

## A BATTERY

**John B. Goodenough** – I only became interested in the energy problem with the first energy crisis, and it was at the University of Oxford that I developed the oxide cathodes for the battery rather than the sulfides that had been developed in Europe for the insertion of lithium reversibly, to give a reversible reaction for a rechargeable battery, and then, nobody in Europe or England or America was interested in developing a discharged batteries fabrication, but in Japan they recognized that, indeed, people had shown again, in Switzerland, that you could take lithium in and out of a carbon and it wouldn't cause dendrites which were the problems that had occurred when people tried to use the sulfides, and it ended up with fires and a few explosions, and I had decided I can do the same thing with an oxide and give a better voltage and so they put my lithium-cobalt cathode and the carbon at the anode and they manufactured a discharged battery in Japan and Sony Corporation made the first camcorder and the first cell telephone and launched the wireless revolution...

Well... I'm leaving Oxford, because I had to retire, at a certain relatively early age, in England, and had been given in an invitation to come to the United States, the University of Texas, which has allowed me to work, until 93, and I'm still going, and while I'm here I went back to my fundamental studies, with a young man who came to me as a student and has stayed with me to build the wonderful high-pressure facility for studying the fundamental problems, and at the same time would set up a chemistry laboratory to try to see if we can get batteries that would compete with fossil fuels, so that we can get electric cars and store electrical energy from solar and wind, so that we can liberate modern society from its dependence on fossil fuels. So that's what I'm working on at the moment and I am at a point where I'm optimistic that maybe in the next year we will give you something nice... Ha, ha, ha, ha, ha, ha, ha!!! I'll give you a battery that is low cost, high-energy density and can be charged and discharged both rapidly, to be able to both store energy for the grid and power electric cars that would compete with the internal combustion engine.

So, my interest has been to serve not just one nation, but to serve humanity as a whole, and I understood that modern society just could not survive depending forever on the energy stored in fossil fuels! And since then it's become more and more evident with global warming and all these other things, so one has to find a target for one's efforts that would be beneficial to mankind. Unfortunately, when we do a scientific development, science is very moral-neutral and so bad people as well as good people can use what you develop for their purposes, but I think to emancipate people from their dependence on fossil fuels is something which you cannot turn to bad uses.

**4min 6sec**