The Craziest Ever Radio Set

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It all began back in the 18th Century when Mrs Galvani was preparing a tasty dish of frogs' hind legs for her husband's lunch. He was fond of them, Mrs G noticed that whenever she touched a skinned frog's leg with a metal implement, the leg jumped. So did Mrs Galvani.

She told her husband about it. But he still ate the frogs' legs, all except one - which he selflessly spared in the interests of science. Into its thigh muscles he implanted two metal electrodes and to them he applied a weak current from a primitive wet battery. Straightaway the frog's leg jumped. Galvani didn't - his wife had told him what to expect!

Some months later, Galvani sat idly cranking the handle of an electrical machine, generating a stream of sparks. He often did this because it frightened his mother-in-law. Suddenly, he noticed that a frog's leg lying nearby was jumping like crazy, although there was no direct electrical connection to it. Perhaps we should explain, since his wife's discovery, Galvani always kept a few frogs' legs lying around the house in case of developments. They also came in useful as snacks, if the cat didn't get them first!

Now Galvani was too dumb to notice it - and perhaps you haven't twigged it yet either - but he had just discovered radio. One full century before Heinrich Hertz, who got all the credit anyway. Galvani had lighted on the main principle of wireless transmission. How so? Like this; the sparks from the electrical generator emitted electromagnetic waves, these were collected by the electrodes in the thigh muscle and the nerve fibres and muscle salts combined to act as a detector of the waves. And Galvani missed it!

Moving on through time

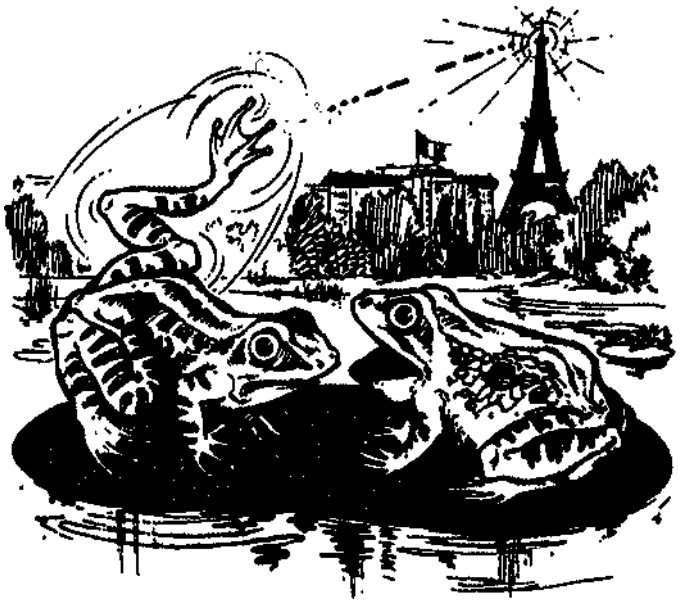
At this point we say goodbye to Luigi Galvani and skip a century and a half. This brings us to around 1918 and to *Dr.* Lefeuvre, a professor at the University of Rennes, France. Dr. Lefeuvre decided to hook up a radio utilising Galvani's discoveries. From the output terminals of a crystal set he led two wires to a newly killed frog mounted spread-eagled on a vertical panel. Lefeuvre connected the wires to a nerve in the frog's thigh muscle, then he tied one end of a thread around its kneecap and the other end to a pivoted lever mounted below the frog. There's only one more thing; the lever was able to inscribe on a smoked paper sleeve surrounding a revolving drum. Something like a seismograph except it didn't need an earthquake to operate it, a bolt of lightning would do.

Well perhaps it is time you heard the story.

All set to make a test run, Dr. Lefeuvre tuned in his brainchild to FL, the callsign of France's most powerful transmitter, the Eiffel Tower. Radio FL didn't have particularly interesting programmes. All it did was broadcast time signals in Morse. But that was fine by Dr. Lefeuvre. The time signal impulses acted on the thigh muscle nerve, the muscle contracted and expanded and the leg kicked accordingly. The thread from the kicking leg then jerked the lever up and down ad this drew zigzags on the smoked paper in time with the impulses from FL. The world's first Frog's Leg Radio was a success!

Craziest radio?

That, in brief, is the true story of the craziest radio of all time. Why didn't it catch on? Because it suffered from a serious defect – rigor mortis. After only a few hours' use, the frog would no longer operate and the bother of frequently plugging-in a replacement amphibian killed the FLR dead - a bit like the frog really! So the thermionic valve triumphed and men came to boast of their 'six-valve superhet' instead of their 'six frog superhet'.



It happens every hour, on the hour!!

Finally

To get serious for just a moment and to give full credit for Galvani's work, he concluded that animal tissue contained an innate vital force, which he termed 'animal electricity'. He believed this to be a new form of electricity in addition to the 'natural' form that produced lightning and to the 'artificial' form that is produced by friction (ie static electricity). He also believed the brain secreted an 'electric fluid' and that the flow of this fluid through the nerves provided a stimulus for the muscle fibers.

Scientific colleagues generally accepted Galvani's views; but Alessandro Volta, a professor of physics, was not convinced. Volta demonstrated that the electricity did not come from the animal tissue but was generated by the contact of different metals, brass and iron, in a moist environment. However, in another experiment, Galvani caused muscular contraction by touching the exposed muscle of one frog with the nerve of another and thus established for the first time that bioelectric forces exist within living tissue.