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WASHINGTON STATE UNIVERSITY

DEPARTMENT OF HEALTH AND HUMAN SERVICES
PUBLIC HEALTH SERVICE
CENTER FOR DISEASE CONTROL
ATLANTA, GEORGIA 30333

CDC--MOUNT ST. HELENS VOLCANO HEALTH REPORT #10

June 27, 1980

Deaths Around the Volcano

The following outline was prepared with the kind assistance of Donald P. Reay, M.D., Medical Examiner, Seattle, and Larry Lewman, M.D., Deputy Medical Examiner, Portland.

In the aftermath of the cataclysmic eruption of Mount St. Helens on May 18, 1980, 25 bodies have been recovered and 43 others are officially missing.

Information is now available on 24 of the deaths. There were 17 males and 7 females, aged 7-58 years. Postmortem examination of 22 showed that in 16 of the cases death was due to inhalation of ash, the tracheo-bronchial tree being coated with ash particles. Three persons died from thermal burns. Three persons died from head injuries, in 2 cases caused by falling trees. Two others were rescued while fleeing from the devastated area but subsequently died in the hospital from complications of burn injuries. There was little evidence of superficial blast injuries on any of the bodies.

Further pathology studies are under way, and more information is being obtained on survivors. CDC is assisting in the collation of the latter. We cannot yet say whether adequate respiratory protection could have prevented some of the deaths due to ash-inhalation or offer any specific recommendations to those who in the future may be forced to attempt to survive similar eruptions.

The following describes vividly what happened immediately after the eruption: "Within seconds the avalanche was overtaken by a large laterally directed blast that carried lithic ash [of stone origin] and lapilli [small, stony pieces of lava thrown out in a volcanic eruption] in a devastating hurricane over a northward sector of nearly 180 degrees, 30 km across from west to east, and extending outward more than 20 km from the volcano's summit. In an inner zone of nearly 10 km width, virtually everything in the path of the blast was destroyed, and no trees remain in that formerly densely forested area. Beyond, to nearly the limit of the blast, all the trees were blown down to the ground, and at the blast's outer limit, the trees were thoroughly seared." (Christiansen RL. Eruption of Mount St. Helens: volcanology. Nature 1980;285:531-3.)

Ash and Agriculture

Livestock may spend much of the time outdoors and consequently receive high exposures to ash by inhalation and ingestion. The acute effects of ash on these animals may be similar for humans. A weekly newsletter, "Ash & Agriculture," put out by Washington State University collates agricultural news from counties where ash has fallen. A few reports of respiratory problems, eye irritation, and diarrhea affecting cattle have been received. Shortly after the May 18 eruption, it was thought that the molybdenum content of the ash could be responsible for the diarrhea noticed then to be affecting some livestock, but this hypothesis was later thought to be unlikely. In general, livestock have fared well, though milk yields have been reduced in some areas. Animal feeding studies are under way in several centers.

The effects of the 3 ashfalls on crops and machinery have been more important, and various losses have already occurred or are predicted. Agricultural workers are themselves a "high-exposure" group, and their occupational health problems posed by the ash are being reviewed by CDC/NIOSH.

The ecologic implications of the ashfalls in terms of the destruction of wild animals, insects, etc., will be studied for a long time to come. We hope

to include summaries of these ecologic aspects as they apply to human health and well-being in future issues.

Food and Water

Preliminary studies, conducted in several laboratories, of the ash and its solubility in water and acids have not so far identified a potential health hazard from trace elements (in 1783 an eruption of the Laki fissure in Iceland resulted in a heavy ashfall that decimated crops and livestock and resulted in a devastating famine--it is thought that the high fluorine content of the ash may have been mainly responsible; a similar but much less serious eruption occurred in Iceland in 1947-48).

The Food and Drug Administration has been analyzing milk samples and finds no evidence of a health hazard so far; a full report is expected soon.

Circulation List

We are currently revising the circulation list of the Mount St. Helens Volcano Health Reports and removing duplications. As well as reporting CDC activities, we want to continue to receive reports on all aspects of the volcano related to human health from other groups of workers. To be added to the circulation list, please contact: CDC, Attn: Carolyn Forrester, Chronic Diseases Division, Bureau of Epidemiology, Atlanta, GA 30333, Phone: (404) 452-4086, FTS: 236-4086.

CDC--Mount St. Helens Volcano Health Reports are now being issued on a twice-a-week basis (Tuesdays and Fridays). Information in these reports represents the latest data reported to CDC; much of the information is preliminary in nature and subject to confirmation and change. It is distributed for the purpose of providing up-to-date health data from CDC and the many other groups involved in public health assessment. We hope to continue to receive relevant reports and data from others working on this problem

Henry Falk, M.D., Peter J. Baxter, M.D., Roy Ing, M.D., Jean French, Ph.D., Gary F. Stein, M.D., Chronic Diseases Division, Clark W. Heath, Jr., M.D., Director, Chronic Diseases Division, Bureau of Epidemiology, CDC, Atlanta, Georgia. James A. Merchant, M.D., Director, Division of Respiratory Disease Studies, NIOSH, CDC, Morgantown, West Virginia.