

**DESTINATION MOON:
INDIA'S QUEST FOR THE MOON,
MARS AND BEYOND**

by Pallava Bagla and Subhadra Menon
HarperCollins India, 200 pages, 195 rupees

Reviewed by BEN FRUMIN

LAST MONTH, ON what would have been the 119th birthday of India's first prime minister, Jawaharlal Nehru, the orange, white and green flag of the nation Nehru helped found smashed into the moon at a spectacular velocity well more than 50 times the top speed of the iconic Hindustan Motors Ambassador. The Ambassador is the same vehicle that, beginning in the heyday of Mr. Nehru's reign, was the rumbling ruler of India's clogged and cratered roads for decades. Clearly, India has entered a new era.

The Indian tricolor—now presumably mangled and strewn across the south polar region of the moon—was painted on the sides of a 34-kilogram probe that, before its planned crash landing, detached from the unmanned Chandrayaan-1, which launched from southern India in October and continues to orbit the moon. The probe was the first object built by India to reach the moon, and puts the world's largest democracy in choice company: only the United States, Russia, Japan, China and the European Space Agency have sent missions to the moon. It's neither easy nor cheap to shoot something into the sky with such precision that weeks later it slams into a moving object nearly 400,000 kilometers away, and the dramatic success of Chandrayaan-1—meaning “Moon Craft-1,”

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more or less—is an impressive milestone in India's ambitious space program, which aims to put an Indian in space by 2015 and on the moon by 2025.

India's hyperspeed race to catch up with and surpass the world's space-exploring elite in many ways mirrors the strange, contradictory and, yes, meteoric rise of India's economy—an ascent that seems to have catapulted the country directly from the 19th century to the 21st, leapfrogging the growing pains of the 20th altogether. As has been the case with many other industries, it's not unreasonable to predict that India's space program will soon (if it hasn't already) surpass those of other nations that had a 50-year head start.

The extraordinary accomplishments

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and exciting promise of the Indian space program make a recent book on this topic—*Destination Moon* by Pallava Bagla and his wife Subhadra Menon—a frustrating disappointment. One expects quite

a bit from Mr. Bagla. His resume reads like a pro's: New Delhi Television's science editor, chief South Asia correspondent for Science and recipient of the Indian government's “National Award for best science journalism.” But *Destination Moon* is little more than a boring, amateurish, book-length fact sheet. There's almost nothing in the way of three-dimensional characters, colorful details, inside information or even a narrative arc. What's left is a dry, overly technical, repetitive, all-over-the-place account of what should be a fascinating and limitless topic: India's pursuit of the cosmos.

In the first sentence of the book's preface, Mr. Bagla writes that *Destination Moon* “may be termed a layman's guide to the Indian lunar mission.” Even in this rather spare goal, the book fails. One won-

ders how many laymen there are, in India or anywhere, who understand, without a glossary, terms like “polar sun-synchronous orbits” or “cislunar radiation environment studies.” That sort of clunky techno-jargon is not so much carefully drizzled as it is lazily dumped throughout *Destination Moon*. Similarly, acronyms are often spelled out once (“ASLV” is “Augmented Satellite Launch Vehicle”; “VSAT” is “Very Small Aperture Terminals”) but rarely translated into language that a non-expert can effortlessly understand. The result is a number of impenetrable technical passages that can be described as being “in English” only with significant generosity.

Mr. Bagla and Ms. Menon also seem unable to examine their subject with the skepticism or tenacity their profession requires. They heap praise even on the Indian Space Research Organisation’s public-relations flaks, complimenting the ISRO’s “record with transparency and openness of communication” and their “prompt press releases and outreach.” Nearly every mention of the ISRO is glowing flattery dipped in saccharine, and this trend fosters a troubling sense of the authors’ too-close-for-comfort relationship with their sources and subjects. That feeling is heightened further by the book’s embarrassingly self-congratulatory two-part foreword—authored by former ISRO chairman Krishnaswamy Kasturirangan and current ISRO chair, G. Madhavan Nair, respectively. While on the surface this may seem to be a good idea, it inevitably raises tricky questions about the coziness of the relationship between author and subject, and the objectivity of the book.

But this coziness doesn’t seem to have paid off for Mr. Bagla and Ms. Menon. If they received unique or exclusive access to

the ISRO in exchange for their adulation, their book doesn’t show it. In fact, there’s little in *Destination Moon* that couldn’t be gathered from press releases, staged events, timid interviews or the Internet. That last tool of limp reporting seems to have led to the biggest journalistic faux pas in *Destination Moon*: a simple chart at the end of the first chapter that lists a handful of basic statistics such as the moon’s circumference and mass. The source given for this information is “Wikipedia and Dr. Bhandari.” Attributing something to Wikipedia is akin to saying, “According to

an anonymous Internet user who I assume has his or her facts straight.” This instance is particularly galling since this basic information is easily available from any number of reputable scientific and media sources.

Journalism rarely gets lazier than this.

Of course, it’s not all bad. Mr. Bagla and Ms. Menon briefly explore a number of interesting issues, among them the role the moon plays in India’s rich collection of religious myths, the legal and environmental ramifications of moon missions and space exploration (including the eyebrow-raising revelation that “several hundred kilograms of human waste are already piled up on the surface of the moon”), and the potential of a booming space program to draw a whole generation of star-struck Indian youth into aeronautic and engineering fields. There are also a number of mildly compelling passages about India’s hopes for exploiting energy resources from the moon for use on earth, though the authors appear to have missed the humor in this, writing without even a wink about “the possibility of private entrepreneurs entering the arena, scouting the moon like any other attractive business proposition.”

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It's almost a requirement that any serious book on India's space program earnestly question whether a country with crumbling infrastructure that can't provide clean water or round-the-clock electricity in its major cities and has more than 300 million citizens living on less than \$1 per day ought to solve its rather massive terrestrial problems before it spends tens of millions of tax dollars ramming a painted probe into the moon. While India's poverty and infrastructure problems shouldn't preclude its eventual pursuit of the cosmos, they certainly make for a rather unsettling contrast, something the authors should have recognized and dealt with using any number of reasonable, substantive arguments. Instead, Mr. Bagla and Ms. Menon simply wave away the argument that Chandrayaan-1 represents a "profligate step by a poor nation" by quoting a NASA official who suggested that "a certain measured amount of the Gross National Product should be used to thrill the imagination of everyone." Perhaps that's true. But it will take more than *Destination Moon* to thrill those imaginations.