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Natural Selections

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Halloween in New York

Aileen Marshall

DAVE BLEDSOE/FreeVerse Photography

DAVE BLEDSOE/FreeVerse Photography

It's that time of year again, goblins and ghouls abound, the real and the fictional. If you are too old to go trick or treating, what is there to do? Luckily, you live in New York, where there are always options for something to do.

The most iconic New York Halloween celebration is the Village Halloween parade. It was started in 1974 by puppeteer Ralph Lee. In that very first year, people on the street got caught up in the mood, and jumped into the parade. It has grown over the years from 1500 revelers marching from West Street to Washington Square, to the present day parade of sixty thousand marching along Sixth Avenue from Spring Street up to 16th Street. This parade is known for its elaborate and outlandish costumes.

Besides the costume contingents, there are floats and bands and large puppets. People tend to compete to have the most noticeable and impressive costumes. Sometimes they will coordinate and march as a group of a certain character. (How many Elvises can you fit on a block?) Since the parade is at night, people often incorporate some sort of lighting in their costumes. Anyone wearing a costume can enter the parade by waiting at the staging area on Spring Street. Each year the parade has a theme. The theme this year is "Shine a Light".

The Village Voice gave it an award the first year to encourage it to continue. Now the parade committee works with the city, Community Board 2 and the NYPD. In 2001 the theme was a phoenix rising from ashes as a tribute to the victims of the World Trade Center attack. The only year it didn't run was during Hurricane Sandy since lower Manhattan had no power. The parade this year starts at 7pm.

There are a number of haunted houses in the city. There is the reputed kind, considering the city is over 300 years old, and there is the entertainment kind, for your Halloween fun. The best known is Blood Manor. Located at 163 Varrick Street, it is a 5,000 square foot maze of gore and freights. Blood Manor is reported to go through 37 gallons of fake blood each night, hence the name. Tickets are $30 online or $35 in person. Be warned that this attraction is known for its long lines. For more information, go to bloodmanor.com. Another entertaining haunted house is Times Scare, located at 669 Eighth Avenue, the only haunted house open all year long. Tickets are $27 but the associated Kill Bar is free. There are also various theatrical performances such as magic and burlesque shows. Go to timesscarenyc.com for more details. The Jekyll and Hyde

CONTINUED TO P. 2

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CONTINUED FROM P. 1

Haunted House is located at 91 Seventh Avenue South. The famous story is performed while you wander through the house. There is also a restaurant attached. Their website is jekyllandhydeclub.com.

Another Halloween event gaining momentum is the Tompkins Square Halloween Dog Parade. An annual event for several years now, people bring their costumed pooches to the park's dog walk. It is reportedly the largest annual dog costume parade in the world. Purina, the pet food company, will sponsor a competition and prizes. Enter the park at East 9th Street, between Avenues A and B. The parade this year is Saturday October 24 at noon. A relatively new event is the High Line Harvest Fest. There are activities like a hay bale maize, pumpkin decorating and a haunted train tunnel. There are puppets designed by the Village Halloween Parade founder Ralph Lee. You can take your picture with actors dressed like people from the High Line's history. The High Line is along Tenth Avenue from 14th to 17th Streets. The festival this year is on Saturday October 24 from 11 am to 3pm. Watch thehighline.org for developments.

The next question is: where to get your costume? One could always go the traditional way and make your own. How many of us have gone as a doctor or scientist using our own lab coats? Or one can purchase or rent a fancy costume at a store. The major store for Halloween costumes is Party City. The closest locations to Rockefeller University are on West 34th Street, near 7th Avenue, and on 48th Street in Queens, near Northern Boulevard. Spirit Halloween is a pop-up shop and there is one right nearby on Second Avenue, near 64th Street. Ricky's NYC is a famous cosmetics chain known for a wide array of novelty cosmetics, hair dyes, wigs, and accessories that can be used for your own costume. There is one on First Avenue at 64th Street.

Of course, the best Halloween celebration yet is our own party at the Faculty Club, put on by the student council. There is usually a contest for the best costume. It is a proof that scientists can also be creative. Keep an eye out for posters around campus announcing the date and time. Will you be there?

US Open Tennis Women's Surprises

Susan Russo

The women's final of the US Open Tennis tournament on Saturday, September 12th was almost anti-climactic. The exciting confrontation took place in the Arthur Ashe stadium in the Billie Jean King National Tennis Center in Flushing Meadows, Queens. Many of the spectators in packed stands had not followed the careers of the two Italian singles opponents. Flavia Pennetta (ranked at 26 in the US Open Women's Singles program) and Roberta Vinci (ranked 43). Together, they had won many women's doubles matches world-wide, but neither was known for her singles play. The crowd of the rafters-filled stadium applauded with equal enthusiasm for each of the women. Both women were fierce in play, but graceful, and clearly enjoying the match, since seemingly neither expected to be in the final of one of the major tennis tournaments. One of the commentators remarked that she had never seen such joy shown by both players in their ultimate meeting. After the battle, the two warmly congratulated each other and thanked their "teams" and the crowd for their support. Three more surprises were to come. One was the presence of Fabio Fognini in the stands. Fognini (Italy) (ranked 32) had lost in a very tight match in the 4th Round to Feliciano Lopez (Spain) (ranked 18), and returned to Italy. But he flew back to New York to see Flavia Pennetta, his fiancée, in the final. Also watching the match from the President's Box were the Prime Minister of Italy and a delegation of cheering dignitaries who had flown in just for that match. And then, after Ms. Pennetta had exuberantly accepted the winner's trophy, she announced that she had decided before the tournament that this would be her last professional tournament.

This was the year that Serena Williams (USA) was predicted to complete the "Grand Slam" of world tennis in singles. If you don't follow tennis, the Grand Slam denotes winning at the "Big Four" tournaments in Melbourne, Australia, in Paris, in London, and in New York. The fact that Serena Williams (ranked number 1 in women's singles play) was bested by an Italian player, Roberta Vinci, was a shock to herself and to the tennis world. Ms. Vinci, at 5 feet 4 inches and 132 pounds, would seem to have been slightly at a disadvantage to Ms. Williams's height of 5 feet 9 inches, and the serving power of her weight of 155 pounds. However, Ms. Vinci used her doubles skills of quick movement and unexpected play against the harder-serving but slower-moving Ms. Williams. Ms. Williams seemed to be undermined by Ms. Vinci's apparent calm during play, while Ms. Williams's frustration was evident, and seemed to diminish her usual confident play.

Ms. Williams's "draw" (the arbitrary matching of two players for each round of the tournament) were, in order, two unseeded players; 19th-ranked Madison Keys (USA); and her sister, Venus Williams (USA), ranked 23. Ms. Vinci's opponents were two unseeded players; and Kristina Mladenovic (France), who had beaten the 13th seed, Ekaterina Makarova (RUS); however, Ms. Vinci had an unexpected "breather" during the tournament, when the unfortunate Eugenie Bouchard (Canada, ranked 25) was sidelined by a concussion before the Third Round of play. I leave it to the experts to evaluate what factors led to the unexpected conclusion of the women's singles match.

Tennis is a truly international sport, with players from 53 countries represented in the singles and doubles matches alone, from six of the seven continents.

…And on Sunday night, September 13th, in a hard-fought 4-set Men's Singles final match lasting 3 hours and 20 minutes, Novak Djokovic (ranked number 1) (Serbia) beat Roger Federer (ranked number 2) (Switzerland).

NAN PANG/Natural Selections

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

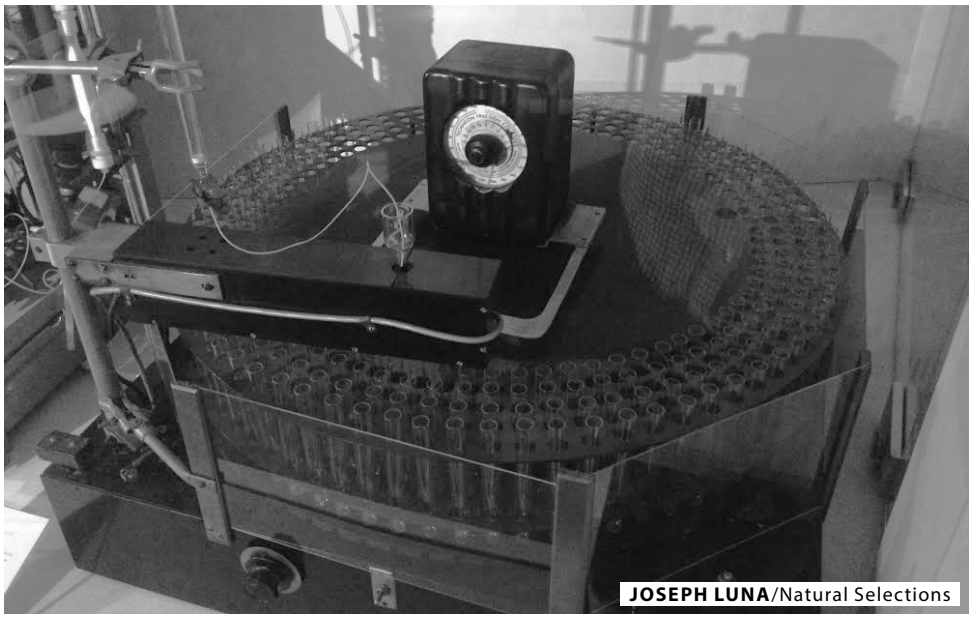
Part XII: Stanford Moore and William Stein, 1972 Prize in Chemistry

Joseph Luna

"RNAse-free." To most any molecular biologist working with RNA, these two seemingly unrelated words are as sweet sounding together as "passion-fruit." This is because ribonucleases, those small hardy enzymes that chew up RNA, can be found everywhere, are more invasive than the tiniest bacteria, and can utterly ruin an experiment. Seeing an "RNAse-free" label on one's reagents is often a mark of trust that experimental results are on firm footing. But the story of RNase is a fascinating one, particularly at Rockefeller, for it is a story intricately wrapped in two names as tightly bound and harmonious together as "RNAse-free": those of Stanford Moore and William Stein, or "Moore-n'-Stein".

What can be considered one of the greatest life-long collaborations in biochemistry began simply, when Moore and Stein met as post-docs in the laboratory of Max Bergmann in 1939. Bergmann had fled Nazi Germany five years prior and took up a position at the Rockefeller Institute to continue his research on protein chemistry. A once long-time collaborator of Emil Fischer (who coined the term "peptide"), Bergmann and his lab were focused on finding ways to isolate and analyze proteins. By the mid 1930s, all twenty of the primary amino acid building blocks had been discovered, but it was unclear how they were put together to make a functional protein. What's more, each protein that could be isolated appeared to have a different and unique composition of amino acids. Before one could get a grasp on protein structure, what was needed was a reliable way to determine how much of each amino acid a particular protein contained. This was the problem Moore and Stein first tackled.

They started by mixing together eighteen amino acids at known concentrations and asking if they could invent a method that could both separate and individually measure the concentration of each amino acid in the mixture. It was a daunting task, a bit like trying to uncook an egg. An early form of chromatography using starch columns eventually solved the first problem. Moore and Stein discovered that each of the eighteen amino acids passed through these columns at unique speeds, and so by adding the mixture at one end of the column and collecting fractions at the other, the mixture could be separated in a defined way: phenylalanine came out first, then leucine, then isoleucine and so on. And because standing around collecting fractions drop by drop was simultaneously laborious and boring, they invented a mechanical lab technician to precisely do the work: the automated fraction collector. The second problem, to measure the concentration of amino acids in the fractions, was solved by turning to a well-known chemical reaction known as the ninhydrin reaction. Chemists had discovered that in the presence of ninhydrin, amino acid solutions turned a bluish-purple with each amino acid giving off a unique, if unstable, hue. Moore and Stein figured out ways to stabilize the reaction such that the amount of blue could help determine both the identity of the amino acid, and its concentration.



JOSEPH LUNA/Natural Selections

Original rotating fraction collector used by Moore and Stein for analysis of RNAse. RU historic instrument collection, accession number 105.

It had taken the better part of a decade to invent the process and equipment, jointly described in 1948, which made it possible to determine amino acid composition. The tragic loss of Bergmann to cancer in 1944, to say nothing of world war and volunteered military service, no doubt played roles in hampering their protein analysis work. But because of its promise, Moore and Stein were appointed to lead a joint lab by Institute director Herbert Gasser in 1949, to continue their work. And they did, moving on from defined mixtures of amino acids to the true unknown natural mixtures of proteins. It turns out, they were just getting started.

Perhaps because of its ubiquity, small size, and ease of purification (first done at Rockefeller), RNAse became the top choice for detailed protein analysis. Moore and Stein realized that by subjecting RNAse to different proteases, which were known to cut between some amino acids but not others, they could obtain small fragments that could be subjected to their automated protein analysis. The "a-ha" moment was this: by figuring out the amino acid composition of each fragment, they could use this information to reconstruct the ORDER of amino acids in the protein. In other words, they could obtain its sequence.

In 1960, Moore and Stein, together with their first postdoc Werner Hirs, published the first complete amino acid sequence of the enzyme RNAse (the first for an enzyme, and the third for a protein, behind insulin and hemoglobin). RNAse was exactly 124 amino acids long and arranged linearly. Moreover, based on their results, Moore and Stein proposed the locations of di-sulfide bonds between cysteine amino acids that helped determine the 3D structure of the molecule.

Not content with merely its sequence, by 1963 they also determined that chemical inhibitors of RNAse could be used to mark the amino acids important for enzyme function. With this, they uncovered that only a few key amino acids performed the RNA cleaving chemistry that was the main job of RNAse. And thus, two words were newly joined to describe the "active-site" of an enzyme.

Culture Corner

J. M. W. Turner on film and Jan van Eyck in The Smithsonian Institution

Bernie Langs

Lord Kenneth Clark, the eminent late art historian who often graces the pages of "Culture Corner", felt that life's meaning can best be found through the study of paintings, which later bled into his world historical view of "civilization" that encompassed architecture, sculpture and even the theories of how economics shape cultures and move the masses. In the past, I have read as much of Clark's works as I could and I now recall his discussion of how certain artists cannot be easily categorized, so unique are their works. He boiled it down to cases of an almost divinely-touched sense of an individual physical vision. Joseph Mallord William (J.M.W.) Turner was one such painter discussed by Clark. Turner's ability to "see" and then paint with accuracy or imagination (or both) the sea, its foam and waves, the detailed bubbling of turbulent waters hitting hard wooden ships, the shapes and phantoms rising from terrific storms, remains unequaled to this day.

Photo Courtesy of Sony Pictures Classics

In the film "Mr. Turner", written and directed by Mike Leigh, the life of J.M.W. Turner (1775-1851) is presented with all the harshness of his times along with a contrasting and almost Dutch-like pristineness. Details, for example, of particular drawing rooms with their cinematographically well-lit furniture, basins or candlesticks, and striking or muted colors make "Mr. Turner" a wonder of a movie. Timothy Spall plays Turner in a marvelously strange and complex manner, often difficult to watch, as he grunts and barks with a near-Cockney biting, graveled voice. By contrast, Spall played a conniving Rosencrantz to Kenneth Branagh's vengeful Hamlet smoothly, and his take on Turner seems to combine his roles as the rat-like villain Peter Pettigrew ("Wormtail") in the Harry Potter films with his amusing characterization of Winston Churchill in "The King's Speech."

The roughshod Mr. Turner makes his sketches as often as he can, but it only seems obsessive at the end of the film, when he is compelled to leap from his deathbed to run outside in his bedclothes to draw "from life" a woman's dead body washed up on the shore near his seaside home. I kept trying to reconcile the idea of Clark's notion of a visionary with the hard-as-nails reality that Mr. Leigh bludgeons us with throughout this movie. But don't misunderstand me, the movie is fantastic and the genius of Turner's inner world is there for the taking if you look for it. The key scene, where Lord Clark's Turner is on display, is when during a stormy sea voyage, Turner insists on being tied high on the ship's mast, like a latter day Ulysses, in order to see the raging waters about him to gain a first-hand knowledge and vision of nature's mighty torrent. The nitty-gritty Turner meets the soulful artist in that moment and Spall plays it masterfully.

Shifting gears to Renaissance paintings, Erwin Panofsky, as did other art historians, seized on the idea of understanding Renaissance artists in the context of their times as a means of unlocking their secrets. I believe that there comes a time when the educated art viewer must put it all aside and simply look. By looking carefully, all the theories and postulations of the great historians retreat to a near unconscious level and the charge of finding meaning is left to oneself as they guide us in inaudible whispering.

BERNIE LANGS/Natural Selections

When I stood in front of the magical painting by Jan van Eyck in the National Gallery of Art in Washington, DC, I was overwhelmed to the point of a being severely lightheaded and feared for a moment that I might faint right there in the almost empty gallery. Van Eyck painted the Virgin in a church setting, being told by the Archangel that she will bear the Christ through Immaculate Conception. I can't exactly remember the pages I read by Friedlander and Panofsky about this individual masterpiece, but the training on looking at the details came

CONTINUED TO P. 6

CONTINUED FROM P. 5

back to me immediately. Van Eyck is well known for having developed new oil-based paints for panel painting that gave pictures a deeper rainbow of bold coloring, many of which have held up well over the centuries. I would also say that Van Eyck and his school also acted as the world's opticians, the way that a television viewer can compare the blurred picture on early television sets to the terrific sharp images of high definition ones. Van Eyck focused the world's microscope. He was able to sharpen how we see the world. It's like the moment you put on corrective glasses for the first time and the doctor says, "How's this, better?" Much better! And it's a most pleasant shock of clarity.

Van Eyck's message for me, that day at The Smithsonian, was not directly spiritual, but through this medium of his encompassing religion, I detected a faith in an all-seeing eye, the notion that with visual mastery, *something is revealed*. The presenting angel, for example, is an hallucination, it *shouldn't be there,* and it shouldn't exist even in the 15th century imagination. It's a "good" angel yet it is disturbing in its hyper-reality, not shared by Mary standing right next to him, but somehow, in a different realm of the space continuum, which, of course, is *our* reality.

BERNIE LANGS/Natural Selections

The imagined church setting makes the angel's presence even more troubling. As I looked harder, deeper into the pictorial space, the angel's robe seemed to flow out from the two-dimensional surface and the embroidery and jewels appeared to be impossibly rendered in its exacting detail. How could anyone see such detail and walk around with it on a daily basis? I felt that van Eyck's ultimate mission was not to present God as a voice to Mary about her/The Son, but as a message to all who would see his work that "this is the miraculous sharp-tuned world I know, please take from it what you will." Van Eyck's painting goes beyond pure representation, sails past a Platonic and possibly absurd "form", and is beyond a Buddhist-like, or philosophical empty abstraction. My bottom line was: I have no idea how to really capture what I saw and thought, but the depth of its power was exciting, I learned from it.

I walked out of van Eyck's Smithsonian room believing I'd never really need to see another painting again, that this was some kind of absolute pinnacle in my quest to see great art.

Quotable Quote

"Let us remember: One book, one pen, one child and one teacher can change the world."

Malala Yousafzai, youngest Nobel Peace Prize awardee

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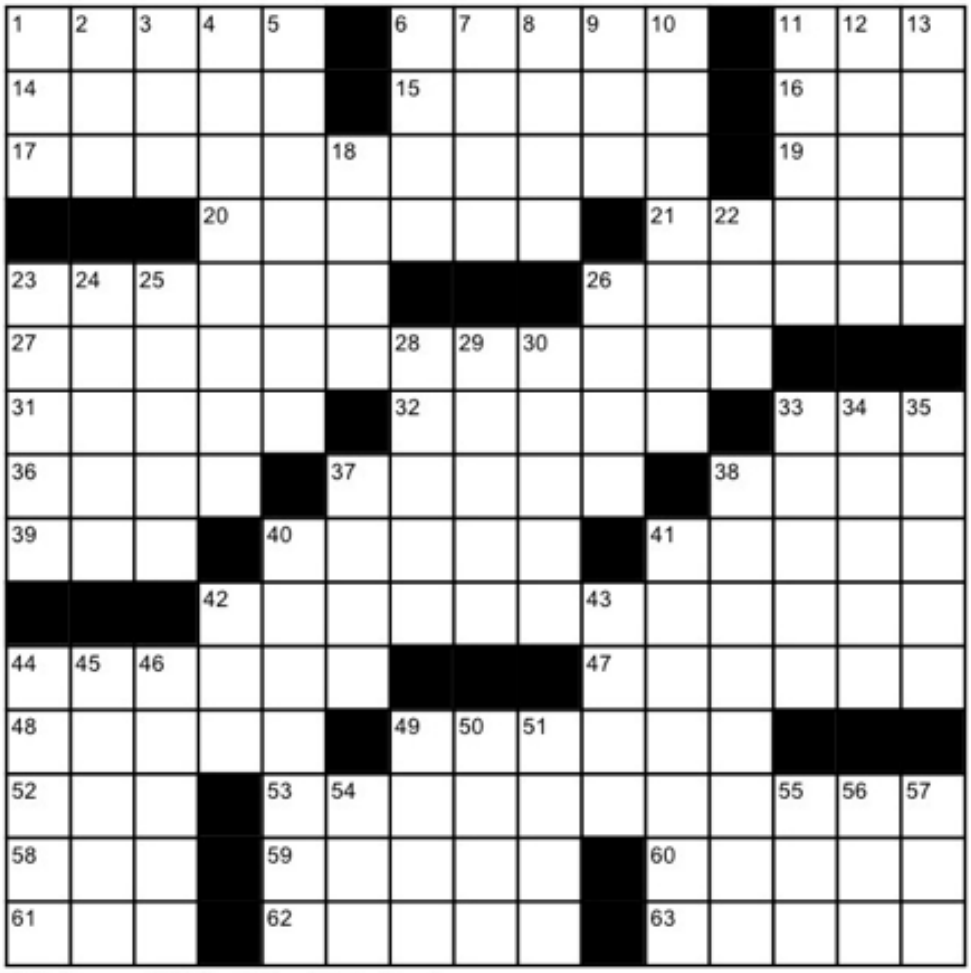
RU Ready for Halloween?

Dedicated to the memory of Moses Malone

George Barany

George Barany is a Rockefeller alum (1977) currently on the faculty at the University of Minnesota—Twin Cities. At a 1974 Halloween party at Rockefeller, he dressed up as Moses Malone, who was born in the same year, and who also "skipped college for the big time." For more about this specific puzzle, including links to the answer and a "midrash," visit http://tinyurl.com/halloweenpuz. More Barany and Friends crosswords are at http://tinyurl.com/gbpuzzle.



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Across

1. They can brighten up a room
6. War horse
11. One way to swing
14. W.W. II menace
15. Rwanda resident
16. NYC Ave.
17. Griffin's man-cave hangings?
19. Darth Vader's boyhood nickname
20. Processes of elimination?
21. Alleviated
23. Z to Field or Chait
26. Mantle, once
27. de Duve's last-minute costume?
31. Love of Paris?
32. Habituate
33. Short change?
36. Green, in Grenoble
37. Catch or catcher
38. Salmon sort
39. Suffix added to "Mercedes-Benz" in a joke told by Agosta or Merrifield?
40. "
41. Jesse who set a record for most consecutive wins in relief to start a career (homonym of common construction equipment)
42. Palade's glow-in-the-dark decoration?
44. Gerrymander
47. Pitifully small
48. Madison Square Garden, e.g.
49. Sister of Moses and Aaron
52. Bad beginning?
53. Mauro's special hot sauce?
58. Peptide bond dihedral angle
59. Mosaic materials
60. Aria addressing a portrait
61. Part of a line: Abbr.
62. What matzoh is missing
63. Council of churches

Down

1. Hon, in Hampshire
2. Palindromic pro league for Dr. J and Moses Malone
3. Palindromic pop psychologist?
4. Woe to an envelope stuffer, perhaps
5. Drink of brandy and crème de menthe
6. Acronym for studies that prepare for high-tech jobs
7. Instrument called by the Latin word for "trumpet"
8. Greek vowels
9. Winter setting in NYC
10. Rockefeller concern
11. It may have a round bottom
12. Fleming or Zellweger
13. Rust, e.g
18. Casting need
22. It may be fare to an aardvark
23. Want in the worst way
24. Schwarzenegger and Stallone, e.g.
25. Really fancy
26. Days of knights?
28. Slow, at La Scala
29. Cousins of fruit flies
30. Impresario Sol
33. Winter wear
34. β-mercaptoethanol, e.g.
35. Bono or Liston
37. www.rockefeller.edu, e.g.
38. Cheesy place
40. Bushes or Kennedys, e.g.
41. Breaks, as by a protease or nuclease
42. Pen pal?
43. Arabic for "commander"
44. They go on and off
45. One way to get the lead out?
46. Allen's title chameleon
49. She played Lily in "Black Swan"
50. Bad day for Caesar
51. Take five
54. Humble dessert?
55. Palindromic diarist Anaïs
56. Palindromic prefix meaning "ear"
57. Undrinkable coffee

QIONG WANG/Natural Selections

Life on a Roll: A taste of Zagreb, Croatia

Qiong Wang

I cut through Zagreb, the capital of Croatia, a rather low-key European capital city. I did not know what to expect prior to arrival. I only got to spend a couple hours near the city's central railway station. Across from it stood a palace-like building with an open plaza filled with pigeons. It was drizzling, windy and cloudy, not much color to see, except for the butter-like color used on many historic buildings. Somehow, this miserable gloomy weather casted perfectly an aura of solemnity, glory and hardships upon the surroundings, leaving a tone of melancholy floating in the damp air. There, I could savor a sense of age, power and past brilliance even without much knowledge of what it really was, probably an influence of the former Russian empire. I would really like to freeze everything I saw just the way it was at that moment, I thought to myself as I left.

QIONG WANG/Natural Selections

QIONG WANG/Natural Selections

QIONG WANG/Natural Selections