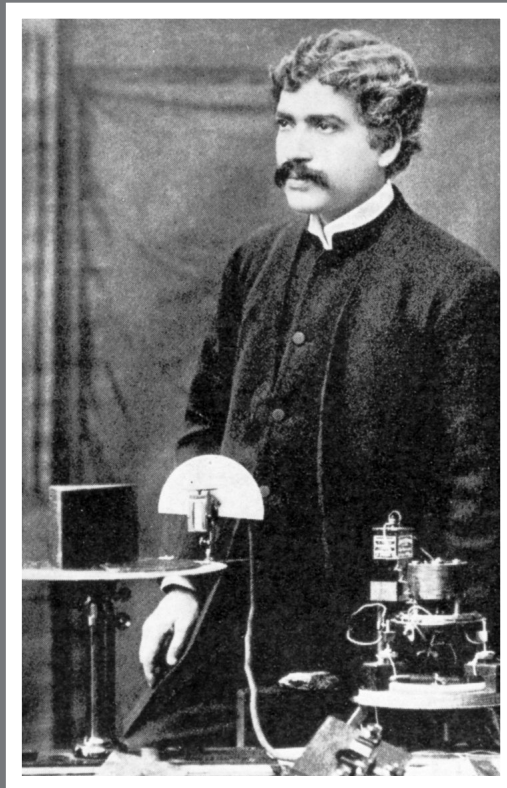
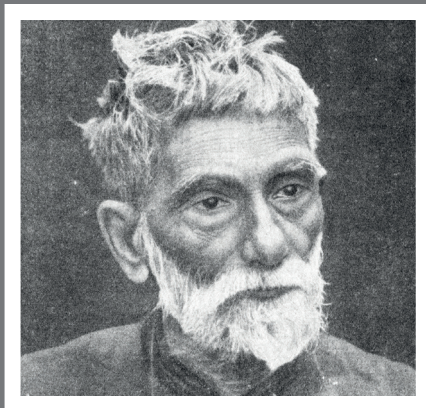


Unshackling Indian Science From Centuries of Dormancy

Non-creation of indigenous scientific knowledge is the biggest hurdle preventing India from taking its place in the global intellectual hierarchy



Images Courtesy: Left: dli.gov.in. Right: Acharya Jagadis Chandra Bose Birth Centenary

Acharya Prafulla Chandra Ray (left) and Acharya Jagadish Chandra Bose not only created a permanent mark of Indian creative ability in the field of science but also reacquainted countrymen with ancient Indian scientific achievements



■ Jayant Sahasrabudhe

We, the Indians, have not yet attained the coveted status of ‘developed country’ in the world. In order to attain this status, former President and scientist Dr APJ Abdul Kalam brought forth a brilliant vision in the recent past. He used to present the vision through lucid messages loaded with deep meaning in his iconic style. Out of such several inspiring messages, the one which still rings in many minds is — ‘Let us bring back the days of Nalanda’. What is the fine and profound meaning of this classic message?

What attracted scholars from across the globe to Nalanda in those golden days? ‘Knowledge’, obviously, was the absolute attraction. This land and its people, our ancestors, were known to generate knowledge. The vast body of systematic and structured knowledge was created in all spheres of life. And, our country became the knowledge hub of the entire globe. Another distinctive feature was the generous dissemination of knowledge to all, even across the borders. This status, which was maintained successfully over several thousand years, brought prosperity and glory to the land. Einstein said once, ‘We owe a lot to the Indians, who taught us how to count, without which no worthwhile scientific discovery could have been made’. In the domain of modern surgery scholars rightfully accept Sushruta as a father of surgery. Similarly, there are an umpteen number of such examples in the annals of history which brightly re-

flect the ‘knowledge’ strength of India. So, Dr Kalam’s message was loud and clear — knowledge creation is essential to regain the glory.

Dr Kalam had to make such an appeal because of a simple reason that in this age of science and technology, what our country lacks is creation of the most vital scientific knowledge. This becomes crucial as technologies are developed on the basic knowledge of science, and engineering solutions come later. Today, we are capable of indigenising technologies originated in foreign lands, however, that does not provide us the fundamental scientific knowledge based on which technologies are developed. We remain blank and also lag behind them with respect to time. This compels us to follow the countries which have made advances in S&T in all respects. Our endeavors in fundamental and applied scientific research also remain guided by them as we use their technologies for

the same. In simple terms, they decide and dictate the rules of the game. All these things together put serious limitations and severe restrictions on our efforts to achieve the overall progress and development.

The prime domain of 'science education' also gets seriously affected because of the non-creation of scientific knowledge. Everything which we teach as the knowledge of science, technology and engineering has almost nil or a very little content that is generated in India. Students naturally get an impression that our country really has not contributed much or anything worthwhile to the stock of scientific knowledge of the world. They feel that the knowledge of science which we learn has been created by scholars of other countries, hence, those people are superior to us and there is prestige in following them. This is how distrust creeps in our S&T domain. So, we find an outflow of brilliant students to those countries in search of superior knowledge. Is it not an indication of a sense of inferiority in our intelligent young minds who are supposed to shape the future of the country? And, then, will it be possible to achieve self-reliance without self-confidence? The answers lie in the message of Dr Kalam.

We need to introspect. Do we really lack the capability of generating knowledge by doing rigorous and intense research in science nowadays? Or, have we lost that essential creative ability now? Evidences show otherwise and indicates that we are not only capable enough but are creative too to generate the knowledge. It is true that scientific advancement got severely interrupted in the last few centuries because of the internal social weaknesses. Further, repeated onslaughts by the invaders for centuries together broke the vigor and vibrancy of our people. Consequently, the unfortunate stagnation descended which literally locked the creativity and capability of people as their attention was diverted to the struggle of survival and freedom. Additionally, the foreign rulers made all possible attempts to erase the memory of our glorious past either by suppression or by distortion of



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the facts in order to prove and establish that Indian scientific knowledge is full of myth and regressive in nature. However, by defying and overcoming all the pressures of colonial rule, Indian pursuit of science commenced once again with the new wave of national awakening after 1857. Leading lights of Indian science in this period, especially, Acharya Jagadish Chandra Bose and Acharya Prafulla Chandra Ray not only reacquainted countrymen with ancient Indian scientific achievements, but created a permanent mark of Indian creative ability in the field of science by their excellent contribution to the advancement of scientific knowledge of modern era.

Both of them always stressed the need to generate scientific knowledge to win a prestigious position for motherland in the intellectual hierarchy of the nations. It is worthy to note their thoughts and ideas as guiding principles for our march ahead towards attainment of a 'developed country' status. Acharya J C Bose in his address at

Images Courtesy: Vikram Sarabhai Research Centre



India's space programme is proof of the success of indigenous knowledge in the face of adversity. Left: A rocket head being transported on a bicycle. Above: Dr APJ Abdul Kalam (right) assembling a rocket in Thumba

Benares Hindu University (1916) deprecated a repetition of the Universities of the West and said, 'There is another function in the intellectual life of a Nation, that of spontaneous outflow, that giving out of its life by which the world is enriched. When the Nation has lost this power, when it merely receives, but cannot give out, then its healthy life is over, and it sinks into a degenerate existence which is purely parasitic.' And added further, 'World status can only be won by the intrinsic value of the great contributions to be made by its own Indian scholars for the advancement of the world's knowledge.'

In a similar spirited vein, Acharya P C Ray wrote his expectations at the end of the preface of the Vol. 2 of the *History of Hindu Chemistry*: 'The Hindu nation with its glorious past and vast potentialities may yet look forward to a still more glorious future, and, if the perusal of these pages will have the effect of stimulating my countrymen to strive to regain their old position in the intellectual hierarchy of nations, I shall not have labored in vain.'

Recently, while inaugurating the 6th India International Science Festival, Prime Minister Narendra Modi said, "All our efforts are aimed at making India the most trustworthy center for scientific learning."

Let us keep this in mind that such a desired trust can only be won by self-generated scientific knowledge.

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