but the results of this laissez-faire policy are before our eyes. It is essential that every village or a group of villages, should learn the need for rearing their animals and producing their milk on a co-operative basis. After a preliminary experimental period, the producers will soon realise that they get a better value for their produce, their animals thrive better and the consumer slowly regains confidence in the quality supplied.

Before the desired quantity of milk can be produced in this country and utilised in the right way a little amount of education is also necessary. The farmer must be taught not to rely on straw alone as a food for his cattle. Application of existing knowledge for better conserving and producing good quality of feeding-stuff is necessary. To do this he must also realise that every animal in his charge looks to a little corner in his field for its well-being.

The economic importance of the dairy industry even in its present decadent state, as mentioned before, is enormous. One of its striking drawbacks is the total lack of interest shown in investigating the reasons of the difficulties it encounters and in taking the help of modern scientific technique to overcome them. No doubt every ghee packer of importance maintains a room for housing a refractometer and one or two such other apparatus but that is mainly with the object of crossing the legal hurdle. One result of this policy is apparent. The Indian consumer is slowly losing confidence in the genuineness of the products of his own land and is prepared to pay fancy prices for imported articles. It is a tribute to other countries that they take pains to study the Indian requirements carefully and evolve technique to suit that demand. For example, a small import of ghee has already started. In course of time, if the warning is not taken, this is likely to out a considerable proportion of the indigenous product. If the dairy industry is to advance and thrive, it must harness scientific knowledge to its needs.

Concluding, it may be stated that for the future development of the dairy industry a beginning has to be made from primary stages. Maintenance of just enough animals that can be properly fed, production of better quality of feeding-stuffs, co-operative dairy organisations, organised marketing and scientific research are a few points to be borne in mind, if it is desired to see commercial exploitation of milk a reality.

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NEWS

Brain Research Centre dedicated to the nation

Manesar, Haryana on 16 December 2003 became the focal point for commemorating the dedication of National Brain Research Centre (NBRC), a deemed university to the country. The President of India, A. P. J. Abdul Kalam in his inaugural address on the occasion quoted WHO estimates stated that brain disorders would be the greatest public health threat in the next few decades. He called upon brain researchers to evolve a comprehensive human brain project through global participation for tackling diseases such as depression, schizophrenia and the like. Kalam stated that it would be a challenging task and the project should aim at preparing a comprehensive structural and functional map of the human brain. Healthcare is an area, Kalam said, that brings the entire humanity in both developing and developed countries together. He suggested collaborative clinical research programmes, particularly in brain disorders for emergence of multiple solutions for control and management of disorders. This, he said, would be the greatest service done by this scientific community to mankind. He quizzed whether computers could challenge the brain. He spoke of guiding doctoral research on mentally challenged children while at Anna University, Chennai that aided transformation of the function of a diseased brain by means of a non-invasive triggering mechanism and the possibility of implanting a bio-chip to carry out needed functions. He urged NBRC to adopt convergence of information and communication technology, medical electronics, biotechnology and mathematical simulation to find solutions. He also suggested that the Centre undertake research programmes to determine the correlation between clinical data and the performance of individuals in different activities that could eventually lead to a battery of tests for use by schools and social organizations in guiding children towards their appropriate career path. Brain research could help in promoting the balanced and healthy development of emotional intelligence leading to the evolution of a truly enlightened citizen, he added.

In a lighter vein, Kalam spoke of the two characteristics of humans, namely jealousy and righteousness. The former characteristic, he said would require brain researchers to formulate a method whereby specific neuron activities could be disconnected and the latter would call for higher connectivity. He posed a question, “can we repair diseased neurons?” Murli Manohar Joshi, Union Minister for Science and Technology, Human Resource Development and Ocean Development in his address said ‘the brain is the most complex entity known and represents the last frontier in biology and called NBRC as the first Centre of Excellence in the State of Haryana working on the frontier of knowledge. India’s recorded tradition for studying brain and its disorders dates back to ancient texts such as the Sushruta Samhita. ‘How the brain works and thinks’ continues to intrigue biologists, physicists, mathematicians and philosophers over the centuries. Joshi said, the human brain remains the last frontier of ignorance and one of the greatest scientific challenges of this century is to understand the structure, function and development of the brain in healthy and disease condition. With a healthy body
and a healthy mind Indians can do wonders. Joshi said that ‘I am confident that we will be the leaders soon and would provide solutions to many complex issues concerning the most vital organ of the body, the brain, through a holistic approach and synergy between our traditional knowledge and modern science.’

P. N. Tandon, himself a distinguished neuroscientist while recalling the doyen of Indian neurosciences, the late B. Ramamurthi who recently passed away, said that NBRC had been established keeping in mind two criteria – excellence and relevance. He said that it is not generally recognized that at least one out of four persons would suffer from some disorder or disease of the nervous system during their life span. A few of these diseases are unique to our people and hence demand our efforts to deal with them, and unfortunately most remain ill understood and without a definite cure, he added. Yet, the recent advances in diverse fields of science provide a unique opportunity to meet these challenges, felt Tandon. He quoted John Searle who had stated ‘the neurosciences have now advanced to the point that we can address – and, in the long run, perhaps even solve – the problem of consciousness as a scientific problem like any other.’

Manju Sharma, Secretary, Department of Biotechnology called ‘brain research’ as the last frontier of human endeavour, with the NBRC providing state-of-the-art facilities in pursuit of this field of science whose genesis was seeded in 1964 by the dreams of late B. Ramamurthi and P. N. Tandon. Since May 2002, the Ministry of Human Resource Development has recognized NBRC as a deemed University.

Brain-related disorders are a huge burden to society and the afflicted people and their families live a difficult life particularly with attention-deficit disorder, depression and schizophrenia prevailing amongst a large percentage of the world’s people. For understanding the underlying pathogenic mechanisms there is dire need for diagnostic tools and therapeutic interventional strategies. NBRC under the leadership of Tandon and Vijayalakshmi Ravindranath is steadily in the process of evolving a networking approach for Indian neurosciences activity and for capacity building in this important area directly relevant to the health of the nation.

Research at NBRC will focus on the following areas: Molecular and cellular neuroscience, Developmental neuroscience, Neurovirology, Systems neuroscience, Theoretical neuroscience and imaging, and Computational neurosciences.

NBRC, with a present faculty strength of 12, has initiated both postgraduate and doctoral studies in neuroscience where students could come from diverse backgrounds including engineering disciplines thereby creating a strong foundation for interdisciplinary research that is so much a part of the study of the brain. In addition, nearly 42 centres in India are networked with the NBRC. NBRC also provides national facilities such as the Distributed Information Centre, Digital Library, Micro array facility and DNA sequencing facility. International collaboration is part of the ethos of NBRC. Funding sources for research projects include Department of Biotechnology and the Department of Science and Technology, Government of India, National Institute of Health, USA, the Third World Academy of Sciences, US–India fund for cultural, educational and scientific cooperation, and the Wellcome Trust.

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