

Natural Selection

A NEWSLETTER OF THE ROCKEFELLER UNIVERSITY COMMUNITY

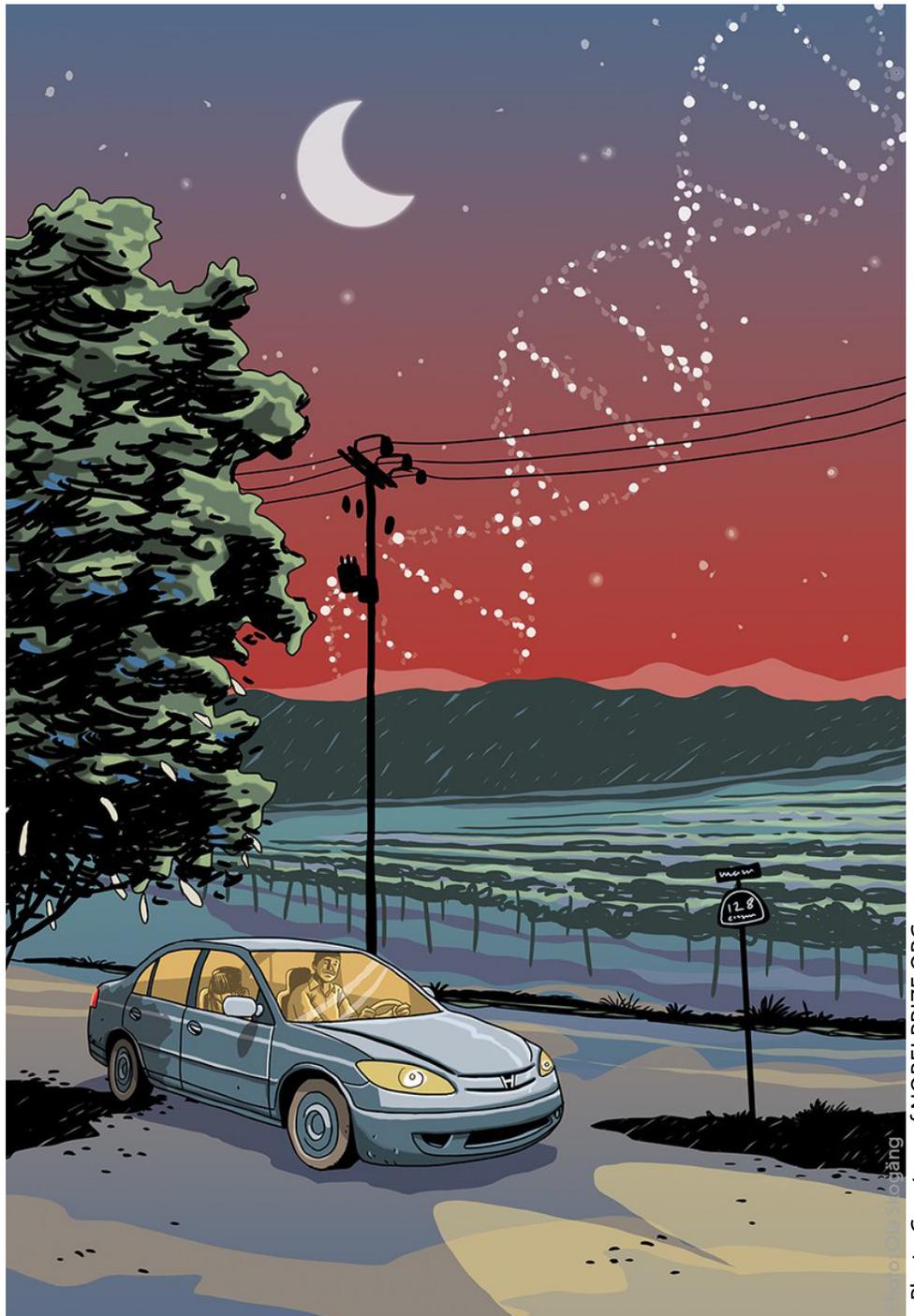
Denaturing the Mind for Discovery – Remembering Kary Mullis through the Voice of Italo Calvino

SARAH BAKER

Nobel laureate Kary Mullis passed away on August 7, 2019 at the age of 74. Although a controversial scientific figure due to his climate change denial, rejection of the fact that HIV causes AIDS, strong belief in astrology, and open use of hallucinogenic drugs, it is impossible to deny the importance of his contribution to biology: the invention of the polymerase chain reaction (PCR) technique. I wrote this piece for Stephen Hall's Advanced Science Communication course a couple of years ago that asked students to imitate a famous author's distinct writing style to narrate a well-known scientific discovery. Intrigued by the idea that Mullis thought up PCR while under the influence of LSD, I tried to inhabit Mullis' mind during this time. The style of the Italian post-modern fiction writer Italo Calvino, with its overly elaborate and somewhat mystical style, seemed to be a perfect fit for the story of the invention of PCR. The following is a fictionalization of Mullis' insight.

Well this is the story I will tell you and this is how I remember it. There I was, driving up and down the winding road, my beautiful Jennifer sleeping beside me, and I was in love with each turn as I headed towards my cabin. And by love I do not mean romantic love in the truest sense. It was the kind of love that comes from the full joy of being in the moment, hands gripped on the wheel. If I am being perfectly honest, I was not completely sober, but I am pleased to say that I felt as if I was in complete control of that vehicle. Or to represent the situation more truly, the LSD in my system could've been gone at that point. But, you know, in reality it was always there. You must understand that this was the type of road where everything looked the same, even if you had made the drive along the two-lane highway dozens of times before, as I had.

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I remember it well how each redwood would try to pass by in a blur, but I would not let them do that to me. What I would really try to do was to shift one into focus, and then the next. I did this to try to understand their beauty, as you must admit that you have tried to do before too. Maybe I was driving too fast, but to be honest about it, I did not care. There was no point in worrying about it. I had to stay focused on each second to comprehend that road. I looked over and she was awake, asking me how much further, but I did not know. If I think about it, you know, it felt like only a few seconds since we were in Cloverdale. But then I saw the mile marker coming into view, and I realized that we passed Cloverdale 50 miles ago. The rolling hills had swallowed me, or rather I had the feeling that I was coming out of a deep abyss. But then, as sharply as the feeling of falling deeper and deeper, I had this feeling of serenity because I came out anew on the other side. When I try to describe it more accurately, it felt as if I was controlling my own body as I travelled as a roller coaster through the trees. There was this pulsing feeling as my brain was ebbing and flowing with the car, expanding and contracting with my thoughts.

Now really up until now I have been setting up the space in which I was existing in this moment. But to help you understand better, let's go to the real beginning. Throughout the upward and downward tree-filled monotonous drive, my mind shifted to my work, as it tended to do. I made it so that DNA was passing by in my mind. And as I usually did, I boiled it in the heat of my mind, denaturing A's and T's and G's and C's. As my concentration cooled, the DNA retook its shape. I could do this over and over and it pleased me to watch this process to pass the time. This is not something I ever really wondered about, but it was just something that I did. So what I am speaking of is that my mind can see itself, as I am sure you have felt before. To be more precise about it, this is something that I had probably done thousands of times and I would play this process on repeat. First of all, I added heat to separate the helix. Then I watched closely as the strands came apart. Then I added my oligotide and the polymerase cut as it had been designed by nature to do.

But to make this point clear, up until now, it was always the same in my mind. So to follow my story, you must understand that as I was rocked by the rolling of the road, I suddenly thought of adding another oligotide. I let this oligotide slip into the slate of my mind and now there were two oligotides on the surface right in front of me, dangling right before my windshield. Then, as I had thought



Photo Courtesy of THE FOUNDATION LINDAU NOBEL LAUREATE MEETINGS

of countless times before, polymerase entered and polymerase copied. Now, if you are imagining it like I am, there were two DNA strands. But here is where this played again in my concentrated mind. All I had to do was denature and then cool once more, over and over again. If you see it with me, four DNA strands will be lying before you. Now you do it again. You see eight strands, and then sixteen, and on and on it goes. If you follow me now, you know that I extended this process to the limits of my mind, until my mind was full of DNA. Then there were too many DNA strands and they were leaking out. I was becoming aware that as I lost count, I had stumbled upon a significant discovery.

Coming back to the reality before me, I wondered how I had arrived at the cabin. This wonder hit me with fury as I was daunted by the realization of the redwoods towering over me again. Here I must explain that even with the awareness that I was more tired than ever before, and maybe less conscious, I had never felt more alive. The need for a pen overwhelmed me and I had to draw outside my mind to see what my mind saw. Where was that bottle of Cabernet that I brought with me? I poured out a glass and drew out the DNA as it amplified. This was undoubtedly a computer propagating numbers faster than I could think them. I was replicating, over, over, over—and it is difficult to describe in precise terms whether I was awake or asleep. I was totally lost and the wine had my consciousness in and out. But as I daydreamed and night-dreamed, what I saw clearly in my mind was a chain reaction. I was taken over by the thought that others had surely done this chain reaction? But then I knew this was not the case or I would have heard about it. It is difficult to say when I suddenly realized that Jennifer was out taking in the sun by the pond. Was it morning? ■

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Natural Expressions

Digital

This month, Bernie Langs of The Rockefeller University Development Office announces the release of a new music video, "On Demand." Langs merges themes by Beethoven and The Beatles into this piece, which plays over a combination of original film footage and images from the public domain. "On Demand" can be viewed online [here](#).

Email Megan E. Kelley at mkelley@rockefeller.edu to submit your art/music/performance/sporting/other event for next month's "Natural Expressions" and follow @NatSelections on Twitter for more events. ■

Biologists Call for Open Science, but Competition Creates Challenges

AUDREY GOLDFARB

Transparent and thorough communication of data has the potential to streamline major scientific advances. For Dr. Maryam Zaringhalam, open science practices like these would have transformed her Ph.D. thesis. “While I was at Rockefeller, I was scooped five times,” she said.

As a student in Nina Papavasiliou’s lab, Zaringhalam aimed to develop a method to map the RNA modification pseudouridine throughout the transcriptome. However, she was stopped cold by the simultaneous publication of several similar methods. Had her field been more communicative and forthright about work in progress, she could have redirected her time and energy to other pursuits.

Zaringhalam pivoted her focus to a comparative analysis on these techniques and encountered another frustrating development: the methods were difficult, if not impossible, to reproduce.

Due to the problems she encountered in her field, Zaringhalam developed passions for both transparent science communication and ways to improve reproducibility. She published her *Methods* paper “Pseudouridylation meets next-generation sequencing” in September 2016 and graduated the following spring with an offer in hand to become an American Association for the Advancement of Science (AAAS) science policy fellowship.

Though many biologists may support the concept of open science, including open access publishing, many are also apprehensive. This contradiction is a product of our academic culture, which tends to assess the worth of data by the journal it is published in, rather than evaluating robustness on a case-by-case basis. In an increasingly competitive field, publishing in *Cell*, *Nature*, and *Science* has become the expectation at elite institutions. Scientists at all career stages want to change these policies and practices, but fighting the system is risky for trainees and untenured professors. Established heads of lab and scientists working in science communication and policy, however, can leverage their influence and security to promote a move towards open science.

As an AAAS Fellow, Zaringhalam specialized in open science and data science policy in biomedical research. “Policy is really exciting for me because I can keep learning, which is the reason why I, and a lot of people, wanted to become scientists,” she said. “I see how that learning applies to how research is ultimately done, in academia and beyond.”

A big part of Zaringhalam’s work focuses on reproducibility and equipping scientists with tools to generate reproducible research. Using electronic laboratory notebooks like Jupyter and version-control software like GitHub, for example, facilitates easy access to data and pipelines necessary to reproduce and repurpose data.

Zaringhalam recently led a workshop in which scientists were asked to reproduce data from several papers, which proved difficult. The group then discussed ideas such as introducing reproducibility as a criterion in the peer review process. “We had some nice discussions and ideas coming out about what needs to change within our culture to create a research environment that’s more collaborative rather than competitive,” Zaringhalam said.

Zaringhalam recently transitioned into a new role as a Data Science and Open Science Specialist at the National Library of Medicine, where she will continue to tackle the reproducibility problem. “This is the first time I’ve had a job that wasn’t a fellowship,” Zaringhalam said. “I will have a lot more opportunity to be thinking long-term about what kind of presence and impact I can have.”

Scientists tend to focus their efforts on communicating positive, exciting results because it is difficult to publish negative results in high-impact journals. Zaringhalam argues that this culture impedes progress. “The publishing space is very competitive, and people don’t necessarily want to read about the things that didn’t go right even though there’s a lot of value in that,” she said.

“We do have this responsibility to show what we’ve done, whether it’s positive, negative, or non-confirmatory,” Zaringhalam said. Cleaning up the data to make it sharable and reusable allows it to be repurposed. Moreover, if an experiment does not work, that is good for the next person to know. “There’s some work to be done to think about how we can change that culture and how we can see negative and non-confirmatory results as being useful,” Zaringhalam said.

Recent developments to ameliorate these issues include open access journals and [pre-prints](#), which allow researchers to publish primary research manuscripts without being subjected to an extensive review process that favors high-impact results.

“You have to have these results published where researchers are already looking if you want them to encounter them,” Zaringhalam said. BioRxiv, a pre-print server,

has become increasingly popular, [with over 1 million papers downloaded as pre-prints every month](#), many to later be published in peer-reviewed journals. ASAPbio, headed by biochemist Dr. Jessica K. Polka, is another organization that encourages pre-prints in biology and calls for the [publication of peer review](#) to make the publication process more transparent and accountable.

Dr. Harold Varmus, co-recipient of the 1989 Nobel Prize in Physiology or Medicine for his work on retroviral oncogenes, has been influential in shaping science policy and promoting open science. He has served as the Director of the National Institutes of Health and President and CEO of Memorial Sloan Kettering Cancer Center, and currently heads a lab as the Lewis Thomas University Professor of Medicine at Weill Cornell. Varmus co-founded [Public Library of Science](#) (PLOS), and headed several successful efforts to make papers publicly available. “Science should be shared,” he said.

Varmus, Zaringhalam, and many others share the belief that the pressure to publish in prestigious journals undermines the accessibility of science. “In the biomedical world, we are not very open,” Varmus said. “We all work hard, but our values have been distorted.”

Still, a rigorous peer review process is important. “If you believe that peer review does something, you can’t be satisfied by only the preprint form,” Varmus said. “Work needs to be subjected to stiff statistical analysis and validation that people have been lax about.” The goal is to judge data more on its robustness and reproducibility, and less on bold and flashy claims.

Although most scientists may agree with this in principle, trainees and untenured investigators hesitate to sacrifice prestige and potential career advancement. Refraining from the opportunity to publish in elite journals might not result in an impact big enough to be worth the risk. It may be that real change needs to come from people with career and financial security. “The government and other funders have the real power here,” Varmus said.

For trainees and junior faculty, Zaringhalam recommends using electronic laboratory notebooks to record protocols; she also emphasizes the importance of designing clear presentations. These practices gear lab culture towards reproducibility and collaboration. “Even if it’s on a small scale, it still matters,” she said. “Science is something that fundamentally builds on itself.” ■

Culture Corner

An Interview with Musician and Composer Izzi Ramkissoon

BERNIE LANGS

When you speak with the award-winning electroacoustic multimedia composer, performer, and audiovisual artist Izzi Ramkissoon about music, you are immediately swept up by two things. The first is his zen-like manner, which invites you to engage and share his passion for music and the creative audiovisual process. The second is realizing you are dealing with a man who takes the difficult path in composition and musical performance and does so with both a commitment to excellence and appreciation for his collaborators. Ramkissoon pushes the boundaries of the electronic instruments he plays and actually physically creates, and invites his collaborators to immerse themselves in his fabulously original work.

Ramkissoon notes in his biography that, “He has written works for a variety of media including theater, dance, installations, alternative controllers, and interactive multimedia” and that “his compositions deal extensively with the use of technology in composition.” His work has been featured extensively at venues and shows such as New York City Electroacoustic Music Festival, World Maker, New York City Creative Tech Week, and in numerous international festivals. He fuses media, technology, intelligent dance music, hardcore, classical, musique concrete, and other resources to perform interactive, improvisatory, and experimental creations.

When I was first introduced to Ramkissoon’s work I was dazzled by the perfection of his videos. Utilizing the structure of the atonal, abstract forms of his compositions, his films create a synergy between sound, color, and image. One is swept away into the experience, with emotions running the gamut from joy to fear, with tints of beauty, all with the smoothness and ease promoted by the notion that you are in the hands of a wise and sensitive conductor.

Ramkissoon has worked in many venues, such as The Public Theater, Public Assembly, The Robert Miller Gallery, National Art Gallery, and Experimental Media, The New York Hall of Science, and Webster Hall, as well as at Princeton, the Ionian University in Greece, and the American University of Rome. He serves on the New York Electroacoustic Music



Photo Courtesy of Mike Shane

Festival steering committee, teaches undergraduate music technology courses in the City University of New York system as an adjunct professor, and gives guest lectures and performances at various universities. He also performs with electronic music groups as a solo artist and musician.

Ramkissoon works with The Rockefeller University’s Information Technology Department engineering and developing their audiovisual systems and events. He was kind enough to answer questions via email for *Natural Selections*.

Bernie Langs (BL): You studied electronic multimedia composition and sound design with many great teachers and now you teach as well. What are the ideas you took from your educators and what do you hope to impart to your students?

Izzi Ramkissoon (IR): I had the opportunity to study with electronic music pioneers such as Morton Subotnick, Joel Chadabe, [and] Robert Rowe, and they were all very encouraging. All of them were a great fit for my musical direction, as I was interested in blending composition, improvisation, interactivity, experimentation, and technology. One thing I really enjoyed when studying with Mort was his approach to developing a musical

language. In our lessons, he was breaking down language in a way that was very primal and connected with my approach to rhythmic development. I was interested in building an approach from the ground up starting with my most basic impulses. During the time I was studying privately with Mort I was working on a new audiovisual piece for clarinet and interactive electronics called “Domesticated Animalia.” This was for Esther Lamneck. I use this piece when discussing language, improvisation, and interactivity as part of an approach to musical composition with my students. It is an example of building a dialog from the ground up using musical gestures. During my studies, Joel Chadabe [posed] questions like “what is a composition?” and I felt that was important in breaking down any remaining definitions and prejudices I had toward what a composition should sound like. Robert Rowe was my thesis advisor and led me to review different technologies and approaches to integrating technology within a musical composition. This made me question the relationships of technology to the musical work. Does it support the work in a meaningful way and contribute to the creation of the piece or is it passive, separate, and

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noncommunicative.

BL: Your music, with its atonal underpinnings, has a dynamic of what I would label “relaxed audio tension.” Is that an assessment you would agree with, that the music, though harsh at times, maintains a meditative appeal?

IR: With the recorded sound you can capture a moment and transport that sound to a different location. Familiar sounds in an unfamiliar environment or visa versa. I think there is something comforting about the sounds I use. I grew up in a household filled with television noise, pots and pans, close to the street with NYC transportation, and construction. I felt every day it was either a circular saw humming a new tune to a preacher and choir on the television or pots and pan creating rhythms against the tape noise of my low budget home recording studio feedback. When growing up in a dynamic urban environment you learn to meditate in dissonance and find harmony in a variety of sounds. Every sound has something to offer. There is a relationship linked to the sound itself. The sound is the center of the piece with its own musical tone producing tension and release.

BL: “Sub-ter-ain Frequencies” and “Asperity of Lace” are seamless videos where the images and their motion and coloration align to perfection with the music.

IR: When building these pieces I work closely with a longtime collaborator and friend of mine Alain Alfaro. Over time we have developed in parallel similar processes and ideas when working on audio-visual works. Sometimes I make music for his films and other times he makes visuals for my music. He is a fantastic cinematographer and has many video techniques that mirror my audio processing style. When we work on a new piece I tell him the narrative and we both collect audio and video from a selected environment. I have a definitive form associate with the audio and he enhances that form and structure with parallel visual themes. I have worked with him long enough that I trust his decisions and we tend to operate in separate spaces many times. The most important part of this relationship is our friendship and his ability to know me well enough to make

independent complementary choices. I have worked with other visual artist[s] and there has been a lot of explaining associated with this type of process.

BL: Your music with the Izzi Ramkissoon Multimedia Trio INTAR Rehearsals leaves space for improvisation associated with jazz. How has that developed in your music?

IR: I have always been interested in improvisation and the techniques used to create an improvised piece of music. To be an improviser, a musician must have a familiarity with their instrument that goes beyond playing what’s on the page. There is a creativity and unplanned freedom of speech that I enjoy when performing with improvisation techniques. In order to communicate and have a real time conversation on a topic you must know the subject matter well. Working with various groups of improvisers has led me to develop a language of my own to support spontaneous expression in the context of different forms and structures within my musical pieces. Improvisation and interactivity have been two themes that I investigate often in my music. I have been working on a dialog between computer and human performer. I am interested in the computer as a performer and how that can sound. I have worked with programs that generate algorithms and respond to a performers input using music information retrieval (MIR) techniques and analysis. I have made controllers... to augment my electric bass performance and improvisations with musicians, [such as “[The Bass Sleeve: A Real-time Multimedia Gestural Controller for Augmented Electric Bass Performance](#)”].

BL: You had a longterm video project that you abandoned after years. How does failing in your art lead to new avenues of exploration?

IR: It was more of a video experiment that wasn’t complete and developed enough. Those happen a few times before the final version of any of my pieces. I give myself a set amount of revisions to get it right. Throughout the development of each new composition I am learning something. At the end of my set amount of revisions I am ready to take what I learnt and create a new piece and the process begins again. I tend not to dwell too long on the past, and I leave enough reflective time to learn.

BL: What do your musician collaborators bring to you and what do you want to give them in return?

IR: The best part of creating a new piece of music is the conversations and learning during the process. I enjoy working with creative musicians to develop my pieces. I appreciate the space to experiment and test out ideas with a musician; this can offer me insight to the way their instrument works and new techniques that may be available outside of traditional techniques. I build compositions with the performers in mind and work with them closely to create the music. When creating interactive or improvisatory computer music pieces, I like to work with the performer while developing the programming of the piece. This is an iterative process for me as sometimes changing the composition involves changing the hardware and/or software created for the composition. Being able to hear how the computer responds to a performer is important when fleshing out a work.

BL: Your performances are geared to a live audience that understands the parameters of what they are about to hear. How can you increase your listening public, given the difficulty and complexity of your music?

IR: The audience for experimental electro-acoustic music is very specific. I am on the Steering Committee for the NYCEMF (New York City Electro-acoustic Music Festival, <https://nycemf.org>), which has done collaborations with ICMC (International Computer Music Conference), and other major art institutions in New York City such as National Sawdust, NYU, Sheen Center, Roulette, and Issue Project Room. The music you hear at these types of festivals and conferences brings a variety of people from all over the world, many composers and instrumentalists. These non-commercial entities support the creation and the audience for this type of work. You can say the audience for this music has been artists, composers, new music enthusiasts, and academia. Anyone really with an open mind and ears. ■

Further work:

[Love Machine at 3LD](#) (Izzi Ramkissoon Interactive Designer and Composer, 2014)

For Your Consideration – Ones to Watch Volume I

JIM KELLER

For the eighth year, I am back in the saddle and ready to tackle the Oscar race. The early part of the film year (from January until the Venice and Telluride Film Festivals begin in August) is a moving target. The inevitability of the award stops along the way, such as the Sundance, South by Southwest, and Cannes film festivals, can be equated to the change of seasons in that their arrival is imminent but their impact is uncertain, making Oscar prognostication a dicey proposition. For one, many films lack distribution or have soft release dates that studios can easily push to the following year. Second, many of the films that will eventually comprise the Oscar race have not been screened yet. So we only have a film's log line, the talent attached, and a little intuition to measure its "Oscarability"—think how politicians are viewed early on.

It is refreshing to join the conversation now when there is some intel—previously I jumped in with the summer issue (finalized in July), when there was not a lot of information to go on.

In recent years, the eventual Best Picture winner premiered at Telluride, and Best Actor is often tied to Best Picture. The films of that festival (August 30 - September 2, 2019) along with Venice (August 28 - September 7, 2019), the Toronto International Film Festival (TIFF) (September 5 - 15, 2019), and the New York Film Festival (NYFF) (September 27 - October 13, 2019), provide the lion's share of awards season chatter, and so begins the Oscar race. The critical reception of the films that will screen over the next couple of months will tell this year's tale. We will start with a review of last year's Best Actor nominations.

The Best Actor race came down between Rami Malek living it up as Queen frontrunner Freddy Mercury in *Bohemian Rhapsody* and Christian Bale as Dick Cheney in *Vice*. Malek easily took the Oscar after Bale didn't provide much competition in the precursor awards, despite his outward transformation (Bale gained 40 pounds for the role). Half of the roles discussed here secured Best Actor nominations: Malek and Bale along with Bradley Cooper (*A Star is Born*), and Viggo Mortensen (*Green Book*). *The Front-runner*, starring Hugh Jackman, was a dud, Lucas Hedges was unable to gain traction for his understated performance in *Boy Erased*, and John David Washington had some life in his portrayal of the first African-American detective in the Colorado Springs Police De-



Leonardo DiCaprio in "Once Upon a Time... in Hollywood."

Photo Courtesy of Sony Pictures

partment in *BlacKkKlansman*, but ultimately fell short. Meanwhile, in perhaps the biggest surprise of the season, critics turned on *First Man* almost right out of the gate, leaving Ryan Gosling in the dust. The last nominee was Willem Dafoe (*At Eternity's Gate*), who was briefly mentioned in the column as having an outside chance at a nomination. By this time last year, only the performances of Malek and Bale hadn't been seen. Cooper looked like an early frontrunner when *Star* premiered at Telluride, Venice gave us Dafoe, and *Green Book* took the audience award at TIFF. *Bo Rha* was not unveiled until October 23 in the United Kingdom and *Vice* not until December 11 in Los Angeles.

THE ACTOR: Leonardo DiCaprio – *Once Upon a Time... in Hollywood* (director: Quentin Tarantino, studio: Sony Pictures)

FYC: Tarantino's latest follows a faded television actor (DiCaprio) and his stunt double (Brad Pitt) who seek fame and success in the film industry at the end of Hollywood's Golden Age in 1969 Los Angeles.

After numerous nominations including *What's Eating Gilbert Grape*, *The Aviator*, *Blood Diamond*, and *The Wolf of Wall Street*, DiCaprio finally won his first Best Actor Oscar in 2016 for *The Revenant*. As Rick Dalton, DiCaprio gives yet another lived-in performance—we not only get to see Rick at home and in his personal life, but also as an actor filling other roles. It really is a masterclass to behold as DiCaprio projects confidence and poise to the outside world, only to fall apart behind closed doors. That said, given that the

Academy of Motion Picture Arts and Sciences (AMPAS) a.k.a. "the Academy" took their sweet time honoring him before, overlooking his work in *Titanic*, *The Departed*, and *Revolutionary Road*, I don't expect him to win again so soon.

Metacritic Score: 83

THE JESTER: Joaquin Phoenix – *Joker* (director: Todd Phillips, studio: Warner Bros. Pictures)

FYC: Phoenix plays the title character in this

back story of the infamous comic book villain, detailing how he turned to a life of chaos and crime in Gotham City. It is hard to believe that Phoenix has yet to win an Oscar, considering he has three nominations under his belt: Best Supporting Actor for *Gladiator* in 2001 and Best Actor for both *Walk the Line* in 2005 and *The Master* in 2013, has yet to win an Oscar. Anticipation for the film going into Venice was high following the trailer's release. Once the film premiered at the festival, the reviews for the film as well as Phoenix's performance were off the charts. Although it is important to maintain some perspective when it comes to film festival buzz, the truth is this could be Phoenix's year.

Metacritic Score: 70

THE DIRECTOR: Antonio Banderas – *Pain and Glory* (director: Pedro Almodóvar, studio: Sony Pictures Classics)

FYC: This drama stars Banderas as a film

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director in the later stage of life who reflects on his choices as the past and present unravel. Banderas has been earning rave reviews for his performance ever since Cannes in May, where he took home the Best Actor trophy. He is another accomplished actor yet to be recognized by the Academy. Altogether he has received four Golden Globe nominations: two for film and two for television. He was first nominated for Best Performance by an Actor in a Motion Picture – Musical or Comedy for *Evita* in 1997 and again in the category for *The Mask of Zorro* two years later. In 2004, he earned a nomination for Best Performance by an Actor in a Miniseries or a Motion Picture Made for Television for *And Starring Pancho Villa as Himself* and was nominated this year for Best Performance by an Actor in a Limited Series or a Motion Picture Made for Television for *Genius*. With a win already under his belt in this race, he should not be discounted.

Metacritic Score: 82

THE FATHER: Adam Driver – *Marriage Story* (director: Noah Baumbach, studio: Netflix)

FYC: This drama follows the breakup of a marriage between a stage director (Driver) and an actress (Scarlett Johansson) whose divorce spans both coasts and pushes them to the brink. Driver was nominated this year for Best Supporting Actor for *BlackKkKlansman*—the same role netted him Golden Globe, Broadcast Film Critics Association (BFCA), and British Academy of Film and Television Arts (BAFTA) nominations. He has been receiving a substantial amount of critical acclaim following the film's Venice bow and subsequent screenings at Telluride and TIFF. But at 36 years old, Driver is just getting started in his career and without a narrative for a win, his nomination is likely all he will take home—not to mention the difficulty Netflix faces with campaigning for multiple films in the same year and that Driver is competing against himself in *The Report*.

Metacritic Score: 95

THE POPE: Jonathan Pryce – *The Two Popes* (director: Fernando Meirelles, studio: Netflix)

FYC: Inside the Vatican, the traditionalist Pope Benedict (Anthony Hopkins) and the reformist future Pope Francis (Pryce) meet to find common ground to forge a new path for the Catholic Church. In 1996, Pryce won the BAFTA for Best Performance by an Actor in a Leading Role for *Carrington*. This was after



Michael B. Jordan in "Just Mercy."

Photo Courtesy of Warner Bros.

winning the Golden Globe for Best Performance by an Actor in a Supporting Role in a Series, Miniseries or Motion Picture Made for Television in 1994 for *Barbarians at the Gate*. Following its premiere at Venice, *The Two Popes* generated a lot of buzz for both actors, but the studio has elected to campaign Pryce as lead and Hopkins as supporting. A wise decision considering Pryce has yet to be recognized by the Academy. It is also worth mentioning the screenwriter Anthony McCarten penned the screenplays for several recent Best Actor winners: *Bohemian Rhapsody* in 2018 (Rami Malek), *Darkest Hour* in 2018 (Gary Oldman), and *The Theory of Everything* in 2015 (Eddie Redmayne). What's more, at 72, the Academy is running out of time to honor Pryce, which can only help bring him into poll position.

Metacritic Score: 83

THE DRIVER: Christian Bale – *Ford v Ferrari* (director: James Mangold, studio: 20th Century Fox)

FYC: At the direction of Henry Ford II, American car designer Carroll Shelby (Matt Damon) and driver Ken Miles (Bale) build a revolutionary race car and challenge Ferrari at the 24 Hours of Le Mans in 1966.

Bale's performance has been likened to his Oscar winning supporting role in *The Fighter*. I will refrain from providing the details of his other nominations because they have been discussed in this column more than once, most recently last year for his leading role in *Vice*. Bale consistently delivers Oscar-worthy performances, but for my two cents, there is no urgency behind giving him another trophy—especially when stacked against Phoenix, Banderas, and Pryce who have never won.

Metacritic Score: 71

THE LAWYER: Michael B. Jordan – *Just Mercy* (director: Destin Daniel Cretton, studio: Warner Bros. Pictures)

FYC: In this drama, a world-renowned civil rights defense attorney (Jordan) recounts his experiences and details the case of a death row prisoner whom he represented. Jordan was nominated this year by the BFCA for Best Supporting Actor for *Black Panther* and in 2016 he won the National Society of Film Critics (NSFC) Best Actor award for *Creed*. The difficulty he will face in this race stems from one of his main competitors being campaigned by the same studio. Do they have the resources to push him along with Phoenix to the finish line?

Metacritic Score: 65

There are of course more actors in the Oscar conversation than this space allows me to discuss. Ian McKellen, yet another actor who has never won, looks strong in the trailer for *The Good Liar*, Robert De Niro should not be ignored for *The Irishman*, which will have been unveiled at NYFF by the end of September, and perennial Timothée Chalamet could still pop up despite less than stellar reviews of *The King* at Venice.

Other performances to consider include Kelvin Harrison Jr. for Waves, earning raves on the festival circuit, Tom Hanks for *A Beautiful Day in the Neighborhood*—tricky that because the Academy has been ignoring him recently, and, as I mentioned earlier, Driver has another shot with *The Report*, which bowed at Sundance. With the fall film festivals behind us, the critic groups will start to weigh in and the consensus will build. Until soon, Oscar watchers! ■



Pets of Tri-I
POOJA VISWANATHAN



Photos Courtesy of Mehrnoosh Oghbaie

For this issue I interviewed **Lord Bullingdon**, the dog who lives with Mehrnoosh Oghbaie (Rout Lab, The Rockefeller University). Lord B is such a happy dog, and I love running into him when he's out on walks.

Pooja Viswanathan: How old are you? In human years?

L: I don't quite know. Some say 3 years, others say 6.

PV: Is there a story behind your name?

L: I don't have a name, but there are different sounds my mom/the humans make that I get treats for: Lord, Bully, Lord Bully, Lord Bullingdon.

PV: What is your first memory?

L: What is a memory? I know good food makes me happy and I like walking to the dog park. Is that a memory?

PV: Where do you live?

L: I live on the other side of a door that opens through a corridor right out of elevator that takes me from the lobby.

PV: What are your favorite smells of NYC?

L: The smell of barbecues, cheese, yoghurt, and banana.

PV: If you could live anywhere else in the world, where would you live?

L: I want to live in a garden with birds, bunnies, and cats.

PV: What are your favorite foods?

L: Anything my mom is eating; I want to try it.

PV: What is your favorite weekend activity in NYC?

L: I like going to barbecues with lots of meat.

PV: Besides your mom, who is your favorite human in the Tri-I community?

L: There are lots of them in the street and school. They stare at me and pet me when I go to them.

PV: Do you have a funny story to share with us?

L: The first day my mom took me home we went for a walk, and I peed on a flower in a flower shop before my mom could say anything. I got away with it.

PV: Is there some way we can see more pictures of you on the interwebs?

L: Oh, I never thought of that, but I'm gonna open a profile.

PV: If you could have any human ability, what would it be?

L: I'd want to be able to drink those yellow waters people drink while sitting together in a bar. ■



Life on a Roll

ANNA KACZYNSKA

One of the wonders of Wuhan and a symbol of the city is the Yellow Crane Tower. The stunning building, which dates back to 223 A.D., was rebuilt in the early 1980s and is considered one of the Four Great Towers of China. The modern version of the tower is located on Snake Hill. It is a beautiful place and perfect spot to admire the city and the Yangtze River. ■



Photos Courtesy of Anna Kaczynska



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