



websites of note

by Zoltan Nagy

Fuel Cells — Green Power

Although fuel cells have been around since 1839, it took 120 years until NASA demonstrated some of their potential applications in providing power during space flight. As a result of these successes, in the 1960s, industry began to recognize the commercial potential of fuel cells, but encountered technical barriers and high investment costs — fuel cells were not economically competitive with existing energy technologies. Since 1984, the Office of Transportation Technologies at the U.S. Department of Energy has been supporting research and development of fuel cell technology, and as a result, hundreds of companies around the world are now working towards making fuel cell technology pay off. Just as in the commercialization of the electric light bulb nearly one hundred years ago, today's companies are being driven by technical, economic, and social forces such as high performance characteristics, reliability, durability, low cost, and environmental benefits.

- Los Alamos National Laboratory
<http://www.lanl.gov/orgs/mpa/mpa11/Green%20Power.pdf>

Electrochemistry

In 1797 the English physician George Pearson laboriously charged Leyden jars at his electric machine, then discharged them through water, carefully collecting the gases that appeared. Finally, he mixed the gases in a dry container and made a spark with his machine. Drops of water collected on the walls of the container when it cooled. He had decomposed water into its constituents, and then recombined them again. The world took little notice. In 1800 Alessandro Volta reported the results of his recent studies to the Royal Society of London, of which he was a member. His momentous achievement was the column, or “pile,” of discs of silver, zinc, and leather moistened with salt solution, repeated over and over. An alternative was the *couronne des tasses*, a ring of cups joined by arcs of silver and zinc alternately, filled with dilute salt solution. When the ultimate members of the pile or crown were connected by a conductor, a permanent electric current flowed. Much care was taken to show that it had the same qualities as the electricity from a static machine, principally that it could give a shock, or fuse a fine wire. Electricity was now available in unprecedented amounts with no exertion, but at a much lower pressure. And so it goes.

- J. B. Calvert (University of Denver)
<http://mysite.du.edu/~jcalvert/phys/elechem.htm>

Batteries

The *Primer on Lead-Acid Storage Batteries* as approved for use by all DOE Components. It was developed to help DOE facility contractors prevent accidents caused during operation and maintenance of lead-acid storage batteries. The major types of lead-acid storage batteries are discussed as well as their operation, application, selection, maintenance, and disposal. Safety hazards and precautions are discussed in the section on battery maintenance. References to industry standards are included for selection, maintenance, and disposal.

- Department of Energy (DOE) Primers
<http://artikel-software.com/file/Primer%20on%20Lead-Acid%20Storage%20Batteries.pdf>

About the Author

ZOLTAN NAGY is a semi-retired electrochemist. After 15 years in a variety of electrochemical industrial research, he spent 30 years at Argonne National Laboratory carrying out research on electrode kinetics and surface electrochemistry. Presently he is at the Chemistry Department of the University of North Carolina at Chapel Hill. He welcomes suggestions for entries; send them to nagyz@email.unc.edu.



Annual Society Luncheon and Business Meeting

The Annual Society Luncheon and Business Meeting will take place on Tuesday, May 26, starting at 1215h. The President, Secretary, and the Treasurer will give brief reports on the current state of the Society, and the Student Poster Award presentation will take place at this annual business luncheon. All members and meeting attendees are encouraged to participate in this event. Tickets are \$41.00 by Early-Bird deadline, and \$46.00 onsite. See page 21 more information about the Chicago meeting, including how to register.