

Texts and Documents

Pasteur and Rabies: An Interview of 1882

Introduced and translated by

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The following interview was conducted in 1882, when Pasteur was sixty. In his long career, besides his discoveries in chemistry and crystallography, he had been successful in preventing the spoiling of wine and beer, in treating the diseases of silkworms, and in vaccination for fatal diseases among livestock, achievements of great importance to the economy of France. He had been received into the Académie Française on 27 April 1882. He was at work on what would be the crowning achievement of his life, a cure for rabies. He attained it within three years. The first successful treatment of the disease among humans was in 1885. At the time of the interview he had not yet developed a cure for the disease among dogs—the inoculation of attenuated viruses.

In 1882 Pasteur's understanding of bacteria, compared with ours, seems tentative and rudimentary. He knew less of the structure and function of the cell than the high school student knows today. But limitation of understanding does not preclude successful prophylaxis and treatment. Indeed, our understanding of the body and its pathology is not absolute, and yet we can cure diseases.

Where the word "virus" appears in the following translation it represents the same word in the original, though of course Pasteur did not understand by the word what we understand. It might have been translated "poison" or "toxic agent", but I thought it better to preserve it as Pasteur used it.

The interview was conducted by Clément Bertie-Marriott, a French journalist who used the pseudonym d'Alberty. Born in England in 1848, probably in Thundersley in Essex, he was a correspondent for British and American journals as well as a leading journalist in Paris. D'Alberty was not an Aristotle, but he was not a fool. And yet in the present interview he seems more impressed by Pasteur's reputation and the *bizarrierie* of his laboratory than by the significance of his work, though d'Alberty may have been writing for the tastes of his readers. A good interviewer, d'Alberty was more at home with theatre people, among whom reputation and achievement are more nearly allied, and interviews with them make up a large part of the collection in which is included the interview with Pasteur, *Parisiens et parisiennes: mes entretiens*.¹ The loan-word "interview" is used by

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the former class of interviews, in my translation, appear in *The Opera Quarterly*, 1996, 12 (3), as 'American divas in Paris: 1880s press interviews by d'Alberty'.

¹ Published in Paris by E Dentu in 1883. Three of

d'Alberty (as in the last sentence of the present interview) and by Alexandre Hepp, who wrote the preface for d'Alberty's book, and who observed that the word and the thing are from the United States, where, thanks in large part to the First Amendment, journalism has always been more advanced and aggressive than in other lands. One of the interviews in d'Alberty's book is with James Gordon Bennett, managing editor of the *New York Herald*, which later assisted American children bitten by rabid dogs to be taken to the Institut Pasteur for treatment.

The interview is preceded by an epigraph from Renan's *Discours* on the reception of Pasteur to the Académie. In fact the epigraph is from Renan's *Réponse au Discours de Réception de M. Pasteur* (27 avril 1882.), i.e., his reply to Pasteur's *Discours*, in the customary procedure of the Académie. Renan did not say "vous en cherchez le principe économique", as in d'Alberty, but "vous en cherchez l'organisme microscopique".² The present interview occupies pp. 263–270 of d'Alberty's book as 'M. Pasteur & la Rage'.

D'Alberty's Interview with Pasteur

At this moment in your studies the object is rabies. You seek its microscopic organism [economic principle—*principe économique*—in d'Alberty]. You will find it. Humanity will be in your debt for the suppression of a fearful evil, and of a sad anomaly: I speak of the distrust that is always mingled with our affection for the animal in which nature best displays to us her benevolent smile.

Discourse of M. Renan receiving M. Pasteur to the Académie Française.

Every year at the same season a terror strikes Paris. The sun burns ever and ever hotter. Rabies draws near, and gains force. Every dog becomes an object of suspicion—the poor dog, good as he is.

I thought it might be interesting and useful to visit M. Pasteur, one of the greatest scientists of our time, and to ask him the results of his remarkable research.

And so I went to number 45, rue d'Ulm, to the laboratory of M. Pasteur. I was greeted there by the amiable M. Chamberland, director of the laboratory and the author of a remarkable work, *Les Microbes dans la production des maladies*.

At once he introduced me to M. Pasteur.

The Academician was seated at a table littered with vials, instruments, and cages of small animals.

His grey eyes, somewhat vague, produced a strange fascination—I think that a mouse might feel the same way when he is impaled by a cat. His forehead, high and broad beneath a small gray cap, gives prominence to an emaciated face; a greying moustache trimmed exactly at the edge of his upper lip, and a very short beard give a rather severe cast to his face when he is at rest. But when the master speaks, with wonderful directness and simplicity, the listener comes under the spell of his words and no longer thinks of drawing his portrait. And so I desist, and add only one other trait to the sketch. M. Pasteur reminded me of Henri Rochefort in the upper part of his face, of Victor Hugo in the lower.

² Ernest Renan, *Oeuvres complètes*, Paris, Calmann-Lévy, 1947, vol. 1, pp. 759, 761–2. The work by Pasteur's younger associate, Charles-Édouard Chamberland, is *Rôle des microbes dans la*

production des maladies. Conférence faite à la Sorbonne, le 1^{er} avril, 1882, Paris, Gauthier-Villars, 1882.

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"I've just come from Aubenas," said M. Pasteur, "and I'm most happy to see you, for I'm now going to be able once again to tell the lovely town of Aubenas how proud I am of the ovation I received there. I have had many joyful emotions in my life, as when I was successively elected to the Académie des Sciences, to the Académie Française, to so many learned academies and societies in other lands; from the *croix de chevalier* to the *grand croix* of the Légion d'honneur. But the most touching moment of my life was the welcome—cordial, enthusiastic—of all those fine people who, with all their hearts, thanked me for my discoveries—because for six years I lived among them, spending my days and nights seeking the means of helping them in their condition. I left my health behind me there, but I attained my purpose. A hemiplegia paralyzed half my body, but I restored the life and activity of that great silk industry, which is one of the glories of our country and one of the sources of its commercial wealth.

"Fifteen years ago, when it was learned that I had the imagination to make observations on liquids extracted from butterflies, and in this way to distinguish the good eggs of silkworms from the bad, everyone shrugged their shoulders. To place microscopes and delicate scientific instruments in the hands of peasants on a farm—what a daydream! That was impractical! Experience has replied victoriously. The microscope has become a commonplace instrument in silkworm nurseries, especially in the hands of women, who are particularly adept in this sensitive work.

"And so, as I said in the preface of my book on silkworms, 'the role of the infinitely small appeared to me to be infinitely great, whether because of various contagious diseases, or because it contributes to the decomposition and return to the atmosphere of all that has lived.'

"It is by this method that I found the causes of diseases in wine and beer, a true theory of the formation of vinegar, and, consequently, I made intelligible the sure method of preserving organic materials and transporting them without risk of their decomposing.

"Before me, the production of these infinitely small things called microbes, bacteria, etc. [*microbes, bactériidies, etc.*] was left to chance. The role they played was unknown, and was assigned to *spontaneous generation* [*générations spontanées*, in italics in original].

"Nevertheless, this propagation is the cause, if not of all, certainly of a great number of contagious diseases, and particularly of those that decimate barnyards, stables, sheepfolds. These beings, invisible to the naked eye, constitute viruses of extreme danger, which often cause death, as is proved by anthrax [*maladies charbonneuses*].

"I discovered that, by the process of culture, it was possible to render these microscopic beings harmless. I found that viruses attenuated by cultures became preservatives, true vaccines that resist the development of viruses that are lethal in nature, if inoculations were given in advance. In that way I invented anthrax vaccination in large animals.

"I hope in the same way to arrive at the discovery of a vaccine against plague, yellow fever, rabies, etc.

"But of course," M. Pasteur added, "I'd forgotten that M. Chamberland has told me that you wish to see my experiments with rabies. If you please, we'll go down to the section containing animals inoculated with rabies, and you will soon understand my procedures."

We come into a large cellar that receives air and light by wide ventilators. All along the walls are ranged great round iron cases of modern construction.

In each of the cases is a dog. There are bulldogs, poodles, terriers, griffons, etc. Above each container is a label indicating the date on which rabies was inoculated into the animal.

“Up to this point,” M. Pasteur told me, “this is what I was able to discover—not much—but it was the first step to be taken. Before me, it was believed that rabies could not be transmitted except by saliva, and people were astonished to see dogs bitten by rabid dogs remaining healthy for long periods, and sometimes all their lives, without showing symptoms of the disease. I discovered the virus of rabies in the brain of the dog, in the spinal marrow, and generally throughout the nervous system. A drop of this virus, protected from contact with microbes of the outside air, and introduced into the brain of a healthy dog, will communicate rabies, and he will die of it within 15 days.

“Look—here is one in which the virus was inoculated 10 days ago. Put your foot near his cage. You see, he licks your shoe. In two days he will be dead. He is in the period of affectionateness which usually precedes by two or three days the period of violence, in which he bites everything around him. Here’s another—kick his cage. See—he leaps at you. Hear that hoarse doleful barking—he has hallucinations and recognizes no one. It’s been 14 days since he was inoculated. He will die tomorrow.

“Humans have the same symptoms, with the exception that the time of incubation is usually between 30 and 40 days, and that they have a horror of water, a phenomenon that is never produced among dogs.

“We have seen men who didn’t die after being bitten by rabid dogs. That’s because the saliva underwent the influence of the air, and a kind of struggle ensued between the microbes of the virus and the microbes of the surrounding air. This last sometimes neutralizes or modifies the effect of the virus. But with the virus in the pure state in which I extract it from the brain of one of my dogs, after a specific time of delay, death is certain, and up to now no palliation has been found for this pitiless disease.

“I still have hope, and if my life is spared, I believe that by analogy and experiment, I will attain to the discovery of a remedy.

“But before reaching the goal, I must obtain precise recognition of the organic constitution of the microbes of this virus. For these invisible beings differ among themselves as much as a man differs from a horse, and a horse from an elephant. They undergo influences just as diverse, and what diminishes the strength of one augments the strength of others. It’s just in that way that I proceeded with anthrax, which killed thousands of sheep in a few days before the discovery of my vaccine, which is nothing other than the attenuated virus itself. By exposing the virus to a temperature of 40° for a certain time, the microbes grew weak, so that when they were in the body of the animal, they transmitted only a very slight anthrax, and forever protected the animal from epidemic.

“The vaccine that I obtain against anthrax offers another guarantee from that of Dr. Jenner against small-pox. The latter vaccine is taken from a heifer. It is a disease of an animal that is inoculated in a human. When the disease in cows will have disappeared—how can we preserve humans from small-pox? Thus, my dispute with Dr. Jules Guérin, who, right in the midst of a meeting of l’Académie, challenged me to a duel because I had told him that he did not understand a word of what he was asserting.

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“Here are cocks, hens, guinea pigs, rabbits, mice, monkeys. I transmit to them all the serious diseases that may become epidemic, in order to study the disease in all their phases and to find a counter-poison, or at least a derivative.

“Let’s move on to this small room. Look at these—a thousand little vials. They all contain the germs or viruses of dreadful diseases. There is enough here to kill all of Paris, and to give birth to the most murderous epidemics. Here I must maintain the temperature of an oven in order to keep all these germs in good condition.”

Having made the tour of the room while holding a handkerchief to my nose, so strong was the odour, I was not unhappy to reach the door and find myself once again in the blossoming garden that adjoins the laboratory.

I had just had before my eyes the essence of all the diseases that decimate humanity. In spite of myself, I imagined that I might well have encountered some microbe escaped from its prison.

Just as we were leaving, I saw two dogs seized with the access of rabies, howling mournfully. A cock that had been given cholera emitted the cries of a screech-owl, and a sheep on which an assistant was conducting an experiment was bleating prodigiously, to the great amusement of a monkey who balanced himself on a bar in his cage while waiting till the yellow fever, which he’d been given the evening before, would render him more reserved with regard to his laboratory comrades. It was a fantastic scene that might make Hoffmann tremble in his tomb.

All the same, if the animals could convey their impressions, how I would like to understand their language! What an engaging interview with M. Pasteur’s boarders!