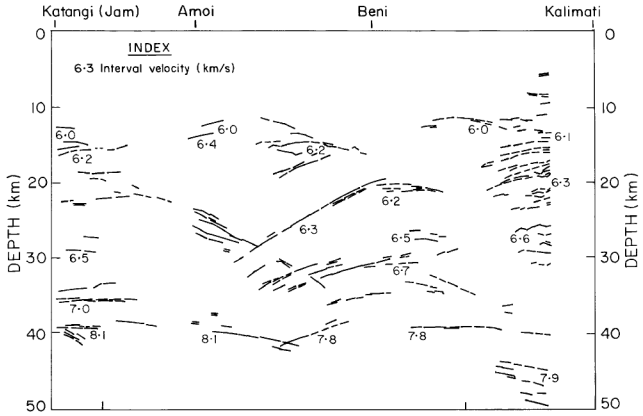

Figure 2. Line drawing of the prominent reflectors with the interval velocities superimposed on them.

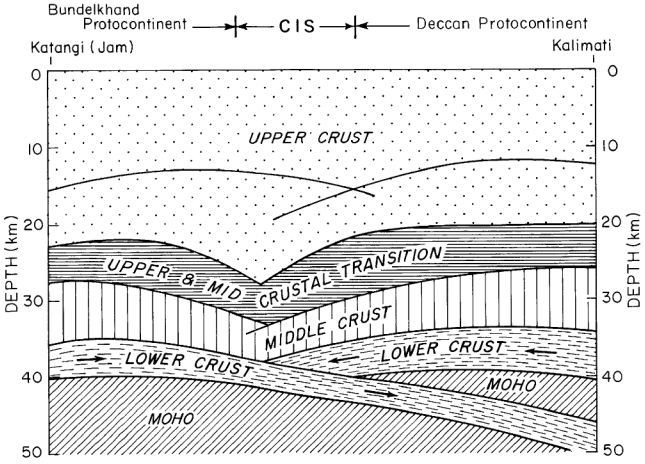

Figure 3. A cartoon showing the subduction pattern.

TWT section, it is evident that in this region the upper crust with a velocity of 6.0–6.4 km/s extends to a depth of 22 km away from CIS on either side. However, in and around CIS, this column sags down to a deeper level, namely 27–28 km. The mid-crustal column with a velocity ranging between 6.5 and 6.6 km/s seems to be extending to a depth of 27–28 km adjacent to Katangi and Kalimati and 35 km in the CIS region. The zone between 22 and 27 km could be termed as upper and mid-crustal transition zone. The lower crustal column in the entire region, but for a minor sagging at the CIS zone, extends in general to a depth of 40 km. The lower crustal column in the region north of CIS has a higher velocity of 7.0 km/s compared to the normal value of 6.7 km/s noticed in the southern block.

Interpretation of the reflection time cross-section[2] has led to the conclusion that the northern Bundelkhand protocontinent got subducted below Deccan protocontinent and the deeper reflecting horizons around 15–16 s TWT (> 50 km depth) are nothing but the remnances of the Bundelkhand protocontinent's crustal roots. Presence of the comparatively lower velocity (~ 7.9 km/s) at this depth level does support this hypothesis.

Presence of more than the normal velocity (~ 7.0 km/s) in the lower crustal column of Bundelkhand protocontinent indicates mantle plume's effect and probable injection of mantle material into the lower crust. Presence of hot springs and higher heatflow in parts of this protocontinent lends support to this hypothesis.

Figure 3 depicts the subduction of Bundelkhand protocontinent beneath Deccan protocontinent and brings into focus the main outcome of the present study, as such a depiction has been possible only due to availability of the derived velocity information. This subduction is understood to have taken place during early Proterozoic era[8].

A synthesis of reflectivity pattern and the interval velocity information clearly suggests that the two crustal segments present on either side of CIS are structurally and compositionally different from each other.

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The Wandering Astronomer. Patrick Moore, Institute of Physics Publishing Ltd, Dirac House, Temple Back, Bristol BS1 6BE, UK. 1999. 208 pp. Price: £ 19.95.

Patrick Moore is a familiar name among the star-gazers. His innumerable books have been enjoyed by the young and the old over the last few decades. Veterans in the field regard his books as the source of inspiration. In the West, his 'night sky shows' are very popular; he has guided people to enjoy the night sky through his shows on radio and television for the last 43 years. This programme reaches all corners, thereby kindling interest which was fueled further by his books.

Professional astronomers know of his invaluable contribution to lunar studies. He developed interest in astronomy as a young boy. His further steps are recounted in an essay 'Flying Saucers in Selsey' in the book under review. It tells us of his early days in the unconventional career with a small telescope and hard work almost every night.

The book *The Wandering Astronomer* is a collection of 41 essays on a variety of tropics related to astronomy. Patrick Moore declares that they are unconnected and written in an unconventional way. True. But there is one thing common to all essays – that appeals to the reader – the personal touch. The reader feels as though he/she is talking to the veteran over a cup of tea. Thus 'Forty-one Cups of Tea with Patrick Moore' would have been a more appropriate title.

The essays present contemporary ideas laced with historical reports. The fine blend of the two makes it very interesting for the professional astronomers as well. Although it is very difficult to group the essays into any particular scheme, I make an attempt based on the content.

Several essays describe the science in its integrity. 'A year on Icarus' describes various concepts like the meaning of a day, a year, the inverse square law, the 'weight' and the elliptical orbit in an eloquent simple style. A student may start dreaming of spending a year on Icarus and of attempting to solve the practical problems associated with it. Likewise 'Blackness of Mathilde' takes us to the physics of asteroids. 'Curious Callisto', 'The past and the future of moon' and 'The moon in the shadow' talk about entirely different aspects of the same moon. 'How the lunar craters were not formed?' gives a historical resume of our understanding of the craters.

The essays are not restricted to solar system bodies. The essay on 'Mira Stella' tells about the first recorded observation dated 13 August 1596 by David Fabicius. The variations in the light of 'Mira' (omicron Ceti) over centuries left the astronomers puzzled. The essay describes the attempts to solve the mystery. It concludes with a successful model offered a couple of years ago. Contrary to our expectation, difficult, technical terms are totally absent in the description. 'The lonely brown dwarf' tells us about the wonderful discovery of the first brown dwarf which he defines as a stellar 'missing link'. The history of two variable stars 'Alshain' and 'SS Lacerta' concludes with the modern model descriptions.

The historical reports always give a very comfortable feeling of simplicity. The essay 'Ice on moon' is another example (if I am permitted to quote the 1967 episode as history). It very aptly describes the entire sequence of thoughts that led to the idea of water on moon. The reading makes the whole sequence a very logical deduction, which, otherwise, would have needed an elaborate procedure of digesting various research papers published from 1967. The essay also narrates the development of ideas to detect H_2O, their implementation and results. Moore emphasizes his suspicion on the presence of water and ends with a witty remark, 'There are no skating rinks in the lunar world'.

Almost all the essays have the wit. The essay 'Flying Saucers in Selsey' reads like a detective story, retaining the suspense till the end. The fascinating ideas of space travel, with lot of wit and humour, appear in 'Life can appear But will it?', 'Fast lane to Pluto', 'To catch a comet' and 'The lighter side of space'. They are thought-provoking too.

Several essays offer wonderful tributes to great souls. Clyde Tombough ('The man who discovered a planet'), Galileo ('A lightning decision') and Gene Shoemaker have essays devoted to them; while many other names appear here and there.

Public awareness challenges form the theme of some essays. 'Zodiacal intruder' talks about the anxiety among astrologers due to inclusion of a 13th constellation – Ophiucus – in the zodiac. As all astronomers are aware, *poor* Ophiucus was very much in existence from the days of Ptolemy and continues to be there even now. Moore concludes the essay with his usual wit, 'I have no doubt that they (astrologers) will accommodate it, just as they managed to cope up with three planets nor known in pre-historic times – Uranus, Neptune and Pluto'.

The other essays of this category are 'Sister Marie – and others', describing them as 'It seems astronomy attracts more than its fair share of people, . . . often dismissed as cranks . . . . I am not referring to the genuine cranks, notably the astrologers and the creationists, but to these who simply go off at a tangent'. Sister Marie Gabriele had 'warned' people of the explosion of comet Halley in 1991 and sent an SOS to the pope!

'Names in the sky' talks about the selling of stars into which innocent people are being duped. The disease has in fact spread in India, with a sizable number of people calling up the planetarium to know if they could see the star 'named after their Guruji!'. 'It was in papers' and 'Apocalpse postponed' fit into the same trend. One can have a hearty laugh after reading the news clippings.

However, I do not mean to say that the book provides 'light' reading material. I discovered that many jargons of the night sky viewers owe their origin to Patrick Moore. Words like summer triangle, winter triangle, etc. were coined by him. There are several other words whose meanings are not explicitly explained anywhere. The Magdeburg experiment, Shrotter effect, harvest moon, wolf moon, etc. find an explanation in this book. The Danjon scale of eclipse magnitude is also defined to help a novice reader. Some of these are mentioned in other books, leaving us to wonder 'how'?. This book answers the 'why' also.

Some of the essays are of a great help to amateurs in astronomy. 'Ripples of creations' and 'The edge of the moon' provide enough food for though for future explorations. Some forgotten pages of history are recollected in 'Thatchers' comet', 'The sad case of Dr Elliot' and 'The atmosphere of moon'.

There are some very short pieces which take you nowhere. 'Des-Res on Mars' is one. 'Poetic moons' is another. The latter has a mention of Sir John Moore, who was buried on 16 January 1809 when the moonlight was pale. Patrick points out that the moon was 'new' that night and could not be seen at all. Interestingly Sir John Moore was Patrick's great-great-great grandfather (although he never married).

The wide range of astronomical topics makes us wonder about the vast knowledge Patrick Moore has acquired. Personal accounts render the reading very homely. Moore has mentioned that the