

# BERKELEY EMERITI TIMES

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## EMERITI LUNCH: MAY 3<sup>rd</sup>



**David Schaffer**

### **TOWARDS UNDER- STANDING AND ENGINEERING STEM CELLS TO TREAT HUMAN DISEASE**

There are a large number of unmet medical needs in our society, and the healthcare field should be shifting away from developing long term treatments for chronic diseases and towards creating cures. Professor of Chemical and Biomolecular Engineering, David Schaffer heads the Schaffer Lab, where one of his main research interests lies in understanding the biology and exploring the potential of gene delivery in treating disease and inherited genetic disorders. Such gene therapy involves introducing potentially beneficial genetic material into the cells of an individual.

It was as an undergraduate at Stanford that Professor Schaffer first came west to the Bay Area and fell in love with it. Once he had finished his PhD at MIT, he recognized that this was the area that fitted best with his career goals: three major research universities with strength in the growing field of biomolecular engineering, and any number of private companies working on research and development in all kinds of therapies. (He serves as an adviser to several such companies.)

In our conversation a couple of weeks ago I brought up the problem of the high cost of many long-term drug treatments for autoimmune and other diseases – justified by the companies on the

basis of the high costs of development. I had thought that one treatment I knew of – costing several thousand a year – was high until Professor Schaffer told me of a newly approved drug from a Marin County company that costs \$380,000 a year! The development of any new ways to bring about a cure rather than ongoing treatment will obviously have huge financial effects – both on insurance costs and individual budgets.

As we talked about the prospects for curing diseases associated with aging, Professor Schaffer said that already the prospects for an outright cure for Parkinson's disease are looking bright. This condition involves the loss of specific neurons that will, he hopes, be comparatively easy to replace. Alzheimer's is another matter altogether: larger regions of the brain are affected, and many of them. One of the problems his lab is working on is how to deliver genes efficiently to a sufficient number of cells to bring a cure to disorders like this.

Join Professor Schaffer for the lunch on Saturday, May 3<sup>rd</sup>, to learn more details about the work of yet another brilliant scholar bringing together fields that might once have been considered unrelated – this time molecular biology and engineering!

- Phyllis Brooks Schafer

**SHORT TAKES: Emeriti Lunch Table, 2<sup>nd</sup> and 4<sup>th</sup> Thursdays monthly at noon in the northwest corner of The Great Hall in The Faculty Club. Pick up a salad or sandwich, and find the table – usually near the fireplace end of the Hall – with our reservation sign. All are welcome to join in our informal discussions!**



## **MARCH LUNCH WITH SEVERIN BORENSTEIN – EXCITING PROGRESS AND HARSH REALITIES IN THE RACE TO LOW-CARBON ENERGY**

Once again the group who gathered for lunch on March 15<sup>th</sup> were treated to a presentation that proved the level of coherence and practical understanding that can come from a scholar who is not afraid to move across disciplines.

Severin Borenstein, E. T. Grether Professor of Business Administration and Public Policy and Director of the UC Energy Institute, earned a B.A. in Economics from UC Berkeley and a PhD in the same field from MIT. His intervening service on the Civil Aeronautics Board led to a deep interest in the technology behind the energy needs of the aviation industry – an interest that has widened to all uses and sources of energy.

He began by pointing out that, despite upbeat declarations in the press, we are not making much progress towards low-carbon energy sources. Solar panels are getting cheaper, but are still expensive to install. Wind power is also getting cheaper, but both solar and wind power are intermittent sources of energy and the resulting energy is expensive to store. They currently provide, along with other renewable sources like hydroelectric, only a tiny part of energy needs in developed and developing nations.

Fossil fuels still provide most of our energy. Fracking has provided a huge new supply of natural shale gas. With its associated new technologies and especially after a lot of new exploration in old areas, this process now provides most of our natural gas supplies. Our other main source of energy, crude oil, saw a drop in production in the U.S., but since 2008 has taken off again, with the development of oilfields in North Dakota and Texas. (More about coal came later.)

What does this mean for the energy challenges the U.S. faces? We seek lower costs, energy security, and the reduction of greenhouse gases. For us, all three would be advanced by more reliance on natural gas.

First cost. Energy is now very cheap in this country. There's an immediate cry of protest as costs go up. Europeans are used to paying twice as much for gasoline as we do, but we howl when our gas prices go up. The U.S. has led in new technologies to increase efficiency in the use of oil and if these could spread world wide the cost of oil would drop, but not necessarily lead to any reduction in the use of oil in generating electricity. For example, China is moving towards retrofitting current generator installations for higher efficiency – for them, this is more effective in keeping prices down than switching from oil to gas would be.

Another aspect of costs is that of transportation. To move natural gas locally is not expensive, but very costly when it comes to international shipping. The amount Japanese householders have to pay to heat their smaller houses is four times that of those in the U.S., mostly because of the cost of shipping.

However, the technology of fracking is spreading. China is now beginning to switch from the use of coal to the use of natural gas in some of its generators.

Energy security? Relying on crude oil as the major source of energy enriches certain hostile or potentially hostile nations (the Middle East? Russia?) and makes the rest of the world potentially insecure. The importing nations face macroeconomic vulnerability to price shocks, much more a problem with oil than with natural gases.

The U.S., on the other hand, with its domestic sources of oil and natural gas, is not truly vulnerable. Still, when oil prices go up, the U.S. flinches. When the need for natural gas goes up, prices go up with the need for more pipelines – which are becoming more necessary. The Northeast, for example, is close to running out of local natural gas.

When it comes to local pollution problems and the production of climate-threatening greenhouse gases, natural gas is much cleaner than oil or coal in generating electricity, with coal by far the worst. A shift from coal to natural gas for the production of electricity, or from oil to gas to electricity for driving would be huge pluses in reducing pollutants and greenhouse gases.

Fracking provides a major direction to move, but with qualifications. It can now be done in much safer ways, but only on a large scale. Small producers are a source of concern as they release unacceptable amounts of pollutants.

Still, if the advances under way now in the U.S. could be spread worldwide there would be great reductions in the production of greenhouse gasses.

Careful pricing in the production of greenhouse gasses is part of the solution to controlling them, but the other is opening up research and investment in completely new energy supplies and generation. Compare what happened to the film industry. The development of new picture-taking techniques has wiped out Kodak and other producers of film – but has given rise to new methods and devices to the same end.

– Phyllis Brooks Schafer



## INTERVIEW WITH MICHAEL MANGA – John Swartzberg and S. Davis

Michael Manga, a 2005

MacArthur Fellow and professor in the Department of Earth and Planetary Sciences, found his life's work early on. Canadian by birth, he attended McGill University where he received a B.S. in geophysics in 1990. He then received his Ph.D. in Earth and Planetary Sciences from Harvard in four more years. After being a Miller Fellow at UC Berkeley from 1994 to 1996, and then an assistant professor at the University of Oregon from 1996 to 2001, he has been here at Berkeley, specializing in geological processes involving fluids, from water to lava.

**Q: Both Etna and Vesuvius remain active and it wasn't that long ago that Mount St. Helens erupted. What are the risks for a volcanic eruption in California? A:**

Volcanic eruptions occur not that infrequently. Most recently, Mt. Kelud in Indonesia erupted in February - killing three people. The volcano on the Big Island of Hawaii is continually erupting. In California, Mt. Shasta erupted in the early 1800's and Mt. Lassen in the early 1900's. We can expect more volcanic activity in

California in the next few centuries, but it's not possible to predict when.

**Q: A strong interest of yours is the geology of Mars. We've heard that Mons Olympus, the largest volcano on Mars, is enormous. How big is it?**

**A:** At 24 km. high (almost 15 miles!), it dwarfs anything on Earth. That's about 2.5 times higher than our highest jets fly over the earth.

**Q: Do you think it's likely we'll have a manned mission to Mars in the near future?**

**A:** There are three missions planned, but none with humans as it would be a one-way trip. The next one will have a great deal of equipment developed here at UC Berkeley, and the last one will bring back geologic samples from Mars. As for manned missions, there are people I'd like to send!

**Q: Besides the Earth, what is the best candidate for life in our solar system?**

**A:** Europa, the moon around Jupiter, would be my best bet for life.

**Q: Regarding earthquakes, how close are we to making accurate predictions?**

**A:** We're not close. After many years of monitoring we still cannot find any useful precursors.

**Q: We live in earthquake active country. What might happen when the next earthquake occurs on the Hayward Fault?**

**A:** A large quake on the Hayward fault is likely to kill thousands of people and cause over \$200 billion in damage. But the part of the West Coast at greatest danger for a catastrophic quake runs from Mendocino County, up into Oregon and Washington. The Great Alaskan Earthquake of 1964 was the second largest ever recorded on a seismograph—9.2.

**Q: So, do we live in the most dangerous part of the US?**

**A:** No. The state that is at greatest risk from natural disasters is Texas. Think tornados, flooding and lightning.

**Q: Does fracking cause earthquakes?**

**A:** Yes. Primarily from injecting the waste water back into the ground. Earthquakes are a result of movement of rock formations relative to one another. Putting high

pressure water into rocks increases the likelihood of such movement.

**Q: Do you have earthquake insurance?**

**A:** No. I live in a multi-family complex and the homeowners have decided against it. Deductibles are high, so one has to decide if saving on premiums would ultimately be the equivalent the amount needed to make post-quake repairs.

**Q: You're currently studying geysers. Why?**

**A:** Like volcanos, they erupt frequently. We can learn a lot about volcanos from geysers. Also, their geothermal systems can teach us a lot about how the earth transports fluids.

(For detailed numbers on past and potential damage on the Hayward Fault, see [https://support.rms.com/publications/1868\\_Hayward\\_Earthquake\\_Retrospective.pdf](https://support.rms.com/publications/1868_Hayward_Earthquake_Retrospective.pdf))

## WHERE DO YOUR DONATION DOLLARS GO? – Phyllis Brooks Schafer



All year round we find them in our mailboxes: solicitations for donations from the Society to Protect Three-Legged Dogs, the International Chickenpox Fund, or any of dozens of other worthy causes. From late October to mid-February, however, such groups multiply their barrage of

pleas – piles of mail arrive from charities we have given to in the past, causes with an obvious connection to our interests, and others that make us wonder how they ever thought we might support them.

Some of us prefer to give locally, to causes we know well and whose effectiveness we can see for ourselves. For over ten years I have given to a street priest I know in San Francisco who provides socks, blankets, food, and counsel to young people sleeping in the doorways of San Francisco – many of them drug addicted and/or prostitutes. I've walked the streets with River myself, and have witnessed his effect.

But let's say that – after having removed the latest batch of useful return address labels and recycled the

remaining paper – you sit down and write a check to a wider cause you really do believe in.

How much of that \$1,000 check you wrote to, say, the Red Cross does actually go to the victims of the latest flood or volcanic eruption? In the case of the Red Cross – a great organization – you may be surprised to learn that 9 cents of every dollar you give goes for fundraising and administrative costs. That's \$90 of the \$1,000 you gave – \$50 for fundraising and \$40 for paying staff, monitoring proper use of funds, etc. Charity evaluators like Charity Watch advise that you limit your giving to groups that pass on at least 75% of what they receive. Now the Red Cross, at 91%, shows up high on the list of those groups doing good work with your money.

How can you research charities to find out which make the best use of your gift? Fortunately there are good sources for such data. The website of Charity Navigator, for example, and the above-mentioned Charity Watch.

Be cautious of the comparatively new internet crowdfunding sites, however. Some of the most active – like GoFundMe - charge modest transaction fees of 5%, although extra credit card fees can add another 3% in charges. This example does sound good. But unless you are watchful such sites can lead to scams and frauds.

All this insistence on watchfulness does not imply that we should not give generously to groups supporting those in need or those we believe in. However, just as we learn to take care as buyers, we should take care as we give. Caveat donor!

## PRESIDENT'S LETTER

Greetings UCBEA Members,

Heading into the end of the spring semester has strong meaning for those still teaching or meeting with student mentees. It also has a lot of meaning for those of us paying attention to the issues that might impact retirees AND active faculty who will eventually join our ranks. We head into the CUCEA/CUCRA meeting in late April where a major focus will be what is up with health insurance for both in state and out of state retirees this next year. We will keep you informed as we partner with the active faculty on all the campuses to attend to this continuing issue.

We look forward to our next lunch speaker, David Schaffer, who will enlighten us on the latest in Gene Therapy Potentials. May 3<sup>rd</sup> is this last lunch of the academic year, and we hope you will join us. This topic has had a lot of ups and downs over the last many years. What is its true potential? Professor Schaffer is a leader in this arena, so he will answer our questions.

What do you plan for this summer? We would like to hear from you what you have on your agenda, and we will share some of them in our first fall newsletter. You can let me know me know (kanecm@berkeley.edu) or let our Times Editor know (phyllisbrookss@yahoo.com).

We are going to be celebrating with Patrick Cullinane, our Retirement Center Director, as he retires this June. Watch your email for a special congratulatory event.



Best,

Caroline M. Kane, President

## RETIREMENT CENTER UPDATE

For more information on any event listed here, check the Center's website [retirement.berkeley.edu](http://retirement.berkeley.edu).

**BIENNIAL RETIREES CONFERENCE, MAY 15, 2014 –  
Registration Deadline May 5**

### **An Aging America – Challenges and Opportunities**

**Jennifer Granholm**, UC Berkeley Distinguished Practitioner of Law and Public Policy and Michigan's 47th governor from 2003 to 2011 will keynote the conference. Her keynote address is, ***Cracking the Code: Creating Good Jobs in America in a Global Economy***. Her address will be followed by seven expert workshop presentations.

***The Future of Aging and Alzheimer's Disease*** - What does research tell us about aging and Alzheimer's disease? Is there anything we can do to promote brain health? What resources exist to help navigate a challenging diagnosis?

***Sexuality, Intimacy & Aging*** - During this presentation, we will address the factors that affect sexual intimacy as well as nonsexual intimacy among older adults including ageist attitudes that continue to be an obstacle to healthy sexual expression.

***Creative & Dramatic Options*** - Learn how to unlock your creative potential with Stagebridge Senior Theatre! In this workshop, Stagebridge acting and playwriting students will share a sample of their work and show you how you can get into the act.

***Living Arrangements and Aging in Place: Options, Costs, Resources*** –When we choose to age at home, how do we ensure it is a safe place and that we continue to have a good life? What are other options and what are the costs? How do we make the best decisions for ourselves and those we love?

***Technology and Aging: Tablets and Twitter and Google, Oh My!*** - Email, Facebook, Twitter, Instagram, Skype, smart phones, tablets, Google - what does it all mean? How do you decide what is relevant and useful? Come learn how you can navigate our ever changing technological world.

***Care Partners: The Journey of Caregiving and Carereceiving*** - This workshop will provide information on all aspects of care from decision making before care is needed to ways to minimize stress and maintain quality of life while receiving or providing care.

***Writing One's Story*** - Whether you've started writing down your history or have a vague idea of doing so, explore the scope, craft, and purpose in memoir-writing. How do you turn life journeys, family tales, and professional discoveries into stories with deeper meaning?

**Conference Registration:** Registration fee of \$35 includes continental breakfast, lunch, program materials, and parking. Registration is now open and closes Thursday, May 8. Contact the Center at 510-642-5461 or [ucbrc@berkeley.edu](mailto:ucbrc@berkeley.edu).

### **Next Retirement Center Director**

Associate Vice-Provost Angie Stacy is leading the search committee for the next director. Share your thoughts about the Center's future with Angie at [retireeideas@berkeley.edu](mailto:retireeideas@berkeley.edu).

## Fidelity Investments – Confidential Appointments

The Center offers the opportunity for one-on-one confidential consultations with a Fidelity Planning and Guidance Consultant to make the most of your UC Retirement Savings Program. Consultants will help you to establish a plan that includes an annual review of your portfolio and professional guidance on investments and goal planning. The next two appointment days are Friday, April 27, and Thursday, May 22. To schedule a confidential consultation at the Retirement Center, call the Center at 510-642-5461. You may also call Fidelity directly at 1-800-558-9182 or go online to [ucfocusonyourfuture.com](http://ucfocusonyourfuture.com) to schedule an appointment for a date that is more convenient for you.

## Learning in Retirement Course

There's still time to sign up for this course, free to retirees and their guests. Register for this series by e-mailing the Center at <http://ucbrc.berkeley.edu> or by phoning 510-642-5461. You will be informed of the location for the sessions once registration is completed.

### Religious Uniformity and Diversity in the Ancient and Medieval Mediterranean

**Thursday, April 17, 2-4 pm "The Biblical Struggle Toward Monotheism"** Robert Alter, Professor Emeritus of Hebrew and Comparative Literature

**Tuesday, April 22, 2-4 pm "Religious Pluralism in the Roman Empire: Did Judaism Test the Limits of Roman Tolerance?"** Erich Gruen, Professor Emeritus of History and Classics

**Tuesday, April 29, 2-4 pm "Islam in the Mediterranean: Empires, Religion, Communities, Identities"** Ira Lapidus, Professor Emeritus of History and Islamic Studies

**Tuesday, May 6, 2-4 pm "Paganism, Christianity and Eastern Orthodoxy, 4th-15th Centuries"** Maria Mavroudi, Professor of Classical & Byzantine History



Be well!

Patrick C. Cullinane, Director

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