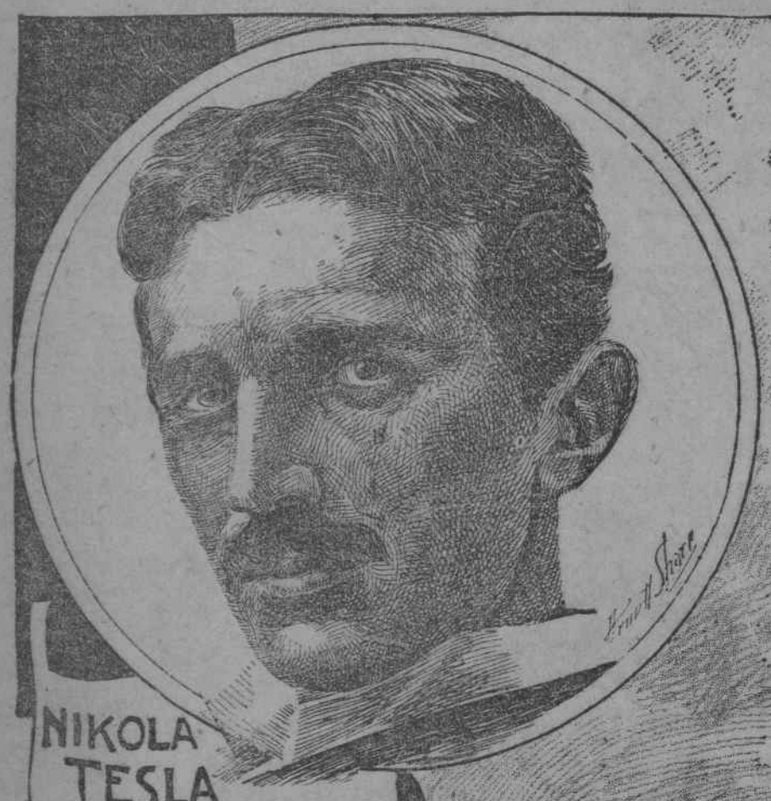
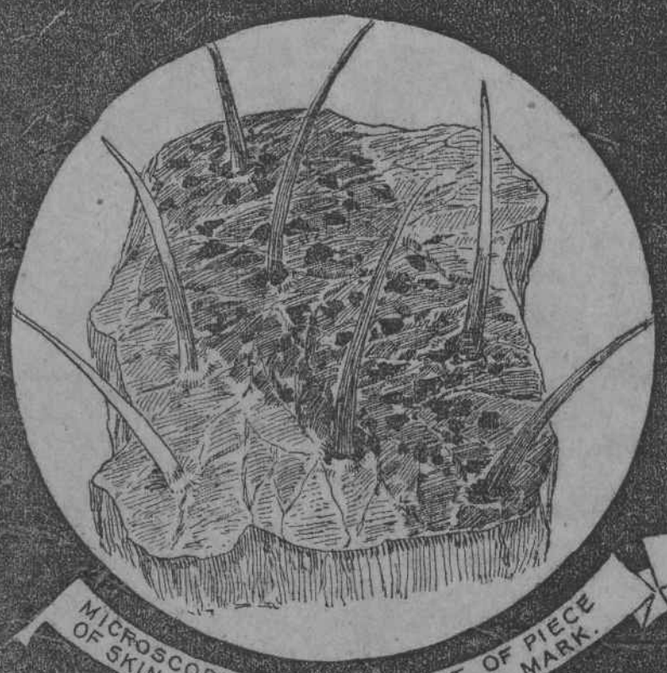
TESLA'S ELECTRICAL SUBSTITUTE FOR THE BATH-TUB.



How His Oscillating Current Cleanses the Skin Like a Hot Water Bath.



MICROSCOPIC ENLARGEMENT OF PIECE OF SKIN SHOWING LEAD PENCIL MARK.

SAME BIT OF SKIN CLEANSED BY TESLA'S ELECTRIC CURRENT.

CROSS SECTION VIEW SHOWING PENCIL MARK

CLEANSING POWER OF ELECTRICITY.

By Nikola Tesla.

BY the new application of my electrical oscillator, which I am now perfecting, I am able to turn electrical currents of enormous voltage into the human body. This, instead of destroying life, acts as a curative agent.

I have experimented upon myself, receiving a high potential current of 2,000,000 volts, alternating at the rate of 300,000 or 400,000 times a second. This is simply a process of pumping electricity in and out of the human system with great rapidity.

In undergoing this experiment, the body throws off bright electric sparks in all directions. Another person standing on the floor near by may draw off sparks three and four feet long from the person under the electrical treatment. These enormous sparks are not dangerous, but they cause a disagreeable sensation in the person from whom they are drawn.

The mechanism used in this treatment is very simple. There is an insulated metal platform on which the person stands and holds an electrode which is connected by wire with an oscillator. It is this instrument which transforms an ordinary current into enormous potentiality and makes it alternating.

I have conducted my experiments on this subject for purely scientific purposes, and I laid the results before the Electro-Therapeutical Society at Buffalo last month. Not being a physician I am not prepared to say exactly what diseases such a powerful electrical treatment is designed to cure. That remains for members of the medical profession to demonstrate.

NIKOLA TESLA, the electrical expert, has discovered a new application of his electrical oscillator, which opens up a field of possibilities almost as interesting as the discovery of the X-rays. Mr. Tesla is now experimenting in his laboratory, and has already achieved some rather remarkable results.

Perhaps the most interesting part of the discovery, made along the lines of his present experiments, is that he has found an electrical current which acts upon the human body very much like a hot soap and water bath. In other words, Mr. Tesla finds that he can almost in a jiffy drive off into the air even the minutest particles of dirt which lodge in the skin along the entire surface of the human body. While this is interesting as pointing the way to the rich man's bath of the future, it also has a much more important medical value. It is expected that this discovery will be of great service to surgeons, in enabling them to obtain an absolutely and chemically clean surface on the human body, which is the first preliminary always to a surgical operation.

The further application of the discovery in medical and surgical work will be known only after patient experiments. It is expected that it will be found that the current is a microbe killer as well as a tonic and stimulant to the human system. It is the peculiar current produced by the Tesla electric oscillator which makes it possible to pump in and out of the human body an electrical current of two million volts, which by any other method would be instant death. In speaking of the peculiar characteristics of this oscillating current, Mr. Tesla said:

"Voltage, you know, is speed, not strength. A current of millions of volts passes so quickly that it cannot be felt. A needle, driven slowly into the flesh, would hurt, but a needle so small as to be well nigh invisible, yet travelling at terrific speed, could penetrate the body and not be felt. It is so with electricity."

The electric bath, "the busy man's bath," Mr. Tesla calls it, has developed itself almost insensibly during the electrician's experiments with his mysterious "oscillator." It chanced one day that Mr. Tesla placed a big copper globe within the electrical field of the oscillator. The globe, a month before, had been heavily coated with black paint.

With no particular idea of what would follow, Mr. Tesla turned on the current. There was a shimmer of black dust in the air—and there lay the copper globe, clean, shining, and as free from paint as on the day it was made.

That was practically the origin of the "busy man's bath," for Mr. Tesla began to experiment, and soon perfected an apparatus which will remove dirt from the human body as quickly and thoroughly as the paint was freed from the copper globe. Mr. Tesla himself has tried the effects of the bath, and his workmen and some of his intimate friends have experienced it.

Assured of its entire success, Mr. Tesla, a fortnight ago, in a lecture before the Electro-Therapeutic Association, made his invention public. Apparently it was too much for the members to accept without further information, for the following paragraph has been making the rounds of the medical press for the last week:

"Nikola Tesla says that from 4,000 to 7,000 microbes light on every square foot of the human body every twenty-four hours. Examined under the microscope, the skin would swarm with millions of microbes, which feed upon the skin and destroy its freshness, producing yellowness and wrinkles. Mr. Tesla has invented a battery to drive these microbes away, with great violence."

"That is badly garbled," said Mr. Tesla, when this paragraph was read to him. "In my lecture before the society I described the skin-cleansing effect of a current of large voltage, which I had developed from one of my machines. I said that it would probably be the busy man's bath in the days to come and that for purposes of cleanliness it would supersede water. In illustrating its possibilities in the field of electro-therapy I quote the writings of Pasteur and Koch as to the number of microbes which settle on the human body.

"I didn't say they produced wrinkles; neither did I say that the current produced by my invention would banish all microbes from the skin. I am an electrician, not a bacteriologist. It is for students of bacteria to determine whether I have also discovered a germicide.

"All that I claim for this invention is that it will instantaneously strip dirt and extraneous material from the human body. The current is, moreover, a powerful tonic. The apparatus for its use takes up hardly any room. Because if its time-saving advantages I believe it will become the busy man's bath of the future.

"Here," said Mr. Tesla, rubbing his bare arm with a lead pencil, "you see this pencil mark. Now the oscillating current will drive every trace of this mark into the air in an instant. Along with the pencil dust every particle of dirt of any other kind is stripped from the surface of the skin."

The Journal presents in the accompanying illustration a microscopic enlargement of a bit of skin showing the mark of a lead pencil and another similar microscopical enlargement after the skin has been cleansed. The cross section of a greatly magnified bit of human skin is also given, showing the grains of pencil dust. These microscopic enlargements were made for the Sunday Journal by Dr. Clifton Sparks, the bacteriologist.

If bacteriologists should discover that Mr. Tesla's new current is also a germicide the value of the invention to surgery would be incalculable. At present it takes from thirty minutes to thirty hours to produce absolute surgical cleanliness over the proposed field of an operation. If Mr. Tesla's current can instantly destroy bacteria it will supersede bichloride of mercury in the operating theatre as completely as bichloride has ousted Lister's "Puffing Billy," an apparatus which enveloped both patient and surgeons in a spray of diluted carbolic acid. Moreover, the current could probably be also applied to the cavities of the body, penetrating tissues and assuring antisepsis where other agents would be barred.

Surgeons, and doctors generally, have faith in Mr. Tesla and his inventions. For that matter, they have reason, for Mr. Tesla has been heard to say that if every man who was using one of his machines in electro-therapeutics would pay him a quarter he would be a rich man.

Once in a while some one wants to know what Tesla has done for practical electricity. They say they know he has discovered strange things, but are they practical? That question can be answered quickly—Tesla is the man who made electricity practical. When Tesla first entered the American field the continuous current was used almost exclusively. The continuous current is very good for short line work, but energy at high pressure cannot be delivered successfully at any great distance. It was Tesla who invented the alternating current motor and thereby made possible and practicable such enterprises as the bridling of the forces of Niagara.

A NEW AID TO THE DOCTOR.

By Dr. Robert Newman,

Ex-President of the American Electro-Therapeutic Association.

I C[illegible]ER Mr. Tesla's demonstration of his elctrical oscillator, [illegible] before the Electro-Therapeutic Association, as [illegible]erful. It may take the place of static machines in el[illegible]ents.

[illegible] of such high currents of electricity into the human body [illegible] effect of a powerful tonic. It stimulates all the organs into n[illegible]mal activity. Those that have ben torpid are made to perform their natural functions, while organs or parts of the body that are overworked and feverish are relieved, and are reduced to healthful temperature.

Electrical treatment has been proven of especial value in rheumatism, gout and other diseases. The introduction of a new method of scientific electrical treatment is of the deepest interest to physicians. While its uses have not yet been demonstrated outside of the laboratory, I have the greatest confidence in the future usefulness of Mr. Tesla's discovery.

A CHAT WITH A CANNIBAL KING ON CANNIBALISM.

THE first white man has penetrated the wilds of Sumatra. Joachim freiherr von Brenner, who visited the savage cannibals of the island, has written a book containing the account of his perilous adventures. The book has appeared at Fursburg, Germany.

Perhaps the most interesting feature of the book is that where Von Brenner describes his interview with a cannibal chief on cannibalism.

Says Von Brenner:

"I met a chief in Pengambatan, who told me that they had just enjoyed a feast in his village, eating eleven poor Chinamen. His name was Si Gallok; he seemed to be rich, for his teeth were gilded and he wore a gold necklace and a small bamboo locket in which a tooth was set. This tooth, he said, had belonged to an enemy whom he had killed and eaten; and now that he was dead he still hated him, and whenever he closed the lid of this locket or box he struck the tooth, which gave him as much delight as if he had struck his foe.

"When I asked him if he would eat us if he got a chance, he replied that he would not think of harming us. But his time, too, came, for not long after, I met a Boink with a human skull and smoked hand."

The following dialogue took place:

"Where did you get that head and dried hand?" "They be'ong to an enemy who fell into our hands." "Did you eat him?" "Certainly. What else should we do with him?" "Who ate him?" "My brother-in-law and his people." "Tell me all about it. What was his name?" "His name was Si Kemat Si Gollak. With his brother, his wife and his mother he had fled from his own district, where he had been Rajah, and wanted to seize the chieftaincy of Pantjo, my brother-in-law's village. He called himself a sorcerer. Then my brother-in-law declared war on him. Defeated him."

"Was there a battle?" "A battle? No. We took him prisoner. We lay concealed in the rice-fields for several days, until at last we caught him alone, then we jumped on him, knocked him down and bound him and brought him to our chief, who put him in prison." "What about his brother?" "His brother fell in war." "How in war? he was alone." "Well—yes—we shot him at night while he was asleep. The ball hit him in the right arm, and he sat up holding a knife in his left hand to defend himself; but we were the victors, for there were many of us, and we killed him and sent his head to the chief." "Do you call that war? What did you do with his body?" "Oh, we ate that." "And what did the chief do with his head?" "The chief put that in front of Si Kemat, on the ground, so that he might know what he had to hope for."

"Next day at noon we brought Kemat out of prison, threw him on the ground with his face down, and my brother-in-law cut off his head—no, he cut up th e rest of him. He got the heart and as much meat as he wanted, and whoever wanted it took a little piece, held it over the fire and ate it. The rest we cooked with pepper and salt and ate at home. The larger bones were tied together and hung up to dry.

"The next day we drove off his spirit (Begu) with shots and buried his head in the path, so that his friends might tread on it and in that way make him their enemy." "What happened to his wife?" "I sold her for my brother-in-law." "What about his mother?" "His mother! Bah! The Guru (sorcerer) said that she was as bad as her son, so we cut her throat a month later." "And ate her?" "Certainly. What else could we do with her?"

THE SPONGE IS AN ANIMAL AND NOT A PLANT.

ONE of the questions discussed at the now famous Congress of Zoologists at Cambridge was the nature of the sponge.

The average person if questioned would probably answer that the sponge is a sort of marine plant. This is an error. The sponges are animals—this fact admits of no doubt. What the learned folks really discussed was the exact position in the animal world which these anomalous beings occupy.

Where, in other words, are we to place them? What are their affinities to other animals, and what are their nearest relations in the zoological series? The sponge of commerce, as everybody knows, grows rooted and fixed to the ocean bed. This fact alone has suggested that it must be a plant, for the popular idea of an animal is that it moves about. But corals and sea-anemones, not to speak of the living animal colonies called zoophytes that grow in festooned masses on shells or bud forth like fir trees in miniature on stones, are all animals, though they masquerade in the very similitude of the plant world.

The sponge we use in our houses is the dried horny skeleton of the living animal. There are some sponges—for the family is a big one—that have no skeleton at all. There are others that develop hard parts composed of lime, and others, again, that make a support of flint, and in the fossil record these living and flinty sponges are common enough.

The living parts of all sponges consist of masses of protoplasm, and it is not at all an unreasonable conception of any sponge to regard it as a colony of such masses united together, and by their co-operation carrying on all the vital work that appertains to the society.

The puzzle about the sponges has arisen in connection with their place in the zoological scale. Two opinions have been expressed about them. The first holds that they are colonies of the lowest forms of animal life, and if this opinion be deemed worthy of acceptance then our sponge will be set down among that collection of animal groundlings known to science as the protozoa.

Here are grouped all the lowest animal organisms, including the chalk-animalcules, the amoeba-animalcules, and the like; and the sponge in this view of things is a kind of compound amoeba. This last is an animalcule always on the move, its body composed of a speck of living matter that flows from one shape to another as it moves through the world it finds in a water drop.

"SHIPS OF THE DESERT" IN GEN. KITCHENER'S ARMY

THE camel corps in General Kitchener's army, called in military parlance the "cameiry," was a most serviceable adjunct of the Sirdar's forces in the work of moving his expedition into the heart of the Soudan. The came's were manned, as a rule, by native Egyptians, and they were often employed for the carrying of guns and camp equipage.

This historic animal, very aptly called the "ship of the desert," is admirably equipped for travel across a desert country. Nature has ingeniously fashi ned him for the very work he has been called upon to perform. His two great, chisel-like teeth in the upper jaw, his six incisors and two canines in the lower jaw, and his monstrous molars, constitute just the requisite dental apparatus for t aring and grinding the coarse, thorny vegetation which is his food.

His nostrils are more keen than any other animal's. With them the camel smells water a mile away, and immediately makes straight for it. His nose is formed of two slits, which he closes at will, shutting out the desert sand and thus keeping his smelling organ as clean as an opera glass.

His feet are shod each with two strong toenails, which catch the ground, and a padded elastic cushion, which spreads into a natural sand shoe, to hold his weight up on the shifting waste. Then he has special horny cushions upon his hairy breast and limbs, provided on purpose to take his bulk softly when he lies down to be loaded.

Another wonderful contrivance given him by nature is his paunch, or first stomach. All over its walls are arranged little pouches, with narrow, constricting mouths, which are really spare water flasks about as big as a large snuffbox, and when the camel gets a "long drink" these fill themselves spontaneously and lay up quite a considerable balance of serviceable water. They have their own impervious sides and sphincter muscles, which close them tight, and thus it is that it is commonly expected of the camel to go twenty-five miles a day under a blazing sun, with 800 to 1,000 pounds upon his back, for four days without so much as a drop of water to drink.

The American Government once planned to introduce camels into the service of our army in the Southwest to carry provisions over the districts of Arizona and California. A number of the animals were imported from Africa and thrived splendidly. They proved useful to the army, but the teamsters of that region hated the camels because they scared horses and mules and raised such a protest that the camels were turned adrift. Several hundred of their descendants now run wild over the Arizona desert.