

## American invention, which I use in my daily life

I will start my story from the distant lands of South America and namely, from the Amazon River, where Indian tribes have been living for more than one hundred years. I will talk about only one of their inventions, which unfortunately few people remember and which now saves millions of lives. And that is Curare.

Curare is a South American arrow poison, which was prepared mainly from the bark of the plant *Strychnos toxifera*. This poison was put on the arrowheads thoroughly and Amazon tribes used it for hunting. In case of a slightest contact of poison with animals' wound, animals lost their ability to move and became valuable and cone-at-able prey for the Indians. This poison made the process of hunting more effective and thus provided Indians with inevitable food for survival.

The front-page news about the miraculous substance reached the "big world" in 1617, when the English writer Walter Raleigh traveled across the jungles of South America, accompanied by an interpreter and a tribe of Indians. He saw with his own eyes animals falling backwards from the slightest injury made with that poison. Raleigh was very surprised and astonished by this fact, and he even encouraged his curiosity by trying this poison on himself. According to the eye witnesses, he put just a few drops of curare on the intentionally made wound, after that he could not move and come to his sense for a very long time.

Fortunately, Raleigh had survived and told the world about his discovery. But he was not the only witness. There were a lot of Indian tribes living in immense kilometers of jungles, which were frequently visited by the people from the "big world". Due to this fact curare gradually became well-known in the scientific world. One of the investigators of this poison was a famous French physiologist Claud Bernar. His experiments on animals proved that curare had a peripheral action that does not affect the central nervous system. In addition the poison of curare could not harm if swallowed. Having studied the poison, the researchers found that it is composed of alkaloids found in many plants.

Later, the discovered poison was applied to medicine and combined with anesthetics and drugs during heart and lungs operations, that in their turn required complete muscle relaxation and the termination of patient's breathing. During surgery the patient's blood is saturated with oxygen via respirator. Curare was also applied in cases of nerve diseases accompanied by convulsions.

Perhaps you are wondering now how does it all relate to the topic of this essay? And if you and I have a common understanding of concept of "American invention", that means inventions committed across the United States and at all times, after the phrase "commonly used in everyday life" you probably have some dissonance.

Now I will try to solve them. The point is that I am a student of Perm State Medical Academy and my specialty is Anesthesiology, Resuscitation and Intensive Care. And I do often assist operations. And very often I see how people afraid to go to the operating room. This fear is a natural phenomenon, because people worry about their lives and health. There is an erroneous notion that an operating person is just cut, had taken something outside or inside of his body and sewed. After all, medicine is not a sewing workshop. And I, if it is possible, would like to take this opportunity to demystify some myths. Almost any operation is divided into several stages. One of them is a medical preparation of the patient. During the patient's preparation for up-coming operation anesthesiologist administer drugs for anesthesia, painkillers and muscle relaxants. And namely the last ones listed are contemporary successors of Indian poison - curare. With the lapse of time its name has been changed and now it is made from absolutely different materials, but the effect still stays on - relaxation of the muscles of the body. This allows the surgeon to perform the operation in the safest way for the patient. Precisely, neuromuscular blocking agents (NBA) play one of the most important roles in transferring the patient to artificial respiration. Also NBAs allow avoiding convulsions. They are used not only in the surgery but in traumatology as well where they apply for the correct matching of bones in cases of fractures. NBAs are one of the basic drugs in medicine. And personally I can see now how the substance that was discovered centuries ago by an English writer daily saves the lives of thousands and millions of people around the world.

And it seems to me, this is not the last step in the study of materials with similar properties. In the modern world we are no longer hunting for the pray. Now it turned out that the thing that previously was a weapon, but now it helps in treatment. Each year, pharmaceutical companies develop drugs of the same type, with more precise dosages and with fewer side effects. Personally I, one who is interested in the nature of science and especially medicine, would love to take part in these studies one day.

And I am convinced that no matter from which country you are and what language you speak you have to make discoveries for mankind. And turning back to the beginning of my story, we all see how the substance discovered in one part of the world long time ago with dignity used for the benefit of all mankind today. Science and medicine in particular should strive to unity, that includes creation of more international alliances to open new steps in the fight against diseases, Scientific and practical conferences should be held in order to exchange the experience gained. That all will lead to the unification of the mankind. I am very glad that I live in a time when there is an opportunity to find support from foreign colleagues, to see how the same job is performed on different continents. This will definitely help in creating a better, effective medicine in each country, and as a result will lead to the well-being of the entire population of the planet.