

Return of Kala-azar Spells Disaster

A recent news item in a local English language daily carried the headline: Kala-azar claims 39 lives, attacks 1,032 in three districts. Quoting official sources, the UNB report gave the figures of deaths and numbers of individuals attacked with kala-azar in the three northern districts of Strajganj, Pabna and Natore of Bangladesh. Children were reported to be the worst victims of the disease, which broke out in early December 1992. Presumably these figures are based on counts of cases, which came to the notice of the health authorities, and may reflect only a part of the total load of cases of Kala-azar in these areas.

In the 1940s and 50s Kala-azar was quite widespread in East Bengal. Thus, an outbreak of the disease those days did not make any news. Many cases were seen every morning, even in urban areas such as Dhaka at the Out-patients' Department of the Dhaka Medical College Hospital. Only a small number of those required admission to the hospital, because of massive enlargements of the liver and spleen, accompanied by severe anaemia, extreme emaciation and ulcers in the mouth, in addition to an irregular intermittent fever, which characteristically showed a double rise of temperature within a 24-hour period.

The white blood cell count typically drops remarkably (leucopenia). In addition, three features commonly present in cases of Kala-azar, which assist in making a clinical diagnosis are: a feeling of relative well-

being, a good appetite and a blackish pigmentation of the skin. Two simple tests, carried out on the sera of these patients — the formaldehyde and Chopra tests — are usually positive several weeks or months after the onset of the fever. This positivity (gel formation) is related to the increased globulin content of the blood serum.

"Typhoid-like" onset

A small number of cases of Kala-azar present a clinical diagnostic problem, when the fever does not come down to

It is thus possible to meet the challenge of the disease on three fronts: anti-sandfly measures, similar to those for mosquitoes in the control of malaria, diagnosis of Kala-azar at an early stage of the disease, preferably through active efforts at case detection and adequate treatment with a view to effecting complete cure of these patients.

normal for several days at the onset of the disease. When the diagnosis is finally established, this phenomenon is referred to as the "Typhoid-like onset" of Kala-azar.

Laboratory Diagnosis

Since the advent of chloramphenicol, the first successful antibiotic for the treatment of typhoid fever, some of these cases of Kala-azar may have been mistakenly and unsuccessfully treated with this antibiotic. This is a bad mistake to make, since chloramphenicol adds to the depression of the bone-marrow, already present in Kala-azar. Where adequate laboratory facilities are available, these cases may have material, obtained on bone marrow aspiration, or puncture of the spleen or a lymph node, examined for the pres-

ence of LD or Leishman Donovan bodies — the causative protozoal agent for Kala-azar. These dot-like structures are found within the monocytes or macrophages, the scavenger cells in the aspirated material.

When the organisms are too few to be seen in a smear, it may be possible to culture them from these materials in a special growth medium at a reduced temperature at 20°C rather than at 37°C, the usual temperature for the growth of bacteria. A number of modern

serologic tests now make a definitive diagnosis of Kala-azar possible. One of these, the DAT (direct agglutination test) requires no special equipment or laboratory facilities, and can be easily carried out by trained individuals under field conditions.

Complications

Because of the parasitization of the scavenger cells in the liver, spleen, lymph nodes and elsewhere, the defensive mechanism in patients of Kala-azar is impaired, leading to repeated bacterial infections. The disease also evokes a reduced production of red and white blood cells and platelets — explaining the repeated infections, severe anaemia, bleeding and resultant wasting. Longstanding, untreated cases

of Kala-azar may die of inter-current infections and bleeding.

Cures also lead to prevention

Kala-azar patients can be treated successfully with antimony preparations (sodium stibogluconate and meglumine antimonate). The response in children is dramatic. Both of these drugs can cause such side-effects as nausea, vomiting and lack of appetite. It is important to fully treat and cure cases of Kala-azar or vis-

nets, impregnated with permethrin also may provide protection against the sand-fly.

The "malaria" eradication programme in the subcontinent had suffered severe reverses following the sky-rocketing of the global costs of petroleum and petroleum products (DDT, pyrethrum, kerosene, etc.). The Indo-Pakistan War of 1965 also led to a largescale breakdown of anti-mosquito measures in the sub-continent.

Thus there was a comeback of Kala-azar as also of malaria in the sub-continent in the early 1970s. A total of 70,000 cases of Kala-azar were reported from a number of districts of the Indian state of Bihar alone during 1970s. These figures came down in the 1980s with re-invigoration of measures for the control of malaria.

The Challenge

It is thus possible to meet the challenge of the disease on three fronts: anti-sandfly measures, similar to those for mosquitoes in the control of malaria, diagnosis of Kala-azar at an early stage of the disease, preferably through active efforts at case detection and adequate treatment with a view to effecting complete cure of these patients. It may thus be possible to control the spread of the disease, before Kala-azar once again assumes epidemic proportions in Bangladesh. Here is another challenge which our public health authorities and those engaged in the practice of community medicine can be expected to meet successfully and with confidence.

Nicolas Appert: Inventor of Canned Food

HE was born in Chalons-sur-Marne in 1741. He was the son of a hotel-keeper and, to begin with, worked with his two brothers. He then entered the service of Christian IV, Duke of Deux-Ponts, as an "officer of the mouth", that is to say a cook and then the service of the Princess of Forbach.

During these twenty years, his position made him well aware of the difficulties of preserving food, as, at the time,

It is a routing, commonplace gesture to open a can of food which one does either out of taste or for practical reasons, but, in catastrophes, famines and extreme circumstances, it becomes a gesture of survival. Yet who remembers Nicolas Appert's name?

of being able to eat fresh or seasonal food, at will, was quite a little revolution and King Louis XVI, a man of science, was interested in the invention, bearing in mind the problems of nutrition (scurvy, among others), which decimated his sailors.

But, the following year, another revolution of a different kind occurred and it was a few years before the idea was tested in the Navy, with complete success moreover (1795).

In 1810, the Empire offered him the sum of 12,000 francs to reveal his process, which he did that same year by publishing the "Book for all households" or the "Art of preserving all animal or plant substances for several years".

That same year, a certain Pierre Durand invented a kind of kitchenware made of tin containing food which simply needed reheating. It was for the army. But there was no "appertisation" and the result was not brilliant.

However, in the space of two years, industrialisation had already made great progress and many food preservation factories had been founded. At that period, with the help of an inter-war lull, the Britons, Donkin and Hall bought Durand's idea, for £1,000, which they exploited while adding appertisation with the help of the events of 1814. On learning of this, Appert reviewed his idea, gave up using glass receptacles and invented the tin can, almost as we know it today.

There was no patent, at the time, to protect inventions and the events of 1815 precipitated Appert's ruin. In addition to his cans, he did his utmost to protect the numerous inventions he had made (concentrated beef stock tablets, the clarification of fermented drinks, the concentration of juice for fermentation, the preservation of wine, etc) but without success. He survived this disaster for nearly a quarter of a century and died poor and forgotten in 1841.

As an anecdote, there is a question that is not easy to answer. How did one open those tins? They appeared to be made of two tin cylinders soldered with pewter and joined together face to face by a metal strip with the whole of it being strengthened with a low point of fusion solder (using Darcy's alloy perhaps). Flat tins, of the kind used for sardines, were also made. It was only around 1860, that a New Yorker, Van Osterhondt, thought up a system with a key, which is, moreover, still used today. The invention of the can with an added pressed-on lid has many claimants and it would be very risky to answer the question: who invented the can-opener?

Thus, in 1788, a whole host of foodstuffs (vegetables, fruit and meat) were available on the market at prices which, without being exaggerated, were not within everybody's means. Nevertheless, the fact



A publicity poster dating back to 1920 on preserved food.

only two methods were known: salting or drying completely, which considerably limited the genus of a chef.

At around 1780, he decided to become independent and came and settled in Paris as a confectioner whose trade was much larger in scope than today.

Once he had his own business, he set about checking a (brilliant or empirical) hypothesis which had preoccupied him for a number of years. It seemed to him that it should be possible to prevent "fermentation or putrefaction" by adequately heating the foodstuff in a closed container. This was quite an extraordinary idea at a period when nothing was known about this kind of process and when bacteria were completely unsuspected. As early as 1782, he offered

his customers peas in "bottles", which was considered as an astonishingly new idea. Just imagine: eating peas in the middle of winter. Encouraged by this success, he continued his research and, little by little, developed the process of quick heating between 110 and 130°C in airtight jars. "Appertisation", which figured in all the dictionaries, preceded the no less famous "pasteurisation" by nearly a century. It should, by the way, be noted that it also preserved almost all of the vitamins quite well.

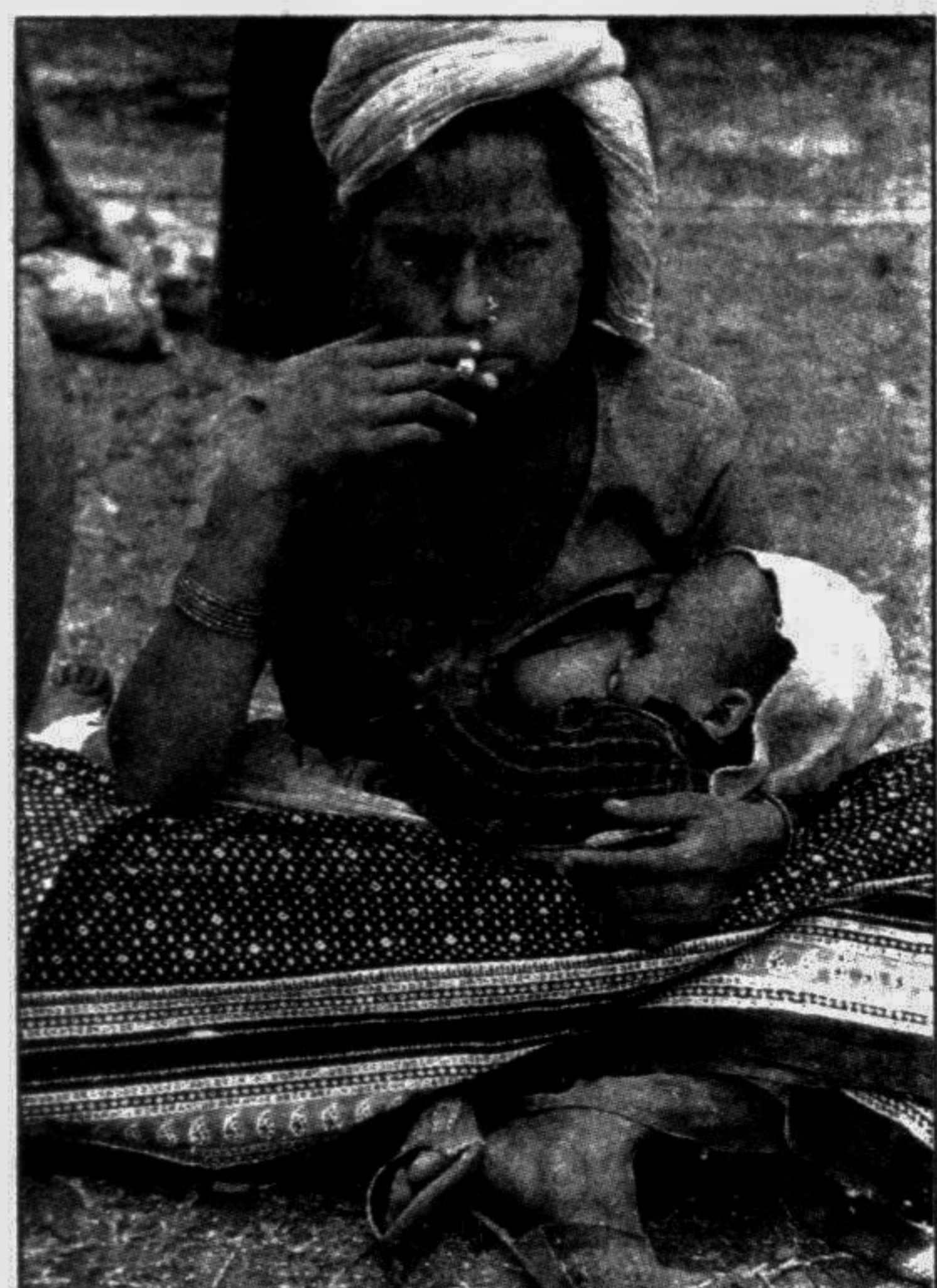
Thus, in 1788, a whole host of foodstuffs (vegetables, fruit and meat) were available on the market at prices which, without being exaggerated, were not within everybody's means. Nevertheless, the fact

Thai Doctors Win Fight Against Smoking

by George Javier from Manila

They faced formidable opposition not just from smokers but from the powerful United States Cigarette Exporters' Association

WHILE many developing countries have yet to get off the ground in their anti-smoking campaigns, Thailand has a success story to tell worth emulating. The country recently



Health education about the dangers of smoking has not reached this young mother.

passed its 1992 Tobacco Products Control Act aimed to prevent tobacco-related diseases.

This was revealed by Drs Hatai Chitanondh and Prakrit Vatee-Satokij at the recent First Philippine Conference on Tobacco or Health organised by the Philippine Medical Association (PMA), World Health Organisation (WHO), and the Asia Pacific Association for the Control of Tobacco (APACT).

Dr Chitanondh, president-elect of APACT and secretary of the National Committee the Control of Tobacco Use, Department of Health, and Dr Vatee-Satokij of the Action in Smoking pioneered the anti-smoking campaign in Thailand. In an interview with Depthnews, the two doctors described the long battle they waged just to get the campaign off the ground. Their main weapon was accumulated scientific data on the hazards of smoking.

They faced formidable opposition not just from smokers but from the powerful United States Cigarette Exporters' Association (USCEA) which filed a petition in 1989 charging Thailand with unfair trade practice as a bilateral trading partner. The Association complained to the US trade representative about the import ban, what it considered as high discriminatory tariff, denial of US cigarette distribution, and advertising ban.

Later that year, the US trade representative brought the case to the General Agreement on Tariffs and Trade (GATT) and both parties were asked to submit their respective position papers.

The GATT issued a report in late 1990 saying the import ban imposed by Thailand was justified and the taxes were consistent. It also upheld the country's right to impose laws affecting sales, purchases, transport, distribution and use of imported products. GATT added that Thailand can introduce labelling or impose ingredient-disclosure requirements as well as keep the ban on advertising.

From their experience in fighting a formidable adversary, Dr Vatee-Satokij said getting Thailand's Tobacco Control Act enacted was a matter of having strong political will. The support of APACT, the World Health Organisation (WHO), non-governmental organisations, friends in government, and especially the media was crucial in getting the Thai National Assembly to pass the law. Without this support, Dr Vatee-Satokij said anti-smoking advocates would still be locked in battle with tobacco companies.

The Act, among other things, prohibited the sale of cigarettes to persons less than 18 years of age, sale of tobacco products by vending machines, free samples, special offers

like exchanges, premiums, redemption, and free tickets to shows or sports events.

Except in international magazines and live telecasts, the legislation also prohibits advertising in all media as well as the promotion of products with tobacco names. It also bans the production, import, sales and advertising of products that imitate tobacco products and packages.

At the same time, the Act provided for the protection of non-smokers in public places by designating smoke-free public buses, taxis, air-conditioned passenger trains, public boats, domestic flights, passenger elevators, school buses and cinema halls. In schools, museums and art halls, libraries, nurseries and air-conditioned passenger boats, smoking is allowed only

in private rooms.

Except for private rooms and designated smoking areas, totally smoke-free areas include hospitals, university buildings, air-conditioned trade exhibit halls, indoor sports arena, government offices (where people routinely contact government personnel), banks and other financial establishments, cinema waiting halls, and air-conditioned bus terminal. In restaurants and ordinary passenger trains, at least 50 per cent of the floor areas are designated smoke-free.

The most significant provision of Act, according to Dr Vatee-Satokij, is the regulation on cigarette packaging. The legislation requires that warnings on the hazards of smoking should be on both principal surfaces of cigarette packs and cartons, with 25 per cent of

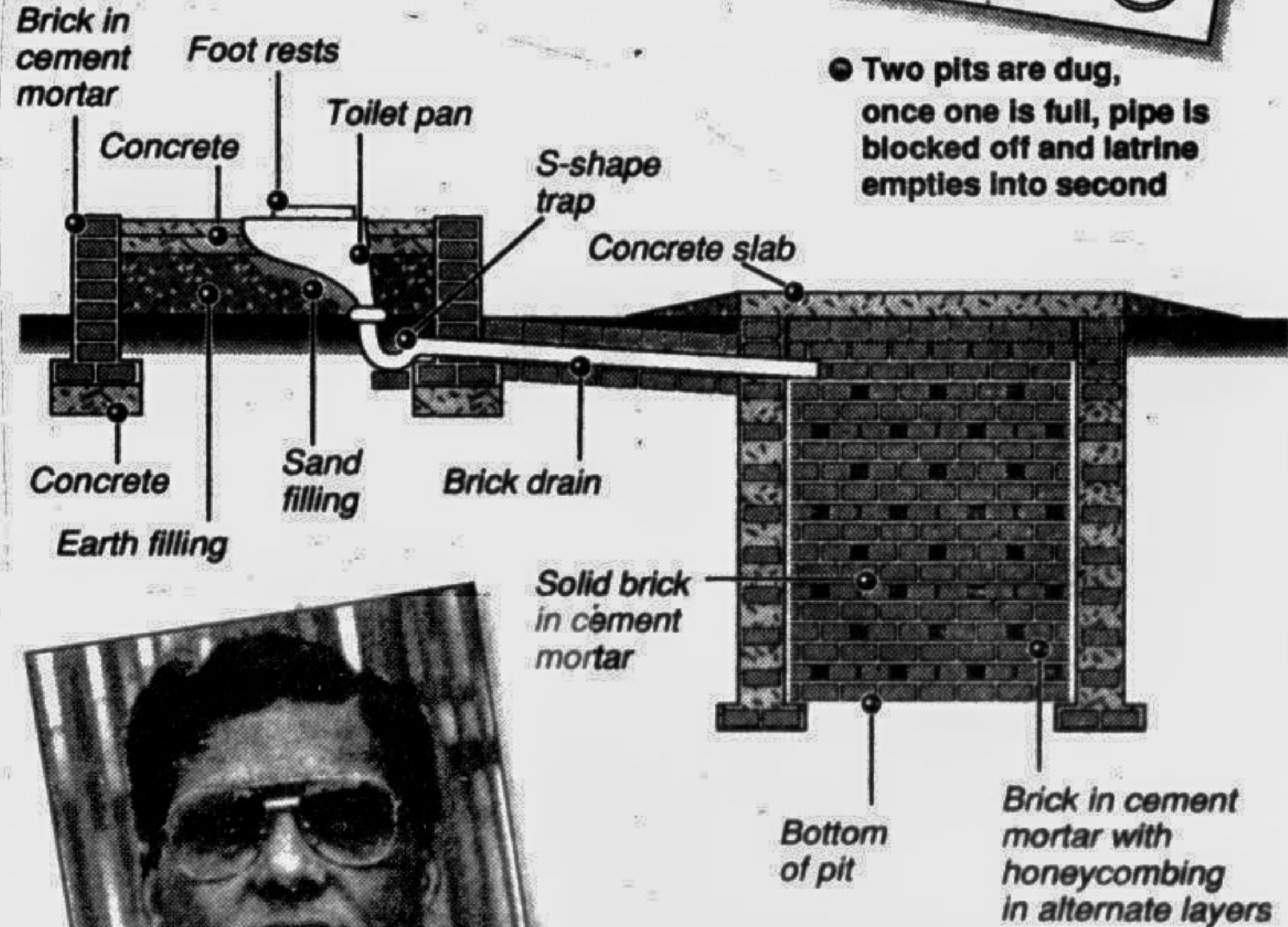
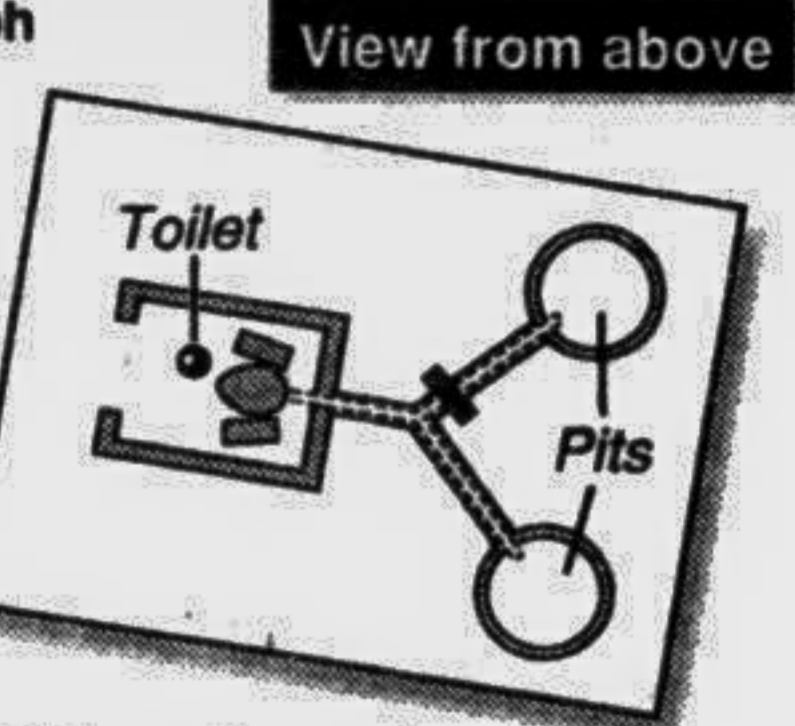
One Man Crusades to End Curses of Centuries

Flushed with success

By developing cheap and easy-to-use toilets, Sulabh International has revolutionised sanitation in India

How it works

- Basin needs only 2 litres of water per flush, against 12.5 litres normally required
- Its water-sealed septic tank costs only \$100 against \$1,000 for normal sewage system



Dr Bindeshwar Pathak Founder of Sulabh International

sanitary latrine, without connection to a sewerage system. Sulabh latrine has a specially designed slopny pan with an S-shaped syphon which empties into a pit with walls of honeycombed brick.

This basin needs barely two litres of water to flush the excreta, against 12.5 litres needed by a normal flush. Two pits — shallow, odour-free subterranean tanks — are dug, though only one is used at a time. Once one is full, the pipe is blocked off and the latrine empties into the second pit.

This twin-pit combination can last for as long as 100 years. After several decades, the material in the pit matures, becoming an odourless manure which can be removed and used by the farmers.

There were few takers for his idea when Pathak sent about urging municipalities to adopt it. One day the municipal administrator of Arrah, a small town in Bihar, decided to give it a try. It worked so well that since then Pathak has not looked back.

Today, 3,000 public toilet-and-bath complexes dot the country in 600 towns. Sulabh International has 25,000 volunteers running its public toilets and other schemes. Its revenue earnings are \$7 million a year.

Pathak's organisation also installs toilets in private houses at one-tenth the cost of traditional flush-latrines connected to a septic tank. He says: "Through sustained efforts we have so far provided 500,000 houses with latrines in 390 towns and have made 30 towns scavenger-free."

He once said: "I may not be born again, but if it happens I will like to be born in a family of scavengers so that I may relieve them of the inhuman, unhealthy and hateful practice of carrying headloads of night-soil."

Though Pathak visited scores of villages and towns in Bihar to fulfil Gandhi's mission, he found to his dismay that the entire exercise was only a gimmick by the politicians. In disgust, he resigned from the cell and founded a voluntary organisation Sulabh Shauchalaya Sansthan (Easy Toilet Society), later re-named Sulabh International.

Soon, with technical help, Pathak designed a low-cost hand-flushed water-sealed

The Sulabh technology provides a viable alternative to sewerage and septic tank systems which are too costly for most people. The majority of Indians live in villages and hardly three per cent have septic tanks. The World Bank says waterborne sewage systems are uneconomical in India except in big cities. They cost about \$1,000 a household while Sulabh's simple, water-sealed septic system costs a mere \$100.

Pathak says the low-cost technology is serving two major purposes: it stops open-air defecation, a common practice in India, and will end south Asia's centuries-old cruel, sub-human and unhygienic practice of carrying human excreta by scavengers.

In India alone 600,000 scavengers still collect bucket privies and dump the waste in fields and canals, jeopardising their health and that of their neighbours. Pathak's crusade holds out hope for them at last.

The government is to help. It now accepts Sulabh International as the chief implementing agency to convert existing bucket-dry-privies. Pathak aims to abolish scavenging by the turn of the century.

He says softly: "I've tried to realise one of the cherished dreams of Mahatma Gandhi by paving the way for liberating scavengers from the age-old, unhealthy practice of carrying night-soil."

Pathak has also trained thousands of volunteers to help rural development. They run training and rehabilitation centres for scavengers which try to find new occupations for them like tailoring, driving, typing, and toy-making.

He is a pioneer in the idea of obtaining bio-gas from human excreta, especially from large size public toilets used by up to 4,000 people daily. Sixty such plants are operating in Bihar, Uttar Pradesh, Gujarat and other states.