

EX-Ls EX-PRESS

Volume 25 Number 4
Fall 2007

*25th YEAR
ANNIVERSARY
CELEBRATION*

1982 – 2007

The EX-Ls Board of Directors and members gratefully acknowledge the
Lawrence Berkeley National Laboratory Administration
for their continuing support for all these years.



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Seems Like Old Times

*Good friends, good times—come join us for our
25th Anniversary Celebration*

2007 Fall Lunch

Date **Thursday, November 15, 2007**

Where: **Berkeley Yacht Club ← Note the location (directions on p8)
1 Seawall Drive (at the foot of University Avenue), Berkeley**

Banquet/Meeting room: to right of entrance

Sign-in tables: Just outside the main banquet room

Bar Service: Located left of the entrance; opens at 11:30

Time: **No-host Bar: 11:30 AM
Lunch Served: 12:00 Noon**

Speaker: **Steven Chu**

Subject: **New Initiatives for LBNL**

Menu: **Extensive Thanksgiving buffet (Catered by McDonough's Catering)
Caesar salad (served family-style at table)**

Cost: **\$25 per person (PREPAID)**

Reservations: **Please make checks payable to EX-Ls. Send to
Vicky Jared
4849 John Muir Road
Martinez, CA 94553**

**It is absolutely imperative that Vicky receive your
reservations by November 12, 2007
(Reservation slip on page 15)**

President's Message
Janis Dairiki

The year has flown by and this is my last President's message – I can hear you all sigh with relief already! It has been both a privilege and a pleasure to work with all of you. It has been a special pleasure to work with the other Board members and I want to thank them for their hard and dedicated work over the past year(s). My thanks also to Terry Powell, the Lab's representative on the Board, who has given me much assistance over the last three years. I also want to thank Lab Director, Steve Chu, and Reid Edwards for their continued support of the organization. We owe the success of our group to many people and, especially, to the many talents and willing volunteer efforts of so many of our members.

There will be a new slate of officers presented to the membership for approval at our next luncheon and I will then hand over the gavel to Jose Alonso, our new President, knowing that the organization is in good hands.

But, before that, I'm looking forward to the celebration of our 25th Anniversary at our next luncheon – November 15 – at the Berkeley Yacht Club. Don Grether will lead off the program by providing a narration to go along with the DVD made by the Lab to celebrate its 75th anniversary last year. Jose Alonso and Terry Powell have snared LBNL Director Steve Chu to be our speaker at this special event. Vicky Jared has been busy planning special food, decorations and mementos for the occasion. It will be a special celebration and an excellent opportunity to remember and thank the founding members of the EX-Ls. Dave Stevens will record all the happenings in the January 2008 newsletter. Please send him any photos or historical memories you would like to share.

And there will be yet one more luncheon venue survey to round out the year – look for it at the luncheon. We need to make a decision about our luncheon site(s) in 2008 – BYC or Spenger's or alternating between the two and the Board needs your input.

We did not receive many responses to the new Lab News Highlights introduced (in 2 formats) in the last Newsletter. Dave Stevens has again put together the column, with a new name -- Keeping up with the Lab – in the most recent Newsletter. Please send feedback and comments, positive or negative to david_stevens@comcast.net.

While you're writing to Dave, we would also like to hear about your news. Let Dave know what you've been up to. Or jot your news down on a pad at the next luncheon.

One last follow-up item. The Lawrence Hall of Science (LHS) recently appointed Ric Ambrose as project manager for the refurbishing of the 37-inch cyclotron magnet outside the hall in time for the Hall's 40th anniversary in May 2008. A fund-raising campaign will be announced in the near future. The EX-Ls Board will continue to follow and report on this project.

From our August Luncheon

Reported by Jose Alonso. Bill Collins, recently arrived from NCAR (National Center for Atmospheric Research, Boulder) is the Department Head of the newly formed Climate Sciences Department of the Earth Sciences Division. He is one of the lead authors on the most recent UN-sponsored IPCC (Intergovernmental Panel on Climate Change) report on climate science. The IPCC has just been honored with a share of this year's Nobel Peace Prize! (The Nobel Committee was just as impressed with Bill's work as we were!) He spoke to the gathered EX-Ls of global warming, and the extremely strong evidence pointing to human factors that are driving this trend at an accelerating rate.

He started with a clear definition of "climate" as distinguished from "weather": the general behavior of such factors as wind, rain and temperature patterns in a given area. Broad zones of similar climate can be defined; for instance, North America can be characterized by approximately 10 or 11 different "climate zones". *Weather* is local in time as well as space, whereas *climate* in a region tends to be stable for periods of thousands of years. The field of climate science relates to determination of climates and their changes – in past ages, at the present, and for the future.

He described techniques used for evaluating climate in years before human records are available: fossil records from tree rings, pollen, and ice cores. Ice cores – in particular from Greenland and Antarctica – through analysis of molecular concentrations and isotopic ratios in trapped gas bubbles and dust and ash layers, allow us to trace historical climate and geologically pivotal factors back for almost one million years. Records so determined show periodic variations in temperature, sea level, and atmospheric CO₂ concentrations of remarkable consistency and repeatability. Periodicity is of the order of 100 thousand years. He also introduced to us the emerging new field of "paleo-climatic art history": inferring climate conditions from records (such as paintings, ledgers, tablets or other human-generated media) of temperature, crop yields, snow cover, etc.

Tools available for assessing present climate and important determining factors include extensive instrumentation at innumerable sites, as well as global satellite imaging and balloon-borne instruments. These techniques are providing a wealth of information that is being analyzed and integrated by climate scientists to take the pulse of our planet.

As for the future, unfortunately we don't have instruments capable of measuring future climate, so must rely on computer models. Such modeling is incredibly complex, involving the as-yet-not-completely understood interactions among many factors, and requires the world's most powerful computers to grind out results. Many different models exist ("approximately one model per 100 million people" says Bill). Tuning these models is accomplished by fitting historical data, a particularly powerful technique that serves to give credibility to results generated for future extrapolations.

The basic premise of these models is the balance of energy absorbed and emitted by the planet. For stability, these two are, on the average, perfectly balanced. Any factors favoring one over the other will inevitably lead to a change in the energy balance, and hence to temperature, and related climatic changes.

The sun provides the source of energy, with the amount reaching the planet being determined by solar output (known to be correlated with sunspot activity) and orbital variations in the earth, including changes in axis tilt. Such factors are well understood and calculable, and do correlate well with observed variations in climatic behavior.

Energy absorbed and retained by the planet is driven in large measure by atmospheric factors. Reflectivity from clouds and aerosols prevents some solar radiation from reaching the surface. (Reflection from surface features is important as well; for instance, reduced ice cover in the Arctic leads to more radiation being absorbed by the darker water.) Extremely important atmospheric components, however, are the greenhouse gas constituents. Such constituents, such as CO₂, water vapor, methane, NO, reflect infrared radiation, sending this component from solar radiation back into space, but also – and more importantly – reflecting that emitted from the earth back to the surface. Bill pointed out that the importance of this could be easily assessed by comparing the average temperature of the moon with that of earth. Both receive the same amount of solar radiation, but the moon's average temperature is substantially below that of earth.*

Greenhouse components of the atmosphere are tiny fractions of the total, but are critically important in driving the energy balance. Thus, studying the variation in these components over historical periods, both distant and recent, can give important information about climate change. Specifically, CO₂ concentration over the last thousands of years correlates very well with temperature records. CO₂ is both a driver and a product of climatic factors, and climate models now can calculate and predict this complex interrelationship.

The alarming data from modern times is that, while for the last ten thousand years atmospheric CO₂ concentration has been essentially unchanged at 270 ppm (parts per million), it began a precipitous rise at the beginning of the industrial revolution (ca 1800). In the last 200 years the level has risen to 380 ppm, but the rate of increase is accelerating now; the present-day slope is about 20 ppm per decade. Other greenhouse gases have shown a similar trend. Model calculations with the most generous allowance for “natural” factors (historical cycles, volcanic activity) cannot come close to predicting this rise.

Folding these data into the best model calculations, indicates that the average surface temperature of the globe will increase from 2° to 4 °C by 2100; however, the effect will be much

* What *is* the average temperature of the moon? According to <http://www.lunarpedia.org/index.php?title=Lunar_Temperature> at a depth of a few meters, subject to average variations over the lunar day, average temperature is about 23°C at the lunar equator, -24°C at 60° latitude, and -110°C at the poles. The effect of earth's atmosphere in trapping heat (as well, of course, in smoothing out the huge extremes) is apparent.

more pronounced in the Arctic, where the average temperature rise may be as high as 7°C. This would result in ice-free summers, and thawing of permafrost, with the very substantial environmental impacts to tundra, forests and fauna.

However, Bill ended the talk on an optimistic note, stating that these projections were based on growth of greenhouse gas concentrations that would occur from no change in our current pattern of consumption of fossil fuels. He said that models show much more modest effects if this pattern is changed, and new technologies with less carbon-use are employed.

The challenge to all of us, then, is to push for new technologies, for the political will to respond to the problem, and, above all, for each of us to practice conservation to the greatest extent possible in our daily lives.

[For the full report, all 1000 pages, downloadable as .pdf files, see: <<http://ipcc-wg1.ucar.edu/wg1/wg1-report.html>>]

Luncheon Attendees:

John Ainsworth	Don & Rebecca Grether	Mack & Ann Morgan
Jose Alonso	Connie & Edward	Marty Morimoto
Shirley Ashley	Grondona	Bob & Jeanne Mortiboy
Bob Avery	Jim Haley	Rolf Muller
Dick Baker	Jane Hall & guest Janet	Catherine Parrott-Hawkins
Winnie Baker	Messman	Fred Perry
Sharon Barrett	Harry Heckman	Conway Peterson
James Bettencourt	Winnie Heppler	Terry Powell & guests
Gene & Myrna Binnall	Egon & Annette Hoyer	Martin Jara & Caleb
Bob & Elizabeth Birge	Marjorie Hutchinson	Dardick
Kay Bristol	Vicky Jared	Susan & Bernie Quarello-
Geores & Katie Buttner	Nylan Jeung	Schluch
Senta Chamberlain &	John & Ann Kadyk	Ellie & Gwen Ralph
guests Bernard &	Joe Katz	Stephanie Roth
Margaret Harvey	Fred Kirsten	Andy Sessler
Donald Cowles	Joseph Klems	Brenda Shank
Per & Eleanor Dahl	Al & Dorothy Kleven	Ben Shuey
Sybil Donn	Bud Larsh	Robbie & Mary Smits
Doug Drummond	John & Barbara Lax	Robert Springsteen
Andy DuBois	Ken Lou & guest Vince	Dave Stevens
Don Eagling	Ramano	Robert Stokstad
Rose Marie Forment	Donald & Bertha Miller &	Suzanne Stroh
Jack Gavin	guest Ed Lofgren	Clyde Taylor
Lee Glasgow	Robert Miller	Richard Wolgast
Norm Goldstein & guest	Ken Mirk	Speaker William Collins &
Al Pasternak	Vic & Nancy Montoya	Jan Collins

Editor's Note

Remember that the November luncheon is not at Spenger's, but at the Berkeley Yacht Club (directions below). We are continuing our head-to-head comparison of BYC and Spenger's, and the Board will come to some sort of decision (even if it's an intentional "no decision yet") before the next meeting; in this regard, we are soliciting your opinions about the two venues: If you cannot make the luncheon, please contact a Board member directly with your comments. We are also continuing "Lab Notes" – under the new name of "Keeping up with the Lab" – for at least one more issue. Please let us know your feelings about this, too. This is our annual roster issue; please check your entry and let Suzanne (Suzanne Stroh, 530 Curtis St., Albany 94706) know of any errors. As always, articles or ideas for articles are welcome; the deadline for each issue is ten days after the preceding Board meeting (a full year's schedule is listed on the back cover). You can contact me at david_stevens@comcast.net, at 1107 Amador Ave, Berkeley 94707, or 510-524-2904. // dfs

Directions to the Berkeley Yacht Club

From the East: Go west on University Avenue, across the freeway overpass, and past the Seabreeze Market on your left. Stay on University past the Marina entrance, where University makes a slight turn to the left and then straightens again. Do not make a right turn until you are at the Municipal Fishing Pier and the Chinese Dog Warrior sculpture, at the extreme west end of University Ave.

Turn right and go north to the end of the road, where you will see the clubhouse and parking lot entrance. Parking is free but the lot sometimes fills for large events. There is considerable overflow parking capacity in other adjacent lots.

From the North: Take Route 880 south (also called 80 west or 580 east, but it really goes south) to Berkeley, and exit at University Avenue. The exit ramp makes a 180 degree turn to the right, so that you are headed north at the stop sign. Turn LEFT onto University Avenue, so that you are going west (towards the bay), and proceed as in "From the East", above.

From the South (and from the Bay Bridge): Take Route 880 north (also called 80 east or 580 west, but it really goes north) to Berkeley, exit at University Avenue, right under the arch-suspension pedestrian bridge. Follow the signs to Frontage Road and then to Fourth Street. You will end up making three right turns taking you to the westbound freeway overpass, as described in more detail in the next three paragraphs.

The off-ramp itself can be confusing and is poorly marked. Immediately after exiting to the right, the off-ramp splits. Stay to the right at the first split, following the first sign to Frontage Rd. Do not take the left-most branch of the off-ramp that goes uphill to the University Avenue overpass.

A few feet later the off-ramp splits again. Both branches go down to street level. This time take the one to the left, following the signs to Frontage Rd. and Fourth Street. (Don't panic if you get this wrong. Either of the two incorrect branches of the off-ramp will lead to eastbound University Ave. If this happens, make a U-turn at 6th or 7th and pick up the directions again at the overpass.)

After the off-ramp, continue one short block north on Frontage Road under the University Ave. overpass, and take the first right turn about one block past the overpass onto Hearst, following the Fourth Street sign. Go about five blocks east, across the tracks and across Fourth Street, to the traffic light at 6th. Turn right on 6th, go south one block, then turn right onto University Ave., heading west. Proceed as in "From the East", above.

Public Transportation: Take the #9 Bus (schedules and maps are available on-line at <http://www.actransit.org/maps/index.php>) to the Berkeley Pier, then walk north to the Yacht Club.

News of our members

Former Director **Andy Sessler** is co-author (with Edmund Wilson of CERN) of *Engines of Discovery*, a history of particle accelerators that chronicles their development from the invention of electrostatic accelerators, through linear accelerators and the cyclotron, to the colliders of today. The book also addresses accelerators employed as sources of x-rays for medical purposes and in industrial applications.

Norman Glendenning of NSD has authored a recent book titled "Our Place in the Universe." The book includes chapters on the formation of galaxies, the birth and life of stars, nebulae, and super-dense matter.

Jose Alonso, our incoming president presumptive, has been named the first director of the Sanford Underground Science and Engineering Laboratory (SUSEL). The multipurpose facility is being constructed at Homestake, a former gold mine in South Dakota.

Keeping up with the Lab

Whither nuclear power? While some scientists have expressed concerns over cost and safety, others, such as Berkeley Lab Director Steve Chu, feel exploring nuclear options, along with renewable energy and conservation research, is important in the fight against climate change. <http://www.climatechangecorp.com/content.asp?ContentID=4872>

Many a mickle makes a muckle: Little sources of power can add up. Cell phone chargers left plugged in, DVD clocks running day and night. Televisions, cable boxes, digital video recorders — any device with a computer chip that allows a display clock or remote control to work. Berkeley Lab estimates the power wasted from a typical home's electronics equals burning a 60-watt bulb year-round. Among the worst offenders: idle cable boxes. <http://www.charlotte.com/business/story/236763.html>

Carbon has company: Margaret Torn of ESD claims that the effect of nitrogen on the earth's climate is larger in magnitude and more profound than carbon, but its impact is being ignored; unless we control that problem, we won't solve climate change.
http://www.contracostatimes.com/news/ci_6604141?nclick_check=1

Funding for Lab facilities: The 2007-08 state budget includes \$70 million for Helios and the Energy Biosciences Institute.
<http://www.universityofcalifornia.edu/news/2007/aug24.html>

Berkeley Lab Audio Technology Gets Library Grant: This is a result of the work that Carl Haber recently discussed at an Ex-Ls luncheon.
<http://www.ims.gov/news/2007/092007.shtm>

MF Gains Berkeley's First Gold: LBNL's Molecular Foundry became the first building in Berkeley to receive a gold certification for leadership in energy and environmental design (LEED) from the US Green Building Council.
<http://www.lbl.gov/Science-Articles/Archive/MSD-Foundry-rating.html>

In addition to the above, regular Lab publications may be scanned at the following URLs; links to all three are available through the Ex-Ls home page on the web (www.lbl.gov/ex-l-express).

The Berkeley Lab VIEW Newsletter
<http://www.lbl.gov/Publications/Currents>

LBL Today (Daily news from LBL)
<http://www.lbl.gov/today>

Science @ Berkeley Lab
<http://enews.lbl.gov>

The UC Berkeley Retirement Center Andre Porter

[Note: The Center's *Retiree Work Opportunities Program* mentioned in the April Ex-Press received one of the original BreakThrough Awards given by Civic Ventures in May of this year. // ed]

We thought you might find interest in some of the following programs provided by our campus partners. We are also currently taking reservations for our fall Learning in Retirement courses, new UCBRC Book Club, and other Center programs. See further details on Center programs at <http://thecenter.berkeley.edu>

UC Berkeley's Osher Lifelong Learning Institute (OLLI@Berkeley)

OLLI@Berkeley began October 1 with courses, lectures, and special events to reconnect older adults with the intellectual and cultural life of the university. Course information may be found on the web at olli.berkeley.edu (Note: There is NO www in this URL). Berkeley Retirement Center constituents receive a special membership rate

of \$40 for a single term (normally \$50) with their retiree ID card. For details, see <http://thecenter.berkeley.edu/connect.html#olli>

The Faculty Club

Under the guidance of Events Chairman Jerry Lubenow the Club has begun a new series of regular programs addressing a range of interests and issues in the arts and sciences. The \$15 fee includes a wine and cheese reception at 5:30 and the program at 6:00 p.m. A schedule of future programs may be found at www.berkeleyfacultyclub.com

Lawrence Berkeley National Laboratory - Friends of Science

The Friends of Science program is sponsoring a series of free lectures at the Berkeley Repertory Theater (2025 Addison St). You can find more information, including currently scheduled talks, at <http://lbl.gov/friendsofscience>

Trip Report: Japan Dave Stevens

In keeping with my belief that trip reports should be more than catalogues of Places Visited and Sights Seen, I here present a brief summary of a recent trip to Japan in the form of an annotated haiku cycle. A *haiku* is a specific form of poetry, consisting of three lines of 5, 7, and 5 syllables. A good haiku will create a single image in the reader's mind, and will traditionally contain a seasonal reference. Few (if any) of the haiku in this cycle are good (see the entry for 21 October).

Oct 4-5 Berkeley to Sapporo – Leave SFO at 11:00 AM and arrive in Sapporo at 5:30 PM the next day, never having seen darkness

Airport meeting and
departure; flight to west makes
night that never was.

Amidst the green, are
trees on fire? Autumn leaves are
glowing through the steam.

Oct 6 Chitoseetsu – a sake factory in Sapporo
No sake making
in October, but sake
drinking all year round.

Oct 10 Noboribetsu to Hakkodate – Showa-Shinzan is a volcano that rose from nothing to 400m in 1943/4; the local tale is that it took only three days
Warm ground rising high
in three days, Showa-Shinzan
was born in wartime.

Oct 7 Otaru – a town north of Sapporo where the fishmarket specialized in crabs with a span of at least a full meter
Otaru now means
“king crab” to more than twenty
round eyes from Berkeley.

Oct 11 Hakkodate to Aomori – Hakkodate ropeway and the railway tunnel to the main island of Honshu
Like bird and fish we
travel today to mountain
top and through the sea.

Oct 8 Bifue Pass to Shiraoi – on the way from Sapporo to Noboribetsu, a spa town; Shiraoi is an Ainu museum village
Clinging to mountain
on serpent road, from vasty
view to Ainu song.

Oct 12 Nebuta & Kokeshi – Nebuta (or *Neputa*, depending upon local dialect) is derived from a Chinese festival; *kokeshi* are traditional dolls
House-high lanterns for
starry festival, round-head
dolls for little girls.

Oct 9 Jigokudani – a geothermal ‘hell’

Oct 13 Mount Hakoda – near Aomori
Summer lingered long;

-
- to find fall we took tramway
over flaming leaves.
- Oct 14 Genbikei – a river gorge, also near Aomori
An autumn leaf breaks
the mirror of the pool; weep
not: it soon returns.
- Oct 15 Matsushima – feeding gulls from a
sightseeing boat
A flock of gulls in
graceful glide snatching snacks from
water, wind, and hand.
- Oct 16 Tokyo – all business men wear black suits
Ravens croak even
in Ginza at dusk; were they
once men in black suits?
- Oct 17 Tokyo (with apologies to EBB)
How do I move thee?
Let me count the trains: More than
stars in Milky Way.
- Oct 18 Shiodome – a new section of Tokyo with
both underground and above-ground access among
buildings, featuring an impressive mechanical clock
Above the city's
streets the time is marked and
sung by mammoth clock.
- Oct 19 Tokyo to Sakai – via Shinkansen
Past Fuji into
rain that dampens not the joy
of friends in meeting.
- Oct 20 Osaka & Hamadera – visits with our host
family; Hamadera park in Sakai has a rose garden
White castle shines in
sun; ranks on ranks of roses
reflect autumn light.
- Oct 21 Sweets & haiku – we were instructed in the
making of traditional Japanese sweets and visited a
haiku exhibition
Seemingly simple,
sweets and haiku require more
art than I possess.
- Oct 22 Kushimoto
A resort town out
of season: Where have all the
laughing people gone?
- Oct 23 Hashikuiwa – a row of jagged rocks jutting
out of the bay in a line towards the island Ojima;
the legend is that the devil bet a saint that he
couldn't complete a bridge to the island in one
night; through trickery, the devil won the bet
Is the legend true?
Did devil win? Or are these
the teeth of dragons?
- Oct 24 Nachisan – a pilgrimage location with a
beautiful slender waterfall
Ever in balance,
white ribbons forever fall,
forever spirits soar.
- Oct 25 Sigh...
Splash! Camera falls in
toilet; no more photos for
this clumsy lefty.
- Oct 26 Mikimoto
How many oysters
must die because milady
wants a perfect pearl?
- Oct 27 Everywhere in Japan
Bicycles parked in
public places quite unlocked;
this is not Berkeley.
- Oct 28 Osu-Kannon (Nagoya) – the monthly
antique-and-flea-market at the Osu-Kannon temple
Old things, new things, fine
things and not so fine, once a
month on sale...Today!
- Oct 29 Long day's journey into day – leave Nagoya
at 4:00 PM and arrive SFO at 9:00 AM the same
calendar day
How odd to spend a
night that does not end the day
flying eastward home.
-

SEE YOU AT THE NOVEMBER 15 LUNCHEON

**To: Vicky Jared
4849 John Muir Road
Martinez, CA 94553
Be sure to make reservations by November 12**

From: _____

I plan to attend the Ex-Ls luncheon >> \$25pp << PREPAID

I will bring guest(s). Name(s) of guest(s): _____

Menu: Buffet: Advance choice not required

Please make check payable to Ex-Ls Total Enclosed: _____

In Memoriam

**William Baroni Elizabeth Thomas Birge
Dick Diamond Sandi Fischer
Theodore Gartner Fritz Marg
Beatrice McQueen Robert Mortimer
George Newell, Jr.
Robert Riddell Charles W. Tucker**

>>WELCOME NEW MEMBERS<<

**Edward Bennett Stephen R. Brown
Trude Forte Paul Gee
Blair Jarrett Donna Jones
Michael Press Starr Shulman
Lisa Snow Betty Strausbaugh
Harold Wilson**

Advance notice for continuing members: **Membership dues are payable in January.** All Members: Please check the Directory for accuracy, and send corrections to Suzanne Stroh. Membership in EX-Ls is open to all past employees of LBL/LBNL. Annual dues are \$12 per family, forgiven during the calendar year of joining for new members. New members, please include your name, address, phone number, and e-mail address if you wish to be included in the e-mail distribution list. Also, please include any other information you would like included in the annual membership directory, such as spouse's name, e-mail address, or fax number. Please send your check payable to EX-Ls to:

**Suzanne Stroh, Treasurer
530 Curtis Street
Albany, CA 94706**

LBNL EX-Ls
530 Curtis Street
Albany, CA 94706

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EX-Ls EXPRESS – Fall 2007

Published Quarterly at the end of January, April, July, and October

Editor: Dave Stevens

Deadline for newsletter submittals is 10 days after the preceding Board meeting.

EX-Ls BOARD OF DIRECTORS

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Vice-Pres #1: Jose Alonso
Vice-Pres #2: Don Grether
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Calendar of Board Meetings & Luncheons

L: November 15, 2007
B: January 10, 2008 L: February 21, 2008
B: April 10, 2008 L: May 15, 2008
B: July 10, 2008 L: August 21, 2008
B: October 9, 2008 L: November 20, 2008

Board meetings take place in the LBNL cafeteria at 3:30 on the dates mentioned; we welcome attendance by interested members.

EX-Ls Life Members

Shirley Ashley
Esther Colwell
Inge Henle
Bud Larsh

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