

Natural Selection

A NEWSLETTER OF THE ROCKEFELLER UNIVERSITY COMMUNITY



Reflections on the Updated Periodic Table

PAUL JENG

Where does science live? For me these days, it's in the fifteen open tabs lagging my browser as I switch from email to PubMed. It's in hot coffee in the morning and red velvet seminar cookies in the afternoon. It's spelled out in Calibri on slides or floating around inside the heads of people arm-curling a five-pound Chipotle burrito while crossing York Avenue. But back in grade school, for many of us, science lived as outlines on posters on the wall. Nine concentric rings represented the solar system, squiggly lines denoted the borders of countries, and a grid of colored squares equaled a comprehensive catalog of all known elements. These posters were big glossy boxes of truth, inked into permanence by mysterious sources of unbridled knowledge (are school posters peer-reviewed?). As ubiquitous classroom décor, they served as road signs for navigating an educational frame of mind: science this way, English Lit that way.

The king of school posters was, unquestionably, the periodic table. What chemistry classroom or laboratory is complete without one? Few other images can claim a more complete symbolic representation of scholarship: fastidious organization, cryptic nomenclature, and stacks upon stacks of numbers. Its silhouette is unmistakable, a double-tower fortress fringed by a lanthanide-actinide moat, imposing to outsiders yet comforting for those who've earned citizenship within its walls. To chemistry-allergic

premeds it's a cold instrument of torture, but to science historians the tabular arrangement is a lovingly-crafted mural of the building blocks of existence. Quietly, it's one of the most popular posters in the world. You could have a 36x24 printout delivered tomorrow by Amazon for under two dollars, or buy a vintage 1960's linen edition shipped from Berlin through Etsy for over a grand, and everywhere in between. If chemistry were a subway system, the periodic table would be the ubiquitous MTA map. If laboratory halls were the bedroom walls of teenage girls from 1999, the periodic table would most certainly be N'Sync.

It may be tempting to view the periodic table, essentially the heart of chemistry, as a hallowed monument of science, carved in stone. In reality, the table is as much a finished product today as it was to Mendeleev in 1869. When The Rockefeller University was founded in 1901, there were 84 known elements. When I was born, that number had grown to 109. The chronically outdated periodic tables hanging around us should be regarded with pride, a remarkable testament to the speed of scientific progress and the breadth of human achievement or, alternatively, a massive conspiracy from Big Poster to boost sales revenues.

Last month, the International Union of Pure and Applied Chemistry

CONTINUED TO P.2

What's Inside?

Hi! Click "the element" icon to jump to the page!

Zika Virus

BY AILEEN MARSHALL

P.2

Nobel Prizes

David Baltimore

BY JOSEPH LUNA

P.4

Martin Shkreli

BY SARALA KAL

P.5

Culture Corner

Multi-Volume Series

BY BERNIE LANGS

P.6

NYSOF Interview

Vadim Sherman

BY GUADALUPE ASTORGA

P.7

Crossword Puzzle

Clown Car

BY GEORGE BARANY
AND FRIENDS

P.8

Life on a Roll

Beijing

BY QIONG WANG

P.9

CONTINUED FROM P.1

(IUPAC) officially recognized four new elements, with atomic numbers 113, 115, 117, and 118. The confirmation of these elements completes the 7th period of the periodic table. This is cause for great aesthetic, if not scientific, gratification--but hold on before you rush to Sigma-Aldrich to order up a shiny new batch of ununseptium. Like all elements with more than 92 protons (or, heavier than uranium), these newly synthesized elements are highly unstable, existing only briefly during experiments that use particle accelerators to shoot beams of nuclei at other, heavier nuclei. For example, element 113 exists for under a thousandth of a second before deteriorating through alpha decay.

Like welcoming any new members to a family, there are now several things to consider. What are these newcomers like? How do they behave? What should we call them? Fantasizing about the names and properties of fictional elements has long been a favorite pastime of both science and science fiction. In the Marvel Universe, "vibranium" is the kinetic energy-absorbing alloy that forms Captain America's shield, while the metal "mithril" comprises the nearly indestructible chain mail worn by several Bagginses of Tolkien's novels. Though highly unlikely to play a role in battling supervillains anytime soon, the new elements have generated significant buzz in the scientific community, particularly about their potential names.

To begin with, discoverers do not have free reign over naming rights; after all, this decision impacts every single chemistry

textbook in the world. In December 2015 IUPAC stipulated new provisional recommendations for the naming of elements, the most recent update from the first rules established in 1947. Official guidelines restrict new element names to people (living or dead), geographical locations (but not institutes), minerals, properties, or mythical characters. Suffixes are then added in accordance to historical and chemical consistency: "-ium" for elements in groups 1-16, "-ine" for group 17, and "-on" for group 18.

A list of potential names and estimated odds for approval has already been compiled by the *Nature* blog *The Skeptical Chymist* based on online petitions, write-in suggestions, and anticipated submissions from the discovering institutes. Element 113 (temporarily ununtrium) was discovered by researchers from the Riken Institute of Japan, making it the first element to be discovered in Asia. Proposed root names include Nipponium (Japanese for "Japan", 3/1 odds), Taiyomium (Japanese for "sun," 50/1 odds), and, naturally, Godzillium (fictional Japanese monster, 500,000/1 odds).

Element 118 (temporarily ununoctium) was discovered through a collaboration between the Joint Institute for Nuclear Research of Russia and the Lawrence Livermore National Laboratory in California. An additional collaboration that also involved the Oak Ridge National Laboratory in Tennessee yielded elements 115 and 117 (temporarily ununpentium and ununseptium). Proposed names include Moscovium (1/2 odds), Berzelium (after chemist Jacob Berzelius, 5/1 odds), Sisyphium (mythological Greek character, 500/1 odds), and Bowium

Zika Virus

AILEEN MARSHALL

What should you know about the Zika virus? It's been around for over 50 years, but it's only recently that its spread has increased around the world, especially in South America. The Zika virus is spread by mosquitoes, but for most people it only causes a mild infection. However, an infection in pregnant women can cause a birth defect called microcephaly, in which the skull and brain don't fully develop. At this point, there's limited diagnostic tests and no cure, so labs are scrambling to develop these products.

The Zika virus was discovered in 1947 in the Zika Forest of Uganda. It was isolated from the blood of a rhesus monkey there, as part of a Yellow Fever monitoring

program. It was then found in an *Aedes africanus* mosquito from the same area, a year later. The first human infected was found in 1952 in Uganda and Tanzania. A study in India that year found a significant number of Indians who had antibodies to Zika, an indication that it had been prevalent in that population. There were sporadic outbreaks of Zika over the later years in equatorial areas of Africa and Asia. Then in 2007, an outbreak of what initially appeared to be dengue or chikungunya occurred in the French Polynesian island of Yap. It was later confirmed to be Zika, the first outbreak outside of Africa or Asia. By 2013 it had spread to other South Pacific islands with some patients

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(after recently deceased musician David Bowie, infinitesimal odds).

Final IUPAC-approved names will be announced a few months from now, but until then scientists are already looking onward to the next row, the eighth period. There is, in fact, a greater purpose to creating new elements than the pure execution of theory. Scientists hope to eventually find a series of elements that are stable and usable in practical applications. The predicted elements 120 and 126, for instance, may exist in a potential "island of stability" according to Paul Karol, chair of the IUPAC's Joint Working Party. Though the seventh period is now complete, the future of the periodic table is as open as it ever was. Just remember to hang those new posters up with tacks, not glue.

who also had neurological effects and there were some cases of microcephaly. In March of 2015, health officials in Brazil noted an increase in Zika-like symptoms and rash in the northeast part of the country. By that summer, there was a great increase in the number of children born with microcephaly, especially in that same area. By later that year, there were confirmed cases of Zika infections in other South and Central American countries, and the Caribbean. On February 1 of this year, the World Health Organization declared it a public health emergency of international concern.

CONTINUED TO P.3

CONTINUED FROM P.2

The Zika virus belongs to the same family, *Flaviviridae*, as dengue, chikungunya, yellow fever and West Nile viruses, which is why the antibodies often cross-react in diagnostic tests. It has a single strand positive sense RNA genome, which means it replicates in one step. The strain in this recent outbreak has been sequenced and it has found to be the same strain from the South Pacific outbreak.

It is transmitted by a couple of species of mosquitoes under the *Aedes* genus of mosquitoes. These tend to be relatively aggressive biters who bite during the day and like to stay indoors. If a mosquito bites someone with an active Zika infection, the insect can then pass it on to the next person it bites. Evidence of the virus has been found in blood, semen, saliva and urine. There have been some cases of person-to-person transmission by blood and semen. It is not known whether it can be transmitted by a person's saliva, or kissing. The mechanism of maternal to fetal transmission is also not known. According to Claudia Dos Santos of the Instituto Carlos Chagas/Fiocruz in Brazil, it is found in Hofbauer cells, a type of white blood cell found in the placenta. "It's possible that Zika virus can cross the placenta and infect the brains of fetuses" says Melody Li, of our own Rice lab.

One in five people who are bitten by a mosquito carrying the Zika virus will get sick. Of those, the majority have mild symptoms and recover in about a week. The symptoms are a rash, fever, joint aches, headache, conjunctivitis (pink eye), and edema behind the ears. There have been some cases where a person develops neurological complications and some develop Guillain-Barré syndrome. In this syndrome, one develops various degrees of paralysis, which resolves within months. The most adverse effect of a Zika infection is the birth defect microcephaly. While the evidence is not yet definitive, it seems to happen if a woman is infected while pregnant, or a couple of weeks before. Many of these pregnancies end in miscarriage or still birth. The children that are born usually have a very short life span and many cognitive problems. As of this writing, more than 4,000 cases of microcephaly have been reported in northeastern Brazil within the past year. This is a rate ten times higher than normal. There is a hypothesis that prior infection with



Rash on a arm due to Zika virus.

FRED / Wikimedia Commons

dengue, which is prevalent in northeast Brazil, causes that outcome.

There are two different tests available for diagnosis, but no commercially-available blood test. The blood test done in most institutions is an in-house derived test for Zika antibodies in the blood. The problem is that there are often cross reactions with antibodies to other Flaviviruses like dengue, chikungunya and West Nile, which are often endemic in the same areas where Zika exists. Because these are in-house tests, there is no coordinated validation or quality control. There is a Polymerase Chain Reaction (PCR) test that directly detects the Zika RNA. While more reliable, only the Center for Disease Control (CDC) has this test, it is expensive and the RNA can only be measured during or within a few days of symptoms. The virus clears the blood in about three to four days and the antibodies appear after day five.

There is no vaccine for Zika. The focus has been on prevention. This past January, the CDC issued a travel warning to women of child bearing age to countries with reports of Zika. For all those areas, they recommend removing sources of standing water, using screens on all doors and win-

dows, wearing long sleeve shirts and pants and using insect repellent. Brazil and the governments of some other Zika affected countries encourage people to delay getting pregnant until the virus is under control. Human rights groups have pointed out that some of these same governments don't provide access to contraception and safe abortion. It is not expected that Zika will be as much of a problem in the New York area as it is in some of these other areas. We only have a limited summer season, and a good infrastructure where standing water is not as common. Most people in the United States also have doors and windows with screens. The concern is for the upcoming Summer Olympic Games in Rio de Janeiro this August.

There has been a surge in biomedical research now on the Zika virus around the world. The United States and most international regulations require that the virus only be handled in a Bio-Safety Level 3 facility. There is no currently existing animal model for Zika, which also makes research difficult. There is work being done to develop a mouse model at Washington University in St. Louis. Rockefeller's own Rice lab will be one of several in this country working on Zika.

Twenty-four visits to Stockholm: a concise history of the Rockefeller Nobel Prizes

Part XVI: David Baltimore, 1975 Prize in Physiology or Medicine.

JOSEPH LUNA

On June 19th 1946, a captive rhesus monkey in the Mengo district near the town of Entebbe, Uganda developed unexplained hind-limb paralysis. British and American scientists, part of the local Yellow Fever Research Institute, financed in part by The Rockefeller Foundation, soon isolated what they believed to be a virus as the cause. They named it Mengo Encephalitis Virus, later shortened to just Mengovirus. The virus was quickly isolated in mosquitoes, and found in at least one person, but generally it posed no major risks to human health. Mengovirus was but an additional member of a constellation of RNA viruses known as picornaviruses, of which poliovirus was far and away the star. After a few reports demonstrating that Mengovirus could induce characteristic paralysis in mice as an animal model, interest died down.

A decade later, as mammalian cell culture techniques matured, many viruses were tested for their ability to replicate in a plate of cells instead of a whole animal. And one early and surprising finding was that just the RNA genetic information of Mengovirus was capable of launching an infection if artificially introduced into a cell. Furthermore, whereas normal cellular RNA production occurred almost exclusively in the nucleus, Mengovirus set up shop and made RNA only in the cytoplasm. And the biggest surprise: if cells were treated with the drug Actinomycin D, which prevented normal cellular RNA production from a DNA template, Mengovirus didn't care, and went on producing copies of its own RNA as if nothing had happened.

For a young MIT graduate student named David Baltimore taking a course at Cold Spring Harbor Laboratory, this became an enthralling problem. So enthralling in fact that Baltimore left MIT to join the lab of the lecturer that day, Richard Franklin, at The Rockefeller University. There, Baltimore's graduate school project was to develop an *in vitro* system to characterize the nature of Mengovirus RNA synthesis from an RNA template. He did so by taking Mengovirus-infected cells, grinding them up, and discarding the nuclei (where cellular RNA synthesis occurs from DNA). To the remaining cytoplasmic fraction, where there was no DNA and where Mengovirus could replicate, he added radioactive RNA nucleotides (A, C, G, and U) one-by-one, in combination, or leaving one out. The idea was that if there was an RNA-

dependent RNA polymerase (a "replicase"), it should be able to link radioactive nucleotides together to make an RNA copy that would fall out of solution when placed in acid. By taking a Geiger counter and measuring if the radioactivity went into this "acid insoluble" fraction, Baltimore could conclude that a polymerase had acted on existing Mengovirus RNA to make an RNA copy composed of whatever radioactive nucleotides he added.

With this basic assay, Baltimore could test different conditions to characterize how the Mengovirus RNA polymerase behaved. As expected, Actinomycin D had no effect on nucleotide incorporation, but the polymerase was dependent on magnesium, and could be inhibited by manganese, both features in common with cellular RNA polymerases. By the time Baltimore defended his PhD (completed in a mere 18 months), he had shown that an RNA-dependent RNA polymerase (an "RdRp") of viral origin existed in infected cells. After his pioneering study of Mengovirus, similar results with poliovirus soon followed. David Baltimore left the RU graduate program as a capable enzymologist and virologist.

Because of their lack of the much more famous molecule DNA, RNA viruses always seemed like exceptions to the hypothesis that information flowed from DNA to RNA to protein. And among themselves, RNA viruses were not always so consistent: whereas the RNA of Mengo and polioviruses were infectious all by themselves, other RNA viruses such as vesicular stomatitis virus (VSV), were not. VSV infection started with viral RNA that was antisense to what was needed to make viral proteins. Now at MIT, Baltimore and his lab tackled this strange paradox: how did VSV and related viruses, which entered cells with RNA instructions in reverse, manage to launch an infection? There were two main hypotheses. Either the viral RNA used some unknown cellular RdRp to make a correct copy, or the intact virus entered the cell with its own RdRp to do the job. Focusing on the latter hypothesis, Baltimore with Alice Huang and Martha Stampfer, discovered an RdRp within VSV in 1969.

This result, alongside many others, hinted at the diversity of strategies that RNA viruses employed to replicate. It was from this mindset that Baltimore next chose to go after other RNA viruses to see if they too carried

with them a necessary polymerase to get an infection going. And settling on an RNA virus called Rauscher murine leukemia virus (R-MLV), he noticed something quite odd: it never incorporated radioactive RNA nucleotides as he had seen with Mengo, polio or even VSV, but could incorporate radioactive DNA nucleotides. Thus, in early May of 1970, using only a slight variant of the assay he developed while in graduate school, Baltimore tracked down a new polymerase that made DNA out of an RNA template: a *reverse* transcriptase.

Whether a household name or a footnote, whether a society's plague or a single virologist's model toy, isolated in far-off places like the Ebola river, the Zika forest, LaCrosse, Wisconsin, or the New York City subway system, viruses old and new have incredible things to teach us. David Baltimore's journey from a long-forgotten picornavirus to one of the greatest discoveries in modern biology (certainly one of the coolest enzymes) is a perfect illustration of this. Viruses unknown to science, yet to be named after their symptoms or towns or rivers of origin, will find a bit of David Baltimore in the graduate student or postdoc who decides to study them.

Natural Selections wants your ART!

Whether you can't stop drawing while waiting for the bus, or taking a walk around the city; if photography is your passion, or if you're more of a painter, this is your chance to share your art.

Beginning in 2016, Natural Selections will publish a picture of the art we receive every month. To take advantage of this opportunity, email us your work with a title, a brief description, and your name. We'll make sure to include it in a future issue. We hope to receive several images to create an open space for art!

We'll be delighted to receive your artwork, please email hi-res image or vector files to:
nseditors@rockefeller.edu

Martin Shkreli: Disease or Symptom?

SARALA KAL

Hillary Clinton said “he was like the worst bad date you can imagine,” and many others call him the villain of the pharmaceutical industry. Thirty-two-year-old Martin Shkreli is a Brooklyn native, whose placement in a high school program for gifted youth serendipitously landed him an internship on Wall Street at the ripe age of 17. Few would expect the child of two immigrant parents, who worked as janitors, to have a career that escalated at such a rapid pace. Shkreli’s intellect and intuition led him to co-founding the hedge fund MSMB Capital Management, co-founding and working as the CEO of the biotechnology company Retrophon, and also co-founding and working as the CEO of Turing Pharmaceuticals. However, what’s gained immense attention from the public is not Shkreli’s professional pedigree, but rather his manipulation of the system. Unphased by negative attention, he has repeatedly been seen trolling the world on Twitter, buying overpriced albums, and raising the price of a drug on the W.H.O. list of Essential Medicines by more than 5000%. It is simple to pinpoint his actions and name him the villain in the ongoing battle of increasing drug prices and the affordability of healthcare. But is he really the root of the problem? Or is he a mere symptom of the disease?

In August of 2015, Daraprim was acquired by Turing Pharmaceuticals. The 62-year old drug, known generically as pyrimethamine, is the standard of care for treating the life-threatening parasitic infection, toxoplasmosis. Toxoplasmosis, for babies born to women who become infected during pregnancy, can be fatal. Additionally, it ravages the compromised immune systems of patients with HIV, and has been identified by the Centers for Disease Control and Prevention as one of the five neglected parasitic diseases for which public health action is necessary. What was once priced at \$13.50, after the acquisition by Turing Pharmaceuticals, was raised to \$750 overnight. CEO Martin Shkreli justified this price hike by saying that the drug was so rarely used that the impact on the health system would be miniscule, and that Turing would use the money to develop better treatments with fewer side effects. They promised to offer reductions of up to 50% to hospitals, introduce smaller bottles of 30 tablets, lower overall costs and offer free sample packages. Their promises, however, were broken almost immediately. Premiums for patients increased five-fold, some Medicare and Medicaid patients were not even given the option of receiving the drug, and doctors were forced to seek out alternative

treatments. The high price of the drug has also given many companies the incentive to work as quickly as possible to produce a generic equivalent. After a tremendous amount of backlash, Shkreli continued to respond to media attention with a smug look and snarky comments, reiterating his point that the only thing that mattered to him was his company’s profit.

The Daraprim case has as much to do with the Food and Drug Administration as with Shkreli. The F.D.A. certification process for generic drugs is grueling enough that whoever owns Daraprim has a virtual monopoly in America. According to an F.D.A. official, Congress has not really vested any authority to the F.D.A. over pricing. One of the strangest things about the anti-Shkreli argument is that it asks us to be shocked that a medical executive is motivated by profit. Shkreli proves a crucial point about money and medicine through his actions. By showing what is legal, he has helped us to think about what we might want to change, and what we might need to learn to live with. Shkreli has opened our eyes to what we need to be focusing on to help change this country and try to make medicine affordable for everyone. Why is Shkreli able to do what he did? This is the real disease, while Shkreli himself is only the symptom.

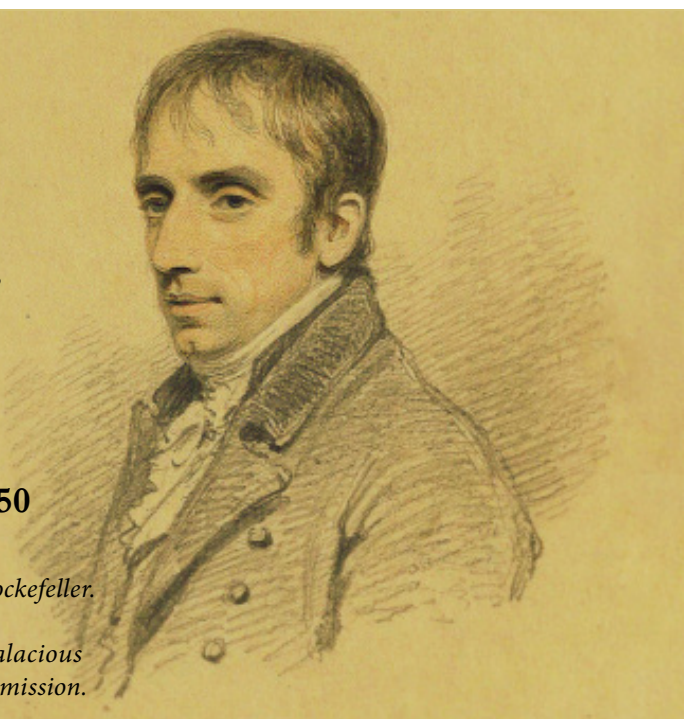
QUOTABLE QUOTE

*When from our better selves we have too long
Been parted by the hurrying world, and droop,
Sick of its business, of its pleasures tired,
How gracious, how benign is Solitude.*

William Wordsworth, 1770 – 1850

Send in interesting quotes to be included in future issues to nseditors@rockefeller.edu.

Quotes can be philosophical, funny, clever, anecdotal - but NOT too salacious or outright unpublishable - and short enough not to need copyright permission.



Culture Corner

Learning Lessons from Multi-Volume Series

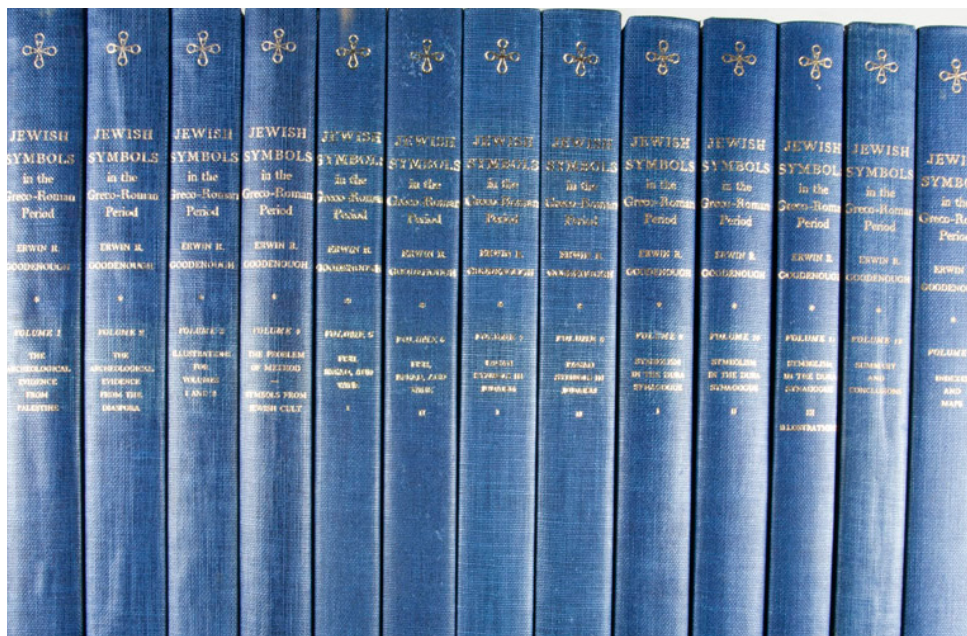
BERNIE LANGS

There is no challenge in reading more rigorous than the study, over several years, of a series of books by a single author on one subject. From about 1983 through the late 1990s, I read four series, two of which I did not complete and two of which I finished, that changed my outlook on life.

My first foray began when I chanced on the first volume of a series by the German art historian and curator Max J. Friedländer (1867–1958) and decided on the spot that “I’m going to read all of this.” The 14-volume *Van Eyck to Breughel: Early Netherlandish Painting* is a wonderful overview of the Northern Renaissance. It’s written from the point of view of not only an art historian, but a connoisseur and a man with emotional and impeccable vision for classifying, cataloging, and appreciating the mostly Christian iconographic paintings of the mid-15th through mid-16th century. The first volume focuses on Jan Van Eyck and his mysterious brother Hubert, who died at an early age, and whose contributions to their oeuvre has been the subject of intense debate through history. The seriousness and depth of Van Eyck’s work, with its rich palette and texture brought on by his groundbreaking use of oil solutions in his paint, bring the reader into a new world of intensity and vitality, that Friedländer is able to maintain throughout the entire work. As the reader progresses, his or her own personal vision is enhanced and improved because of the time spent looking at the 2000 or so plates of reproductions of Masters, such as the harsh Rogier van der Weyden, the idealist Hugo van der Goes, the mischievous Bosch, the sublime Gerard David, and the romantic Adriaen Ysenbrandt, much of whose work I could see on view in the large Northern collection of the Metropolitan Museum.

The way I saw the world changed from the experience, and although I am not of Christian faith, I appreciated that these paintings were a way of an artist’s expression of his or her belief in “The Divine.” The views depicted in the background of many of the works of late Medieval and Renaissance Northern cities such as Bruges, often bathed in dark bluish color and light, became for me an ideal of a celestial home.

My next foray into a lengthy series was a difficult four-year journey through the ancient world with Professor Erwin R. Goodenough (1893–1965) of Yale University. His



The 12 volumes and index of Erwin R. Goodenough’s *Jewish Symbols in the Greco-Roman Period* (Bollinger Series)

masterwork, *Jewish Symbols in the Greco-Roman Period* is sophisticated and dense in presentation. Much of the early volumes are spent defining and refining the concept of what a symbol actually is and how deeply it was ingrained in the psyche of the ancient world in synchronized fashion, so that the Greeks and Romans and even the Egyptians and Assyrians shared ideas of mysticism which were co-opted into Jewish religious expression. Symbols such as divine fluids of wine, or expressions reflecting the stars and the zodiac, or of more natural subjects, show up in the most unexpected ways throughout the ancient world if you are educated to understand what you are seeing.

Goodenough’s life work is steeped in ancient mysticism and Greek philosophers as varied as Plato and Philo. He is quite cognizant that if his readers have stuck with him through his trek, they would emerge changed persons in understanding how we’ve spiritually come to our own world. Some of the photos of obscure ancient sites and artifacts were at times disturbing in their undercurrent of death and the complexities of the fate of the soul. The last volumes are dedicated to the ancient synagogue at Dura-Europas in Syria, where, in the first centuries of the common era, there were places of worship for Jews, Christians and pagans alike. He expertly takes his readers through the remains of the city and synagogue’s beautifully preserved murals and it’s an amazing journey.

Over two decades I read books in the 18-volume series by Salo W. Baron (1895–1989) *A Social and Religious History of the Jews*. I was raised Jewish but found the weekend

temple liturgy tedious. But reading Baron’s books in conjunction with Goodenough’s tracing of ancient Jewish mysticism awoke a unique idea in me of what it means to be Jewish. Baron’s work, especially the volumes on the ancient and Medieval Jewish world, were an eye-opener. His use of source documents is incredibly exciting in relation to Jewish European communities and their leading scholars. One learns of the mistreatment through history of the Jews. To see the detail of the organized hatred of the people, from the Church to the governments of these poor “students of the book,” is horrifying to say the least. Baron’s footnotes are rigorous and lengthy and it’s amazing how many books and treatises and papers he examined over the years.

I read 16 volumes of Baron and ran out of steam. I hope to one day finish the final two volumes. I also didn’t finish Osvald Sirén’s (1879–1966) series *Chinese Painting: Leading Masters and Principles*. I was reading it in the library where I was studying for my Master’s degree, and I graduated before finishing the work. I struggled to retain the sometimes complex names of the great painters in the Chinese tradition, but learned valuable lessons on their sublime brushstrokes and how the many schools were classified. Once again, the Met Museum, rich with Chinese scrolls, served me well to see examples of the paintings firsthand. After the often brutal depictions from the Northern Renaissance of crucifixions and gory deaths of saints, the ethereal landscapes of Chinese paintings are a welcome escape and I often meditate on their delicate depictions of serene mountains, lakes and pavilions.



New York State of Mind

This month *Natural Selections* interviews Vadim Sherman, Supervisor of High Energy Physics Instrument Shop

INTERVIEW BY GUADALUPE ASTORGA

How long have you been living in the New York area?

Twenty-nine years.

Where do you currently live? Which is your favorite neighborhood?

I live in south Brooklyn, Sheepshead Bay. This area is not far from the ocean, Manhattan Beach, which is beautiful. This is my favorite neighborhood, that's why I live there!

What do you think is the most overrated thing in the city? And underrated?

In my opinion, the most overrated things in NYC are the Broadway shows. Some of them are good, some are bad, but overall they are definitely overblown.

Underrated, the subway in NYC. I think it's the best transportation system in all the US. Some people don't appreciate it and don't use it, they just prefer to drive their cars. It's definitely underrated.

What do you miss most when you are out of town?

NYC water! When I'm out of town I only drink bottled water. Here, I drink water from the tap because I know it comes from a clean and beautiful reservoir.

Has anything (negative or positive) changed about you since you became one of us "New Yorkers"?

I became more American, started to speak English more than I used to, and lots of other positive changes. The negative is that everything gets more expensive; the living is more expensive than 20 years ago. But the experience is overall positive to me.

If you could change one thing about NYC, what would that be?

I would gladly change weather. I would love it if the weather would be like in Florida, but NY is a beautiful city and I like to live here.



Photo Courtesy of Vadim Sherman

What is your favorite weekend activity in NYC?

Definitely sports, I play two different ones, volleyball and squash, and I'm pretty good at both of them.

What is the most memorable experience you have had in NYC?

The birth of my children, I have two sons, both born in NYC, not like me. But of course there are so many different things about NYC...

Bike, MTA or WALK IT???

I like to walk, if I could I would walk to

work, but it's too far from where I live. Sometimes I drive, but I like to take the MTA because it's pretty convenient.

If you could live anywhere else, where might that be?

If not NYC, which I love, I would live in Florida because I like the weather, who doesn't, right?

Do you think of yourself as a New Yorker?

Definitely yes! Some people think about New Yorkers as only from Manhattan, I live in Brooklyn and I still consider myself as a New Yorker. You love where you live, and you live where you love.



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Clown Car

GEORGE BARANY AND FRIENDS

This politically themed puzzle comes to you from a consortium of progressively-minded friends of Rockefeller alum (1977) George Barany, who is currently on the faculty of the University of Minnesota-Twin Cities. For more about this specific puzzle, including a link to its answer, visit [here](#). More Barany and Friends puzzles can be found [here](#).

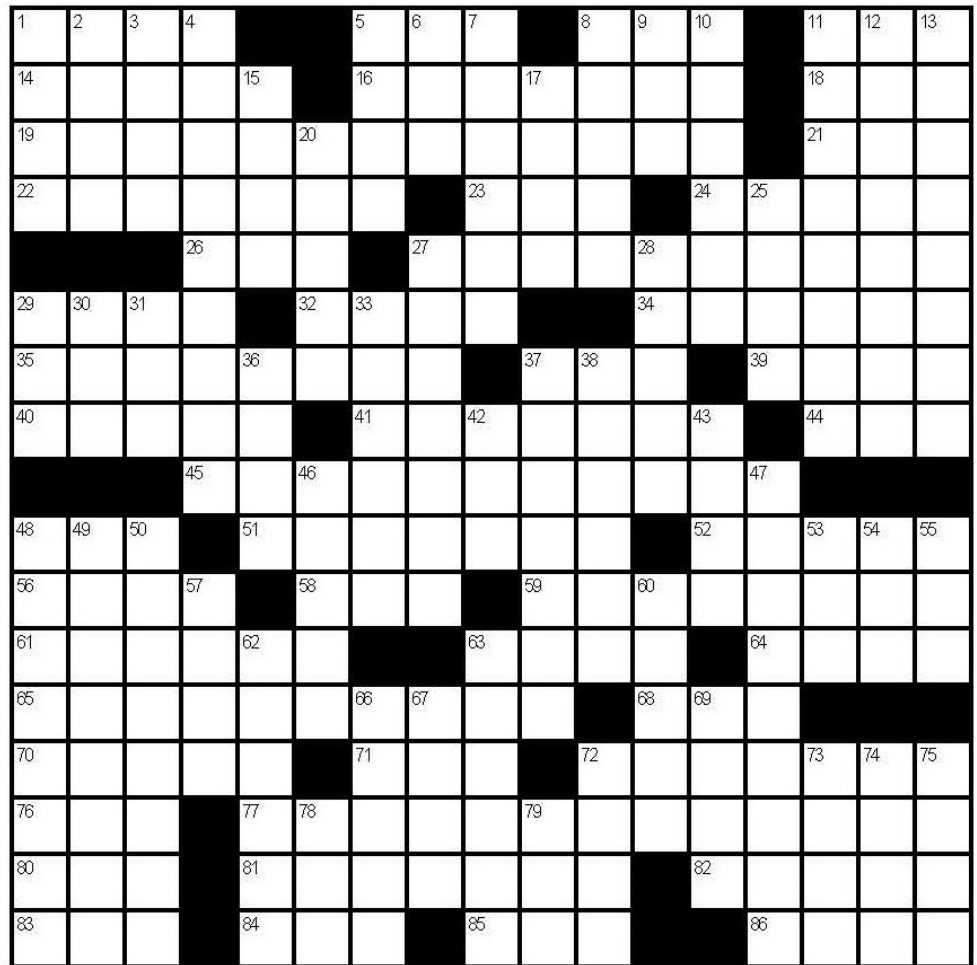
ACROSS

1. Way to go
5. Env. stuffer, at times
8. Doo-wop syllable
11. Can. city
14. Cacophonous
16. Make tawdry
18. Brazilian city, familiarly
19. Like a GOP candidate's convoluted approach to the Jewish question?
21. Surfing site
22. Triangle type
23. "___ B?"
24. Dedicattee of a piano classic
26. Like ears of some politicians
27. GOP candidate's optical illusion?
29. City Obama visited to receive his 2009 Nobel Peace Prize
32. Those, to José
34. Houston AFL team that became the Tennessee Titans
35. Fascinate
37. Communication system for the gorilla Koko: Abbr.
39. Jai ___
40. "La Fille du Regiment" role that made Pavarotti a superstar
41. Showy annuals
44. Political scandal topic, perhaps
45. GOP candidate's autonomous tactics?
48. African-American alternative to LGBT
51. Ties together

52. Supremes' wear
56. Pub pints
58. Ball girl?
59. Reason for a bad hare day?
61. "Le ___" (Matisse piece)
63. Sicilian volcano
64. John or Paul, but not George or Ringo
65. Like a GOP candidate's amateurish operation?
68. God, to a Rastafarian
70. Legend maker
71. California's Big ___
72. Leary who advocated "'turn on, tune in, drop out'"
76. You can give it a whirl
77. GOP code for pro-gay, proabortion Jews
80. Med. care grp. in the USA
81. Staring at trouble
82. Nail-biting
83. José or Francisco's leader?
84. John Quincy, to John Adams
85. Masthead VIPs
86. Brand, in a way

DOWN

1. Cut back
2. Like Carson's campaign, it seems



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3. Soliloquy starter
4. Styling stuff
5. Green concern: Abbr.
6. Ice-loving org.
7. Fragrant coniferous trees
8. Kind of bank where you lose interest after making a deposit?
9. The other woman
10. Cherubim, at the Vatican
11. South African golfer nicknamed "The Big Easy"
12. Requiem Mass hymn
13. Chain whose name derives from its original room rate
15. Rice-A-___
17. "___ Ben Adhem"
20. Swindler, slangily
25. Kinks song with the lyrics "girls will be boys and boys will be girls"
27. Vehicle that's hailed
28. ___ opposites
29. Baseball's Mel or Ed
30. Welcome sign on B'way
31. Multi-PC hookup, for short
33. Steakhouse sound
36. Put out

37. Actress Bening
38. Squelches
42. Chief ___-A-Homa (onetime Braves mascot)
43. Put into pigeonholes, maybe
46. Excessive
47. Gun show exemptions, e.g.
48. Rest periods
49. Eyesight issue
50. Becomes more lenient with
53. Introduction to chemistry?
54. Clairvoyance, e.g.
55. "___ You Later, Alligator" (hit for Bill Haley and the Comets)
57. Very, to Wilhelm
60. Indira's son and successor
62. Grammy winner Morissette
63. The Continent
66. Dam site in Egypt
67. Dolls' dates
69. Latin 101 word, much loved in crosswords
72. NYC Theater District discount booth
73. Adjust, as a radio
74. "___ real nowhere man"
75. North Sea flower
78. Composer of crosswords?
79. Carew or Stewart

Life on a Roll

QIONG WANG



The winter of Beijing's old town is magnetic, both day and night, especially during the lunar new year season. Walking in the hutongs (narrow alleys), every brick and stone has an engaging story to tell. The depth and richness of its culture and history is more than I could ever comprehend even as a native. During my short stay in Beijing this winter, I didn't have to plan anything. I would set out for a culture treasure hunt every day to any random spot on the map, and found myself in serendipity and vast pride of my own culture. Looking at the festive lunar new year temple fair vs the solemn Tiananmen square, the old style tea-house vs the modern dome-shaped national opera theater and that back-to-childhood lake-skating, I realized that Beijing is Beijing, like no other.

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