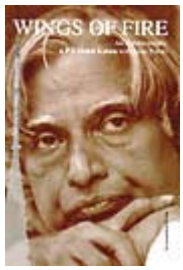
Wings of Fire

"The most inspiring account I've read in recent years"



"The unexamined life is not worth living," said Socrates more than two millenia ago. Here, we have in print, a well-examined life of one of the icons of the post-colonial technological renaissance of the country.

All civilisations are technological, originating from basic discoveries and determined applications of fire, agriculture, the wheel, irrigation, knowledge of materials and metals, etc. A defining feature of post-renaissance technological development was the organised marriage of science and technology, each feeding on the other in a synergistic way. This is where the non- Western nations, India being a typical example, got rapidly left behind. Kalam very vividly recalls a piece of sculpture he saw at the NASA Langley Research Centre where his initiation into Rocket Engineering began - "a charioteer driving two horses, one representing scientific research and the other technological development, metaphorically encapsulating the interconnection between research and development." Elsewhere, he writes with great insight - "Gradually, I became aware of the difference between science and technology, between research and development. Science is inherently open-ended and explanatory. Development is a closed loop. ... Science is a passion - a never ending voyage into promises and possibilities."

Since independence, India has sought in various ways, to harness scientific technology to secure for its people, a life free of want, but free from fear, as well. A P J Abdul Kalam represents the quintessential best of this difficult journey, through personal and professional struggle, to self-realisation, and fortunately, also to adulation and success.

This autobiographical account has been one of the most inspiring I've read in recent years. His life has been most selflessly devoted to his country, and rewarded most deservingly, with the highest civilian award of the country, the Bharat Ratna. The book also goes beyond biography, and serves as an excellent practical guide to R & D management, on how to design and build institutions, mentor and inspire men, to success and fulfilment. The account often goes deep into his own personal philosophy, austere beyond the reach of most average householders, and fortunately for posterity, records his philosophical and spiritual insights in a most accessible way, in spite of his own modest disclaimer, "I am not a philosopher." This man, who spent all his life "learning rocketry", also learnt many valuable lessons on how to manage men, matters and materials, while building up the country's defence R & D Programmes, as also its technological capabilities in space and atomic energy.

Kalam chooses to organise the autobiographical material into four sections: Orientation, Creation, Propitiation and Contemplation, devoted roughly to the first 32 years (1931-1963), the next 17 years (1963-1980), another 10 years (1981-1991),

and beyond.

Born to an obscure middle-class family in a remote but spiritually supercharged island town at the southern tip of the Indian peninsula, Kalam progressed in sure and steady steps through childhood, among loving family members who sacrificed readily for him, through scholarship with devoted and inspirational teachers (Rameswaram Elementary School; Schwartz High School, Ramanathapuram; St. Joseph's College, Trichy; Madras Institute of Technology, Madras), into his first foray into professional life. This first phase of his life covers 32 eventful years most felicitiously in the space of 31 pages. My nephew, an aspiring engineer himself, just on the threshold of his career after graduation, found this the best part of the book. I was particularly intrigued by the following paragraph on pg. 18, which I thought the most meaningful lesson for a young person preparing for a professional life:

"The trouble with Indians [was] not that they lacked educational opportunities or industrial infrastructure - the trouble was in their failure to discriminate between disciplines and to rationalise their choices,"

a lesson that young Kalam learned from Professor Sponder, an Austrian aeronautical engineer who taught him at the Madras Institute of Technology. It was Sponder who, as it were, dedicated Kalam to a life in Aeronautical Engineering. Kalam's own well meaning advice to all novitiate engineering students is "that when they choose their specialisation, the essential point to consider is whether the choice articulates their inner feelings and aspirations." All those young men and women who rush headlong into software careers should pause and reflect.

Nearly half of the book goes to the "Creation" phase. Here, one sees Kalam managing and inspiring large scale developmental projects on rocket technology. This was an adventure, not without struggle and frequent failure, but culminating in the pioneering success of the Satellite Launch Vehicle (SLV-3), the fifth country to achieve satellite launching capability, and thus propelling India into the Space Age. He is seen as engineer and innovator, inspirer and mentor of courageous colleagues, and builder of teams and institutions. This also brought Kalam his first brush with fame, adulation and inevitably, professional rivalries due to jealousy.

The "Propitiation" phase lets us see Kalam going into the defence stage of his career, breathing fresh life into struggling research institutions under the Defence R & D Organisation, and later taking charge of all the D R D O establishments, helping India to acquire modern weaponry and delivery systems. If the "creation" phase was marked by the SLV-3 saga, this phase had the Agni and related missile programmes as the defining theme.

As Kalam moved into the contemplative phase of his life, a grateful and worshipful nation heaped its highest awards on him, and ironically, also made him take more wide ranging responsibilities connected with science, technology and the Defence of the realm. He gives credit to the many great visionaries who prepared him for life, especially Professors Sarabhai, Dhawan and Brahm Prakash. He ends the book with the fervent prayer that eventually the country will become strong, prosperous and

"developed".

If for Arun Tiwari, "writing this book has been like a pilgrimage," then for me, reading it has been an equally stimulating and uplifting journey through a mind riding high on the wings of science and soulful spiritualism. Kalam's exhortation to all of us is that we should give wings to the divine fire we are all born with and have within us, and this will "fill the world with the glow of its goodness."

Gangan Prathap
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A P J Abdul Kalam