

CORRESPONDENCE

originals verified by other authenticated persons.

2. It is normally observed that the application forms are of as many types as the number of agencies seeking applications. Let us evolve a consensus on the contents of a bio-data/application format. Once the bio-data structure becomes uniform, the chances of misrepresentation of facts will be minimum. There will be

minimum trouble to the applicants too and verifying authorities as well.

The issue of acknowledgement/regret letters was raised by Divakara Sastry (*Curr. Sci.*, 2002, **82**, 611). In this context, I would like to suggest that a standard acknowledgement card be made mandatory to be enclosed with each application. Accordingly, once the appoint-

ment procedure is finalized, a regret letter can be issued to the not-so-lucky candidates.

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NEWS

Mathematics prizes

The four-yearly Fields Medals (the mathematician's equivalent of the Nobel Prize) and the Nevanlinna Prize were awarded on 20 August 2002, at the opening ceremony of the International Congress of Mathematicians, held in Beijing. The Fields Medals went to Laurent Lafforgue of Institut des Hautes Etudes Scientifiques in Bures-sur-Yvette, France and to Vladimir Voevodsky

of the Institute for Advanced Study, Princeton, NJ, USA. The Nevanlinna Prize was awarded to Madhu Sudan of the Massachusetts Institute of Technology, USA.

The work of Lafforgue is on the so-called Langlands programme, which concerns certain deep connections between number theory, analysis and group representation theory, while that of Voevodsky

is on 'motivic cohomology' (algebraic geometry). Madhu Sudan has worked on non-approximability of optimization problems and coding theory.

Madhu Sudan graduated with a B Tech degree from IIT Delhi in 1987. Both Lafforgue and Madhu Sudan are Adjunct Professors of the Tata Institute of Fundamental Research, Mumbai.

Human brain bank at NIMHANS

A Repository for Human Brain Tissue is available in the form of a brain bank at the Department of Neuropathology, National Institute of Mental Health and Neurosciences (NIMHANS), Bangalore. This is a national facility jointly funded by the Department of Science and Technology, Department of Biotechnology, Indian Council of Medical Research and NIMHANS.

This brain bank collects, preserves and provides fresh human tissue for researchers, especially those in the field of neurosciences, with particular relevance to degenerative diseases, psychiatric diseases, neurobiology and neuroinfection. Research in these areas requires use of both animal models and human brain tissue for understanding several brain functions and disorders.

The genesis of this repository was in 1984, after a meeting in Bangalore

considered the overall direction of neuroscience activity in the country. One consequence of this meeting was the finding that although neuroscience research was spread all over the country, there was little interaction among various branches pertaining to neuroscience research. The Repository for Human Brain Tissue was then set up at NIMHANS in 1995.

The protocol followed at the brain bank in NIMHANS is to collect brain tissue following informed consent of close relatives. Brain tissue is collected after death, from people who had either suffered neurological diseases or after-accident trauma but are free from neuro-psychiatric disorders, with the latter serving as normal controls in research. The post-mortem time for collection ranges between 4 and 24 h after death. According to Shankar and Mahadevan of the Neuropathology Department at NIMHANS, 'one half of

the fresh brain from neurodegenerative and psychiatric disorders is frozen at -70°C , while the other half and brains from infective conditions are formalin-fixed, which can be used for pathomorphological studies'¹. Brain and tissue fluids such as serum and cerebrospinal fluids are also collected and preserved. Shankar is the project coordinator of the brain bank which is run as a non-profit facility.

An example of scientific work carried out utilizing the material collected at the brain bank is that from the laboratory of Vijayalakshmi Ravindranath, National Brain Research Centre, Gurgaon², which has been conducting research for over a decade now on the topic of drug metabolism in the human brain. This is an area of research which has evinced keen interest for the role that the brain plays in drug-detoxifying capability and its rela-

tion to certain neurodegenerative diseases such as Parkinson's disease.

S. Sriramachari, Institute of Pathology, Safdarjung Hospital, New Delhi, when asked to comment on the utilization of the brain bank, felt that researchers should exploit the facilities available; however, care should be exercised regarding research topics. He suggested that research areas in both clinical diseases and metabolic diseases must be pursued using this facility, as well as the search for the anatomical basis of schizophrenia. He wished to see greater synergy between research teams comprising various disciplines of neurosciences in the pursuit of a larger goal. At present, teamwork to achieve a targeted goal is missing. He called for a more region-specific understanding of certain diseases using adequate sample sizes and age-distribution correlations. He felt that more work needs to be done in the area of atherosclerosis and mucoid vasculopathy. Other areas that need targeted projects are those of blood tissue research, tissue histochemistry and tissue immunology.

P. N. Tandon, National Brain Research Centre Society, New Delhi whose brain-

child this facility is, remained quite optimistic about the future of the brain bank in India and hoped that such facilities would be opened in other parts of the country also.

For a facility of this nature used for storing human brain tissue, a few key pointers to the validity of such a facility or its expansion in the future cannot be overlooked. For reasons that are obvious, human ethical issues would always crop up in the running and usage of a facility that takes tissues from cadavers. From a social perspective, it has to be ensured that such a facility does justice to the very reason for its formation in the first place – better understanding of the diseases that afflict the human brain. The usage frequency of the facility and the type of projects have to be monitored from time to time. It must be ascertained whether projects that require usage of the brain tissue yield tangible benefits to neuroscience research and to humankind.

Could any of the projects carried out with the use of material from the brain bank just as well have been performed using animal models? Are the results from such projects commensurate with

the dignity of the individual who gifted his/her brain for the advancement of science? Is there sufficient usage of already stored brains? Here it must be mentioned that there are not enough users at this point in time. Could non-usage and passage of time need stored tissues to be discarded at some stage? Are the projects of significance to the general community of medical and molecular biological researchers? Is there a concerted effort to solve identified problems peculiar to our country? If any of the answers do not live up to the original mandate for which such a facility is made, then a rethink may be necessary.

1. Shankar, S. K. and Mahadevan, A., *Ann. Indian Acad. Neurol.*, 1999, **2**, 59–70.
2. Chinta Shankar, J., Pai Harish, V., Upadhyaya Sudarshan, C., Boyd Michael, R. and Ravindranath Vijayalakshmi, *Mol. Brain Res.*, 2002, **103**, 49–61.

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MEETING REPORT

World conference of bryology*

Bryophytes (liverworts, hornworts and mosses) are the simplest, green land plants that ventured first on barren land. Gametophyte is a thalloid or has leafy axis, and arises from the protonema. Sporophyte is a partially-dependent capsule. Nearly 200 bryologists attended the 'World Conference of Bryology' at the National Botanical Research Institute (NBRI), Lucknow. In the inaugural session, H. Y. Mohan Ram elaborated that bryophytes made possible the colonization of land by animals and evolved as unparallel in diversity of size, structure, chemistry and function. He specified features of bryophytes that serve as study

organisms in macroevolution, population genetics and ecology. He emphasized on the study of mineral relationship, response to pollutants and the stress-tolerant factor. According to P. Pushpangadan (Lucknow), bryophytes contain most species-rich lineages of land plants and present a challenge for understanding the evolutionary diversification. S. R. Gradstein (Germany) explained that bryophytes are complicated in ontogeny but are simple in their morphology and genetics, and serve as model system and a key to understanding the relationship among embryophytes.

T. Hallingback (Sweden) suggested a study of taxonomy, distribution and inventorization of threatened bryophytes to analyse the impact of disturbance for conservation. V. Virtanen (Finland) described a case of homicide in which fingerprinting of bryophytes of the site was

used to produce evidence against the suspect. Gradstein pronounced Plagioclilaceae as the indicator taxon and discussed its role in the hydrology in tropical forests and elaborated the bio-systematic analysis. D. S. Rycroft (Scotland) discussed the chemosystematics of *Plagiochila*. D. G. Long (UK) discussed molecular phylogeny of *Asterella* and suggested that the genus is paraphyletic and other members of the family are derived from within *Asterella*. S. C. Srivastava (Lucknow) spoke on the Indian hepatics (850 species) and marked 20% species as endemic, rare and highly vulnerable. V. Nath (Lucknow) presented distribution, morphological plasticity and molecular aspects of *Frullania*. He listed bryophytes in folk medicines. He reported *Lejeunea cocoes* and *Anacolia menziesii* which are new to India. D. Kumar (Lucknow) presented taxonomy and dis-

*A report on the 'World Conference of Bryology' held in the National Botanical Research Institute, Lucknow during 23–30 January 2002.