SCIENCE NEWS®

The Weekly Newsmagazine of Science

A Science Service Publication
Volume 137, No. 7, February 17, 1990

Editorial and Business Offices:
1719 N St., NW, Washington, D.C. 20036.

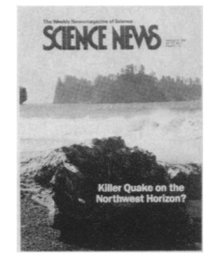
Subscription Department:
231 West Center St., Marion, OH 43305

Subscription rate: 1 yr., $34.50; 2 yrs., $58.00. (Foreign postage $6.00 additional per year.) Change of address: Four to six weeks' notice is required. Please state exactly how magazine is to be addressed. Include zip code. For new subscriptions only call **(1) 800-247-2160.** Printed in U.S.A. POSTMASTER: Send address changes to SCIENCE NEWS, 231 West Center St., Marion, OH 43305. Second class postage paid at Washington, D.C., and additional mailing offices. Title registered as trademark U.S. and Canadian Patent Offices. Published every Saturday by Science Service, Inc., 1719 N St., NW, Washington, D.C. 20036. (202-785-2255)
ISSN 0036-8423

This Week

Research Notes

Articles



Departments

Letters

Charge confusion clarified

In "Renewing bonds to recharge batteries" (SN: 11/25/89, p.342), Ivan Amato misidentifies the positive pole as the anode and the negative pole as the cathode of a battery.

In a galvanic cell (more properly the device should be called a galvanic or voltaic cell rather than a battery), the negative pole is the anode and the positive the cathode. In an electrolytic cell, the negative pole is the cathode and the positive pole is the anode. The easiest way to remember which is which is to remember that the electrons always enter the system at the cathode.

Hance H. Hamilton
Dallas, Tex.

In electrolytic cells, which are driven by an outside source of electricity, the anode and cathode are indeed the positively and negatively charged electrodes, respectively. The cathode reaction is driven by electrons arriving from the outside source. As you point out, this is not so with batteries, or galvanic cells, in which electrons from a discharging battery's anode travel to the cathode. The battery's anode is negatively charged, its cathode positively charged.

When the rechargeable battery described in the article is discharging, the lithium electrode is the negatively charged electrode and the polymer-based electrode is the positively charged electrode. During recharging, the electrodes' charge-assignments reverse, and so do the respective assignments of "anode" and "cathode." To avoid confusion when talking about galvanic cells, battery developer Lutgard C. De Jonghe suggests substituting the terms "cathode" and "anode" with "negative electrode" and "positive electrode," respectively. — I. Amato

Mycoplasma reclassified

"An Aids-Associated Microbe Unmasked" (SN: 12/2/89, p.356) presents an oddly outdated view of the classification of mycoplasmas. These organisms have been considered bacteria since at least 1974, and not, as stated in the article, intermediate forms between bacteria and viruses. The demise of that view began with the invention of the electron microscope many years earlier.

The most powerful tool for investigating genetically oriented relationships among organisms is based upon their 16s RNA makeup. I am informed by persons in that field that this method places mycoplasmas squarely among the typical eubacteria (true bacteria) and that, far from being intermediate between bacteria and viruses, they are not even members of the more primitive archaebacteria. They are simply bacteria that have lost the ability to produce peptidoglycan, which affects their appearance.

I hope the researchers involved in the new studies have not missed these developments.

Kenneth L. Temple
Emeritus Professor of Microbiology
Montana State University
Bozeman, Mont.

Study director Shyh-Ching Lo agrees that gene-structure studies indicate mycoplasmas are true bacteria. He says confusion has persisted because mycoplasmas, like viruses, have small genomes and lack cell walls. — R. Weiss