

BOOK REVIEWS

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 topics 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 Fabricius. 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 H₂O, 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 Tombaugh ('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 'Apocalypse 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, Shroter 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 thought 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

essays are not in any specific order. He suggests that you dip into it at random. Yes, indeed. It is an excellent arm-chair book for both professionals and amateurs.

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The State of Food and Agriculture 2000 – FAO Agriculture Series No. 32. Food and Agriculture Organization of the United Nations, Rome. 2000. 329 pages. Price not mentioned.

This annual report issued by Food and Agriculture Organization (FAO) contains authentic data on trends in food production in different parts of the world. It serves as a monitor of progress and problems. The problems considered relate to both natural factors like climate and political factors which determine public policy.

The year 2000 report points out that world agricultural production during 1998 and 1999 registered only modest growth. There is a general slowing down of agricultural growth in developing countries. Yield plateaus in major cereals and a steady decline in factor productivity (such as response to fertilizers) are widespread.

Besides providing data and analysis relating to the current agricultural situation, the year 2000 report contains a comprehensive chapter on the progress made in world food and agriculture during the 50-year period, 1950–2000. The progress made during each decade is discussed. On the positive side, it is evident that in spite of the increase in population by 2.5 times between 1950 and 2000, food availability and intake have shown significant improvement. Progress has, however, been uneven in various regions of the world, with sub-Saharan Africa registering the slowest growth rate.

Since 1970, the number of undernourished has doubled in Africa, while it has been halved in east and south-east

Asia. Overall, more than 800 million people are still chronically undernourished. Nearly 30% of them are in India. In addition, over 2 billion suffer from hidden hunger caused by micronutrient deficiencies, particularly iron.

The report clearly brings out that development strategies that emphasize on agricultural growth have proved to be cost-effective in providing the poor with entitlement to food. The 'technological capital' of a country plays an important role in determining the pace of progress in crop husbandry, animal husbandry, fisheries and forestry. However, the threat to progress in a country like India, which is endowed with a rich technological capital, comes from the serious damage caused to the ecological foundations essential for sustained advances in biological productivity. There are still no regulations in India which can prevent either prime farmland from going out of farming or the unsustainable exploitation of groundwater. The indiscriminate application of chemical pesticides and mineral fertilizers and lack of attention to micronutrient deficiencies in the soil are other factors which threaten the future of agriculture. Production agriculture still suffers from integrated attention to soil health care, water management, based on the principle 'more crop per drop', control of pests, pathogens and weeds and post-harvest technology.

The report concludes with the statement, 'It is humankind that is responsible for having imposed hunger on itself for so long, but humankind is also capable of eliminating this burden. There can be no greater challenge than this'. The report also refers to the 'window of opportunity' opened up by globalization. However, all the evidence since 1994 when the World Trade Agreement came into force indicates that the Agreement on Agriculture has resulted in an unfair and unequal trade bargain. OECD countries have been increasing domestic support to their farmers, providing export subsidies and restricting market access through both tariffs and sanitary and phytosanitary regulations. The Trade Related Intellectual Property Rights (TRIPS) component of the agreement is resulting in a rapid expansion of proprietary science and shrinking of public good research supported from public funds.

Indian agriculture is now at the crossroads. Without attention to sustainable natural resources management and to improving crop productivity and post-

harvest technology, it may be difficult to sustain the economic viability of farming. At the same time, agriculture is the backbone of the livelihood security system of the country, since 70% of the population depend on agriculture for income and employment. External threats include competition for important foods and transnational super-markets, expansion of proprietary science and potential changes in climate and sea level caused by global warming. We should develop packages of technology and public policy to address these issues.

The report refers to the impact of the far-reaching agrarian reforms introduced in China in 1978. China is unique in developing an integrated strategy for on-farm and non-farm employment. Over 100 million agricultural workers were provided with employment opportunities in Rural Township enterprises. This reduced the pressure of population on land. India can benefit from the Chinese experience and develop a strategy for providing 100 million workers belonging to landless labour families, opportunities for skilled livelihoods in the off-farm sector. This will call for well-planned efforts in farming systems intensification, diversification and value-addition.

FAO is to be complimented on the design of these annual *State of Food and Agriculture* reports. They are both descriptive and prescriptive. In addition to a critical analysis of the available data relating to agricultural production and food security, one or two topics of general interest are taken up for more detailed attention. This year's special chapter provides a synoptic account of global agricultural evolution since 1950. The technological and public policy landmarks are flagged. The report is user-friendly. The report also included a SOFA 2000 diskette containing time series data for 150 countries in English, French and Spanish. The diskette includes FAOSTAT TS softens to ensure easy access and use.

All institutions interested in food and nutrition should possess a copy of this valuable report.

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