

Natural Selections

A NEWSLETTER OF THE ROCKEFELLER UNIVERSITY COMMUNITY

Issue 114
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Into Africa: Spotlight on the Rockefeller University Employee Art Exhibition

QIONG WANG

Living in New York, most of us often find ourselves trapped inside concrete jungles, busy and occupied all the time. Sunshine and the view in the distance from our windows are often blocked bluntly by another building. On the subways, we look down, napping or playing with cell phones, avoiding eye contact. We talk fast, walk fast, eat fast-food and couldn't go through a day without our caffeine shot. Slowly, we start to forget the world outside, a world that is organic and original.

One day, I stopped by the Employee Art Exhibition on my way to get lunch in the Weiss lobby. A series of acrylic paintings caught my attention. There was a vivid giant lion head about to leap out of the paper with his fur standing on end and both eyes gazing ahead; a baboon mother watching her baby playing in the grass; an elephant enjoying his shadow in the river with his ears wide open and a majestic giraffe sticking her head above and over tree leaves against the blue sky. I was very impressed by the painting's details, the strokes, the color, the light and shadow, and the background. More so, I could feel there were

feelings and stories behind these paintings and I was compelled to find out more about them. On the 13th floor of Weiss, I met up with the artist, Dr. Bruce McEwen, a distinguished neuroendocrinologist, in his office.

Acquired somewhat from his heritage, Dr. McEwen has enjoyed drawing since his childhood. He started painting about 15 years ago, starting with water colors. In recent years, he fell in love with acrylic painting. His paintings in the exhibition were inspired by his wife's wonderful photography, which was also on exhibit. Both Bruce and his wife, Dr. Karen Bulloch, are talented artists who make a variety of art pieces in their leisure. In the summer of 2014, they went on safari in southern Africa with a group of scholars. Being a travel lover, I immediately became fascinated with their safari experience. It was the couple's first trip to Africa and a trip like never before. They had never been in such close proximity to hippos, rhinos, lions, giraffes, and even at the mercy of a charging elephant. The reality of seeing these animals, Dr. McEwen said, was surreal, completely different from visiting a zoo. It



felt like *Jurassic Park*. In the safari park, the couple was covered in dust every day. Tourists were tucked in the back of open trucks covered only with metal fences. Wild animals could care less about human presence, especially when there are prey in sight. It seems quite certain that



Images by Bruce McEwen, PhD, used with permission.





they assume the leading roles, and tourists are just extras. Locals have to learn to co-exist with these wild animals, protecting themselves and sharing resources. It is a real eco-system, a world where hyenas tear a giraffe apart and share dinner among themselves.

Unfortunately, these animals' real enemies are not themselves, but humans. To date, there are still many greedy, selfish slaughterers out there killing elephants for

bloody profit. Bruce told me that the safari security personnel were equipped with guns not to protect visitors per se, but to defend wild animals against any illegal hunting.

What struck the couple most and brought them to deep reflection and awareness is the extreme gap between rich and poor and the importance of the middle class. They visited several village schools made of adobe and wouldn't soon forget the expression of excitement on the faces of those school kids when given a soccer ball. "They were all very smart," Dr. McEwen said, "We don't realize how much we have." As a matter of fact, Karen, a fantastic photographer, captured and documented some precious moments of their school visit on film, which were also on view as part of the exhibit in Weiss lobby. The couple has made and kept a connection with local schools there and they sincerely hope their continuous outreach arrives soundly in the hands of those in need in the future.

My conversation with Dr. McEwen

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had to end, but it lit up my dream of Africa. Although seemingly a far-reach right now, one day it can happen, and it will happen. Once deeply enchanted by the classic film *Out of Africa*, I can't wait to step into Africa, to soul-search, to feel, to perceive and to understand simple happiness in life.◉

The Pursuit of Vocation

PENG KATE GAO

Work is love made visible.
—Kahlil Gibran

Social psychologist Jonathan Haidt, in his brilliantly written book *The Happiness Hypothesis*, summarized three ways that people generally view their work: a job, a career, or a calling. A job is what people do to earn money and to support their families. A career is what people do to achieve higher goals, such as advancement and prestige. A calling, on the other hand, is for those who find their work so intrinsically engaging and fulfilling that they do it for the sheer love of it. These people usually would continue to work even without pay, if they suddenly became very wealthy. They would have found their life's vocation.

How do we find ours? In many ways, this is an age-old question. Two and a half millennia ago, Confucius advised, "Choose a job you love, and you will never have to work a day in your life." Nowadays in industrialized western society, where individual autonomy and achievement are farmers among the highest priorities, this question seems even more urgent. As Apple

entrepreneur Steve Jobs, remembered as much for his passion as his success, once said, "You have to be burning with an idea, or a problem, or a wrong that you want to right. If you're not passionate enough from the start, you'll never stick it out." This type of sentiment has always created mixed feelings in me. I am deeply moved and inspired, but at the same time confused and even frightened, as one question burned in my mind: what is *my* burning idea and would it be strong enough to motivate *me* to the end? For a long time, I thought my passion was out there, like some great truth, waiting to be found.

Over the years, however, I developed a more nuanced perception of passion. In conversation with a highly accomplished scientist, I once asked, "When you were very young, did you dream about becoming a scientist and is science the only thing you have ever wanted to do?" I was expecting an unhesitating yes, since most people believe that the seed of an interest in science and becoming a scientist has to be planted before third grade, or it's too late. Much to my surprise, however, he answered, "I grew

up in the countryside and my parents were both farmers. I had never met a scientist before entering college. However, I have always had a curious mind and diligent working attitude. In college, I became interested in biology. I worked hard in the lab, and fell in love with what I was working on. I told myself to keep pushing forward and see how far I could go in science. What got me here today is curiosity and dedication."

This response resonated more with me, and I suspect with many other people, than the idea of a "burning passion." To paraphrase Robert Greene in his book *Mastery*: when we are very young, we are attracted to certain activities, such as sports, music, words, visual patterns or mathematics, etc. He refers to this as "primal inclinations," indications of what makes us unique. As we grow older, most of us lose touch with these inclinations. We are distracted and influenced by outside opinions and judgments, and thus become lost and frustrated. To find one's vocation and achieve mastery, it's important to reconnect to these primal inclinations, and equally, if not more, important is to deliberately learn skills through

hard work and discipline. "It is time to reverse this prejudice against conscious effort and to see the powers we gain through practice and discipline as eminently inspiring and even miraculous." In other words, instead of finding passion, we might be better off cultivating passion.

This approach brings to mind the two kinds of romantic love that Jonathan Haidt described in his book: passionate love and companionate love. Passionate love is what

one falls into in the initial phase of a relationship. It ignites and burns brightly, however it does not last forever. To support a strong and long-lasting relationship, passionate love has to transform into companionate love, which is the kind of love that people build day-by-day over a lifetime with deep-rooted trust and mutual respect. It is certainly hard work to maintain, any long-term couples would acknowledge, but it is also considerably more satisfying. Per-

haps we should approach work in much the same way. Perhaps the key to finding our vocation is to identify what we love, and more importantly, spend our life working to cultivate and strengthen it through respect, devotion and diligence.

Cultivate passion, pursue life's vocation, and invite the world to share our joy in the making. ◉

For Your Consideration – *Ones to Watch, Vol. 3 Edition*

JIM KELLER

Ah, the Best Supporting Actor and Actress races, such tenuous categories where one can know everything one week and nothing the next. Take last year's Best Supporting Actress race for example—who could've guessed that frontrunner Oprah Winfrey would be snubbed on Oscar nomination morning? The New York Film Critics Circle (NYFCC), the National Board of Review (NBR), the Los Angeles Film Critics Association (LAFCA), and the American Film Institute (AFI) have announced their respective winners. Meanwhile, the Screen Actors Guild (SAG) and the Hollywood Foreign Press (Golden Globes) have announced their nominees. These announcements serve as the starting gun for the second leg of an unusually wide open Oscar race. Nowadays the race begins in August with the Telluride Film Festival, but I digress. By the time this article is published various other critics groups will announce their awards/nominees and a consensus will begin to take shape. As I said, anything can happen in these races and the third leg is yet to come. So while the would-be contenders are out in full-force kissing babies and making appearances, let's examine the Best Supporting Actor and Actress races in this third of the three-part series.

~THE GENTS~

THE NEWBIE: J.K. Simmons — *Whiplash* (director: Damien Chazelle):

FYC: In this film concerning a young drummer who enrolls in a high-caliber music conservatory, Simmons plays a relentless instructor who knows no bounds when it comes to realizing his student's potential.

While recognized by the Broadcast Film Critics Association (BFCA) for his part in the ensemble of *Up in the Air* in 2010, coming into the race Simmons was yet to be recognized by any film voting body for his individual work outside of a Chlotrudis nomination for *Juno* in 2008. That changed this year when both NYFCC and LAFCA bestowed their awards upon him and he earned SAG and Golden Globe nominations. These are likely the first of many accolades this season for Simmons as his role is as meaty as that of a leading one. He is the de facto frontrunner in this category for the time being.

THE ACTOR: Edward Norton — *Birdman or (The Unexpected Virtue of Ignorance)* (director: Alejandro Iñárritu):

FYC: Norton really sinks his teeth into this role as the caustic actor who joins the Broadway play put on by the film's lead, has-been actor Riggan (Michael Keaton). Unlike his biggest competitor, Simmons, Norton first curried favor with the Academy in 1997 for his supporting nomination for *Primal Fear*. He went on to earn a leading actor nomination two years later for *American History X*. The film is somewhat of a critic's darling and it's very likely a nomination for Norton will follow. Whether or not he can beat out Simmons remains to be seen, but he did win the NBR award this year and matched Simmons SAG and Golden Globe nominations.

THE GOOD GUY: Mark Ruffalo — *Foxcatcher* (director: Bennett Miller):

FYC: As the ill-fated David of Olympic wrestler brothers Schultz, who were victimized by paranoid schizophrenic and heir to

the du Pont chemical fortune, John du Pont (Steve Carell), Ruffalo gives a well-wrought performance imbued with warmth and tenderness. Ruffalo earned a Best Supporting Actor nomination for *The Kids Are All Right* in 2011 and has since made inroads in Hollywood for his humanitarian efforts. He also earned SAG and Golden Globe nominations this year. The film is dark, which the Academy tend to shy away from rewarding, but his landing a nomination wouldn't be too far off-base.

THE FATHER: Ethan Hawke — *Boyhood* (director: Richard Linklater):

FYC: If you had asked me over the summer if I felt that Hawke had a real shot at securing a nomination for his performance in Linklater's magnum opus, I would've said "No." But in a less competitive year a film can receive such deafening praise that its inhabitants are taken along on the awards ride like a swift moving current. This is the case with *Boyhood* and Hawke. This isn't to say that he isn't good, it's just that in a more competitive year where the slots fill up fast, it's likely that Hawke would've been overlooked. He has been nominated for three Oscars: Best Supporting Actor in 2002 for *Training Day*, Best Writing, Adapted Screenplay in 2005 for *Before Sunset* and for the same award last year for *Before Midnight*. Hawke has shared a BFCA Critics' Choice Louis XIII Genius Award win with Julie Delpy and Richard Linklater for their collaboration on the *Before* series. Like most of his competitors Hawke earned SAG and Golden Globe nominations this year. As the year comes to a close, his being nominated for Oscar is looking more like a closed subject.

THE COMEDIAN: Josh Brolin — *Inherent Vice* (director: Paul Thomas Anderson):

FYC: This adaptation, based on Thomas Pynchon's novel, follows drug-fueled detective Larry "Doc" Sportello (Joaquin Phoenix) through 1970s Los Angeles as he investigates the disappearance of a former girlfriend. Brolin plays Detective Christian "Bigfoot" Bjornsen and is said to give a hilarious turn.

He earned a Best Supporting Actor nomination in 2009 for *Milk* and won the NBR award for the same performance, but hasn't figured into the awards race since then. It's not uncommon for the Academy to reward a comedic supporting performance—see Christoph Waltz's one-two punch wins for *Inglourious Basterds* in 2010 and *Django Unchained* in 2013 (where he portrayed essentially the same character). So if they feel like going in that direction Brolin is your man, but this is a longshot.

~THE LADIES~

THE QUEEN BEE: Meryl Streep — *Into the Woods* (director: Rob Marshall):

FYC: This film adaptation of the Tony award-winning Broadway musical features a witch (Streep) who teaches important lessons to various *Grimms' Fairy Tales* characters including Cinderella, and the Baker and his Wife. Streep has been discussed every year that FYC has existed. The actress has no fewer than 15 Oscar nominations under her belt (including Best Actress for last year's *August: Osage County*) and three Oscar wins—two in lead (*Sophie's Choice* in 1983 and *The Iron Lady* in 2011), and one in supporting (*Kramer vs. Kramer* in 1980). Any other actress playing this role likely wouldn't yield serious Oscar consideration, but it's Meryl-Freakin'-Streep, 'nuff said. I initially had her slated in the Best Actress category in the July/August issue, but since then it has been announced that Streep will be campaigned for in the supporting category. Oh, and the march has begun with Streep securing SAG and Golden Globe nominations.

THE MOTHER: Patricia Arquette — *Boyhood* (director: Richard Linklater):

FYC: Much like Hawke (discussed in the Best Supporting Actor section above), early on I felt Arquette's performance was but a taste of what was to come in this year's Best Supporting Actress race. But now, those snippets of her captured over 12 years and pieced together to create Linklater's crowning achievement have made her the frontrunner. The awards chances of such a unique vision could've gone either way—fortunately the critics have tipped the scale in its favor. Arquette is perhaps best known for her portrayal of suburban mom Alison Dubois on NBC's *Medium*, a role that netted her a Lead Actress Emmy in 2005, back-to-back Best Actress Golden Globe nominations from 2006 to 2008, and Best Actress nominations from SAG in 2006, 2007, and 2010. Like her counterpart Simmons, at the start of the race she hadn't yet earned recognition by any film voting body for her individual work, but that changed when the NYFCC gave her its award. Arquette has also secured both SAG and Golden Globe nominations.

THE BRAIN: Keira Knightley — *The Imitation Game* (director: Morten Tyldum):

FYC: In this come-from-behind WWII drama concerning Alan Turing's (Benedict Cumberbatch) plight to crack the Nazi's Enigma code Knightley plays Turing's friend, colleague, and one-time fiancée Joan Clarke. Knightley earned a Best Actress nomination for *Pride & Prejudice* in 2006, a pair of Golden Globe nominations: one for the same role and the other for *Atonement* in 2008. The latter film also earned her a British Academy of Film and Television Arts (BAFTA) nomination. Much like others in this category Knightley has received the requisite SAG and Golden Globe nominations for her performance. She should be able to crack the top five, but a win would be astonishing.

THE TART: Emma Stone — *Birdman* (director: Alejandro González Iñárritu):

FYC: In this tale of redemption and self-reinvention, Riggan (Michael Keaton) is an also-ran working on a Broadway play who once portrayed an iconic superhero and who battles his ego as he works to recover his family and career. Stone plays

his fresh from rehab daughter who flirts with disaster, both literally and figuratively. Her star has been rising ever since she slayed audiences in the black comedy *Easy A* in 2010, for which she earned a Golden Globe nomination. Outside of that, coming into this race, she too, had yet to earn any real recognition. That has now changed as Stone has been nominated for Golden Globe and SAG awards for this performance. Her Oscar nomination is within reach and should follow.

THE BUSINESS WOMAN: Jessica Chastain — *A Most Violent Year* (director: J.C. Chandor):

FYC: The film is a thriller set in New York City during the winter of 1981, considered one of the most violent years in the city's history. It focuses on an immigrant and his family who are trying to expand their business as violence and corruption close in and threaten to destroy all they have. In the three years that she has been in the public eye, Chastain has earned two nominations, one supporting for *The Help* in 2012 and the second in lead for *Zero Dark Thirty*—the latter which she narrowly lost to perpetual it-girl Jennifer Lawrence for *Silver Linings Playbook*. Chastain picked up the NBR award and a Golden Globe nomination this year. It's just a matter of time until one of her nominations becomes a win, this could be the role to do it. Similar to Streep I had her penciled in the Best Actress category in the July/August issue, but it has since been announced that Chastain will be campaigned for in the supporting category.

While critics' awards and high-profile nominations certainly boost one's chances of being nominated for Oscar, they are not everything. Star power can go a long way in the Oscar race as can just showing up to "kiss babies." Laura Dern has been in the conversation for her work in *Wild*, as has Kristen Stewart for portraying Dr. Alice Howland's (Julianne Moore) daughter in *Still Alice*. Oh, and how about that SAG nomination for Naomi Watts in *St. Vincent*?

There's still a long road to go, consensus be damned. ☉



New York State of Mind

This Month, in closing out our Ten Years of Natural Selections celebration Natural Selections reprints an interview with Frank Schaefer, Assistant Director, Laboratory Safety and Environmental Health. Country of origin: USA. The original interview was published in the December 2004 issue.

How long have you been living in New York City? 35 years (all my life).

Where do you live? Richmond Hill, Queens.

Which is your favorite neighborhood? Bayside, Queens because of the quiet surroundings and its proximity to the Long Island Sound.

What do you think is the most overrated thing in the city? And underrated? The most overrated thing about the city is Times Square. It is just too crowded and if you ask me...a waste of electricity. The most underrated thing about NYC is its people. I think New Yorkers are very willing to help one another and don't get enough credit for the good they do.

What do you miss most when you are out of town? When I'm out of town, I generally miss running through the trails in Forest Park and a slice of pizza from Alfies.

If you could change one thing about NYC, what would that be? If I had the power to change anything, it would be eliminating trash

from the streets by enforcing laws that prohibit littering. It's irritating to see people throw trash from New York State of Mind their cars onto the street. It's not only an aesthetic issue, but a problem for the city's wastewater treatment plants as well.

Describe a perfect weekend in NYC. Sunny in the upper 80's. I'd start the day early with a long run and then spend the afternoon with my wife and children watching the horses run at Belmont Park, and win of course. In the evening we would barbeque in our backyard with family and friends.

What is the most memorable experience you have had in NYC? Watching the Mets make it to the World Series in 2000 by beating the St Louis Cardinals at Shea.

If you could live anywhere else, where would that be? I would like to live in South Florida.

Do you think of yourself as a New Yorker? Why? Absolutely, I've lived and worked here all my life.®

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

Part IV: John H. Northrop, 1946 Prize in Chemistry

JOSEPH LUNA

So far in this series, it seems as if we've focused on foreigners. For a young institution like Rockefeller in the early 20th century, it took time for original Nobel level work to emerge, and so it's not too surprising that the first three visits to Stockholm was for work done before the recipient arrived at Rockefeller, and in far off places: France/Canada, Austria, and the great state of Missouri. That changed in 1946, when two Rockefeller scientists won Nobel prizes in Chemistry, the elder of whom was a true New Yorker, a Yonkers born and Columbia University-trained, eighth generation Yankee, named John Northrop.

His biography borders on Rooseveltian: John's father, a zoologist, was tragically killed in an explosion two weeks before young Jack was born in 1891. His mother, a trained botanist, raised him alone in Yonkers and taught at both Columbia and Hunter College. With a mother deeply interested in nature, Jack's young adulthood was spent largely outdoors, quite a feat for a city boy. He hunted and fished, was at home on a horse or in a canoe, and loved to travel. His youthful adventures took him as far as

the American southwest, where in 1913-14 he spent time prospecting for gold along the Colorado River. World War I halted that.

Academically, Northrop was no less bold. He arrived at Rockefeller as a postdoc in 1915, and worked under Jacques Loeb, the pre-eminent German physiologist recently recruited as a member. With Loeb, Northrop worked on problems as varied as the effects of temperature on *Drosophila* heredity to the mechanism behind the light sensitivity of horseshoe crabs. Northrop distinguished himself as an ardent and outspoken practitioner against the impulses then present throughout biology and believed, like his mentor, that all biological processes were firmly rooted in the testable laws of physics and chemistry. Such thinking came in handy when he turned his attention to enzymes.

Even the very word enzyme presented a conundrum. Meaning "in" (en-) "leaven" (-zyme) or "in yeast," the term was coined in the 1870s to broadly describe the activity of living cells to conduct chemical reactions. As Pasteur had vividly demonstrated throughout the second half of the 19th cen-

tury, the specific actions of micro-organisms were responsible for a number of complex chemical reactions, such as yeast in converting sugar to alcohol in wine, and in beer-making. Underlying many reactions, the thinking went, was a microbe, as a tiny, living and necessary chemist. The demonstration by biochemist Eduard Buchner in 1897 that yeast extracts devoid of any living cells could still carry out fermentation dealt a major blow to this idea, but it opened an important and almost existential question: if life was not required, then what exactly was an enzyme?

Over the next two decades, enzymology remained shrouded in mystery and frustration. Proteins were the likely candidates, but no one was able to convincingly purify and characterize an active enzyme to exclude the possibility of some contaminating microbe or vital "seed" catalyst. An intrepid Cornell chemist named James Sumner looked at the problem and reasoned that since the purest forms of many substances would form ordered crystals, then perhaps a pure prepara-

Continued on p. 8

Checkers' Mate!

GEORGE BARANY AND DANIEL SILVERSMITH

George Barany is a Rockefeller alum (1977) who currently lives in the Twin Cities, Minnesota, where he has known Daniel Silversmith, a practicing clinical psychologist, since 1999. For more about this specific puzzle, including a link to the answer, visit <http://tinyurl.com/checkerspuz>. More Barany and Friends crosswords are at <http://tinyurl.com/gbpuzzle>.

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Across

1. Fawcett's costar in a legendary ad for Noxzema shaving cream
7. Moleskin hues
13. "The Dominator" Dominik (Hockey Hall-of-Fame goalie)
18. Persian language group
20. Kuhn's predecessor as baseball commissioner
21. Name associated with bargain basements
22. Memorable metaphor by 83-Across about the executive, March 21, 1973
25. Coolers, briefly
26. Action figure
27. Take by surprise
28. Political pacifier
29. Mark Felt, to Bob Woodward
33. One for the record books?
34. Emmy-winning Thompson
35. Wanted letters
36. Decided in court
38. Put forth
40. Infamous denial, November 17, 1973
46. They're supposed to stop leaks
47. What many CEOs earn
48. Site of 1974 Ali-Foreman bout
49. Classic Volkswagen
50. Smelling of cones and needles
51. Inner one?
52. Levels the playing field?
53. Way off?
57. Palindromic potentate
58. Tombstone name
59. Org. first headed by William Ruckelshaus
60. Do after dark
62. Watershed moment, October 20, 1973
68. Toyota's family minivan, successor to the Previa
69. "Much ____ About Nothing"
70. Several for the record books?
71. Swinging joint?
72. Computer juice: Abbr.
73. Spare parts?
75. Popular applesauce brand
77. Wait for, as one's time
78. Instrument that records distance a plane travels
81. Three-time Indy 500 winner Franchitti
82. Embarrassing spelling mistake?
83. See 22-Across
86. "New York Times" headline of August 9, 1974

89. Poppycock
90. Theater section
91. Device frequently used by Shakespeare
92. Fleet
93. Keys
95. It may have just been fired
102. It may be taken after coll.
103. Made some dough
105. Help in a heist
106. Follower's suffix
107. Memorable words associated with finality, uttered at Ford's August 9, 1974 inauguration
112. Some Horace poems
113. What fools do, proverbially
114. Another helping
115. Raison ____
116. Stanley's howl
117. ____ windmills, à la Don Quixote

Down

1. Certain battery
2. ____ against time
3. Home for Hawthorne
4. Mandela's one-time org.
5. Reason for overtime
6. Construction worker, in slang
7. Neon ____ (aquarium fish)
8. Rhine whine
9. Maui music makers, briefly
10. Halftime speech
11. Job for a gofer
12. Silver's predecessor as basketball commissioner
13. Cover up
14. Ginger follower
15. Feeling
16. Cipher creator
17. Data-input devices
19. King Hussein's American-born widow
21. Complete a form
23. Prefix with con or classical
24. Uses a Swingline
30. Ophelia's flower "for thoughts"
31. Outcome of 1964 Clay-Liston bout: Abbr.
32. Rose guardian
34. Bad table at a good restaurant?
37. Palindromic hiring policy, mandated by the 1964 Civil Rights Act
39. Ascending sizes, briefly
40. Gridlock
41. She was both a First Lady and a "First Mother"

42. Sea cow
43. Hyundai sedan
44. Theatrically over-the-top
45. Flight destination for Astaire and Rogers in their first on-screen pairing
46. Sanctuary seat
49. Junk, e.g.
51. Arp's art
52. Dashboard acronym
54. Bending backward
55. Silverware center near New Haven
56. Furtive viewers
58. East ender
59. I problem?
60. Jet-setters' jets, once
61. She-bear, in Sevilla
63. Remarkable
64. Da ____ (Vietnamese port city)
65. Fingers, e.g.
66. Morning, in Marseilles
67. Thespian
73. It might include swings, slides, and monkey bars
74. It's not free of charge
75. Plateaus, with "out"
76. Tijuana gold
77. Spring sound
79. Palindromic despot
80. Eye liners
81. Like
83. What sleigh bells did, in a popular seasonal song
84. Soap may be found like this
85. One who lacks material wealth
86. What a yo-yo might make
87. Tricky Dick, e.g.
88. Ball of fire?
90. Shown the door
94. Sanctuaries
96. Divine sustenance
97. Sash for Madama Butterfly
98. They're tapped
99. 2014 World Series champion
100. Former dietary std.
101. Bikini blast, briefly
103. Bouncing joint?
104. "Matilda" author Roald
108. East Berlin was its cap.
109. Diamond ____
110. Early cable TV provider
111. Avogadro's no. of anything



tion of an enzyme might do the same. Many thought this idea both foolish and impossible, but after almost a decade of trying, Sumner succeeded at crystallizing urease from jack beans, and in 1926 published that urease was a pure protein.

The scientific establishment may have balked, but Sumner found a vocal compatriot in Northrop. Within three years, Northrop had succeeded in crystallizing the pepsin protease from swine, and demonstrated beyond any doubt that pepsin was also a protein. Working with Moses Kunitz, he achieved similar success with trypsin a

few years later. In both cases, there was no evidence that anything other than protein was required for enzymatic activity. At a time when most proteins were considered passive carriers or structural supports, the finding that some were capable of carrying out chemical reactions was a genuine surprise. Alongside Wendell Stanley's work on virus crystallization, the boundary between life and non-life was blurred by their efforts with the realization that tiny molecular machines are responsible for life's processes. As Loeb instilled, all was chemistry.

Fitting to his outsized persona, both Northrop and Jacques Loeb are also notable for being Rockefeller scientists profiled in

literature. Written by Sinclair Lewis in 1925, *Arrowsmith* is arguably one of the great American novels of medical science and won the Pulitzer Prize in 1926. Northrop was the inspiration for a character named Terry Wickett, while Loeb inspired Wickett's inscrutable but scientifically pure mentor, Max Gottlieb. Like Northrop, Terry is brash and outspoken, comfortable outdoors, rugged and unyielding in his pursuit of science. Or in his words: "What kind [of scientist] are you going to be? One of the polite birds that uses the Institute for social climbing and catches him a rich wife, or one of the roughnecks like me and Gottlieb?" •

Culture Corner

An interview with famed vocalist and vocal coach Dorian Holley (Part One of Two)

BERNIE LANGS

Looking over the resume of Dorian Holley, one marvels at the long list of names of the biggest successes in popular music for whom he has served as a back-up vocalist, background singer, or studio recording partner. He worked, for example, as a featured vocalist for tours by James Taylor and Linda Ronstadt. Rod Stewart had him along for the Vagabond Heart World Tour as did Don Henley (of the Eagles) for his *Inside Job* World Tour. He has recorded with dozens of artists, including Stevie Wonder, Smokey Robinson, Elton John, Babyface, and Randy Newman. Holley has been the vocal coach and Assistant Musical Director for *American Idol* on television for almost a decade and was the lead singer for the house band on *The Late Show* with Jay Leno. He also finds time to work as a vocal instructor at the Los Angeles College of music and teaches performance classes there. But he is perhaps best known for his back-up vocal work with the late King of Pop, Michael Jackson and, in particular, his involvement in the scheduled *This Is It* performances that would've been held in London, England in 2009 if it weren't for Jackson's untimely death.

Holley is working hard to break out as a solo performer and appears live in the Los Angeles area club scene. His voice is silky smooth, soulful, and his depth of musical knowledge shines through in his melodic phrasing on his recent recorded materials.

I recently sent Holley ten questions about his work. The first five below are gen-

eral and about his career. The second five focus on *This Is It*/Michael Jackson and will appear in the February 2015 issue of *Natural Selections*.

You've had a long career as a supporting and back-up singer with the greats of pop and soul music. How was it stepping out on your own recently?

Before I began earning a living singing, I had my own gospel band. We were very contemporary and fancied ourselves a Christian version of some weird cross between Earth, Wind and Fire and La Belle. We practiced every weekend. In 12 years we probably missed four rehearsals. We were extremely serious, wrote of your own songs and ministered all over California.

When I started working I stopped performing as Dorian Holley and melted into the background behind whomever I worked for. Obviously I had some of the most fantastic gigs on the planet Earth and played before hundreds of thousands of people. But nobody tells you that though you feel like you're out there working your tail off to entertain people, and that you're a part of Jackson's band or Eryka Badu's section or whoever, it isn't really you they're coming to see; it's them. Harsh as it sounds, nobody cares or even knows who I am. It could be anyone up there.

Here's the other dirty little secret. After being away from performing as a solo artist, when you get up there after twenty-some years, it's all new again. And it is terrifying. No matter how long you play behind

someone else, when it's you they're looking at, no one can protect you. Consequently, it took me three years to get ahold of performing again. Fortunately for me, I teach performing on the college level, as well. So as an instructor and a performer, the things I teach are always swimming around in my head, especially while I'm onstage. I have to self-correct often and I'm constantly adjusting what I tell young up-and-comers. And I really want to be authentic. I don't want to just deliver theory but I want to honestly relate what works and what doesn't; what's true and what is false onstage. Because if you can't be real when performing, who wants to see that? Certainly not me.

As I listen to your solo recordings, I'm impressed with the clean production and how strong and smooth your voice is. I recalled Quincy Jones. Did you have much input on the production of your album *Independent Film*?

Hahaha! I produced my CD, *Independent Film*. Quincy Jones is a master and I have studied him and listened to him thousands of times and continue to this very day. I love what can be done in the studio and strive to create work that I want to listen to. And certainly reach for the bar that was set at an extremely high level by innovators and trailblazers like Mr. Jones.

Your sound seems very piano-oriented and it suits your confident and complex vocal style. Do you write at the piano and practice on keyboards or do you switch to guitar-based composition?

90 percent of my compositions are written at the piano. Burt Bacharach once said what he writes is limited to the level of his piano playing ability. I believe this to be true. When I am composing, if I play a passage I've heard before, I will rework it so I am not covering retreaded territory. I absolutely do not want to create something that sounds like something we have heard before. Often I will write a bit, then re-voice the changes. My love for music that goes to unexpected places is a deep, deep well. Listen to any Stevie Wonder composition. He can have a song change keys 6 times in the first verse alone. The trick is to make it sound simple until someone tries to sit down and play it. If music sounds difficult, you've missed the mark, as far as I'm concerned. On the surface it should sound as if anyone could have come up with it. Like it was meant to come out that way.

I did this on the song "Compassion" on my CD. It is lush and complex. I didn't expect people to get it. I wrote this strictly for me. Sometimes I get stuck writing the same changes over and over, though. When this happens, I'll grab a recorder and a Moleskine journal (I love the medium-sized black ones with no lines if you're thinking about me come Christmas) and a thin, black, fine-tipped marker. Then I will sing/write a song; the entire thing, no piano. This way the song can take me anywhere it wants without the limits of my playing or lack thereof. After it is finished I will fit chords to the composition. This little trick helps me write music that doesn't sound like Dorian Holley wrote it. It takes longer. But it's worth it.

Another thing I'll do when I'm not happy with how things are going is to get out a chord book and learn some new changes. I

almost always get a song out of doing this. I've read part of the reason The Beatles were such fantastic composers is, they played covers for a zillion years before they started writing. That's some serious study hours. If you learn half of all the songs in *The Real Book*, you can write anything.

You give off a great positive and soulful vibe in your music. How do you feel about music as a business? Do you ever feel frustrated, despite your success on television and varied concert career?

I wouldn't advise anyone go into the music business. It may be when you stack it against other businesses that competition and percentages of success are the same. But I don't think so. It's an extremely tough business to make a living in. If you are on the road it can easily tear a family apart. Happens all the time. This business promotes an unhealthy attachment to never growing up, and it is so easy to turn into an entitled selfish human being. It supports very few of us over a lifetime. The money, if it comes at all, comes in spurts so you can find yourself making money a few months, then spending it all the next few, then waiting a year for another regular gig.

Sorry to be a downer but that is the reality. The other side of it is the creative rewards, the opportunity to travel, the chance to work with people you revere and [wish to] emulate. It can really be fantastic. Not to mention the chance to teach and pass on a lifetime of experience. The rewards can be crazy fantastic. But no one is ever prepared for it to end. And it will end. And when it does no one is prepared for it. It catches each of us by surprise.

With most careers there is the illusion of security and perhaps some guidance to help one with health and pension. That is the case if you work enough on certain kinds of jobs in music. But if you're like most musicians then your work comes from all over the employment map (if you're lucky). And it is a monumental achievement to save and support yourself

over a lifetime. It can be done. But it's easier to be a plumber. And a lot safer. And you can sing while driving to each gig.

I was listening to an interview with Billy Corgan (of the Smashing Pumpkins). Also, I read an interview with Andre Benjamin about how crappy he felt about the last Outcast tour. Add to what I said the fact that it is so extremely difficult for bands to stay together. Nearly impossible, no matter how great they become. Go with me down the list: The Beatles, Led Zeppelin, The Police, Oasis, Guns N' Roses, Outcast, The Eagles, The Commodores, The Supremes, The Jackson 5, The Clash, Rage Against The Machine, ABBA, R.E.M., and this list is 700 miles long.

The music business is very tough. I hate to sound so gloomy and dark and anti-inspirational. But reality is cold. It'll make you weep. I say, do not seek fame in music. Music is an element everyone should have in their life, everyone. Learn an instrument, then find an outlet for your creativity. Play in the music department at church. Create a new form of musical expression for your church. Imagine an entire department of forward-thinking, Indie music in a church where somebody else buys the instruments and equipment including recording equipment. Put together mini-concerts and invite 20 friends over on Saturdays and play in the yard or the living room. Make it a concert pot luck. Do it every weekend or once a month. Grab a guitar and three friends, whip up some covers, and go to a hospital or a shelter, and play for people who are shut in. Bring some good into the world like only music can. Your imagination is the only barrier.

But with people not wanting to buy music anymore; choosing to stream it for free and the horrid state of the music business nowadays and all the other negatives, I would advise a saner path (obviously I am insane).

From the e-mail news I receive about your live performances, it's mostly Los Angeles-based venues where you perform. Have you ever thought of playing an extended gig here in New York?

I would leap at the chance to play New York. We've played Paris and Geneva and Boston and my band and I are soon to play Dubai. But I haven't gotten to do a lot of U.S. gigs. If you have any ideas, I am all ears. Maybe you should get us there? ☺



Holley (photo: holley.com)

It's Christmas Time in the City

AILEEN MARSHALL

Like the old song says, the “city sidewalks, busy sidewalks” are “dressed in holiday style.” Besides the hustle and bustle of this busy shopping season, New York has many time-honored holiday activities. Here are just a few to help you feel that holiday cheer.

The gigantic tree at Rockefeller Center is an impressive sight for young and old alike. Every year, a huge evergreen is selected and transported to Rockefeller Center, on 5th Avenue between 49th and 50th Streets. It is set up behind the Prometheus sculpture next to the ice skating rink, strung with almost five miles of lights and topped with a Swarovski crystal star. The tree lighting ceremony is usually the Tuesday after Thanksgiving, usually with a few celebrities and a known figure skater. Even though the ceremony will have passed by press time, the tree is lit daily from 5:30 a.m. to 11:30 p.m. except on Christmas, when the lights are on all day. To see the tree is free, but the area may be crowded with tourists, so the best way to see it is to go skating on the rink. Looking up at the beautiful tree and the tall buildings from the rink is an experience not to be missed. Admission is \$27 for adults and \$15 for children. Sessions usually last about two hours, starting from

8:30 a.m. to midnight. Visit www.therinkatrockcenter.com for more information.

For generations it has been a New York family tradition to see the Christmas displays in several department store windows. Some displays are animated; some have a scene from a story in each window. Although there are not as many as in past years, the stores that still have holiday displays today are Bloomingdale's (Lexington Ave at 59th Street), Barney's (Madison Ave at 60th Street), Bergdorf's (Fifth Ave at 58th Street), Saks Fifth Avenue (5th Ave at 49th Street), Lord and Taylor (5th Ave at 38th Street), and Macy's (34th Street at Broadway). Be aware that there can be long lines on weekends. Macy's also has Santaland on the 8th floor where Santa is in residence until Christmas Eve. Children can sit on his lap, make their requests, and get a photo their parents can embarrass them with in their teenage years. You can go to Macy's at www.macys.com.

Another well-established holiday event is Balanchine's *The Nutcracker*. This well-loved ballet, with Tchaikovsky's score, is performed at the New York State Theater at Lincoln Center. The story is of little Clara and her adored nutcracker, who transports her

to a dreamland filled with fantastical scenes, including the battle with the giant mice and the “Dance of the Sugar Plum Fairy.” Watch for the Christmas tree growing out of the stage! The New York City Ballet shows this year run until January 3, 2015. Ticket prices range from \$35 to \$235, depending on seat location and performance time. Go to www.nycballet.com for specifics.

Probably the most popular holiday event is the Radio City Christmas Spectacular. This holiday pageant is most known for the famous Rockettes, with their precision legwork, and the “March of the Toy Soldiers.” In recent years the show has also included a 3D segment and skaters on stage on their own little ice pond. The show is at Radio City Music Hall, on 6th Avenue at 50th Street. Tickets range from \$45 to \$299 for performances through December 31. Go to www.radiocity.com for more information.

For some less-crowded activities, one can go see the annual Christmas tree and Neapolitan Baroque Crèche at the Metropolitan Museum of Art, on 5th Avenue at 82nd Street. Eighteenth-century Neapolitan angels and cherubs decorate this large and beautiful tree. Recorded music adds to the atmosphere. There is a lighting ceremony on Friday and Saturday nights at 7:00 p.m. The tree is located on the first floor of the museum, in the Medieval Art section, until January 6. There is also a concert series during the same time. There is no charge to see the tree other than the museum admission, more details about the display can be found at www.metmuseum.org.

Another off-the-beaten-path event is the Annual Winter Solstice Celebration at the Cathedral of St. John the Divine, on Amsterdam Ave at 112th Street. The Paul Winter Consort performs in one of the oldest churches in the city. The concerts this year run from December 18 through 20. Tickets range from \$35 to \$90. Tickets can be purchased at www.stjohndivine.org.

The traditional performances of Handel's *Messiah* will be held at the New York Philharmonic on December 16 through 20. Tickets run from \$33 to \$149. Go to www.nyphil.org for more information. The *Messiah* is also presented at Carnegie Hall. There are several performances, put on by the Oratorio Society of New York, the Masterworks Chorus, Musica Sacra, and The Cecilia Chorus of New York. Go to www

Ten Years of *Natural Selections*

DANIEL BRISKIN

Continuing on with our salute to the tenth anniversary of *Natural Selections*, here are two comics republished from 2004. ◊

New Year's Resolutions

FROM THE NATURAL SELECTIONS BOARD

- 1) Stop locking the lab head in the cold room.
- 2) Resist the temptation when answering the phone to say that an absent lab member is getting drunk in the Faculty Club/now working with the Mafia/gone for their daily swim across the East River.
- 3) Improve intellectual mentoring of undergraduates. Give them a paper to read while they are waiting to collect your stockroom orders/coffee/dry cleaning.
- 4) Successfully fly a paper airplane from the back row of Caspary to the stage during the Friday lecture.
- 5) Turn the shaker back on..... maybe next year.



.carnegiehall.org for more information.

Finally, if you haven't checked out Manhattan's various holiday craft fairs check

out these locations for great one-of-a-kind gift ideas:

Union Square, Bryant Park, Columbus

Circle and Grand Central.

After all these activities, can't you just hear those "Silver bells...silver bells?" •

The Peggy Rockefeller Concert Series

BEN DiMATTEO

Now in its 56th year, The Peggy Rockefeller Concert Series is decidedly unknown to much of the campus community. But those familiar with the program know that some of the most accomplished musicians in the world played Caspary Auditorium as a live rehearsal for Carnegie Hall.

Since its inception, the series has featured performances in a wide array of genres, from chamber music, to Renaissance revival, to operatic arias, to jazz. Three dedicated caretaker scientists with a passion for music have shepherded the program across five decades, and kept the program afloat through rising and ebbing tides of interest within the Rockefeller community. Though performances often sell out, admission sales and private donations barely cover the program's expenses.

The concert series traces its origin to 1958, shortly after its unique venue was unveiled. Caspary Auditorium's geodesic structure was designed by modernist architect Wallace Harrison, who also led the construction of Rockefeller Center, the U.N. Complex, Lincoln Center's Metropolitan Opera House, and Brooklyn's Clinton Hill Co-ops.

Theodore Shedlovsky, a Russian-born electrochemist who researched conductivity within cell fluids, quickly realized the acoustic possibilities of the auditorium's revolutionary design. He also had many friends in New York City's classical music scene. Caspary's size and unique shape made it well suited for intimate performances. No doubt many mid-century musicians were intrigued by the opportunity to perform in a space-age metal dome.

Through his contacts, Shedlovsky assembled a rotation of loyal players that often returned year after year. The Guarneri Quartet, formed in 1964 and disbanded 45 years later, played at Rockefeller every year they were together. The concerts also attracted world-class soloists visiting NYC on tour or in residency, many of whom had performed for European royalty before World War II and the rise of the Soviet Union forced them to flee their homelands.

When he retired, Shedlovsky passed

leadership of the series to Gerald Edelman. Born in Queens, NY in 1929, Edelman once said in an interview that he had studied the violin at an early age but decided he didn't have the inner drive to pursue it as a career. He chose medical research instead, and would win the Nobel Prize in 1972 for discovering how antibodies are structured.

During Edelman's tenure the concert series saw its most prolific years, when concerts were held almost weekly throughout the academic calendar. It has since been trimmed to just six concerts a year.

In 1996, Rockefeller University President and Nobel Laureate Torsten Wiesel dubbed the program the Peggy Rockefeller Concert Series after David Rockefeller's late wife, who was a frequent attendee and ardent supporter of the performances.

George Reeke, head of Rockefeller's biological modeling lab, has organized the concert series since 1993. Reeke took piano lessons as a child, and recalls that as a student at Cal Tech, upper classmen had their rooms wired with speakers that blared Wagner's "Ride of the Valkyries" on exam day. While other students loathed the song as it heralded the approaching finals, Reeke says it actually launched his life-long love of the opera.

Though opera remains his passion, Reeke selects a diverse line-up of performers for the Peggy Rock Series to suit a wide range of tastes. Many of the artists he selects are recommended to him by audience members, and some are promoted by their managers. Others he discovers just by listening to the classical radio station WQXR. Still, Reeke would like to broaden the scope of the concerts even more to appeal to Rockefeller's student body, and welcomes your thoughts.

Three shelves in Reeke's office hold cassettes and reels of past performances that have never been aired to the public. He says nearly every concert was recorded, but some tapes were lost during a past renovation. Still, a perusal of his shelves turns up a few popularly recognizable names.

Can you believe Dizzy Gillespie "blew"

his bent-up trumpet at the Caspary Auditorium in 1980 and again in 1987? I also recognize Canadian Brass, who performed here in 1982 and 1986, because my parents play their goofy Christmas album this time of year.

Another familiar name pops up beginning in 1975: Yo-Yo Ma, who would have been 20 at the time he first performed at Rockefeller. Ma has become perhaps the most well-known cellist on earth, but before he arrived on the scene that title was claimed by Pablo Casals.

Born in Catalonia, Spain in 1876, Casals' first cello had a gourd for a soundbox. Yet by 1900 he was performing at London's Crystal Palace and for Queen Victoria at her summer residence. Shortly thereafter he acquired a cello built in around 1700 by the master Venetian luter Matteo Goffriller. Casals played it more than any other instrument throughout his career.

The rich sound of this 300-year-old cello filled Caspary in December, at the talented hands of Amit Peled. Growing up on an Israeli kibbutz, Peled heard Casals' recordings and fell in love with the distinct tone of the very instrument he now plays. He briefly pursued a dream of becoming a basketball player before devoting himself full-time to music. When the Peabody Institute picked him up at age 28, he was the youngest person ever hired as a professor to a top musical institution.

In 2012 Peled played the Goffriller cello for Casals' widow, Marta Casals Istomin, who then gave him the instrument as a gift. In November he took it on a tour of the Midwest, where he played 19 cello and piano recitals.

The next concert, featuring tenor Russell Thomas, takes place on January 14. You can read his bio and learn more about the Peggy Rockefeller Concert Series at www.rockefeller.edu/peggy.

Amit Peled performs at Rockefeller on December 17, and admission for students and postdocs is just \$10. •

Life on a Roll

ÉLODIE PAUWELS

<http://elodiepphoto.wordpress.com>



Lisbon is such a charming city! At first sight you wouldn't guess you're in a European capital: some parts of the city recall small villages, and no one seems stressed. In addition, colors are everywhere. This is one of these paradise cities for photographers, where they can daydream as much as they wish.

