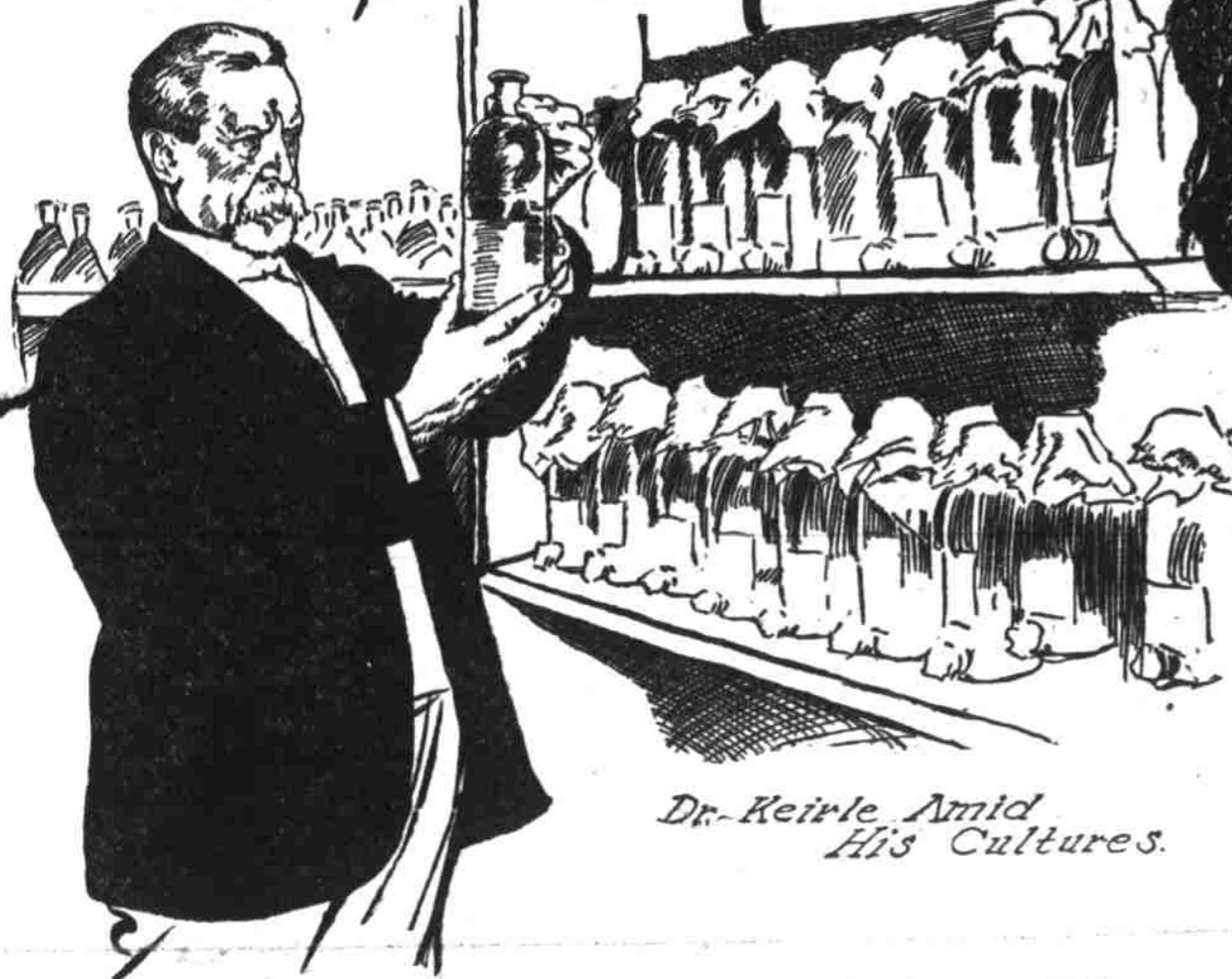


Of 1000 Patients Only Two Died of Hydrophobia



Dr. Keirle Amid His Cultures.



Dr. M.C. Keirle, Head of Pasteur Institute of Baltimore.

How a Baltimore Physician Has Beaten the Pasteur Record.

AMONG the magnificent achievements of the twentieth century none perhaps will prove so remarkable, so great a boon to humanity as the battle, and resultant victory, of science over disease.

And when the records are made, and the book of great and good deeds completed, it is certain that in large letters will be writ the names of the Baltimore Pasteur Institute and its director, Dr. N. G. Keirle, Sr. For at the Baltimore Institute has been waged one of the fiercest battles made in America by the army of physicians and surgeons—the battle against the mysterious and terrible disease, rabies. And success shines gloriously upon the work of the aged doctor.

Recently Dr. Keirle completed the treatment for the prevention of rabies on his thousandth case. Of those treated, 632 were bitten by animals absolutely proven rabid, and—wonderful record—of the entire number only two persons died. And the death of one was said to be due to Bright's disease, and not to hydrophobia.

Dr. Keirle is one of the most remarkable personalities in the world of medicine. For twenty-five years and more he has been post-mortem physician of Baltimore, and has probably dissected more corpses than any other living member of his profession. He is deeply, vitally absorbed in his work—and the wonderful success of the treatment for rabies gives him a niche second only to that of Pasteur, originator of the treatment.

cases treated 558 were bitten by animals proven rabid by cerebral inoculation of rabbits. Other animals or human beings developed rabies from the bite of animals which inflicted wounds of seventy-four cases; there were symptoms of rabies in animals which attacked 193 of the cases, but these were not demonstrated. There was no reliable history of 151 cases, and thirty-four were wounds not results of bites. Inoculation was made into rabbits from animals which inflicted wounds on forty cases, but there were no results.

Most of the wounds inflicted were on the upper parts of the bodies of the patients. Experiments have proven that rabies more often develops from such wounds than those in the lower extremities of the body.

It is believed that when an animal bites through clothing the garment often absorbs the greater portion of the poison. Of the persons treated, 713 were males, 281 females; 223, or 23 per cent., of the patients treated were 10 years of age or younger. The youngest case was a child 7 months old and the oldest 82 years. Wounds were inflicted by dogs in 574 cases, in 65 cases by cats, in 1 by a calf, in 1 by a pig, in 7 by cows, in 9 by horses and in 4 by human beings. Of those treated, 746 came for treatment the first week after having been bitten, 146 the second week,

patient may recover. Scientists say that the reason that no one ever has recovered from rabies after it has been developed is because the germs, upon incubation, attack the blood and nervous system so terrifically, and with such concentrated vigor, that sufficient antitoxin cannot be produced to resist the onslaught of the bacilli.

The principle of the Pasteur treatment is this: A man is bitten by a rabid dog. Before the incubation of the disease—which develops in thirty-five days in about 60 per cent. of all cases—the victim is inoculated with the germ of rabies in such small quantities that the blood develops antitoxin slowly, so that, with increased injections and an increased production of the antitoxin, a sufficient amount is created to resist the disease by the time the bacilli are incubated. The problem which confronted Pasteur in the first stages of his experiments was the regulation of the potency of the virus and the control of its strength. Somehow, in the course of his investigations, he inadvertently chanced upon an important discovery.

He discovered that if the spinal cord of a rabbit which has died of rabies is removed and worked in distilled water and an injection made into the brain of another rabbit the second rabbit will develop rabies and die; that



Injecting Toxin in a Rabbit.

If a third rabbit is treated in the same way with virus from the spinal cord of the second rabbit it will develop rabies in the same period as the other two. However, if the process is continued, the time of incubation will grow shorter until the twenty-fifth rabbit, which will develop the disease in eight days.

Then the period of development remains the same until another twenty-fifth rabbit has been inoculated, and the period drops to seven days. Then comes a period of ninety days, after which the time drops to six and remains fixed.

The virus now used in the Baltimore Pasteur Institute has attained 100 removes and is fixed, rabies developing in six days after inoculation.

At the Baltimore Institute, Dr. Keirle has formulated a unique and precise treatment. From rabbits which have died of rabies induced by an injection of fixed virus a spinal cord is taken and placed in a sterilized jar containing caustic potash. This is kept in a dark room, at a temperature of 65 degrees. Each day a jar is added until fifteen jars are stored, the series of jars containing virus graduating in strength from the 15. It has been discovered that when virus is subjected to a temperature of 140 degrees for ten minutes it is destroyed. A five-minute exposure to a temperature of 118 degrees will render it sterile, a temperature of 102 degrees for an hour has a similar effect, while a temperature of 106 degrees vitiates its potency. An exposure of forty hours to sunlight also destroys it. Heat has an attenuating effect, and various degrees of potency are obtained by Dr. Keirle by his system of subjecting the virus to heat in the dark chamber.

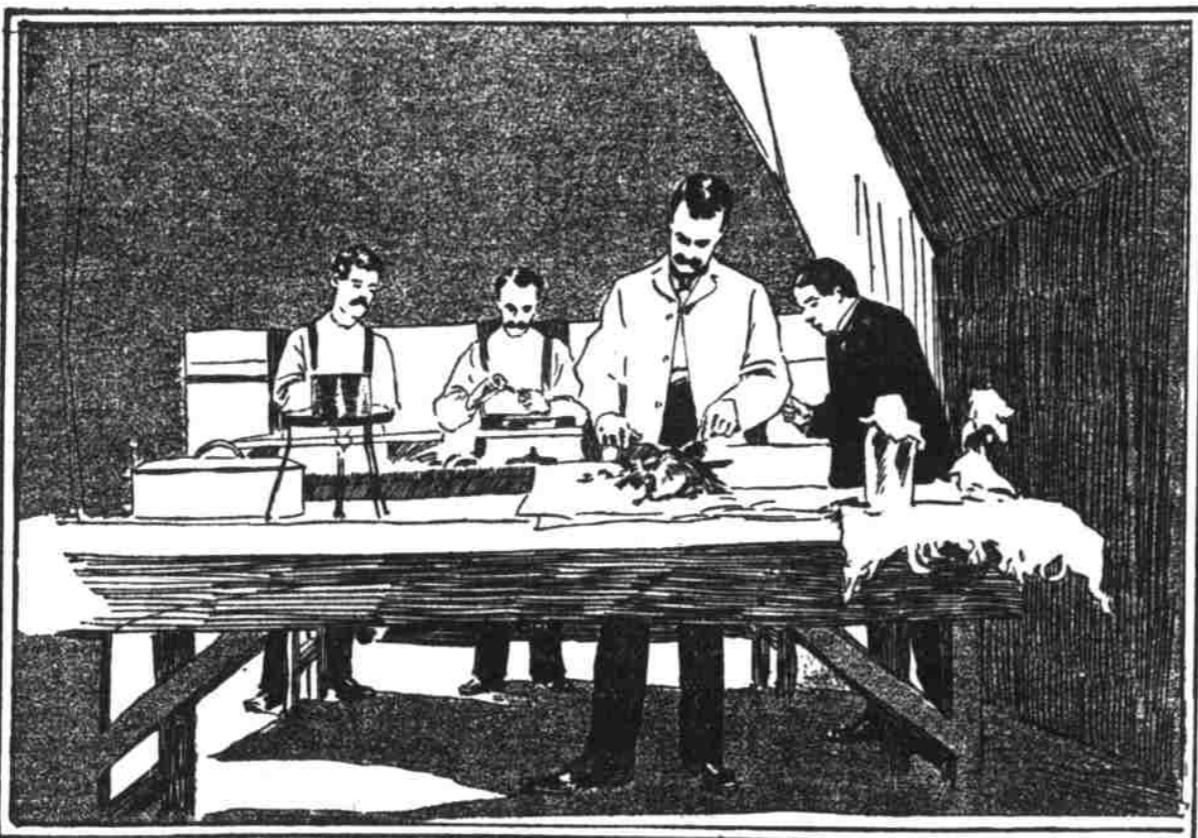
In the northeastern part of Baltimore eight boys were badly bitten by a mad dog in January, 1896. The parents of all of the children were poor, and were unable to send them to the Pasteur Institute of New York. The children had been horribly lacerated in the upper part of the nose, and it is believed the virus entered his brain. The Pasteur Institute of Baltimore was opened in March, 1897. The institution had its beginning in a pathetic and tragic circumstance.

Only one of the 1000 patients treated died from rabies alone. This was Carl Wightman, a 3-year-old child. He died September 8, 1906, just forty days after the treatment was begun. The child was bitten in the upper part of the nose, and it is believed the virus entered his brain. The Pasteur Institute of Baltimore was opened in March, 1897. The institution had its beginning in a pathetic and tragic circumstance.

Persons are treated at the institute from all parts of the United States. How far-reaching and how important has become the Pasteur Institute of Baltimore is indicated by the following list of places from which came the thousand patients:

Alabama, 2; Arkansas, 5; Delaware, 28; Georgia, 17; Indiana, 2; Louisiana, 35; Maryland, 334; Massachusetts, 11; Mexico, 1; Mississippi, 3; New Jersey, 5; North Carolina, 117; Ohio, 11; Pennsylvania, 102; South Carolina, 61; Tennessee, 4; Virginia, 184; Washington and District of Columbia, 57; West Virginia, 112.

The thousandth patient treated by Dr. Keirle was W. S. R. Beane, a prominent cotton buyer of Baltimore. Mr. Beane was bitten in April three times in the hand by a dog which is believed to have been mad. The thousandth treatment was successful.



Post Mortem on Rabbit to Determine Cause of Death

36 the third week, 22 the fourth week, 26 the fifth week, 11 the sixth week, 2 the seventh week, 2 the eighth week and 5 the tenth week. Of four cases there is uncertainty concerning the date. Treatment was discontinued in 40 cases, as the animals observed were found not to be rabid. In considering the results of the treatment it is well to bear in mind the following facts given by Dr. Keirle: In the development of rabies a certain length of time, or period of incubation, must elapse before the appearance of disease in the victim. The period of development depends, of course, upon the location and severity of the bite. Of 6 per cent. of mad dog bites the period of incubation is estimated as less than eighteen days; of 80 per cent. the period ranges between eighteen and sixty-four days, and in many cases has extended eighteen months. After rabies has developed there is little or no hope of recovery. The Pasteur treatment is preventive rather than curative, and treatment must be started before the disease manifests itself.

In other words, the body must be made immune before the terrible germs which have been injected in the blood by the animal begin their disastrous carnage. The length of treatment of the Pasteur method is twenty days, after which fifteen days are required for the patient to develop immunity to the disease. Thus, if a man who has been bitten by a mad dog immediately applies for treatment, and should the germs take thirty-five days to incubate, it is likely he will become immune by that time. Among the smaller animals treatment has occasionally resulted in recovery after the manifestations of the disease. But this has never happened with men.

ANTITOXIN TREATMENTS

The Pasteur treatment is analogous to the antitoxin treatment for diphtheria and other diseases. The purpose is to make the victim immune, or create in his blood a sufficient quantity of the antitoxin to destroy the germs. When germs enter the body and begin their ravages in the blood and nervous system an antitoxin is produced in the blood to destroy the toxic effect of the germs. If the body produces sufficient quantity of the antitoxin to destroy the germs, the person recovers. But if the germs prevail and the toxin poisons the blood death ensues. Of course, the propagation of the germs and the energy with which the antitoxin is created depend upon a person's physical health and his power of resistance or susceptibility of various diseases.

Upon this principle the Pasteur treatment was originated. The germs of rabies attack the central nervous system. If, before the time of incubation, a sufficient quantity of the antitoxin is formed in the blood the pa-

QUEER METHODS OF DETECTING CRIME



scientific methods of detecting crime, it is well-nigh impossible for the great criminal to escape. Sooner or later will tighten about his neck the noose of the law, and by almost supernatural methods will the hidden crime be brought to light.

ABOUT a year ago the Abbe Delarue, cure of the parish of Chateaux, France, disappeared. No trace of the missing man could be found. The earth might have swallowed him, so completely had all traces vanished. The people of the town were wrought up to a feverish pitch. Paris papers offered great rewards for information concerning the missing man. Every indication pointed to murder. The detectives exhausted their ingenuity and gave up. Then magicians, soothsayers and clairvoyants were employed.

One of them, a Hindoo fakir, Professor Devah, tasted the stones of the earth and smelled the air, and another Hindoo professor, Ramanah, consulted the stars. Then a hyena was brought. Hyenas are expert in the line of finding dead bodies, so it was taken throughout the entire country, every corner was scoured, but no trace of the body of the abbe was found. Then the thought came to the detectives, the magicians and the owner of the hyena that perhaps, after all, the abbe was not dead.

The hyena, probably despairing of finding the body, bit a boy in the leg and killed several sheep and chickens. This gave the detectives a clue to go after the living abbe. He was finally found, alive and well, in Brussels, living with a nun with whom he had eloped. The story indeed, are some of the methods of the French detectives. They look for the little clues rather than the staring ones. Unlike the English and American detectives, they often do not wait to get irrefutable evidence before charging a man with crime,

but first charge him with the crime and play upon him so that if he is guilty he is led to confess.

Some time ago a woman was murdered in Paris, and from her room were stolen 750 francs in money, her watch and jewelry. Two brothers, Georges and Paul Anot, had been seen near the house. The night of the day after the murder was committed, M. Hamard, chief of detectives of Paris, entered a wine shop, near the two brothers were drinking, to the owner's amazement he arrested Georges, charging him with the murder.

"You have changed your coat," he said to the man, a safe was found in your victim's bed. "It was gray this morning and there is blood on it." "My nose was bleeding," replied the man.

"From excitement, I suppose," said Hamard; "your statement caused by your robbery of Mme. Lucas yesterday evening."

"I was nowhere near Mme. Lucas' last night," said the man, becoming very pale.

"You lie," roared Hamard, "look at your shoes!"

Every one saw the third button missing.

"Here's the button," said Hamard. "It was found in your victim's bed."

The man confessed. As Hamard had guessed the murderer—the missing button from the man's shoe.

A new method of identifying prints, the police of some cities make jaws of criminals. They claim that it is a method of identification so far original.

The method was introduced by Dr. P. Vienna, an army surgeon of great reputation, proved to the doctor's satisfaction that jaws are alike, and that identifying with law moulds is certain. Dr. P. Vienna, an army surgeon of great reputation, proved to the doctor's satisfaction that jaws are alike, and that identifying with law moulds is certain. Dr. P. Vienna, an army surgeon of great reputation, proved to the doctor's satisfaction that jaws are alike, and that identifying with law moulds is certain.

mented with taking impressions of the palate. Although the teeth mark the position of the jaw, he claims that the markings of the palate.

GERM OF RABIES STILL UNDETECTED

Science has fought and conquered many maladies—it has fought and conquered typhoid, pneumonia and diphtheria. But first it discovered the germs, it studied the habits, manner of living and appetites of the malignant creatures. Bacteriologists actually photographed and measured them. But no one has ever been able to detect the germ of hydrophobia; it has shrouded itself in impenetrable mystery, waging its destructive warfare on nerve and brain force in unknown and subtle way. Nearly always it has proven fatal.

Twenty-five years ago the death rate among persons bitten by rabid dogs was 50 per cent. No one who developed the disease was ever saved, so far as the records of medicine show. Yet since the adoption of the Pasteur treatment the death rate has gone down to less than 1 per cent.

How easy it is to fight one's foes in the daylight, to know where to direct one's shafts, how to study every point of vantage and make deliberate and carefully planned attacks! But how difficult the battle in the darkness, the hit or miss fusillade! And this has been the battle of science against rabies!

What a debt does not the world owe to the pioneers of this wonderful campaign—to Pasteur and his co-workers, Roux, Chamberland, Graucher and Thuillier, who died in Egypt while studying the bubonic plague; to Metchnikoff and Babes, of Bucharest; Strauss, Calmette, Yersin, Gamaella and Galtier; Tizzoni and Cantanella, of Italy; Victor Horsley, of England, and Nathaniel Keirle, of America.

The success of Dr. Keirle at the Baltimore Institute surpasses even that of the institute in Paris, comparatively speaking. At the Paris institute more than 28,000 cases have been treated. The death rate was said to be one-third of one per cent. But at Baltimore the rate has been reduced to one-fifth of one per cent.

"But we've no cause to boast," laughs Dr. Keirle, "we shall not have until we have treated 29,000."

Comparisons, however, place the Baltimore Institute at the head of the laboratories of the world. In 1902 the average failures of the twenty-four laboratories in the world were 42 out of 54,620 cases, or four-fifths of one per cent. At that time Dr. Keirle's record of failure was one-fifth of one per cent. And this admirable record he has maintained.

The recent report of Dr. Keirle of the treatment of cases is one of the most amazing and interesting medical documents of years.

As complete records as possible have been made of all persons treated, the location of the wounds and the conditions of the animal which inflicted the bite. Of the

THAT a crime will find one out was never so true as it is today. With the detective and police forces of the world perfectly organized, and with the adoption of the latest