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# Frontline

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**4**

It's a shocking and heartrending story that is yet in a process of unravelling. 329 innocent lives brutally ended, the happiness, hopes and dreams of families

squashed, many questions remaining to be answered. The whole world suspected a terrorist explosive or explosives behind the crash of Air India Flight 182 over the Atlantic, off the Irish coast. But there are alternative theories. FRONTLINE's cover story brings you—in picture and text—the horror, the details, the human and technical side of the world's worst aviation calamity over the seas.

Cover: the "Emperor Kanishka" in flight (Air India picture) and, below, the colossal tragedy (Gamma-Bernier transparency).



**28**

South Asia is an instructive ensemble of world power and regional power relations. Rajendra Sareen analyses Indo-Pakistan relations, the complexities involved in the Afghan issue and the U.S.-Pakistan nexus. With colour pictures on Afghanistan.

**100**

A Himalayan kingdom where the past and the present, the medieval and the modern are seen mixed up in a fascinating way. A perceptive examination of contemporary Nepal—especially its political evolution and problems. With an exclusive portfolio of colour transparencies.



Cover Story

# Blown up over



# the Atlantic



**C**OMING in to land at London on Sunday, June 23, the passengers and crew of Air India flight 182 must have been pleasantly exhausted—the crew anticipating a changeover and the passengers a second and final leg, which would bring many of them home to loved ones. But, even as the aircraft, cruising at an altitude of around nine km over the balmy summer morning skies off Ireland began its final approach to London, an hour away, it vanished from the radar screens of Shannon control. Within minutes, it was clear to the air traffic controllers that the unthinkable had happened.

The full evidence leading to the causes of the crash, the first on the busy trans-Atlantic route, may never be known. But circumstantial evidence on the tragedy that took the lives of 329 passengers and crew of the Boeing 747, points remorselessly to the fact that it disintegrated in mid-air as the result of an "explosive decompression"—caused possibly by the explosion of a bomb.

Some reports on the inquiries at Cork suggest that the aircraft may have disintegrated at a far lower altitude than earlier estimated. Reports that some of the victims died of drowning and that a substantial number of them were identified indicate that while the emergency began at the altitude last reported by the Shannon control, the huge aircraft may have gone into a spiral with the wings, elevators and other peripherals shearing off and the fuselage actually breaking on impact with the water. Unfortunately the climate of violence directed against the country by a small band of terrorists has inevitably encouraged the belief that the crash was a consequence of a monstrous conspiracy.

On Saturday, June 22, two flights left Toronto—one the Canadian Pacific Air flight 003 for Vancouver en route to Tokyo and the other, the Air India flight 182 for Montreal destined finally for Bombay via London and New Delhi. CP Air flight 003 arrived in Tokyo at 2:40 p.m. (Tokyo time) on Sunday, 15 minutes ahead of its scheduled arrival time. Forty minutes later, as Japanese baggage handlers were moving the luggage for transshipment, reportedly to an Air India flight due to depart for Bombay via Bangkok at 5 p.m., the baggage container blew up, killing two of the handlers. One hour and ten minutes later, half way around the world where it was 8:30 a.m., AI 182 disappeared from the radar, sc-

**A sombre task...the intensive search for the bodies was in extremely difficult weather but more than a hundred of them were recovered.**

J. J. Bernier/Gamma

reens at Shannon as the result of an "explosive decompression".

As yet unsubstantiated reports indicate that two individuals, Ammand Singh and Budh Lal Singh—wanted by the FBI for questioning in connection with the conspiracy to assassinate Prime Minister Rajiv Gandhi in the U. S. earlier in June—may be involved in perpetrating this outrage against humanity. Reports say two individuals, "A. Singh" and "L. Singh", appear in the manifest of the CP Air 003 as passengers from Vancouver to Tokyo. It is said that neither actually showed up for the flight. But Air India officials in Japan have noted that two persons bearing similar initials and surnames were booked on the Air India flight from Tokyo to Bombay. While Canadian officials are convinced there is no link with the two Singhs sought by the FBI, one thing is clear: at this point of time someone was carrying an explosive device on a flight from Canada which detonated in Tokyo.

A first and most chilling conclusion that emerges is that in two separate incidents probably on the same day, airline security was breached. In the last 15 years, the growing vulnerability of aircraft to attacks has led to quantum jumps in the security of aircraft and airports. Almost all major airports and airlines have incorporated a series of measures in their procedures to protect themselves against a growing incidence of intended violence against passenger airlines. Travellers would be frisked and their handbags scanned with X-rays. In later years, the checked-in baggage of passengers began to be

X-rayed as well.

In the mid-Sixties, electronic sniffers made their first appearance. Designed to react to the presence of explosives, these have been refined to the PD-4 equipment currently used by many airlines. If this weren't sufficient, specially trained dogs were deployed by anti-bomb squads for use in special emergencies like a bomb threat. In addition to this, several procedures were introduced to minimise risk. The cancellation or non-appearance of a checked-in passenger resulted in the offloading of his or her baggage and in recent times, air cargo is routinely held over for 24 hours at the point of embarkation for a "cooling off period".

It is clear all this proved of little avail against this particular determined band of fanatics. But then the problem of protecting airlines and terminals is not a small task, especially in the developed countries where the volume of passenger traffic is enormous. Common procedures at international airports entrust the security checks of passengers and their baggage to the airline concerned. In some cases, an airline with a small operation entrusts its checking-in and security procedures to a host-country carrier. Air India, like other airlines, routinely employs the services of officially recognised and certified security agencies.

#### OUTSIDE AGENCIES

Available information indicates that both in Canada and Japan, Air India utilises the services of officially certified security agencies to deal with its baggage examination and personal

The search for the victims of the AI 182 crash, the wreckage and vital clues—such as the black boxes—to what happened close to the Irish coast is an extraordinarily strenuous and sophisticated operation under difficult circumstances. Below: A specialised search vessel on the job. Right: A helicopter conveys the crucial human element to the location demanded by the tragedy.



J. J. Bernier/Gamma





check. In Toronto and Montreal, the system is handled by the Burns Security Company. Personnel of the company man the Air India check-in counters as well as leased equipment like the Scanray Linescan System installed by Air India at Toronto and Montreal. Interestingly enough, Air India officials maintain that other airlines do not have any comparable X-ray scanners and have actually requested Air India in the last few days to allow them to use their facilities pending acquisition of their own systems.

At the Palam airport, Delhi, too, Air India seems to have the only X-ray machine available for international flights. While as per international practice it "handles" some foreign airlines, major carriers like Pan Am and Lufthansa do not rely on X-ray scan for baggage security. Officials of one

of these airlines said it was not routine even in their home ports to X-ray check-in baggage unless there was a special alert on. While police dogs routinely patrol some airports like Rome, their checks are random. El Al, the Israeli carrier, is said to have more stringent security. It is learnt that Pakistan International Airlines has a system of duplicate checks but understandably enough, their representatives in Delhi have refused to comment on this.

Air India officials pointed out they have been, at least for some time now, conducting some of the most stringent security checks anywhere—which included the X-ray scanning of all baggage, PD-4 checks and cargo hold-overs for 24 hours. It is an unfortunate and tragic irony that an Air India aircraft became victim to such a disastrous breach of security.

Unfortunately, hindsight will reveal, as it always lamentably seems to do, that some determined person or group intent on terrorism had found some loophole in the procedures. Leaving aside the question of the ill-fated AI 182, one question that must be answered by security authorities (whether they be Indian, Canadian or a hired agency) is regarding the manner in which the baggage of two passengers, "A. Singh" and "L. Singh", went on to Tokyo despite their "no show" for the CP Air 003 flight. An experienced airline executive said that under the present operating rules of airlines, such a breach of procedure was inconceivable.

Many other lines will have to be explored to discover what exactly happened in Toronto and Montreal. One report has it that in Toronto, when three-fourths of the baggage had gone



J. J. Bernier/Gamma

**Above:** International sympathy and cooperation has readily moved in and the Irish Government has been especially helpful. **Below:** It had looked like a smooth, routine flight—the grey sheet of the Atlantic below was serene, majestic and reassuring.



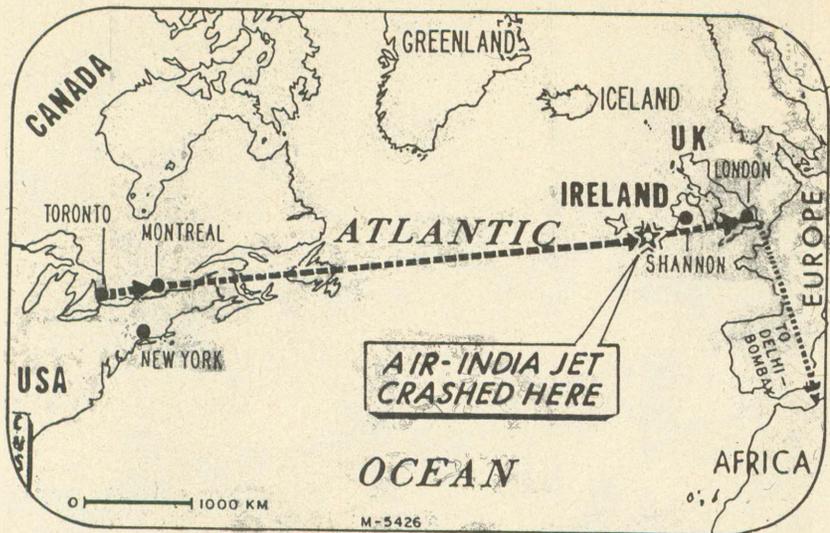
J. J. Bernier/Gamma

through the X-ray scanners, it malfunctioned. More alarming is the account of events in Montreal. Trained police dogs began barking—"went berserk", is one graphic description—at some of the baggage going on to the flight. Three suspected pieces were removed to the decompression chamber, but next day after tests, were found to be harmless.

Even as a high-powered government team led by Gauri Shankar and the Chief Vigilance Officer of Air India, T. R. Varadarajan, is investigating into the Canadian end of the events prior to the tragedy, some questions scream out for an answer. Were the reasons for the delay of the flight—the malfunctioning of the X-ray machine or the activity of the police dogs—in any way connected to the conspiracy? Who owned the pieces of suspected baggage and what happened to him or her? Why didn't the station manager or the person in charge of Air India at Montreal order a thorough re-check of the baggage? If the specially trained guard dogs, which cannot be considered infallible in such matters although they are surely an invaluable aid, caused three pieces to be taken out, who made the decision to treat the rest of the baggage items as safe for air travel and why was not the matter treated as something far more serious or hazardous calling for a further postponement, if not cancellation of the flight? Or are such "dogs going berserk" episodes not unroutine on international flights? It would be unfortunate if the consequences of the investigation discovered mere scapegoats and red herrings, but the sudden, unjustified snuffing out of the lives of 331 individuals (including the Japanese baggage handlers) requires something more than *mea culpas*.

#### MANY EXPLANATIONS

It would not be out of place here to suggest that a lot being written on the disaster of AI 182, especially its presumed relation to terrorist inspired violence, is based on circumstantial evidence. To flight safety experts, such accidents present a hundred varying explanations. According to one specialist who participated in inquiries related to the crash of the Air India jumbo off Bombay in 1978, the "aircraft could have gone out of control as a result of crew incapacitation arising from explosive decompression or some other reason like a medical emergency". The decompression itself could or could not have been the consequence of a bomb, he felt. Other experts too have voiced their reservations about the bomb theory, arguing that given the size of the aircraft, (which enables it to absorb greater explosion effects), it would re-



quire good knowledge of the 747 structural characteristics and a large amount of explosives to do the job. Given the relative newness of the aircraft, metal fatigue is currently being ruled out though even the remarkably sturdy 747 type aircraft has reached the age which calls for a "structural audit." Another hypothesis is that a fifth engine being ferried by the aircraft in its designated fifth pod position may have been wrenched off its moorings between the inner engine and the fuselage. The engine could have hit the horizontal tail section resulting in the aircraft going immediately into an uncontrollable roll downward

with smaller sections then being wrenched off due to the shear forces.

The development of aircraft technology that has led to the advances in passenger aircraft that carry hundreds of passengers at great speeds and altitudes has also conversely made the consequences of accidents much greater. Gone are the days when relatively low-flying aircraft like the Dakotas could glide on to land or sea allowing for dramatic rescues of their passengers. Minor malfunctions can, in the giant but sophisticated machines, lead to complete destruction.

The 1978 crash of an Air India 747



Murthy Subramanian weeps after reading his eight-year-old daughter's note reminding him to pick up some books at her school. He learnt in Toronto, his wife and daughter flying to India, were dead.



J. J. Bernier/Camma

in Bombay is a case in point. Earlier pinned down as "pilot error", the case is once again in the courts in the U. S. with the discovery that there had been some earlier cockpit systems malfunction on the 747 type aircraft that could have led to the accident. Another crash that could be germane to the pre-

sent case is the one involving a Far Eastern Transport Boeing 727 near Taipei in 1981. The aircraft apparently exploded in the air, killing all 110 passengers and crew as a consequence of some defect in its pressurising systems that had earlier delayed the flight for over two hours on ground.

Between 1969 and 1981, there have been 52 bomb explosions in aircraft killing 685 people. Since then, according to American figures, there have been seven explosions in the air and the ground relating to civil aircraft in Syria, China, France and other countries. The last major tragedy was the blast in a



Gulf Air flight at Abu Dhabi killing 112 people aboard. Despite the recent rash of hijackings, civil aviation officials note that sky-piracy has come down and the favoured mode of terrorist strikes is the suitcase bomb.

Accident or design, the destruction of the Air India jumbo is a shocking

The rescue personnel at Cork in Ireland going about a grim and tragic task. These deaths were caused by "explosive decompression" in the aircraft but what caused the disaster? All competent medical accounts suggest that those on AI 182 were dead before they could realise what was happening. There was no question of any human being surviving the explosive, traumatic effects. In the short time of the enactment of the calamity, the unfortunate beings on the flight could have died twice.



**Air India mourned the death of 22 members of its own family too.**

**Top row: (L to R) Capt. H. S. Narendra, Commander; Capt. S. S. Bhinder, First Officer; D. D. Dumasia, Flight Engineer; S. Lazar, Inflight Supervisor and Inder Thakur, Flight Purser.**

**Second row: (L to R) K. M. Thakur, FP; Sunil Shukla, FP; K. K. Sheth, AFP; N. S. Vaid, AFP and N. Kashipiri, AFP**

**Third row: (L to R) Ms. Sangeeta Ghatge, Air Hostess; Ms. S. Raghavan, AH; Ms. S. M. Lasrado, AH; Ms. R. Bhasin, AH; Ms. S. Gaonkar, AH and S. P. Singh, FP.**

**Fourth row: (L to R) B. K. Saha, AFP; Ms. E. S. Rodricks, AH; Ms. L. F. Kaj, AH; Ms. P. Dinshaw, AH; Ms. R. R. Phansekar, AH and J. S. Dinshaw, AFP.**

of the Air India jumbo is a shocking tragedy. As investigations began, attention was already focussing on the need to rethink existing notions and techniques of security. There are many areas to which the experts will have to address themselves. Some airlines insist on a final tarmac check with passengers personally identifying their baggage as they board the aircraft. But as one Air India official put it, would this check deter suicide bombers? The answer is obvious: no. Then, such checks create their own problems with

the volume of traffic in some advanced countries and new techniques of speeding passengers to their various destinations, including direct boarding and city check-in of baggage.

There is little point at this time in ascribing blame to one agency or another. Air accidents, especially those of the nature that struck the hapless AI 182, are rigorously examined for the possibility of metal fatigue or mechanical defects, pilot error or terrorist strike. There is too much at stake for too many people—the Boeing company,

the aviation regulation organisations in the U. S., Canada, India, and the governments around the world to allow for any laxity. It is possible that some breakthrough will be made some time in the coming months, the causes identified and the presumed human perpetrators, if and when located, punished. Unfortunately, nothing will bring back the human beings who died so suddenly and so far from their homelands and their loved ones. □

**MANOJ JOSHI**

# Destination death

FLIGHT AI 181 had come in from Toronto only a little earlier at the end of the first leg of its journey. The weekend evening was relaxed at the Montreal airport. But an international flight always creates a flurry. And now there was a security alert, which delayed the onward trip, flight AI 182, to London-Delhi-Bombay. Three suspect suitcases removed from the baggage due to be loaded on to it, "Kanishka", the Boeing 747 finally roared off a full hundred minutes late—never to be seen again.

Flight AI 182 carried 329 passengers and crew. In command was Captain Hanse Singh Narendra, one of Air India's most experienced pilots, flying with the national carrier for 35 years, logging 10,000 flying hours. Captain S. S. Bhinder, the Sikh co-pilot, was also an experienced flier.

It had looked like a smooth, routine flight. At 08.07 British time, the AI 182 was over the Atlantic. Captain Narendra made his first contact with the control tower at Shannon airport in Ireland as he entered Irish air space 200 miles west of the Cork coast. In his clipped accent, Narendra requested permission to continue cruising at 31,000 feet—5,000 feet below normal because of a spare engine bolted to one of the wings. Permission was instantly granted. Captain Narendra gave no hint of anything being wrong as his passengers were having breakfast. Some of them would have been gazing out at the grey sheet of the Atlantic, serene and majestic. Weather conditions were pronounced normal and the passengers looked forward to stretching their feet after an overnight flight, when AI 182 stopped at London for refuelling and change of crew. The visibility was four miles and it was windy, but these would have been no worry for a Boeing 747.

The Air Traffic Controller at Shannon airport, responsible for seeing AI 182 through Irish air space, had no cause for concern. But at 08.13 the blip on the radar screen in front of him suddenly disappeared. The position was six minutes and 100 miles from the Irish coast at 51.02° North and 12.48° West. At first he suspected signal failure and calmly called flight AI 182: "Do you hear me? Do you hear me?"

There was no response. This was the busiest time for the Shannon airport controllers, with some 30 flights in Irish airspace simultaneously, most of them from North America heading east towards London and the European con-

tinents. The controllers quickly contacted pilots of two jets nearby—a TWA plane to London and an Empress Airlines jet to Amsterdam—flying six miles ahead and 20 miles behind Air India's jumbo. But they saw nothing. The controllers immediately telephoned the airport's marine rescue co-ordination centre which in turn alerted the Irish Navy. A call also went out to the British Royal Air Force. Soon RAF helicopters and Nimrod jets took off from an English base.

But there was no trace of flight AI 182.

At 10.30 the first bodies and wreckage were spotted by the crew of RAF's Nimrod—code signal rescue 51. That confirmed the worst tragedy in India's aviation history and the sixth involving Air India. It was also the seventh major air disaster of the year. It claimed 116 more victims than the Air India jumbo which crashed into the Arabian Sea near Bombay on January 1, 1978, killing 213 people.

What fate could have overtaken the plane in such a short time span? The immediate investigation proved extraordinarily difficult although everything pointed to an explosion set up by terrorists. If it was due to the explosion of a time device, then who was the culprit? At what point was this device smuggled into the luggage compartment? Was this not detected when the luggage was checked by mechanical means?

## BLACK BOXES

The "black boxes" of the ill-fated Air India plane had hit the sea bottom and an intensive search under very difficult weather conditions was undertaken to recover them—in the expectation that they would help determine the last moments of the crashed aircraft. These boxes automatically record all the conversations between the crew and the pilot and between the pilot and the control towers with which he establishes contact. By monitoring the "black boxes", the untold story of the crash could be traced. Unless the vital piece of equipment provides enough information, clues such as those provided by the state of the bodies, sections of the fuselage and other items of the wreckage will have to be depended upon to piece together what really happened.

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Two hours after AI 182 left Montreal, on Canada's west coast, in Vancouver, Canadian Pacific's flight CP 003 to

Tokyo also took off. It landed at Tokyo's Narita airport safely but a bomb concealed in a piece of baggage exploded after it had been unloaded. Two Japanese baggage handlers were killed.

An Air India plane was leaving later for Delhi and Bombay from Tokyo. Was it to be the target? Had terrorists intended to hit two Air India flights simultaneously? The baggage on the Canadian Pacific Air flight would automatically have been transferred to the Air India flight AI 301 for transit passengers even if they had failed to board. The Tokyo explosion occurred 53 minutes before the Air India flight from Montreal disappeared.

If both the presumed in-flight explosions had gone off as planned, their organisers would have achieved a spectacular outrage, hitting two Air India planes flying in different directions around the world.

It is pointed out at the same time that if the take-off from Montreal had not been delayed there would have been no mid-air explosion, but an explosion on the ground at Heathrow, London.

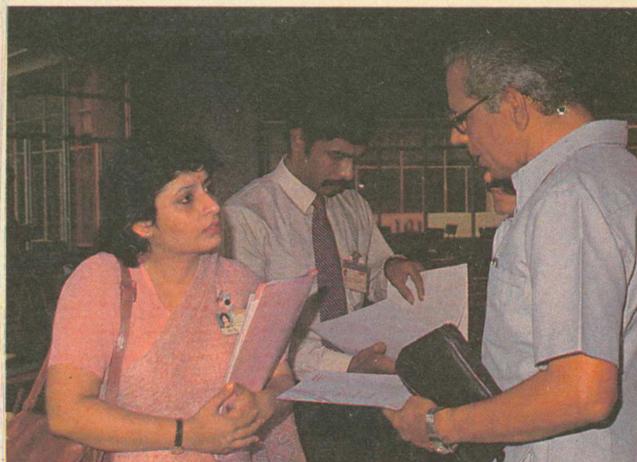
Reports which originated from Canada and Tokyo suggested that two Sikh fugitives, Lal Singh and Ammand Singh, wanted by the U.S. Federal Bureau of Investigation for their alleged role in plotting the assassination of the Prime Minister Rajiv Gandhi during his visit to Washington in June may have planted a bomb in the ill-fated Air-India Boeing and another in the Canadian Pacific Air aircraft. The *Toronto Globe and Mail* reported that one of the fugitives was on a CP Air flight to Vancouver and had a ticket for the Tokyo-bound flight which had a bomb in the luggage compartment.

While the FBI was questioning the veracity of the report, there was a spate of reports emanating from Tokyo suggesting that there might be some truth in the report carried by the *Globe and Mail*. The *New York Times* reported from Tokyo that an Air India official there said the passenger list of Air India's connecting flight from Tokyo included the names of one A. Singh and L. Singh. These two were listed as transit passengers from the CP Air flight. But neither boarded the Air India flight from Tokyo to Bombay. The Air India official was not sure if their baggage was loaded into the Bombay flight.

This touched off speculation that a time device was put into the baggage compartment of the CP Air flight in the



At the end of a traumatic week, Air India flew the relatives of the victims to Cork. Here, Regional Manager B. R. Sastry (right) supervises the arrangements at the Madras airport.



While some of the bereaved tended to be harsh on Air India's handling of the tragedy, airline officials put in long hours to cope with the disaster. All staff (left) listen to queries from the relative of a victim at Meenambakkam airport in Madras.

hope that it would be transferred to the Air India flight from Tokyo to Bombay.

In Washington, however, FBI officials said the search for Lal Singh and Ammand Singh was continuing. They said there was no basis for the report that the two fugitives were involved in the Air India and CP Air tragedies.

But a Canadian official claimed he had information that they had entered Canada illegally very recently and met some Sikh "extremists".

#### "INSIDE HELP"

The report that some explosive device might have been smuggled into the Air India Boeing received some credence from the fact of the breakdown of X-ray equipment used for checking baggage intended for the plane at Toronto on the night of June 22.

There have been some more startling reports in the American press. According to a Tokyo despatch, the Japanese police have found evidence suggesting that a sophisticated timing mechanism with electronic chips had been used in the device that exploded in the CP Air flight's luggage container. While these chips are used in everything from digital watches to calculators, the types found at Narita were generally used in detonators. This report, however, lacked confirmation.

#### CLAIMS

The theory that an internal explosion caused the Air India plane's disintegration gained some validity from an anonymous telephone call received by the *New York Times* from someone who spoke with an Indian accent and claimed the All-India Sikh Students Federation took the responsibility for the crash. However, the authenticity of the call is in question. The Canadian authori-

ties say this possibility is being investigated by their police.

The *New York Times* caller, who reached the foreign desk of the paper some 11 hours after the crash, claimed he was a member of the Dashmesh (10th) Regiment of the Sikh group. He told the paper the bombing was intended to protest against what he called "Hindu imperialism". Another caller claimed the sabotage was the act of the Kashmir Liberation Front and threatened there would be more such acts until Kashmir was ceded to Pakistan.

But the claim made on behalf of the All-India Sikh Students Federation drew strong denials from the Federation, a radical organisation in Punjab. Even the self-styled London-based "president" of the so-called Khalistan, Jagjit Singh Chauhan, came out with a denial, though somewhat qualified. "If this is sabotage, I condemn it," he said. "This is a very barbaric and heinous crime. We would never believe in such things, and no Sikh would ever dream of killing innocent people like this."

In Washington, the Sikh Association of America and the World Sikh Organisation came out with condemnations but they questioned the authenticity of the calls to the newspaper office implying they were bogus ones designed to vilify the Sikh community and portray them as "terrorists" in the eyes of the world.



The U.S.-built Boeing 747 is one of the safest and sturdiest aircraft in the world. Only 12 out of 610 jumbo jets delivered to the world's airlines have so far been lost, and in none of the cases has a fault of the aircraft been found to be the cause of the accident. Boeing 747s have so far carried 576

million passengers over 8.4 billion miles.

Most security experts are of the opinion that the captain and flight deck crew must have been immediately incapacitated by sudden decompression of the aircraft or its disintegration. Even with all four engines out of action and with the electrical system out of order, the plane could have glided on for about half an hour. And Captain Narendra had the button to transmit a radio distress call right in front of him on the control column.

The structural strength of the Boeing 747 was proved last February when a Taiwanese Airlines jumbo stalled at 51,000 feet and nose-dived at high speed before the pilot regained control at 9,000 feet. The wings and tail suffered structural damage but the aircraft landed safely at Los Angeles airport.

Pilots describe it as a fine aircraft. It is also one of the most tested commercial aircraft. Each 747 costs about \$100 millions. It still has no rival as a jumbo-sized long distance carrier. And new versions are being developed—some with a 7,000-mile range and accommodating between 700 and 1,000 passengers. These models could go into production in the early Nineties and should be on major air routes by the late 1990s.

#### POIGNANT SCENES

While Ireland and Britain joined hands, took the assistance offered by a U.S. naval vessel cruising in the vicinity of the accident and mounted an aerial and sea operation on an unprecedented scale to pick up the bodies of the crash victims, the four airports involved—Toronto, Montreal, London and Bombay—were swarmed by weeping men and women dreadfully inquiring about the fate of their near and dear

who had travelled in the plane. Human emotions got out of control as never before. The airline's own agents broke down in several cases and had to be helped out.

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It was estimated that 80 per cent of the passengers were Canadians of Indian origin. At least 20 families were Sikhs while there were about a dozen American citizens aboard.

There were published accounts that brought out some very poignant human situations. Tom Soni had sent his wife and three daughters to their home in Delhi for the summer and planned to join them later, but fate claimed them all. Soni, an engineer, is not the only one to lose his entire family. There are at least three other fathers who lost their whole families.

#### LAST-MINUTE BID IN VAIN

Tahir Sadiq was sending his reluctant mother, herself a retired medical practitioner, home for abdominal surgery. When he found that the plane was nearly two hours late taking off and some ground staff were seen repairing the plane, he smelt something seriously wrong with the plane and tried to get his mother off the aircraft. But this was not allowed by the airline staff who said passengers already checked in could not get out. Her fate, along with the rest of them in the aircraft, was sealed. The *New York Times* carried a picture of Tahir Sadiq being comforted by a friend at the airport when the news of the crash was confirmed.

#### TRAUMATIC EXPERIENCE

It was a traumatic experience for the Indian community in Canada, with so many of its members on the plane. The two-lakh strong Canadian Indian community is almost evenly divided between Sikhs, Hindus and Muslims. A vast majority are labourers, unlike in neighbouring U.S. where there are more professionals among the seven-lakh strong Indian community, two-thirds of them Hindus.

Indians have been settled in Canada since the turn of the century. The first immigrants were Sikh labourers brought in to work in timber factories on the west coast. They have remained fiercely orthodox in their ways. Most of the professionals among the Indians are settled on the east coast.

Whodunit? That is the billion-dollar mystery for securitymen in North America, Europe, India and Japan as they scour their dossiers for fresh leads. Indian Intelligence agencies had tipped off Air India about a terrorist threat to its international flights 10 days before the disaster. Was it taken



Remarkably composed .... Nishanth Singh (left), the father of co-pilot S. S. Bhinder, at the information counter in Delhi airport. He kept a stiff upper lip in his grief and said, "It all seems so senseless".

seriously enough?

Independently, an expert civil aviation team consisting of Dr. S.S. Siddhu, chief of the Indian Civil Aviation Department, and technical officials from Ireland, Britain and the U.S. have been looking into the crash.

★ ★ ★

The sudden spurt in terrorist threats, bomb scares, the crash of the Air India jet, the explosion in the CP Air luggage container and threats to civilian airlines in the U.S. have sent the international community scurrying to chart out additional security measures at airports.

#### U.S. CONCERN

In a Rome speech, the U.S. Vice-President George Bush expressed concern and a sense of indignation at the Air India plane tragedy and said it had shaken "the conscience of the world". He referred to the threats to the life of Rajiv Gandhi. "I would hate to think that anyone was so deprived that they would take so many innocent lives to attempt to settle some grievance. But that incident has shaken the conscience of the world. It has made a tremendous personal impact on me."

In the U.S., the Secretary of State George Shultz called for worldwide action against the "despicable acts of terrorists". "All nations must unite in decisive action to curb this threat". To India, he offered assistance in determining "if these passengers and crew were, in fact, the victims of a terrorist

attack."

"The hijacking of TWA flight 847, and the holding of hostages from that plane, the bombing at Frankfurt airport, the placing of a bomb on the Canadian Pacific flight to Tokyo and the ghoulish claims of responsibility for placing a bomb on board the Air India flight deserve the contempt of the world."

The U.S. has decided to ban curbside baggage check-in on international flights and tighten inspections of carry-on items on certain domestic and international flights. It was also decided to match checked baggage with boarding passengers. Any unaccompanied baggage will be physically inspected, X-rayed or left behind. More funds will be allotted for the most promising research projects to detect weapons and explosives.

In Ottawa, the Canadian Government ordered a full day's mourning, with flags flying half-mast, for the lives lost in the Air-India Boeing crash.

The rash of bomb scares to civilian planes and the fate of the Air India Boeing led to an emergency session of the International Air Transport Association to discuss measures to tighten security at airports.

But who will really console the hundreds of bereaved families? The new breed of international terrorism will never let the tears dry. □

**BATUK GATHANI**

*in London*

**R. CHAKRAPANI**

*in Washington*

## Terrorism and air travel

JUNE has been a particularly black month for air travel, with a sudden spurt of terrorism in different parts of the world. The hijacking of the Trans World Airlines aircraft from Athens and the holding of the passengers at Beirut, the bombing of the Frankfurt airport, the placing of a bomb on the Canadian Pacific flight that went off at Tokyo airport and, above all, the downing of Air India's "Emperor Kanishka" with the tremendous loss of life have created a feeling of unease. What exactly brought the Kanishka down off the coast of Ireland is still to be established but the fact that it disappeared from the radar screen suddenly points to a mid-air explosion, possibly caused by a terrorist bomb. Preliminary accounts of a ship's captain having seen the plane break up and plunge into the Atlantic have since been supplemented by two other "theories" — one suggesting that a fifth engine that was strapped on wrenched the wing apart and the other that a missile being test-fired by a submarine could have hit the plane. There has also been a theoretical question raised about metal fatigue or failure leading to the calamity. Metal pieces found in the bodies of the victims and indications that the aircraft went out of control suddenly would suggest that it broke up in mid-air. If the efforts to recover the main wreckage and the black box succeed, valuable clues should be forthcoming about the final moments and it should be possible even to establish the precise cause.

It is a commentary on the alienation of the Sikhs from the rest of the country that suspicion should immediately fall on extremist groups among them. The ghoulish claims of responsibility made through telephone calls to some American newspapers on behalf of the "Dashmesh Regiment" of the All-India Sikh Students Federation have been promptly refuted by the organisation and the leading protagonists of Khalistan too have sought to distance themselves from any such act. Varying reports about the involvement or the non-involvement of two fugitives, Lal Singh and Ammand Singh, who are wanted by the U.S.

Federal Bureau of Investigation in connection with the plot against the Prime Minister, have added to the confusion. Meanwhile, responsible Sikh leaders in Punjab have refuted the charges of any Sikh involvement in the crash, in the process coming out against terrorism in general. Wherever the finger finally points to, the tragedy has highlighted serious gaps in security at the airports. Early reports from Canada said the sniffer dogs used to check for bombs "went berserk" while examining the luggage being loaded on the Kanishka but three suitcases that were taken out and examined later were found to be clean, suggesting that the one with a bomb probably remained on board. It is known now that the X-ray machines used to check the baggage for the flight went out of order more than three-fourths of the way through, but Air India claims that equally effective means were used to examine the other pieces. Whether or not there has been some negligence would be clear only after a thorough enquiry but airport security in many parts of the world would seem riddled with gaps that a determined terrorist could take advantage of. Modern technology offers quick and non-intrusive ways of examining the baggage but the problem invariably is with the human factor — the lax supervision and the lack of thoroughness in the task of checking. A quick survey by the *New York Times* found that security was the tightest in Israel and the countries of the Eastern socialist bloc while it was satisfactory in North America and in most of Western Europe. In countries such as Greece and in most parts of the developing world, it was found to be weak with Colombia presenting an extreme case where security was non-existent and three incidents of hijacking could take place in one day. With numerous transit and connecting flights linking different parts of the world, weak links anywhere along a route may spell trouble for distant spots and greater international cooperation in combating terrorism in the air is clearly needed. All countries need to make it clear that they would give no quarter to air pirates.

# Tragedy cutting across community, creed

**F**OR the relatives of those killed in the plane crash it was a trauma-filled week. Without a clear indication of how and when they would be able to claim the bodies, they had been besieging the Air India offices. As time wore on, they began to wonder whether any purpose would be served by going to Cork. When the word finally came, there were only 21 who availed themselves of the special arrangements of Air India's scheduled flight No. 109 to London, on June 27.

The decision to fly a close relative of each of the deceased and put them up for two days in Ireland at Air India's expense had been taken on grounds more of sympathy than any other. There was not much hope that they would be able visually to identify the bodies and till they flew, only a third of the bodies had been recovered. As John Sheldon of the U.K. firm J.H. Kenyon (which specialises in the identification and repatriation of bodies) was to say: "The possibility of such identification is extremely unlikely".

But for many that was all that was left of many fond hopes and memories. At first, Harbhajan Singh, an elderly Sikh farmer from Patiala couldn't understand what the commotion was about. All at once, at around eight in the evening of June 23, the cavernous, air-conditioned arrival lounge of Delhi airport swarmed with people heading for a particular counter. It looked like the Inter-State Bus Terminus where he had been earlier in the morning on arrival from Patiala. He asked the first person who would listen to his rural Punjabi what the matter was. When he was informed that an air crash had been announced in the 7-30 TV news, he thought it was near the Delhi airport. The first inkling that something had happened to the plane carrying his daughter was when the public address system kept repeating the names Montreal and Toronto. He rushed to the counter already crowded with anxious relatives and kept shouting his daughter's name. When the harassed airline official confirmed her name on the list, he just sank into a chair. Throughout the past week and especially during the long bus journey, he had been planning his daughter's short stay with him before she married. He had personally selected the bri-

degroom, the son of a close friend.

There were on the Air India flight at least half a dozen girls coming to their country of origin (most of them Canadian citizens) to get married. Mrs. Satyati Bajaj, from Ambala, mother of Anju Bala who was also on the flight, had to be physically restrained by her relatives from being violent. She became hysterical when she heard the news. In between her wails and loud complaints against Air India officials, she said she had just finished buying her daughter's trousseau. Anju Bala was engaged to an engineer.

For K. P. Chopra of Karol Bagh, the news left him in a daze. His aged parents, after much persuasion, had agreed to go on a pleasure excursion to the U.S. and Canada two months ago. His brother, a Canadian real estate agent, had ensured that the parents enjoyed every moment of their first trip abroad. In fact, his mother had lovingly sent his children postcards from every tourist spot they visited. He had heard the news earlier in the evening but had come to the airport in the faint hope

that the flight number announced may be wrong.

The parents of the Co-pilot of the flight, S. S. Bhinder, were cool and composed in their grief. Their pilot son had spent a lifetime flying planes. The chance of a mishap was constantly there. The thing they felt deeply about was that their son didn't get a chance to prevent his fate. It all seemed so senseless.

At the special cell set up by Air India in Room 201 of the Kanishka Hotel two days later, the relatives of the victims kept streaming in, waited restlessly before the men with the forms. And then the painful exercise of digging up the memories, reviving the moments of joy and sorrow and abstracting those physical details which had not seemed so important till then. For Sushila Rauthan who lost her husband and 16-year-old daughter Puja, the future seemed empty. "News about them can take one to four days and I shall wait," was all that she could mumble brokenly.

The pain and anxiety started when Doordarshan sent out the news in its daily bulletin at 7-30 p.m. on June 23. Shocked relatives rushed to the airport to confirm, or to find out if by some chance the ones they were waiting for had been lucky to miss the flight. The last hopes died only after a frantic scrutiny of the passenger manifest. Some



**A mother's unutterable grief ... Satyati Bajaj lost her daughter Anju Bala. Al flight-182 carried at least six girls coming home to get married.**

of them had not even had this kind of advance information. It was only on reaching the airport that they came to know that the people they had gone to receive would not be arriving.

#### ABOUT THE BODIES

The most pressing demand was for more information. As the realisation crept in that there were not likely to be any survivors, it became a matter of trying to find out what would be done with the bodies. Air India posted officials in the lounge and opened a number of cells to cope with the flood of enquiries. Relatives kept arriving at the counters and the phone lines remained busy. Many of them chose to send telex messages to contacts in the U.K. and Ireland and several flew down. But the experts handling matters in these countries discouraged relatives from going to the recovery site. The airline had temporarily to shelve its plan to fly them down on the 24th. Air India was however instructed by the Civil Aviation Ministry to make arrangements for taking them as soon as clearance was given from Ireland. Many left their addresses and phone numbers with the airline office so that they could be contacted when there was any new information.

Meanwhile, the U.K. firm J. H. Kenyon, was engaged by the airline to do professionally what close relatives faced with shattered bodies would not be able to do. In the absence of dental records, which would have made the task of identification relatively easy, the representatives of the firm who had set up cells in Indian cities, and London, Montreal and Toronto had to gather what physical details they could from the relatives.

More poignant scenes were witnessed when the firm commenced its job. Mental images of those who often had not been seen for a long time and would not be seen again had to be painfully dredged out, reduced to words and entered into the pro forma. The colour of the hair and eyes, the set of teeth, warts on the hand, scars left by childhood accidents—anything that would be of help in identification was recited to the teams which carefully noted it all down. Some of them broke down as they went through the exercise. Others were more stoic, accepting the probability that the bodies might never be found—even if they were, it might be better if they were not seen in their present condition. Many rang up repeatedly to add something suddenly remembered. A vastly experienced Sheldon found them very understanding and cooperative.

But his experience had not prepared him to handle the case of the young engineer Vikram Verma from Farida-

bad. Verma had come to clear a nagging doubt that the name Kammila Rama in the published list of passengers was not that of his 14-year-old cousin from Edmonton. She had vaguely written to say that she would be coming to India in June. But the chance was slim that she would be on the flight as she wouldn't have travelled alone. The grim confirmation that it was indeed his cousin was a physical blow. "There cannot be another Kammila from Edmonton".

As Sheldon collected information, it was relayed to the people working in Ireland. The names would be tagged on to the bodies if a positive identification could be arrived at. Relatives were also asked to state the place where they wanted the last rites to be performed and to fill in the death certificates. The autopsies, post mortem and

**She had vaguely written to say she would be coming in June. But he thought she was unlikely to be on the flight as she would not travel alone. The grim confirmation that she was on board was a physical blow.**

other formalities were to be completed soon and the bodies would be handed over to the relatives after that. But the chance of medically identifying most bodies being slim, the recourse to mass cremations and burials could not be ruled out.

In their agitation, some of the relatives and others tended to be harsh on Air India's handling of the tragedy. Airline officials, while sympathising with the relatives and conceding the fact that there might have been many shortcomings and inefficiencies in their response, were quick to point out that a good number of them had put in long hours to cope with the disaster. Another aspect which could not be missed was that the airline had also been directly affected. Besides the crew, several members of the staff or their relatives, making use of their excursion fare tickets, had also perished in the crash.

As the condolence messages came in, several political parties—notably the CPI (M) and the CPI—were quick to point out that the tragedy could have been averted if the Canadian authorities had been more serious about tackling the terrorist menace. The strong indications that terrorists had caused the mishap heightened the feelings against

them coming as it did after the spate of bombings in the North. Fortunately, however, the citizenry of Delhi was more subdued than it was in November. The tragedy cut across all lines of community and creed and was mourned by all.

★ ★ ★

It was a pitiable sight at Bombay's Sahar airport on June 23 evening, dominated by the grief-stricken parents and relatives of the passengers of "Kanishka".

A 17-year-old student of the local, Elphinstone College collapsed right at the Air India counter when she came to know that her cousin, Athikho Kashipri, a passenger, and his brother, N. Kashipri, an assistant flight purser, were killed. Medical assistance had to be summoned to revive her.

The most heartrending story surfaced with Narahar, an aged man from Satara in Maharashtra, who had come all the way to Bombay to receive his son, Dattatreya Sakhvalkar (50), his daughter-in-law and grandchildren travelling from Ontario in Canada. Dattatreya, a brilliant engineering student, had first gone to the U.S. and then migrated to Canada. His grief-stricken father learnt with tears that the entire family was wiped out.

Two other victims were Mrs. Mukta Bhatt and her ten-year-old son, Deepak, returning from Edmonton in Canada after an interval of six years to celebrate the thread ceremony of Deepak.

#### LOSS OF CREW

The "Kanishka" disaster has taken a heavy toll of Air India staff—experienced air crew, flight pursers and air hostesses. Some of them had taken their families along to avail themselves of the "slip" flight because they get nearly seven days off duty after finishing one leg of their flight. During that interval they go sight-seeing with the members of their families.

Very poignant was the grief associated with the liquidation of the entire family of an Air India employee, Mrs. A. Travasso, working in the personnel department. She, her husband and their two children were returning from Canada.

Inder Thakur, a flight purser, was a well-known model and was recently selected by an international fashion designer in New York during the world modelling association's 25th anniversary celebration. He was in films too and his first film, "Nadiya Ke Par" was often screened on Air India's flights. □

**KESAVA MENON**  
*in New Delhi*

**V. VENKATESWARAN**  
*in Bombay*

# Hopes, promises and now ashes

**F**OURTEEN-year-old Sanjay wrote from Canada to his grandmother in Vijayawada, that he was bringing his poem titled "Death" that was appreciated in his school. His headmaster had asked him to write one poem every month, which could be published as an anthology. Sanjay wrote another poem titled "Hate":

I hate to hate/for to hate is sin/in this glorious world/where I live in.

I have been asked what do I hate/and so I think/of one subject mathematics.

To add and to subtract from/class one to seven/is very painful even in heaven.

My grandpa is a genius/my father an accountant/I hate what this would imply/when I can't even multiply/from morning to noon/day in and day out.

I am told to like it/so, I pretend to like it/this is what I hate/perhaps, more than maths.

Sanjay's grandfather is Dr. K. L. Rao, an eminent engineer whose pet subject is the linking of the Ganga and the Cauvery, a former Union Irrigation Minister, the author of several books on river waters—who three years ago questioned the Andhra Pradesh Government's design for the Polavaram project. Sanjay was travelling by the Air India Boeing from Canada—carrying the poem "Hate" and interested in a discussion of his poem "Death"—along with his younger brother Deepak.

Young Sanjay hated having to pretend to like mathematics, but the perverse hatred of terrorists engulfed the Boeing.

The octogenarian K. L. Rao, and his wife are brooding over the death of the two boys. "He has sent us the news of his death, instead of the poem," said Rao's wife.

Sanjay's parents, Lakshminarayana, an accountant, and Dr. Padmini, a paediatrician, are working in Canada and due to come later to Vijayawada. Rao and his wife had brought up Sanjay till he was nine while his parents were in Nigeria. They moved to Canada in 1982. Mrs. Rao wished the plane had only been hijacked—the agony of a few days was preferable to death brought about by the presumed terrorist bomb.

Sanjay was one of the 15 passengers in the plane bound for Andhra Pradesh. A family of five—Syed Qutubuddin Quadri, his wife and three children—was coming to Hyderabad to attend the marriage of Qutubuddin's younger brother scheduled for June 27. The marriage was cancelled and instead the family observed the Ziarat ceremony for the dead.

**A pall of gloom hung around the home made ready for the wedding. People who would have otherwise visited the house for the marriage came to offer condolences to the old couple.**

Qutubuddin, a mechanical engineer working in Toronto, was coming with wife Shaista, daughters Rubina (8) and Arshiya (5) and an infant son. Qutubuddin's father, Syed Ghouse Quadri, a retired chief inspector of the APSRTC, told FRONTLINE that since both he and his wife were ill, suffering from diabetes, they had been eager to see their grandson Atif. They had been repeatedly writing to their son to come home.

The Qutubuddin family had purchased tickets for the flight leaving Toronto on June 28, but after coming to know that the marriage was fixed for June 27, they advanced the journey date to June 22. His younger brother, Abdur

**The pain and anxiety ... a frantic scrutiny of the passenger manifest hoping their relatives had been lucky to miss the flight.**



Rehman Quadri, working at Jeddah in Saudi Arabia, had been postponing his marriage for the past four years as his job seemed uncertain.

Qutubuddin had difficulty in getting seats for the June 22 flight and got only three seats initially. He got the fourth seat on the star-crossed flight at the last minute.

Ghouse Quadri is the Sajjada Nashin (a sort of trustee) of the Dargah of Hazrat Farid Saheb at Adoni in Kurnool district. From Toronto, his son used to send him \$ 200 a month and the elderly couple lived frugally on this income. But with the marriage fixed, Ghouse Quadri purchased a second hand car for Rs. 15,000 to be used by his son from Toronto during his visit. Qutubuddin wrote to his father a week earlier: "This is my last letter to you, before coming to Hyderabad".

A pall of gloom hung around the Quadri home, freshly whitewashed and made ready for the marriage. People who would have otherwise visited the house for the marriage, came to condole with the old couple for the manner in which an entire family had been wiped out.

In Hyderabad the atmosphere in the conference hall of the National Geophysical Research Institute was sombre as Dr. J. G. Negi, Deputy Director, took the chair to announce the death of Yellapragada Gopalakrishna Murthy, a former Director of the Geological Survey of India, and a consultant to the NGRI. Y. G. K. Murthy, an outstanding geophysicist, respected for his contribution to field geology, regional tectonics and mineralisation went to Toronto to present a paper at an international symposium on June 7. He was the only passenger booked for Hyderabad. The others had tickets up to Bombay from where they would reach towns in Andhra Pradesh by other means.

Another victim, 24-year old Mohammed Rehmattullah, had gone to Canada in 1982 to join his brother and enter a college for higher studies. His father, Mohammed Habibullah, had emigrated to Canada but returned with his wife and younger daughter last December. Rehmattullah was a supervisor in an optical factory in Toronto, while pursuing higher studies in an evening college. Rehmattullah was to attend the marriage of his cousin Dr. Ahsan on June 30. □

**M. VENKATESWARA RAO**  
in Vijayawada  
**IFTIKAR AHMED**  
in Hyderabad

# The dead, the living, what might have

**C**HOICE sweets of their liking had been specially prepared; friends who had seen them off at Toronto or Montreal airports had made thoughtful and enthusiastic telephone calls to relatives in Madras, informing them of their long-awaited arrival; and the passengers themselves were returning home with gifts meant for and demanded by their dear ones.

But all this was brutally and heart-rendingly cut off in flight. Sweets were left untouched, nobody went to the airport to receive them, gifts were never

proffered and all that remains now are the memories and the memorabilia of the passengers dead in the Air India plane crash in the Atlantic.

And for the relatives of the dead, it has been a tragedy of epic proportions. Family after family has been dismembered or sundered apart—entire families of man, wife and children have been wiped out in a matter of moments; in some families, the husband is the sole survivor while his wife and three children are dead; and in another, the lineage is "extinct", as

a totally dazed father put it.

The dimensions of the catastrophe have been such that many relatives of the victims are yet in no mood to talk to journalists—indeed, understandably in a few cases, were plainly impatient with their inquiries.

"Please go away," says one curtly. "We are not interested in giving you any details," responds another, with the door slamming shut behind her. "I still have hopes because my son (his body) has not been found yet," remarks an aged father. "Come after a week, when

## Distinguished scientist with a sense of humour



**Nayudamma ... a lead role in the sphere of science cut short.**

**A**S India deeply mourns all the dead in the still-to-be-explained calamity that struck Air India's jumbo, "Kanishka" over the Atlantic, its science community will be much the poorer for the loss of a very distinguished person, Dr. Yelavarthy Nayudamma.

Could there be a chance that at the last moment he failed to turn up at the Montreal airport to board the flight? No, his wife, as soon as she heard the news of the crash on TV, checked up with Montreal only to learn with horror that her husband had boarded the aircraft.

An agile six-footer who was never tired of physical exertion, a powerful head and chiselled features on a

frame seen regularly at national and international scientific conferences, wearing the 60-odd years lightly, Nayudamma was a specialist in leather technology with a distinguished record of active academic and professional research. Joking to his friends about his fine physique, he used to quote his wife to the effect that his body had grown—gaining height at the expense of his brain.

### UNCONVENTIONAL, INNOVATIVE

Although an outstanding research scientist in a field of great relevance to India—leather exports fetch the country annually around Rs. 10,000 millions in foreign exchange—he is remembered even more for his work in the area of technology transfer, research management and international cooperation in leather science and technology. In fact, it was in recognition of his unconventional approach and innovative management strategies that he was invited to play leading roles in the deliberations of bodies like the Committee of Science and Technology in Developing Countries (COSTED) and the International Development Research Centre (IDRC). He was responsible for the establishment of leather tanneries in several developing countries as Consultant for FAO/UNIDO. His stature and interests took him frequently to farflung parts of the globe. It was while returning from a meeting at the Canadian headquarters of the IDRC that tragedy struck him—in the form of the air crash caused, according to mounting evidence, by an explosive.

Coming from an agricultural family of Andhra Pradesh, Nayudamma obtained his degree in industrial che-

mistry from the Banaras University and his Ph.D. in leather technology from an American institution of higher learning. He built the Central Leather Research Institute (CLRI) in Madras on an enduring foundation, leading to its recognition as one of the nation's major national laboratories.

His management abilities took him to positions of higher responsibility—Director-General of the Council of Scientific and Industrial Research, Secretary in the Government of India's Department of Science and Technology, where by all accounts he made an outstanding contribution. It was only the Vice-Chancellorship of the Jawaharlal Nehru University in the national capital that proved problematical: hardly one year after a



**Pavanamma who died of burn injuries, in the aftermath of her personal loss.**

# been

everything will be a fait accompli." With irony in her voice, a sister of one of the dead says: "Nobody published anything when he received so many awards. What is the use of publishing anything now?" Of course, there are others who willingly share a wealth of detail about their dead relatives, providing new insights into hitherto hidden facets of their character which they found themselves articulating only now.

Invariably, the conversation turns to terrorism and its consequences. And the questions raised are basically the

five-year tenure started, he confessed he was unequal to the task of improving matters there. He quit and came back to his first love—leather technology—at the CLRI. Although formally retired, he had a great deal to contribute as Distinguished Scientist at the CLRI and in other capacities.

Nayudamma had a wide circle of friends and admirers. A product of composite culture with a unique individuality, a man of sophistication and modern tastes who was both broad-minded and down-to-earth, he remained accessible and open-minded all his life. He will certainly be missed in scientific and social gatherings where he spoke with moving simplicity and a spontaneous sense of humour. He was once heard to say: "I am astonished at my climb to fortune, name and fame". His mellifluous voice, genial temperament and never-failing smile will be widely remembered.

Numerous were the positions he held—Chairman of the Centre for Development Alternatives, Chairman of the Working Group of the Planning Commission to study the development and utilisation of scientific manpower, Adviser to the Governments of Andhra Pradesh and Tamil Nadu on Science and Technology. . . He introduced the concept of relevant technology and the development of backward areas using such technology. Karimnagar district in A.P. was the first backward area to be adopted for development under the concept. "Science for the common man", he used to say. He will be long remembered for his humanism and his approach which emphasised quality in scientific research, results in application and democratic values. □

**S. PARTHASARATHY**  
*in Madras*

same. Do the terrorists know that they have shattered homes, broken families and orphaned children? Do they know the magnitude of the sufferings they have unleashed on our families? What do they know of the sacrifices made by the departed to shore up our families?

There are other very poignant angles, touching upon what-might-have-been, or rather what-might-not-have-been. At least three families settled in the U.S. and bound for Madras had always returned via New York—never via Canada. The recently introduced flight from Toronto (which was closer to the places where they lived in the U.S.) had enticed them and besides, their relatives were living in Toronto or Montreal... after a short holiday with them, they boarded the flight.

Two of the dead—Dr. R. Balasubramanian and G. K. Subramanian—had taken their B.E. from the Alagappa Chettiar College of Engineering at Karaikudi and gone on to complete their M.E. at the Indian Institute of Science in Bangalore. S. Swaminathan had also taken his B.E. from the Karaikudi Engineering College. While he stayed back in the U.S., his wife and three children died in the tragedy. Besides, G. Murugan, who died with his entire family, had also taught in the college.

Many of them were returning to Madras on a meticulously planned holiday, eager to perform the upanayanam of their child or the annual rites of a dead parent or simply planning a wider family get-together.

## OUTSTANDING STUDENT

Twenty-three-year-old G. Krishna Kumar of West CIT Nagar in Madras had done so brilliantly in his studies that he was rushing home on a three-week holiday to show his mother all his certificates—a gold medal, testimonials and cash awards plus an appointment order from Pratt and Whitney, Canada. His mother, in nearly unutterable grief, recounted how keen he was on showing her the records and how his sister, who lives in Canada, had advised him to take home only photocopies of testimonials and the job-offer—lest he should misplace the originals.

Krishna Kumar had graduated in mechanical engineering from the Carlton University, Ottawa, with record-breaking honours and had been voted as the outstanding student of the university, finishing the course in less than three years instead of the usual four. He had bagged a gold medal and a cash award of \$(Can) 1000. Besides, he had won the National Talent Scholarship of \$(Can) 850 a month, which is given only to Canadian citizens and not

to immigrants. In addition, he had participated in a several-month long camp organised by the Royal Canadian Navy, which again is not thrown open to immigrants.

Earlier, when he studied engineering at the undergraduate level for three years at the Coimbatore Institute of Technology, he had stood first in the university every time—bagging gold medals in the process. He discontinued that course to join the Carlton University.

His was a "daring personality" (his mother's description), ready to probe into the working of machines and adept at fabricating contraptions. Fighting back his tears, his brother, G. Ramachandran, recounted how whenever any television set fell into disrepair in the neighbourhood, he used to set it right and how he had a golden touch in repairing TV sets, transistor radios, cameras and what not. He himself had fabricated a number of transistor sets, radios, stereo systems and even fashioned an antenna so that the TV set in his house would receive programmes from Sri Lanka.

He had played cricket for his school, Vidya Mandir, and also his college (where he had done his Pre-University course), A. M. Jain College; he was an NCC cadet; and had organised blood donation camps.

He was the blue-eyed boy of his professor and dean of mechanical engineering in the Carlton University, Dr. Herbert Saravanamuttoo. His history and geography teacher in Vidya Mandir, R. Srinivasan, who had come home, called him a "mechanical-minded" boy who was always willing to participate in community welfare projects. He had secured a job in Pratt and Whitney on a "princely" salary of \$3,000 a month and he was to take up the assignment in August. Before that, he thought he could have a three-week family reunion with his mother and brother in Madras.

## "LIVING ON HOPES"

"Till the investigations are complete, I will not lose hope," says 71-year-old, G. S. Krishna Iyer of Venkatesan Street, T. Nagar, Madras, whose only son G. K. Subramanian (45), his wife, Jaya (37), their son, Krishna (14) and daughter, Sumitha (3) were travelling on the Air India plane. "I have been living on hopes. I do not know whether it is confirmed news, for my son has not been found yet," the father consoles himself and the rest of us. He points out that 198 persons have not yet been located; objects to my using the word "bodies"; and qualifies this by saying the correct word would be "persons" till they are located. Subramaniam, his only child, was planning to celebrate the upanayanam of his son on July 4. Sub-

# Story of crashes

**T**HE crash of "Kanishka" is the worst tragedy in Air India's history.

But this is not the first time one of its jumbo jets has been lost. On January 1, 1978, "Emperor Ashoka" crashed off the Bombay coast shortly after take-off, killing all the 213 passengers. The captain's parting words to the control tower were "a happy new year". The Boeing was on a flight to Dubai. Many people walking on Bombay's Juhu beach saw the plane crashing headlong into the sea off Bandra. The pilot's son himself saw the aircraft crashing into the sea, engulfed in flames.

Earlier in the history of Air India, on April 11, 1955, a Constellation aircraft "Kashmir Princess" crashed off Borneo in the South China Sea, killing most of the VIPs on board. A time bomb had been planted in the aircraft. The VIPs were en route to the Bandung conference where the concept of Panchsheel was conceived by the non-aligned powers. The

Chinese Premier, Zhou Enlai, was scheduled to travel by the plane but at the last minute there was a change in his schedule and he escaped.

Curiously, Captain Dikshit of the aircraft survived on a lifeboat, surrounded by sharks. He was picked up days later.

It was one of the first mid-air bomb explosions in aviation history and provided valuable lessons in air safety.

Another disaster befell Air India when "Kanchenjunga", a Boeing on a Bombay-New York flight via Delhi, crashed near the summit of Mont Blanc on January 24, 1966, killing all the 117 passengers. In that tragedy India suffered the towering loss of Dr. Homi Bhabha, the father of atomic energy, and some other fields of science in the country. Bhabha was also not to have travelled on the flight. Despite his mother's fervent pleas, he undertook the journey to meet his death under tragic circumstances. His death was a great loss

for the Indian nuclear science venture, but the foundation he laid has borne varied fruits. It has not been established till now whether the crash of "Kanchenjunga" was brought on by sabotage or foul weather or a mistake of the pilot.

Again a Constellation aircraft of Air India with 48 passengers on board disappeared over the Swiss Alps in November 1950.

In 1982, a Boeing coming in from Singapore crashed on landing in foul weather in Bombay. There was a storm raging, but the pilot decided to land. The plane could not maintain course and crashed. Because of heavy sodden earth due to rain, the magnitude of the crash was contained but still 17 passengers were killed. Among the survivors was Dr. Raja Ramanna, Director of the Bhabha Atomic Energy Commission and later chairman of the Atomic Energy Commission. Ramanna was among the first to get out of the wreckage. He even helped a few passengers out. □

**V. VENKATESWARAN**

*in Bombay*

ramaniam was a power engineer in Michigan, U.S.

Among those killed was the internationally reputed leather researcher, scientist and science institution-builder, Dr. Y. Nayudamma. The news was too much for his devoted wife, Dr. Pavanamma, who died of burn injuries sustained in the aftermath of the tragedy. She was herself a reputed gynaecologist and was actively associated with the Andhra Mahila Sabha Nursing Home at Adyar in Madras.

For Simon Alexander (52), his wife Annamma Alexander (48) and their twin children, Simon and Reena (13), it would have been one tremendous return-home—for were they not coming to India after a period of 12 years? They lived in Montreal and Annamma Alexander had gone to Canada 25 years ago as a trained nursing professional; in Canada, she had obtained a Ph.D. in nursing (one of the very few women in Canada to achieve that distinction). She was the head of a school of nursing and in charge of a group of hospitals. Simon Alexander was a

**Tragic epilogue to a promising career...Krishnakumar (23) of Madras was rushing home to show his mother the medals he had won from Canada's Carlton University. Here, with his sister who saw him off at the Montreal**



business executive, and they had all become Canadian citizens.

• They were coming home to Kerala to see their family members and they had routed their visit via Madras, to stay with the family of M. A. K. Muthalaly, whose wife's brother was Simon Alexander. A totally unassuming person, Mrs. Alexander had made tremendous sacrifices to put on a firm footing her three brothers and three sisters. Their children were always rank-holders in their classes. In one blow that family was liquidated.

"People may say that at least my brother is alive. But they (the terrorists) have condemned him to such mental torture for all his life," exclaims one of the two sisters of S. Swaminathan (47), who stayed back in the U.S. and saw off his wife, Mrs. Indira Swaminathan

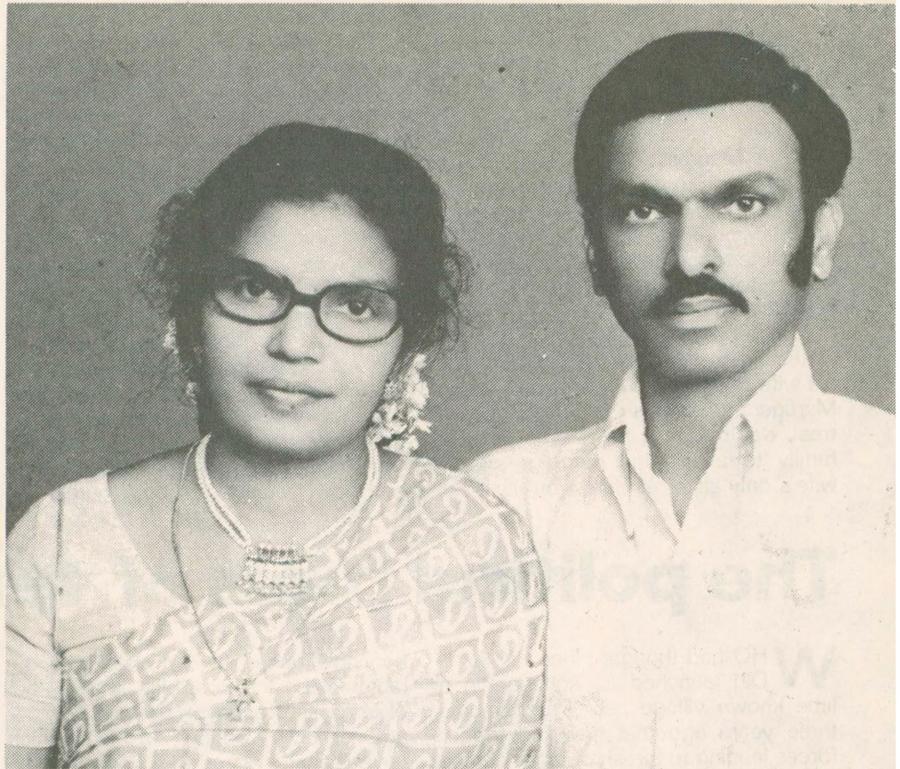


(38) and his children, Anand (14), Lavanya and Ramya (2). Swaminathan was to join his family a few days later in Madras.

Sweets that the children liked had been made and the driver had been instructed to keep the car ready in the morning to drive to the airport so that the relatives could get there in time. Then came the news over TV and later confirmation that they were indeed travelling by the jetliner "Kanishka".

#### WILL THE TERRORISTS CHANGE?

"Please stress in your article the gravity and magnitude of sufferings undergone by the bereaved families so that there may at least be a chance of terrorists undergoing a change of heart", one of his sisters says. Another relative notes that commissions of inquiry may be instituted, but in the past none of the recommendations of any inquiry commission was implemented. The



The return-home that was not to be...Simon Alexander, wife Annamma and their twin children were coming home after a decade. (Left): The twins Simon and Reena (picture taken in 1985).

whole family is in a daze—not knowing how Swaminathan will take all this.

His aged mother underlines the fact that her son and daughter-in-law were of a religious disposition; every day they would recite the Lalitha and Vishnu Sahasranamas in their house at Sterling Heights, Roland Division, Michigan, U.S. They were very keen on bringing up their children according to Hindu traditions at home. The relatives show a photograph of little Anand sporting a *sandhanam* (sandal paste) mark on his forehead. Every day, they lit lamps in their house and offered prayers. Swaminathan had taken his B.E. from the Alagappa Chettiar College of Engineering in Karaikudi and later obtained an MBA in the U.S.

Mrs. Swaminathan and her three children were coming home after a gap of seven years and as Swaminathan's aged mother tells us, vegetables like snake-gourd which are not available in the U.S. had been bought and kept ready to be cooked for them.

The tragedy for the family, however, did not end there. Indira Swaminathan's brother, Kumar (35) and his wife, Chitra Kumar, were also travelling with them on that flight. Said an indignant relative of Chitra Kumar's: "How is it that the authorities did not cancel the flight when they had enough warning? Can they replace a single life now?"

Kumar was an engineer in an American firm, with a B.E., MBA and M.S. in computer science. His wife, who was a physics graduate, had done her B.S. in computer science in America. They were living in Anne Arbor and were coming down to perform the first death anniversary rites of Kumar's father in Bangalore. The Kumars and Mrs. Swaminathan and her three children were seen off at Toronto airport by a relative, who passed on the information of the tragedy to Madras. Mrs. Swaminathan's family generally travelled via New York.

#### A PROFESSOR'S FATE

Dr. R. Balasubramaniam, professor of electrical engineering in the New Brunswick University had sent his wife and two children to Madras just a month earlier by the same AI flight, AI 182, and was planning a get-together with his sisters' families. A man of varied interests, he had made use of computers to study the raga system in Carnatic music and also used electronics to study the "fine movements" of fingers in the human hand. He generally preferred to travel via New York but as fate willed it this time, he travelled on "Kanishka".

It is indeed a surprise for her teachers that Miss Susheela Raghavan (23) from Mylapore, Madras—who was an air-

hostess on the flight—took up a career in flying. She was a conservative girl—who would never go home late even by an hour. She had taken her B.Sc. in Nutrition and Dietetics with first class honours from Queen Mary's College, Madras. A bright and spirited girl, she used to fight for her rights and took part in intra-mural debates. "After she became an air hostess in Air India, she came to the college and distributed sweets to all of us," noted one of her college teachers.

Another entire family that perished in the crash was that of G. Murugan, his wife Sumitra and their two children. Murugan, a computer engineer in Montreal, was returning to Madras with his family to attend the marriage of his wife's only sister at Salem on June 28.

Her brother, a doctor in the U.S., who had come to India a little earlier, was waiting in Bombay to welcome his sister and her family. In fact, he had planned to join Sumitra's family in Montreal and accompany them to Madras, but due to the non-availability of the required reservations, had come to Bombay earlier.

Perhaps the most poignant moment came when many of these relatives converged at the Madras airport on June 28 on their way to Cork to identify the bodies of their dead ones.

It was a moving sight as they exchanged information on the turmoil wrought in their families by the tragedy, how they were looking forward to the visits after a long period of separation and how instead of receiving them at

the Madras airport and participating in the bonhomie, they themselves were off to identify the bodies.

In family after family, it has been a terrible story. Wives who have lost their husbands, children for whom their father is no more, whole families blasted out of the sky and young couples no longer alive. And the questions raised by the living are the same: "What did they do to deserve this fate? Is this the reward for being so godfearing? They never would do any harm to anybody, never hurt a fly! And what right do the terrorists have to destroy families which they did not raise?" □

T. S. SUBRAMANIAN  
in Madras

## The political roots of terrorism

WHO had thought when the Akali Dal launched its agitation in a little known village near Patiala some three years ago that it would trigger forces leading to a rash of terrorist violence in the State, Army action in Amritsar's Golden Temple, the assassination of the country's Prime Minister, riots in several cities including Delhi, the alienation of an entire community, 'transistor' bomb blasts in the national capital and neighbouring areas and the crash of a jumbo jet, with 329 persons aboard? Each one of these events had the potential for moulding the course of contemporary history. What their sum total meant for the country is not hard to imagine.

The mysterious suddenness with which the Air India 747 broke into pieces over the Atlantic on June 23 immediately created the suspicion of sabotage. The information, emanating from Toronto and Washington confirmed the suspicion. There was no confusion from the beginning as to the type of elements who could have supplied the saboteurs. Later, their identity was established, too, not on the basis of what anonymous callers told the American media—claiming the sadistic responsibility for the disaster on behalf of the All-India Sikh Students Federation, or the Dashmesh Regiment—but on firmer pieces of evidence.

Had the cause of the tragedy been in doubt, the U.S. President Ronald Reagan would not have referred to terrorism in his message to Prime Minister Rajiv Gandhi—"the circumstances of this crash raise serious questions about the possibility of deliberate sabotage. While, we do not presume to prejudge this matter, we are assisting with other concerned governments in the investiga-

tion now under way to determine the facts. Given the possibility that an act of terrorism was involved and the other acts of civil aviation terrorism which have recently occurred, I hope that we can consult on appropriate ways to respond to the serious threat to safe international air travel."

### OMINOUS DIMENSION

Within hours of the crash, the Minister of State for Tourism and Civil Aviation, Ashok Gehlot, obviously on the basis of firm indications, said he did not rule out sabotage. Aviation experts spoke of the possibility of an explosion caused by a time-bomb planted either at the starting point, Toronto, or during the subsequent stop-over at Montreal. If this were established finally, the vulnerability of air travel to international terrorism would acquire an ominous dimension. In the last 15 years or so, hijacking was the main device employed on the field by terrorists or pressure groups. The Air India plane explosion may give them new ideas. The elaborate precautions and the use of the latest security gadgets had failed to eliminate the menace and the new threat could not be countered merely by scaled-up efforts. All governments in the world, irrespective of their political complexion, would need to pool their ingenuity and expertise as part of a collective bid.

In the context of the Sikh problem in India, the recourse to terrorist acts represented a sea-change in the attitude of those who felt wronged and sought to add drama to the struggle for their cause as they perceived it. In the early Sixties, the Akali leaders—Master Tara Singh and Sant Fateh Singh—undertook fasts unto death to

press their demand for a Punjabi-speaking State. What was their approach? "Concede my demand or else I will immolate myself." Implied in it, of course, was a notice to the powers that be that the sacrifice would create unmanageable situations for them.

The new phenomenon represented by the gun-wielding motor-cyclists, shooting at their unsuspected victims and escaping to plan another attack, contrasted sharply with the old attitude. "Concede my point or you should be prepared to be eliminated," was the underlying philosophy.

Only a small section was engaged in this gory task, but its fall-out was disproportionately destructive. For months, the terrorists appeared to have mesmerised the "moderate" sections—of the Akali Dal, or the community as a whole—into silence. True, no Akali leader of stature endorsed terrorist violence and there were faint general voices of disapproval. But that was quite different from what the situation demanded—a firm, categorical denunciation of the killings of the innocent.

The "moderates", it appeared, were using the terrorist violence as leverage, or a bargaining counter, in their dealings with the government. It did not help the moderates, but certainly gave a fillip to terrorism.

Soon, the initiative passed on to the votaries of extremism—apart from exerting indirect pressure on the "moderates" and, thereby, cautioning them against the politics of dialogue, they would strike whenever the negotiations seemed to make some headway.

The pot was, thus, kept boiling all

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