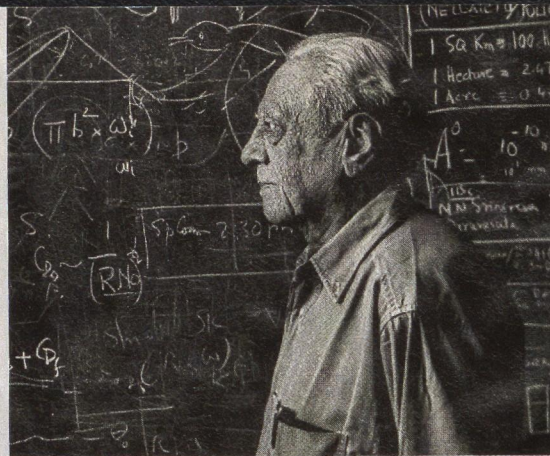


The Transformer

SATISH DHAWAN
(1920-2002)

The pioneering aerospace scientist and engineer steered the space mission through the key implementation stages

BY V. SIDDHARTHA



BANDEEP SINGH

One of Bharat's *ratnas*, Prof. Satish Dhawan would have cringed at any such hagiographic appellation and given me a thorough dressing down for using it. India's pioneering aerospace scientist and engineer contributed to engineering science in a way that enculturated it anew in our still-colonised minds. He had a full range of professional involvement—teaching, scientific research, technology development, management

and leadership—often in more than one of these capacities at a time. As director of the Indian Institute of Science (IISc), Dhawan transformed what was a relatively laidback campus of fewer than a dozen departments into a world-class institution with some 40 departments staffed by a young faculty.

In 1972, Dhawan was called upon by then prime minister Indira Gandhi to head India's fledgling space programme. Even as he continued to head

IISc, over the next decade, Dhawan built the country's space programme into a model of technology development and application. His unimpeachable integrity and sense of moral order were the bases for his management style at ISRO (Indian Space Research Organisation). His great human qualities, combining personal charm with a deep commitment to social values and extraordinary

objectivity, have inspired generations. Dhawan has left a precious legacy for the country's traverse to 'modernity'; one that endows her young with the self-confidence to explore and realise the India of their dreams. ■

Dr V. Siddhartha, a former emeritus scientist at DRDO, had earlier worked with Dhawan at ISRO. He is currently a senior associate at NIAS

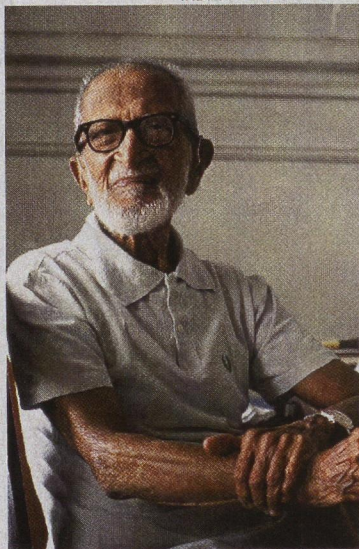
Superb Expositor

SALIM ALI
(1896-1987)

The legendary ornithologist was one of India's most passionate conservationists

BY MADHAV GADGIL

I was born the year Salim Ali's superbly illustrated *The Book of Indian Birds* was published. My father was an avid birdwatcher and I learnt identifying birds from pictures before I could read. At 14, I was puzzled by the green bee-eater's missing pin feather. I wrote to Salim Ali and was thrilled when he replied promptly. I met him, was charmed by his knowledge and enthusiasm, and decided



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to follow in his footsteps. He was 46 years older but treated me as a friend and staunchly supported me.

I accompanied him on many field trips over the next 25 years. It was a treat to watch birds with him,

and I had the privilege of co-authoring a scientific paper with him on communal roosting. He was a superb expositor with a sparkling wit, which comes out in his series of bird books. These attracted the urban middle classes to birdwatching and nature conservation. Regrettably, Salim Ali was prejudiced that the common people of India were destructive of nature. That led to the banning of buffaloes from the Bharatpur wetlands, which ended up deteriorating rather than improving it as a water-bird habitat. His prejudice has also nurtured an anti-people conservation movement. But whatever our differences on such issues, I have tremendous respect for this naturalist extraordinary. ■

Madhav Gadgil is an eminent ecologist and founder of the Centre for Ecological Sciences, Indian Institute of Science, Bengaluru



BHAVAN SINGH

THE KARMA YOGI

A.P.J. ABDUL KALAM (1931-2015)

The celebrated aerospace engineer spearheaded the satellite launch vehicle and missile programmes and captured our imagination as a 'People's President'

BY DR V.K. SARASWAT

Dr Avul Pakir Jainulabdeen Abdul Kalam, my guru, revolutionised the technology roadmap of India. Growing up in modest circumstances in the village of Rameswaram in Tamil Nadu, he imbibed a composite value system from his teachers. This acted as his inner compass during the remarkable journey of his life: from a newspaper boy to the leader of India's space and missile programmes and, finally, the 'People's President' of India.

In the space programme, Dr Kalam was project director of SLV-3, India's first satellite launch vehicle. He succeeded by synergising the efforts of academicians, researchers and industry like never before. He then transformed the Defence Research and Development Organisation (DRDO) through his mission-mode approach and strategic vision. Dr Kalam had

Dr Kalam had the ability to make even the most diverse-thinking people work for a common cause

the exceptional ability to make even the most diverse-thinking individuals work for a common cause. I often joked that he could make the North and South Poles come together!

His eyes were set on building an ICBM (intercontinental ballistic missile) for India. Failure never deterred him and, under his guidance, the Agni missile made its first successful flight in 1989 after two attempts. He owned all failures and credited success to his teammates. When he took over as the president in 2002, many analysts felt he would be a pushover. But, as in his other endeavours, he proved his critics wrong with his single-minded commitment to the Constitution of India. ■

Dr V.K. Saraswat is former scientific advisor to the defence minister and former director general, DRDO. He is now member, NITI Aayog