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Professor E. S. Hills' Great Relief Model of Australia

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During World War II the Australian Army decided to commission a relief model of northern Australia and New Guinea to help in planning the defence of the continent. In 1943 Professor Edwin Sherbon Hills was released by the University of Melbourne to serve in the Army with the rank of Captain, and was attached to the North Australia Observation Unit by the Directorate of Army Research.

Hills travelled over much of Australia in the war years with the Royal Australian Air Force, making observations, and collecting maps (at that time many had no contours), air photos and photomaps, some of which can be identified in today's School of Earth Sciences Map Room.

The sculptor Orlando Dutton became Hills' assistant and was made an Army Sergeant. The model was constructed in the [University of Melbourne] Department of Geology workshop (at the rear of the present Old Geology "1927" building) as a number of individual models using sheets of plywood, cut to represent contours traced from maps, or constructed from such information as railway level surveys and explorers' notebooks. These contour sheets were glued together to form a stepped model, which was then filled in with *plastic wood*. Students of the 1940s sometimes helped with the preliminary work as part of the war effort, and Orlando Dutton sculpted the final model - with a scalpel. Plaster moulds were then made and solid (and heavy) plaster casts produced for each of the 22 or so sheets involved. The final model was at a horizontal scale of one inch to eight miles, and a vertical scale of one inch to 1,000 feet, giving a vertical exaggeration of approximately 1.42. When laid out the whole model of Australia, including Tasmania, was some 25 feet by 25 feet.

When the war ended, the sections covering southern Australia were not finished, and Hills applied to the National Mapping Section in Canberra for funds to complete the work, and after some correspondence, he received support. Work on the model continued during 1947 and 1948, and it was finished in 1954.

The whole model was laid out in the Geology I laboratory for the 1967 ANZAAS conference. A full set of the parts of the model was stored from the 1960s in the Albert Park Australian Commonwealth Government archives, and was laid out for display and photographing about 1985. Some duplicate plaster blocks were stored under the Old Geology building until the move to the present Earth Sciences McCoy Building in the late 1970s. The Commonwealth Government archives copy of the model is now housed by Scienceworks at its Moreland Annex in Melbourne.

A section of the model showing the region from southern Queensland to Victoria and across to Adelaide was mounted on the wall of the Geomorphology Laboratory in the "1927" building in the 1960s and is now on the wall of the Fritz Loewe Lecture Theatre in the Earth Sciences McCoy building, on the corner of Swanson and Elgin streets, Carlton, where it can be inspected.

Hills made much use the model in his later work on continent-wide lineaments, as did other workers, and vertical and oblique photographs of parts of the model have been used as illustrations in several textbooks. Photomosaics of the complete model at several scales are in existence.

Maps sheets showing contours for the whole of Australia, made from the completed model, were prepared at 8 miles and also 48 miles to the inch, and were said to be the first complete contour maps of Australia. They are now in the ES Hills archives in the National Library of Australia, together with large negatives and prints of parts of the model, some annotated.

Until recently the location of the model of New Guinea, if indeed such a model was completed, was unknown. More intriguing was the possible survival of a model of Timor.

Recently, however, the archives of the School of Earth Sciences, currently being reviewed as part of the History of the Geology Department Project (H.gd.P), have provided some answers.

An old folder labelled *Relief Models* contains black and white photographs of the various pieces of the model, and also of its erection in the Fritz Loewe lecture theatre in the current McCoy Building. There are letters about the acceptance of the model by the then Bureau of Mineral Resources, Geology and Geophysics, dated October 1973.

A sketch map of Australia showing the 26 sheets or individual parts of the model (including Tasmania) has a handwritten note which reads :

- 1974 - This map was presented to the Bureau of Min Resources, and
- 1975 - removed to (Archives Australian Government).

In the folder there is a black and white photograph of a relief model of eastern new Guinea, including Papua New Guinea, New Britain, New Ireland and the tip of Cape York.

There is also a handwritten list of *Duplicate relief maps (various)* dated July 1959, in the handwriting of the curator of the department, AA Baker. This lists for *Eastern New Guinea* one original and two copies, and for *Timor (complete in 2 parts)* one (probably original) and one duplicate.

So far no models or photograph of models of Timor have been located.