

# Natural Selections

A NEWSLETTER OF THE ROCKEFELLER UNIVERSITY COMMUNITY

## TAKING STOCK

### Concerns over investments linked to Sudan

MARY ABRAHAM

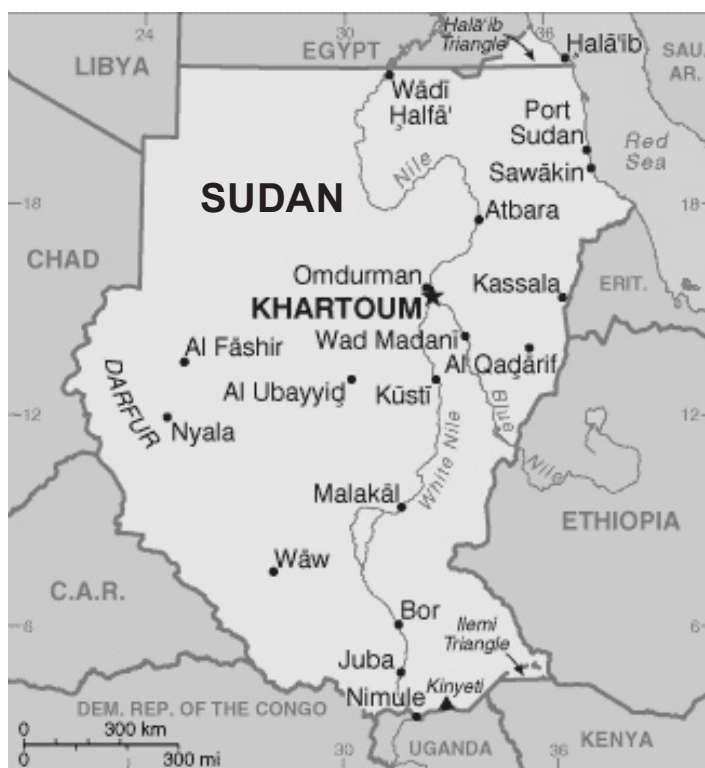
In response to genocide in the Darfur region of Western Sudan, which has resulted in the violent deaths of an estimated 200,000 people and created two million refugees, campaigns for universities to divest of financial holdings in multinational companies operating in Sudan have been gaining momentum.

The Darfur conflict began in February 2003, with an armed rebellion by darker-skinned 'African' tribes against the Arab-dominated Sudanese government seated in Khartoum. The rebels' grievances appear to have centered on governmental marginalization and underdevelopment of the Darfur region. To quell this uprising, the Sudanese government enlisted the help of local lighter-skinned Arab tribes in Darfur—including the militia known as the Janjaweed. The government was able to exploit tensions that were already rising in Darfur because drought and desertification had been forcing the nomadic Arab tribes to encroach more frequently onto the land of the settled farmers of the African tribes. The tensions do not have religious undertones, as both the African and Arab tribes in Darfur are Muslim. The attacks by the Janjaweed on African tribes have not been limited to those involved in the initial rebellion against the government, and a UN report issued in January 2005 stated, "most attacks were deliberately and indiscriminately targeted against civilians." According to this report, "Government forces and militias conducted indiscriminate attacks, including killing of civilians, torture, enforced disappearances, destruction of villages, rape and other forms of sexual violence, pillaging and forced displacement throughout Darfur. These acts were conducted on a widespread and systematic basis, and therefore may amount to crimes against humanity." In March 2005, the UN Security Council referred the situation in Darfur to the International Criminal Court in The Hague. At present a shaky ceasefire is in place, but a humanitarian crisis exists because large numbers of refugees, most

of whom have been internally displaced in Darfur, are afraid that if they leave the refugee camps, the Janjaweed (who are still supported by the government) can target them with impunity.

In 1997, President Bill Clinton issued an executive order banning direct trade between the US and Sudan, citing the Sudanese government's "continued support for international terrorism and human right violations." However, in the United States it is legal to hold investments in multinational companies that work in Sudan, and it is the ownership of such stocks and investments that has been called into question. The oil trade has been particularly in the spotlight as it represents around 75% of Sudan's total export earnings, and money from this source has enabled the government to purchase military equipment that has been used with such tragic consequences in Darfur.

The first American university to take divestment action has been Harvard, which announced on April 4 2005 the planned sale of \$4.4 million worth of shares in PetroChina, an oil company that operates in Sudan, which is a spin-off of the Chinese state-owned Chinese National Petroleum Company (CNPC). A divestment campaign at Harvard began in October 2004 when students publicized the university's stock holdings in PetroChina. These stocks, owned on the US stock exchange, were filed publicly by the Harvard Management Company in quarterly reports to the Securities and Ex-



change Commission (S.E.C.). The Harvard Corporation decided to divest of these shares based on advice from the university's Advisory Committee on Shareholder Responsibility, which carried out a detailed review on the role of some multinational companies operating in Sudan.

Announcing the share divestment, a statement by the Harvard Corporation noted: "This decision reflects deep concerns about the grievous crisis that persists in the Darfur region of Sudan and about the extensive role of PetroChina's closely affiliated company, China National Petroleum Corporation, as a leading partner of the Sudanese government in the production of oil in Sudan. Oil is a critical source of revenue and an asset of paramount strategic importance to the Sudanese government, which has been found to be complicit in what the U.S. Congress and U.S. State Department have termed 'genocide' in Darfur and what a United Na-

*continued on page 2*

tions commission of enquiry recently characterized as 'crimes against humanity and war crimes...[that] may be no less serious and heinous than genocide.' Although Harvard maintains a strong presumption against the divestment of stock for reasons unrelated to investment purposes, we believe that the case for divestment in this instance is persuasive."

The divestment was welcomed by Harvard students, although some have questioned whether all financial interests in PetroChina have been removed from Harvard's \$22 billion endowment, as some investments are not publicly listed with the S.E.C. (such as stocks bought on foreign stock exchanges). Harvard could also have indirect investments in mutual funds or hedge funds.

The timing of the announcement raised some suspicions that the decision could have been motivated by the desire for some feel-good publicity, following the widespread negative press generated by Harvard president Larry Summers' comments on women in science in January 2005. Dispelling this idea, Samantha Power, a Harvard faculty member who is a leading academic in public policy relating to genocide and who was involved in behind-the-scenes lobbying for divestment, told *The Harvard Crimson*: "This train had left the station long before he became enmeshed in controversy here at Harvard. This was not damage control."

Following Harvard's announcement, at the end of April, The International Crisis Group, a non-profit, non-governmental conflict resolution advocacy group described by Kofi Annan as "a global voice of conscience," wrote to the administrations of 100 US universities with the largest endowments, highlighting the divestment proceedings at Harvard and urging the universities to review their investment portfolios to determine if action similar to Harvard's would be appropriate. The Rockefeller University was a recipient of a letter from the International Crisis Group. In June 2004, the RU endowment of \$1.4 billion was the 30th largest US university endowment.

Campaigns for divestment of stocks in multinationals operating in Sudan have additionally focused on State pension investments. In December 2004, the New Jersey State Assembly passed a bill proposing divestment from companies doing business with Sudan, and similar proposals are currently under scrutiny at many other State legislatures.

One area of concern with divestment is

whether it could be counterproductive, for example causing economic hardship to ordinary Sudanese civilians who lose their jobs as a result of declining business—although the oil industry in Sudan actually uses many foreign workers from China. Another concern is whether there could be negative consequences for whoever is divesting. The academic world has often been uneasy about calls for divestment, and Harvard's Committee on Shareholder Responsibility stressed such concerns in the report on multinationals operating in Sudan: "The University maintains a strong presumption against divesting itself of securities for reasons unrelated to investment purposes, and against using divestment as a political tool or a 'weapon against injustice'—not because there are not many worthy causes or deeply troubling injustices in the world, but because the University is first and foremost an academic institution.....the University, as an academic rather than a political institution, must take great care to avoid leveraging its endowment or prestige in ways that could embroil the institution in political and social controversies not directly related to its academic pursuits, and thus compromise the core values and independence of the academic enterprise."

One memorable past model of a successful divestment campaign was focused on the apartheid regime in South Africa during the 1980s when many consumers, universities, and State pension schemes were persuaded to avoid South African goods. In 1986, the University of California at Berkeley divested of \$3 billion of South African stocks—Nelson Mandela later described this event as a significant catalyst for change. Archbishop Desmond Tutu has written, "There is no greater testament to the basic dignity of ordinary people everywhere than the divestment movement of the 1980s." A broad-based movement to divest can raise public awareness and cause politicians to take notice. In her book *A Problem from Hell*, which examines the causes for repeated failure to intervene in response to genocide, Samantha Powers explained: "American leaders have been able to persist in turning away because genocide in distant lands has not captivated senators, congressional caucuses, Washington lobbyists, elite opinion shapers, grassroots groups, or individual citizens....As a result of this society-wide silence, officials at all levels of government calculated that the political costs of getting involved in stopping genocide far exceeded the costs of remaining

uninvolved."

Does The Rockefeller University have any investments in multinational companies operating in Sudan? Unlike Harvard, Rockefeller does not appear to have an investment company listed on the S.E.C. and thus public filings of US stock ownership. To complete this article, *Natural Selections* requested information from the RU administration on general policies and procedure for investments when there is a potential ethical conflict, and on whether The Rockefeller University has investments in major multinationals that operate in Sudan. Unfortunately, no information could be provided in time for this article going to press, although the university has said that it is looking into it. *Natural Selections* hopes to report this information in its next issue ☉

#### *Statement on Harvard Divestment:*

[http://www.news.harvard.edu/gazette/daily/2005/04/04-sudan\\_statement.html](http://www.news.harvard.edu/gazette/daily/2005/04/04-sudan_statement.html)

#### *Campaigns for the Darfur region:*

<http://www.crisisgroup.org/home/index.cfm?id=3060&l=1>

<http://www.genocideinterventionfund.org>

<http://www.divestsudan.org/>

<http://www.savedarfur.org/>

<http://www.standarfur.org/>

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## UNDER THE COVERS

### A brief survey of The Rockefeller University publication record

ALLAN COOP

In one way or another we are frequently reminded about the scientific reputation of The Rockefeller University (RU). But do you know how it breaks down to those ultimate yardsticks of success, the number of published scientific communications and their citation frequency? To get some insight into this question, I briefly surveyed two of the most widely used scientific publishing data bases, Medline and ISI Web of Knowledge (ISI). Medline is the National Library of Medicine's bibliographic database covering the fields of medicine, dentistry, nursing, veterinary medicine, health-care administration, and the pre-clinical sciences. Consequently, it manages to cover nearly all of biology, even covering fields with no obvious medical connection, such as molecular evolution. ISI is probably the world's leading multidisciplinary scientific database.

The period I chose to survey was the ten years from 1995 to 2004. Medline reports a total of 3,936 RU publications during this period or an average of 394 (standard deviation:  $\pm 27$ ) per year. This is equivalent to just over 5 publications per year per lab (assuming 75 labs). With an average of  $17 \pm 10$  (from the RU directory) members per lab, this gives an average of one communication per lab member about every 3 years.

The ISI database lists a total of 8,074

RU publications for the equivalent period. Of these 5,978 are classified as articles ( $1.5 \times$  the number given in the Medline database). I attribute the difference in the number of articles between the two databases to the large number of RU publications that are non-biomedical (approximately one third). Similarly to the Medline data, the equivalent calculations for the ISI data show that there are on average 598 ( $\pm 51$ ) articles published per year, or about 8 articles per lab per year. This reduces the time per publication to just over 2 years per lab member.

Assuming an average of 75 research associates and 350 postdocs at RU over the last decade, the publication time falls to 8.5 months per article. In other words, each research associate and postdoc is an author on approximately 1.4 articles per year.

Other interesting statistics include those for review articles and conference abstracts (both included in the number of articles above). Medline cites an average of  $60 \pm 10$  review articles per year for the period 1995 to 2004, whereas ISI cites  $50 \pm 10$ . The difference is presumably due to how the two databases classify this type of publication. During the same period, ISI cites an average of  $106 \pm 19$  published conference abstracts per year.

Finally, I looked at impact factors and total citations rates for the top ten

journals in the ISI database. These data were only available for the six years from 1998 to 2003. Visual inspection showed impact factors to be quite fluid with only one out of the top ten journals maintaining its rank. This was, suprisingly, the top ranked *Annual Reviews of Immunology* with an impact factor of  $49.0 \pm 4.2$  (considerably larger than the number two ranked journal in 2003, with an average impact factor of  $38.5 \pm 2.9$  over the six years analyzed). There were sixteen different journals appearing in the top ten ranking of impact factors during this period. By comparison, the total citation index was considerably more stable. With the exception of 1998, when the second and third ranked journals switched places, the same top four journals held the same positions. These journals were (in descending order): the *Journal of Biological Chemistry*, *Nature*, *PNAS*, and *Science*. RU published an average of  $26.5 \pm 14.3$  articles per year in these four journals, but did not publish in the two lowest ranked journals of the top ten (*Astrophysical Journal* and *Journal of Physical Chemistry*). Otherwise, RU published  $6.5 \pm 6.9$  articles per year in the mid-ranked journals of the top ten. Overall, for the six years data were available, 13.9% of ISI-listed articles published by RU were in the top ten journals of the ISI total citation index. ☉

cartoon by Sean Taverna



"Now that is a gel shift!"

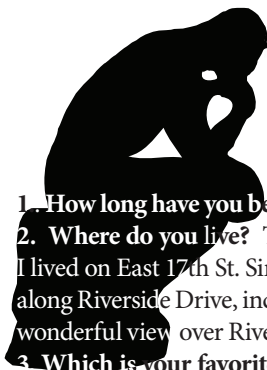
## They're Back!

MARTIN LIGR

After many months of absence, the most popular inhabitants of The Rockefeller University campus are finally back. They were first spotted on Thursday May 25 in the pool next to the Faculty Club. The female duck with a penchant for intellectual sophistication returned to raise her offspring in the Philosophers' Garden, just like last year. The brood of young ducklings will no doubt be a welcome addition to the already diverse graduate program, and *Natural Selections* will be here to report on their progress. Send us your best duck photographs and we will post them on our website. ☉







## New York State of Mind

*This month, Natural Selections features Mary D. Brust, Director of Occupational Health Services  
Country of Origin: USA*

- 1. How long have you been living in New York?** Since 1962.
- 2. Where do you live?** The Upper West Side. When I first moved here I lived on East 17th St. Since my marriage, I've lived in three apartments along Riverside Drive, including 31 years in my present apartment with a wonderful view over Riverside Park and up the Hudson River.
- 3. Which is your favorite neighborhood?** No contest! The Upper West Side! Broadway remains interesting and lively all night.
- 4. What do you think is the most overrated thing in the city? And underrated?** Overrated? I used to think that an Upper East Side address was the most overrated (and overpriced!) thing about the city. Since I've been at Rockefeller, I realize that it would be convenient to be closer to work, but not enough to move and give up my beloved neighborhood. Underrated? The number of ways there are to take advantage of all the fun the city has to offer that cost nothing or very little—free concerts (including, for us, our own Friday noon concerts), gallery openings, poetry readings, picnics, opera, Shakespeare in Central Park... The list is long! Another thing many who do not live here may not know is that NY truly is a city of small neighborhoods. We get to know the grocers, the drycleaners, the small stores we visit in our daily rounds. We meet neighbors on the street and catch up on one another's families and the usual stuff—rather like going to the village green.
- 5. What do you miss most when you are out of town?** The sense of being connected to the battery pack. The possibility that you can connect to anything your heart desires, almost any day (or night) of the week. I leave the city for the Adirondacks precisely to get away from the energy, to steep in the quiet of Lake Champlain, mountains and birdsong, and much as I hate leaving the country calm, I am always happy to return to the excitement of the city.
- 6. If you could change one thing about NYC, what would that be?**

Better, more humane social services and long-term care for indigent, mentally-ill, and otherwise needy people who cannot manage or cannot care for themselves.

**7. Describe a perfect weekend in NYC.** It would include chamber music with friends (playing, listening), practicing and actually making progress on my current flute project, poetry (reading, listening), walking in Central Park or along city streets, eating in some wonderful restaurant, or cooking for friends and family at home. Not doing laundry or shopping. Not attending to desk work. Not worrying about household disorder.

**8. What is the most memorable experience you have had in NYC?** I've had so many, I can't single one out.

**9. If you could live anywhere else, where would that be?** Right where I live now. I hope I never have to leave. I would like more time in the Adirondacks, though.

**10. Do you think of yourself as a New Yorker? Why?** Yes. I grew up in Connecticut, but the Big City Bright Lights were always there, and I was frequently brought into the city for special events. When I was in college, I spent many or most weekends in New York, particularly as a senior, and moved in with friends within minutes of graduation. Except for a year in Tokyo, I've been here ever since. ☺



Mary with husband John and first grandchild, Jack, born April 12 2005

## PDA News: Activities and Negotiations During 2004-2005

### Annual Poster Session Awards

In conjunction with the Dean's Office, the PDA has established an award for postdocs who present at the annual open house poster session during student recruitment. Starting in 2006, the best three posters with postdocs as first authors will receive handsome monetary awards. In addition, the PDA has suggested that the first-prize winner be given a slot in the Monday Lecture Series, which would further enhance the prestige and value of this award.

### Scientific Retreats

The need for scientific retreats was a common concern of the postdoc body in the PDA survey held last year. In his recently published strategic plan, President Paul Nurse has emphasized the need for such gatherings and the university is looking to increase the options for postdocs to attend retreats more regularly.

### Postdoc Seminars

The Rockefeller Research Exchange (previously referred to as the Tri-Lab Exchange) provides opportunities to both students and postdocs to present seminars on their research. The PDA has suggested that some form of feedback mechanism (e.g. an anonymous evaluation form) be added to these seminars. This would allow the presenter to receive comments and/or evaluation from the attending audience.

### Alumni Database

The Human Resources (HR) department has made a list of ~200 RU

postdoc alumni with information about the current positions they hold. HR is continuing to add to this important database by requesting heads of laboratories to provide information about their former postdocs. HR has assured the PDA that this database will be made available to the postdoc community very soon.

### PDA Website

The PDA website is currently undergoing extensive reconstruction and the updated website will be available by the end of summer 2005. The PDA welcomes ideas from the RU community for further enhancing the quality and design of the website.

### Career Symposium

The RU PDA, in association with the Sloan Kettering Institute and Cornell Medical Center, recently sponsored a Tri-Institutional Career Symposium (February 2005). The symposium had panelists from academia and industry, as well as representatives from various alternative professions like consulting and publishing. The symposium was well attended by postdocs and students from the three local institutions and was an overall success. The PDA is considering hosting a mini career symposium in fall 2005, in which alternative professions that were not represented in the earlier symposium, as well as some RU alumni, might be included.

The PDA also organized a seminar where the Department of Technology Transfer summarized the technology transfer process as

it works at RU. This informative seminar also highlighted the value of good lab practices (e.g. good notebook keeping), which may at times become important for resolving disputes of intellectual property.

### Cultural and Social Events

The PDA has begun a new campaign to make cultural, artistic, and entertainment events in NY more affordable to the RU postdoc community. The initiative involves the PDA providing considerable subsidies (up to 50%) towards the cost of attending these events. As a first step, the PDA has started reserving a limited number of slots (on a first-come, first-serve basis) in the monthly wine dinners organized by the RU Food Service department. Subscription to wine dinners is restricted to one per year to ensure that these benefits are spread more evenly through the postdoc and RA community. To foster social interactions between postdocs, the PDA will continue to subsidize the cost of BBQs (\$150 per event) hosted jointly by two or more labs.

### Child and Family Center (CFC)

The CFC provides postdocs and other RU employees with a significantly subsidized day care option (the cost of comparable services in New York is considerably higher). In recent meetings with a PDA subcommittee, the administration stated that the proposed expansion of the CFC will not happen before September 2005, as the HR needs to finalize aspects of this plan with the Finance Office.

#### *Some facts about the CFC:*

1. Lab heads have priority in the waiting list.
2. Families where both parents are RU employees DO NOT have priority over families where only one parent works at RU.
3. The CFC will no longer provide its services to employees from other institutions.

#### *Some issues that are being discussed:*

1. The non-disclosure of a candidate's position on the waiting list continues to be a major source of frustration for most postdoc parents. Will the waiting list be made public?
2. Possibility of assessing household incomes to determine eligibility and structure tuition schemes to help those in need.

### Mentoring of Postdocs

Through discussions with the Dean's Office and the HR department, the PDA has emphasized the need to enhance the mentoring of postdocs. Similar to President Paul Nurse's vision in the strategic plan to improve mentoring of Junior Faculty, the PDA has presented some of their own ideas (e.g. a second mentor or advisory committee for postdocs) to improve the mentoring of postdocs. The President, the Dean's Office, and HR have been very receptive to the PDA's suggestions and are looking at suitable ways to implement these ideas.

### Rent Subsidy and Salary

After a series of meetings last year with President Paul Nurse and university officials, the PDA and its subcommittees negotiated a temporary solution to the proposal to remove the postdoctoral rent subsidy. Postdocs hired before September 2004 continued to receive the rent subsidy, while postdocs hired after that date did not. This strategy intended to slowly phase out the subsidy over the next few years, which the university states is necessary to avoid tax liabilities and ease budget concerns. The administration is completing an appraisal of housing units to establish whether the university might indeed incur tax liabilities. The PDA hopes that without a tax liability the university will find an alternative solution to compensate the loss of rent subsidy for postdocs.

The PDA has worked alongside HR to bring changes to appointment letters for postdocs. Appointment and re-appointment letters now indicate the years of experience the postdoc is considered to have and the RU salary scale for that level of experience. This change was introduced to dispel concerns that some postdocs were being paid below existing university salary scales. ☉

## AliQuotes

***In honor of student commencement on June 16, the Natural Selections Editorial Board has decided to collect some of our favorite advice.***

The art of being a scientist is first of all to find yourself a good boss.

—André Lwoff

There is no question that there is an unseen world. The problem is, how far is it from Midtown and how late is it open?

—Woody Allen

We shall not cease from exploration, and the end of all our exploring will be to arrive where we started and know the place for the first time.

—T. S. Eliot

Try again. Fail again. Fail better.

—Samuel Beckett

Hope is a state of mind, not of the world. Hope, in this deep and powerful sense, is not the same as joy that things are going well, or willingness to invest in enterprises that are obviously heading for success, but rather an ability to work for something because it is good.

—Vaclav Havel

No problems have been exhausted; instead, scientists have been exhausted by the problems.

—Ramón y Cajal

Whatever it is, I fear Greeks even when they come bearing gifts.

—Virgil

Always forgive your enemies; nothing annoys them so much.



—Oscar Wilde

Every great advance in science has issued from a new audacity of imagination.

—John Dewey

Three o'clock is always too late or too early for anything you want to do.

—Jean Paul Sartre

This above all: to thine own self be true, And it must follow, as the night the day, Thou canst not then be false to any man.



—William Shakespeare

Courage is not simply one of the virtues, but the form of every virtue at the testing point.

—C. S. Lewis

No one wants advice, only corroboration.

—John Steinbeck

You can easily judge the character of a man by how he treats those who can do nothing for him.

—Goethe

The reasonable man adapts himself to the world; the unreasonable man persists in trying to adapt the world to himself. Therefore, all progress depends on the unreasonable man.

—George Bernard Shaw

Those are my principles. If you don't like them, I have others.

—Groucho Marx

# Not another song by The Who

ERIK THOMAS BIESCHKE

*Erik Bieschke is a Level III Criminalist in the Department of Forensic Biology at the Office of Chief Medical Examiner (OCME) of the City of New York. This department is responsible for DNA analysis on biological evidence from homicides and sexual assaults and is overseen by the Department of Health. Erik has handled a number of these cases and testified as an expert witness in court. In addition, he has also been involved with the large-scale effort of identifying victims of mass disaster, including 9/11.*

My wife calls me the human conversation piece. Whenever I am introduced to new people, one of the first questions I get is the customary "What do you do?" When I say that I'm a forensic scientist, that is usually enough to spark a conversation and keep it going for a while. Most people ask how realistic are the popular TV shows of late, such as *CSI*, and I find that there are always misconceptions to clear up.

Let me explain a few here....

**1) Forensic scientists don't know everything about everything.** The definition of an expert is one who knows more than the layperson about a specific topic. Through education, training, and experience, we are expected to have a general knowledge of the capabilities and limitations of other specialties. However, most, if not all, ex-

tim's body, thus linking the suspect and victim. A suspect may be linked to a crime scene because a footwear impression from his shoe was left behind. A victim may be linked to a crime scene because his bloodstains were left behind, even though the



body was dumped at another location.

Even within criminalistics there are many different specialties, such as trace evidence, drugs, arson, ballistics, hairs and fibers, fingerprints, and DNA to name a few. Each criminalist has his or her own specialty.

Outside of criminalistics, there are specialties for just about everything. The following are just a few examples of experts and some of the jobs they perform. Forensic accountants usually track money launderers or embezzlers. Forensic psychologists evaluate a defendant in order to support or refute an insanity defense. Forensic computer experts track Internet crimes such as identity theft. Forensic en-

gineers investigate why a structure collapsed, such as a building or bridge. Forensic odontologists examine dental records to identify a body that can't be identified by the next of kin. Forensic anthropologists study skeletal remains to determine if the re-

mains are human, and if any trauma from foul play contributed to death. Forensic pathologists perform autopsies to determine cause and manner of death.

**2) Forensic scientists don't interview witnesses or interrogate suspects.** As a forensic expert, my ultimate goal is to present unbiased scientific facts to a jury. Most forensic labs in the country exist as a division of the local police department, so there is already a fine line to walk with regards to chain of command and remaining objective. If there is any hint of being biased in favor of the police and/or prosecution, a

clever defense attorney will argue that we have put a spin on the scientific conclusions to fit our own theory and implicate his client.

**3) Detectives collect the evidence from crime scenes, while we remain in the lab-**

**oratory and perform our examinations there.** Since we rarely set foot out of the lab, there is no need to carry a gun or drive a Hummer. This is done to add glamour and prestige to the job's perception on TV.

**4) Cases are not wrapped up in a matter of hours, or even days for that matter.**

The evaluation of the evidence is a multi-step process. Some of the lab tests must be repeated because of failed or inconclusive results. When evaluating evidence, a criminalist will carry a caseload of several cases. Cases are rarely worked from start to finish uninterrupted. The fingerprint and DNA databases do not yield matches within a matter of minutes. Add all these factors together and it can sometimes take several months to complete a case.

**5) The science featured on TV shows are usually in the right ballpark.** That being said, some details are inaccurate, and not enough focus is put on actually explaining the science. More focus is put on the dramatic aspects of the stories to keep new episodes fresh and entertaining. On the occasions when I have testified, the attorneys have commented on how direct questioning and cross-examinations of expert witnesses have become easier because the juries are much more interested. Sometimes, however, the juries have unrealistic expectations as to what scientific analyses can be done because the science is not always fully explained on the TV shows.

TV shows are in the business of attracting viewers. I can reconcile any discrepancies my job has with these shows by saying that these shows are dramatizations, meant to entertain the viewer and raise the ratings for the network. If you are interested in forensic science, I would recommend *Forensic Files* and *The New Detectives* as accurate and informative options on television. ☺

**EVIDENCE IDENTIFICATION**

Date \_\_\_\_\_ Time \_\_\_\_\_ Case No. \_\_\_\_\_

Test For ☐ DNA/SEROLOGY ☐ FIREARMS ☐ TOXICOLOGY  
☐ DRUGS ☐ IMPRESSIONS ☐ TRACE EVIDENCE  
☐ FINGERPRINTS ☐ QUESTIONED DOCUMENTS ☐ OTHER \_\_\_\_\_

Description of Evidence \_\_\_\_\_

Location Collected \_\_\_\_\_

☐ Arrest ☐ Seized ☐ Found ☐ Other \_\_\_\_\_

Victim/Incident \_\_\_\_\_

Remarks/Details \_\_\_\_\_

Agency \_\_\_\_\_ Signed \_\_\_\_\_

perts are proficient in only one specialty.

My specialty is forensic science, also known as criminalistics. We follow Locard's principle that whenever two objects come in contact, there is a transfer of material between the two objects. This approach allows us to link victims and suspects, suspects and crime scenes, and victims and crime scenes. The informative value of the evidence depends on the circumstances, such as "can the scientific facts support or refute a suspect's alibi?"

Some evidence may include a bullet from the suspect's gun lodged in the vic-



# Career Planning & Development Part III: The Job Hunt

TARI SUPRAPTO

If you've been following this series, by now you should have a very good idea of what kind of job you want and also have a solid network of people you can turn to for advice and job leads (see *Natural Selections*, issues 11 and 14). The first thing you need to do is to identify prospective employers within the actual activities and industries that interest you. You should be trying to answer the question: "Which organizations or companies will be most likely to be able to use the skills that I most enjoy using?" You can consult directories, databases, and other resources; most of these can be found in a library. You should certainly consult the people in your network that you are comfortable with about this matter.

A major reason for having a good network is that people tend to hire "known entities," i.e. people that they know directly or know of through a friend, colleague, or acquaintance. There are cases where someone sees a job posting in a journal or newspaper and successfully applies for it, and by all means use this route, but keep in mind that "it's who you know" as much as "what you do" that will help you be one of the first candidates that potential employers think of.

At this point, you should also be preparing documents that are essential to the job search, which are your cover letter, résumé, and *curriculum vitae* (CV). The cover letter introduces the employer to you, briefly describes what you are applying for, and highlights your relevant skill set. Be aware that a résumé is different from a CV; a business résumé is usually a summary of your skills and experience (average length is 1-1.5 pages), while a CV is a multi-page list of everything you have done, from publications to presentations. There are many guidebooks on how to write these important components—consult them but don't copy them *ad verbatim*. It is important that your unique personality comes across while remaining professional. Ask someone in your network that is experienced to review and proofread these materials critically; that input is very valuable and should be taken seriously.

In the meantime, you need to let people know that you are looking for a job, but be charming and not pushy about it. First of all, tap into your network of contacts (see how important they are?). Tell them that you are seriously considering a job in profession X (e.g. postdoctoral fellow, assistant professor, financial analyst, etc.) and that you've researched this employer and that

one. While your contacts may not know of anything right there and then, the point is to get them to think of you when they do hear of any openings, especially the ones that aren't posted yet (or never will be). Give them a copy of your résumé that they can share with people they know. If someone offers you a chance to volunteer as an intern, it will likely be in your best interest to accept that offer despite the lack of pay, especially if you are transitioning into a totally different field. Second, look at job postings at the websites of the companies/organizations you are interested in and the websites of professional associations. You may want to consider joining such professional societies because they often have networkers and career fairs for members at their meetings. Another alternative is to use online services such as Monster ([www.monster.com](http://www.monster.com)), but nothing beats a personal connection.

Eventually, you should learn of a position opening that you feel is a good match for you, and thus you will want to apply for it. Update your résumé and customize it so that it is relevant to the position. You may have a standard cover letter, but be sure to personalize it to avoid embarrassing errors that will prevent you from being considered. You may have your contact send in your materials, or you can send them yourself while referring to your contact in your cover letter or e-mail. It is not uncommon to follow up 10-14 days after submitting your cover letter and résumé, but don't pester your potential employer with a daily phone call or e-mail. Being a nuisance never got anyone an interview, much less a job!

The next step is to prepare for the actual job interview, should you be invited to come in for one. Once again, ask your contacts about the general culture of the office/laboratory/institution/organization. You want to project the image that you will fit in readily, so it is important that you have a good idea of what it's like there. You don't want to be overdressed or underdressed, and be careful with color and accessories (i.e. nothing loud, too shiny, or revealing). Make sure that everything fits well whether you're standing up or sitting down (see Editor's tip, sidebar). Now you have to fulfill the image you're projecting—you should be familiar with the place of employment and the position you're applying for. Have a mental list of questions that you want to ask; hopefully most of them will be answered during the interview. If not, don't forget to ask them.

The interview is as much about you learning about them as it is about them learning about you!

After the interview, it is considered courteous to send a thank-you letter a day or two later. Most employers will tell you when you can expect to hear back from them. If you haven't heard anything after that time period, it is not unreasonable to follow up with a polite phone call. If you get the job, congratulations! If you have interviewed at other places, it is good form to let them know that you have accepted a job elsewhere so that they can consider other candidates. If you don't get the job, don't lose heart—keep an eye out for future opportunities and keep networking! ☉

Recommended guidebooks (available on [www.amazon.com](http://www.amazon.com)):

*The Perfect Resume: Today's Ultimate Job Search Tool* by Tom Jackson (Broadway, 2004)

*Put Your Science to Work: The Take-Charge Career Guide for Scientists* by Peter Fiske and Aaron Louie (American Geophysical Union, 2001)

**Editor's tip:** If you need a suit



but don't have a lot of money to spend, visit a high-quality consignment shop, such as Designer Resale (they have a women's and men's store) on East 81st Street between First and Second Avenues. It's a good place to go, especially if this is your first suit! The clothes there are in great condition and are all major labels, such as Armani,

Tahari, Ralph Lauren, etc. The salespeople are wonderful—they can quickly assess the fit of the suit and whether reasonable alterations can help or if it's a waste of money. Plus they'll teach you about how to wear the suit and even coordinate a shirt and tie if you ask. They will even call in an affordable tailor nearby to do the alterations if you don't know one.

# The Latest on Dinosaurs

FRANCISCO LÓPEZ DE SARO

A recently opened exhibit at the American Museum of Natural History (running from May 2005 to January 2006) under the title "Dinosaurs, Ancient Fossils, New Discoveries" showcases some of the most recent and exciting advances in our understanding of these extinct reptiles. It may come as a surprise to a molecular biologist, used to our field radically changing in the few years that it takes to complete a PhD thesis, that Paleontology may have anything 'exciting' to offer. While often speculative in nature, discoveries do happen in the way of applications of sophisticated techniques (CT-scans, computer simulations, or microscopic analysis of bones), by novel and highly imaginative reinterpretations of the existing fossil record, or simply by new fossil findings in some remote location. A sample of all of these is present in the new exhibit at the Museum of Natural History.

The collection opens with a magnificent *Tyrannosaurus rex* skeleton and a discussion on whether these beasts were fast runners or slow walkers. It shows how models of locomotion extracted from the field of biomechanics have shed light on the way dinosaurs moved. A fully articulated model of a *T. rex* moving like a chicken is presented to support the theory that, contrary to previous accounts, *T. rex* was likely a slow mover, perhaps no faster than a walking human. This would support the idea that these dangerous-looking reptiles were actually scavengers rather than active killers. It is quite hard, if not impossible, to derive any prediction of speed in modern animals from the study of the anatomical features alone, which makes the *T. rex* studies even more speculative. In a section devoted to dinosaur tracks, one can admire a one-of-a-kind footprint generated when a *T. rex* stepped into thick mud.

Another example of the application of a biomechanics model to dinosaur research is presented in the discussion of the function of the tail of *Apatosaurus*, a massive herbivorous dinosaur. This tail was very long and "as heavy as three grand pianos, thick as a trash-can at its base, and thin as a pencil at its end," and its function is naturally quite mysterious. One of the more surprising, and possibly correct, theories is that the tail was used as a noise-making device by snapping it as a whip. Whether this type of behavior is shown by any modern animal is not mentioned, but certainly evolution has produced countless ways of producing noises of all kinds, and this could be just one more.

Another changing paradigm in the di-

nosaur research world is the one related to the Ceratopsid group of dinosaurs, of which *Triceratops* is perhaps the most famous member. These creatures display strangely shaped heads with bony horns, plates, and shields. The older school of thought claimed these structures were used as a form of defense from the carnivorous dinosaurs. However, a comparative study of many different Ceratopsid skulls, some of which can be seen in the exhibit, shows that head configurations in this family of dinosaurs were highly diverse and showing bizarre shapes unlikely to serve any defensive purpose. The new models suggest that rather than being used to fight off potential predators, the horns and shields were instead used either as a display to attract mates and compete with rivals (as in modern African antelopes), or possibly as a mechanism to distinguish between individuals of the same species when in mixed herds of thousands.

Perhaps the most spectacular display of this new exhibit is the one dedicated to new discoveries of fossils in the Liaoning province in Northern China. An extraordinarily well preserved and complete fauna has revealed a host of feathered dinosaurs, some early birds, little mammals, insects, and plants that lived together in the same ecosystem, probably a fern-covered swamp. One fascinating insight gained from these collections is on the evolution of feathers, which are very com-

plex structures, from the simplest skin scales found in reptiles to those found in modern birds. *Microaptor gui*, an early bird and perhaps the strangest animal found in Liaoning, had large feathers on its legs resembling additional wings, therefore looking like a four-winged bird. Not surprisingly, this interesting experiment of evolution did not pass the test of time.

As it is often the case with exhibits that try to capitalize on the fascination of the general public with dinosaurs, the sensationalistic style of some of the displays can be somewhat irritating on some occasions. It is also regrettable that in many cases plastic casts or even photographs are used in place of the original fossils, as it is the case of the discoveries of Liaoning. It is always more exciting to look at the real fossil than at reproductions, no matter how perfectly they are done. Instead, some of the real fossils are encased in plastic boxes within the reach of 5-year olds, with a little hole on the side and the invitation to touch them. Also too many monitors with short videos, something that would be more comfortably viewed at home or online, add to the surrounding din. But overall, if you are interested in the latest paleontological research and the dinosaur world, and despite the unavoidable noisy crowds that are likely to be always present, this exhibit is certainly rewarding and worth a trip to the West Side. ☉



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## FOND FAREWELL

One of this year's graduating students is IAN BERKE, a founding editor who came up with the idea for starting this newsletter. The *Natural Selections* Editorial Board will miss him, and we wish Ian all the best in the next stage of his scientific career.