process is still as high as 10–20%, reported J. S. Saini. The distressing scenario of donor eye infections, in the pre- and post-operative care and the attending imponderable course of treatment methods, have really confounded a majority of graft failures, doctors attending the Workshop added. Further the post-operative eye infection was traced to donor eye rim infections in certain instances, though some doctors were of the view that donor tissue or donor rim infections did not actually have any telling effect on post-operative infections. However Madhukar Reddy from LVPEI categorically subscribed to the idea that the donor eye rim infection had indeed a critical role in the post-operative eye infection.

Bilateral eye surgeries in children and graft failures

Several problems relating to the need and timing of second transplantation in a child with bilateral corneal disease (both eyes infected to a dangerous degree) have remained by and large unresolved as of now, pointed out Satish Gupta of LVPEI. In respect of children below 3 years having both eyes infected by corneal disease, the surgeons are not yet sure about which eye they have to begin with for surgery. For, if surgery is performed in both eyes simultaneously, the graft failure in one eye may entail the failure on the other eye, thus rendering the whole exercise futile. On the other hand, if the other eye is ignored it might develop amblyopia and permanently drift to condemnation. Thus the crux of the problem that now remains is how soon should a surgeon operate upon the second eye after the first eye operation in a child. This is indeed a problem with vide implication staking the vision of the child about which an eye surgeon is as much helpless as is the child. In fact the annual graft failures in children are around 60% despite doctors' best efforts to do justice to every child. Besides, there are several other problems concerning the rapport that should exist between the doctor and the child where the latter is below 3 years.

There was an attempt to define the graft failures in children taking various age levels of child into consideration and by setting a clearcut definition of a child (in respect of a non-cooperative child). Satish Gupta and J. S. Saini highlighted the problems encountered in eye transplantation in children.

The Workshop conceded that the therapeutic treatment of penetrating keratoplasty includes keratoplasty done for corneal infections and recommended steroid administration to patients with post-operative eye infection on a careful observation for a couple of weeks. Besides, several important dimensions of keratoplasty, both therapeutic and surgical, have been subject to hot debate during the Workshop with a consensus still eluding.

On the whole, the Workshop is seen as an attempt to resolve some of the existing controversies shrouding corneal eye transplantation, sharing of some of the expertise available among surgeons from different parts of the country and evolving new strategies to combat the problems confronting eye surgeons.

Automated lamellar keratoplasty: A new technique to curtail myopia

Today myopia could be curtailed and corrected up to 25 diopters with an innovative surgical method, developed by J. Charles Casebeer of the Refractive Surgery Centre of Arizona, USA, who came to India to conduct a course on 'Refractive Surgery' under the aegis of LVPEI. This was another Workshop held on 10 and 11 October 1993, immediately after the earlier Workshop.

Refractive surgery is employed to reduce the refractive error of eye and radial keratotomy achieves this by laying incisions over the cornea. J. Charles Casebeer, an authority on this sub-speciality of opthalmology, personally demonstrated his novel technique to a hundred and odd eminent eye surgeons, who had come to attend a two-day Workshop from different parts of the country. In addition to displaying radial keratotomy with the aid of audio-visuals, he had also deftly performed live surgeries to the benefit of deserving patients. He exhibited at the Workshop a diamond knife designed by him for radial keratotomy and assured its application as more effective and viable than the existing instruments in theatre operations. The surgical technique that Casebeer applied is called 'automated lamellar keratoplasty' and he claimed that it would correct myopia up to 25 diopters, while radial keratotomy successfuly improved the vision only up to 8 diopters. He also said that these techniques could be supplanted to correct hyper-metropia. The two-day Workshop was earlier inaugurated by Gullpalli N. Rao, Director of LVPEI, and the other prominent surgeons who joined Charle's Casebeer in conducting the Workshop and deliberations included Stephen G. Phillips, Robert L. Mohanty, Aashish K Bansal, Surender Basti and Vinay Agarwal.

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CORRESPONDENCE

Kalinga awardees — An analysis

The Kalinga Prize for the popularization of science is a national initiative of global character for international cause. Established by UNESCO in 1951, it is an annual award of £ 1000 based on a grant to UNESCO from B. Patnaik, of the state of Orissa, India, the founder and President of the Kalinga Foundation Trust.

During the period 1952–93, 48 personalities from 18 countries received this honour (Table 1). UK, USA and France accounted for almost half the share (Table 2) with UK topping the tally with ten awardees (20.83%). On two occasions (1973 and 1975), this Prize was *not* awarded and two awardees shared this honour on eight occasions.

Five countries including India have won this acclaim twice. After a gap of 28 years, an Indian scientist Narender K. Sehgal, Joint-Adviser, National Council

Table 1. The Kalinga Prize: List of Laureates (1952–93)

Year	Recipient/Country		Year	Recipient/Country	
1952	Louis de Broglie, France		1975	Nil	
1953	Julian Huxley, UK		1976	George Porter, UK	*ex aequo*
1954	Waldemar Kaempffert, USA			Alexander I. Oparin, USSR	
1955	Augusto Pi Sunner, Venezuela		1977	Fernand Seguin, Canada	
1956	George Gamow, USA		1978	Hoimar von Ditfurth, FRG	
1957	Bertrand Russell, UK		1979	Sergei Kapitza, USSR	
1958	Karl von Frisch, FRG		1980	Arsitides Bastidas, Venezuela	
1959	Lean Rostand, France		1981	David F. Attenborough, UK	*ex aequo*
1960	Ritchie Calder, UK			Dennis Flanagan, USA	
1961	Arthur C. Clarke, UK		1982	Oswaldo Frota-Pessoa, Brazil	
1962	Gerard Piel, USA		1983	Abdulla Al Muti Sharafuddin, Bangladesh	
1963	Jagjit Singh, India		1984	Yves Coppens, France	*ex aequo*
1964	Warren Weaver, USA			Igor Petryanov, USSR	
1965	Eugene Rabinowitch, USA		1985	Sir Peter Medawar, UK	
1966	Paul Couderc, France		1986	Nikolai G. Basov, USSR	*ex aequo*
1967	Fred Hoyle, UK			David Suzuki, Canada	
1968	Gavin de Beer, UK		1987	Marcel Roche, Venezuela	
1969	Konrad Lorenz, Austria		1988	Bjorn Kurten, Finland	
1970	Margaret Mead, USA		1989	Saad Ahmed Shabaan, Egypt	
1971	Pierre Auger, France		1990	Misbah-Ud-Din Shami, Pakistan	
1972	Philip H. Abelson, USA	*ex aequo*	1991	Narender K. Seghal, India	*ex aequo*
	Nigel Calder, UK			Radu Iftimovici, Romania	
1973	Nil		1992	Jorge Flores Valdes, Mexico	*ex aequo*
1974	Jose Reis, Brazil	*ex aequo*		Peter Okebukola, Nigeria	
	Luis Estrada, Mexico		1993	Piero Angela, Italy	

Table 2. Geographical distribution of Kalinga awardees (1952–93)

No. of awardee(s) ($n = 48$)	No. of countries	Names of countries
1	8	Austria, Bangladesh, Egypt, Finland, Itlay, Nigeria, Pakistan and Romania
2	5	Brazil, Canada, FRG, India and Mexico
3	1	Venezuela
4	1	USSR
5	1	France
8	1	USA
10	1	UK
Total	18	

for Science and Technology Communication and Romania's Radu Iftimovici, Director, Institute of Virology shared the award for 1991. Jagjit Singh was the first Indian to get this Prize way back in 1963.

The Prize is awarded to a distinguished writer, editor, lecturer, radio/television programme director or film producer which enabled him/her to help to interpret science, research and technology to the public. The winner is expected to know the role of science, technology and general research in the improvement of public welfare, the enrichment of cultural heritage of nations and the solution of the problems of humanity. He should also be acquainted with the scientific activities of the United Nations, UNESCO and other specialized agencies and preferably be proficient in English.

Under the terms of the gift, the Kalinga Prize enables the recipient to travel to India where he is the guest of B. Patnaik and of the Kalinga Foundation Trust. He is provided appropriate facilities to familiarize himself with Indian life and culture, Indian research and educational institutions, and the development of India's industry and economy. He is also invited to visit Indian universities and attend meetings of Indian scientific societies, particularly those of the Indian Science Congress Association.

While in India, the recipient is asked to deliver lectures in English and take part in meetings, with a view to giving an interpretation to India of recent progress in science and technology or the social, cultural and educational consequences of modern science. Upon return to his country, the awardee is expected similarly to make India and its scientific achievements known by means of articles, books, lectures, radio/television programmes or films.

The Kalinga awardee is named by the Director-General of UNESCO on the recommendation of a jury of four members designated by him. Three members of the Jury from different countries of the world are designated on the basis of equitable geographical distribution and the fourth on the recommendation of the Kalinga Foundation Trust.

Every year the Director-General of UNESCO invites the National Commis-

sions of Member States to nominate one candidate each, on the recommendation of the national association for the advancement of science or other science associations, or national associations of science writers or scientific journalists. Nominations or applications from individuals are not accepted. Nominations are to be sent to the Director-General of UNESCO by 31 January of each year.

The Kalinga Prize continues to be a dream for science communicators. Despite our three national awards for science popularization carrying double the prize money in one and almost same for the other two categories[1], the Kalinga Prize is still considered as a Nobel Prize in science communication. Rightly so, as among the past awardees have been well-known personalities, including a few Nobel Prize winners.

1. Jain, N. C., *Curr. Sci.*, 1993, 65, 441–442.

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SCIENTIFIC CORRESPONDENCE

Comment on 'Quaternary sedimentation in the Indo-Gangetic Basin: A review'

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At the outset it is pointed out that a review paper normally covers all aspects in totality (related to the topic under consideration) to make it more informative and developing it as a base paper by presenting present status, gaps in our knowledge and guidance for future line of action. In this context the present review paper reflects incompleteness in projecting the above mentioned aspects and thus lacks justification.

In the present state of art of our knowledge on the subject, the review paper appears to have failed to comprehend the basic issues related to the topic under consideration. The basic issues before us are as follows:

(i) Sediment erosion, transfer and deposition by two distinct types of fluvial pattern in the Indo-Gangetic Basin namely lateral transport system that deposits sediments in high-gradient fans and low-gradient cones down the plains, and axial transport system that transfer sediments parallel to the strike of bounding faults[1–3].

(ii) Probable causes of coarsening and fining upward megacycles present in the Quaternary sequence of the alluvial plain of the IGB which can be ascribed both to tectonism and climatic oscillations[4]. Tectonism has its impact on valley floor slope and base level whereas climatic oscillations may affect base level and control precipitation rate[3].

(iii) Identification, description and chronology[4–9] of the most impressive aspect of the topography of the Indo-Gangetic plain having an assemblage of classic tectonically produced landforms in the vicinity of the Himalayan Frontal Fault (HFF)[3] and associated tear faults in conjugate pattern, for example expanding and contracting small alluvial fans at the northern margin of the Indo-Gangetic plain[4], large alluvial fans transverse to Himalayan arc and skewed ones in the central part of the Gangetic plain, deflected and off-set streams, break-in slope across HFF and down south, fault scarps and related neotectonics, tectonic control of alluvial fans[2,3].

(iv) Study of the tectonically produced landforms in the vicinity of HFF and conjugate pattern of lineaments which are also explainable by simple shear-cum-gravity and associated uplift model[1,3]. It has become quite apparent in the last few years that plate tectonic model alone cannot always be applied to explain continental tectonics[10] and development of foreland basin/s in the continental interiors like the IGB influenced by combined effect of compressional and extensional tectonic setting. We must seek application of other options in the present context with the help of studies on alluvial fan sequences of the Indo-Gangetic plain, where the proximal part of the alluvial spectrum is one of the most profitable avenues of research in basin analysis, because alluvial fans are sensitive to external influences and also have preservation potential. Obvious interpretation of this consequence leads to identification of tectono-sedimentary facies model/s in the asymmetrical basin fill of the IGB[3]. One such interpretation can be of a tilt-block system for the evolution of the Indo-Gangetic foreland basin as a result of combined effect of compressional and extensional tectonic setting[1,3]. In this system the deformed and uplifted Siwaliks[1,3,11], and the northerly sloping pediment–cuesta complex (Bundelkhand–Vindhyan Plateau) are the positive displacement vectors and the undeformed Quaternary sediments in the IGB, resting on northerly tilted pediment–cuesta complex, is the negative displacement vector and showing increasing thickness towards north[1,3].

(v) Lastly synthesis of data for evolving a workable basin model/s. Here, of course, the climatic fluctuations and hinterland geology are not to be overlooked and a clear balance set up between the rate of sediment deposition and subsidence.

Again there is some incorrect statement in para 1 under sub-head 'Sedimentation in Indo-Gangetic Basin' on page 860 of the volume. Remote-sensing study of NASA Landsat/ERTS imagery shows the presence of small fans adjacent to HFF along the Siwalik–IGB boundary which on-lap the large plains fans and not in the form of megacones as mentioned by the authors. The HFF and its vicinity is an