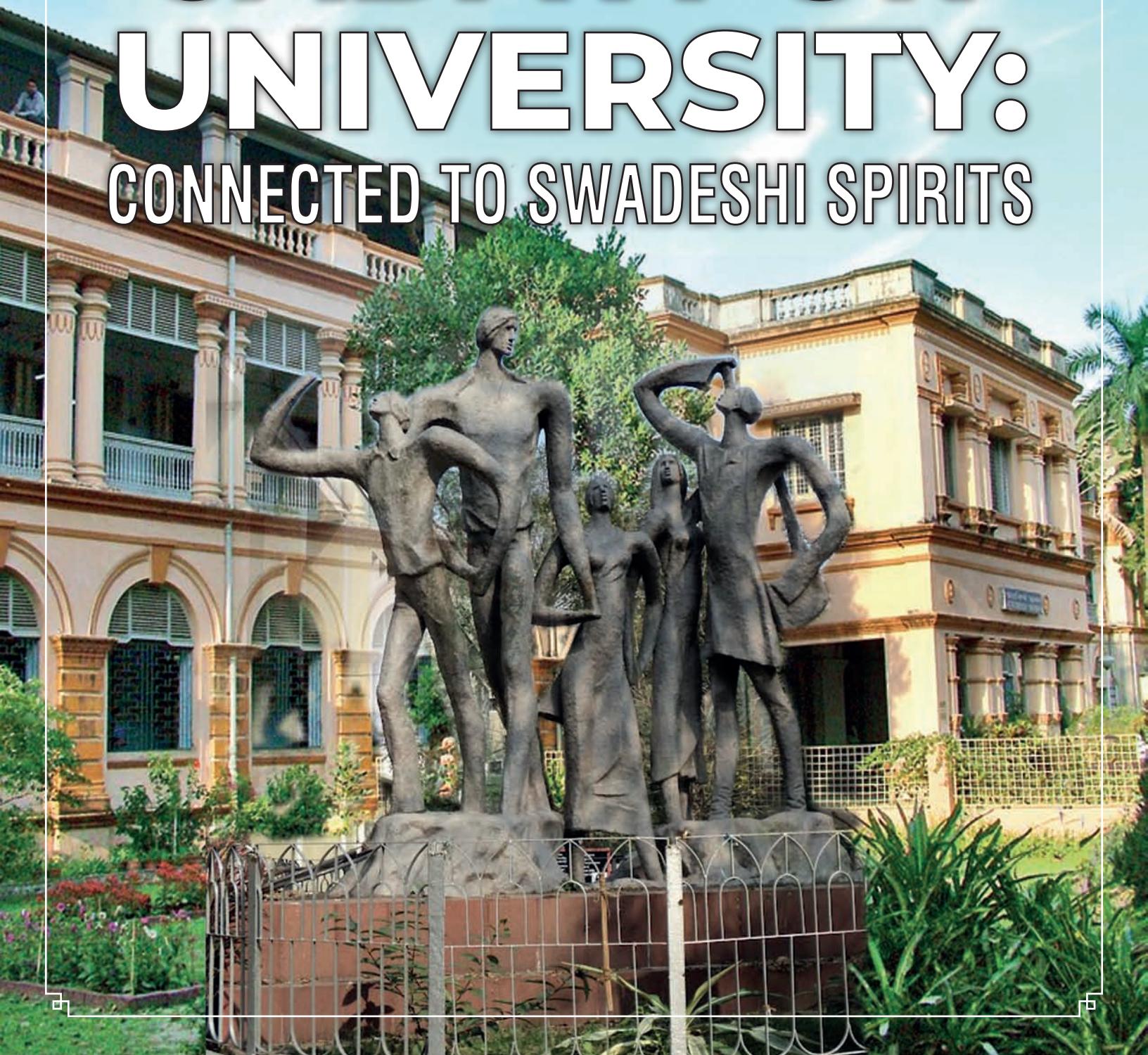


VIPNET CURIOSITY

VIPNET NEWS—VIGYAN PRASAR NETWORK OF SCIENCE CLUBS

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JADAVPUR UNIVERSITY: CONNECTED TO SWADESHI SPIRITS



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EDITORIAL**Arvind C. Ranade**

The best is yet to come ...



onourable Prime Minister of India Shri Narendra Modi declared the celebration of Azadi ka Amrit Mahotsav to be continued for two years starting from 15 August 2021 till 15 August 2023. He shared many inspirational and motivational thoughts to celebrate the Mahotsav many of which have direct or indirect intervention of science and technology. The five pillars of the celebrations include (1) India's Freedom Struggle, (2) Ideas@75, (3) Achievements@75, (4) Resolve@75, and (5) Action@75. It is important to highlight the fact that India's freedom struggle was not only fought by social-political leaders but also by the scientific leaders of that time. We conducted many conferences, seminars, and lectures highlighting the role and contributions of Indian scientists starting from Mahendralal Sarkar, Ashutosh Mukharjee, Aaharya P.C. Ray, Aachrya J.C. Bose, Sir C.V. Raman and many more. We brought out special editions of Dream 2047 and VIPNET Curiosity highlighting our scientists' contribution. VIPNET Curiosity continued the column on Indian institutions that played significant role during the freedom struggle. We are sure, these resources must have helped you to gain knowledge and awareness about them.

India International Science Festival-2021 in Goa also focused on Aazadi ka Amrit Mahotsav. All three Guinness Book of World Records were focused on the three pillars of Aazadi ka Amrit Mahotsav. In February there was Vigyan Sarvatra Pujiyate, which was a weeklong celebration at 75 places with 75 thematic films, 75 posters, 75 book fairs, 75 exhibitions etc. We also had the most accomplished Na-

tional Conference and Exhibition on the National Calendar of India at Ujjain and Dongla 2-3 Vaisakh, 1944 (22-23 April 2022). Many of our VIPNET clubs also turned up at Ujjain and actively participated in the deliberations. It is important to note that many have decided to use the date of the National Calendar in their regular communication. In a way, a lot has been done to celebrate the Aazadi ka Amrit Mahotsav in the last year. But, this is not the end of the celebration. Many more are coming up and active participation of each one of us is equally important. Moreover, new findings, knowledge, and discoveries need to be learned and communicated for the purpose of science.

Indeed, based on the capacity, work, and potential of VIPNET clubs, we still believe that "Best is yet to come!" What we need are best leadership, coordination, and teamwork. We at Vigyan Prasar have always tried to be transparent, honest, and dedicated and put our best efforts to the common goal of serving the people of the country. Sometimes changes are needed, either by compulsion or by circumstances, and we all should be ready to make use of such change for a better future. We wish to see you all growing in leaps and bounds and make yourself and Vigyan Prasar proud. Wish you the best for all your future endeavours.

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Jadavpur University: Connected to Swadeshi Spirits

Maitreyo Bhattacharya



Jadavpur University, commonly referred to as JU, is one of the most prestigious educational institutions in the country. Situated in the southern part of Kolkata in West Bengal, it is a State University. It had formally started its journey in the year 1955, almost a hundred years after the establishment of the three oldest universities of the country, namely the University of Calcutta, University of Mumbai and the University of Madras. Let us take a peek at the history of this illustrious institution from the time of its establishment, which goes

back to the time of India's freedom movement, in the early 20th century.

Throughout the past few decades, the University has nurtured some of the best and talented individuals, who have made a wide range of contributions in various fields, and has had a steep upward trajectory in becoming an eminent University. In the year 2020, it was ranked fifth among all universities in the country by the National Institu-

"The future is uncertain but the end is always near."

Jim Morrison

tional Ranking Framework (NIRF). Although much is known about its journey in the last six decades, very few people are aware of the history of the university in the 50 years before 1955. It all began during the crucial time of Partition of Bengal by the British rulers in 1905. The attempt to divide Bengal was viewed by the entire country as a vindictive measure to attack the politics and culture of Bengal. Times were turbulent and on





7 August 1905, a historic meeting was held at the Town Hall, where Surendra Nath Banerjea gave the clarion call to action. Slowly, people started realizing that a system of education, based on nationalist ideals could play a key role in the regeneration of the nation. It is with these thoughts in mind that the National Council of Education (NCE) was formally founded on 11 March 1906. The NCE is widely regarded as the “Parent Body” of the University.

It is important to note the declared goal of the Council, which was to “achieve self-reliance through empowerment of the youth by imparting the best of global knowledge available.” Several eminent personalities and nationalist leaders of Bengal of that time, including Raja Subodh Chandra Mallik, Brajendra Kishore Roychowdhury, Ramendra Sundar Trivedi, Gooroo Dass Banerjee, Rabindranath Tagore, and Sri Aurobindo Ghosh had contributed greatly towards the establishment of the NCE. Sir Rash Behari Ghosh, for example, donated 13 lakh rupees for this cause. In fact, he

also became the first President of NCE.

After this, a number of educational institutes and National Schools, with the same ideology as that of the NCE, started coming up all across Bengal, the Bengal National College being one of the earliest. Subodh Chandra Mallik

had donated Rs. 100000 towards the founding of the College. It started working from 15 August 1906, with Aurobindo Ghosh as the Principle and Sri Satish Chandra Mukherjee as an Honorary Superintendent. Though the College was performing greatly from its beginning, its success was short-lived. Aurobindo resigned from his post voluntarily on 23 May 1908, and all the duties fell on Satish. He could not continue for a long time after this, owing to health issues, and also conflict of opinion with other leaders. Thus, gradually, the National College of NCE progressed towards a downfall.

Meanwhile, something interesting had happened in June 1906. Under the leadership of Taraknath Palit (who was one of the key figures behind the University of Calcutta as well), the Society for Promotion of Technical Education (SPTE) came to existence on 1 June 1906, the same day when NCE Bengal was registered. Previously, they had distanced themselves from the NCE. The Bengal Technical Institute (BTI), which was the College of SPTE started working from July 1906, and





ran parallel with NCE for a period of about 4 years. During this time, there were some conflicts between the two, as they differed in their objective. The SPTE, presided by Pramatha Nath Bose, a pioneering Indian Geologist and Paleontologist vouched for Engineering and Technical education, had Electrical and Mechanical Departments. In 1909 Sri Sarat Dutta was appointed as the permanent principle of BTI. Even after falling apart, the National College was able to attract students for a few years, after which it became defunct, while the Technical Institute successfully survived. After a few years, on 25 May 1910, SPTE was merged with NCE. The premises of the National College moved to that of BTI at Upper Circular Road. Thereafter, NCE looked after BTI, which came to be known as the College of Engineering and Technology (CET). As the years progressed, the CET continued to grow. The Electrical, Mechanical, and Chemical Departments were doing very well in this period. The NCE tried its best to collect donations for funding from various sources, which included the Alumni Association.

After the World War II, many reputed Universities in the United States also started recruiting students from CET for their Post Graduate Programme.

The present site of the University was leased out by the Calcutta Corporation for 99 years, under the guidance of the erstwhile Mayor Deshbandhu Chittaranjan Das. The Aurobindo Building, one of the main buildings in the campus, was formally inaugurated on 11 March 1922 by Sir Ashutosh Chaudhuri. Currently, the historic building serves as the site for all administrative works.

On 15 August 1947, India gained independence from British rule. Within 1955, the CET had firmly secured a position in Technical Education in India. In August 1954, an appeal was made to the Bengal Government to convert it into a State University. The Bill came into effect in December 1955, and finally on 18 March 1956, Jadavpur University was inaugurated by Sarvepalli Radhakrishnan. Dr Triguna Sen (who was also a Union Minister for Education in the Indian Government) was the first Vice Chancellor of Jadavpur University. He held the office for ten years. The emblem of the

University was designed by none other than the eminent artist Nandalal Bose.

Today, the University has evolved to become one of the leading Indian Universities, with courses being offered in a diverse range of areas from Engineering, Basic Sciences to Humanities subjects, all in the same campus. It has played an important role in advancing study and research in India. Currently, JU has two campuses, the main campus located in Jadavpur and another one in Salt Lake, which houses some of the Engineering Departments. The main campus is currently surrounded by eminent research institutes, like the Indian Association for the Cultivation of Science (IACS), which is the oldest research institute in Asia, the Indian Institute of Chemical Biology (IICB), and the Central Glass and Ceramic Research Institute, the later two being laboratories of CSIR (Council of Scientific and Industrial Research), which provides a stimulating environment for research. The student and Faculty body continues to be very active in issues of research as well as social concerns, and JU is gradually evolving to become a leading center for education.

Acknowledgement - The author would like to thank his friend, Dipayan Das, a Sophomore Undergraduate student of the Electronics and Telecommunication Engineering Department of Jadavpur University, for helping him with some photographs. The website of the Alumni Association of the University and the book by Ramaprasad De, Former Professor of the Dept. of English, Jadavpur University has also been referenced a number of times during the writing of this article.

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The Next Generation of the Internet

Subodh Kumar

In recent times, Web 3.0 has gripped the Internet world. Web 1.0 was the start of the Internet when there were only static pages. Web 2.0 became more interactive.

Tim Berners-Lee and his colleagues began developing the World Wide Web in 1989 at the CERN (Conseil Européen pour la Recherche Nucléaire) based in Geneva, Switzerland. They created a protocol, HyperText Transfer Protocol (HTTP), which standardised the communication between servers and clients.

Web 1.0: Read-only

In 1990, the internet was a group of connected computers and the Web was the first application that Tim Berners-Lee created. Web 1.0 was designed as a 'hyperlinked information system'. A huge library of data was sourced together from computers across the network for the users to browse the content by click-

ing around linked text and images. Web 1.0 was created to be used by the companies and the content used to be static (read-only) where users didn't have an option to give feedback, comment, or quotes. The Webmaster used to be the one responsible for updating users and managing the content of the Website.

Web 2.0: Read + write

After ten years, with the emergence of giant companies like Google, Facebook, and Twitter, Internet gained massive user base. Web 2.0 was created to be used by the communities. For the first time, anyone could publish content online. As barriers faded, users and usage surged. The Internet had something for everyone. It became more widespread as it offered user-to-user interaction, content creation, and content retrieval.

In the backend, three significant shifts shaped Web 2.0 as we know it today. These are use of

smart mobile phones, Social Media platforms and Cloud storage.

Web 2.0: The Cons

Ownership: Platforms own everything that is created online including the data provided by the users, the generated behavioural data, and the images, videos, songs, status updates and comments uploaded. Whatever we do on the platform becomes the platform's property.

The attention economy: Websites compete for users' attention with algorithmically generated content loops that keep us scrolling and headlines that force us clicking as it has become the Internet's naive currency. On Web 2.0, we are fed with a personalised diet of whatever triggers us the most. This leads to clickbait, misinformation, fake news, ad blockers, and ad blocker-blockers.

De-platforming: Close to 90% of the Web is stored with four host-



Web 1.0

"Read Only", Decentralized



Web 2.0

Participatory, Centralized



Web 3

No Intermediaries, Decentralized

Web development step by step Web 1.0 to Web 3.0

ing providers, the biggest of which is Amazon Web Services (AWS). Their data centers run the sites and apps we use every day: Facebook, Twitter, Netflix, Uber, Reddit, and so on. We access them through Web browsers and download them from mobile App stores. These companies control the gates to the global marketplace of ideas.

Hacker Paradise: An interconnected economy that combines decentralised data creation with centralised storage giving enormous rewards to hackers. Billions of devices uploading data to a handful of massive data centres are analogous to a central bank with infinite entry points. Data breaches have become the new norm in terms of privacy and cyber-terrorism. Web 2.0's centralised nature opens the door to security threats.

Trust problem: The Internet pioneers never meant Web 2.0 to be centralised but the core challenge of human social organisation, trust, was overlooked by them.

Units of civilization: Institutions foster trust among strangers by keeping track of who owns what. Taxes, payments, real estate, and exchanges records confirm the truth, and the truth builds trust.

Gatekeeper: Unbounded by space and time, today's Internet institutions have slashed the latency and cost of economic exchanges – unlocking instant global business. They achieve this by letting the software take care of trust. We trade with strangers worldwide having enormous faith on the data provided by the Internet.

Web 3.0: Read + write + own

Web 3.0 is an umbrella term for an online ecosystem that cuts out the prominent mediators on the Internet. Central gatekeepers do not own platforms on Web 3.0 and you would not navigate the internet through search engines such as Google. It

is an idea for a new iteration based on blockchain technology, which incorporates concepts including decentralization and token-based economics. Web 3.0 aims to reduce dependency on large tech companies.

Why is it on everyone's minds?

Thirty years into mass Internet adoption, our data architectures are still based on the concept of stand-

Web 3.0 Concepts:

Artificial Intelligence (AI): Most people believe that AI will play a big part in Web 3.0 due to the heavy involvement of machine-to-machine communication and decision-making needed to run many Web 3.0 applications.

Metaverse: It is the user interface, through which we interact with the online world, communicate with other users and manipulate data concerning



alone computers – data is centrally stored and managed on a server and sent or retrieved by a client. Every time we interact over the Internet, copies of our data get sent to the server of a service provider, and every time that happens, we lose control over our data. Our data is still centrally stored: on our computers or other devices, on the USB stick, and even in the cloud, which raises issues of trust.

Web 3.0. The metaverse is intended to be a much more immersive, social, and persistent version of the Internet that we are all familiar with and enjoy. It will entice us by utilising Virtual Reality (VR) and Augmented Reality (AR), allowing us to interact with the digital domain in more natural and immersive ways. For example, we could use virtual hands to pick up and manipulate objects, and our voices to



instruct machines or converse with others. In many ways, the metaverse can be thought of as the interface through which humans will engage with Web 3.0 tools and applications. Creating Web 3.0 applications without involving the metaverse is possible. Bitcoin is one example, but metaverse technology and experiences are expected to play a significant role in how many of these applications interact with our lives.

Bitcoin: Bitcoin is a decentralized digital currency, without a central

bank or single administrator, that can be sent from user to user on the peer-to-peer bitcoin network without the need for intermediaries.

Blockchain: Although the concepts surrounding blockchain technology is extremely complex, blockchains themselves are relatively simple. In layman's terms, a blockchain is a public database. Blockchains keep a record of transactions between parties on a public forum that anyone can access.

Following are the main differences between a regular database and the blockchain:

- **A blockchain is append-only:** Data cannot be changed once it has been written, i.e., information is locked on the blockchain forever.
- **A blockchain takes the form of a linked list instead of a table:** Every set of transactions (known as a block) added to the blockchain reference the previous block. As a result, there is a chronological record of every transaction that has ever occurred on the blockchain.
- **Blockchains are decentralised:** They are not owned by any specific organisation and cannot be removed in the same way that a regular database can. This is due to the fact that a single blockchain is replicated among hundreds of different

users, each of whom runs a node, each of which contains an identical copy of the blockchain's entire history.

Cryptocurrencies

Cryptocurrencies are digital currencies that can be exchanged online as a payment for goods and services. It is a new kind of private digital currency or digital money, which can be used to pay someone using the Internet. It is radically different from the traditional currency to which we are accustomed. Cryptocurrencies are frequently managed through governance protocols, in which stakeholders vote on proposals for future token-related decisions.

Cryptocurrencies differ from traditional digital payment methods in a variety of ways:

- **Permissionless:** Anyone in the world can access and transfer cryptocurrency directly without having to register on a financial platform. Users are not at risk of having their assets frozen or controlled by a third party.
- **Anonymity:** Governments regulate financial platforms, and as a result, personal data is required to use their services. Cryptocurrencies enable the transfer of ownership without the need for proof of identity.
- **Volatility:** Market value can vary wildly (except stablecoins) based on expectations for the project or blockchain tech as a whole.

It is difficult to predict when Web 3.0 will be fully implemented; but given that it took over ten years to transition from the original Web, Web 1.0 to Web 2.0, it is expected to take at least that long, if not longer, to fully implement and reshape the Web with Web 3.0.



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Sky Map FOR MAY 2022

Vipin Singh Rawat

The sky map is prepared as per the coordinates of Nagpur (21.09°N, 79.09°E). It includes constellations and the brighter stars. For viewers south of Nagpur, constellations of the southern sky will appear higher up in the sky, and those of the northern sky will appear nearer the northern horizon. Similarly, for viewers north of Nagpur, constellations of northern sky will appear higher up in the sky, and those of the southern sky will appear nearer the southern horizon.

THE MAP CAN BE USED AT 10 PM ON 1ST MAY, AT 9 PM ON 15TH MAY AND AT 8 PM ON 31ST MAY.



Astronomical Events of

MAY 2022

MAY 6, 7

ETA AQUARIIDS METEOR SHOWER.

The Eta Aquariids is an above-average shower, capable of producing up to 60 meteors per hour at its peak. Most of the activity is seen in the Southern Hemisphere. In the Northern Hemisphere, the rate can reach about 30 meteors per hour. It is produced by dust particles left behind by comet Halley, which has been observed since ancient times. The shower runs annually from April 19 to May 28. It peaks this year on the night of May 6 and the morning of May 7. The waxing crescent moon will set early in the evening, leaving dark skies for what should be an excellent show. The best viewing will be from a dark location after midnight. Meteors will radiate from the constellation Aquarius but can appear anywhere in the sky.

MAY 16

TOTAL LUNAR ECLIPSE

A total lunar eclipse occurs when the Moon passes completely through the Earth's dark shadow or umbra. During this type of eclipse, the Moon will gradually get darker and then take on a rusty or blood-red color. The eclipse will be visible throughout North America, Greenland, the Atlantic Ocean, and parts of western Europe and western Africa.

(Not visible from India)

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My encounter with Zebrafish

Zaid Ashraf



fter spending my time with art pieces during my last summer break at the National Gallery of Modern Art, New Delhi, my father had an exciting plan for this summer - to introduce me to the world of genetics. He took me to the CSIR-Institute of Genomics and Integrated Biology (CSIR-IGIB), New Delhi.

I was sweating not only due to the summer heat but nervousness as my father drove us to the centre. However, the serene and green campus of the institute had a calming effect on me and I started closely observing the decorations, sculptures, artefacts. We were escorted to the chamber of Dr Mitali Mukerji, a renowned scientist. She asked about my hobbies and my field of interests and so our interactions soon turned into a conversation with her telling me about various things like what are genomes, what is sequencing, and about her work areas. I spent the rest of the day interacting with students and scholars at the institute.

The next day, she took me to Dr Sridhar Sivasubbu's lab, with one of his students introducing me to the room full of fishes! Dr Sridhar was busy with some intense research work and directed me to the other corner of the lab containing beautiful tanks with tiny fishes whirling around. The research scholar working in his lab patiently explained me that zebrafish has some major organs and tissues like us. Their muscle, blood, kidney and eyes share many features same as the human. Interestingly, they have the unique ability to repair heart muscles. Scientists are working to find out the factors involved in this



An adult female zebrafish (Danio rerio) Source: <https://en.wikipedia.org/wiki/Zebrafish>

process to see if this will help them to develop ways of repairing the heart in humans. Dr Sridhar's group is involved in understanding the mechanisms underlying cardiovascular diseases.

Zebrafish is a type of tropical fresh-water fish. In India they are found in rivers and ponds; however, they are now often seen in pet shops. The name comes from the horizontal blue stripes on each side of their bodies. Upon enquiring what they eat, I got to know that they consume a wide variety of animal and plant matter, insects, spores, fish scales, sand, and mud. They have many characteristics that make it a valuable model for studying human genetics and diseases.

At the lab adjacent to this was carrying out some research on various stages of embryo development. Under a microscope, I observed how the number of cells increased rapidly over time. Using a pipette, the research scholar had taken a newly fertilised egg from the laborato-

ry fridge and placed it on a thin circular plastic slide which contained water with the essential amount of ingredients for it to grow. Initially, a single cell with a yolk-like substance was sticking out. Within few seconds, the number of cells increased to two and in the next minute, they were increased to four cells. On returning to the lab after a thirty-minute break, I found the number of cells in the embryo were about four thousand. Shortly after this, the eyes and a few organs became quite visible and the embryo now was wiggling and moving in sync with its heart beat. After about 2 days of us leaving the fish to develop on its own, it was now the size of a bottle cap and was transferred to the fish tank in a small separate container for it to adapt to the environment it was going to be placed. Soon, it was placed in one of the big tanks where the rest of the zebrafish were being nurtured and fed. The lab was well organised and kept track of every single move-



ment of the fish. Maintaining lab was extremely difficult as there was continuous transfer of fish into the tanks and their previous batches that were already stained were washed thoroughly. There was a particular temperature which had to be maintained in the entire space

which was a little warmer than regular room temperature. There were different sections of the tanks which were compartmented on the basis of the type of research and the age of the fishes. Each tank was connected to a huge system of pipes which brought in fresh water

and oxygen for the fish. When it was the time to feed them, very small sized shrimp eggs, which were grown separately, were put in a water bottle with a tube attached to it. On squeezing, the bottle poured out the food in the water.

The lab also had several scientific equipment including different types of microscopes, huge fridges, computer systems, nitrogen gas tanks, ultraviolet light ejectors and a lot of other items. During my time there, I was made to count the number of heartbeats of the fish in a minute and sort the eggs in different containers. I also learned how to use a microscope by fixing the lighting and the different dimensions of zooming. I had a very fun experience during my stay at the facilities and I learnt a great deal of things.

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ओजोन पवत

ओजोन पवत है मणेश्वार
वो देती जुरक्षा का आधार
पृथ्वी से 15-20 किमी की ऊँचाई पव
रहती वो पृथ्वी को धेवकव
यह पृथ्वी को उच्च ऊर्जा वाली
पराबैंगनी किरणों से बचती बचाकव
जीवन रक्षा करती छमारी
जीवन अंजोकन ये देती जीवन दायनी ये कठलाती
इतिहास के पठ्ठों में आओ देवे झांकन
1987 में पछली बाब अंटार्कटिका में
इस पवत को पाया, गिरते देवकव
इसके छिक्र बनने में रहती

क्लोबोफ्लोरो कार्बन की भूमिका तत्पर
ओजोन जब आता वातावरण में
देता यह छमे प्रदूषण अक्षर
1840 में शानबाइग ने इस नयी गैस
को दिया नाम ओजोन
यूनानी शब्द ओजो जे आया यह नाम
जिसका मतलब “मैं जूधता हूं”
अर्थ ले अब जब जान
आओ बचायें ओजोन पवत मिलकन
न करें उत्तर्जन गैसों का
जो करें ओजोन को कमतर।
-- अचिन झी नवदिया
वैज्ञानिक डी विज्ञान प्रभान, नई दिल्ली

Tamil Nadu – An overview

Kannabiran

Introduction

ITAMIL NADU, bordered by Puducherry, Kerala, Karnataka and Andhra Pradesh is one of the most urbanised states of India. It is home to several natural resources, rare flora and fauna, picturesque hill stations, grand temples of Dravidian architecture, beach destinations and multi-religious pilgrimage sites. It is a land of many educational and research institutions.

Climate of Tamil Nadu

Predominantly, four seasons can be experienced in Tamil Nadu. They are winter, summer, southwest monsoon, and northeast monsoon. Located in the southern coast of India and close to the equator. Tamil Nadu sees high temperatures throughout the year due to the vertical rays of the sun. Though Tamil Nadu is located in the tropical climate zone, the eastern coast enjoys a tropical sea climate. Both

the Indian Ocean and Bay of Bengal have an impact on its coastal climate. Tamil Nadu experiences temperatures ranging from 18° C to 43° C with an average yearly rainfall of 958.5 mm.

The eastern coast is dominated by tropical seas, while the western part of the state is mountainous. This climate prevails in the Nilgiris, Anai Hills and Kodaikanal Hills. Dense forests and high altitudes give the region a pleasant cool climate. The central parts of the state have low altitudes and experience high temperatures and dry climates.

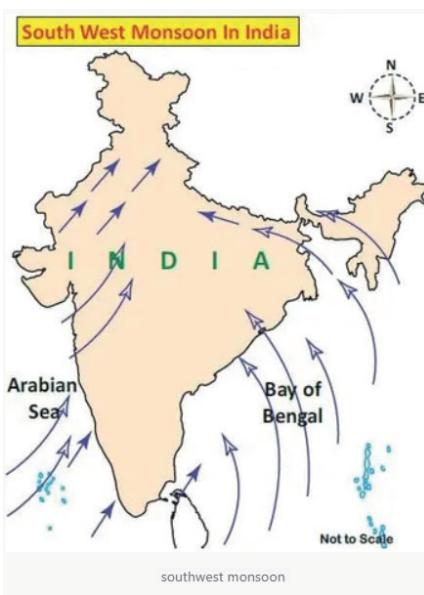
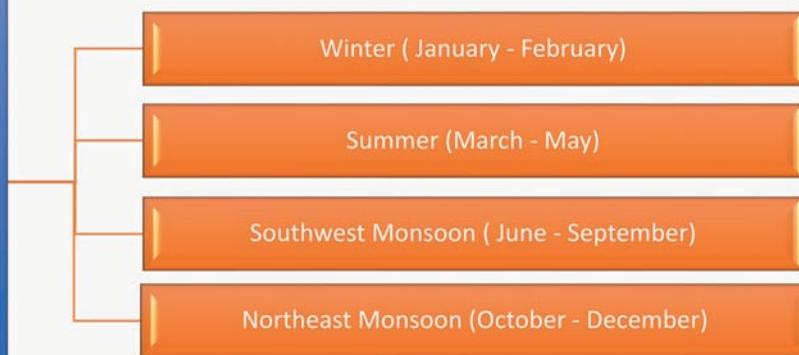
Chinnakallar near Valparai is the wettest place in Tamil Nadu and the third wettest place in India.

Soils of Tamil Nadu

Soil is one of the most important natural resources of Tamil Nadu. We



Seasons of Tamil Nadu



find different types of soil in different parts of the state. These are used for growing a variety of crops. Types of soil are based on their physiography such as a hill, plateaus, coastal lines, rivers, etc. Also, the soil of a place depends on the factors like climate, parent rocks, and vegetative cover of the respective places. The soils in Tamil Nadu are broadly classified into five types

according to their characteristics. They are 1. alluvial soil; 2. black soil; 3. red soil; 4. laterite soil; and 5. saline soil.

Vegetation

Natural vegetation refers to the forest cover. Landforms, nature of soil, temperature, and rainfall are the major factors that control the distribution of natural vegetation. As per National Forest Policy, 1988, a minimum of one-third of the total geographical area must be under forest cover. The total forest cover of Tamil Nadu is far lower than this. According to the Tamil Nadu State of Forest Report – 2017 assessment, the area under forest in the state is 26,281 sq. km, which constitutes 20.21% of the total area. Tamil Nadu constitutes 2.99% of India's forest cover. The forest types in the state varies from wet evergreen to scrub forests.



Major Source of Economy

For Tamil Nadu, agriculture is the mainstay of life for about half of the working population. Agricultural practices have shown radical improvement since the mid-20th century through multiple cropping, use of stronger and more productive strains of staple crops, and the application of chemical fertilizers. Since the late 1960s the state has been self-sufficient in the production of food grains. The principal crops for domestic consumption are rice, millet, and other cereals,



as well as peanuts (groundnuts) and pulses (such as chickpeas); sugar-cane, cotton, cashews, and chilies are important cash crops. Many farmers in Tamil Nadu also raise livestock, primarily cows (especially for the dairy industry), poultry, goats, and sheep.

Tamil Nadu is one of India's top fish producers, with most of the yield coming from marine operations; although there are many inland fisheries. In addition, the state has an active forestry sector, with pulpwood, babul (a type of acacia that yields valuable tannin), firewood, bamboo, and teak among the primary products. Rubber, grown largely in plantations, is important as well.

Sciences University, both in Chennai; Annamalai University in Chidambaram; Tamil Nadu Agricultural University in Coimbatore; and Madurai Kamaraj University in Madurai. The Dakshina Bharat Hindi Prachar Sabha in Chennai and the Gandhigram Rural University in Gandhigram in southwest-central Tamil Nadu are the two institutes of national importance that are engaged in popularizing the Hindi and Mahatma Gandhi's concept of rural higher education, respectively. Tamil University near Thanjavur (Tanjore), in the eastern part of the state, focuses on the study of Tamil language, literature, and culture.

Research Institutes

Tamil Nadu is one of the important states of research Institute. The major institutes are CSIR - CECRI, Karaikudi, which has one of the largest electrochemical laboratories in the world, carrying out R&D work in the area of electrochemical Science and Technology. Three extension centres of CECRI are functioning at Chennai, Mandapam, and Tuticorin. The Kodaikanal Solar Observatory runs under IIA – Indian Institute of Astrophysics. It was established in the year 1895 was and it is the

Educational Institution

Tamil Nadu is one of the most literate states in India. Tens of thousands of public and private, primary, middle, and high schools are scattered across the state. In addition, there are numerous arts and science colleges, medical colleges, engineering colleges, polytechnic institutes, and industrial training institutes. Among the most prominent of Tamil Nadu's universities are the University of Madras and Tamil Nadu Veterinary and Animal

oldest research institute in India. Salim Ali Centre for Ornithology and Natural History (SACON), Anaikatti, Coimbatore is an autonomous organisation established in 1990. National Research Centre for Banana, Tiruchirappalli is also an important institute. Kavalur Observatory is located in Kavalur in the Javadu Hills in Alangayam. Tamil Nadu Science and Technology Centre, Chennai, has the aim to design, develop, and fabricate Science and Technology exhibits, prototype demonstration equipment, and scientific teaching aids

for furtherance of science education. Two planetariums are run under this at Chennai and Trichy. Apart from these, there are lot of research institute in Tamil Nadu like the Indian Institute of Food Processing Technology, Thanjavur; ISRO Propulsion Complex, Mahendragiri, Tirunelveli; Dr. A.P.J Abdul Kalam Research Centre, Coimbatore.

Historical Sites

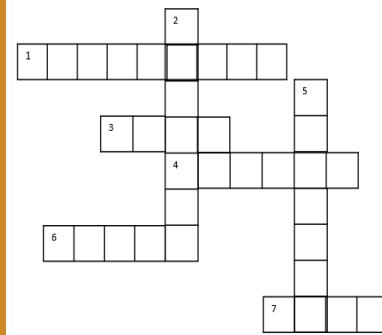
The 7th- and 8th-century structures at Mamallapuram are famous for their intricately carved temples and rock-cut



caves. The best time to visit is during November to February. Madurai, the cultural capital of Tamil Nadu, is one of the oldest continuously inhabited cities of India. It is known for Meenakshi Amman Temple, Thirumalai Nayakar Mahal and Vaigai Dam. Thiruvannamalai is a town that offers a significant historical place in Tamil Nadu is adorned in its countless temples and ashrams. It is famous for its stunning architecture. Kumbakonam, 'The Cambridge of India' is known for Adi Kumbeshwara Temple. The next important site is Kanyakumari located at the southernmost tip of the Indian peninsula. Famous for being the only place in India where you can observe

the sunrise and sunset at the same beach, Kanyakumari is a very popular historical place in Tamil Nadu. Tanjore, also known as Thanjavur, has a lot of cultural value and is known for its famous Tanjore paintings, antiques, and handicrafts, textiles and saris, its Carnatic music, musical instruments and the temples. Thanjavur is a rich historical place in Tamil Nadu and holds a very important position in the moulding of ancient as well as modern south Indian civilization.

Solve the given Puzzle



Across

1. Salim Ali Research Centre is in _____.
3. Southwest monsoon in Tamil Nadu starts from the month of _____.
4. Example of plantation crop
6. Largest Electrochemical Laboratory
7. The soil of Tamil Nadu is broadly classified into _____ types.

Down

2. Meenakshi Amman Temple is in _____.
5. The Dakshina Bharat Hindi Prachar Shabha is in _____.

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Cyber Security Awareness Workshop

To prevent Cyber Frauds, SPARC - Scientific Program for Academic Research Science Club (VP-AP0046) organised an awareness workshop for the students on cyber security in coordination with Andhra Pradesh Police Department officials.



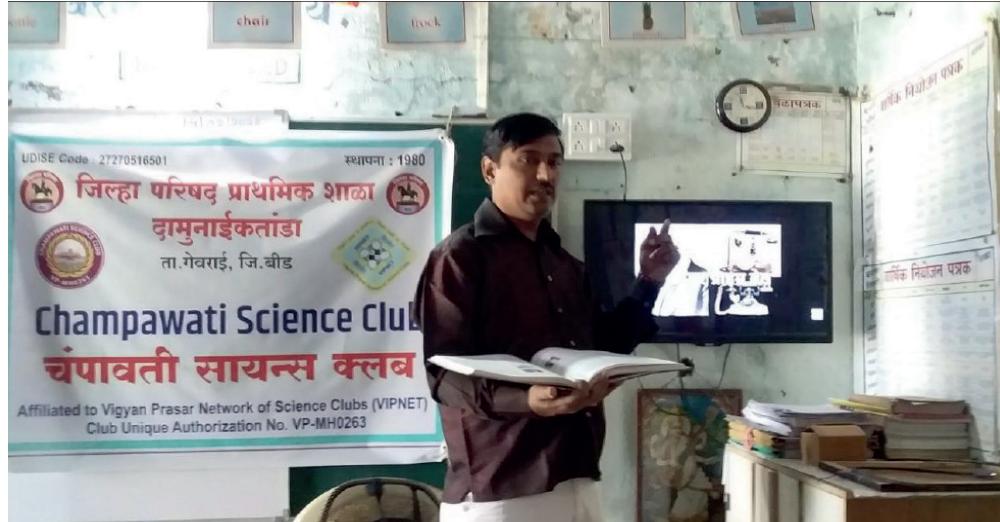
World Health Day Celebration

Nakshatra Science club (VP-DL201) celebrated World Health Day on 7 April in SDMC Primary School Pushp Vihar, New Delhi. The students were demonstrated about healthy and unhealthy food habits.



Graham Bell Birth Anniversary Celebration

Champawati Science Club (VP-MH0263) organised a seminar on Alexander Graham Bell Birth Anniversary on 3 March at Zila Parishad Primary School, Damu Naik Tanda, Beed. The students were briefed about his life journey and discovery of telephone.



World Sparrow Day

Kalpana Chawla Science Club, Segaoon (VP-MP0154) organised a discussion session on World Sparrow Day, 20 March at Govt. Girls Higher Secondary School Segaoon, Khargone. The students were encouraged to protect sparrows and other birds from extinction.



Science Exhibition

Ramanujan Science Club (VP-OD0227) organised a block-level Science, Mathematics & Environment Exhibition at MKHS, Bhawanipatna



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