



KALPA presents

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SENTIENCE

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Visiting The Campus

- Aditya Pujari

When the announcement to vacate the hostels came in mid-March, disorganization and pandemonium ran amok. People packing their bags, making decisions about what stuff to carry along (quite difficult, if you ask me), and trying to book last-minute plane/train tickets at exorbitant prices - are the things that were all too common. At least, I imagine that was the case. I was blissfully unaware of this, sitting at home watching TV. I had left the campus only a couple of days before the announcement. When it was announced that classes were canceled, I had packed my bags for a couple of nights' stay, thinking I would be back soon, and things would return to normal. I could not have been more wrong.

Months went by with no end in sight. The country was placed in total lockdown for almost two whole months. Not being the outdoorsy type, I happily spent this time at home, catching up on various shows, movies, and rarely coursework as well. It was peaceful in my part of Pune. The police had barricaded roads around it, and as a result, traffic was minimal. It was quite a serene time (ignoring the pandemic

that was raging outside, of course).

As June dawned, restrictions loosened, and life slowly started to return to normal - all too familiar sounds of car horns and human traffic. However, things did not appear to attain normalcy just yet. The matter of resuming our coursework had not been decided, and there definitely were conflicting ideas as to how it would be executed. All these uncertainties made me realise that there would be no better time to visit the campus to reminisce the past few months of lost time, and get some items back from

my room as well. Apart from some important documents, some clothes would definitely be handy, since the few I had with me were wearing thin after constant use for nearly three months.

I had no idea whether they would let me in or not. After the email that I'd sent to the relevant authorities went unanswered, I went down there on a beautiful Sunday morning with my dad. The entry could not have been smoother. The guard on duty took both of our temperatures and plonked some terribly-strong smell-



Photo: Aditya Pujari

ing sanitizer on our hands. He took down my details in a register, made a confirmatory call to his boss, and we were in. The place looked well kept but empty. The grass was green on both grounds yet I saw not a single soul.

Knowing this wasn't a sight-seeing trip, I hurried to the elevators in the Hostel-1 lobby, and they were non-functional. I hadn't planned on climbing 8 stories with a mask on but

trudged on nonetheless. The floors were empty with no sound other than a small regular beep from the lobby. I entered my room and quickly saw if anything was missing. It wasn't very clean as two months of disuse would do that to a room but it wasn't significantly more dirty than when I'd left it either. I hurriedly packed my clothes and items for which I'd gone there since the lack of electricity made the room very hot. After I was done, I took a walk along the 8th floor, occa-

sionally taking pictures. The campus looked beautifully green with a few people walking here-and-there, a certain air of tranquility around. I left soon, relieved to slide down my mask and remove my gloves in the air-conditioned comfort of the car.

The trip achieved everything I had wanted to achieve, and more. The image of the campus, waiting for the arrival of its occupants, will stay with me for some time.

Dances of the Derivative

- Visakh Narayanan

The derivative first appeared in front of most of us as the rate of change of a function. Then it played the role of the velocity and acceleration, which one can experience physically as momentum and force etc. For a real-valued function on a multidimensional space, there are several notions of the derivative. Given a vector and a point in space, we can calculate a number called the directional derivative of the function, which measures the change in the function at that point in the direction of the given vector.

Suppose the whole space was filled with a smoothly flowing river. At any instant of time, the flow of the river induces a velocity vector at every point in space. Now if there was a function defined on the space, one can obtain a number at each point by calculating the directional derivative of the function with respect to the velocity vector given by the river. By assigning to each point the corresponding number produced in this way, we have a new function. Thus each snapshot of such a flowing river is a way of producing new functions from old ones. Such things are called "homogeneous first-order differential operators", a bad name, for an eternal moment in the life of an endless river! For example, $\frac{\partial}{\partial x}$, corresponds to an ideal river which flows uniformly in the x-direction, whereas, $\frac{1}{r^2} \sin(\frac{2\pi}{r}) \frac{\partial}{\partial r}$ (in

polar coordinates) corresponds to an exotic river which is calm outside the unit sphere ($r=1$) but is madly dancing inside it!

Another kind of the derivative of a real-valued function f is called its "gradient vector field". In classical physics, the gradient appears as models for the gravitational, electric, and magnetic fields, where the role of f is played by the "potential".

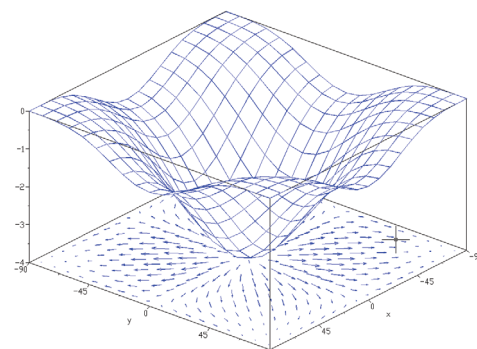


Image : www.commonswikimedia.org

This perspective has a marvelous generalization in geometry. One can wrap a cylinder perfectly using a bedsheet, but a football can never be wrapped without wrinkling the bedsheet. In modern geometry, we say that the cylinder is "flat" and the sphere is "curved". To model this, one uses a 'vector-valued potential' called a "connection" whose corresponding gradient field is called the "curvature form". At any point, the curvature form taking the value zero is flatness and non-zero values correspond to curvature in space near that point.

Einstein beautifully used this to build a relativistic model for gravity, as a curvature form of an appropriate potential. This later became a universal viewpoint towards fields of nature. Today all the fields like gravity, electro-magnetic field, Higgs field and so on are seen as gradients of some vector potential.

Another avatar of the derivative arises in Lagrangian mechanics, where one tries to predict the path taken by a dynamical particle to go from a point p to q . The theory says "each path from p to q , has an action associated to it and the particle smells the path with the least action and follows it". We being dumb humans, cannot smell the paths and hence need other techniques to find the least action path. What we do is, we look at the action as a function defined on the infinite-dimensional space of all paths from p to q . And there is a derivative for such functions called the "variation". And the path at which the action has zero variation is the path of least action!

The above mentioned are a few out of several forms of the derivative that we know of. And in our journey, we constantly end up stumbling on its new forms. Each one turns out to be a tremendously useful tool for the various realms of our explorations of truth, which seems like an endless pursuit.

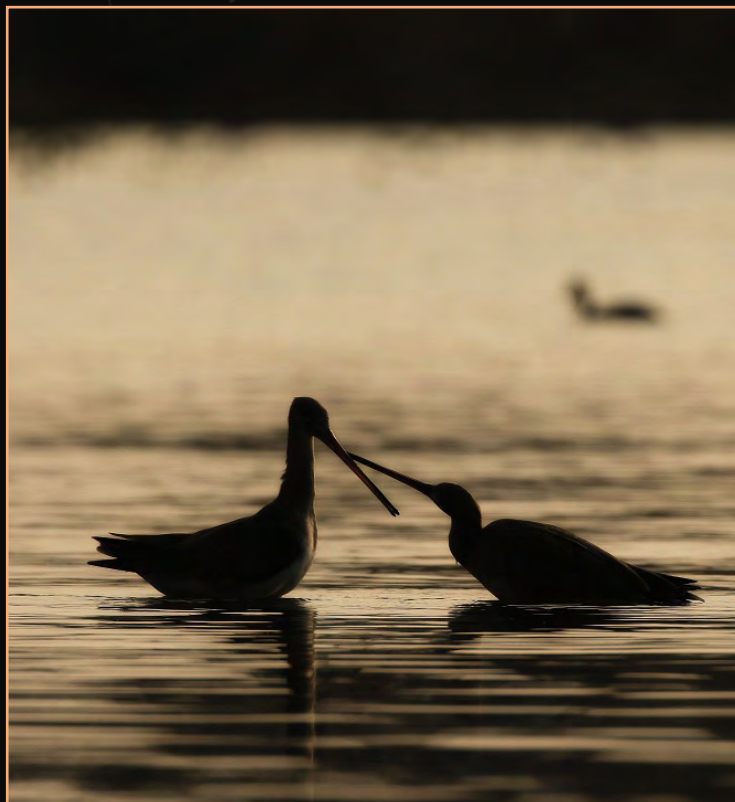
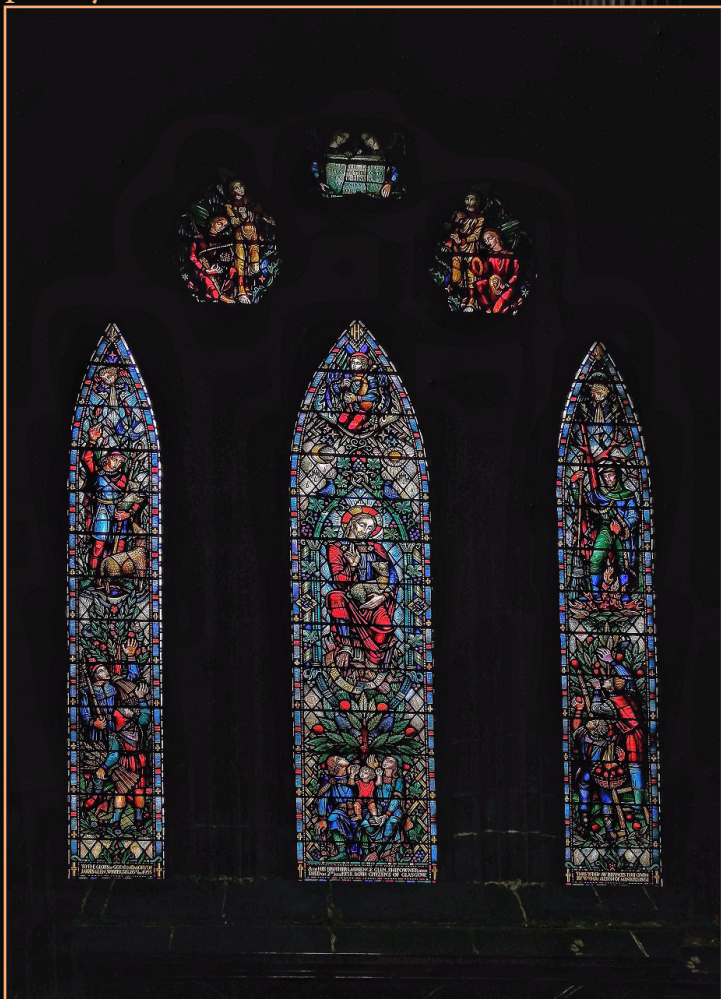
Winners of *Light and Dark*

organised by Photography club



debasmita mazumdar

pranay ninawe



sahil pawar

abhishek kanyal



*In collaboration with Photography Club
Instagram - @pixels_iiserpune*



Testing Centre Team

Photo: SMC, IISER Pune

A Glimpse into the Testing Centre

- Divyansh Gupta, Likhith Chandragiri, and Vasudha Kulkarni

We would like to thank Dr. Krishanpal Karmodiya, Dr. Mridula Nambiar, and Avani Koparkar for sitting down with us for an online interview to answer our questions. And in particular, Dr. Nishad Matange for going through with us, in painstaking detail, over the entire testing process. We would also like to express our gratitude to all the volunteers who are working at the testing center.

It has been over 5 weeks since the testing center became functional. By the end of June, the center had tested more than 4400 samples employing the RT-PCR technique. The Indian Council of Medical Research (ICMR) says “Real-Time RT-PCR is the gold standard test for detecting cases of COVID-19.”

“Initially when we were setting up the facility we had reached [out to] a few testing centers like NCCS, NIV, and AFMC,” Dr. Krishanpal Karmodiya tells us. We have taken information from all these testing centers. We also contacted other institutes like CCMB and NCBS etc. It is an integration of information from multiple places and based on which we came up with the SOPs (Standard Operating Procedures),

which we are now following, keeping the WHO and ICMR guidelines.”

In principle, the test is quite simple; in practice, not so much. Essentially, all you need to do is: collect a swab from a patient, amplify the genetic material present in the sample, and look for specific sequences that bear the hallmarks of the coronavirus. The difficulty lies in ensuring the safety of those involved from the contagion as well as tackling the nitty-gritty (or molecular, one might say) details of the procedure.

Swabs are taken by healthcare professionals by inserting a long swab into the nostril of a patient to collect nasal secretions at the back of the nasal cavity and throat.

These swabs are placed in sterile tubes containing a saline viral transport media. The tubes are packed in zip lock bags and placed into sealed boxes known as ‘vaccine carriers’. The swabs arrive from the hospital to the testing center every morning in these vaccine carriers. In the event of a leak or spillage, the virus will be contained within the sealed box.

Room 1 volunteers face the real threat of handling live samples of the virus

Along with the samples, the hospitals provide patient data sheets that summarise patient information including a unique ICMR provided ID for each patient. Each sample is then given an alternate unique IISER Pune ID, which is the

only information that links the sample to the patient in the testing process, without any names or other patient details.

Through a specifically designated entrance of the National Facility for Gene Function in Health & Disease (better known as the Animal House) where the testing center is housed, the samples are received into the first of the five rooms that make up the testing facility.

Room 1 volunteers, composed of faculty members and senior PhD students from the Biology Department, face the real threat of handling live samples of the virus and thus wear full-body PPE and N95 respirators. They take the samples out of the sealed boxes and transfer them to a lysis buffer, in order to break open the cells (along with any viral particles present), releasing their contents into the solution, including all genetic material. This lysis process keeps all genetic material intact, however, the protein coat of any virus present is ruptured, rendering it incapable of infecting humans. The riskiest part of

the job is done. The lysed solution is then passed onto Room No. 2, through a passbox.

Passboxes are double-doored chambers in the walls that separate the rooms of the testing center. They enable the transport of items between rooms without people having to physically carry them. The door on only one side of the passbox can be opened at a time, which prevents cross-contamination across rooms.

In Room 2, the RNA is isolated from other cell contents in the solution. Until recently, the isolation process was manual and it restricted the number of samples that could be processed in a day. In order to overcome this bottleneck, they have adopted a semi-automatic process that involves minuscule paramagnetic beads that have a specific affinity for nucleic acids, which in turn binds to the beads. These beads can be separated from the suspension magnetically, separating the RNA along with it.

SARS CoV 2, the virus responsible for COVID 19, has RNA as its

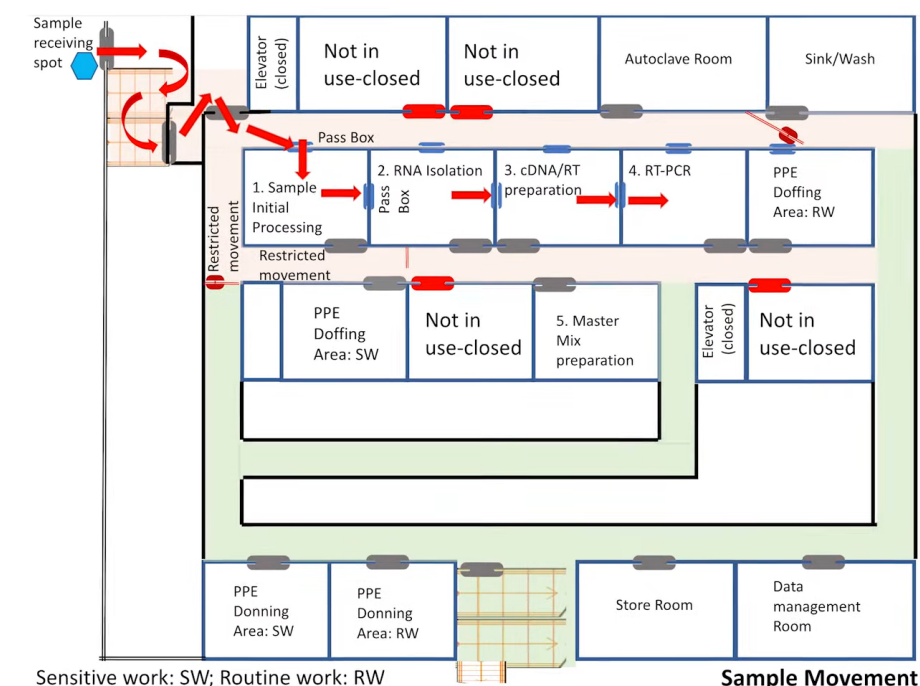
genetic material. The amount of genetic material available in a sample is inadequate for testing and so it must first be amplified, however, amplification is only possible for DNA, so prior to amplification the RNA genome must be converted to DNA.

RT-PCR, which stands for reverse transcriptase/real-time Polymerase Chain Reaction, accomplishes this in one go. It confirms the presence of the virus by converting the viral RNA to its complementary DNA (known as reverse transcription), repeatedly producing millions of copies of the complementary DNA (through PCR), and then recognizing specific sequences in this DNA.

Meanwhile, the mastermix which contains all the essential ingredients to run the RT-PCR test is prepared in Room 5. All the supplies required for preparing the mastermix and the controls are present in the testing kits provided to the institute by ICMR.

The mastermix contains all the goodness of molecular biology. It includes free nucleotides, the building blocks of DNA; Reverse Transcriptase, the enzyme which converts viral RNA to complementary DNA; DNA Polymerase, the enzyme that replicates DNA, along with other ions and molecules that the two enzymes need to function; and very importantly Primers, which are small DNA strands which allow you to tell the Polymerase where to begin replication from, hence specifically amplifying the genes you wish to detect.

The mastermix also contains fluorophore probes which are compounds having nucleotide



Layout of the Testing Center

Courtesy of SMC, IISER Pune

sequences that specifically bind to their complementary sequence on a gene. When these probes bind to the genes you are looking for, they emit light of a particular colour which is read on a graph. The light emitted by these allows us to quantify the progress of the PCR reaction as it proceeds in real time.

The protocol laid out by ICMR looks for four genes in total, two genes at a time. Thus we need to run the PCR twice.

Room 3 receives the isolated RNA samples from Room 2 and the mastermix from Room 5. The mastermix and the isolated RNA samples are pipetted together into a 96-well plate, two of which are reserved for controls while the remaining 94 wells contain the test samples. All 96 wells receive the mastermix. This plate is then passed on to Room 4 where it is loaded onto a PCR machine.

The PCR machine is essentially a thermal mixer in which reverse transcription of RNA to DNA occurs using the enzyme Reverse Transcriptase; the DNA thus produced is replicated or amplified to produce millions of copies of itself.

The principle behind PCR is straightforward, all you need to do is add free nucleotides, Polymerase, and primers to the sample; heat it, to separate the two DNA strands; cool, for the primers to attach, and heat again for the Polymerase to do its magic, and voila! You just doubled your DNA. Do it repeatedly to double the amount each time.

The protocol laid out by ICMR looks for four genes in total, two genes at a time. Thus we need to run the PCR twice. In each round, we look

for two genes simultaneously, this is known as multiplexing.

While multiplexing two genes, if the first gene is present in the sample, then the primers specific to the gene will allow it to be amplified and the probe specific to it will emit a signal of a particular colour, say, green. Similarly, if the second gene is present in the sample, it will be amplified and will emit a signal of a different colour, say, red. If we do not detect the signal specific to the gene, then amplification has not occurred and the gene in question is not present.

The first round of PCR is the screening stage where we look for a human gene, RNase P, and a viral E gene. If the viral E gene is absent in the screening stage then the sample is deemed negative.

If they are both present, we move to the second round of PCR or the confirmatory stage, where we look for two viral genes: ORF-1a and RdRP. If either of these is present then the sample is deemed positive for the virus, if neither is present then it is deemed negative.

As Dr. Nishad Matange explains, "The reason we check for a human gene [in the screening stage] is to have a sort of quality control for the RNA preparation itself. Because whether the sample had coronavirus or not, it should always have some human cells." If it isn't detected, then the sample result is deemed inconclusive as there must have been something wrong with either the swab collected or the RNA isolation process. Thus, such samples are tested once again by fresh RNA extraction followed by RT-PCR and if the human gene still isn't detected, then such samples are reported as invalid and would require new swabs to be collected from the patient.

The results of the test for each sample are matched to the details provided on the patient data sheets given by the hospital and entered to the ICMR portal by members of the data center. The results are summarised in a report that is sent to the concerned hospital which is in contact with the Nodal Officer, Dr. Anjan Banerjee.

The data handling is done by the data center team, mainly composed of staff from the Registrar's Office, Academic Office, etc., as well as a few student volunteers. Their work is overseen by some faculty members.

"You might think of pipetting as something mechanical but there's a lot at stake with each sampling. You can't risk it..."

Each room of the testing facility typically has about 2-3 volunteers at a time in order to maintain social distancing guidelines and the volunteers usually work in shifts of 3-4 hours. There may be upto three shifts a day depending on the number of samples needed to be tested that day. Currently, they are following a 2 person, 3 shift module.

Dr. Sudha Rajamani and Dr. Mridula Nambiar coordinate the volunteers' schedules aside from working in the testing facility

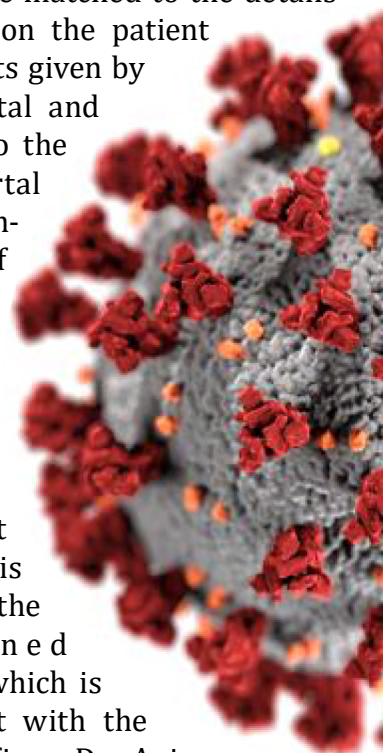


Image: www.dcg.gov.in

themselves. A roster for each room is prepared and circulated among all volunteers.

If anyone has something pre-planned for a particular day, they can swap with another person based on mutual agreement.

The testing center has about 15-20 volunteers working at a time. In total, around 50 volunteers are engaged in wet lab work while the data center has 10-15 volunteers. At the time of writing this, Avani Koparkar, a fifth-year BS-MS student was the only student volunteer engaged in wet lab work and she tells us that a couple of more BS-MS students have joined the data center team. Some PhD students who had stayed back on campus during lockdown have joined testing efforts as well.

"...third-year onward students should be able to help at the center..."

According to Dr. Karmodiya, IISER Pune incurred the costs of setting up the testing centre and purchasing the earlier testing kits from a private biotech company, MyLab. Now the institute receives testing kits from ICMR via the National Institute of Virology, free of cost.

With regard to involving younger BS-MS students in the testing process, people we interviewed expressed their reservations.

Avani says, "You might think of pipetting as something mechanical but there's a lot at stake with each sampling. You can't risk it with people who don't really know how to pipette lots of samples together or might lose concentration on that kind of thing. It might be possible with training, but not right away."

"...we get about an average of 15% to 20% samples positive ... so it is definitely worrying."

Dr. Karmodiya says that since the first and second year BS-MS students don't have much pipetting experience, it might be difficult for them, but third-year onward students should be able to help at the center. He also adds that people are assigned roles only according to their skills and interests.

About initiating people into the testing center, Avani tells us, "They made sure we either had a chance to shadow a person for a day, before our actual jobs started, to see how they were doing things, or we always had somebody guiding us for the first two days at least."

Proper social distancing and sanitization measures are being followed at the center. Avani says, "They check for your temperature and give you hand sanitizer [at the IISER gates], but when you enter the building you're supposed to sanitize your hands [again] and wear the entire kit that they give you, there's a lab coat, head cover, gloves, masks, shoe covers and all of that. And obviously, standard lab rules apply: closed shoes, long pants, etc. And while coming out also you sanitize and wash your hands. For Rooms 1 and 2, they

make them take a shower in the guest house after their work is done."

Initially, the test load was about 20-50 per day, Dr. Mridula Nambiar tells us. But now it has gone up to 150-200 a day. "Once we get an automated RNA isolation system and introduce it to the pipeline, we should be able to ramp it up. Even maybe [upto] 300 or so." When we had interviewed Avani, the testing center had completed testing for 1000 samples. The testing center has received two new PCR machines (on top of the existing two PCR machines belonging to IISER) as well as volunteers from Savitribai Phule Pune University, allowing them to increase their testing numbers.

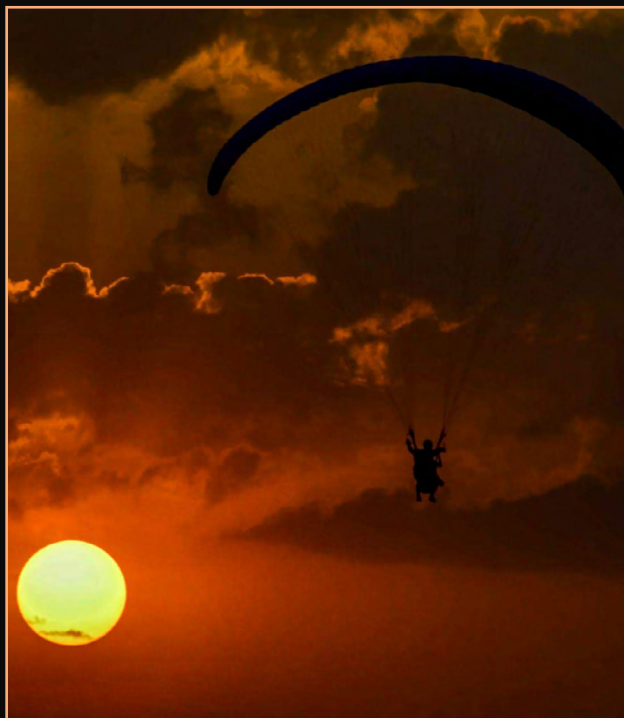
Regarding the number of samples that test positive, Dr. Mridula Nambiar says, "It sort of varies from day to day but we get about an average of 15% to 20%."

When asked if it was worrying that the positive percentage is so high, she replied, "Of course, it is. And especially, some of these hospitals from where it's coming from are from areas that have been designated as hot spots so it is definitely worrying."

"This is an unprecedented time and it's the first time we can actually use our expertise for direct application. We have been trained all these years and whatever we have learned now can directly be of actual use for the society," says Dr. Karmodiya. "I have thoroughly enjoyed it and it has been a nice experience. Testing is the need of the hour. We need as much testing as possible so that we could flatten the curve."

Winners of *Shades of Red*

organised by Photography club



rahul verma



purnima rawat, dehradun*

anushka doke



anjana sathyan



* Not associated with IISER Pune

Quarantine Quandry

- Aditya Kolhatkar

I've had many good years among the 21 that I have been around for. I have been told that the year 1999 was extraordinarily productive for me (I made considerable progress in motor and cognitive matters); a marathon school crush made the years 2010-2013 rather sunny; the year 2015 brought with it good grades and a spot of mental development, and 2018 was quite special, not in the least because I trekked the Himalayas for the first time. In comparison to all this, 2019 was a certified Class A rotter—for reasons not interesting enough to bring up here. So by the end of the year, I had resolved to make 2020 my own.

That was not to be.

The year started off well, with news that I had been given the opportunity to leave the Motherland and visit the Fatherland^[1] for 3 months for a summer project. I was thrilled! Ignoring coursework, I spent most of my energy reading in preparation for my project and making arrangements for my stint abroad. Forms were filled, documents prepared, tickets booked, and an aunt who had pre-emptively settled down in Frankfurt in 2010 was kept in the loop. Like the idiot protagonist of a movie never made, I dreamed of doing good research and performing at German open mics^[2], blissfully unaware that, to mix idioms, batshit was about to hit the fan. Nervous laughter that began with the German quarantine soon turned into nervous non-laughter as IISER shut down and we started banging plates. Finally, in a sizeable dose of disappointment, the internship got canceled. Soon, everyone's summer hopes were dashed and an appropriate amount of time was duly spent in an orgy of collective self-pity.

But Life finds a (usually substandard) way. Opportunities—weeks of intense learning, engrossing discussions

with the guide, a chance to meet new people and in general, have loads of fun—were traded in for weekly (if you are lucky) pixelated discussions with the PI from the comfort of your bedroom. In college, the guide has nowhere to hide. Breezing into their office uninvited might be irksome on occasion, but it prods work along. Stochastic Skype® calls, on the other hand, are likely to catch the opposite party in the middle of a *jhadu-pochha* session, making technical discussion inelegant and ineffective in equal measure. So, work proceeds at a snail-slow pace if it proceeds at all; without the luxury of long, fruitful discussions peppered with head-scratching and whiteboard-staring, research or for that matter, reading, becomes achingly sluggish, and in the absence of a bustling academic environment, sloth inevitably takes over. The theorists are still the luckier bunch; the only experimental facility open for business during the pandemic is the Devil's workshop^[3]. And with online classes less engaging than even real classes, the student is left with acres of unstructured time and a tendency to be miserable about things out of his/her control.

Of course, that's not all. In the absence of bright deadlines and visible results, motivation becomes a rare commodity. Often, the situation at home is not conducive to tranquillity, much less academic progress. It is common knowledge too, that every day feels exactly the same, and in the absence of a bustling social life to lend color to the day, mental health is bound to suffer. I find milling about our campus and soaking in the sunlight very invigorating, but alas, the kitchen and the bedroom are only a few meters apart at home and the builder thoughtlessly gave my house an opaque roof.

The words above may have painted a gloomy picture, but I firmly believe that all is not lost. The number of open doors may or may not be a God-mediated conserved quantity, but I think that there is much we can do to better ourselves during this time. The interfering challenges are unique to the individual, so generic advice rarely serves any purpose apart from conveying a false sense of smugness on the part of the writer. However, we might do well to resolve to do something—academic, co-curricular, or personal—better than we did before, set ourselves discernible goals in such a direction, and work towards them for a few hours every day. Maintaining a sleep cycle, a proper routine, and setting the phone aside for long stretches goes a long way in aiding this endeavor. If nothing else, we can use this quarantine to learn how unemployment feels; this experience may well come in handy in the not-too-distant future.

Stay safe.

^[1] To be clear, this is a case of what mathematicians and physicists would call 'abuse of notation'; the Mother and the Father are not related here.

^[2] In English.

^[3] Sorry.

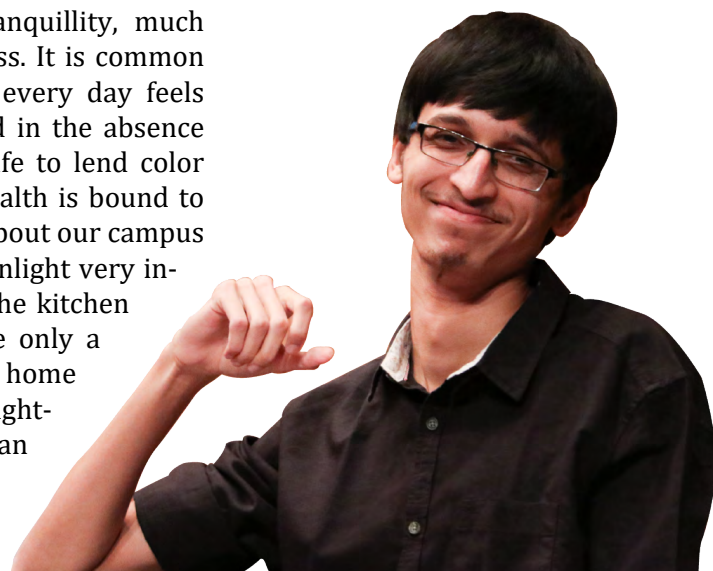


Photo : Pallav Khandekar

An English Cottage Garden

- Vikram Iyer

It shall be large, and within will life abound
The garden of my dreams, my wildest fantasies
A wrought iron gate to guard it well
And a babbling brook to thirst quell

For roosting birds a canopy large
Comprising trees native and exotic
Mango, banana and for the little me
A rather large curiosity, the breadfruit tree

Let there be perennials, returning year after year
Never failing to wonder and awe
Herbaceous ones and woody shrubs
My favourites: peonies, gazanias and gerbera tubs

Annuals for summer pops of colour
Interspersed in between the rest
The stately hollyhock and marigolds golden
Appear from afar- as a maiden flaxen

Not to forget bulbs for tuberous delight
And spring bulbs for welcoming warmth
Yellow daffodils, irises and one large lily
Naturalised amidst the grass, growing willy nilly

Amidst the flowers, a fruit and vegetable plot
To feed and satiate one's hunger
Peas, carrots, berries (not the least)
Once served, a glorious feast

To tickle your palate an 'erb garden
Filled with flavoursome greens
Parsley sage rosemary and thyme
To make little lavender posies fine

A little pond, for fishes and frogs
And curious plants aquatic
For what else will house these curios
Nelumbo, Cabomba and the aquatic fern Azolla ?

Weeds are present too, for I do see
Beauty in everything living
Dandelions, chickweed and nettles - don't fear!
For you are welcome to seed here

And lastly, not leastly, a green - house
For treasures too special for outdoors
The venus flytrap and pitcher - plant - planted
And other wishes so gratefully granted.

Photo: Vikram Iyer



Shefali Dharmakirti Sonarkar

Amruta Swaminathan



Swayam Prakash Singh



Ashli Jain



Saanchi Thawani

Nandu T S



Travel in the Times of a Pandemic

- Ipsa Bezbarua

There is a rather interesting joke doing the rounds these days - the Mayans had probably predicted the end of the world in 2020, but a “dyslexic scribe” erroneously wrote down the year as 2012. And with all the happenings that have unfolded right since the beginning of this year (eg, the aggravation of the Australian bushfires and now the Covid-19 pandemic), it seems a disturbing possibility.

On the 31st of December, Chinese health authorities reported the emergence of several cases of pneumonia caused by a new virus. This new virus, SARS-COV-2 (informally referred to as the coronavirus) has an extremely high rate of infectivity and a mortality rate of approximately 3.4% as predicted by the World Health Organisation (WHO) in early March. The mortality rate is ridiculously low if we calculate only for healthy youth but the disease poses a serious risk to the elderly and the sick. As of now the disease seems to stretch on forever, with no cure or vaccination in sight, though several advancements in these areas have been noted in the past few weeks.

In ancient times, travel was a highly time-consuming process, and was undertaken mostly on foot, horseback or ships. Nowadays, we are experiencing the age of the “interconnected world”, where we can travel from one end of the world to the other end in a matter of hours. However, as a result of this, the spread of diseases has become very rapid, and on 11th March, the Covid-19 outbreak was declared as a pandemic by WHO.

The first coronavirus patient in India was detected on 30th January, but over the next month, cases were few and far between. But, with the advent of March, things took a turn for the worse. A number of people returning from abroad had contracted the

disease and very soon, international travel to India was banned. Most education institutions were shut down till further notice with students being asked to go back home. On the 25th of March, a nation-wide lockdown was imposed with inter-state and intra-state travel being suspended till the last week of April in some places and even longer in others. The lockdown was lifted on 3rd June and slowly normal life resumed in some areas though many states decided to impose lockdown on and off depending on how bad the situation got.

Till date, there has been no order issued to permit academic institutes to re-open, though Union HRD Minister, Ramesh Pokhriyal, has hinted in an interview that schools might be allowed to re-open after 15th August. Until very recently, IISER-Pune hoped people could start returning to campus from mid-August in batches and appear for the end-sem exams of the spring semester about 5 weeks later. However, with the pandemic showing no signs of dying out anytime soon, the spring semester has been declared as closed now, and grades will be assigned on the basis of performance in tests and examinations prior to lockdown. We had tried to get in touch with the faculty in charge of transportation of students for more details on the plans but they were unavailable for comments.

Upon questioning students of various other academic institutions of the country, it seems like other institutions do not have concrete plans at this moment either. Most hope that the pandemic will subside soon and they can start calling back students by September. Maharashtra state universities are considering opening in August for regular students and starting the semester for the new batch in September, though there is no official declaration in this regard

yet. On 24th June, the University Grants Commission (UGC) recommended scrapping exams of the spring semester and deferring the start of the new one to October.

IISER-Tirupati has announced that they will start the new semester from 31st July in the online mode. As soon as they receive the green signal, they will ask students to return to campus but classes will be live-streamed and students will have the option of attending them online in case they feel travel is not safe. IIT-Bombay declared on 24th June that the fall semester would be held completely online. IISc had already called back several PhD students, but a recent coronavirus case on campus leaves the future unsure.

It is expected that several issues will pop up once schools and colleges resume which includes but is not limited to transportation of students from different districts/states. Students might be asked to return to campus in a very short time span (maybe even within a 2 week window). Ticket prices are likely to be exorbitant and several students will have a genuine issue affording such costly travel. There is also the grave risk of contracting the disease en route, though health check-ups will help single out such students and get them treated. After students are all back, there will be other problems like maintaining social distancing during class hours, and issues pertaining to usage of shared washrooms and common mess areas.

Arguably, the past few months have changed the entire travel and education scenario all across the world. It will be interesting to see the long-term effects of the Covid-19 pandemic on these areas. But till we find a cure/vaccine to eliminate this pesky virus, stay home and stay safe!

Movie Review

The Nice Guys

- Review by Bishal Ghosh



www.imdb.in

The Nice Guys is a movie starring Russel Crowe and Ryan Gosling, and written and directed by Shane Black, who also directed *Kiss Kiss Bang Bang*, another underrated banger. The movie sees this buddy cop duo in a 70's era Los Angeles, investigating the alleged suicide of a prominent female porn star. What follows is an off-beat, original and witty take on the buddy cop genre. As a whole, both the actors play off each other in an interesting and witty way all thanks to the great screenplay from Shane Black. Ryan Gosling plays a private investigator, and Russel Crowe can be summed up as an enforcer for hire, someone you hire to beat up people who are troubling you or owe you money.

Unlike some other movies of the genre *cough* *Rush Hour* *cough*, the characters in the movie know the game and how the town works - the movie doesn't spend too

much time in justifying the scenario and throws you head first into their lives. Despite this, it manages to catch the duo and the audience on a surprise on how the plot forwards itself and takes the audience on a roller-coaster ride filled with laughs and hilarious situations. The dialogue does not take itself too seriously; it soothes the audience and is witty as hell. The movie also gives the setting a *Once Upon a Time in Hollywood* like treatment, right from their costumes to their sense of humor, nothing seems out of place for a movie set in a 70's Los Angeles, in the 'good times' when porn, drugs and sex filled the streets.

With this movie Shane Black cements himself as a great writer and director, and it is bound to be a classic and something worth multiple re-watches.

The Lighthouse

- Review by Pallav Khandekar

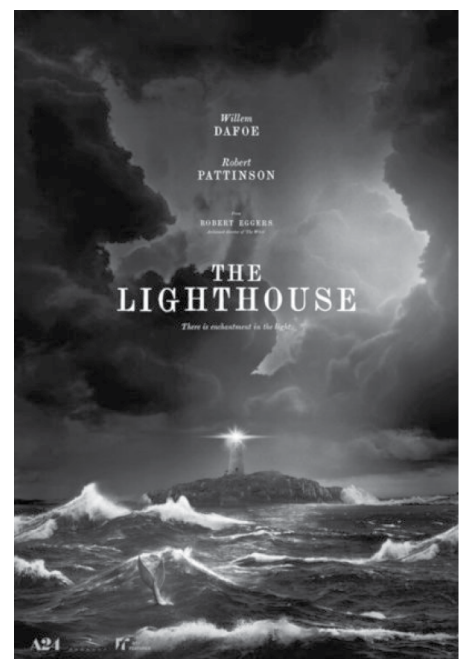
The Lighthouse is a psychological horror movie directed by Robert Eggers, starring William Dafoe and Robert Pattinson. The story follows the harrowing time spent by a "wickie" named Ephraim Winslow and his supervisor Thomas Wake at an isolated island lighthouse. The rest of the plot follows like *The Shining* as the extreme isolation brings out the worst among these men.

The immediately noticeable visual elements of the movie are the almost square 1.9:1 aspect ratio and the black and white colour

palette. This style, along with the dialects used in the dialogue help to truly sell the old timey feel of the movie. The sound design of the movie is exceptional, the most hard-hitting example being the terrifying foghorn of the lighthouse. The lead actors successfully sell the roles of a frustrated young man and a domineering power abuser. The movie tackles the themes of alcoholism, homoeroticism and good old Freudian daddy issues.

Lovecraft and Edgar Allan Poe fans will adore this movie. It is also recommended for people who like theme-heavy films. It's available for streaming on Amazon

prime.



www.rogerebert.in

Club Initiatives

Aroha organized two virtual Let's talk Music session titled 'Understanding Rhythm in Carnatic Music' and 'Indian Classical Music Through Flutes: An Overview'. These were conducted by former students, now alumni, Harsha M and Vishnu Vardhan V S respectively.



Literary Club organized a book discussion themed around **Banned books** and the banning of books in general. The session was convened by Abhishek Vaidyanathan.

The Quiz Club continues to host regular online MNQs on Instagram and post.



The Science Club launched a new series, *Know your professors*. They organised talks with **Prof. A Raghuram** and **Prof. Sunil Mukhi**. They also arranged a discussion on the origin of **SARS-CoV-2** with **Prof. MS Madhusudhan**.

Saturday 'Adda' is regularly being organised by Dr. Sutirth Dey where he has casual conversations with students excluding topics related to the pandemic to increase student morale.

Photography Club continues to host photography contests on Instagram with different themes fortnight.

Satrange held a Pride Month Art contest, the entries are uploaded on their instagram page, (@satrange_iiserpune). They also held an open 'Casual Virtual Meet' with Dr. Anand Krishnan on the occasion of the 51st anniversary of the Stonewall Uprising.

Book Review

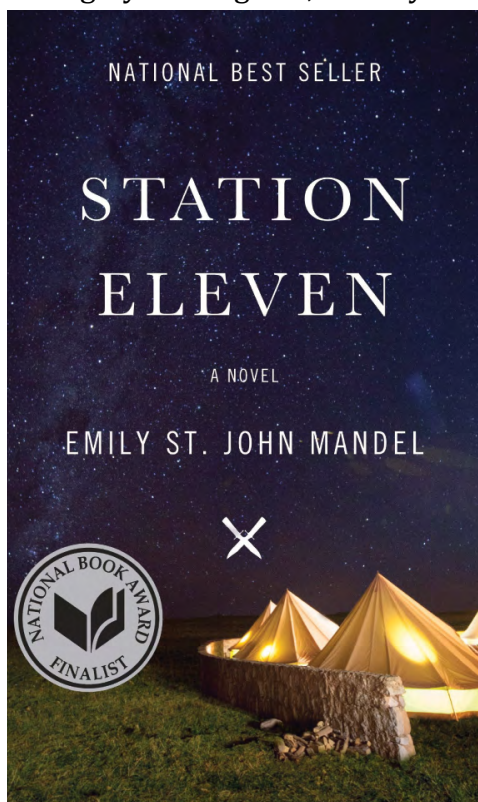
Station Eleven

by Emily St. John Mandel

- Review by Kunjal Parnami

Station Eleven, by Emily St. John Mandel, is a post-apocalyptic novel about the aftermath of a deadly global pandemic. This might not seem like the best book to read right now, but it is no ordinary one, so read it anyway.

A highly contagious, deadly flu



www.amazon.in

sweeps the world, killing more than 99 percent of the population. Civilization pretty much collapses within a week, and soon everything breaks down - power grids, running water, phone networks, the internet, automobiles, and even modern medicine. It's a stark dividing line through history, between before and after.

Set in North America, and switching between points of view and times before and after the collapse, the book tells the stories of the characters - some who survive the collapse, some who don't - as they navigate the two worlds. The characters are complex and are portrayed realistically and relatably. The author strikes a balance between plot and characters, and connections fall neatly and satisfyingly into place as the novel progresses. The themes of remembering and rationalizing the past, individually and as a collective, can be clearly seen in the thoughts and motivations of the characters.

The book breaks the mold of 'traditional' post-apocalyptic fiction. It doesn't focus on the scramble to survive alone in the chaos,

highlighted by many other novels of the same genre - its focus is on people's instinct to work together and build a semblance of normalcy. Its tone is reflective and hopeful. Even after the loss of almost everything, almost everyone, there is community, and beauty remaining in the world.

'The Travelling Symphony,' a band of actors and musicians who travel between the settlements of the changed world performing music and Shakespeare, is one of the focal points of the story and an illustration of the book's argument - mere survival is insufficient. Where there are people, there is always some decency, some beauty left - there *needs* to be.

The evocative yet simple writing makes one feel awed by, and almost nostalgic for, the times we live in now. It puts into perspective how brief this interval in time has been, and how fleeting it may turn out to be. It is a thoughtful and melancholy book, but one that ultimately left me with a new appreciation for humanity, and a feeling that there is always hope. I hope you enjoy it too.

Tess of the d'Urbervilles

by Thomas Hardy

- Review by Ipsa Bezbarua

16-year-old Tess Durbeyfield lives with her impoverished peasant family in Marlott. She reluctantly agrees to "claim kin" with the surviving aristocratic branch of her family, the d'Urbervilles who reside in the nearby town, Trantridge. Unbeknownst to Tess

and her family, the d'Urbervilles are actually the Stokes, wealthy merchants who had bought the surname to enter aristocracy. The son of the household, Alec d'Urberville (a libertine) is very taken with Tess, and offers her a job of tending to his blind mother's fowl. He tries to make Tess warm up to him, and one night after a country fair it is implied that he rapes her. Distraught by the turn of events,

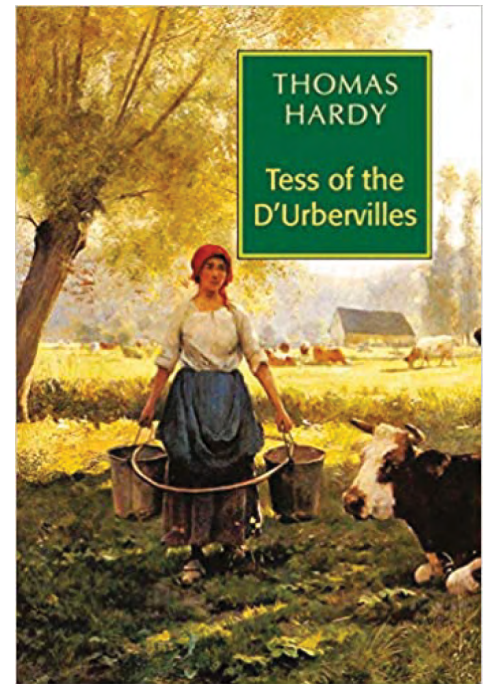
Tess returns home pregnant and her baby dies soon after birth.

A few years later, Tess secures employment at Talbothay's Dairy where she meets the idealistic Angel Clare. The two fall in love and decide to marry though Tess cannot bring herself to divulge her past. On the night of their marriage, Angel reveals to her that he had once had a passionate affair with a widow; encouraged

by this revelation, Tess tells him about her encounter with Alec. Her worst fears turn true as Angel is unable to accept that his bride is not the epitome of virtue he had always imagined her to be. He decides to set sail for Brazil and they separate. Tess seeks employment at Flintcomb-Ash where she comes face-to-face with Alec, who had become a wandering preacher after his mother's death. What follows lays the groundwork for a timeless tragedy.

Published in 1891, Thomas Hardy's *Tess of the d'Urbervilles* was one of his last novels. It invited

scathing remarks from several critics and ruffled quite a few Victorian feathers with its stark depictions of poverty and sexual double standards in England of yore. Over the years, reception to the novel has grown more favourable and it is now regarded as one of the best novels of its era. Hardy's rich linguistic skills deserve a remark – rural England comes alive through the pages of his book. The central theme remains a burning issue to this day and makes you ponder each time you pull it up to read it again!



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