Disasters Vol 1, No 3, pp 241-244. Pergamon Press, 1977. Printed in Great Britain

SOME ASPECTS OF DISASTER RESEARCH

James Lewis,
Disaster Research Unit, University of Bradford,
Bradford, West Yorkshire BD7 1DP, U.K.

Earthquakes, volcanic eruptions, tsunamis, hurricanes and typhoons, floods, fire and drought have taken part in the shaping of physical and human nature since prehistory. With the exception, however, of some vividly described events by travellers and raconteurs, detailed attention to their causes and effects has, until comparatively recently, been absent. The Lisbon earthquake of 1755, the cataclysmic eruption of Krakatoa in 1883, the eruption of Mont Pelée and the destruction of St. Pierre in Martinique in 1902 and the San Francisco earthquake of 1906 have all been described in their various ways by travellers, journalists, sea captains and diarists. Disasters were described but they were not analysed[2,1].

Gradually there emerged an attention by scientists. Scientific research into the origins of the earth and its surface formations naturally included study of volcanic and seismic activity, and specialists in vulcanology and seismicity identified themselves and have developed detailed analyses of the mechanism of these actions. As the science of weather analysis and forecasting emerged, this naturally included attention to the formation of depressions and other manifestations of extreme weather conditions. Study by meteorologists of the origins and behaviour of cyclonic formations and tropical cyclones, called either hurricanes or typhoons, likewise emerged as another specialist pursuit. Many valuable analyses and many valuable experiments have been undertaken and much valuable data has been collected. Our knowledge of the origins and causes of earthquake, volcano and tropical cyclone is the richer as a result. The work of two eminent seismologists, Gutenberg and Richter[3], was outstanding when they produced a work on seismicity covering earthquakes and volcanic occurrences throughout the world, made possible by the development of remote seismic sensing established in 1889. Richter's name is now given to his scale of earthquake intensity. Many other works have, of course, been produced on these and other phenomena in various parts of the world but Gutenberg and Richter were unique in applying their subject to a world coverage. Taken in total, however, all other works combined give essentially a world coverage and it can be said therefore that work by scientists in their various subjects has not, collectively, been constrained geographically.

It has, however, been restricted conceptually to within each scientific discipline. Attention has been given to tropical cyclones or earthquakes or volcano in any particular place, by scientists of separate disciplines. Attention to these events has been given by scientists to the cause of each event and rarely to its effects. Little interest has been shown in the victim and the combined effect of several kinds of disaster on one place has escaped attention. Works in geography and in atlases still produce maps showing areas of tropical cyclone activity or areas where earthquakes are likely – but superimposition of these areas is not attempted. Scientific study and research into disasters has been essentially mono-disciplinary and this has led to disasters being commonly regarded as isolated events and as being regarded totally as a result of natural phenomena.

Gutenberg and Richter's work was produced and published in the U.S.A. and was possible only because the remote sensing of earthquakes in one country by apparatus in another had been developed since its inception in 1889. Whilst this made the recording of all earthquakes possible, by the same token it made assessment of the effects of each or any earthquake impossible. Selection of particularly damaging earthquakes from that publication is not possible and reliance on intensity grading is insufficient as a low intensity earthquake in a vulnerable situation can do more damage than a high intensity earthquake in a location where there are no buildings and no people.

In contrast, information on the occurrences of tropical cyclone is more comprehensive per event, relying as it has had to do on direct experience for knowledge of the event. Records of observations on land or ships at sea, which have had direct contact with the event, have often been rich in their analysis of the event itself and its effects. Thus, unless the experience was undergone by people with the responsibility or the desire to record what happened, tropical cyclones went unrecorded and where they were recorded in one place it was some considerable time before the complete track of the cyclone could be established by collecting other reports and by inference. A report by Governor Rawson[16] of the "calamitous visitation which swept the greater part of the Bahama Islands" in October 1866 was not finally fully reported until March 1868 after information had been separately collected and assessed from 34 sources on land and at sea. The remote monitoring of cyclonic formations