

Book Reviews

SAN FRANCISCO, 1906

The California Earthquake of April 18, 1906

Vol. 1: Report of the State Earthquake Investigation Commission. By Andrew C. Lawson *et al.* Vol. 2: The Mechanics of the Earthquake. By Harry Fielding Reid. Pp. xxiv + 451 + 146 plates + viii + 190 + 2 plates. (Two volumes bound together.) Atlas of Maps and Seismograms Accompanying the Report of the State Earthquake Investigation Commission on the California Earthquake of April 1906. 25 maps and 15 seismograms. (Publication No. 87.) (Carnegie Institution of Washington: Washington DC, 1908. Reprinted 1969-70.) \$87.

ON April 18, 1906, an earthquake occurred in the coastal regions of California in the vicinity of San Francisco. Undoubtedly it was the most famous and one of the largest earthquakes in history. Its horizontal extent was about 450 km and it was felt as a severe disturbance for a good 50 km beyond each end of the fault and also perpendicular to the fault. In hindsight we see it as a movement of the Pacific Plate north-west relative to the North American Plate along the San Andreas fault, the total movement being between 3 and 6 m. But how was it seen then?

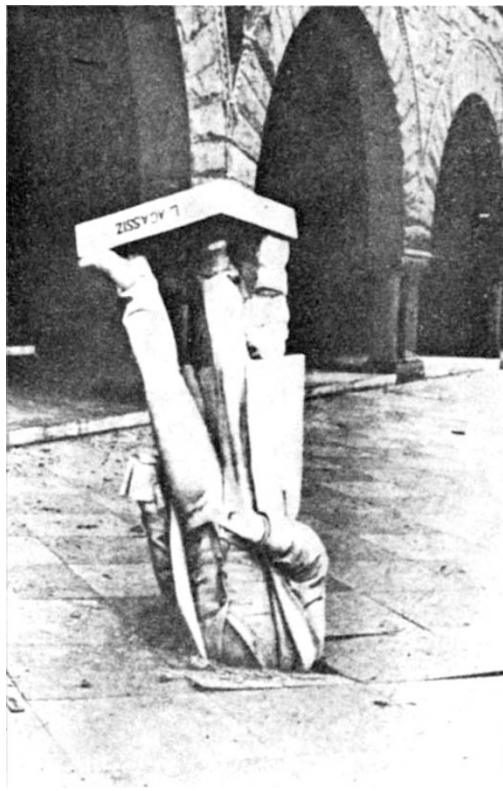
This book, famed amongst seismologists for many years but long out of print, is the Carnegie Institution's admirable report on the earthquake. It has been reprinted in exactly its original form, and is as fascinating a contribution to the history of science as it is to seismology. The State of California appointed a commission under the chairmanship of Andrew C. Lawson to make a full investigation of the earthquake and their report was published in two parts, the first descriptive and running to 450 pages; the second, Harry Reid's famous paper on the mechanics of the earthquake.

It is impossible to do justice to the descriptive section. It is essentially a gathering together of all observed phenomena that could be culled by the investigation team and is best dipped into rather than read continuously. The photographs are truly magnificent and show the remarkable narrowness of the fault. In some places displacement of 5 m was accomplished in a zone barely a metre across. The narrative is detached and everything is grist to the mill. Thus significant statements on the curvature of the fault (yes, it fits quite well on McKenzie and Parker's pole for the plate movements) and the greater risk to buildings founded on alluvium rub shoulders with inconsequential gems such as the photograph of the statue of Agassiz at Stanford impaled head first in the University courtyard, and a scoreboard of the direction of fall of monuments in the Catholic and Protestant cemeteries of Los Gatos:

	N	N.E.	E	S.E.	S	S.W.	W	N.W.	Total
Protestant	3	0	7	1	10	1	5	4	31
Catholic	5	1	6	2	10	1	1	0	26

It is worth noting that this fascinating compendium of observations including comparisons with earlier earthquakes was published a mere two years after the event.

Reid's paper came in 1910, and includes the postulate of elastic rebound and a lot else besides. Global seismological records are all reproduced, and were extensively discussed by Reid. Seismology at that time was developing into quite a sophisticated subject, particularly under the influence of Milne, Wiechert and Reid, and it is a considerable mystery why it never grew at the rate that it should have done. One can only guess that the talents in the physical sciences which should have regarded the San Francisco quake as worthy of their attention were too busy building the new physics.



Statue of Agassiz at Stanford University thrown by the earthquake from its niche above the arches.

This is a book you must at the least get your librarian to acquire. It is thought provoking and very readable. Furthermore, it will give the Carnegie Institution a little money which may well be needed. As noted above, the commission was appointed by the State of California, but the Governor produced no money for the study, and the Carnegie Institution eventually paid for it. Things being what they are in California, when the next big quake occurs, and it certainly will some time, the Carnegie may be called on again. The State certainly got value in 1906.

D. DAVIES

EARLY DAYS OF RELATIVITY

Special Theory of Relativity

By C. W. Kilmister. (Selected Readings in Physics: The Commonwealth and International Library of Science, Technology, Engineering and Liberal Studies.) Pp. ix + 299. (Pergamon: Oxford and New York, September 1970.) 45s, \$7.00 hard cover; 35s, \$4.75 flexi-cover.

It is easy for authors of textbooks in special relativity to hide the historical growth of their subject; for the tight logical structure of special relativity and its myriad applications to basic phenomena encourage a severely deductive approach. Inevitably, the early, uncertain,