

ACADEMY STREET NETWORK

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National Solar Power Research Institute, Inc.

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SOLAR DECISION-MAKING PROBLEM:

The Coming of Information Overload

The Information Highway Summit held in January at UCLA succeeded in bringing much attention to plans to create a national standard structure by which electronic information will be able to spread. You can tell the level of success by the number of commercials that make use of it. One commercial shows how everyone's life will be enhanced by the new national information highway while another says essentially the same thing in a more humorous way. Well, without drifting too far away from the point I am trying to make, I'd like to point out that **these commercials are basically wrong — they are promising too much.** They have to though, otherwise people wouldn't be interested.

Instead, the real revolution in making information available in electronic form happened several years ago, but it has been an unofficial secret of people in the know - universities, certain companies, etc. It has only been recently that people noticed that something called the Internet exists and how much really is available on it. The proposed information highway is more of a consolidating attempt than a real revolution. This is okay, though. It is a sign of the maturity of this field when more and more people become interested in it and are active participants in it. In a way, this is a much greater dramatic revolution than any commercial can really convey.

The best historical analogy that anybody can think of is that of the printing press and its effect on making information available several fold. This revolution is something usually glossed over in history classes, since its effects are too impossibly enormous and widespread to trace directly back to the printing press because after a while books were a common part of any educated individual's landscape. This revolution was impressive not so much for itself, but what it made possible simply by occurring. Information travelled around much more quickly and more people could exchange ideas (though sometimes only one-way). So, roughly speaking, things happened a lot sooner than likely they otherwise would have. Our electronic information services will undoubtedly cause something similar to happen, but we won't notice it until a long time after it has happened because it will be so subtle as to not be noticed.

However, now we have to deal with the problem of how to let the average American in on this, because no matter how amazing a technological marvel the information highway turns out to be its true test will be in how many people will be able to use it. It is no secret that presently a relatively small percentage of people actually know how to get into and make use of these online services, which is obviously not doing the rest very much good. What hasn't been talked about much is this: **we have the tools by which we can make available enormous amounts of information in a timely fashion, but we**

ourselves are no better equipped to handle it. Or, to put it more simply, more and more people will be feeling the impact of "information overload." People that do research regularly now, whether it is a part of their job or on their own or for classes, will undoubtedly be familiar with this. How do you make your way through a ton of texts, magazine articles, FAQs (a new animal altogether — the Frequently Asked Questions document), or, heaven forbid, actual raw data?! The Information Highway, if successful, will pile on a lot more electronic versions of information on top of the pile you already have dominating your desk.

As a final, parting note, I would just like to put this in perspective from the point of view of this newsletter. The trials and tribulation of the Information Highway, whatever they turn out to be, will not be of special interest to NSPRI in particular, but important in ways that will be so to everybody. Since much of NSPRI depends on the timely analysis of information, it is important for us to perhaps spend some time working out how we can deal with this. To restate the question asked earlier, how do you make your way through a pile of information that is only going to expand? This is the question I'd like to pose, rhetorically of course — I would undoubtedly get far too many responses now than I have time to deal with. — *Peter Spangler.*

EXPANDING SOLAR EMPOWERMENT !

Our observations of freshman "English as a Second Language" (ESL) students in college showed that many have extra difficulties in physics. As with other science classes, there are a lot of new terms and definitions. ESL students feel shock when first reading through these new terms and definitions. The purpose of our Translation Sheet Project is to provide both in English and another language (Spanish and Chinese thus far) the most important terms and definitions on easily reproducible sheets so that many students will have access to this resource. With these sheets, ESL students will feel more comfortable reading physics textbooks, build greater self-confidence in working with the physical sciences and eventually make more informed decisions about solar energy use. — *Jean Wu.*

REPORTS

Technical Concepts Division: The Solar Battery Charger Group is engaged in testing its Phase One battery charger for durability and utility. If it is found, using presently-known materials, that there is a clear cost-durability trade-off, which will need to be addressed in Phase II's focus on reliability factors. An initial literature search continues to be undertaken to determine the state of the technology of photovoltaic cell technology (David Lewak). A preliminary directory of solar energy-related resources available on the Internet has been compiled and will be made available next month (Peter Spangler). **Educational**

Programs Division: Initial drafts of physical science term translation sheets are being reviewed by student users (Jean Wu - Chinese/English; Ri-Xi Liang - Spanish/English). The University Programs Group continues to study possible liaison activities. **Policy Division:** An initial study of domestic energy policy decision-making concerning both terrestrial and space-based solar power is continuing. (M. Ciotola). Initial information-gathering has been completed for a qualitative survey of the domestic solar energy industry and retail system and a draft report is being developed (A. To). **World Studies Division:** Initial literature studies are presently being undertaken for the following areas of the world: Africa (Abdoulaye Yansane); North America (Olivia Mah); and Belize (Karla Gottlieb). Other areas will be studied later.

ACADEMY STREET REVIEW

Product Review - "Educational Solar Energy Kit"

This kit, by Sun Mate™ Corp. (Item No. 689) of Canoga Park, California, contains eight 0.4 Volt, 100 mA encased solar cells, an electric motor and hardware to connect them all together. The kit also contains a 10 page manual and costs \$21.95 in San Francisco at a Learningsmith™ outlet at a premium mall.

This kit deserves special mention because it has the greatest educational value of any photovoltaic kit readily available as a low-cost consumer item the writer has seen. The eight cells can be connected in series, parallel or combination, clearly demonstrating the effect of various arrangements of solar cells. The manual is well written in comparison to many others.

Though manufactured in Hong Kong, purchase of the kit could still have positive impact on the trade deficit as a battery charger by reducing imports of chemicals used for battery manufacturing and (for some parts of the country) petroleum for utility electricity generation. For use as a battery charger, it would be beneficial to also purchase 2 AA battery holders.

It is not as cheap to make, but more reliable than, our present model and of course takes less time to set up. The manual is better than seen elsewhere, but motor could use lubrication instructions. All in all, an excellent and operational classroom or educational kit.

Book review: Edison, A Biography

by Matthew Josephson © 1959 Pub. 1959 by McGraw-Hill. Foreword, © 1992 by Reese Jenkins. Pub. by John Wiley & Sons, Inc.

Edison, A Biography is a key piece of reading for would-be developers of an underdeveloped power source such as solar, particularly if it relates to electricity. It shows that Thomas Alva Edison (the inventor who worked during the late 18th and early 19th century) did not merely invent a practical light bulb, but

also means of generating and distributing sufficient current.

The book covers a lot of ground relating to Edison's character (portraying both the good and the bad parts) and Edison's other inventive works (he also invented the first commercializable versions of the phonograph and motion picture films and discovered the electron tube). However, large portions are devoted to the development of the light bulb, generating systems, distribution systems, storage batteries and the electric automobile in enough detail to make the reader feel as if personally present during these great efforts (which in terms of imagery is not always pleasant).

An interesting background theme is the presentation of Henry Ford, a great friend and fan of Edison. The book portrays both Ford and Edison as artists who wished to make a better world for everyone, especially individualists, but who actually created a mass-consumption society where individualism nearly disappeared. Edison is portrayed as a grease-covered yet cultivated intellectual (even though legend has him as unschooled, he was extensively educated by his mother) with a wide-range of interests, while Ford was portrayed as more single-minded (his only major innovations were related to the automobile). Curiously, Ford was originally a pacifist and even went on an ill-fated, pitifully idealistic peace mission to Europe to try to stop World War I.

This background is worth mentioning here, because it involved the development of the electric automobile. Ford considered Edison to be his mentor and tried to follow Edison in everything, including by electrifying everything possible in the Ford factories. Edison, and therefore Ford, wanted very badly to build an electric car (which they knew would be quieter and cleaner than one petroleum-powered). The heartening note is that they actually built electric cars for "short-haul" use and these were reasonably popular. Unfortunately, try as hard as they could, they could not develop an electric automobile for long distance use (although that was 80 years ago — surely the technology has advanced!).

The biography wanders somewhat chronologically, but given the cornucopia of Edison's activities, this is yet effective, if a bit disconcerting sometimes. The book, a voluminous 500 pages in paperback version (printed on acid-free paper), is a bargain at \$15.95, but can be tedious reading as the technical details are important. Nevertheless, the book is written for the non-technical reader and touches on a lot of general history. Further, for anyone trying to develop or advocate community-wide or larger-scale solar electric systems, this is must reading, because not only is today's electrical grid still based upon much of the same technology but also, as demonstrated, these systems are as much an art as a science. For all kinds of solar energy experimenters, this book will add historical depth to their efforts. For those who pay a monthly check to the electric utility, they will have a better idea of exactly what they are paying for. — *Mark Ciotola.*

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