

BHOPAL

Indian city begins to heal but conflicts remain

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Bhopal one year later and the images stream back. The storage tank of methyl isocyanate (MIC)—41 metric tons of it—cooking within from reactions with contaminants. Molecules polymerizing, heat rising beyond 100, then 200 °C. The contents boiling to such frenzy that the tank's concrete casing shakes and cracks. Gases and liquids bursting through a rupture disk and relief valve, then surging through vent lines toward their final release through an overwhelmed scrubber.

Worker panic in the plant, a sleeping community outside as the gas begins to spread. Bodies roused,

aching, crying out, eyes burning and watering. Thousands running, staggering through the dusty streets and alleys, many clutching their babies, not knowing where to run to escape. Unconsciousness, injury, and death by the thousands. Pandemonium in the hospitals. By daybreak, the scene of silence around those left behind: fathers, mothers, children; cows, bulls, goats, dogs, all in final repose. A peace in its eeriness never more heart wrenching. The bodies disposed of by cremation and mass burials.

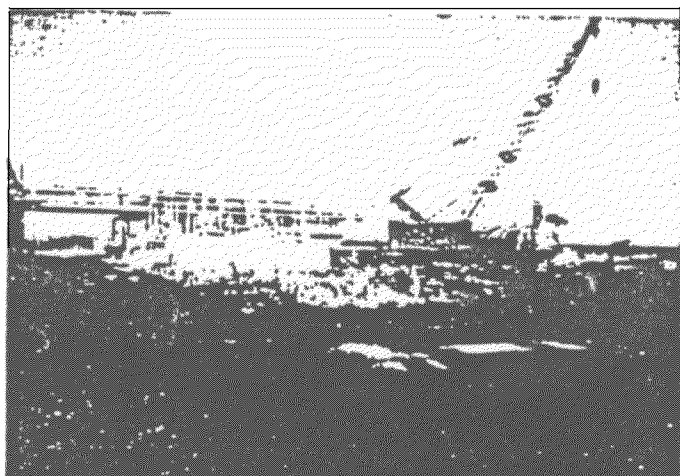
Then the local, national, and international responses. Medical supplies flown in. A planeload from the U.S. ordered back by Indian officials already thinking of compensation battles ahead. The sudden incarceration of Union Carbide officers who arrive to offer help. The dispute over the presence of cyanide in the gases. The invasion of U.S. lawyers. The overwhelming outpouring of local help. Schoolchildren, boy and girl scouts, bankers, merchants, the elderly—all transformed to paramedics and performing heroically. The visits by Prime Minister Rajiv Gandhi and Mother Theresa.

The tense, circuslike atmosphere of Dec. 16—"Operation Faith" day—when the remaining MIC in an adjoining tank is converted to its final insecticide product, Sevin. The nine-month investigation by India's Central Bureau of Investigation. The now-suspended criminal investigation by a state commission.

Today, Bhopal is a hotbed of unrest, reform, and rebuilding as it struggles toward a future. Mass demonstrations and memorial events are scheduled this month in commemoration of the first anniversary of the disaster. A repentant Union Carbide India Ltd. has prepared a press kit outlining its program of various relief measures. The Poison Gas Struggle Front (known by the Hindi word "morchā"), an infuriating goad to the local establishment, is staging a mass march demanding that Carbide be punished and ejected from India. The government of Madhya Pradesh—the state of which Bhopal is the capital—has scheduled a symposium with an international cast of writers and artists commissioned to deliver eulogies. Over the past year documentaries have been prepared, poems written, plays performed, paintings shown. Poster shows on the misuse of technology have been circulated to science classes in schools throughout the state. In New Delhi an international symposium is being held that will announce to a world kept in the dark thus far the results of Indian investigations of the tragedy's medical effects.

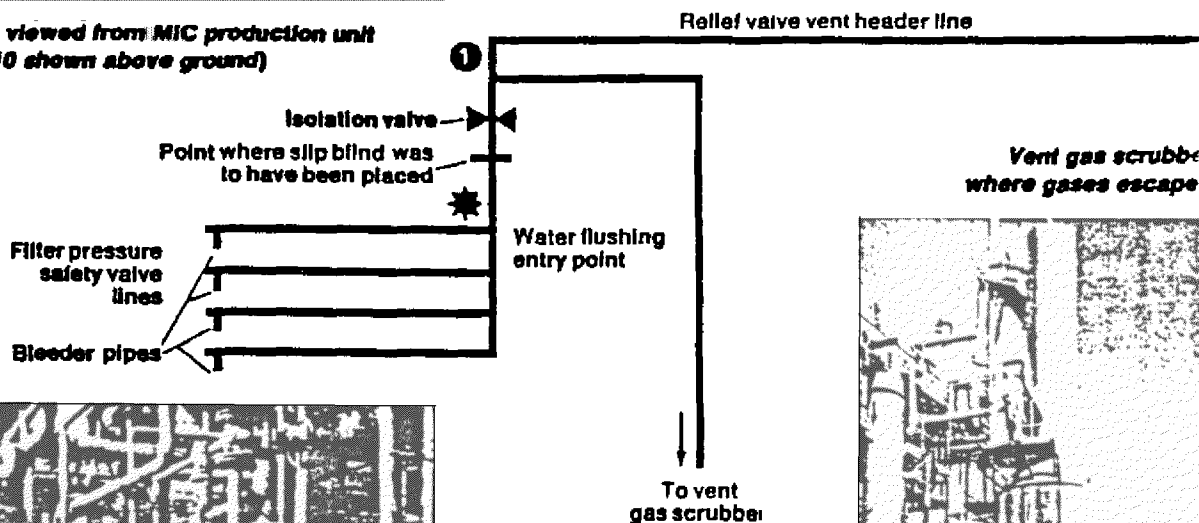
Memorials, too, are being planned. One will be a research center designed along the program lines of the center in Hiroshima, which for 40 years has been following the condition of the atomic bomb victims and their progeny. Another will be attached to a Madhya Pradesh Institute of Disaster Management,

Four theories have been advanced on how water may have entered MIC storage tank

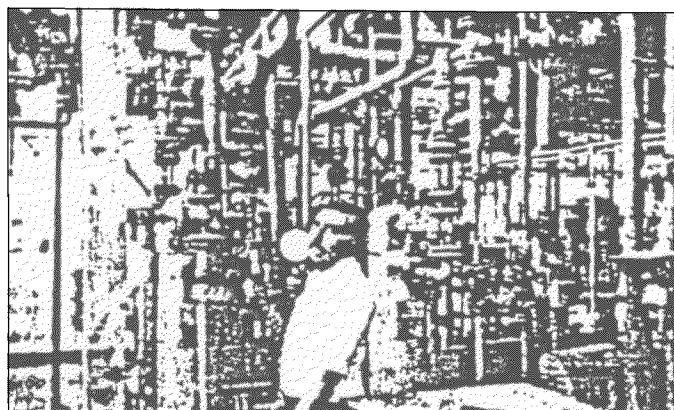


MIC storage area viewed from MIC production unit (tank #10 shown above ground)

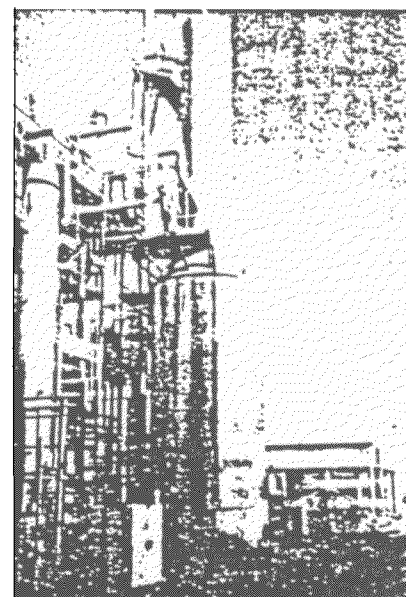
- ① A worker flushing out 2-inch pressure safety valve lines on the evening of Dec. 2 could have failed to insert a slip blind (a disk-shaped barrier) and thus allowed water to flow through a leaky, supposedly closed valve into an 8-inch line. The water moved through this line about 600 feet and then through a jumper line into the process vent line, which led directly to the storage tank
- ② Water could have entered at some point in the nitrogen line near the tank



Vent gas scrubber where gases escape



Area of pressure safety valve lines near MIC production unit



ected to be an international magnet for experts in the field. A Bhopal disaster museum connected to Bhopal's stylistic art center, Bharat Bhavan, is in the works. Plans are under way to make the Gandhi Med-

ical College a top-grade research center with particular strength in industrial pathology.

On the surface Bhopal remains today as it was before the calamity: a buzz of open air markets,