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Author(s): Seddon, T.

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being at the Museum of Liverpool Life, sited on the waters edge of the River Mersey, where a combination of springtime high tide and wind direction took waves over the dock wall to beat against the walls and windows of the Museum. Water penetrated through damaged pointing of the wall structure. Thankfully no objects were affected, the alarm being raised and removable objects taken to a safe area. Lessons learnt included provision of more sandbags and a strict procedure of closing the external window shutters at the earliest sign of danger. Building maintenance inspections have also been brought within a tighter time scale and a battery operated water detector has been installed.

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*Sally Ann Yates
National Museums & Galleries on
Merseyside*



The Great Red River Valley Deluge of '97

Museums in the Canadian Province of Manitoba have this year been intensely preoccupied with preparations against possible flood damage, as reported in the CAC (Canadian Association for Conservation of Cultural Property) Bulletin, Vol. 33, No. 2, June 1997. The flooding in the Red River Valley could turn out to be the worst in recorded history. The concern is not only the threat of overland flooding but also sewer backup.

At the Manitoba Museum of Man and Nature they were concerned that a flood backup augmented by heavy rain would cause flooding within the building faster than they could react to it. They decided to remove the thousands of artifacts out of the lower level storage below ground level. To this end four artifact removal teams were created from all available museum staff. Each team had twelve members comprising two supervisors (a conservator and a curator), two registrars to record artifacts as they were a) removed from storage and b) placed in temporary locations, respectively, and eight artifact movers. Half of the movers in a team worked in the lower level

removing artifacts while the other half re-stored the artifacts in the upper levels. Each of the four teams worked a rotating half day shift and although five days had been allocated for the operation the bulk of the work was done in two and a half days. The museum now plans to use this opportunity to reorganise and upgrade the storage areas as the artifacts are moved back in place.

The Provincial Archives of Manitoba had no such need for relocation, as their records are stored on the second and third floors of the building. However, their concern was for the operation and general security of the building, as, if the basement flooding reaches over one foot the power must be shut off. Emergency power would not be adequate to maintain heating and ventilation nor day to day operations. In a very severe flood the powerhouse would be shut down and the electronic security system would fail! The Emergency Management Organisation would take charge at that point. Museum staff prepared a one page Emergency Plan for distribution to key government staff detailing people to be contacted and when.

The collection areas at Whinipeg Art Gallery are all below ground and when the seriousness of the

flood became apparent a dike was constructed around the Gallery and it was decided to evacuate the basement. A round-the-clock work plan was drawn up. The plan did not take into account the fact that in the event of the basement flooding the goods lift would not operate; it was realised therefore, that the plan would have to be enacted well in advance of flooding, and was begun immediately. Upstairs galleries, the staff lounge, the board room, the lecture hall and the meeting room were used for temporary relocation of collections. Much of the Inuit sculpture and decorative art collection was not moved due to fragility. The operation was completed in less than a week and monitoring of the basement by Engineering and Security staff was ongoing. Inevitably there would be disruptions to the public

programmes and space rentals but the Gallery did not have to close completely and the operation resulted in a sense of collective 'ownership' of the collection with staff from diverse parts of the Gallery, for once, working together.

In the run up to, and throughout, this unsettling period the Manitoba Heritage Conservation Service (MHCS) has been preparing and offering help and advice to museums in the area., but fortunately, there have so far been no reports of flood damage. The MHCS is now developing a workshop for its clients on Disaster Preparedness, in readiness for the next challenge.

*Tracey Seddon
National Museums & Galleries
on Merseyside*

The consequences are depicted in tree diagrams, Accident Consequence Trees, designed to be inclusive and comprehensive and extending a consideration of the accident phenomena and cost beyond the narrow view of personal injury, damage to property and loss in productivity (Fig. 1).

Not all the consequences will be relevant in all cases. Applied to conservation, this model takes us beyond the notion of damage to a specimen as the final and only outcome of the risk and failure event and suggests a more complete view of the consequences of accidents or damage. It also offers another view of losses and gains in value.

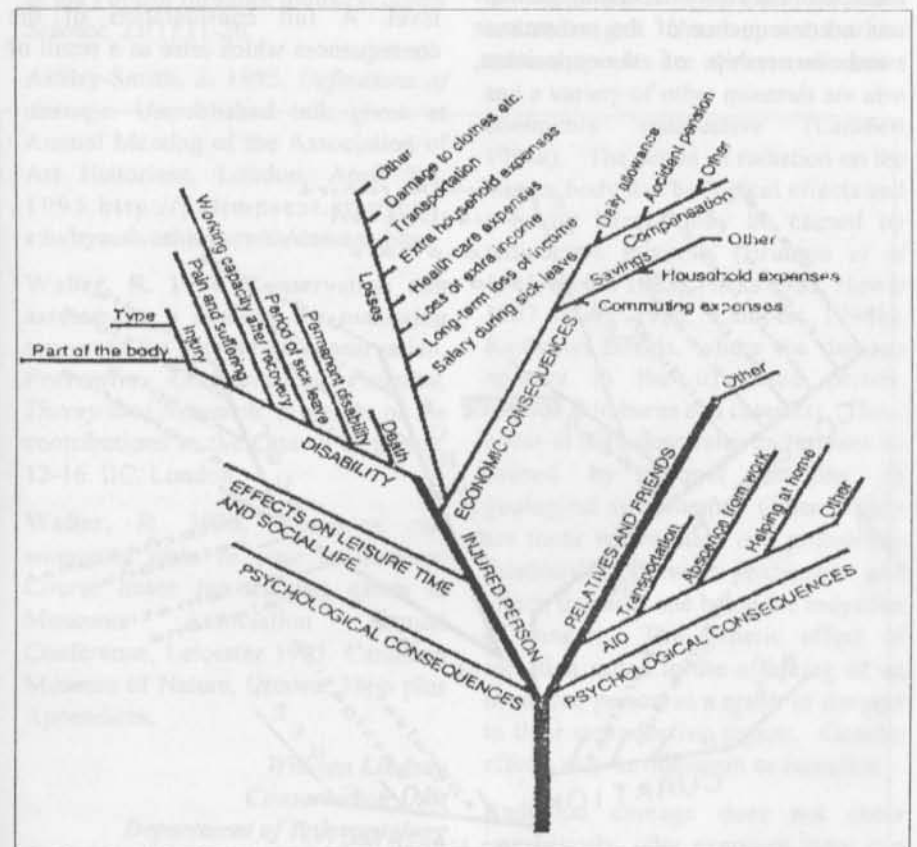


Figure 1. An example of the Accident Consequence Tree for an individual (Aaltonen *et al.* 1996)