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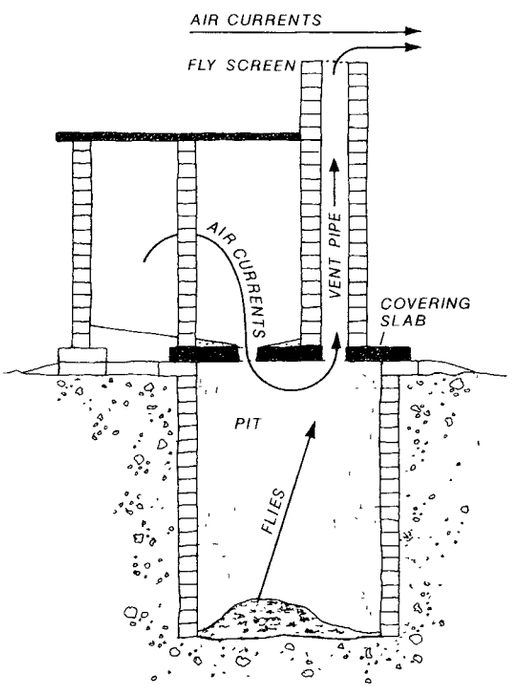
THE THIRD WORLD'S VIP

The difficulties of effective sanitation with a limited supply of water seldom trouble people in developed nations as they thoughtlessly flush another 10 litres or so of the precious liquid down the toilet. In the developing world, with limited resources and growing populations, other methods have to be considered, especially in rural areas. To install water-borne santitation, a supply of 45 litres per person per day needs to be guaranteed. Many people are lucky if they can get a bucketful of water a day, and even that often has to be carried on a woman's head for 2 or 3 km.

Pit latrines have been advocated as the best alternative to "going to bush". A pit of roughly 1 m diameter and 3 m depth is dug, and covered with a 7 cm thick concrete slab 1·5 m square with a 10–15 cm hole in it, cast close by then lifted on. A "small house" is built on top of that for privacy. In theory the latrine hole should be kept covered when not in use to keep the flies out and the smell in. With the addition of the little water used for cleaning the latrine, the excreta in the pit slowly digests to a smaller volume. However, the pit eventually fills, and a new one has to be dug. Care of such latrines, especially if shared by more than one family, is not easy. The edges of the latrine hole and thus the wooden cover become soiled, so the cover tends to be left off. Flies breed freely, the smell is unbearable, and people return to the piece of waste ground outside the village, which becomes infinitely preferable even if it does mean walking some distance.

Research sponsored by the World Bank at the Blair Research Laboratory in Zimbabwe in cooperation with the Faculty of Civil Engineering in Leeds has led to the development of the ventilated improved pit (VIP) latrine.[1]



By some very simple modifications to the ordinary pit latrine Morgan and Mara have found a way to eliminate flies and odour almost completely, without adding too much to the cost of construction. The main feature is a large ventilation pipe 22 cm in diameter—hence the name. The pit is no different, but the covering slab is cast to provide two holes, the latrine hole a little towards one side and a second hole large enough for the ventilation pipe towards the other side. The slab is laid over the pit, and the little house built over it around the latrine hole, but with the ventilation hole and pipe just outside and rising to 1 m above the house. The ventilation pipe, which should be on the south side of the house in the northern hemisphere (and vice versa in the southern), is painted black to promote heat absorption from the sun, and so induce a rising current of air which carries smells away from the latrine. (Standard 10 cm asbestos cement soil-pipes were first tried but found to be inadequate.) A stainless steel or fibreglass gauze fly screen is fixed over the top of the pipe. The house is built without a window and with a sprung door to ensure self-closure after use. Better still, a simple light-trap entrance, as into an X-ray dark room, may be provided. The door opening should not face east or west to eliminate early morning or late afternoon sun slanting in. It is important to keep the latrine house semi-dark. Air is drawn freely into the pit via the uncovered latrine hole to replace the warm air escaping through the ventilation pipe. Some flies will enter and breed, but since they are phototropic they will be attracted by the brighter light entering the pit from the ventilator and fly up that way only to find their exit blocked by the screen. They

die and fall back into the pit. Early experiments in Zimbabwe showed that this form of fly control could be very effective: in a 78-day monitoring period 13 953 flies were caught fron an unvented pit latrine but only 146 from a vented but otherwise identical pit latrine.[2]

Acceptability by the users is the most important test. In Zimbabwe, over 200 000 Blair latrines have now been built for general use, and 50 000 more for community farms and companies. Modifications in the light of experience[3] include lining of the pit with bricks, especially where soil is soft, to provide a safe foundation for the cover slab. The portion of the latrine house offset from the pit should also have foundations of standard type and a concrete floor, finished with hard cement, sloping towards the latrine hole. This arrangement prevents odour due to pooling of urine and facilitates the latrine doubling-up as a wash-house, a use that has proved popular. Training of local builders, subsidy of households to provide their own family latrine (an excellent use of donor aid), and widespread health education have all contributed to success.

Other developing countries are making their own versions of the VIP latrine with local materials and minor modifications.[4] It is essential that the basic principles on which the latrine functions should be retained. If there is confusion[5] this "VIP" will cease to be so very important in the bid to provide satisfactory sanitation in areas where water is scarce.

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ALCOHOL AND CANCER

Most people are aware of the harmful physical, psychological, and social effects of alcohol but the association between cancer and the consumption of alcoholic beverages[1] is not so widely appreciated. Tumours of the upper aerodigestive tract (laryngeal, pharyngeal, oral, and oesophageal cancers) are alcohol related, and there is an increasingly large body of evidence linking alcohol and breast cancer in women. However, very few published case-control and cohort studies give sufficient data about individual levels of alcohol consumption to assess individual risk.

Of twenty-three published studies[1-9] on upper aerodigestive tract cancer, two prospective cohorts showed a significantly increased risk at high levels of alcohol consumption. One cohort study[2] documented a quadrupled mortality rate for imbibers of six or more drinks a day (about 72 g alcohol a day) compared with non-drinkers for oral and oesophageal cancers; the other[3] showed a significant dose-related association for deaths from all upper aerodigestive tract cancers, with an increased relative risk of 9·5 for drinkers of "2 or more go daily" (a "go" is a Japanese measurement of alcohol, roughly equivalent to 21 g). The remaining twenty-one were case-control studies,[1,4-9] seventeen of which showed an association between alcohol consumption and various upper aerodigestive tract cancers. In fifteen of these studies the association was dose-related. These analyses, with one exception, were adjusted for the effects of known carcinogenic risk factors such as smoking. Women were considered separately in three studies, two of which found a dose-related association. For oesophageal cancer, there are six case-control studies,[1,10,11] all of which showed a significant dose-relation. Of the three studies that considered women separately, one documented a dose-related response (numbers were insufficient for analysis in the other two).

All four published cohort studies about breast cancer[12-15] showed an increased risk associated with alcohol consumption, and in three there was a dose-related effect. Of twelve case-control studies, seven showed a positive association, and five a dose-related association.[1,16-18] A meta-analysis of the breast cancer studies concluded that overall the increased risk associated with drinking 24 g of alcohol a day (about two drinks in the USA, or 2–3 units in the UK) was between 1·4 (case-control data) and 1·7 (follow-up data) when compared with non-drinkers.[19]

Studies of populations who drink more (eg, "alcoholics"[20]) or less (eg, Mormons[21]) than the average showed associations between alcohol consumption and various cancers, although these groups differ from the general population in other ways that may affect their cancer risk. Standardised mortality rate (SMR) data for England and Wales also tend to support the association between drinking alcohol and various malignant tumours.[22]

There is no consistent experimental evidence that alcohol, unlike acetaldehyde, a major metabolite, is carcinogenic in itself. How might alcohol exert its carcinogenic effect? Other possibilities, which have not yet been proven experimentally, include a direct tissue-toxic effect; an effect via alteration of hormonal balance; and action as a co-carcinogen.[1] Perhaps public health campaigns and advice given to individuals about the dangers of alcohol should now encompass the risk of cancer.

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