

# Fathers of the bomb

CHRISTOPHER THOMAS on the brains that turned a bullock-cart nation into a nuclear regional power

THE men who made India a nuclear power are as fission is to thermonuclear: different, but aiming for the same result. One is a Cambridge man whose artistic bent lends itself to producing personal drawings for his Christmas cards. The other is rooted in the chaotic, underfunded talent of Indian universities.

There is a third key member of the nucleophile elite: a fine amateur pianist who drifts in and out of retirement, a man who embodies India's surging pride and nationalism. He is a living statement of India's transition from bullock-cart technology to nukes, somebody whose Bach and Beethoven are almost as famous as his contribution to the ultimate statement of power.

The man who started it all is immortalised in the name of the institute that helps to design today's bombs: the Bhabha Atomic Research Centre in Bombay. Homi Jehangir Bhabha's entry in India's *Who Was Who* is a litany of achievements, starting at Cambridge in 1930 and continuing until his death in a plane crash in 1966, aged 56.

He was a Parsee, one of that small band of high achievers who will soon cease to exist in India because their ambition takes so many of them abroad. No other Indian physicist has achieved such international acclaim. He built an ultra-modern laboratory beside Bombay harbour for nuclear research; as a friend of Jawaharlal Nehru, there was nothing he could not demand. Nehru was obsessed with technology: Bhabha was his doorway to it.

With British financial aid, Bhabha built a low-power research reactor, and with Canadian technical and financial assistance he constructed a near-duplicate of a Canadian reactor. India even started producing plutonium — about 10 kg a year. The scene was thus set for the Hiroshima-type fission explosion of 1974 and, ultimately, for last week's sophisticated blasts that tested the most modern nuclear weapons: thermonuclear, fission and low-yield.

Canada funded India's first nuclear power station: three per cent of Indian power output now comes from nuclear energy, and there is talk of building more nuclear plants to reduce an overwhelming dependency on coal. The West thus led India to nuclear know-how, encouraging, financing and abetting the very knowledge it now seeks to control. Bhabha opposed allowing safety inspections of nuclear power plants by the International Atomic Energy Authority, insisting that India did not need outsiders to tell it how to play safe.

The next big leap in nuclear knowledge was the work of a man whose patriotism is stamped on his forehead, his hatred of perceived Western double-standards a pet theme: Raja Ramanna, 73, has continued to lend his talents to the nuclear programme on and off since retiring in 1987 as chairman of the Atomic Energy Commission. He spends much time at the piano, enjoying critical acclaim.

R Chidambaram, current head of the commission, is a home-grown Hindu whose international reputation approaches that of Bhabha. The International Atomic Energy Agency elected him its chairman in 1994 and he was the guiding force behind drafting the Convention on Nuclear Safety, adopted in its entirety by 84 countries that year.

He is a product of Madras University from the 1950s, "100 per cent indigenous", as a fellow physicist observed. The bespectacled and genial Mr Chidambaram does not go in for foreigner-bashing; his mission has been the peaceful application of nuclear energy, a concept forgotten this week.

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