'appear in a string of Early Pre-Pottery Neolithic B (PPNB) farming villages' that had developed by ca. 10,500–10,100 cal BP (calibrated years before present). Then, clear indications of lentil domestication appeared at about 10,100–9700 cal BP; and of pea, chickpea, and bitter vetch at ca. 9900–9500 cal BP. Altogether, there are 11 sites in Jordan, Israel, Iraq, Iran (southwest), Syria, Cyprus and Turkey that have harboured the oldest plant remains. The authors observe that a feature of the early farming PPNB villages (the 'core area') has been that generally all of them revealed a combination of cereals, pulses and flax, and 'almost at the same time, signs of herding also appear'.

Conducting excavations in Southwest Asia has had certain intrinsic advantages that most other regions of the world did not have. The hot and arid prevailing climate of the Middle East is conducive for the fine and intact preservation of specimens of even the high moisture-containing materials like fruits and vegetables. Further, this region had the benefit of archaeologists from almost throughout the Western world conducting field excavations right from the beginning of the twentieth century, and especially after the Second World War. Compare this with the situation in the monsoon Asia, for instance, with its high rainfall, thick vegetation, generally high population density, and most importantly, the significant sea-level rise and the consequent disappearance of Sunda and Sahel, and sea-level rise (50 m or more) of the heavily populated coastal regions of monsoon Asia, which resulted in the obliteration of all the pre-existing artefacts and preserved biological materials.

This advantage is fully reflected in determining the progression towards domestication of the temperate cereals, wheat, barley and oats. The most significant single step in the progression from their putative wild ancestors to the modern-day cultivated forms has been in the change from the rough disarticulation of the intermode to nonshattering mutants. This character is controlled by 'recessive mutation in a single gene or by two such mutations' (sic). This point has since been explained that only when the abscission scar in well preserved, (that) it can be used as a diagnostic tool. The authors then go on to state that increase in grain size during domestication is a less reliable diagnostic trait. They have not given any possible explanation for this.

While the seven temperate southwest Asian cereals are discussed in fair detail, the two millets (*Panicum miliaceum* and *Setaria italica*), sorghum and rice also included in the chapter on cereals, have received only minimal attention. All these crops have originated and diversified outside the authors' traditional Old World (Southwest Asia, the Mediterranean basin and Europe). The African rice, *Oryza glaberrima* is not mentioned even once in the text. Further, the authors have relied upon only select references to cover these crops. This has resulted in presenting an uneven picture on the origin of these cereals. The coverage of plants belonging to the other crop groups – oil and fibre-producing crops, fruit trees and nuts, vegetables and tubers, condiments and dye crops – which have originated outside the 'classical Old World' of the authors is also sketchy. Also, the treatments of all the crop plants are centred primarily on archaeological evidences obtained chiefly from the classical Old World. The wild ancestry of all the crop plants, molecular biology, and species and phylogenetic relationship aspects are included only nominally.

There is no mention at all in the book of several major crops of the Old World such as coconut, mango, banana, sugarcane, aroids, yams, tea, coffee, the various staple food crops of Oceania such as sweet potato and bread fruit, several vegetable crops, pulses (black gram, green gram, pigeon pea, cowpea, for instance), major fibre crops (jute), spices (black pepper, ginger, cinnamon, cardamom, etc.). Hence, in the present context, when no information is given on so many of the Old World crops, the reasonable thing to do may be to modify the title of the book to better reflect its present contents. As said before, the title is now a synecdoche.

The language used in the text suffers from several infirmities – in grammar, syntax, inaccurate and/or inappropriate use of words and spelling, printing and/or factual errors. The presentation of archaeological information is also replete with errors. These errors are too numerous to list. Surprisingly, even the chromosome numbers and ploidy of 2–3 species each are given incorrectly, e.g. *Asparagus* (p. 161) should be $2n:20$; *Brassica juncea* (p. 112) should be $2n:36$, not 2; rice is $2n = 2x$, *B. juncea* is $2n = 4x$, and so on.

It is difficult to accept that one of the foremost academic publishing houses, the Oxford University Press, could clear the publication of a volume without adequate editorial attention.

Notwithstanding the above observations, the volume is a good source of information on the archaeology of the crops of the Near East.

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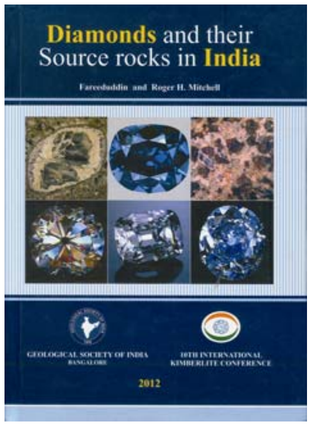


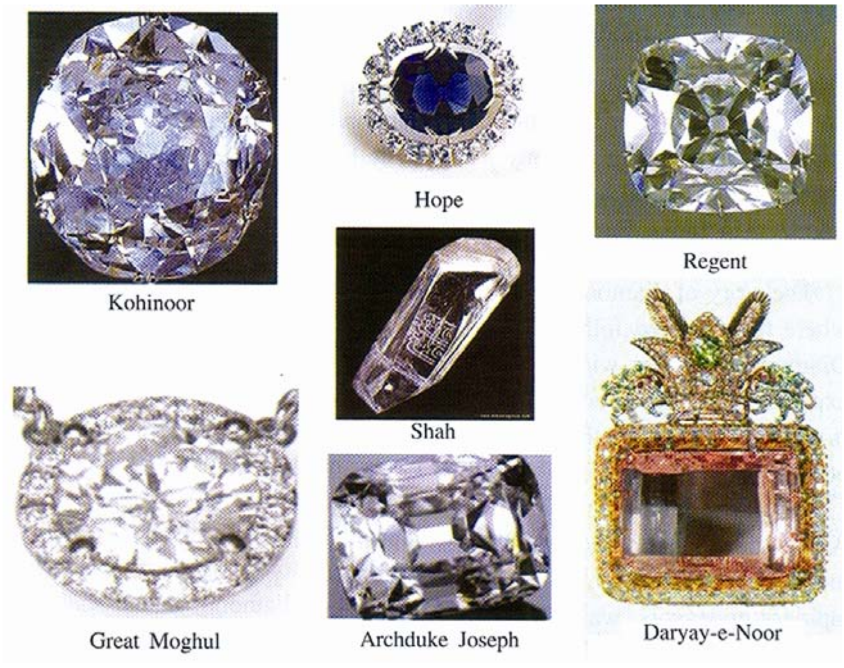
Diamonds and their Source Rocks in India. Fareeduddin and Roger H. Mitchell. Geological Society of India, P.B. 1922, Gavipuram P.O., Bangalore 560 019. 2012. 434 pp. Price: Rs 2500 (US$ 25).

India introduced diamond(s) to the world for the first time. The country remained as the sole producer of diamonds for nearly 2000 years and enjoyed an unparalleled monopoly till the 19th and 20th centuries when diamonds were eventually discovered in Brazil and subsequently in South Africa. The first reference to diamond as a gem can be traced back to Kautilya's *Artha Sastra* (320–290 BC) and subsequently to Kalidasa's *Raghu Vamsha* (5th century AD) and Varahamihira's *Brihat Samhita* (6th century AD). The glory of the Indian diamonds became widely known to the western world primarily through the narrations of famous travellers and acclaimed writers such as Marco Polo (AD 1296), Nicolas Conti (1420), Nikitin (1466) and Tavernier (1650), who visited India when diamond mining was at its zenith. Great Indian diamonds such as the Great Moghul, the Regent, the Orloff, the Koh-I-Noor, the Hope and the Daryay-e-Noor were recovered during these times from their secondary sources (Krishna river gravels) even though their primary source remains elusive till today. It is no exaggeration to state that it is the mineral diamond which played a significant role in elevating ancient and medieval India to be the land of wealth and richness, as it was known then, and was thereby responsible for attracting repeated invasions from the Middle East, central Asia and the West for nearly 1000 years. This eventually shaped the destiny of its people as well as the country. Diamond mining in India has exponentially dwindled over the years and the Panna mine at Majhgawan, Madhya Pradesh is the only active operating diamond mine today. However, India still remains a world leader in diamond polishing and cutting, with Surat (Gujarat) as the main centre.

The Indian diamond industry has shown some signs of revival in the last two decades with the discovery of several new primary source rocks (kimberlites, lamproites and lamprophyres) by agencies such as the Geological Survey of India, National Mineral Development Corporation, Directorate of the State Mining and Geology of Chhattisgarh and multi-national giants such as De Beers and Rio Tinto. Consequently, a wealth of information on their occurrences, exploration strategy, petrology, geochemistry, genesis and diamond potential has suddenly become available. However, a significant amount of such data remains confined to Indian journals and government reports which are not easily accessible to researchers outside (at times even to those within!) the subcontinent. Against this backdrop, India has organized (from 6 to 11 February 2012), for the first time, the Tenth International Kimberlite Conference (X IKC) at Bengaluru under the aegis of the Geological Society of India and International Kimberlite Advisory Committee. Ever since its inception in 1973, IKC is a confluence of academia, scientists and industry researching on diamonds and their host rocks and made significant impact on our understanding of the composition and evolution of the earth. The book under review has been primarily brought out for the delegates of the X IKC as an exhaustive 'compilation of existing information on Indian diamonds and their source rocks' and is jointly authored by the convener of the X IKC Fareeduddin (Geological Survey of India) and Roger H. Mitchell (Lake Head University, Thunder Bay, Canada), with the latter an internationally acknowledged authority on petrology of kimberlites and related rocks. The book is aptly dedicated to B. P. Radhakrishna, the doyen of Indian geology, the driving force behind bringing IKC to India and one who always had a special heart for diamond exploration in India.

This book is organized into six chapters followed by an exhaustive reference list. The first chapter introduces the reader to Indian diamonds, the broad geological framework of India, and definitions and nomenclature in vogue for kimberlite, orangeite, lamproite and lamprophyre. The Dharwar craton of southern India is the largest known repository of primary source rocks of diamonds in India and also is the birthplace of the great Indian diamonds, and therefore, the second chapter justifiably dwells at length on various related aspects. Golconda Kingdom, its cherished diamonds and the 'diamond river' of Ptolemy that supposedly flowed in southern India are introduced first. Detailed information on the geology (including location maps, dimensions, structural trends and outcrop characters), petrography, mineral chemistry and exploration case history of kimberlites from the Wajrakarur, Narayanpet, Raichur and Tungabhadra fields vis-à-vis individual occurrences from various clusters is presented. The next sections summarize the geology, petrography, mineral chemistry and whole-rock geochemistry of lamproites from the Nallamalai fold belt (Chelima and Zangamarajupalle in the Cuddapah basin) and those from the Krishna and Ramadugu lamproite fields occurring at the NE and NW margins respectively, of the Cuddapah basin within the Dharwar craton. The lamprophyres of the Cuddapah intrusive province, emplaced in the Eastern Ghats Mobile Belt, are also dealt with and inter- and intra-field geochemical variations of the kimberlites are briefly discussed followed by a summation of geochronology and geophysical exploration case studies of kimberlites and lamproites. A plethora of lower crustal and upper mantle xenoliths (and xenocrysts) are entrained in the Dharwar kimberlites and their role in constraining sub-continental lithospheric mantle evolution is evaluated. Morphology and isotopic (He and C) details available on the southern Indian diamonds are also provided. The chapter concludes highlighting the need to explore western Dharwar craton for diamonds in far greater detail owing to its similarities with the Kapvaal craton, southern Africa.

The third chapter focuses on the kimberlites and related rocks from the Bundelkhand–Aravalli craton with a major



Some of the famous Indian diamonds recovered from alluvial tracts of Krishna river.

focus on the diamondiferous Majhgawan pipe of Panna area, problems with its nomenclature (kimberlite or lamproite or orangeite) and genetic models (impact-triggered mantle intrusion or otherwise). Exploration activities (geological and geophysical) in the Panna diamond belt (secondary sources such as gravels and conglomerates), newly discovered Saptarshi lamproites and lamprophyres (Precambrian as well as Cretaceous) from NW India also find a place.

In recent years, the Bastar craton has witnessed a spurt of kimberlite/lamproite discoveries which led to the identification of new fields, viz. Mainpur, Indravati and Nawapara with the Mainpur kimberlite field being richly diamondiferous. Whereas kimberlites and lamproites from the Dharwar craton are of Mesoproterozoic (1100–1500 Ma) age, some of the Mainpur bodies are recently demonstrated to be of end-Cretaceous age (65 Ma), synchronous with the Deccan Traps, and hence are of considerable significance and global interest. The fourth chapter not only summarizes the available geological, geochronological, geochemical and geophysical information on the lamproite/kimberlite fields but also the allied, little studied, ultramafic rock types from the Bastar craton. The authors, surprisingly, prefer to refer to the Mainpur bodies as lamproites even though most recent researches in peer-reviewed high impact international journals demonstrate them to be orangeites (Group II kimberlites).

The richly coaliferous Gondwana sedimentary basins (Raniganj, Giridih, Jharia and Bokaro) in the Damodar valley of eastern India are traversed by extensive mafic and alkaline–ultrapotassic sills and dykes which are of 117 Ma age and often related to the Kerguelen plume activity. The alkaline ultrapotassic sills and dykes are extremely diverse in their texture, mineralogy and composition and are considered as a 'pandora's box of petrological confusion' owing to the difficulties in pigeonholing their nomenclature according to the existing norms. The penultimate chapter compiles information from 'previous piece-meal investigations' done on them and recommends the need to undertake detailed studies on the complete range of rock types found in the Gondwana basins. The last chapter provides a summary of the geological setting and petrographic aspects of lamprophyres in the Nongchram Fault zone of the Meghalaya plateau.

The plus points of the book are its attractive hard-bound get-up, high-quality coloured photomicrographs, well-illustrated geological and location maps, wealth of petrographic, mineral chemistry and whole-rock geochemistry data at one place and panoramic field photographs which make it indeed a pleasure to glance through its pages. It is where this book heavily scores over its predecessor *Diamonds in India* (authored by T. M. Babu), also published by the Geological Society of India in 1998. However, errors abound and it is impossible to list all of them. I cite here a few examples: (i) 'Gooty cluster is the first discovery of kimberlites within the Cuddapah basin' (p. 66), whereas field work or first-hand information from Rio Tinto personnel would have revealed that they very much intrude the craton but very close to its boundary with the basin. (ii) 'Neoproterozoic Nallamalai Group' (p. 117), whereas its Mesoproterozoic age is well-constrained by the intruding 1350 Ma Chelima lamproite dykes. (iii) 'Basu and Tatsumato (1979) have determined a $^{143}Sm/^{144}Nd$ age of 840 Ma for the two Lattavaram kimberlites' (p. 156), when they in fact used a K–Ar technique. (iv) Names of (even Indian) scientists and locations are repeatedly spelt wrongly in a number of places. (v) There is absence of labelling of minerals in many microphotographs which is not an accepted practice and undermines the utility. (vi) Some of the authors are wrongly accredited for the maps which they did not publish. The sloppiness extends even to the reference list and several of them are incomplete, which questions the very rationale behind this compilation. It makes one wonder whether the book was published in a hurry and if proof-reading (and peer-review) was ever done. The price of the book is also on the higher side. Despite these shortcomings, this compilation highlights the amount of research that remains to be attempted on Indian diamonds, kimberlites and related rocks and would serve as a bibliographic reference for those interested in knowing more about them.

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