

# Lawrence Berkeley National Laboratory

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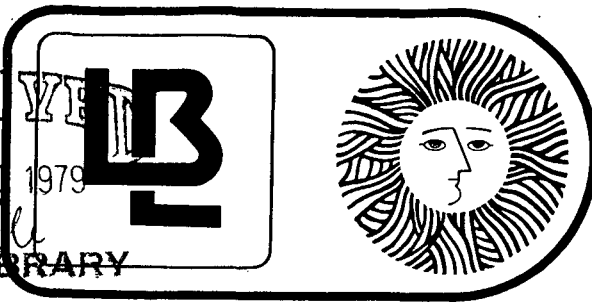
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August-September 1978

NEWSLETTER

Editor: Jeffrey Kessel  
50A-4112  
Ext. 5001

Lawrence Berkeley Laboratory  
Energy and Environment Division

**For Reference**

Not to be taken from this room

★ Division News ★

- The Energy & Environment Division has a new head. We extend a cordial welcome to *Elton Cairns*, who takes over this month from acting head *Sam Berman*.

Elton should have little trouble finding his way around, since he received his doctorate in Chemical Engineering from UCB in 1959. His recent professional experience includes being Assistant Department Head of the Electrochemistry Department at General Motors (1973 to date) and being Section Head of the Energy Conversion Section at Argonne National Laboratory. Elton has participated on many government committees and panels concerned with energy and environmental matters. He has contributed numerous patents and publications in the areas of electro-chemical kinetics, fuel cells, molten salts, liquid metals, thermodynamics, surface chemistry, catalysis, transport phenomena, ambient-temperature cells, and lithium/chalcogen cells.

The Energy & Environment Division employees look forward to getting to know and working with Elton over the coming years.

- *Tony Hanson* and *Lee Schipper* are the new coordinators of the E&E Division seminar series. We all owe *Arlon Hunt* and *Rich Sextro* our thanks for their efforts in coordinating our seminar and colloquium series this past year.
- A note from *Les Packer* on new faces in the Membrane Bioenergetics Group:

Visiting *Professor Chanoch Carmeli* from the Department of Biochemistry, Tel-Aviv University, is spending one year sabbatical leave investigating energy transduction mechanisms in bacteriorhodopsin and membranes.

*Dr. Irmelin Probst*, a postdoctoral fellow supported by the Deutsche Forschungsgemeinschaft, is joining us for the better part of a year to collaborate in studies on hydrogenase, nitrogenase interrelationships in blue-green algae.

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New graduate students are *Tony Racanelli*, a graduate student in the Comparative Biochemistry Program, who will study halobacteria and bacteriorhodopsin, and *David Ojcius* who will be developing thesis research under the supervision of *Alex Quintanilha* in the Biophysics Program on ESR studies of mitochondrial membranes in relation to the effects of pollutants, stress and oxidative damage.

The Membrane Bioenergetics Groups is also pleased to welcome back for the summer *Lydia Chang* from the University of Hong Kong and *Ian Fry* from the University of London King's College who worked with the Group two years ago and are continuing their collaboration.

- The Division Office Staff extends a long-distance hello to *Barbara West*, whom we are sure is constantly thinking of LBL while basking on the sunny Pribilof Islands. Holding the fort in her absence, *Garth Burns* has quickly developed callouses on his phoneward ear.
- The following is a list of committees on which Division personnel serve. If you have any additions or corrections to this list, please notify Charlie Case (ext. 5001).

Committees - Energy & Environment Division

- 1) Administrative and Clerical Salary Committee - *Barbara West*
- 2) Administrative Advisory Council - *Barbara West*
- 3) Computer Advisory Committee - *Henry Ruderman*
- 4) Copy Machine Committee - (no E&E Division member)
- 5) Engineering and Technical Services Committee on Professional Standards - (no E&E Division Member)
- 6) General Plant Committee - *Barbara West*
- 7) Library Committee - *Carl Blumstein*
- 8) Laboratory Staff Committee - *Jack Hollander*
- 9) Hearing Officers for Formal Grievance Hearings - *John Harte, Helen Michel*
- 10) Environmental Policy Analysis Committee - *Sam Berman*
- 11) Real Time Systems Advisory Committee - (no E&E Division member)
- 12) Professional/Executive Salary Committee - (no E&E Division member)
- 13) Scientific Program Council - *Sam Berman, Tica Novakov*
- 14) TID Advisory Council - *Nabil Amer*
- 15) Self Evaluation Committee (disability employment) - *Dottie Bottini*
- 16) Automatic Data Processing Committee - *Dottie Bottini*
- 17) Employee Relations Committee - *Helen Michel*
- 18) Equal Employment Opportunity Council - *Dotti Bottini, Frank Asaro*
- 19) Building 70 and 70A Space Committee - *Nancy Brown*

Internal Committees with Members from the Energy & Environment Division Only

- 1) Chemistry Committee - *Amos Newton, Tica Novakov, Nabil Amer, Sid Phillips* (This committee has four other members from two other divisions.)
- 2) E&E Professional Salary Committee - *Sam Berman, Charlie Case, John Harte, Frank Robben, Will Siri, Mike Wahlig, Charles Wilke, Art Rosenfeld, Tica Novakov*
- 3) Future of the Energy & Environment Division Committee - *Edward Alpen, Robert Birge, John Harte, John Holdren, Jack Hollander, Jud King, Bart McGuire, Tica Novakov, Carl York* (A few of these members do not belong to the E&E Division.)
- 4) Affirmative Action Committee - This committee is being formed.
- 5) Senior Staff Committee - *Frank Asaro, Ted Vermeulen, Jack Hollander, Tica Novakov, John Harte, Art Rosenfeld, Mike Wahlig*
- 6) Combustion Committee - *Frank Robben, Alex Bell, Alex Chorin, Toni Oppenheim, Bob Sawyer, Chang Tien*
- 7) Energy Efficient Buildings Search Committee - *Art Rosenfeld, Ron Kammerud, Mike Wahlig, Carl York, Ted Edlin, Fred Winkelmann, Craig Hollowell, Sam Berman*
- 8) Policy Analysis Committee - *Will Siri, John Harte, Sam Berman, John Holdren, Jack Hollander, Paul Craig, Mark Levine* (There may be other members of this committee.)

- The existing so-called parking situation at LBL is about to take three giant steps backwards with the arrival of 14,000 square feet of trailer office space in the Building 90 parking lot. This will give the Lab some much needed office space by eliminating some much needed parking space. *Art Rosenfeld* has been circulating a memo that is critical of the present Orange Circle/Blue Triangle/General parking permit system. Art proposes a system similar to that used on campus, whereby a fraction of the blue permits would be offered for sale to any employee. Other ideas discussed in the memo include the restoration of the short-term (15-, 30-minute and one hour) spaces in front of Building 90, use of parking meters in certain areas, and increased shuttle service (possibly to the Rockridge Bart station).

- Over the past year a number of new research projects concerned with oil shale technology have commenced at LBL. From quarters in the Building 70 cave, *Phyllis Fox* sends this brief overview of oil shale research:

Oil shale, which is a marlstone containing about 30 percent organic material, is a potential source of hydrocarbon fuels. The total estimated oil in place in the tri-state area of Colorado, Utah and Wyoming is about two trillion barrels, of which over 100 billion is recoverable with known technology. This exceeds known world petroleum reserves. Development of this resource has been

top priority by DOE and extensive R&D work is underway in the field and in laboratories of many industries, universities and national laboratories. The E&E Division has recently developed a significant program in the area of environmental effects of oil shale processing.

One of the most pressing problems for the emerging oil shale industry is environmental integrity. The reserves occur in a water-short, undeveloped region. Many of the richer deposits are sandwiched between two groundwater aquifers which feed the Colorado River. In situ processing disturbs these aquifers through leaching of the residue remaining after oil is extracted. Additionally, large volumes of highly contaminated gases and water are produced during processing. The LBL Oil Shale Program is studying these problems and others and developing control methods to mitigate their effects. Some of the programmatic areas under investigation include the measurement and removal of trace elements in gas streams, kinetic investigations of the leaching of organics and their transport in groundwater systems, development and application of methods to measure organometallic species in highly contaminated waters, and development of novel methods for pollutant reduction.

★ Appointments, Awards, Grants and Honors ★

- Congratulations to *Yvonne Ladson* and *Joan Oldfather* who were selected as Division Interns for the coming year. Yvonne will be part of the Regional Studies Group, while Joan will work with *John Harte*.
- *Sabri Ergun's* 1952 article "Fluid Flow Through Packed Columns" has been selected as a Citation Classic (most cited item in its field) by Current Contents, a scientific journal.

★ Trips, Conferences and Presentations ★

- *Nancy Brown* attended the 17th Combustion Symposium at the University of Leeds, England in August. Nancy also visited various centers of combustion research in England and France.
- *Robert Cheng* traveled to Leeds, England to attend the 17th Combustion Symposium.
- *Lester Packer* circled the globe this summer, attending biophysics workshops and conferences in Greece, India and Japan.
- *Brady Williamson* attended the 17th Combustion Symposium at Leeds, England, and visited combustion research centers in England and France.
- *Frank Asaro* was in Prague, Czechoslovakia to attend the combined conference of the 20th Colloquium Spectroscopium Internationale and the 7th International Conference on Atomic Spectroscopy. Frank was chairman of one of the sessions and presented a paper on Applied Gamma Ray Spectroscopy and Neutron Activation Analysis.

- *Mathilde Kland* attended and presented papers at June meetings in Seattle, Washington of the ACS and AAAS. Mathilde's papers concerned the prediction of environmental and health effects of chemicals and the implementation of the Toxic Substances Control Act. This law, enacted in 1976, was motivated by studies of occupational health, which made apparent that the general public was liable to suffer the same illnesses manifested by workers exposed to toxic substances at the place of production. The Toxic Substances Control Act attempts to lessen the exposure of the population to harmful substances through control of their manufacture and distribution.
- *Samuel Markovitz* presented a paper at the 176th National Meeting of the American Chemical Society at Miami Beach, Florida. The paper, co-authored by *Marc Clemenson* and *Tica Novakov*, concerns a novel method for measuring the amount of low atomic weight particles in atmospheric aerosols.
- At a July hearing of the California Energy Commission, *Anthony Fisher* and *Art Rosenfeld* submitted a paper on a scheme to conserve energy in an economically equitable manner. The authors propose to allow a utility to sell, say electricity, at the marginal cost price (MCP). This is the cost of electricity produced by a new plant and is about 50 percent higher than the costs presently charged. Such a price increase should reduce consumption and motivate purchase of energy-conserving homes and appliances. However, the utilities would be able to suddenly reap windfall profits. To remedy this, refunds per capita (RPC) would be made to utility customers. Copies of this paper are available from Art, and the authors are interested in receiving comments on their plan.
- *Dave Grimsrud* will be attending a development meeting of the newly formed Air Infiltration Data Management Center at the Building Services Research and Information Association (BSRIA) at Bracknell, England. The meeting will consider the present state of international cooperation in air infiltration research and develop guidelines for the Center, which will manage data resulting from infiltration research in many countries.

Results from LBL's Walnut Creek test house (a fairly typical small home rented for research purposes) will be shared with scientists from European countries who are attempting to develop a dwelling leakage criteria which could become part of the building codes. The theory behind this effort is that the ability of a dwelling to conserve heating or air-conditioning energy by reducing infiltration of external air is related to the amount of air that can be forced out of the dwelling when pressurized by a large fan placed over the front door opening. Presumably future building code modifications will stipulate a maximum air flow for a given fan-induced pressure.

- *John Harte* will be attending the International Seminar on Impacts and Risks of Energy Strategies, to be held in Stockholm, Sweden. John will present a paper titled "The Risks of Energy Strategies: An Ecological Perspective."

### New Employees

- *Harvey Blanch* will be joining *Charles Wilke's* group working on cellulose conversion. Harvey, an Associate Professor of Chemical Engineering at UCB, will have a joint faculty appointment.
- *Pamela Bostelmann* will be assisting the administration of the Energy Efficient Buildings Program. Pamela is reported to keep her neighbors in Building 90 jumping with her machine-gun touch on the Selectric.
- *Chanoch Carmeli*, on sabbatical leave from Tel-Aviv University, will be working with *Les Packer's* group on Membrane Bioenergetics.
- *Michael Cohen* (GSRA), a student at Boalt Hall School of Law, joins *Mark Horowitz* on the Data Validation Project.
- *Lynn Conway*, a student at UCB, begins work as a Computing Technician with the DOE-1 Building Energy Analysis Program.
- *David Dornfeld*, an Assistant Professor of Mechanical Engineering at UCB, will be working part-time with *Peter Benenson* on constructing quantitative conservation scenarios for transportation and industrial processes.
- *Leah Fanning*, with a B.S. in Chemistry from UCB, will be working with *Chin-I Lin* on research concerning organic pollutant concentration versus dwelling ventilation rate.
- *Andre Ghirardi* (GSRA), with an M.S. in Engineering from MIT, will be working with *John Holdren* in the Energy & Resources Group.
- *Thomas Gravel* (GSRA), a student in Landscape Architecture at UCB, will be working with *Ron Ritschard* in the Energy Analysis Program.
- *William Hall* (GSRA), a student in Civil/Sanitary Engineering at UCB, is joining *Phyllis Fox* in research on leaching from spent shale. This is the phenomena whereby groundwater leaches contaminants into potable water supplies from the crushed and burnt rock remaining after in-situ removal of shale oil.
- *Mary Hart* will be working with *Sandi Kronquist* in the administration of the Data Validation Project.
- *Alex Horne*, a joint faculty appointment with UCB where he is an Associate Professor in the Department of Sanitary Engineering, joins *Pat Wilde* for research on the OTEC Project.
- *Joseph Humphrey*, an Assistant Professor in the Department of Mechanical Engineering at UCB, will work at LBL as a joint faculty appointment. Joseph will be working with *Robert Sawyer* on Combustion Research.
- *Veronica Kun* (GSRA) will be working in the Energy & Resources Group, where she is a student.



- *Wai-Ching Ling* (GSRA), a student of Operations Research at UCB, will be working with *Brady Williamson* on designing a fire growth experiment toward developing a standard room fire test.
- *Scott McCreary* (GSRA) will be working in the Energy Analysis Program with *Ron Ritschard*. Scott is a student of Landscape Architecture at UCB.
- *David Mixon* (GSRA), a student in the Department of Chemical Engineering at UCB, will be working with *Ted Vermeulen* on Coal Research.
- *Thomas Rice* (GSRA), a student in the Department of Economics at UCB, joins the Data Validation Project, where he will study the Price Monitoring System for Middle Distillate Fuels.
- *Alan Robb*, with an MS in Electrical Engineering/Computer Science from UCB, joins the Energy Efficient Buildings Program where he will be working on mini-computer systems. Alan previously supervised hardware and software development of the Lawrence Hall of Science computer systems.
- *Gautam Shiralkar*, with an MS in Mechanical Engineering from MIT, will be working with *Chang-L. Tien* doing research on the Thermal Radiation of Luminous Flames and Smoke.
- *Carol Stoker* will be assisting the administration of the Data Validation Project.
- *Laura Tom*, a student of Bioengineering at UCB, will be working as a part-time Technical Assistant doing research on the biological treatment and chemical analyses of waters related to oil shale.
- *Timothy Tong* (GSRA), a student in the Department of Mechanical Engineering at UCB, will be doing research with *Chang-L. Tien*.
- *Robert Twiss*, a joint faculty appointment with UCB, joins the Energy Analysis Program to direct work on a portion of the National Solar Assessment.
- *David Van Volkenburg* (GSRA), a student in the Department of Mechanical Engineering at UCB, will be working with *Brady Williamson* on fire testing structures. When David and his co-workers ignite various mock-up wall structures at the Richmond Field Station, the aroma holds its own against competition from both a nearby Sanitary Engineering facility and a neighboring chemical plant. Hopefully these pungent practices will result in a standardized trial by fire for the various building materials on the market.
- *Brady Williamson* joins LBL as a joint faculty appointment with the Department of Civil Engineering at UCB. Brady will be working on Fire Research in the Combustion Research Group at LBL.
- *Zafer Yasa*, with a Ph.D. in Electrical Engineering from UCB, joins *Nabil Amer* to do research on high resolution laser spectroscopy of gases and liquids.

- The Division Office also has some new faces. *Mary Worth, Dharma Kaur* and *Garth Burns* are now sharing *Barbara West's* spacious quarters. As for the previous tenants, *Jose Alvarez* has completed his Division Internship and has gone on to work toward an MBA at UCB. *Yvonne Ladson* is beginning an internship in the Regional Studies Group.

