

ACTREC campus









Nature at ACTREC









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Message from the Director, Tata Memorial Centre



It gives me immense pleasure to see that ACTREC is bringing out a house magazine 'Antarang' to showcase the 'talents' of its staff and student community. I recognize the fact that the building blocks of this Centre - that is putting in great efforts towards providing quality patient care, carrying out cutting edge research and taking ahead its educational endeavors – are its people who are working quietly, behind the scenes. This skilled pool of humans provides the Centre its good, conscientious employees and brilliant students, and their excellence in other fields has been provided a showcase through this magazine. Flipping through these pages, I have seen and appreciated their creativity. I am glad to see that patients too have been represented in this magazine. I wish this magazine success.

With warm wishes...

RASale

Dr. Rajendra Badwe

Message from the Director, ACTREC



I am pleased to launch the inaugural issue of the ACTREC magazine 'ACTREC Antarang'. The title reflects the ethos of the Magazine. It harnesses the creative energies of our staff, students and patients, and showcases their imagination and talent in the most brilliant way possible. It also provides a platform to bring together all the members of the ACTREC family. In the future, the magazine will also help revitalize our relationship with our Alumni, and encourage them to share their experiences.

'**ACTREC Antarang**' is the outcome of the hard work of the Editorial team, and the contributions of our staff, students and patients who have responded so enthusiastically to our call for submissions. I take this opportunity to congratulate the Editorial Team for bringing out this magazine, and hope that the tradition set by the present team will continue in the years to come.

My Best Wishes to 'ACTREC Antarang'!

& Chiplunkase

Dr. Shubhada Chiplunkar



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Disclaimer

The Editors would like to place on record that the contributions by the authors in the form of articles and poems published in this Magazine are their own, and do not in any way reflect the viewpoint of ACTREC, TMC.

Editorial

Dear Readers,

With immense joy and pleasure, we introduce our FIRST magazine '*Antarang*' to the entire ACTREC community. The word '*Antarang*' reverberates the ethos of '*soul searching*' that exhumes creativity from the routine day-to-day scientific activities.

The success of this issue lies in the whole-hearted participation from staff, their children, students as well as patients and their families. This issue includes articles, poems, anecdotes, art-works, travelogues, and cartoons in three languages - Hindi, English and Marathi. The overwhelming participation reflects the great intensity of positive and creative energy of all who have contributed to this inaugural issue of the ACTREC magazine.

We thank the Director, ACTREC, for her unending support and enthusiasm, the Editorial Board Members for their sincere efforts, and all the contributors for their active participation. We hope you will enjoy joining us in this journey full of creative surprises as much as we have enjoyed compiling it.

Happy reading!

Dr. Aparna Bagwe

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Dr. Kakoli Bose

माता-पिता

ध्यान रखते। जब बात आती स्कूल में उसके एडमिशन की तो मानो कोई अंग्रेजी स्कूल न छोड़ते जहाँ का फार्म न भरा हो। जब स्कूल की फीस होती उनकी पहुंच से ज्यादा तो समझौता न करते स्कूल से, बल्कि अपने खर्चों को कम करने का भरोसा ख़ुद को देते, जैसे अब पिता अपने आप से यह कहता है, की अब में ऑफिस बस से नही पैदल जाया करुंगा। वैसे भी पैदल चलना चाहिए और फिर मैं तो सुबह जल्दी उठ जाता हूँ। एक घंटे मे तो पहुंच जाऊँगा कौन सा दूर है मेरा ऑफिस, जितना हो सकेगा ओवरटाईम करुंगा, जिससे स्कूल फीस की व्यवस्था हो जाएगी। पिता ने इतना सब सोच लिया तो माँ कहा पीछे रहने वाली थी। उसने भी अपने आप यह रास्ता निकाला की मुझे तो सिलाई आती है, घर मे जितना समय मिलेगा पड़ोसियों के कपड़े सिलकर कुछ पैसे मिल जाएंगे। काम वाली बाई भी हटा दूंगी मैं खुद ही घर के सारे काम कर लूंगी। इस तरह दोनो ने बच्चे की स्कूल फीस की व्यवस्था के लिए संघर्ष का रास्ता चुना पर बच्चे के स्कूल के साथ कोई भी समझौता नही किया।

बच्चे की हर मांग एवं ख़्वाहिश को पूरा करते उसके हर नखरे उठाते। उसके मुँह से जो भी निकला बस उसे पूरा करने में लगे रहते दोनों के दोनों। जैसे उनकी अपनी तो कोई ख़्वाहिश ही न रह गयी हो। बच्चे के स्कूल के बाद कॉलेज के लिए भी वही उठा-पटक, उसके बाद बच्चे की नौकरी के लिए अथक परिश्रम, बाद में उसकी शादी के लिए भाग-दौड़। तन से, मन से, एवं धन से इन्ही संघर्षो में अपनी पूरी जिंदगी निकाल देते है, माता-पिता और उफ़ भी न करते। हँस्ते-हँस्ते अपने सभी कर्त्तव्यों का निर्वाहण करते जैसे यही उनकी जिंदगी है। अपने लिए तो जैसे वह जिंदगी से कुछ चाहते ही नहीं हैं।

माता-पिता को ऐसे ही नहीं त्याग और बलिदान की मूर्ति कहा जाता हैं। उनका अपने बच्चों के लिए प्यार एवं स्नेह कभी न समाप्त होने वाला सागर हैं। अपने बच्चों के लिए इतना सब कुछ करने के बाद भी वह भविष्य के लिए उनसे जरा सी भी उम्मीद नहीं रखते। वह तो बस हर हाल में उन्हें खुश और फलते-फूलते देखना चाहते हैं। उसके भले का ही सोचते, कभी न उससे कुछ चाहते-मांगते।

उनके आशीर्वाद में इतनी शक्ति होती हैं, की वह बच्चों को हर मुसीबतों और तकलीफो से दूर रखती हैं। उनके आशीर्वाद से बच्चों के सभी बिगड़े काम बन जाते हैं। उनसे बढ़कर इस जीवन में कुछ नहीं होता। अगर माता-पिता हमारे साथ हैं, तो जीवन में हमारे पास किसी भी चीज़ की कभी कमी नहीं हो सकती। माता-पिता से ही तो इस जीवन का सार हैं क्योंकि माता-पिता ही तो हमारे जीवन का आधार हैं। वह क्या होते हैं, यह उनसे पूछे जिनके पास वो नहीं होते। इसलिए जिनके पास वो हैं, उन्हें उनकी क़द्र करनी चाहिए। उन्हें हमेशा उचित आदर एवं सम्मान देना चाहिए, बहुत भाग्यशाली एवं खुशनसीब हैं वो, जिनके जिनके पास माता-पिता होते हैं।

परम आदरणीय माता-पिता को मेरा कोटि-कोटि चरण वंदन ।।

नवीन कुमार खरे वैज्ञानिक अधिकारी 'सी'

माता-पिता इस ब्रह्मांड की सबसे उत्तम कृती है । आज हम जो कुछ भी है, उनके वजह से ही है, अगर वो न होते तो हम भी न होते । माता-पिता के बारे में जितना भी कहे या लिखे उतना कम ही होगा । हमारे जीवन में माता-पिता का सर्वाधिक योगदान होता है । आज हम जीवन में जो कुछ भी बन पाए है एवं जो कुछ भी कर रहे है । वह केवल माता -पिता के द्वारा की गयी तपस्या का ही परिणाम है । तपस्या शब्द का प्रयोग मैंने इसलिए किया है, क्योंकी मुझे ऐसा लगता है कि माता-पिता का जीवन एक तपस्या की तरह ही होता है । वह अपने बच्चों को निःस्वार्थ भाव से प्यार एवं स्नेह देते है । वैसा निश्छल प्रेम आज के इस युग में अन्य किसी रिश्ते में मिल पाना अत्यंत दुर्लभ है ।

बच्चे के जन्म से पूर्व ही उसके लिए अनगिनत स्वप्न देखते है। बेसब्री से उसके जन्म की प्रतिक्षा करते एवं हर समय बस अपने आने वाले बच्चे की ही बातें करते। बच्चे के जन्म से पहले तो उनका यही हाल होता है, और जन्म के बाद तो ऐसा लगता है, मानो माता-पिता को जैसे नया जीवन मिल गया हो। जीवन जीने की वजह वह अपने बच्चे में ढूंढ लेते है और अपने लिए जीना छोड़कर केवल और केवल बच्चे के लिए ही जीते हैं।

बच्चे की परवरिश ही अब उनके जीवन की सर्वोच्च प्राथमिकता होती है, उसकी हर छोटी से छोटी जरुरतों के लिए ही मानो वह अब जी रहे है। अब तो दिन-रात बस उन दोनों के जीवन का एकमात्र यही उद्देश्य रह जाता है। अपने बारें मे तो वह जैसे सोचना ही छोड़ देते है। बच्चे की मुस्कुराहट में उन्हें जीवन की सारी ख़ुशियाँ मिल जाती है। जब वह पहली बार करवट लेता है, खड़ा होता है, बोलता है, चलता है, मम्मी-पापा कहता है, वही उनके जीवन के सबसे ख़ुशनुमा पल बन जाते है। उन्हें ऐसा लगता हैं की जीवन में उन्हें सब कुछ मिल गया और अब उन्हे इस जीवन से कुछ और चाह न रही।

कभी बच्चे को कोई चोट लग जाए तो फिर दोनों ही घबरा जाते। माता तो सदैव से ममतामयी होती है। बच्चे का तो जरा सा भी कष्ट उससे देखा न जाता, उसकी आँखो से अश्रुधारा निकल पड़ती। पिता भी अपने बच्चे को लेकर वैसे ही भावना अपने अंदर रखते है पर माँ की तरह शायद दिखा न पाते। पिता कितना भी थका हुआ काम से शाम को घर वापस आये, बच्चे की एक मुस्कान देखकर के मानो तरो-ताजा हो जाता, फिर खुद बच्चा बनकर उसके साथ खेलने लगता। कभी जो बीमार हो जाए बच्चा तो माता-पिता सब कुछ छोड़कर उसकी देखभाल में लग जाते, अस्पतालों और डॉक्टरों के चक्कर लगाते, ऊपर वाले से दुआ मांगते की बस कैसे भी उनका बच्चा ठीक हो जाए।

अपनी हैसियत से बढ़कर के उसके लिए वो सब कुछ करते, चाहे बात उसके खाने की , कपड़ो की , खिलौने की, उसकी हर ज़रुरतों का

नारी की अपेक्षा

नदिया सी लहराती, हंसती, चहचहाती, गर प्यार और सम्मान मिल जाय, तो सागर में मिलकर भी, खुद को भूलकर भी, अपने अस्तित्व को बचाकर, जीवन की पूर्ति कर जाय।। क्या है नारी की अपेक्षा?

बस थोड़ा प्रेम, सम्मान और अधिकार की आशा है, नारी को समझो तो बस यह सिर्फ प्रेम की भाषा है ।। सृष्टि की जननी है नारी, प्रेम और करुणा है नारी, शक्ति का मतलब है नारी, त्याग का नाम है नारी, कर्तव्य की उपमा है नारी, समर्पण की भावना है नारी, नारी है माँ, नारी है बहन, नारी है बेटी, नारी अन्नपूर्णा है, मूरत ममता की है, अगाध क्षमता की है, सहनशीलता का नाम है नारी, फिर भी क्यों ? नारी है ताडन की अधिकारी ।। क्या है नारी की अपेक्षा ?

बस थोड़ा प्रेम, सम्मान और अधिकार की आशा है, नारी को समझो तो बस यह सिर्फ प्रेम की भाषा है ।। नहीं है तू अकेली, साथी खुद अपनी, क्यों किसी मजबूत कंधे की जरुरत पड़े, जब अटल बल तेरे भीतर भरे, खोल इस घुटन भरे किवाड़ को, निकल बाहर, तोड़ हर दीवार को, अब मत सिमट और घबरा, जीवन जो मिला है, उसे अमूल्य उपहार बना, क्योंकि अबला नहीं सबला है तू, सदैव अगम्य साहस का प्रतीक है तू ।। फिर भी, क्या है नारी की अपेक्षा?

बस थोड़ा प्रेम, सम्मान और अधिकार की आशा है, नारी को समझो तो बस यह सिर्फ प्रेम की भाषा है ।। नारी है तू, नहीं हारी है तू, न हारेगी, इतिहास में ही नहीं, वर्तमान में देख, कहा नहीं है तू ? देश की राष्ट्रपति, तो देश की प्रधानमंत्री बनीं, एड्वोकेट, तो पायलट भी, उद्योगपति है तू, बनी डॉक्टर भी, विज्ञान, कला, साहित्य या हो भक्ति, ख्याति है पायी हर जगह बनके महाशक्ति, लक्ष्मी है तू, सरस्वती भी, दुर्गा का रूप, तो कभी काली भी, निडर, साहसी करुणा और हिम्मतवाली भी ।। फिर भी, क्या है नारी की अपेक्षा?

बस थोड़ा प्रेम, सम्मान और अधिकार की आशा है, नारी को समझो तो बस यह सिर्फ प्रेम की भाषा है ।। फिर एक प्रश्न मन में उठता है, क्यों होती है नारी की समाज में उपेक्षा ? कौन करेगा नारी का सम्मान ? क्या सिर्फ पुरुषो से है अपेक्षा ?

गर सास माँ बनकर बहु को करे प्यार, गर ननंद बहन बनकर भाभी का करे दुलार, गर माँ अपने बेटे को बताये, नारी का महत्व और अधिकार, गर एक नारी करे दूसरी नारी का सम्मान, तो क्या हो इस समाज में नारी का अपमान ।। इसलिए, क्या है नारी की अपेक्षा?

> बस थोड़ा प्रेम, सम्मान और अधिकार की आशा है, नारी को समझो तो बस यह सिर्फ प्रेम की भाषा है ।।

> > **डॉ. कविता पाल** वैज्ञानिक अधिकारी 'डी'

जीवन क्या है

समझ सको तो बहुत आंसा है, नवजात भी इसे समझ सका है ।। अपनी जननी की गोद में, होता उसे इस जीवन का एहसास ।। अपनी माँ पर कर विश्वास, लेता वह जीवन की पहली स्वांस ।। गोद में माँ की सोता ऐसे, जैसे मिल गया हो उसे सारा संसार ।। अपनी जननी को देख कर, चेहरे पे आती उसके मुस्कान ।। वो नन्हा अबोध अपनी माँ में ही, देखता अपना सारा संसार ।। न कुछ जान सका न समझ सका, बस ममता को पहचान सका ।। जब तक माँ ही उसका जीवन था, तब तक जीवन में सब कुछ उत्तम था ।। जब सोचा में हो गया बड़ा तो जाना, जीवन कितना मुश्किल है ।। फिर सोचा उसने जीवन क्या है, चलो में भी समझूँ इस जीवन को ।। सोचकर के वह चल निकला, जीवन को समझने की राह पर ।। पर ना था उसे अंदाजा इस बात का, की जीवन की राह इतनी मुश्किल होंगी ।। जब वह यह समझता की मैंने, अब जान लिया इस जीवन को ।। तभी यह जीवन खडा हो जाता, एक नया प्रश्न लेके उसके सामने ।। जिसका उत्तर उसे न सूझता, और फिर वो लगता खुद से जूझने ।। अब वह यह जान गया था को राह नहीं, आंसा उसकी मंजिल की ।। हुआ उसे अब यह एहसास नहीं है, इतना भी आसान समझना जीवन को ।। अब वह समझे बिना जाने इस जीवन को, नहीं है जीने का कोई महत्व ।। अब वह खुद से ही यह जान गया, जीवन को समझना है अत्यंत आवश्यक ।। क्योंकि अगर नहीं समझे तो जीवन, निकलेगा फिर हाथ से भी फिसलेगा ।। हम ढूढते़ रहेंगे जीवन भर, पर जीवन क्या है हमे नहीं मिलेगा ।। पढऩे- सुनने से मिलता अगर यह ज्ञान, तो हो जाते इस संसार में सभी महान ।। सभी को लगे अच्छा दिन का साथ, कोई न चाहे अंधियारी रात का साथ ।। जैसे हमारे जीवन में दिन के बाद रात है, वैसे ही सुख दुःख का भी साथ है ।। झूला रुपी जीवन होता कभी आगे कभी पीछे, जीवन की यही गति है ।। झुले में ही छिपा जीवन का सार है, होकर आगे पीछे देता जीवन का ज्ञान है ।। झुले की तरह आगे पीछे जीवन में, सुख और दु:ख को आना जाना है ।। जीवन तो बस जीवन है, हम सबको चलना पडेगा इसके साथ 🕕 जीवन जीना तो है उसी को आया. जिसने सबको है अपना बनाया ।। सच्चे जीवन का यही मूल मंत्र है, समझ सको तो यही जीवन है ।। ख़ुशी प्यार का हो जंहा बसेरा, वही होता है सच्चे जीवन का सवेरा ।। जीवन से हमने इतना कुछ पाया, फिर देने में क्यों हाथ सकुचाया ।। देने से नहीं भंडार है थकता, उल्टा सबका प्यार है मिलता ।। दूसरो के कष्टों का निवारण हो, इस जीवन का एक मात्र उदेश्य ।। जितना हो सके करे मदद सबकी, बडे भाग्य जो मानव तन पाया ।। प्यार ख़ुशी बाटे हम सबको, यही, हो जीवन का लक्ष्य हमेशा ।। समझ गए तो जीवन जीवन है, नहीं तो पूरा व्यर्थ हो जावे ।।

यही जीवन है, यही सत्य है, यही जीवन है, यही सत्य है ।।

नवीन कुमार खरे

वैज्ञानिक अधिकारी 'सी'

हिंदी की लाज बचा ओ

हिंदी हिंदुस्तान वतन है हमारा, लगता हमें चे सारी दुनिया से प्यारा।।

हिंदी है सारे जन-मानस की भाषा, अपनालो इसे ये है सबके मन की आशा ।।

हिंदी का जज्बा बढ़ाओं मेरे देश में, पहचान हिंदी की बताओं परदेस में।।

हिंदी की लाज बचाओं हिंद के वास्ते, रोशन करो सभी अंधेरो के रास्ते।।

करतब कुछ दिखाओं इस जहाँ को, प्रगती की ओर बढ़ाओ मेरे देश को।।

भेद-भाव मिटाकर प्रेम की अलख जगाओ मेरे देश में, उन्नत भारत बनाकर, खुशी के दीप जलाओ मेरे देश में, जात-पात-सम्प्रदाय से करो तुम किनारा, एक राष्ट्र एक भाषा (हिंदी) से फैलाओं भाईचारा।।

> सिर पर अपने ना चढ़ाओ आतंक को, मान अपना घटाओ ना मेरे देश में।

हिंदी हिंदुस्तान वतन है हमारा, लगता हमें चे सारी दुनिया से प्यारा।। जय हिंद - जय नागरी

> **युगराज मीना** पर्यवेक्षक (विद्युत)

संघर्ष

तू चलता रह जिंदगी का नाम है चलना । चूँही हताश होके तुम कभी न रुकना।

उतार - चढाव तो सफर में आते ही है । धूप से न डर छाँव के मौके मिल ही जाते है।

जीवन की लडाई में न हार मान तू। लड़खड़ाते हुए ही जूझना है चह मत भूल तू।

माचूस होकर ज समझ कि तू अकेला है। पलक उठाकर देख जरा मदद का हाथ बढा है।

त छोड़ तू आशा आचेगा तचा सबेरा । तची किरणोंसे अपते आप ही हो जायेगा उजियारा।

> **भाग्यश्री टिल्लू** चिकित्सा सामाजिक कार्यकर्ता

कुछ कर गुजर ने की ज़िह

सशक्त बना हूँ अब, जिस्म मे नई ऊर्जा सी दौड़ रही हैं, क्य़ोकि खोई हुई वह प्रेरणा की मूरत मुझे आज फिर से मिली हैं।

मंजिल का तो हैं पता अब राह सिर्फ नई हैं, कुछ कर गुजरने की ज़िद्द अब सर पर चढ़ी है, बस अब कुछ कर गुजरने की ज़िद्द अब सर पर चढ़ी है।

> राहुल मोजिद्रा वरिष्ठ अनुसंधान अध्येता

जोश मिला है नया एक उम्मीद सी जगी है,

- खुदको साबित करने की घड़ी अब आ चुकी हैं,
- कुछ कर गुजर ते की ज़िह अब सर पर चढ़ी है।

सहम गया था मैं वक़्त से मार जो पड़ी है, पर संभल चुका हुं अब, और जिंदगी सामने खड़ी है।

सपनो को पाने के लिए कोशिश तो हमेशा की है, पर शायद मेरी मेहनत में कमी रह गई है।

मत बांधो जंजीरो में...

उसूलों की चह बेड़ीचाँ ही मुझे बाँधी है इस बरखा में मंगल-गीत गाने से मन मचलता है, दिल बहकता। साँसे महकती है पर फिर भी चह जंजीरें नही टूटती ।

मेरे मन में उमड़ता हिलोर, अब चींख-चींख कर कहता है-कि अब आए कोई फ़रिश्ता और, आजादी से मेरी रग-रग वाक़िफ़ हो । पर क्या करें ... कोई समझता ही नही ... नहीं चाहिए इस महल का सोना - श्रृंगार, चाहिए तो बस बरसात की बूंदो मे नहाना ... नही चाहिए सुशीलता की यह हथकड़ी चाहिए तो बस बारिश का उमड़ता सैलाब। नही चाहिए इतर की यह खुशबू, चाहिए तो बस सुलगती हुई वह सौंधी हवा।

खिड़की से उन नटखट बच्चो की अठखेलियाँ देख, मन हो उठता है बेचैन सा, कुछ होती है महसूस जलन सी कि क्यों उपरवाले ने मुझे उनसा नही बनाया ? कि क्यों बनाया महल में कैद एक राजकुमारी.?

> सवालों के इन गुलदस्तों को समेटकर पोंछ लिए आँसूओं के झरने दर्द के दरवाजों कों बंद कर, कंबल लपेटे सोना चाहा मैंने ... पर चह बदतमीज़ जागते ख़्वाब, खामोशी में भी कहते रहें, कि कल की बारीश, होगी तेरे नाम!!!

> > **कु. रोशनी बोस** सुपुत्री, डॉ. काकोली बोस

मेरी माँ



चे आहट भी तुम, चे हिलोर भी, मन की ज्वाला भी तुम, आँखो से बहते चह आँसू भी। तुम्ही मेरी सांस, तुम्ही हो हर धड़कन, तुम्ही मेरी दुनिया, तुम ही मेरा वजूद। तुम हो मेरी माँ।

तुम सिर्फ मेरी ढाल नही, तुम हो शमशीर मेरी तुम सिर्फ मेरी खुशी नही, हर जजब़ात हो मेरी तुम हो मेरी माँ।

> मुझ पर उठती हर नजर, तुम पर आ ठहरती है मुझ पर उठते सभी हाथ, तुमसे ही आ टकराती है। जब बात हो मेरी, तुम्हारे लिए हर हद बेहद हो जाती है तुम हो मेरी माँ।

> > सूरज की रोशनी भी तुम, चाँद का मेहताब भी तुम्ही हर सुकून हो... हर कशिश भी तुम, तुम ही मेरा आलम हो, और तुम ही मेरी जन्नत। तुम हो मेरी माँ।

The Importance of Basic Research

Dr. Sorab N. Dalal Scientific Officer 'G'

Having grown up in Mumbai, I have a lot of friends from this city whose careers have very little to do with basic research. When I go to their houses for parties, I am often introduced to their friends as a "Scientist" or sometimes as "the person who makes fluorescent green mice". When I tell people that I work at a Cancer Research Institute called ACTREC which is part of the Tata Memorial Centre, I am asked two distinct but similar questions. The first is "When are we going to have a cure for cancer" and the second is "Why don't you have a cure for cancer?" Both questions are very difficult to deal with, not the least because I probably don't have an answer for either one. This article, therefore, does not seek to provide an answer for these questions but to explain why despite the many advances we have made in biology, translating this knowledge into therapeutic strategies that help patients, is a challenging problem that faces scientists, clinicians and the pharmaceutical industry. I would also like to add that, while I am writing from the perspective of someone who addresses research problems that are relevant to cancer, the points that I will make today are applicable to all areas of human health and the biological sciences.

At first, I would like to talk about why basic research is important and how it drives translational research. Everyone I meet assumes that I am working towards developing a cure for "cancer". While the ultimate goal of the institute where I work and of people who study this problem is developing a cure, the research undertaken by me and most of my colleagues focuses on understanding the biology of the group of diseases that are collectively termed "Cancer". Cancer is a group of diseases which, while sharing some common characteristics, are very different in terms of tissue of origin, morbidity and clinical presentation. While certain risk factors associated with cancer have been well documented (tobacco use being a prominent example), the process of tumor development is still a bit of a black box and is not completely understood, for reasons I shall highlight below.

The reason why we have not been able to win the "war on cancer" is due to the fact that despite

learning much over the last few decades, we still have large gaps in our understanding of biological systems. While humanity has made great leaps in technology when it comes to computers, cell phones, and even imaging technologies currently used in clinics, our ability to translate our understanding of basic biology into cures of disease has been poor. The reason that biology has "seemingly" lagged behind the technology industries is not because of a lack of progress. The problem simply is that with other industries, the products you see today are built on the backs of simpler products e.g. you can trace the evolution of computers back to the first silicon chip. With biology there is no silicon chip, what we have to work on is a complex product that is the result of thousands of years of evolution (and is still evolving). What biologists have been attempting to do over the last century (the first era of modern biology) is to try and reduce this complexity to smaller easier to understand concepts and then try and attempt to combine these into a holistic model of how organisms work. This is a hugely complex and challenging problem, which is why understanding the biology underlying complex diseases like cancer is so challenging. Further, unless one understands the biology, it is very hard to design new ways of treating tumors that are different from the cytotoxic (cell killing) therapeutics that were first used (and are still used today) to treat cancer. The philosophy adopted by many of us is that even if what we discover does not lead to a cure in our lifetime, we hope to understand some aspect of the disease that will contribute to the greater picture. Hopefully, with time the contribution of us and many others will lead to the generation of a big picture that will eventually lead to novel therapeutic strategies for combating cancer progression.

While we have been able to translate our understanding of basic cellular processes to novel therapeutic strategies on occasion, the time between target identification and the development of the therapeutic molecule is often very long. For example, it was determined in 1972 that the white blood cells of patients suffering from chronic myeloid leukemia (CML) carried an aberrant chromosome known as the Philadelphia chromosome that was not present in normal individuals. It was discovered in 1984, that an

aberrant protein produced by this novel chromosome, the BCR-ABL protein, is responsible for disease progression. In 2002, a drug called imatinib that inhibits the function of this protein was released into the market after extensive trials and has greatly reduced the morbidity of patients suffering from CML and in a large number of cases the disease does not reappear. Another advantage of this therapy is that since it targeted a protein that is only present in tumor cells, minimal side effects were observed, unlike when patients were treated with conventional cytotoxic therapeutics. However, the time between the identification of a genetic event that lead to the generation of the disease and the time taken for a drug to hit the market was 30 years. THIRTY YEARS!!!! It is not my contention that every drug will take this long to develop, we know a lot more biology than we did in 1972. However, the time taken from identification of a target to progressing to a new drug that can enter a clinical trial is about 5 to 10 years because of the many processes that have to be completed before a clinical trial is initiated. These include preclinical trials in animal models to test efficacy and safety followed by clearance by a human ethics committee. These procedures are absolutely essential to ensure that the drug is safe and can be given to human beings without causing further harm. Therefore, the process of translation of basic research in biology to the development of a drug is a long and tedious process.

In conclusion, I would like to emphasize that while the progress towards the cure of cancer may seem sluggish it is not because of a lack of effort but because of the difficulty inherent in the process. The present scenario however allows us to be cautiously optimistic about the future. As described above, there are now quite a few examples where targeted therapies have been successful in the treatment of cancer including the advent of monoclonal antibody based therapeutics of which herceptin is an example. There have been significant improvements in the management of some types of cancer and there have been significant advantages in terms of early detection and refinement of current treatment protocols such as radiation therapy. We have learned much about the molecular alterations that are responsible for the conversion of a normal cell to a tumor cell and are learning more every day. However, the roadblock is always at the level of translating this basic biology into therapeutic interventions for reasons that have mostly to do with our lack of knowledge about how biological systems work and the development of novel chemical entities that target cellular processes. This problem has led to a call for more "translational" research at the expense of basic research. One reason for this is because biological/medical research in this country (and others) is largely funded by the tax-payers and research in biology is expensive. In an ideal world, both translational and basic research would be well funded and neither would suffer. However, the amount of money available for research is limited. Funding agencies that support biomedical research are answerable to the public and their political masters and hence there is a push towards funding more translational research, or science that would have an "impact" on health care at the expense of basic research. This would be a mistake in the opinion of this author. While translating our knowledge of biology into practical solutions that help mankind is extremely important, we must acknowledge that basic research is the engine that drives translational research. Another way of putting it is that basic research is the foundation on which translational research is built and it would be foolhardy to assume, despite the great deal of progress that we have made, that the foundation is strong and complete. We still have a great deal to learn, but if we stop funding basic research whose focus is understanding biology at the expense of funding translational research, we will undermine both, our understanding of basic biology and the ability to generate new products that can help the general public. Further, a country that does not invest in the "foundation" provided by basic research will never be able to generate a meaningful translational research program and will be condemned to forever looking to other countries for new discoveries, which may not be of great relevance to the problems inherent to the Indian subcontinent. Therefore, investing in the basic sciences is fundamental both to our understanding of the living world and to improving the health of millions of individuals that suffer from sickness and disease.

The views in this article are personal. The author would like to thank Rajani Desai and S. Girish for their input.

Journey into the Subconscious...

Dr. Kakoli Bose Scientific Officer 'F'

The sudden collapse of a skyscraper, a speeding train ripping off the heart of Los Angeles and an unwarranted explosion in a quiet roadside coffee corner, provide enough material to spice up a monotonous weekend evening! This is what one experiences while journeying through the bottomless labyrinth of constantly interchanging real and subconscious terrains of human mind in Christopher Nolan's *Inception* that portray '*dreams within a dream*'.

So, is the top still spinning or did it wobble? This poetically manifested polysemy at the end of the movie has stirred our imagination just like evoking another dream-one of the most complex phenomenon humans ever tried to decipher.

Despite the '*catch me if you can*' disposition of dreams, scholars from different faculties have tried to interpret this illusory phenomenon. Academicians and intellectuals have extensively researched dreams from the viewpoints of science, psychology, philosophy, spirituality as well as literature!

Way back in 1653, the neuropsychiatrist, Marquis d'Hervey de Saint Denys coined the term 'Oneirology' – a word representing 'how' and 'why' we dream. Subsequently, Kleitman and William Dement made significant progress in dream research by discovering the first stage of sleep often referred to as rapid eye movement or REM. Increase in brain activity and eye movement can be measured by electroencephalograph (EEG) at this stage. During REM, the body usually paralyzes itself to prevent physical reactions to the events occurring in dream. However, during an unusually long REM period of sleep, the physical activity resumes, often leading to somnambulism or even RBD (REM sleep behaviour disorder), where the person acts out his dreams causing injury to himself or his partner. REM is preceded by another distinct stage called slow wave sleep or SWS that involves slower breathing, muscle and whole body relaxation leading to falling asleep due to sudden switching off of neurons in our brain.



Interestingly, research shows that similar brain waves are generated during REM as well as when mind is in a conscious state. It suggests that recollection of dream and episodic memories have similar neurophysiological mechanisms. Although intense REM sleep is associated with amygdale and hippocampus of the brain, origin of dream is connected to the right *inferior lingual gyrus*, located in the visual cortex, which is the hub of visual processing, emotion and visual memories.

Studies in the Neuroimaging Lab at UC Berkeley, USA, demonstrated that dreams serve as a conduit for our emotions by recreating our memories. Although the visual impressions in a dream might not be real, the emotions attached to them definitely are. Thus, dreams control movement of freight through the delicate bridge that couples our emotions with memories.

While science analyses 'how' and 'why', ancient philosophers and modern-day psychologists worked on the understanding of the 'what' component of a dream. Ancient civilizations including Roman and Greek, believed that dream is a medium of connectivity between earthly being and the Almighty. The Mesopotamian civilization provides testimony of their belief in dreams through documentation on clay tablets almost 5000 years back! Perception of dreams, their inner meanings and implications have evolved through time and traditions. For example, the oldest Hindu script, Vedas, describe dream as temporary departure of soul from the physical form of a human to travel through time and space. Similarly, according to Islamic culture, dreams are sacred contacts with one's soul as depicted in Mohammed Ibn Sirin's (8th century CE) 'Great book of interpretation of dreams'. The ancient Egyptians made headrests with the carved image of the God of dreams, Bes, to have dreams that would portend good fortune.

Extensive research on dreams from the viewpoint of psychology has also been done that reached its peak mostly in the late 19th century. While Sigmund Freud argued that the vast majority of our dreams express our longings and unfulfilled desires, his pupil Carl Jung refuted many of his theories and put forward a different explanation of dreams. He elaborated saying that dreams are impressions of the memories that are created throughout the day, which return as vivid or abstract imageries when the mind relaxes and the selfdom is kept aside. He also considered dreams as a small component of the complex psychological network that encompasses our minds. The parallel interest in dreams among different fields of study mainly science, psychology and spirituality can be attributed to the aura of mysticism that surrounds it! Therefore, no wonder, it has equally enthralled and engaged the 'dreamers of our dreams!' From Lewis Carroll & Shakespeare to modern day J. K. Rowling- the writers owe a lot to dreams! Its enigmatic traits and ability to fuel a novelist's imagination and creativity has given birth to several timeless classics such as Alice's Adventures in Wonderland, A Midsummer Night's Dream and Harry Potter and the Order of the Phoenix, to name a few. These extraordinary pieces of literature have provided wings to our imagination and transported us to the make-believe world of fantasy.

Apart from all its scholarly definitions, our hearts have altogether a very different interpretation of this elusive phenomenon. We love to dream more when awake than asleep. When pursued tirelessly, dreams transcend the shackles of our restrained selves and take us to a place where we really aspire to be. The passion that was embedded in Martin Luther King Jr.'s dream reverberated across the United States beyond his physical presence. It created an overpowering deluge that moulded and rebuilt the nation engraving his dreams eternally in the very essence of its existence. Dream, as perceived by George Bernard Shaw has been expressed through these beautiful words: "You see things; and you say, 'Why?' But I dream things that never were; and I say, 'Why not?'"



Cartoons

Eureka - Serendipitous Milestones in Scientific History!

Dr. Rasika Hudlikar Senior Research Fellow

The term Serendipity was coined by Horace Walpole in 1754 with reference to a Persian fairy tale, 'The Three Princes of Serendip'¹. In the case of scientific discoveries, it is said that, "Necessity is the mother of invention". Scientific discoveries are generally based on predictive thinking, directional experimental proof, logic and appropriate interpretation of results. However, if we look back in the history of science, many discoveries seem to be serendipitous. As it is well said by Plato, "Science is nothing but perception", these discoveries embody the sentiment². But one has to understand that it takes a well-prepared mind to recognize a breakthrough. Many serendipitous discoveries take place only because the discoverer happened to have specialized background knowledge and an open, inquisitive perception about the phenomenon. Hence, in science "observation" (which includes analysis and interpretation for valuable conclusions) has a lot more importance than "seeing" the phenomenon. This article throws some light upon some of the interesting stories behind serendipitous discoveries that happened to be breakthroughs in scientific history.

Today, **PAP staining** is considered to be the gold standard in the diagnosis of cervical cancer. Despite the development of various advanced techniques, collection of cervical fluid with the help of swab and microscopic detection of cancerous cells remain a standard practice. The technique of PAP staining was discovered by Dr. George Nicholas Papanicolaou who was born on May 13, 1883 in the town of Kymi on the island of Euboea, Greece. He attended the University of Athens, majoring not in biology, but music and the humanities. However, his physician father influenced his eventual decision to pursue a career in medicine³. While Papanicolaou's research would eventually be on human physiology, he began his studies with guinea pigs. In 1916, while studying sex chromosomes, he deduced that reproductive cycles of experimental animals could be timed by examining smears of their vaginal secretions. In female guinea pigs, Papanicolaou had already

noticed cell transformation and wanted to corroborate the phenomenon in human females. It so happened that one of Papanicolaou's human subjects was suffering from uterine cancer. Upon examination of a slide made from a smear of the patient's vaginal fluid, Papanicolaou discovered abnormal looking cancer cells under a microscope. "The first observation of cancer cells in the smear of the uterine cervix," he later wrote, "gave me one of the greatest thrills I ever experienced during my scientific career"4. His initial publication of the finding in 1928 went largely unnoticed. He first reported that uterine cancer could be diagnosed by means of a vaginal smear in 1928 and, together with Herbert Frederick Traut (1894-1963), he published the book Diagnosis of Uterine Cancer by the Vaginal Smear in 1943. The book discusses the preparation of vaginal and cervical smears, physiologic cytologic changes during the menstrual cycle, changes seen in the presence of cancer of the cervix and of the endometrium of the uterus. This technique eventually gained importance because of its cost effectiveness, ease of performance and accuracy of interpretation particularly for cancer detection in rural areas of many developing countries, which resulted in a significant decline in the incidence of cervical cancer.

Jim Schlatter, a researcher at the pharmaceutical firm G.D. Searle, was researching ulcer cures in 1965. He was synthesising tetrapeptide proteins - normally found in the stomach lining to test them out. Aspartame, a dipeptide, happened to be one of the intermediate steps in the synthesis. Schlatter had some of the powder on his fingers one day and, before turning a page in a book, licked one of his fingers to get a better grip on the paper. It was a surprising moment as the powder tasted intensely sweet. At first he wondered if it could be the donut he had eaten earlier in the day, but remembered he had washed his hands since then. Eventually he worked out that it was from the compound he was working on, and - confident that the dipeptide was safe he and his lab partner tested some of it in their coffee⁶. Schlatter knew he was on to something big - and he was right, because the powder, now known as Aspartame, is widely used as an

artificial, non-saccharide sweetener - **a sugar substitute** which lacks the high caloric punch of sugar⁵.

Botulinum toxin (BTX) is a neurotoxic protein produced by the bacterium *Clostridium botulinum* and related species. It prevents the release of the neurotransmitter acetylcholine from axon endings at the neuromuscular junction, thus causing flaccid paralysis. Infection with the bacterium causes the disease botulism⁷. Jean Carruthers, a Canadian ophthalmologist, was in 1987 treating a patient for a rare eye disorder known as blepharospasm. This ailment causes excessive blinking of the eyes and, in some cases, makes the eyelids slam shut. Dr. Carruthers treated the woman with Botox, a then largely unknown substance which reduces activity in overactive muscles by blocking nerve impulses. However, tiny amounts worked well to halt the patient's debilitating eye disorder. But, even with no symptoms, the patient kept coming back to Dr. Carruthers' office, telling the doctor that each time she received a **Botox injection**, the wrinkles between her brows seemed to disappear, leaving a relaxed, untroubled expression on her face. The

patient actually thought she looked younger. Because Jean's husband, Alastair, was a dermatologist, he found the story of the blepharospasm patient intriguing and looked further into how Botox could be used to enhance people's appearance. And the rest, as they say, is history⁵.

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For You, Madhurima...

Ms. Raikamal Paul Senior Research Fellow



It was a sultry afternoon in the year 2015 when suddenly Dr. Sarin walked into my lab. In his usual jovial style, he asked if I wanted to meet a patient who incidentally is a girl of my age and from my city. Bongs anyway have this propensity to get along well with other bongs outside Bengal, and I was definitely no exception. So there I was being introduced to one of my most unexpectedly made friends at a not-so-perfect time of her life.

Madhurima turned out to be a girl with chubby cheeks, big round eyes and a smile to die for. She had been detected with glioblastoma, a grade 4 malignant brain tumor just a month before, precisely 16 years after she won over another brain tumor at the age of 10! We got along instantly. The true fighter that she was, she had spent the in between years of her life with perfect poise and sincerity. Ignoring the taunts from the peers after the initial treatment, she managed to complete her education and, like any other normal girl of our age, she was working with a bank in Kolkata.

The moment she saw me she exclaimed how the mobile network in the campus is so bad that she cannot access Facebook! When I handed over my phone to her, she immediately logged on to show me her photos when she was holidaying with her friends with her hair neatly tied. "*You got it - I was not always this ugly!*" I pulled her cheeks and said "*You are the prettiest girl ever*". She smiled that radiant smile. We immediately started discussing our favorite novels, favorite foods and her plans

for Durga puja. She told me secretly how there is a handsome residential doctor here and how she would never have dinner till he comes and chats with her.

I started visiting her every evening and we used to take a stroll around the campus. Her curiosity about the Pandavkada waterfalls amused me - she could not believe that there can actually be water falling from up there. I promised to take her there once the monsoon starts. Soon her surgery day came. Even after the operation being successful, the doctors said that she has a maximum of a year more in her hand, like most glioblastoma patients do. She stayed back for a few more days for the radiation therapy. However, her condition deteriorated and soon she was unable to join me on our usual walk. After a month or so she and her family left for Kolkata.

We still used to talk over telephone often; her advice regarding how I should take my food at regular times and need to lose weight soon became a part of my life. Gradually days passed. She was good some days but very difficult at times. Soon she started losing her memory. Once in the monsoon, when the Pandavkada was in full flow, I remembered and called her. She could not remember me, but remembered the waterfalls which she wanted to see. That became my identity, 'the girl who would show her the falls'! In October 2016, her condition worsened. Then one January morning, I received a call from her parents telling me that her fight had ended.

I was on a trip to north Sikkim at that time, standing in front of a frozen waterfall. 'Girl, I could not show you the falls'... was the only thought I had at that point. As we took a turn, there stood the golden Kanchenjunga peak, with the morning sunlight beaming over it. Suddenly her lit up face flashed in the sky and I said to her, "Don't be sad, Darling. At least you with all your unfulfilled wishes and crazy dreams will be 27 forever... while I with all my "could-have-been's" and "should-havedone's" will keep getting older."

I am so proud of having been a part of her fight against cancer, and I am glad to share with you all, that her parents, still find their daughter in me. *Au revoir*, Madhurima!

Scandinavia - A Photo Essay

Dr. Aparna Bagwe Scientific Officer 'F'

I just love travel, period! My memories of childhood are strewn with snippets from the many road trips across the country with my parents and four elder siblings. This love of travel has thankfully continued into adult life, and I tend to take off for destinations within the country at the drop of the proverbial hat. As a natural extension of my voracious reading and natural curiosity about the unknown, as a child I had also dreamed of the many distant, beautiful countries that I would love to visit when I grew up. Luckily, I could bring to fruition most of these long held 'travel dreams' including long vacations in the US, Australia, Europe and the UK. Last summer, I made it to one of the four destinations remaining on my list – Scandinavia!

The Scandinavian peninsula lies to the north of Europe and includes the Nordic countries Denmark, Norway and Sweden, as well as Finland, Iceland, the Faroe and the Aland islands (Greenland is automatically 'in' as an overseas territory of Denmark). While I had actually dreamed of a winter trip for the Aurora borealis, the snow, reindeer and husky dog sleigh rides and Santa Claus village (yes I believe in fables), given my busy work schedule in winter, this time I made do with a summer trip which took me to Finland, Sweden and Norway – where I got a glimpse of the midnight sun at Nordkapp, the northernmost tip of the European continent. The weather in most places was perfect (read '*brrrrr*' cold) for me, and I could make do with layering and an occasional shrug or sweater. This ensured that my luggage had enough place for the vitals – digital camera, smartphone, chargers, sim cards and SD cards.

This trip took me through several cities, towns and small hamlets of these extremely picturesque countries. Besides the museums, gardens, and famous iconic sights in these cities, I also got to experience the unique, natural world of this region majestic mountains (some ice clad, others not), seemingly endless vistas of hills, lakes, rivers, waterfalls, meadows, and the region's unique trees, wildflowers, avifauna, and even the occasional 'wild' reindeer (click)! The lifestyle variants included waterways catering to ships and cruise liners, trazillion bicycles and cycling paths, tiny electric cars, lots of sailboats harbored by the rivers, and cute, colorful houses hugging the hillsides. The 'food, glorious food' on offer on this trip covered a variety of seafood - salmon, cod, trout, crab, lobster and even Minke whale (not surprising since the region is famed for its sea faring tradition - and the Vikings), meats, sausages, tons of freshly foraged vegetables and fruits as also rich, creamy desserts.

Going through the photographs of my trip, I once again realized that it is the landscapes and varied vistas that magnetize me. Accompanying this essay are a few panoramic vistas of Scandinavian water bodies. I do hope that you too will like them!

The Oslo to Geilo drive



The Jiepmaluokta bay at Alta



The cruise from Helsinki to Stockholm



The Aurlands fjord cruise at Flam



Be Colorful, be Happy -**My Mantra for Happiness**

Mr. Shyam M. Chavan Technician 'H'



Whenever I see a blank surface - be it the back of a wrapper or anything else (it doesn't matter) -I just want to draw and paint on it! Each and every aspect of

drawing and painting is a creative challenge to me, irrespective of the output. I have a passion to capture on my canvas, the landscapes and natural beauty residing in our material world. It often happens that one hobby helps another to grow; for me, photography and painting have led to an

interest in trekking in the mountains - such as our magnificent Himalayas. Visiting different terrains in our country boosts my creativity and gives me ideas to create abstracts on my



drawing board. Aside from the focus on my job at ACTREC, pursuing my hobbies of drawing, painting and photography provide me vital moments of relaxation and pleasure, so very necessary in



today's competitive work environment. These hobbies rejuvenate me and enable me to do my work more efficiently. I would like to pass on this message to

you too - develop some creative hobby that will help your personal growth and will also provide you a means for relaxation and the energy to perform well

in your day to day life. I don't know about you but for me playing with colors and experimenting with various artistic media are my lifelines, of which my favorite is water color painting!



The states of Himachal Pradesh to the North as well as Sikkim and Arunachal Pradesh - in the



Himalayan Lakes

North East region of our country are known for their beautiful scenery, hilly terrain, dense forests and pretty lakes. The amazingly beautiful Himalayan lakes are the prime attractions

for visiting tourists throughout the year. Being

prime tourism spots, they also provide a source of livelihood for the locals of these regions. I have trekked in many of these regions and had the good luck of seeing at first hand



several scenic lakes in Himachal Pradesh in the

Tomso Lake (Sikkim)



foothills of the Northern Himalayan ranges as well as in Arunachal Pradesh and Sikkim in the North East Himalayan ranges

- not just in summer but also in winter when they are frozen. The walk on the frozen lake was one of the most memorable things I did. The lakes depicted in the top panel are: Hathi Lake (Nathula pass, Sikkim), Tumso Lake (Sikkim), Prashar Lake (Mandi, HP). The lower panel depicts two

frozen lakes during Indo-China border (Tawang, Arunachal Pradesh) winter at Bumla pass in Tawang and abutting the Indo China border (Arunachal Pradesh).



Thousand Pillar Temple: Moodbidri

Dr. Pradip Chaudhari Scientific Officer 'G'

Jainism is historically associated with the state of Karnataka since the 3rd Century BC. There are several Jain monuments, which include Jain temples commonly known as Bastis or Basadis, statues of Gomateswara and Stambhas (pillars). These temples bear the testimony to the rise and fall of several empires such as western Ganga of Talakadu (350 to 550 CE), Kadamba dynasty (345-525 CE), Chalukyas of Badami (636 to 740 CE), Rashtrakutas of Manyakheta (753 to 982 CE) and

In 1430, Raja Devaraya Wodeyar initiated the construction of this temple – a task that took over 31 years. The temple is encompassed by exquisitely carved stone walls and has two distinct parts-'sanctum sanctorum' and 'prayer hall.' The first part houses an eight feet bronze statue of 'Lord Chandranath.' This statue is the reason why the temple is also known as 'Chandranath Basadi.' The second part is a monumental praying area which has innumerable beautiful pillars carved with unique designs and figures. The temple has a 60 ft monolith - 'Manasthambha' at the main entrance. There are carvings of musical instruments, birds



and animals such as elephants and dogs on these pillars. Some pillars also have carvings of mythological animals such as dragons, depicting the impressive ties of Jainism with nature and its openness towards other cultural ideas. The temple with its three separate floors supported by artistic pillars manifests the lost glory of ancient times.

Hoysala empire (1026 to 1343 CE). Jainism flourished under these kingdoms especially under the Rashtrakutas during the period 753 to 982 CE, which is considered the 'Golden age of Jainism'.

Moodbidri is a small town, 352 km from the state capital Bangalore. The name 'Moodbidri' is derived from two words: 'Mooda' meaning east and 'Bidri' meaning bamboo, since it is a bamboo growing region. A world famous '1000 pillar Jain temple', also known as the 'Saavira Kambada Basadi' temple, is situated in Moodbidri. It was built in 1430 and is renowned for its classic architecture comprising of magnificent granite pillars.



Images clicked with Canon EOS 550D EF-S 18-55mm f/3.5-5.6 IS

Beautiful Creatures

Dr. Pradip Chaudhari Scientific Officer 'G'

Psammophilus dorsalis (GRAY, 1831), Common name: South Indian Rock Agama, Peninsular Rock Agama



Image clicked with Canon EOS 550D Tamron 90mm f/2.8 ISO 250 f/5.6 1/125 Location: Pench National Park, Madhya Pradesh

This is a rock-dwelling agama with wide distribution; it is inferred that this species is found in a variety of habitats including dry and moist forests as well as shrubby lands. Reptiles are very important creatures from an evolutinary point of view, as they are the first vetebrates to adopt life on land. Evolution of internal fertilization and cleidoic eggs (with an impervious outer shell) are major adaptations to terrestrial life that involve water conservation through protective membranes and adjustment of nitrogen metabolism.

This lizard has a large and elongated head, and the body is slightly compressed dorso-laterally and covered with uniform feebly keeled or smooth regularly arranged scales. Usually, its body colour is grey with black markings, which matches its habitat. The body of the breeding male is predominantly black with yellow or red brightly coloured stripes along the lips, a yellow or red head and a stripe of the same colour down its back, almost up to the tail. Stone quarrying and human residential expansion have resulted in the decline of the population that is found predominantly in and around major metropolis. Moreover, cats and dogs predate on this species leading to further disappearance of these animals.

Reproductive activity in reptiles is mostly seasonal and restricted to a few months of the year. Similar to most other vertebrates, reproduction in this animal is influenced by the climatic conditions of the habitat. Majority of the temperate zone species of lizards are seasonal breeders. The reproductive season is usually most favourable for growth and survival of their offspring. The influencing environmental factors are temperature, rainfall, abundance of food and photoperiod. The reproductive cycle of this animal is 'associated' type, that is, there is synchrony between reproductive cycles of male and female as commonly seen in other lizards.

Comparative Oncology aspect

A compound produced by a pregnant lizard may provide important information on the origins and treatment of cancer in humans according to studies carried out at the School of Life and Environmental Sciences, University of Sydney, Australia. The protein belongs to a group known as vascular endothelial growth factors (VEGFs), which helps produce blood vessels in the uterus during pregnancy, and is pivotal to the development of the lizard placenta. Both tumors and embryos must develop an extensive network of blood vessels which bring in oxygen and nutrients to allow them to grow, and they both must avoid rejection by hiding from the immune system of their host. Hence many researchers think that cancers have hijacked the molecular machinery that originally evolved to allow embryonic development. Using state-of-the-art research techniques, the Australian researchers identified the VEGF genes that were present and active in lizards. The group discovered the first known natural source of VEGF111, a specific VEGF gene in the three-toed skink (Saiphos equalis), a shy Australian lizard which lives underground. This gene might have important applications in cancer research (http://sydney.edu.au/news/84.html? newsstoryid=5156).

The Chirping Visitors

Ms. Shweta Gopalakrishnan Senior Research Fellow



It was five years back when we got a bird feeder from a conservation organization, that a thought casually crossed our minds. We had no clue as to what extent the feeder might be useful in conservation of sparrows. We hung it in the balcony nonetheless. With more than 2 3 months gone past, not a single bird had visited us. We spread some grains on the parapet instead since the feeder option didn't seem very useful. We sat all afternoon waiting for someone to stop by. Finally, after a few days, as if they heard us, two sparrows came and perched on the grill. We were delighted! And this is how this story began.

Then on, we started strewing bajra seeds on the balcony wall and placed a cup of water alongside. Although, we had few visitors initially, the number kept increasing steadily. It felt as though there was an intricate network of communication among them. We also started to notice a periodicity in the time that they would come, and we were quite stunned by their precision in maintaining that periodicity. The sparrows did not use the feeder but they were perfectly comfortable when the grains were placed on the wall. Disorder and randomness is what nature is all about! We have clocks and watches, and still don't keep a track of time. Nature on the other hand is perfectly punctual. How these little guys knew when to come, and how they came at that exact minute every single day is still a mystery!

It became a part of our routine by now. Their number continued to increase with every season. They came for the food and water of course, but our balcony had now become their playground. They would hop in and out of the gaps between the pots and plants we had, as if playing hide and seek. We had used an old shoebox and coir to construct a small roof over the grains during the monsoon. They would pluck out the coir with their tiny beaks, sometimes even jumping if they couldn't reach for it. It was simply amazing to watch their amusing stunts. We assumed they were using the coir fibres as nesting material. We had started to notice that there were several clans among them, and there was always one dominant guy probably like an alpha male. Also, when a particular clan was feeding, the alpha sparrow would not allow any outsider.

The breeding season had begun. Watching the sparrows feeding their young ones had now become our favourite pastime. The younger ones looked like tiny fur balls. Their beak was light pink and tender, and their call was the best sound in the world! We were surprised to see that even the male sparrow would respond to the chicks sometimes and feed them. It was amusing to watch the younger ones. They were not accustomed to us and were still experimenting with the setup. But we were also amazed with how quickly they learn.

Our happiness had no bounds that their number was increasing; and that we were witness to it. Their messy dining area had slowly transformed into a bird box, and they too had completely adapted themselves to feeding from it. One morning however, we noticed some nesting material in the box. We observed that a particular sparrow was building a nest inside the box and this had somehow prevented the others from visiting us. This behaviour was slightly surprising. After a few days even this little fellow stopped coming. The balcony looked barren and the house felt empty without their incessant chirping. We were starting to get worried since they were not coming anymore. We removed the box and switched back to the old way. After a few days, they were back. You could imagine our relief! What made them avoid the box with the nesting material was something we failed to understand.

The monsoon had set in and the bamboo facing our balcony looked alive and fresh again. The sparrows would often fly in large numbers towards the bamboo, perch and call out to us if grains had not been refilled. We noticed that they enjoyed playing in the water. It was a delight to watch them spray the water all around. However, they enjoyed a mud bath even better, and we would see dozens of them rolling in the mud. By now, their number had reached about 30-35 and sometimes it was a little overwhelming to have so many of them all around us at a time. The amount and frequency of buying

grains for them had also increased giving us a clear indication that their population in our vicinity was increasing.

They had become an irreplaceable part of our lives. We felt as if the feeling was mutual. Were they able to recognize us? What did they feel about us - if they had any feelings? We were unable to answer any of this but we still felt that we were a part of their lives too! They were wild birds but somehow we felt that our home was now their home too! It felt incomplete without them. We felt responsible for them. We felt protective of them. It was like caring for pets.

Someone may ask us, why spend so much time on something insignificant as a sparrow. Only someone

who has experienced what we have can understand how much joy these little guys can give you. Nature is beautiful in every way. We just don't know to appreciate it enough. It has now been five years since we are seeing them every day. In fact several times a day! Even then, each time we see them, we are just as thrilled.

What was once an extremely common bird, often a nuisance, is hardly seen today! Dwindling numbers of sparrows is definitely something to worry about. What we do may be a tiny contribution towards conserving this common yet rare bird! Beyond this, it is the sheer happiness that we feel when we see them that matters the most.

Had a Great Fall

Mr. Akash Deogharkar Senior Research Fellow

Kharghar becomes just the place to be at in the monsoons. The beautiful green hills on the way to ACTREC attract you towards them. Between the greens lies the mighty outpouring, the great Pandavkada waterfall, one of the hallmarks of Kharghar. Some of my colleagues and I decided to visit the fall that weekend - on Monday everyone was in the plan, but by Friday night, it was just me!

The excitement had changed to disappointment -I went home and slept in a gloomy mood. I woke up around 6 am, I generally wake up early but don't do much. I was still disappointed as I had wanted to go so desperately, but what's the fun in being alone at such a place; so the odds to my actually going to the fall were low. Though I had been there several times before, the lust for rushing white waters amidst the greens of nature was irresistible for me - so I decided to go. I left early so that no policeman spoils my plan. The small journey from the road to the fall appeared tough but the beautiful image in front of my eyes just kept me going, the path was made even more cheerful by the greenery around.

As I reached the fall, the thundering sound of exploding water terrified me. Since it had rained just before I reached there, an enormous amount of water was pouring down at a great pace. Terrified by the ferocious water, I decided to stop

there to avoid any trouble. However the tickling of curiosity pushed me further, step by step and rock by rock, to finally reach the spot from where I didn't dare move ahead. That day, because of the extreme force of water I didn't even dare to move into the pond, as we generally did. I took a seat on a large rock a few meters away from the falls. I could see the water falling; however, the site where the pouring water hit the pond water was completely invisible and only the water droplets blowing out of the site could be felt. Luckily for me, no one else was there and I was all alone at the fall; there was no sound other than the roar of the waterfall. I spent about half an hour on the rock, just sitting, getting soaked to the skin by the bouncing droplets and totally absorbed in the beauty of the place. The experience was so rewarding that as the water droplets hit my body. I felt I was being kissed every moment by the fall it was an awesome experience.

Being there, before the colossal fall, gave me a glimpse of how powerful nature can be and how minuscule we are in front of it. Also such a gift should be enjoyed with great responsibility and imperil shouldn't defame the beauty of the place. Anyway, the choice to proceed alone turned out to be very fruitful for me, and brought home to me how sometimes a decision that seemed rather insane initially, ultimately brings home to us how insane we would have been if we hadn't taken that decision!

Designed by Destiny: A Chapter from My Musings

Ms. Saujanya Acharya Senior Research Fellow

Somber, strict, solitary is what sums up my life in the last 8 years of my career as the medical head of this asylum. Back then at the ripe age of 40, I could only attribute the cause of such drudgery to a singularly cruel stroke of fate that forced me to trudge on a shattered life of a barren widow. Since then nothing, not even this sanctuary of the mentally afflicted did anything to change the monotony of my life.

Five years hence, flipping through the pages of my past, I feel that in that last comment however, I was not quite right. That same mental institution had expunged a whole five years of monotony from my life. I cannot say under what impulse I chose to contemplate those prized moments of the past that stood silhouetted against the undulating horizon of nostalgia, ever appealing in its content of joy.

The winter morning sprawled calm, beautiful. The asylum, the most uninteresting of buildings with its inmates - young boys and girls subjected to the cruelty of fate, for once, seemed to have a charm of its own. It was not long before an ambulance became encased in the frame of my window. A slightly scrubby boy gingerly stepped out, fastened by the tangle of human hands, dazed by the gawky welcome of his home-to-be. These arrivals were mere rituals, part and parcel of my work life; but that particular day marked the beginning of unusual events of which the newcomer was to become the principal protagonist. My gaze caught the naïve little face as he stared half awed, half frightened by the mansion that towered over him. Not more than 10, I thought, as he slowly melted into the silence and anonymity of the asylum.

I knew I was in a trance. The spell had broken. I jerked back from the lanes of the past to the reality of the present. I noticed a fine strand of web that bridged the gap between the bedpost and my shoulder. A little spider dangled from it with its eight little appendages working in unison, unleashing a little vibration as it added a little more material to the completion of the web. Momentarily it stopped to gaze at me as if it was trying to read my thoughts and then resumed its activity. Somehow I had no impulse to wreck its progress at the moment. Thus taking no notice of it, I let myself once again into that stupor.

That night a few muffled shrieks drew me out of the office. My appearance at the scene triggered a cackle of human voices as the ward boys unanimously started complaining against Sumit the boy who had arrived earlier, that very day. The accused squirmed this way and that, frantically trying to tear away from the hands that bound him. All I could piece together was that he was caught sneaking out of his room at this odd hour. As the attendants left, I approached him gently and tried asking him what he was up to. I detested any kind of severity being dealt to these sick people. He sat sniveling and spoke amidst tears with all sorts of promises of behaving, stressing on the words to convince me. The next moment he implored tearfully "I want to talk to Amma. They won't let me do so." He gestured towards the telephone in the corner and broke down, swallowing his words.

I was moved by the desperation of the boy yearning for a mother whose company he had been bereaved of two years ago, when her tottering steps into a rain lashed night never retraced. By then I had gathered quite some knowledge about his case. That incident alone terminated the life from his mind, if not his body, and where else could he have turned up with a father who was never much of a father to have cared a fig about his condition. All these years I had never meandered from a self imposed strict routine, never going beyond the established identity of the inmates of the asylum as "patients", never stepping beyond my duty of being " the medical care giver". I had toed the line with precision. However, that night I had no regrets about violating a personal law. I could feel the void that had taken up the entirety of my life was in a way threatened.

The spider was working furiously to complete its creation. I stared at a journal entry sprawled open on my knees. "The beauty of woman manifests itself in many ways. Motherhood is one of them. Unique indeed is the joy that a mother derives cradling her young in her arms". My gaze lost focus again and an involuntary smile lit my face.

A myriad of thoughts flitted past my mind that night as the boy cuddled up to me and cried himself to sleep... and I knew not why. It must have been providence – for the next couple of days, a new chord touched my life. The boy showed an increased interest in me, and I in him. Many times I caught him peeping into my cabin. Such furtive ventures morphed gradually into hours spent with each other.

A room – files spewing paper-tables littered with pens-papers changing hands – signatures. But what marked the happiest moment of my life was the time Sumit shed the obscurity of the asylum for the security and anchorage of a three - lettered word – MOM. Decisions may be vague, right, ill timed or wrong, but one makes them driven by the desire to achieve something. I did not care for the consequences and I was undoubtedly content at having adopted him.

I jolted back to the present, took the spider dangling from its web and placed it carefully on a table. It seemed to look at me, scornfully one moment and gratefully the other, and stomped off to make a fresh start in another promising corner.

Largo

Ms. Megha Garg Junior Research Fellow

I sat on a bench in the park, overlooking the play area. It was a pleasant morning and I had had a good run. I was wheezing slightly. Since it was a Saturday and my day off from school, I let myself rest for a while. My major at school was animal psychology and I liked studying animal behavior. My muse that morning was a dog moving from bench to bench circling the playground, sniffing people as he passed. He had a collar around his neck and he seemed well bred. His owner had probably deserted him. I was not really a big fan of dogs, but I continued observing him from a distance.

I named him 'Largo' in my head since it was tiring to continue calling him 'Dog'. He was an extremely weird dog. Strangely, he kept refusing to eat the stuff being offered to him by people he visited. He was not allowing anyone to pet him and he was righteously weary of children who wished to cuddle him. A good snarl kept even the bravest kids in check. It was just as well since children in general seem to have little understanding and respect for animals. Still, he did not bite anyone and kept searching. He was now just one bench away from mine. I had observed him move just a few benches short of a full circle. I felt irrationally scared of him but found relief in the probability that he would most likely just pass me by. The couple on the bench he was at was offering him a meat sandwich. He again showed no interest in it. I wondered if he was ill.

He left their bench and covered the few steps it took to reach mine. I unwillingly allowed him to sniff me and waited for him to pass. He did not. I waited a few more seconds, getting a bit uneasy, but he still did not. I carefully lifted myself up from the bench and slowly moved aside. Largo stood at attention and looked into my eyes. His eyes were shining with an emotion I could not pinpoint. He barked twice in my direction in an odd, hopeful manner. I hated it. Curiously, he reminded me of someone. The couple from the previous bench came towards us with their rejected sandwich. They asked me to offer Largo the sandwich and see what happens. I raised one eyebrow at them. It would indeed be interesting to see what he did. I took the sandwich in my hand and offered it to Largo. He barked happily, took the sandwich from me and began eating it happily, which seemed to please the couple. I checked my watch and decided to leave. Largo immediately stopped eating and followed me anxiously.

I did not have anything planned to do right away, therefore, I assured Largo I was not going and he could finish his meal. I hoped he would not follow me after he was done. To my annoyance, he followed me all the way to my house. I had grown weary of Largo. I was thankful when I closed the door in his face. I went about the day as usual, staying inside the house until dusk. By evening, I was sure that Largo must have left. I checked. He had not. My humane instincts kicked in and I felt reluctantly obligated to offer him some food. He ignored me and did not accept my food this time, but he did not leave either. It was curious. I went back inside and left Largo to himself.

The next morning when I came out wearing the same clothes, he followed me again. He followed me the whole day after my morning walk as well. He sniffed the people that I met and ignored them when they wanted to pet him. People assumed that I had taken him up as my own pet. I decided I would help him find his owner. Owing to a cultural fest, attendance was not mandatory at my school, so I stayed at home and made a poster for him. He looked approvingly at the poster I had made and went around with me while I put it up for him. Meanwhile, he continued visiting my friends with me.

A few days later, an old friend who was now in the police force dropped by my house to pick up the sweatshirt that he had left behind the last time he was visiting. Incidentally, I had been wearing it to my morning walk thinking it was my own shirt. He told me that he saw the poster I had pasted around. Apparently, he had a dog just like Largo and he hated the dog. Just then, Largo noticed him. I watched him and the intensity with which he was glaring at my friend. Before he could be noticed, Largo went off and came back with extremely muddy feet. He kicked my friend with his muddy feet, snarled at him, baring all his teeth and went to the drawing room where I had put a bowl of dog food for him. I later found out that my friend had trained Largo like a police dog and he was supposedly very cunning. He did not forgive my friend by a millimeter for deserting him.

Sadly, Largo decided to stay with me as my pet and made himself at home. As my friend had said, he was indeed a very annoying dog. I hated him. It took me a few months to get rid of him. I was rejoicing in my newfound freedom from him when, one day, while I was visiting a friend from class, Largo suddenly came out of nowhere. He covered my pants with mud, snarled at me, and went inside. My friend called him Ujo.

The Reel of Life

My eyes fell on the brightly burning flames of the ancient book of knowledge set aflame by unknown zealots who dashed out of the darkness did their dastardly deed and disappeared quickly out of sight!

As the crisply burnt embers blew about in circles - this way and that in the still dark moonless night they brought clearly to my mind, like a film played out before my eyes, the split second of life - before death!

The happiness of parents at the birth of their child the gaiety and frolic of the child during childhood the demureness of the young girl as a bride her growing maturity with age and experience her wisdom and kindness in old age ultimately ending on a pyre!

The flames that my mind's eye saw were fanned by fanaticism on one side and the grieving relatives on the other over and over played the reel of life through the burnt out embers of the ancient book and of a life well lived!

> **Dr. Aparna Bagwe** Scientific Officer 'F'

Life is a Motivation

I never let my yesterday take too much of today.

I am never too old to set another goal.

Why should I care of what people think of me I am who I am and what I wanna be.

I have learnt more from failure than success it has always helped me to progress.

I believe, an obstacle is often a stepping stone and finally you will see life has really grown.

Life is about trying things more and more And one day the ship reaches the shore.

> **Dr. Kavita Pal** Scientific Officer 'D'

The War on Cancer

The war on cancer is even today far from over. Many questions stay unanswered as cancer needs to be more researched.

There exists an uneasy equilibrium between cell production and destruction. When there rises an imbalance, cancer surfaces as a disease condition.

Germline and somatic mutations are very scary in their action. When they modify cellular pathways, treatment makes no headway.

A deeper molecular understanding of how the cells are functioning will assist us in formulating the wonder drug for cancer long pending.

Present therapy is not too friendly it causes patients and relatives to worry. Unbearable are the side effects and quality of life not at its best.

Basic research brings advanced technology - both targeted and immunotherapy. But treatment is still too costly, and not affordable to all in the community!

In metastatic cancer, chemoresistance causes drug failure. A novel therapeutic approach could possibly lead to a cure!

Emotions in the hospital run high as near and dear ones tend to cry. Can patients and relatives be consoled by keeping cancer under control?

Hope revives a crumbling life when cancer is detected early in time. How can there be any respite for those who have delayed a while?

They say, Prevention is better than cure, this, people seriously need to follow. Body check-up done periodically, will help detect cancer early.

Cancer is curable when detected early, human suffering will reduce drastically. Lowering the burden on health exchequer, portraying India as a nation much healthier.

Scientists and clinicians are findings ways to solve the cancer puzzle anyway. Clinical trials are already under way to introduce drugs to alleviate pain.

A big victory over cancer can be achieved by working together. Doctors alone are helpless, patients' support and will power is a must.

> Mr. Malcolm Nobre Project SRF

Corridors

They run long distances, connecting labs as if estuaries of several rivers! The place for early morning smiles, and the place for late evening "goodbyes"!

They are kept tidy and sparkling clean in morning, only to look messy by evening! The parking lot for your sweaty umbrellas, or the dumping ground for empty boxes!

You can hear them echo the sounds of life, but they kill the "announcements", most of the times! The heavy noise of material-trolleys and liquid nitrogen cylinders or the loud calls for friendly tea-breaks!

You may want to keep a secret, by closing the lab door, but there is always someone listening, while passing through the corridor! They serve as a sound amplifier, may it be of music or pathetic laughter!

You have run across these corridors, with your precious lab reagents and they have watched you wait, in anxiety perhaps heard you sing or cry!

You can see someone just standing at the window, lost in space... thinking... analysing... or just watching the view! But sometimes these corridors are deserted a sight you get to see only on weekends!

Taking you towards your destiny... are these corridors of a research institute!

> **Mr. Mukul S. Godbole** Senior Research Fellow

Dreamland

My mind at time wonders I don't know what to do Crazy thoughts come in it's under I am unaware it's inspired by who.

I want to jump out of the window And land in the sea Fly above the meadow And take dear Santa with me.

Run on the rainbow And tie it around me To have a house made up of pillows Amidst a place surrounded by trees.

Play on the sun and dine on the moon Just giggling along until its noon Roaring with the lions Bathing with the elephants At the end of the day Just sleep like infants.

Leaving all the worries Will eat jump and play. No matter what the future carries, And age oh! What so ever be it may.

But still at times I wonder I don't know what to do Where does this dreamland lie? And it's inspired by whom?

> Ms. Kuheli Banerjee Junior Research Fellow

My Mother and Me

My mother and me had a relationship so free, I was the body and she its soul I always considered her as my role.

I was the heart and she its beat But now everything has changed at least; The body is remaining without its soul since God has called back my role.

The heart is missing its beat and trying to beat despite its defeat. She is lying in the bed fast asleep, She'll never wake again for us to meet.

I see her in the heaven's garden moving in red In this world I live alone without my friend. From all the worldly bounds she is free But without my mother, what will I be??

> **Ms. Kuheli Banerjee** Junior Research Fellow

The Beginning of the End

As the rain comes pouring down Walk through streets of the little town The whole country in that little place All huddled in the tiny space The contrast, so blindingly bright Most in dark desolation Few in wealthy light A line drawn sharply across Marking the border That must not be crossed.

The beginning of the end arrives Ending the world of walls Even as humans cry For humanity it calls.

An apocalypse slowly drawing near Oblivious to the pouring tears Darkness falls on this little town Coming closer, now nearer the ground Teeming with people running around Raising their voices and stamping the ground

> The beginning of the end arrives Ending the world of walls Even as humans cry For humanity it calls.

Holding up banners of war and peace Walking angrily through dirty streets Distraught in a lack of understanding Painted in the colors of hate As the rain comes pouring down Walk through streets of the little town What began must end one day What is ruined will be washed away

The Worst

The worst is being scared scared and alone being so afraid that no one cares for your own.

The worst is a secret - a secret so deep that somewhere within you it begins to seethe.

The worst is a feeling like being lost in a vacuum a feeling of being empty of no heart inside you.

The worst is that black bile rising, rising within the turnstile of jealousy erupting under your skin.

The worst is that fear lurking around you the echoes of laughter as your very self is consumed.

The worst is the lightning when it strikes a tall tree but in the sky, all you can see is its striking white beauty.

The worst is the silence inside your very core the quiet, when you're told you don't matter anymore.

The worst is the noise that engulfs you brutally that throttles your thoughts with its claws so ungently.

The worst is that smile from someone you love someone who you know never loved you enough.

The worst is that love offered so beautifully, but the offer lies forgotten As you pine for its release.

The worst is this running the running of my thoughts as they count through the worst and forget them not.

> Ms. Alekhya Kilambi Junior Research Fellow

Crossword

Dr. Ojaswini Upasani

Scientific Assistant 'F'



Clues Across

- 1 To make neat or tidy by clipping, smoothing, or pruning (4)
- 3 Break down or deteriorate chemically (7)
- 5 The outward form of an object defined by outline (5)
- 8 One celled organisms that are more complex than bacteria (8)
- 11 An individual form of life (8)
- 13 Tumors which are cancerous (9)
- 15 A root like structure that anchors seaweeds, etc to the ocean floor (8)
- 18 The fibre made from this plant used for ropes or matting (5)
- 20 The study of heredity (8)
- 21 Structure of the DNA molecule (6,5)
- 23 Steroid hormone released in response to stress (8)
- 27 The offspring of genetically dissimilar parents or stock (6)
- 29 Stalk of a plant or shrub (4)
- 30 The successful establishment of a plant or animal in a new habitat (6)
- 31 Increased tissue layers caused by an increase in the reproduction rate of its cells (11)
- 32 Red or white wine made from grapes of the same name (5)

Clues Down

- 1 A swelling of a part of the body caused by an abnormal growth of tissue (5)
- 2 A shiny silicate mineral with layered structure, found as scales in rocks, or as crystals (4)
- 4 A tube surgically implanted in the eardrum to drain fluid from the middle ear (7)

- 6 Compounds containing two adjacent nitrogen atoms between carbon atoms (3)
- 7 Extinguish / inhale audibly through the nose (5)
- 8 The inner surface of the hand from the wrist to the base of the fingers (4)
- 9 Specialized parts of cells having specific functions (10)
- 10 Pertaining to or resembling zinc (6)
- 12 Bold and impudent behaviour / a state of vexation or irritation (4)
- 14 A cellular organizational level between cells and a complete organ (6)
- 16 A branch of medicine dealing with the correction of deformities of bones or muscles (10)
- 17 A layer of connective tissue located beneath the mucous membrane (9)
- 18 A sixth part, in the sixth place (7)
- 19 Swelling in subcutaneous tissues resulting of obstruction of lymphatic vessels or lymph nodes and accumulation of large amounts of lymph in the affected region (10)
- 20 Characteristic of or relating to a class or group of things; not specific (7)
- 22 A penicillin beta-lactam antibiotic used in the treatment of bacterial infections caused by susceptible, usually gram-positive, organisms (9)
- 24 To saturate deeply with moisture or color / to impregnate or inspire with feelings (5)
- 25 SI unit for electrical resistance (3)
- 26 A state of anxiety; a constant visible state of distress (5)
- 28 Forming or belonging to a bottom layer or base (5) (Solution on page - 28)

Conversations

Ms. Supriya Hait Junior Research Fellow



The Charcoal Lady Ms. Aneri Parekh Junior Research Fellow



The Lion Ms. Shruti Kandekar Junior Research Fellow



Twilight Zone



Angel in Disguise Ms. Mrunmayee Kode, Daughter of Dr. Jyoti Kode



Spirit of Life

Ms. Mrunmayee Kode, Daughter of Dr. Jyoti Kode



Solution of Crossword

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सामाजिक विषयांवरील काही घोषवाक्ये

जरूर करा अवयव दान वाचतील आठ बांधवांचे प्राण

मुलींना द्या शिक्षणाचा आधार करतील त्या पिढ्यांचा उद्धार

मुलगा मुलगी एक समान दोघेही उंचावतील देशाची मान

जी करेल दान रक्त तीच खरा ईश्वराचा भक्त

कुणाल प. साळुंखे तंत्रज्ञ 'डी'

Art with a Message Mr. Rohan Kshirsagar, Trainee



जीवितध्येयाचा साक्षात्कार -सहजीवन

श्रद्धा ए. केसरकर प्रोग्रामर

मी कोण व मला नेमके काय केले पाहिजे याची कल्पना येणे, म्हणजे आपल्या जीवितध्येयाचा साक्षात्कार होणे होय.

माणूस हा समाजप्रिय प्राणी आहे. तो समूह करून राहतो. प्राणी कळपाने राहतात. पक्षीही थव्याने राहतात. असे का, तर ती निसर्गाचीच योजना आहे. सर्वांनी मिळून मिसळून रहावे आणि जगण्याचा आनंद लुटावा, हे त्यामागील स्पष्ट कारण आहे. हेच सहजीवन आहे. निसर्गाची ही जी योजना आहे तिचे पालन करण्याची माणसाची जबाबदारी आहे.

केवळ आपले पोट भरण्यासाठी सर्व आयुष्य वेचणारे पामर पाहून काही कवी / लेखक म्हणतात कि कावळा ही आपले पोट भरतो, तुम्ही त्याहून नक्कीच श्रेष्ठ आहात. तुम्हाला प्राप्त झ्नालेल्या मानवी जीवनाचा तुम्ही चांगला उपयोग करा.

प्रसिद्ध शाहीर रामजोशी तर या मानवी देहाला तलवार संबोधतात आणि स्वतःसाठी जगणाऱ्या माणसाला प्रश्न करतात, "ही बार बार तलवार येईल काय पुन्हा". महात्मा जोतीराव फुलेही आपल्या खंडात म्हणतात, "जगाच्या कल्याणा देह कष्टवावा". अनंत काणेकरांचा एक संदेश - "स्वतः साठी जगलास तर मेलास, दूसऱ्यासाठी जगलास तर खरा जगलास".

कुठल्या कुठून अगदी सात समुद्र ओलांडून मदर टेरेसा भारतात आल्या, कुष्ठरोग्यांसाठी कष्ट घेतलेले बाबा आमटे, आदिवासींसाठी सारे जीवन वेचले त्या गोदावरी परुळेकर व अभय बंग अशी लोक कल्याणार्थ इनटलेल्यांची / इनटणाऱ्यांची यादी मोठी होईल. इतरांसाठी जगणे हेच यांचे जीवितध्येय. त्यात अलौकिक आनंद आहे. या आनंदाची तुलना इतर कोणत्याही आनंदाबरोबर होणार नाही.

सहजीवनात सहानुभूतीचे स्थान मोठे आहे. दुसऱ्याला थोडं जरी लागलं तरी लहान मुलांच्या डोळयांत पाणी येते. सहवेदनेनेच त्यांच्या डोळयात अश्रू येतात.

माणसाला स्वतःची पाठ थोपटून घेता येत नाही, त्यासाठी त्याला कुणीतरी सोबती असावा लागतो. प्रसंगी कुणाच्यातरी खांद्यावर मान ठेवून त्याला आपल्या दुःखाला वाट मोकळी करून द्यायची असते. दुसऱ्याशी समरस होणारे मन असणे, दुसऱ्याच्या अंतरंगात शिरुन त्याच्या भावना जाणून घेणे हेच सहजीवन आहे.

सहजीवनाने सुख व संपन्नता येते. जीवन समाधानी होते. मनात क्षोभतरंग निर्माण होत नाहीत, पञ्चत उत्साहतरंगच निर्माण होतात. सहजीवनाची अवस्था व्यापक अर्थाने विश्वबंधुत्वाच्या पातळीवर पोहचवणारी आहे.

मी मुंबईकर

सोडून मुलांना शाळेत घरी चेतो पळत-पळत पेपर चाळुन, स्वतःचं आवरुन घराबाहेर पडतो मी मुंबईकर!

दिवस माझा सुरू होतो पहाटे पाचला परत जातो बिछान्यावर रात्री बाराला सकाळी घरच्यांशी बोलायला वेळच नसतो मला प्रवासात मात्र वेळ काढतो मित्रांशी चॅटला !

बस-लोकल जणू माझे जीव की प्राण उशीर झाला, गाडी चुकली की बसला लेट निशाण! कामाचा लोड माइया डोक्यावर सतत चहा, कॉफी, सिगारेट यांचीच मला संगत! गर्लफ्रेंडला सांभाळणं आहे तारे वरची कसरत पण एक गेली की दुसरी शोधतो, यातच आहे गंमत!

वेळ काढून, लेक्चर चुकवून, पाहतो सिनेमा नाटक ! गेटवे समोर मित्रांसोबत बघतो पोरींना एकटक ! रविवार मला प्रिय, झोपतो उशीरा पर्यंत ! घरच्यांसोबत आठवड्याच्या गप्पा आणि करतो आराम फक्त ! 'मी मराठी' चा अभिमान बाळगतो मनात पण बोलायला लागलो की सुरुवात करतो हिंदीत !

उन्हात-पावसात मी ओला चींब २६ जुलैची आठवण चेता शहारुन जाते अंग संकटं आली तरी इच्छाशक्तिनी त्यावर करतो मात आनंदात राहतो, खुलून हसतो, मुंबई महानगरात!

मुकुल स. गोडबोले

वरिष्ठ शोधकर्ता

फिनिक्स - १ : मार्टिना नवरातिलोवा

डॉ. ओजस्विनी उपासनी वैज्ञानिक सहाय्यक 'एफ'



सध्या भारतातच काय परंतु सर्व जगात कर्करोगाचे प्रमाण वाढल्याचे जाणवत आहे. चुकीची जिवनशैली,व्यायामाचा अभाव वातावरणात भर घालणारे प्रदूषण, फास्ट फूड संस्कृती, एअरकंडीशन, मायक्रोवेव्ह सारख्या यंत्रयुगातले दुष्परिणाम, सुखवस्तुपणाच्या नादाने वाढवलेला ऐटीपणा, शारिरीक -माणसिक ताणतणाव, स्पर्धात्मक जीवन शैली आणि भौतिक सुखाच्या मागे लागलेला सध्याचा समाज प्रत्यक्ष आणि अप्रत्यक्षपणे कर्करोगासारख्या रोगांना आमंत्रणच देत असतो.

कुठल्याही कर्करोग इनालेल्या रोग्याला विचारा, नुसत्या नावानेच तो खचला जातो आणि स्वतःला दुःखी-दुर्देवी समजतो. "मी चं का ?" हा प्रश्न त्याला भेडसावतोच. खरं सांगायच तर हा कर्करोग सर्वांनाच समान वागणूक देतो, बघाना ! वय, लिंग, जात-धर्म-पंथ, देश, श्रीमंत-गरीब, शिक्षित - अशिक्षित, गोरा-काळा कसलाच भेदभाव नाही. पण मग मी चं का ? कदाचित तुम्ही वेगळे आहात म्हणूनच देवाने तुम्हाला निवडले नसेल कशावरुन ? त्याच्यामते तुम्हीच जास्त चांगले लढाऊ असाल जो हा लढा यशस्वीपणे देऊ शकाल.

ह्या लेख मालिकेतुन आपण अशाच काही यशस्वी लढवय्या कर्करोग झ्नालेल्या व्यक्तिंबद्दल माहिती घेणार आहोत. त्यांचा संघर्ष हा स्वतःपुरताच न राहता तो इतरांनाही प्रेरणा देईल यात शंकाच नाही.

स्त्रीयांमध्ये प्रामुख्याने आढळणाऱ्या स्तनाच्या कर्करोग इनालेल्या मार्टिना नवरातिलोवा ह्या प्रसिद्ध टेनिसपदूची माहिती घेणार आहोत. मार्टिना म्हटले की दणकट, ताकदवान, चपळ आणि महिला टेनिसमध्ये प्रथमच दिसणारी पुरुषी ताकद असे व्यक्तिमत्व जे बराच काळ टेनिसजगतावर राज्य केलेली व्यक्ति "अ बॉर्न फाईटर" - वयाच्या १८ व्या वर्षी रशियाच्या पोलादी पडद्याआत दबलेल्या इनेकोस्लोवाकीयातून अमेरिकेत पळुन आलेली मार्टीना वैयक्तिक स्तरावरही इनगडतच होती. ५९ ग्रॅंडस्लॅम, आश्चर्यकरणारे ९ विम्बल्डन, एकेरी, दुहेरी, मित्र-दुहेरी स्पर्धांची विजेती आणि जगातली सर्वश्रेष्ठ टेनिसपटू गणलेली आणि "टॉप ४० ॲथलीट्स ऑफ ऑल टाईम" म्हणून गौरवलेली, सतत खेळ, व्यायाम यांची भोक्ति मार्टीना वयाच्या ५३ व्या वर्षी कर्करोगाची शिकार ठरली. डाव्या स्तनात नैसर्गिक कार्सिनोमाची गाठ (डीसीआयएस, डक्टल कार्सिनोमा इन सीटू, ग्रेड ३) आढळली. जी योग्यवेळी उपचार न झाल्यास जीवघेणी ठरली असती. चार वर्षे मॅमोग्राफी टाळलेली असताना आणि बायोप्सी पॉझिनटिव्ह आल्यावर my personal 9/11 म्हणून काही काळ खचली पण शिस्तबद्ध खायच्या सवयी असलेली खेळाडू असूनही मीच का? यात गुंतून राहीली नाही तर खेळाप्रमाणे ह्या रोगाविरुद्ध तितक्याच त्वेषाने संघर्षासाठी उभी राहीली.

नशिबाने गाठ पसरली नव्हती आणि छोटचाश्या शस्त्रक्रियेने बाहेर काढली गेली. मार्टीना लगेच दोन आठवडचात पूर्वी ठरलेल्या वेळापत्रकानुसार ट्रायथलॉनच्या स्पर्धेत सायकलिंग करायला हवाईला गेली होती. तिला केमोथेरपीची गरज नव्हती पण सहा आठवडचांची रेडीओथेरपी गरजेची होती. दोन महिन्यानंतर रेडीओथेरपी सुरु केली पण तरीही त्याच दरम्यानची फ्रेंच -ओपन लीजन्ड डबल्स ती नुसती खेळलीच नाही तर जिंकली सुद्धा. प्रचंड मानसिक ताकद आणि जिद्द ह्याचं एक वेगळंच मिश्रण असलेली ही स्त्री रेडीएशन संपल्यावर विम्बल्डनच्या किताबाचीही मानकरी ठरली.

ताकदीची परिक्षा ठरणारा खेळ आणि त्याचबरोबर रोगाशी, औषधउपायांनी कमजोर शरीर पण रोगाशी यशस्वी सामना करण्याची जिद्द आणि ह्या रोगाला शरीरात पुन्हा शिरकाव होऊ न देण्यासाठी करण्याच्या कष्टाची मानसिक तयारी. माझ्ने आयुष्य माझ्याप्रमाणेच जगायचं, रोग्याच्या इच्छेप्रमाणे नाही ही भावना तिने मनात पक्की बाळगली होती.

ती सांगते दुःखी होऊ नका ! रोग झालाय, टळणार नाही आहे मग सत्य स्विकारा, सामना करा, सकारात्मक व्हा, नियमित तपासणी करा, खा-प्या - विश्रांती घ्या ! शारिरीक-मानसिक बळ मिळवण्यासाठी योगाचा फायदा तिला झाला होता तसा सर्वांनी करुन घ्या. फक्त आणि फक्त सकारात्मक व्यक्तिंच्या सहवासात रहा, त्यानेही शारिरीक आणि मानसिक ताकद मिळेल आणि वाढेल.

पन्नाशीनंतर आलेल्या ह्या आगंतुक पाहुण्याला पाहुणचार करुन लगेच पाठवणी करा. ज्या प्रमाणे मार्टीनाने स्वतःला टेनिस, हॉकी, सायकलिंग सारख्या खेळांत गुंतवून ठेवले आहे, शारिरीक - मानसिक स्तरावर प्रचंड संघर्ष करुन जिद्दिने लढा दिला आहे तशीच इतर स्त्रीयांनीही योग्य काळजी घ्यावी. मॅमोग्राफी न करण्याची छोटीशी चुक आयुष्य बदलु शकते म्हणून Prevention measures चा पाठपुरावा "US Govt. NGO" च्या मार्फत ती सगळीकडे करत आहे.

मार्टीनासारख्या अनेक प्रसिद्ध व्यक्तिसुद्धा कर्करोगाच्या शिकार ठरतात. पण त्या आपल्याला वेगळ्या वाटतात कारण त्यांची जिद्द ह्या रोगाचा यशस्वी सामना करुन त्या इतरांनाही तशीच प्रेरणा देतात. अशाच तमाम मार्टीनांना शुभेच्छा देऊ या. तसेच ज्या मैत्रिणी सध्या अश्या कठीण प्रसंगातुन जात आहेत त्यांच्यासाठी - "सखी, ह्या संघर्षात तुम्ही एकटचा नाही आहात-आम्ही तुमच्या सोबत आहोत All the Best!"

कुगा

एक फुगा रंगबिरंगी स्वतःला शहाणा समजू लागला, गर्वाने फुगता फुगता हवेत उंच उडायला लागला.

वेडा फुगा वेली-फुलांशी बोलेना पक्षी-फुलपाखरांशीही खेळेना, ताडामाडाशी स्पर्धा करत घारीशी तुलना करायला लागला.

दोऱ्याचा बंध नको अडकण्याचे निर्बंध नको, बेबंध उडत एकटाच जीवाचे राज्य करीन म्हणाला.

नशिबाला करावी वाटली गंमत लावले विजेच्या तारेत अडकायला, दोरी तुटून लागला फुगा फडफडाया अचानक मिळाले स्वातंत्र्य हुंदडाया

हवेसोबत लागला उडाया वाऱ्याच्या झ्नोतावर भिरभिराया, शक्य नव्हते होत त्याला मनातला आनंद लपवाया.

बराच वेळ इनाला तरी डोंगर इमारतींची उंची संपेना, किती उंच उडाला तरी ढग काही जवळ येईना.

जवळ दूर कळेना झ्नाले भोवतालचे कौतुक ना उरले, त्यातच आला रासायनिक धूर घुसमदून फुग्याचा पुरता गेला नूर.

कंटाळयाचे आळोखे पिळोखे अंमळ झाले होते जास्त, गाठीच्या फटीतून हवा सुटत फुगा मोडीत होता शिस्त.

जीवघेण्या गिरक्या घेत खाली आला भरभर, हवा जाऊन मलूल होऊन गरगरून आला धरतीवर.

म्हणतो आता शिकलो धडा गर्व ताठा करणार नाही, मजेत राहण्या सदा सर्वदा संग दोरीचा सोडणार नाही.

> **डॉ. ओजस्विनी उपासनी** वैज्ञानिक सहाय्यक 'एफ'

सिंगारेट

थंडी, सिगारेट आणि पोरांचा घोळका.. त्यातच आला एक नवीन छोकरा. कालच मिसरूड फुटलेला, इंग्रजीत शिकलेला अजून साधी शिवीपण द्यायला शिकला नव्हता!

पोरं होती उनाड, कट्टयावर सिगारेट चा धुराड छोकऱ्याला खेचला घोळक्यात, धूर गेला नाका-तोंडात हा ठरला त्याचा शेवटचा मोकळा श्वास कोणाचाच बसेना हो विश्वास!

दुसऱ्या दिवशी छोकरा दिसला, घातलेली नेहमीचीच विजार. पुस्तक नव्हतं, पण पाकीट होतं, आणि त्यात होती सिगार! टाळकं सटकलं माझं, अन् गेलो बोलायला उलटा मलाच म्हणाला, "चल दादा, येतो का फुकायला?!"

वर्ष उलटली, दुरून दिसला एकदा आपला छोकरा पाठीवर दप्तर, कडेवर लहानगा ओठ काळवटलेले, डोळे सुजलेले अन् हात कापरे पण खिशात होतीच सारी नेहमीची अवजारे!

खोकून खोकून छातीचा भाता फाटलेला इतभर काडी, आणि वितभर सिगारचा खेळच न्यारा! संसाराच्या खेळाची वाट लावणारी, हळू हळू सगळं जाळून खाक करणारी, सिगारेट !

> मुकुल स. गोडबोले वरिष्ठ शोधकर्ता

Patients' Contributions

My Dreams

Master Satwik Mishra

Age, 10 years

Hello! My name is Satwik Sekhar Mishra. I am a 10 year old boy. I study in Little Flower School, Balangir, Odisha. My life was going very smoothly.

But I suddenly heard that I have an Embryonal Sarcoma of the Liver. That was a bad news that made me and my f a m i l y ver y disappointed. My treatment is going on a t T a t a Memorial Centre, Mumbai. But this

Dream, Dream, Dream! Dreams transform into thoughts and thoughts result into action. - APJ Abdul Kalam

Dream is not the thing you see in your sleep It is the thing that doesn't let you sleep. - APJ Abdul Kalam

news never broke my will power. So I started to see my dreams.

I want to be a Scientist when I grow up. I will make many inventions. I will work in my lab, with many chemicals, and will search about plants, animals, etc.

Besides all this, I will also work for the welfare of the people. As all of us know, India is the second largest country in the world in terms of its population. So many people are suffering from poverty. Many



politicians and businessmen are only looking out for themselves, their family and their near and dear ones. They are doing nothing for the poor people. So this is m y s e c o n d dream. I will help poor people.

As a Scientist, I will invent many machines and many types of medicines that should help poor people in many different ways. As soon as poverty will be eradicated, my dream will be accomplished. My dreams would be successful in real life.

Emptiness

where all the colors goes away from it enfolding it in murk of despair

The state, where flowers blossom with wilted petals hiding themselves in the mantle of sepals where no breeze can undulate them no dew can moist them

Emptiness is a clear picture with only water where no touch of colors, no theme no imagination, no dreams.

But emptiness itself holds a silent storm it may create a rain of happiness or create a flood of sadness depends how you will sway it.

This state is opportunity to spread the desired colors on blank canvas and get whole rainbow in your plate to see a fresh new rays which hold your finger in emptiness will teach you and guide you how to play with the tides of time and deeps

> Ms. Komal Kumbhalwar Age, 24 yrs

Emptiness is the lack of vision to see a single ray even in the shaft of light where the winkers slept in the boggle of indolence mind dozing with closed eyes

The state, where thoughts swim in dark sea without experiencing the waves they also see the horizon just like black band of rays

Heart beats in soundless rhythm with lessen the frequency of repetition where he has no desires, no expectation none appeasement, none motivation

The state, where birds forget to fly to unfurl wings, to leap in sky where they forget to twitter, forget to frisk only fluttering wings on steady twigs

Emptiness is the thing where mind lost in it's own envisages afraid to convert them into ganglion



झेप घे रे पाखरा उंच निळ्या स्वप्नांच्या गगनी विस्तारले आज हे आकाश तुझ्याच वेड्या पंखांसाठी

> मोहरूत्या वृक्षवल्लीची झालर आज तुझ्याच घरट्यासाठी दोन बोचऱ्या काट्यांसवे सजली चादर कोवळ्या फूलांची

झेप घेण्यास जन्म तुझा हा कवटाळ हा नभ दोन पंखात मग काळोखातला तो चंद्र तुझाच आणि तुझीच ती चांदण्याची आरास

> दाही दिशा तुझ्याच सोबती तुझ्याच साठी, या धावत्या पायवाटा दे हुलकावणी दोन आसवांना मग तुझ्याच साठी, या धुंद सागराच्या लाटा

उघड तव इवल्या नयनांना का दिपतात ही कवडस्यांत टाक एक कटाक्ष समुद्र-तीरावरी मग सप्तरंगी क्षितीजही, तुझ्याच पदरात

> घे विसावा पण उडण्यास विसरू नको जन्म घे पण जगण्यास विसरू नको

गाठ कळस उंचीचा पण धुळ धरेणीची विसरु नको जग तुझ्या स्वप्नांना पण नवी स्वप्ने बघण्यास विसरु नको

> वळता परेतीच्या प्रवासाला आणशील का रे, मज एक तारकांची किरण वल्हवत तव इवल्या पंखांना आणशील का, एक सागराची तरंग

वल्हवत तव इवल्या पंखांना आणशील का, एक सागराची तरंग

> कु. कोमल कुंभालवार वय २४ वर्षे

Art: Red Fort Master Navin Chilkur Age, 14 yrs







ACTREC EVENTS

Independence Day, 15th August 2017







Republic Day, 26th January 2018









ACTREC Day - 12th April 2017



Summer Camp for children of staff members - May - June 2017



International Yoga Day - 21 June 2017





ACTREC Sports Events 2017 - 10th April 2017





DAE Sports Events 2017 - 10th November 2017





Entertainment Programs for pediatric cancer patients ACTREC - 12th January 2017



Events at St Jude's India Childcare Centre - 25th January 2018





TATA MEMORIAL CENTRE

A MORE SERVICE A PROVIDENCE

Advanced Centre for Treatment, Research & Education in Cancer Kharghar, Navi Mumbai, India