MID-CRETACEOUS (99 Ma) AND MID-EOCENE (43 MA) EVENTS IN THE AUSTRALIAN PLATE AND COEVAL SWERVES OF THE PACIFIC PLATE

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The clockwise bend at 99 Ma (mid- Cretaceous)in linear volcanic chains in the tropical Pacific coincides with clockwise change in azimuth of plate divergence in the eastern Indian Ocean. Both coincide in turn with change from pre-99 Ma head-on Chilean-type subduction of the Pacific plate beneath eastern Gondwanaland to 99-43Ma sinistral oblique Mariana-type subduction and strike-slip breakup by simple seafloor spreading between Australia-Antarctica and by back-arc spreading in the SW Pacific. The 99Ma breakup of Australia from Antarctica is documented by a mid-Cretaceous unconformity between volcaniclastic sediment below and quartzose sediment above. The strati-tectonic change,from Innamincka regime to Potoroo regime, founded modern Australia, with a mountain chain along an upper-plate margin in the east, and lowlands on a lower-plate margin on the south. The anticlockwise bend at 43Ma - the Emperor-Hawaiian bend - coincides with the onset of structure in the Challenger Rift of New Zealand, the Eromanga-Cooper Basin of central Australia, and oil-shale grabens of coastal Queensland. Details are given in Veevers, J.J. (editor) 2000. Billion-year earth history of Australia in Gondwanaland context. GEMOC Press, Sydney.