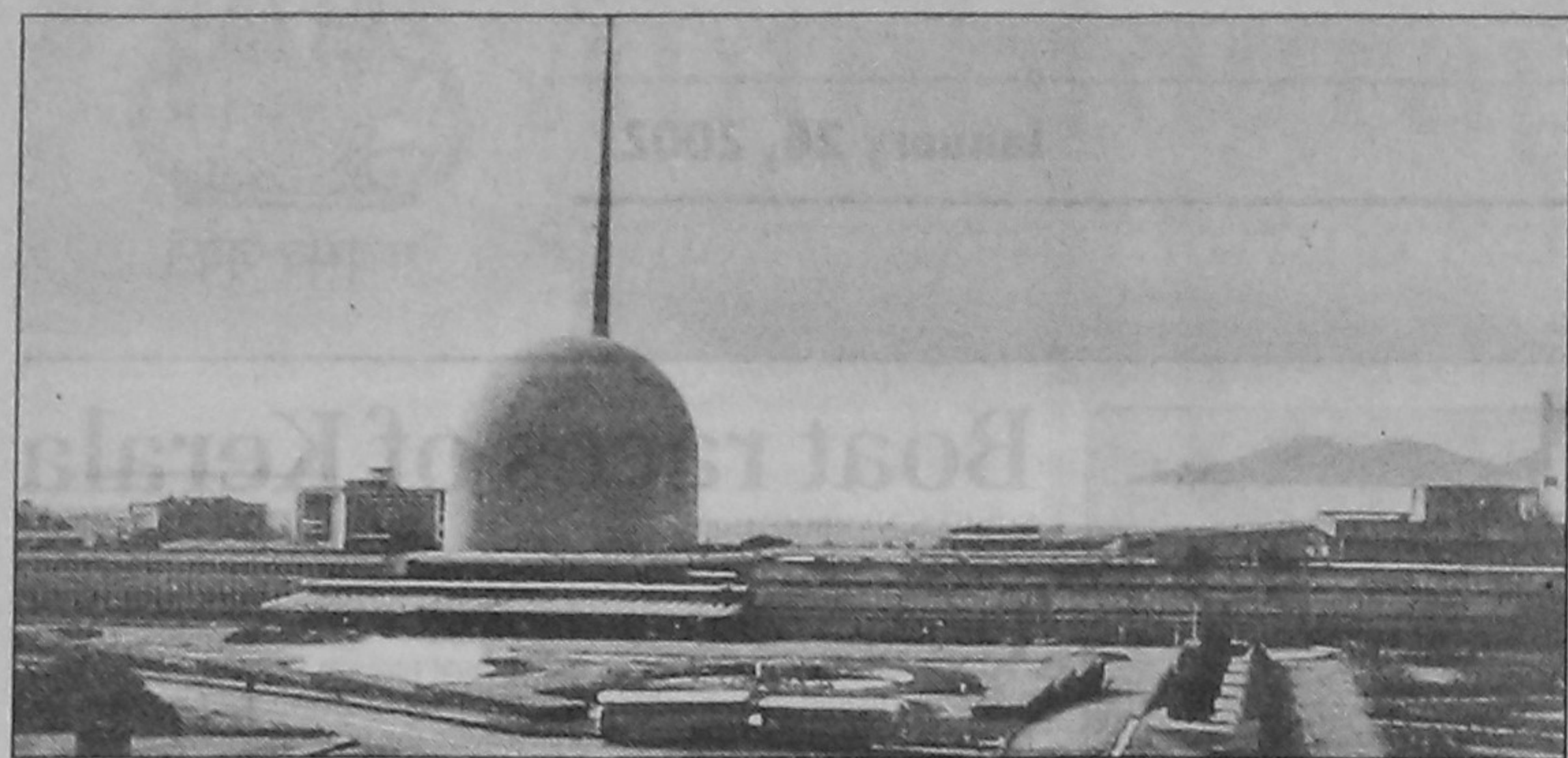


Bhabha Atomic Research Centre Cyberspace : For the common man



HOMI Jahangir Bhabha initiated efforts in March 1944 to start nuclear research programmes in India so that, "when nuclear energy has been successfully applied for power production in, say, a couple of decades from now, India will not have to look abroad for its experts but will find them ready at hand". Very few believed at that time that nuclear fission would provide economically viable electric power before the end of the century. Bhabha realised that nuclear energy is of utmost importance for India's industrial development with the limited coal deposits being more or less concentrated in the eastern region, and most of the hydel power being dependant on the relatively unreliable and irregular monsoon.

Nuclear research in India was started with the establishment of the Tata Institute of Fundamental Research (TIFR) in 1945 with Bhabha as its first Director. Work directly related to the exploitation of nuclear energy for the benefit of India was started with the passing of the Atomic Energy Act in April 1948 and the setting up of the Atomic Energy Commission a few months later in August 1948. On January 3, 1954 the Atomic Energy Commission decided to set up the Atomic Energy Establishment at Trombay where some work on atomic minerals was already under way. During the period 1948-1954

the Atomic Energy Commission functioned within the Ministry of Natural Resources and Scientific Research. On August 3, 1954, the Department of Atomic Energy (DAE) was created with Dr Bhabha as Secretary to the Government of India for the Department. The Department was under the direct charge of the then Prime Minister, Jawaharlal Nehru, and has since remained under the charge of successive Prime Ministers.

With the creation of the Atomic Energy Establishment, Trombay (AEE), all the scientists working on programmes of direct relevance to applications of nuclear power such as nuclear reactor design, electronics and materials science were transferred from TIFR along with their research programmes to Trombay and they all became part of AEE. TIFR became an institution solely devoted to fundamental research.

The Atomic Energy Establishment, Trombay was formally inaugurated by Jawaharlal Nehru on January 20, 1957. On January 12, 1967 Prime Minister Indira Gandhi renamed it as Bhabha Atomic Research Centre (BARC) in memory of its founder, Homi Jahangir Bhabha, who died in an air crash on January 24, 1966. By that time the Trombay Establishment had become a unique nuclear research centre where the technology for building nuclear reactors, for

fuel fabrication, for reprocessing irradiated fuel and for the wide-spread application of radioisotopes in a number of areas like medicine, agriculture and industry had been successfully developed. In addition, strong schools of basic research in nuclear physics, solid state physics, chemical and life sciences, reactor engineering, instrumentation, nuclear radiation safety and nuclear medicine had also been built up.

The major objective of the broad spectrum of activities at BARC is primarily to provide research and development support needed to sustain India's nuclear power programme in relation to concepts, designs, materials, reliability and safety. BARC also initiates and sustains research and development activities in all newly emerging areas of nuclear and allied sciences and technology to keep India at par with the advanced nations in these frontier areas. A versatile infrastructure of research and development facilities and a highly trained scientific and technical manpower has been developed in this technologically self-reliant, multi-disciplinary and premier nuclear research centre of India. Presently BARC's expertise covers the entire spectrum of science and technology ranging from particle physics, nuclear engineering, isotope technology, radiation medicine, nuclear agriculture, computers, robotics and information technology.

T. K. VISWANATHAN

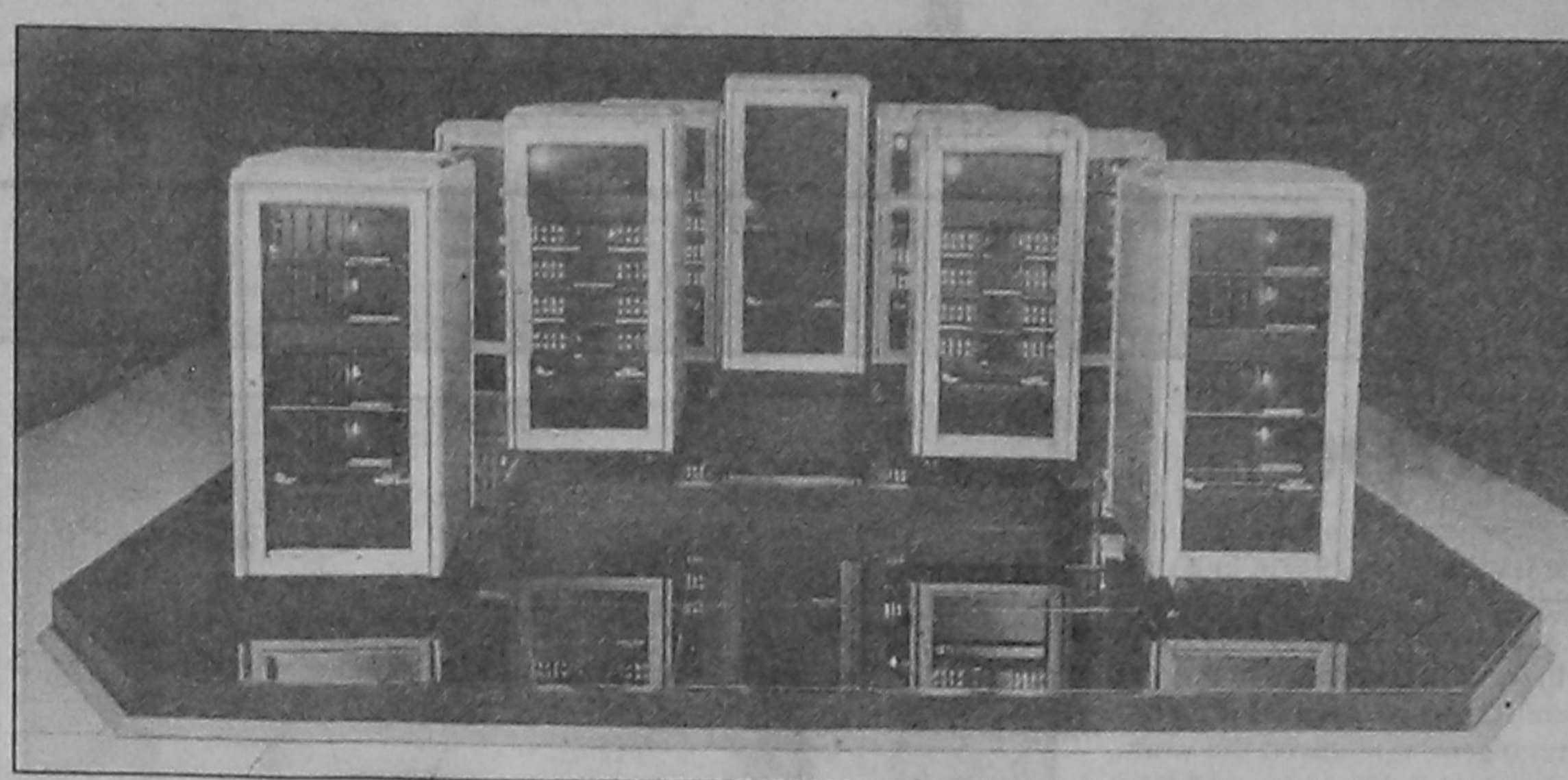
THE conversation between David Bowman and HAL, the legendary computer, is one of the most important scenes in the movie 2001: A Space Odyssey, which was released way back in the late sixties. Those of us who saw the movie were held spellbound by the special effects of the movie and a talking computer! It was a fantasy thirty years ago when PCs were far away in the future much less a talking computer!

But then human ingenuity has proved that nothing is impossible. Three decades later we have speech recognition software and computer synthesized voice which enables us to re-enact the HAL 9000-David Bowman encounter in every home computer! Inventions and discoveries, accidental some of them might have been, would not have been possible but for imagination and vision on the part of mankind.

The word Cyberspace was coined by William Gibson in his novel Neuromancer. Neuromancer, is far-reaching artificial intelligence which controlled the protagonist of the novel. Neuromancer drives home an important message that technology is powerful and it can control society without producing positive benefits.

By a strange coincidence, Neuromancer was published in the year 1984 which was the setting of the Orwellian classic 1984. The novel centres around Winston Smith a minor party functionary in one of the three warring States. Published in 1949, Orwell's 1984 made a deep impact upon the readers because it highlighted the dangers of totalitarianism. The dangers portrayed by Orwell may be exaggerated but with the evolution of technology like clipper chip, Capston and Carnivore if sufficient safeguards are not devised, privacy of individuals is likely to be invaded by the State agencies.

The fantasy and fiction are set to become reality with the advent of internet. Started as a US defence project in 1973 as research programme to devise interconnecting networks of various kinds to



'Param', the parallel super computer

survive a nuclear attack which may destroy the monolithic central communication command in the early part of any war, it was made available in 1983 to select users. Three technologies made internet possible. First was packet switching which made transmission of information possible through the Internet. Second was the development of a set of protocols known as TCP/IP, which enabled computers to exchange information regardless of their make, origin or operating system. Third was the development of client-server technology, which allows a computer to access and utilise services and programmes residing in another computer. The Internet Protocol address consists of 4-sets of numbers between 1 to 255 separated by periods. These are unique numbers, which identify each computer in the Internet. Since it is difficult for human memory to remember large digit numbers, domain names were restored to mask the numbers making it human friendly to remember and key in to the computer to log on.

Internet then is like by lanes leading to lanes which in turn lead to

streets then to roads and then ultimately into highways sprawling across the globe. Internet is connected through a series of computers each with a different role to play at every level. Had technology stopped with this, perhaps Internet would have at best been another improved means of communication over teletext or fax. But the invention of hypertext mark up language by Tim Bernes-Lee working at CERN Geneva popularly known as HTML dramatically altered the whole scenario. His hypertext link is an electronic embedded address that points to another Internet location in the Internet. To jump to that location all a user has to do is click on the hyperlink and automatically he is taken to that site by the browser. Basically a Mark up language is a computer language which describes how a page should be formatted. A web page also contains HTML tags that describes how the text should be formatted when the browser displays it on the screen.

Initially web consisted only of text but soon graphics took over with the browsers like Mosaic, Netscape Navigator and Internet

Explorer adding sound, graphics and other multimedia content to the web pages. With that the Cyberspace has blossomed into a medium of its own. The implications of this were not difficult to grasp. The prospect of sending messages of files across the continents with lightening speed and that too at a negligible cost was very appealing to most of us. It was only a question of time that entertainment industry and commerce should migrate to Cyberspace and that happened sooner than expected resulting in convergence of technologies leading to blurring of the distinctions between broadcasting, Internet and mobile computing.

Dream and reality
Cyberspace is the realisation of the dreams and vision of many. Creativity always comes from women. One of the inspiring personalities behind the Babbage's analytical engine which is the precursor of the modern computer is Lady Ada Lovelace Byron. She predicted in 1863 that machines will compose complex music, produce graphics and would be used for

practical and scientific purposes. That prediction has come true.

Tim Bernes-Lee wanted a common information space in which people can communicate and share information freely. World Wide Web is the realisation of that dream. He conceived Cyberspace as an abstract place where knowledge based economy happens. He also wanted web to become a realistic mirror of the ways, in which we played and worked and socialised. He has predicted that the web will open up new forms of business opportunities and turn bureaucracy over to machines and let people get on with creativity. It will help people to work together more effectively, remove misunderstanding and bring about peace and harmony on a global scale. But according to him we can only do these things if we learn to use it wisely and think carefully about both the technology and the laws we make or change round it. Technology has always threatened to destroy man if not controlled properly. Neuromancer describes the evils, which a society must suffer if it willingly allows itself to be directly controlled by technology. 2001 : A Space Odyssey also conveys the same message. HAL in 2001 is, in fact, the ultimate tool, he is so advanced that in conversation, it is practically impossible to tell that he is a machine and not a human being. The similarity of man to his tools has reached its peak in HAL, a tool similar to a man. But, like all tools, HAL proved to be as dangerous as he was useful. The moral of the story is that if we create incredible technologies we should not use them for evil and material gain, but for improving the lot of mankind. We can do that only if we do not become slaves of technology. Technology is amoral and values neutral. It is for us to use them intelligently and wisely for the benefit of mankind.

A diplomatic feat

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Media reports from these capitals have indicated that Shri Singh was able to establish a responsive chord. He was assured by leaders with whom he had an inter-action that they fully shared India's concerns and sensitivities. The heinous terrorist attack on the Jammu and Kashmir Assembly complex in Srinagar claiming over 40 lives sharpened their awareness. They agreed that though the Srinagar episode was not as colossal in scale as the terrorist strikes in New York and Washington, it was no less devilish in design and sinister in purpose. It is noteworthy that for the first time the United States departed

from the old practice of terming, terrorist assaults in Jammu and Kashmir and other parts of India as merely an act of violence. This time, the American Secretary of State, Colin Powell, described the Srinagar carnage as an act of terror.

Shri Jaswant Singh was particularly happy to note that the American President was in agreement with the fact that the fight against terrorism could not be unidimensional. Mr. Bush was quoted by his Secretary of State as having observed that the kind of terrorism that affected India would certainly come in the purview of the US-led Alliance's drive against global terrorism. Apart from his

surprise meeting with Mr. Bush lasting 45 minutes, Shri Singh had useful discussions with the Secretary of State, Mr. Powell, National Security Advisor Ms. Condoleezza Rice and the Defence Secretary, Mr. Donald Rumsfeld besides the US Vice President, Mr. Dick Cheney.

The American leaders took pains to make it clear to Shri Singh that involving Pakistan in the war against global terrorism would have no bearing on the upward-looking Indo-US relations. It was impliedly suggested to him that it is sheer American compulsion to make the maximum use of Pakistan's strategic importance in the drive against the

Taliban rulers of Afghanistan who are sheltering the terrorist kingpin, Osama bin Laden.

In Britain, Shri Jaswant Singh called on the Prime Minister, Mr. Tony Blair, and also had a series of meetings with his counterpart, Mr. Jack Straw and other leaders. According to media reports from London, Shri Singh's visit drew its strongest public acknowledgement yet from Britain of India's concerns and sensitivities. Mr. Straw denounced the Srinagar suicide bombing. Mr. Blair lost no time to telephone the Prime Minister, Shri Atal Bihari Vajpayee, to convey to him Britain's solidarity with India and support for its efforts to tackle the terrorist menace. He admitted that such menace could not be dealt with in compartments or on a piecemeal basis. He agreed that rooting out the scourge should be the joint endeavour of governments around the world. Mr. Blair assured Shri Singh that his country would not allow its territory to be used against any terrorist activities directed against Jammu and Kashmir.

In Berlin, Chancellor Schroeder told the Indian Minister that Germany did not differentiate between terrorist depredations in one country or another. He assured India all support in its fight against the menace. The same was the response in France, its leaders feel that the Srinagar incident clearly showed that the terrorist target is Indian democracy.

In his various inter-actions, Shri Jaswant Singh made some useful points. First that the sweep of terrorism is global and second that India does not regard it as a religious act. Islam does not condone the killing of innocent people and it cannot be equated with terrorism. He also made it clear that India does not consider the current situation or development as any kind of clash of civilisation.

The Indian External Affairs Minister also told these leaders that a large part of Pakistan and Afghanistan is under Taliban's influence. "This region", he argued, "has become the centre for exporting this kind of medieval malevolence". He conveyed to them his belief that the event in New York and Washington has led to a kind of defining moment in the awakening of the international conscience about the scourge of terrorism. He hoped that now there would be no compromise with it.

That India will not fish into Pakistan's troubled waters is its well-known position. Shri Jaswant Singh used the opportunity of his inter-action with leaders of the four Western countries to urge them to use their good offices to restrain Islamabad from pursuing its terrorist agenda on Indian soil.

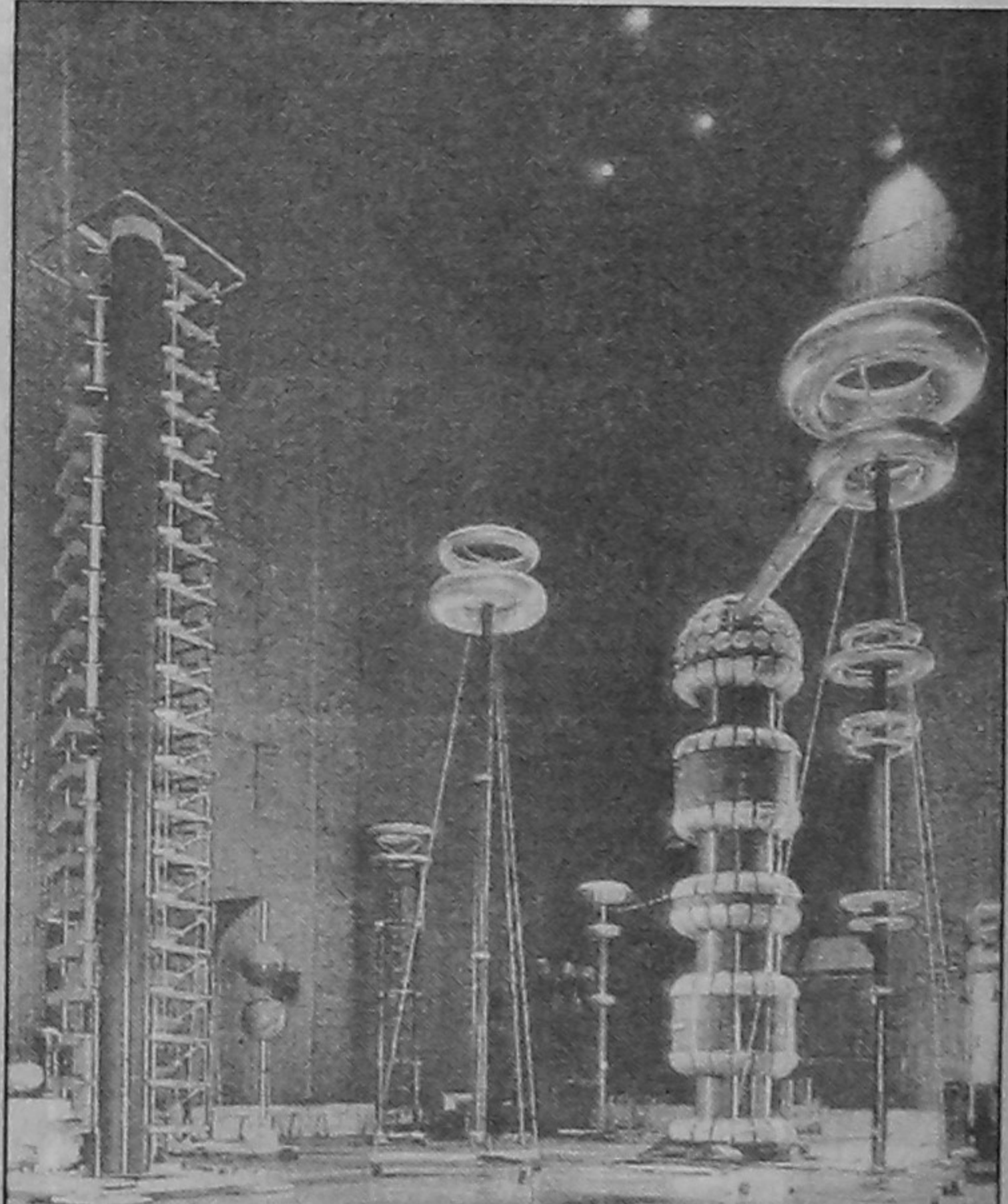
At the end of his tour of the two continents Shri Singh had reasons to feel satisfied that there is now a greater understanding as regards the challenges and complexities facing India and the free world at large. (PIB Features)



Space programme developed a successful indigenous rocket technology



A state of the art semiconductor laboratory



Ultra high voltage laboratory at BHEI, Bhopal

Heartiest felicitations on the occasion of the 52nd Republic Day of India.

Automotive battery market in India

BANGLADESH has a long history of cooperation with India since the former's liberation in 1971. Both the countries have always enjoyed friendly relationship. Although, when it comes to the balance of trade between these two countries, the scenario is somewhat different. Of course the reason for this imbalance is obvious. Bangladesh is an agriculture based country. Most of the exports to India are indigenous products; either jute or hilsa. To some extent locally manufactured sarees, melamine products, juices and sweets are also exported to India. Among this handful of products, locally manufactured automotive battery is the only engineering product that is being exported to India.

Rahimafrooz Batteries Limited (RBL) is the leading battery manufacturer in Bangladesh who is exporting to fourteen countries of the world under the brand name of VOLTA. Among them India is their focus market. RBL started exporting

to India in 1996. Since then they have come a long way but had to overcome several hurdles. They have maintained consistency in supply and quality, which aided in their success in the Indian battery market. With delicate steps and profound market strategies, VOLTA has been able to make a firm position in the market. Presently, RBL has distribution network all over India, which creates a strong bond among the distributors and dealers of VOLTA.

It is a great privilege that India, under SAPTA, is giving a preferential tariff benefit to its importers for import of the above products from Bangladesh and this benefit starts from 60 per cent to 100 per cent reduction of the basic customs duty. This gesture definitely speaks for itself about India's willingness to bridge the widening trade gap, and at the same time strengthening the relationship between the two countries. The importers enjoy the SAPTA benefit while importing batteries

and other products from Bangladesh. Needless to say that the concept of SAARC and SAPTA came into being with the idea to derive synergic advantage among the member countries both in terms of political and economic arenas.

Nevertheless, India's very recent imposition of anti-dumping duty on battery import from Bangladesh has taken the trade of both countries off guard. The business between the two countries will suffer a setback. As a whole, the smooth trading operation that has been developed through the hardship of the ones involved could very well wane out.

Bangladesh Accumulators Battery Manufacturers Association (BABMA) has taken up this matter both directly and through Ministry level with both AD authority and the Government of India. We, being a member of the SAARC, hope that India will be willing to take a positive step towards Bangladesh and uphold the values of the SAARC treaty.

Boat races of Kerala

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The boat races of Kerala display the valour of its people and their folk arts. The backwaters fringed with coconut, palms are the venue; different types of boats -- Iruuttikuthi, Veppu, Ody, Swan, Churulan and the majestic Chundan Valloms -- display the craftsmanship of Kerala: the singers of boat songs "Vanchippattu" and the beats present the folk literature of Kerala and their unity. The performance of oarsmen mesmerizes everyone. The whole fete is an extravaganza of audio-visual arts.

Besides, the boat race reaches the essence of life. The oarsmen, coxswains and pacesetters are unified with one particular pace and they are in rhythm with nature. A single mistake by anyone can cause imbalance and the boat may overturn. Human beings can flourish so long as they exist in tune with nature. Modern civilization forgets this truth which the boat race silently reminds us.



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