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Proclamation of the Gaston Planté Medal Committee

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One of the most interesting activities during the organization of each LABAT conference is the procedure of electing the next recipient of the Gaston Planté medal. The whole process of nominating and voting for the nominated candidates feels the pulse of the world battery community and its opinion of the scientists with greatest contribution to the scientific and technological development of the lead–acid battery system. First, the members of the International Advisory Committee (a total of 24 scientists and battery experts from 11 countries) sent us their personal rating of the three most distinguished scientists who should compete for the award. This year, 26 candidates were proposed for nomination. Three of them ranked highest:

1. Dr. Patrick Moseley.
2. Dr. Kenneth Peters.
3. Dr. Robert Nelson.

These three scientists were nominated and offered to the International Planté Medal Committee, comprising 17 members from 14 countries, to elect by secret vote the 2008 recipient of the medal.

The great majority of the votes were for Dr. Patrick Moseley and I am pleased to announce him as the new Gaston Planté medallist.

It should be pointed out that Dr. Kenneth Peters and Dr. Robert Nelson were nominated during the previous campaign in 2005. Obviously, they both stand steadily high in the opinion of the world battery community as major contributors to the knowledge about and the development of the lead–acid battery. I do hope that they will be the next recipients of the award.

A brief resume of Dr. Patrick Moseley, the 2008 Gaston Planté medallist, follows:

Dr. Patrick T. Moseley—the 2008 Gaston Planté medallist

Dr. Moseley was awarded a Ph.D. in 1968 by the University of Durham, U.K., where he had carried out studies of the crystal and molecular structures of coordination compounds. Moving to the Harwell Laboratory of the U.K. Atomic Energy Authority, he progressed to structural studies of compounds of the actinide elements. During the 1970s he switched to studies of materials for use in energy storage; initially electrolytes for high temperature fuel cells, and then components of high temperature sodium cells. Work on the electrolyte of the sodium sulfur cell was followed by the invention of the Zebra battery, which was covered by a patent authored by Dr. Moseley and collaborators in 1982.

That same year, Dr. Moseley 'saw the light' and began work on lead–acid batteries. That time coincided with one of the periods of interest in deep cycling for electric vehicle applications and the work began with a fundamental study of the factors that might limit the capacity available from the active material of the positive plate. The influence of crystal structure, hydrogen content and method of preparation (chemical or electrochemical), were all covered and it was made clear that crystallinity, and the lack of it, was a key factor affecting utilization. The results of including graphite in the positive plate were studied and it was shown that, in sulfuric acid, graphite offers a large zeta potential which could assist the transport of electrolyte through the positive active mass by the mechanism of electro-osmotic pumping. The benefits of such a process, however, would be limited by the progressive loss of carbon due to the oxidizing environment of the positive plate.

In the early 1990s, attention moved to the difficulties of using 'maintenance-free' batteries for deep cycle duty and the so-called 'premature capacity loss' or 'PCL' problem. Two forms of PCL were in evidence. The first of these involved a high resistance layer of

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material adjacent to the surface of the positive grid and a scanning photocurrent imaging method was developed to study the distribution of lead monoxide in the corrosion layers on the grid.

In 1995, Dr. Moseley moved to ILZRO in North Carolina where he assumed management responsibility for the programme of the Advanced Lead–Acid Battery Consortium (ALABC). ALABC is a group of organizations from around the world that have pooled their research resources to ensure that lead–acid battery technology remains capable of meeting the demands of future applications.

Dr. Moseley became president of ALABC in 2005. Over the 15-year life of the Consortium some $50 million has been raised and used for the development of the lead–acid battery technology.

The Consortium mechanism has proved to be extremely productive and during the 1990s the two forms of PCL were overcome, enabling the valve-regulated lead–acid (VRLA) battery to become a viable candidate technology for electric automobiles. The feasibility of recharging lead–acid batteries rapidly was firmly established and 'opportunity charging' of electric lift trucks is widely accepted today.

As it became clear that hybrid electric automobiles were going to achieve a far more rapid public acceptance than had electric automobiles, the consortium research programme moved swiftly to overcome the limitations of conventional VRLA batteries that had prevented their use in the first generation of hybrids.

Straightforward, inexpensive, alterations in the design of VRLA batteries have now been identified, and their effectiveness demonstrated both in ALABC hybrid electric vehicle testing and by design developments within the automotive industry itself.

Dr. Moseley has been one of the editors of the Journal of Power Sources since 1989 and was awarded a D.Sc. for research publications in materials science, by Durham University (U.K.), in 1994.

On behalf of all battery researchers and manufacturers around the world, I would like to congratulate Dr. Moseley on receipt of this high award and to wish him good health, a lot of creative energy and much success in all his future endeavors.

Prof. D. Pavlov (Chairman of LABAT'2008)
On behalf of the International
Gaston Planté Medal Committee