grade work. The names could not be found in the paper, though they had premium ribbons pinned on them.

If the United States and Japan compromise on the island of Yan, they will have to use a microscope in making the division.



FOLLOW THE CROWD TO THE CHRISTMAS STORE



Practical Gifts for the Family

XMAS SUITS FOR MEN AND YOUNG MEN

Make your selections now. A splendid gift for the men
Best grade all-wool Blue Serge Suits—priced at \$23.00 to \$33.00
Other All-Wool Suits—priced at \$21.00, \$30.00, \$32.80, to \$47.50
One lot Young Men's Suits, priced at \$13.50
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Oregon All-Wool Cashmere Suits for Young Men at \$20.50
Youths' Suits of Oregon All-Wool Cashmere, priced at \$19.00
Big line of Men's Overcoats, Mackinaws and Work Coats
Boys' Knee Pants Suits, priced from \$7.75 to \$15.00
Boys' Mackinaws, Overcoats and Work Coats
If there is anything in clothing you want that we haven't got, we will get it for you

MEN'S FURNISHINGS FOR XMAS

Dress Shirts, priced \$1.00, \$1.50 to \$3.00
Dress Ties \$1.00, \$1.25 to \$1.50
Dress Belts \$1.00, \$1.25 to \$1.50
Xmas Handkerchiefs in fancy borders, priced at \$1.00
Initial Handkerchiefs, 15c to 25c
Pure Linen Handkerchiefs, priced at 25c to 50c
Suspenders in Xmas Boxes, 60c to \$1.00
Belts in Xmas Boxes, at \$1.00
Hose Supporters and Belt Set, Xmas Boxes, at \$1.75
Tie, Belt and Hose Supporter Set, Xmas Boxes, at \$1.75
Tie and Belt Set, Xmas Boxes, at \$1.75

CHRISTMAS HANDKERCHIEFS

The best line of imported, hand embroidered Linen Handkerchiefs in Southern Oregon
Come in and see this line
Hand embroidered, all pure Linen, made in Switzerland \$2.75
Hand embroidered, all pure Linen, made in Switzerland \$1.75
Hand embroidered, all pure Linen, made in Switzerland \$1.00
Hand embroidered, all pure Linen, made in Ireland 90c, \$1.00
Hand embroidered, all pure Linen, made in Ireland 35c to 50c
Quarter doz. Handkerchiefs, handsomely boxed, hand embroidered, box—\$1.15
Beautiful line of embroidered Swiss Handkerchiefs, in price from 5c, 10c, 15c, 25c, 35c and 40c

RIBBONS

Plain and fancy ribbons, all sizes and colors
Fancy figured and Roman stripe ribbon for sashes and bags—price, 35c to \$2.60 yard
One lot fancy satin ribbon, price yard .50c
One lot fancy taffeta ribbon, price yard .25c

GIVE HER A HAND BAG FOR XMAS

Just received a beautiful line of new Bags, real leather, ranging in price from \$1.00 to \$12.50
Sterling Silver tops, with Velvet and Satin Bags, price \$4.50 and \$5.00
Silver Bag Tops .50c, \$1.00 to \$2.50

HAIR ORNAMENTS

Fancy back and side combs, priced from .50c to \$2.50
Come in and look these over

BOX STATIONERY

Big line for Christmas, priced .25c and up

XMAS HOUSE SLIPPERS

Big assortment House Slippers and Moccasins for Ladies, Men and Children. Reasonably priced.

Shop Early while the Selections are Good

IVORY GOODS

Military Brushes \$1.45, \$2.85, \$3.00 to \$5.65
Shaving Sets \$1.65, \$1.90 to \$2.10
Pin Cushions \$1.00
Nail Buffers \$1.45
Hair Receivers \$2.85
Jewel Cases \$1.50
Perfume Boxes .65c, 95c
Talcum Powder Cans \$3.35 to \$4.90
Clothes Brushes \$4.90 to \$5.65
Cuticle Knife .35c
Mirrors \$3.35, \$5.65, \$6.65

DOLLS

Dolls of all kinds. Kid body dolls, cloth body dolls, dolls for all the children.
Cloth body dolls, real hair and go-to-sleep eyes \$1.65, \$1.90 to \$2.10
Kid body dolls, real hair and go-to-sleep eyes \$1.10, \$2.40 to \$4.50
Doll heads, unbreakable, each .25c
Hair Brushes \$1.00, \$1.15
Doll wigs .25c to 50c

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