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Dr. Chidambaram sharing his views on research

Directed research is not a substitute for self-directed basic research, says Chidambaram

A Spectrum Reporter

“If you want to create wealth for India, you have to enhance development,” remarked Dr. R Chidambaram, the Principal Scientific Advisor to the Government of India.

The top scientist of the country was chairing a high powered panel at a Plenary Session on Academia-Industry interaction at SRM University under the aegis of the 98th Indian Science Congress.

Dr. Chidambaram argued that in India academic institutions are good in research, companies good in development, but both the sectors need some boning up as far as delivery was concerned. Against a backdrop of globalisation and increased competitiveness, Indian industries would like to interact with the academia, he added.

A person who played a crucial role in both Pokhran I and II (nuclear tests of 1974 and 1998) and later in 2008 with the United States-India Civilian Nuclear Agreement, Dr. Chidambaram took the position that “we are doing much better academia-industry interaction than we think”.

The important aspect, however, is in looking at the future road map. The academia-industry interaction should not only be confined to the larger industries but also involve small and medium enterprises, Dr. Chidambaram maintained.

The former Chairman of the Atomic Energy Commission of India and a member of the Commission of Eminent Scientists of the International Atomic Energy Agency, Dr. Chidambaram maintained that the self-directed basic research that the academic institutions are known for should be backed up by directed research focused on specific technologies. But

Quality education needs to spread further and be cheaper

A Spectrum Reporter

Although higher education in India has spread over even undeveloped and underdeveloped areas to an appreciable extent since independence, issues of access, equity, and quality still continue to cause concern with the untrammelled population putting tremendous pressure on the educational system especially with regard to its quality at an affordable price.

Only if this necessity is fulfilled a host of factors such as improving literacy, access, equity and quality can be addressed, says Dr. M Ponnavaiko, Provost and Chief Academic Officer of SRM University.

“Higher education in India comprises

government, government-aided and private institutions of which nearly 40 per cent are government and the rest are private-owned. The highest investment in higher education



Dr. Ponnavaiko

is by the private institutions, amounting to 92%, while the investment from the Government accounts for just eight per cent,” Dr. Ponnavaiko has said in an abstract of his paper on Challenges in Maintaining Quality Education.

“Emergence of private institutions in large numbers, while making

capacity addition to a greater extent, has created many concerns on quality and equity” he adds going on to list several challenges of higher education, particularly its accessibility and equity.

First, the projected population in the age group of 18-23 years for 2011-12 is 144.287 million making access to higher education for all eligible a major issue before the policy makers. Second, in terms of the Gross Enrollment Ratio (GER) there are large variations among the various categories of population based on gender, urban or rural habitation and rich and poor. “Due to regional disparity in economic development and uneven distribution of institutions

↪ P2

↪ P2

Lighting up life of Limbless



Mandakini Ayapilla & Karishma Lodaya

The Artificial Limbs Manufacturing Corporation of India (ALIMCO), a Government organization under the Ministry of Social Justice and Empowerment prepare artificial limbs, participated in the 98th Indian Science Congress Science Exhibition. It prepares items with stainless steel and aluminum alloy and has a record of catering for the needs of 40,000 people annually.

The Government of India provides Rs. 42 crores as aid to manufacture device whose cost of a piece ranges from Rs 3,600 to Rs 4,700 and the cost for limbs of hands is estimated around Rs 3,800

Importance of machine tools stressed

Ashish George

Dr. P Radhakrishnan, Director, PSG Institute of Advance Studies, talked about the importance of machine tools industry in the industrial growth of India. He pointed out the technological flaws in the fields of defence and strategy sectors, precision engineering, automotive and sensors, which can be eliminated

with high quality machine tools.

“Higher the quality of machine tools used, higher will be growth of industry,” he said.

He suggested taking projects under Public Private Partnership (PPP) mode, with international collaborations. He emphasised on the need of innovation and research & development support for improving the

quality and reliability of current machines.

“Manufacturing industries have to be upgraded,” he added. Prof. P Rama Rao talked about the academia-industry cooperation in the automotive sector and how Collaborative Automotive Research (CAR) programme is contributing in the development of R&D laboratories.

Hectic efforts on to make common man learn...

How to reduce waste

Ratnika Sharma and R Krishnan

“Of the total waste that comes out of various materials we use in India, around 27.5 percent goes untreated” said Dr. S.P.Gautam, Chairman, Central Pollution Control Board (CPCB), New Delhi.

He enlisted new technological measures initiated by CPCB in the area of waste management like salt-less preservation of hides/skins by a process called

‘lypholization’ in tanneries, on site bio-remediation for sewage treatment and use of bacteriophages for removal of harmful faecal bacteria.

The other measures include setting up of Common Chemical Recovery Plants (CCRP) in the paper and pulp industries and usage of waste from distilleries in cement kilns, sponge iron furnaces.

The CPCB has also started a weekly TV programme called

Paryavaran Darshan in 19 languages for every person to become aware of.

“Establishment of National Green Tribunal (Apex court) by the Ministry of Environment and Forest, setting up of National Environment Monitoring Agency and introduction of Third Party Inspection and Assessment System as part of legislative and administrative reforms, is expected to help manage and minimize waste,” added

Dr. Gautam.

Prof. R.Ramamurthi, ISRO Scientist and chairperson for the session on Environmental Technology: Issues Relating to Waste Minimization and Management, suggested a plan of action to improve the waste management systems in place.

This involves implementing eco friendly technology, generation of bio gas from medical waste and setting up of comprehensive waste management and recycling

systems.

The provost, Dr. Ponnaivaiko stressed on the need to re use the waste from one process for another.

He exemplified the case of Anandwan in Warora, Maharashtra where plastic waste was shredded and used as pillow and mattress fillings and for strengthening bricks and cement.

Waste is worthy...

W- Worthy
A- Augmented
S- System for
T- Transfer of
E- Energy

Prof. S.P. Gautam

Quality education...

↳ P1

of higher education, this boon has not reached all sections of society,” the senior SRM academic official has maintained.

“To overcome the deep-rooted problem of social inequity, successive governments have introduced caste-based reservation in higher education. The caste-based reservation has not only deprived better talent coming from non-reserved category of admission in good institutions but also causes brain drain and enduring divisions at heart,” Dr. Ponnaivaiko said.

Directed research ...

↳ P1

he quickly cautioned, “Directed research is not a substitute for self-directed basic research.”

In his brief opening remarks he spoke of the importance of University Research Parks. “This is an important aspect of enhancing academia-industry interactions,” he said.

Introducing the Chair of the session and the topic the Director of Research at SRM University, Dr. Narayana Rao said that this meeting was conceptualised by Dr. Chidambaram. “We are fully aware that there is a great need and scope for academia-industry interactions,” Dr. Rao said.

Academia – Industries must work in unison

Rahul Preeth

“Indian academics and industry have been the North Pole and South Pole rather than being the two sides of the same coin”, said Mr.Subodh Bhargava, Chairman, Tata telecommunications, while taking the audience through the private sector perspectives of academic Industrial Interaction.

He touched upon the need for enhancing academic industrial interactions. He said that Academia and industries are two sides of a coin; the coin being the economy.

He maintained that in US and UK, the University system has been practical in leading to the countries’ sound economic performance because of the interaction between the players of industry and the academia. Besides that, the top league universities in those countries are private universities that indicate a healthy interaction between the two.

But the institutions in India are starved of scholars who more often find careers in industry more lucrative. Certificates being doled out for money by “unscrupulous” institutions

makes their products a liability than an asset to industries and industries thus lose faith in academia, added Mr.Bhargava.

To afford pursuit of knowledge, there has to be industries in the background taking care of the more mundane practical aspects of wealth creation. On the other hand knowledge created as a practice of academic programme has produced people who have technical competence and can also find solutions. This aspect has benefited industries significantly, enabling it to re-engineer itself, to more efficient and great wealth creation.

Scientific facts must deal with societal concerns: Swaminathan

Haripriya Madhavan and Maheswari.M.D

The second day of the 98th Indian Science Congress hosted the rare gathering of the heads of seven science academies, at the plenary session on “Science Academies Summit”. Putting forth the role of science academies in policy-making and public education, the speakers highlighted their institutions’ national and international initiatives to promote science and research.

Dr. M.S. Swaminathan, MSSRF, the chairman of the session presented his views on welding scientific facts into public policy and addressing societal concerns by bringing all academies together.

Prof. M. Vijayan, President, Indian National Science Academy (INSA) said, “The primary role of a science academy is to identify and promote excellence”. The INSA had recently set up a science policy study cell, and produced various studies on nutrition security, heavy metal pollution and impact of migration’. Speaking on the challenges faced, “We need to learn much more than what we know now, on how to deal with media, how to deal with political interests and how to deal with commercial interests” he added.

The National Academy of Sciences of India (NASI), which was established in 1930, has been launching programmes to



Dr. Swaminathan

inspire young people to take up science as a career and also in developing relations between science and society. Prof. Asis Datta, President, NAS told that creative ideas are essential for

a society to evolve positively.

The Indian Academy of Sciences (IASc), Indian National Science Academy and National Academy of Sciences of India (NASI) have been offering summer research fellowships under their joint education programme. Dr.N.Mukunda from IASc said that science academies had contributed significantly to science education in past 15 years.

Dr. Med Martin Lohse, Vice President, German Academy of Sciences (GAS) highlighted that they conducted national and international symposia, scientific events and interact with other national science academies. The GAS was also publishing

journals and recommendations on bio-fuels, energy research and stem-cell research. The session which focussed on attracting young minds put down the fact that there is a need for engineers who can solve national problems with a global outlook. The speakers suggested that public opinion should be taken into account while academies decide what to do research on.

In his concluding remarks, Dr. Swaminathan said academies should lay more emphasis on young people and women scientists. He appealed to the science academies to set up a think tank or an inter-academy panel to tackle the challenges of science and society effectively.

Varsity research parks vital in growth of nation

Komal J.

The need of the hour is the founding of as many university-based research parks as possible in Indian Institute of technology (IITs) and Indian Institute of Science (IISc), Bangalore, said Dr.M.S. Ananth, Professor, IIT, Chennai. He was speaking at the T.P. Ganesan auditorium, on the second day of the 98th Indian science congress being held at the SRM University, Chennai.



Dr. Ananth

There was considerable difference between India and other countries in harnessing creativity and making it grow. If a university had some healthy money making venture near it that would sustain the university till it could stand its feet. The university parks must be thrown to people who should extend their whole hearted support. The parks must focus on commercialization.

Dr.M.S. Ananth said regional technology-led economic development and universities, capability to devise new tools, encouragement of competitiveness and entrepreneurships that worked multiple benefits to a particular university were the welcome off-shoots of the park. The university should do well patent what is produced and what it brought out. It

was important to remember that higher the publication rate, more successful was the patenting. This also attracted eminent scientists or garners larger grants. There was a notable shift in curriculum and improved student placements.

He said the scenario in India was incomparable with other countries. For example china invested lot more than India.

Managing creativity has the most important points as it has a set of rules such as the “Magic Garden” approach and “the idea factory” approach. The former brought unlike minds together, created the right atmosphere, and gave freedom but structured interactions. the

latter also put together unlike minds as in the former school where an individual graduated, discipline(R&D), attitude to research parks mattered. with 11.5 acres infrastructure that has approach road the IIT Madras’s objective is to generate ideas, earn support for resource, making India a design house, offer higher education opportunities etc.

There are about 27 companies, seven incubates, seven laboratories in the IIT campus. Big, reputed companies such as the BHEL, TATA, hotels and many food courts are occupying one floor each in the campus.

The research park, to be built in three phases will entail Rs.350 crores expense of this Rs75 crores with bank loan and Rs100 crores will be soft loan. Tamil Nadu Government has given away the land and expected to offer more bank loan, concessions.

There were a few recommendations for India that he said, might be useful. With 25 URPs seven new IITs, Eight new IISCs, five IISCRs, CUs can start.

The government of India gives initial grant of Rs 25 crores park. The growth of these parks is friendly policy environment, that is supportive and patient.



Dr. Saraswat (Right) with Mr. B.Prasada Rao

Defence Sector cited to stress academia-industry tie – up

Anuj Srivas

“The defence sector, being one of the oldest industries has only survived this long due to inputs from both academic and industry communities,” said Dr. V.K Saraswat, Defence Research and Development Organisation (DRDO) Director at the plenary session of the 98th Indian Science Congress.

The theme of the session was Academia – Industry Interactions: Status, Issues, and Future Roadmap.

Saraswat talked about how in the 1980s, the DRDO started consolidating its Research and Development sector and started the development of a system where universities and industries could collaborate with the DRDO. According to the director, different mechanisms such as assigning projects to universities and increasing the industrial standard to a higher level would ensure mutual

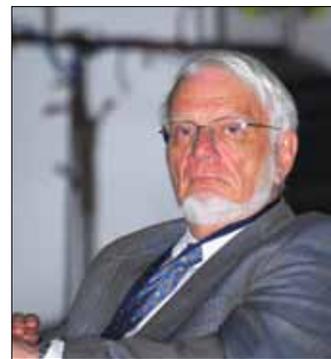
benefit to all parties involved.

For example, universities could implement customised DRDO approved courses which make cooperating with students easier, Dr Saraswat added.

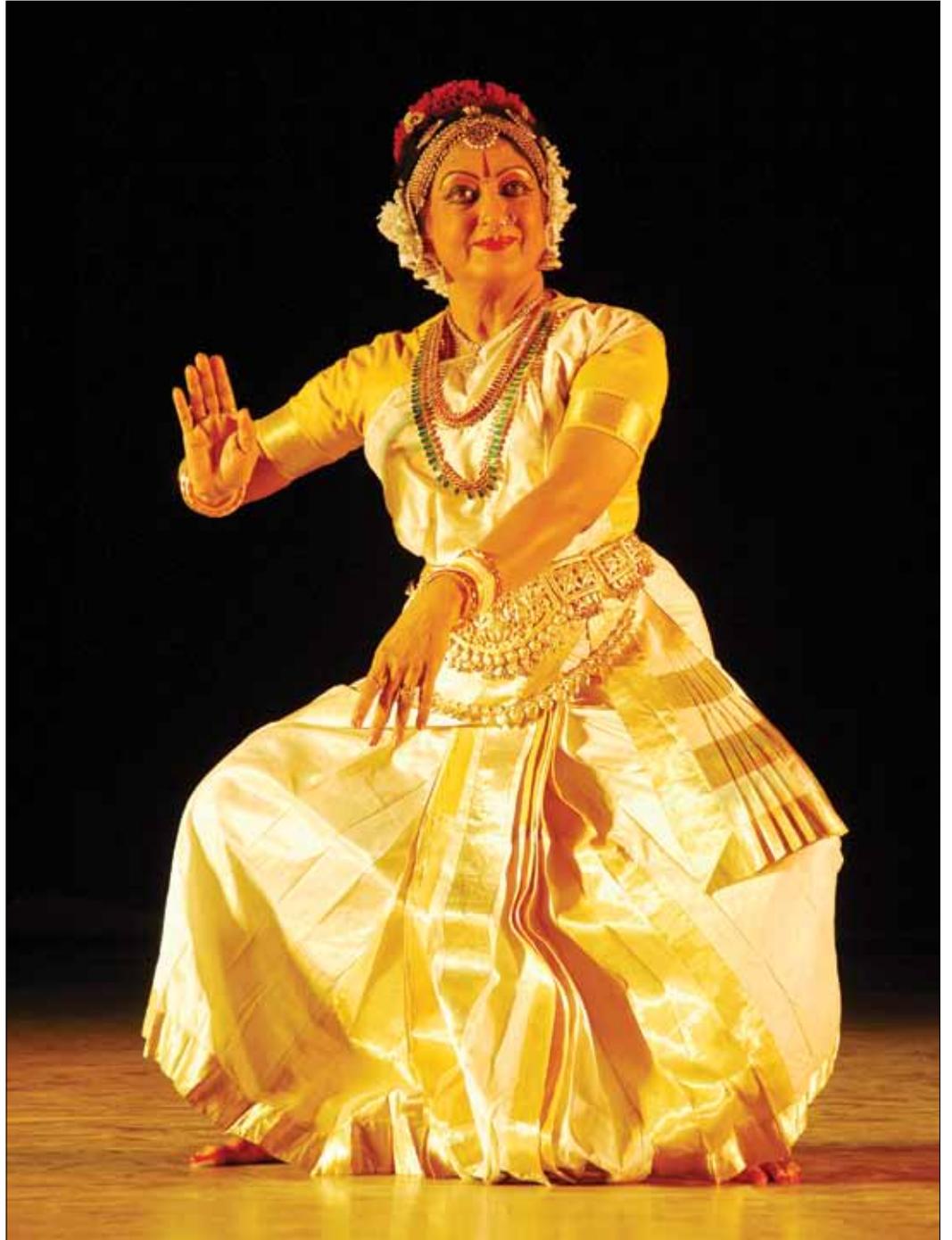
Next, Mr Shri B. Prasada Rao, Chairman and Managing Director of BHEL, New Delhi added his views from a public sector perspective. Rao talked about the various advantages of Academia – Industry interaction and how this interaction is a resource of creative and new ideas.

“Public Sector Units like the BHEL have always been at the front of these interactions, we have many tie ups with recognized universities involved in Research and Development,” said, Mr Rao. The need for a holistic approach to a new age interaction which addresses issues like Intellectual Property rights (IPR) is necessary Mr Rao added.

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Prof. C.N.R. Rao Speaking at a plenary session

New avenues of chemistry expanded

Sahana and Komal

The first day of the 98th Indian Science Congress held here at the SRM University witnessed the celebrations and declaration of 2011 as 'The International Year of Chemistry', with experts and scientists discussing novel applications of chemistry in the present world and in future. The plenary session on the topic recognized chemistry as a subject that has flourished for centuries and introduced new avenues for exploration.

CNR RAO, Research Professor at JNCASR & IISc BANGALORE, India briefed the audience about the history of chemistry, scope of chemical science, beginnings of chemistry, chemical synthesis, and super molecular bonds. Chemistry has blossomed since then, over the last 100 years.

The scope of chemistry is vast, full of surprises, and integrates material sciences backgrounds. Speaking on modern chemistry, he described new computing methods, large scale simulations in theories and experiments and new algorithms. He said that energy storage and generation can be made through chemical approaches. "With the help of nanotechnology in fuel cells, cars could run on water as fuel, by separating hydrogen from water", he added.

Throwing light on the nuances of nanochemistry, Dr. T. Pradeep, IIT Madras spoke about the new possibilities in day-to-day life, like preservation of tomatoes for a longer duration and developing super strong hairs carrying a tone.

He remarked that nanochemistry is unified as it merges with

biology, physics and engineering sciences. He said that gold nano-particles could be used to detect Alzheimers at an early stage. Nano particles can also be used to remove pesticides from drinking water.

Dr. Uday Maitra, IISc Bangalore spoke on "Chemistry of future, highlighting organic chemistry". He elucidated on highly efficacious drugs for cancer, diagnosis of tuberculosis and other diseases.

The session enumerated new ideas such as creation of natural products from marine wealth, effective ways to build material sciences, eco friendly chemistry, bio compatibility, artificial photosynthesis. Nobel laureates in chemistry and many veteran Indian scientists were also remembered by the speakers during the occasion.

Science, Industry must become two sides of the same coin: Maira

Ashish George, R Krishnan and Prashanti Ganesh

The consciousness of universal human rights and awareness of what others possess have made people impatient with the crumbs they have to be satisfied with alongside their existing says material status, Mr. Arun Maira, Member, Planning Commission, in his presentation on Science Policy—Agenda for the next five years. The role of the wheel of progress in sustainable and inclusive economic growth has become imperative for raising innovative edifices.

"At the hub of innovation is science," Maira maintained.

Innovation, according to him is to produce affordable products for the people, by the people and of the people. "This way, growth is socialistic, but productive socialism, is coupled with democratic capitalism". She stressed the fact that there is an inevitable interdependence between science and industrial policies.

"A science or an industrial policy, by itself, will not produce the innovation necessary for the country's growth; they need to be nurtured together" Maira said.

There are flaws in the Indian manufacturing sector and in the lack of a skilful pool of

human resource said Mr B P Rao, Chairman and Managing Director, Bharath Heavy Electricals Ltd. (BHEL). He emphasized on the need for technological innovation in manufacturing and defence sectors.

He proposed increased investment in the Research and Development coupled with a partnership with the industry as the agenda for the coming years. The protection and recognition of the intellectual property of the country is vital, Mr. Rao said.

Following up on this theme, Dr. P. Rama Rao of the International Advanced Research Centre for Powder Metallurgy and New Materials (ARCI) spoke of the Japanese leader Saburo Okita by way of a stress on the importance of education.

Rao argued that statistics showed the correlation between Gross Domestic Products of different nations being directly proportional to the number of research scholars. Rao went on to discuss the private sector, which has emerged as a major force in imparting technical education in India, as a response to market demand.

Earlier, Mr M S Valiathan, National Research Professor, Manipal University, discussed the various trends of scientific instrumentation in India.

Padma Subramanyan sets the stage alight

Karishma Lodaya and Mercy John

With a whole day devoted to serious science - related discussion at the 98th Indian Science Congress, the cultural event at the T P Ganesan Auditorium on January 3, 2011 came as a source of relaxation. The cultural event began with a Bharatnatyam dance performance by Dr Padma Subrahmanyam of world-wide repute and her troupe.

Dr Padma Subrahmanyam and her associates performed to a Tamil Saint Appar's devotional song. Their Varnam performance to a Hindi Bhajan, to which the music was played by the maestro herself brought alive Meera's longing for Lord Krishna and delicately dealt with the emotions involved in it. The team performed two dances on the compositions of Utkaada Sri Venkata Subbayya. They rounded off with the depiction of the lives of Yashoda and the milkmaids. A Sanskrit poetry recital also took place.

The performance included violins, tabla, flute, and vocals.



Purandeswari seeks private partnership to boost quality in education

HariPriya Madhavan and Maheswari MD

Stating that the private sector accounted for 85 per cent of the institutions in technical education in India, Minister of State for Human Resource Development Ms Daggupati Purandeswari called for a partnership with the sector. "In this connection, the central government formulated a scheme to establish central universities under the public-private partnership," she said.

She was addressing the plenary session on Challenges of maintaining quality education of the 98th Indian Science Congress.

While explaining that the elementary education and higher education supplement each other, Ms Purandeswari said, "The greatest challenge of maintaining quality education lies in preparing our children not just to be national citizens but to be global citizens."



Ms. Purandeswari (Right) at a plenary session

Stating that the central government was making an effort to build consensus on issues that concerned education, the minister stressed on the need for "... consensus among the stakeholders to carry out reforms in education". However, she regretted that there was no

agreement on common entrance examination for professional courses.

The minister also sought cooperation from the state governments in the implementation of the system of continuous and comprehensive evaluation of students in schools.

Later speaking during the session, Prof. Bopaya Bidanna of the University of Pittsburgh suggested that students in India should develop the habit of asking questions.

Speaking on the need to improve teaching and learning skills in the country, Prof Bidanna

proposed a 10-point programme that focussed on issues like enhancing curriculum flexibility in order to allow a student to design his course, introducing international internships for students to gain global exposure and incentivising research for the teaching community.

Lamenting that universities in India spend less than 1 per cent of the nation's GDP on research, Prof. M. S. Sodha of Lucknow University appealed to the institutions to identify good researchers, provide funds and consistently monitor their progress.

Stating that several institutions in India are flourishing without adequate infrastructure and sub-standard education, Dr. Ponnaivaikko, Provost of SRM University, recommended, "A good control mechanism be put in place to check this practice."

Prof. S.S. Katiyar, Former General President ISCA, chaired the session.

Dr Yonath throws light on the protein creation process

Anuj Srivas

Stating that protein is basically created with the help of cells known as 'ribosomes', Nobel Prize winner Dr. Ada Yonath said, "Ribosomes serve two main functions, one is to create protein, and the other is to form peptide bonds between amino acids."

Delivering a Public Lecture on the sidelines of the 98th Indian Science Congress, Dr Yonath said, "When I was in college it took me a day to make

"When I was in college it took me a day to make a peptide bond in the lab, but ribosomes can make 15 bonds in one second."

a peptide bond in the lab, but ribosomes can make 15 bonds in one second."

Explaining the protein creation process, Dr Yonath focused on the Ribosome Factory Theory: RNA (Ribonucleic Acid) in the

form of mRNA (messenger RNA) and tRNA (transfer RNA) pass through the ribosome and churn out protein in a process known as 'translation of protein'.

She then moved on to the work she had been doing over the last 10 years that culminated in her Nobel Prize.

Throwing light on the concept of a protein tunnel in the ribosome that helps in interactive participation of the stretching and creation of protein, Dr Yonath said, "The study of this ribosomal tunnel could not be possible without the crystallisation of these ribosomes with a technique that I developed in my lab."

This new technique of crystallisation known as cryo-bio crystallography along with ribosomal tunnel study gained her worldwide recognition.



Dr. Bhan (Left) with Dr. K. Brahmachari

Dr Bhan invites private firms for collaborative research

Aravind T S

Inviting the industrial houses and educational institutions to participate in sharing knowledge, research resources and information, Dr M K Bhan, Secretary, Department of Biotechnology, Government of India, asked them to follow ethical practices and good governance while collaborating in the development of affordable technologies and clinical trials.

Programmes like Biotechnology Industry Research Assistance Programme (BIRAP) and Small Business Innovation Research Initiative (SBIRI) have been initiated to assist in such public-private collaborations, said Dr Bhan.

He explained that, "SBIRI basically funds small and

medium companies that take up high-risk pre-proof-of-concept research and late stage development. The basic idea is to support private industries and to get them involved in development of such products and processes which have high societal relevance."

Stating that scientists participating in such collaborative research developed three vaccines in a short span of 18 months and stress tolerant rice, he said, "These vaccines were meant to cure ailments like H1N1 influenza virus."

Speaking of the Rotaviral Diarrhoea vaccine, he said, "Several public-private organizations are collaborating to develop the vaccine, which is a pure Indian development and it is in its third phase of trial."



Dr. Yonath

Tamil Nadu in a nutshell

A. Thirugnanasambanda Moorthy

The Greek Civilisation was supreme in having produced great philosopher – thinkers such as Socrates, Plato and Aristotle. It had given birth to famous orators like Cicero, Demosthenes. And the ‘first great’ in history, Alexander who conquered the world though he died young, belonged to Greece. Sparta that taught the world the essentials of simple living and high thinking was a part of Greece. And Greece has age-old architectures of exquisiteness and beauty.

So also is the Tamil civilization that had given birth to a Thiruvalluvar, Kamban, Avvaiyar, Nakeerar, Great Saivaite and Vaishnavaites who have produced immortal works that stressed truth and justice.

I have cited one ancient and chequered civilisation to illustrate more or less the same is the instance of what Tamil Nadu is since 1968. The British who had bought the city in mid 17th Century had named it Madras.

As was the case of principalities in Europe till the advent of the 19th century so were divisions of quite large areas in Tamil Nadu. Chera (from Coimbatore to Ooty), Pandiya (Madurai and adjoining districts), Chola (Thanjavur, Tiruchi and adjoining areas) and Pallava (Kancheepuram, Chengalpet and other areas) were dynasties each of which ruled Tamil Nadu for several centuries.

Though there were frequent wars between these so called empires their rules who were deviant had birth memorable temples. In my heart and mind the first temple that looms large is the ‘Brahadeswara’ temple that was built exactly 1,000 years ago in Thanjavur. Soon after one enters the precincts the person is awed by the giant ball carved of a single piece of stone. The presiding deity of the temple ‘Brahannayagi. The temple was built by Raja Raja Chozha of the late line of the clan. Another unique feature is the shadow of main ‘gopuram’ never falls on the ground. Raja Raja’s son Rajendra Chozha had built a similar temple in Gangai Konda Cholapuram to commemorate a victory of his in North India.

In Srirangam, about three miles before Tiruchi there is the famous temple for Lord Ranganatha (Narayana). His new 26-tier high Raja gopuram was consecrated in 1986.

As Lord Siva has told Goddess Parvati they are equals so are Lord Narayana and Lakshmi and Brahma and Saraswati. But strangely temples are scarce for the last named duo.

In Tiruchi the most notable temple is that Vinayagar’s that requires the devotee to climb up a few hundred steps. In Tiruvanaikcoil there is an imposing temple for Akilandeshwari and Jambukeswarar.

For Lord Muruga all the praiseworthy temples except the one situated near the seashore in Tiruchendur are situated atop hills. Tiruttani, Swami Malai, Pazhamuthirsolai, Tirupparankundram, Mailam etc., are things of beauty on top of hills.

Andal who with her devotion married Lord Ranganatha has a temple dedicated to her in Srivilliputtur in Tirunelveli district. There three-tier temples for Lord Narayana in Uthiramerur in Kanchipuram district and in Tirukostiyur in Ramnad district.

In Kanyakumari where the three seas merge – Bay of Bengal, Arabian Sea and Indian Ocean there is a monument Swami Vivekananda who meditated on a rock for three days before he embarked upon his trip to the United States to take part in the world Parliament of Religions in 1893. And to denote ‘Tirukkural’ economists 133 chapters (each chapter containing 10 carplets) there is 133 – high Thiruvalluvar statue.

In Madurai, capital of the Pandiyas is the Meenakshi – Sundareswar temple and Tirumalai Naiker Mahal. The first, second and third Tamizh Sangam flourished in Madurai.

of course



A scion of the Chera family ‘Ilango Adigal’ who renounced worldly life wrote immortal ‘Silapathikaram’ (story of the anklet). It was the first epic that was devoted to a woman patience, valour and chastity.

In Kanchipuram, the capital of Pallavas there is Varadaperumal temple, Kamatchi Amman temple and Ekambareswar temple. Kind Mahendravarman who ruled in the VII century, a great connoisseur of architecture had left behind his imprint in chitanavasal ruler near Pudukottai.

His son Narasimhavarman II had five rathas and seven pagodas (temple) sculptures in Mahabalipuram 18 miles from Chengalpattu. Of the seven temples, six have submerged by the sea. In long rock he had got sculpted Arjuna’s penance and so on and a huge butter ball that stands on a rock slantingly is a thing of marvel.

All the kings of the dynasties were great philanthropists and showed no favoritism to any particular faith.

Madras state produced Veera Pandiya Kattabomman who defied the British and was hanged in 18th century in panchalamkurichi, in Tirunelveli district. It has produced great freedom fighters ‘V. O. Chidambaram pillai’, who saw ‘Swadeshi’ steamship, underwent untold suffering in detention, gave his all for freedom struggle, national poet Subramania Bharati, their compatriot Subramania Siva and Tiruppur Kumaran. Chakravarthi C. Rajagopalachary who became the first Indian Governor general of India and Kamaraja Nadar who introduced noon meal scheme for children and was known for his incorruptibility luminous stars in Madras State’s political firmament.

The tourist resorts are Courtrallam falls in Tirunelveli district, Hogenekkal in Dharmapuri district and Kodaikanal in Madurai district where the weather is balmy throughout and Ooty (Uthagamandalam) district that is called the ‘Queen of hill stations’.