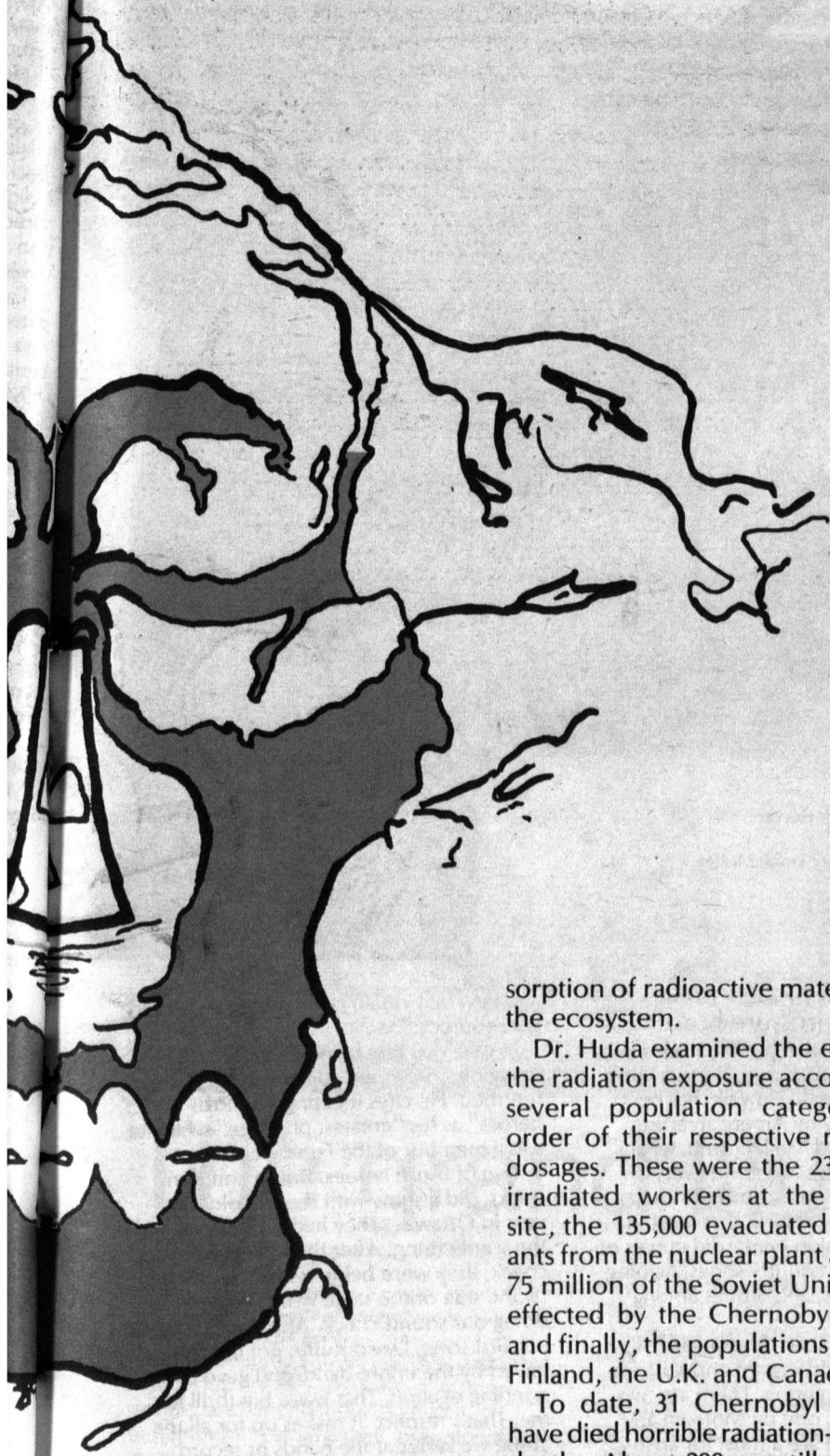


# its effects, its after-effects



sorption of radioactive material into the ecosystem.

Dr. Huda examined the effects of the radiation exposure according to several population categories in order of their respective radiation dosages. These were the 230 highly irradiated workers at the nuclear site, the 135,000 evacuated inhabitants from the nuclear plant area, the 75 million of the Soviet Union most effected by the Chernobyl fallout, and finally, the populations, Poland, Finland, the U.K. and Canada.

To date, 31 Chernobyl workers have died horrible radiation-induced deaths. About 200 are still suffering from acute radiation effects from their estimated doses of 230 rem. The survivors of this group will continue to carry an elevated risk of contracting a radiation induced cancer, the induction of eye cataracts and producing offspring with birth defects.

Dr. Huda proceeds to consider the 75 million people of the Soviet Union that were affected by fallout

from the Chernobyl reactor. The doses this population received from external radiation from ground deposits is less than 2.4 rem and is expected to produce a total of 2,500 cancer deaths in the next 70 years. However, there is also an internal radiation dose to this population that arises as a result of the ingestion of contaminated food and water. The doses received are dependent on the restriction of sales of contaminated dairy products which have iodine 131 that is readily absorbed and accumulated by the thyroid gland. A number of extra cases of thyroid cancer from exposure to radioactive iodine is estimated to be 1,500.

The uncertainty in the estimates of radiation dosage effects arise once again in the consideration of the effect of the deposited millions of curies of cesium 137. This will result in high levels of contamination in Soviet food products from contaminated soil for decades to come. However, the ecological behaviour of cesium in the food chain is unknown. Conservative Soviet estimates have suggested up to a total of 26,000 extra cancer deaths in the

**A nuclear reactor can be thought of as a controlled atomic bomb so it is a simple device...**

next 7 years due to the cesium contamination. Thus in the Soviet Union, a total of about 30,000 extra cancer deaths attributable to the Chernobyl disaster can be expected in the next few decades.

For Finland and Poland, the average doses were of the order of 0.1 rem resulting in a predicted extra 10 radiation induced fatal cancers in a population of 1 million. Exposures and consequences for the U.K. are correspondingly less as the average dose was determined to be 0.007 rem. Dr. Huda points out that although this radiation exposure is only a small fraction of the natural background (0.1 - 0.2 rem/annum), it has nonetheless resulted in measurable quantities of iodine 131 in the thyroids of some individuals and is expected to cause an extra 50 cases of cancer in the U.K. population of 55 million. This small amount is within statistical fluctuation of the natural incidents of cancer and cannot thereby be justifiably attributed to Chernobyl radiation.

Canada received its fair share of radiation, detectable amounts of which were measured in rain water and milk samples across the country. Trace quantities of Chernobyl fallout were detectable for up to two months after the accident, but the radiation dosage of 0.0001 rem was insignificant to the natural background and will not result in any adverse health effects.

Thus Dr. Huda makes the point that aside from the 31 dead and 200 hospitalized victims, the more significant consequence of the Chernobyl disaster lies in the long term increased likelihood of radiation induced cancer deaths from internal radiation. These effects can be calculated for radiation exposures for far-away places from the disaster as the U.K. Although the total number of such expected deaths exceeds 30,000, the estimates are based on limited amounts of data compounded by the uncertainty of the evolution of radioactive contaminants in the food chain.

The evacuees of the Chernobyl reactor site area received radiation directly from the radioactive plume

**...the acute effects of large radiation doses are self-evident carcinogenesis and genetic mutation are much more difficult to evaluate...**

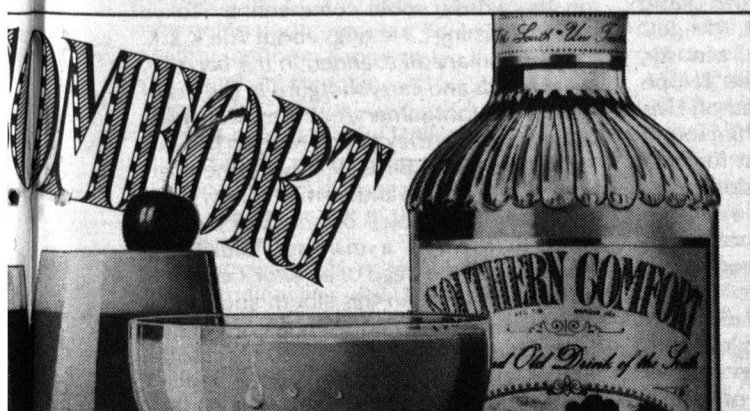
passing by and also from ground deposits of radioactivity along with inhalation of radioactive air and ingestion of contaminated food and water. The evacuation was markedly procrastinated as the seriousness and extent of the radioactive fallout was not fully appreciated nor acknowledged by the Soviet authorities resulting in about 24,000 people receiving about 45 rem and 65,700 receiving 5 rem. The radiation levels in the evacuated region have prevented the permanent return of any individuals to their homes. These

**...expected to cause an extra 50 cases of cancer in the U.K...**

doses were under 100 rem so this population did not suffer from acute radiation sickness however, statistically, 280 individuals from this group are expected to die from radiation induced cancer as well as another 280 are expected to develop non-fatal radiation induced cancers. The total number of genetic abnormalities is likely to be about 80. Dr. Huda emphasizes that this large population and its significant radiation doses, will provide a large data base for follow up studies of the long term effects of radiation exposure and will serve to significantly increase the present scientific understanding of the chronic effects of radiation similar to that achieved from the study of the survivors of Hiroshima and Nagasaki.

**Graphic: Teo Zanetic**

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ANY WAY YOU SERVE IT.