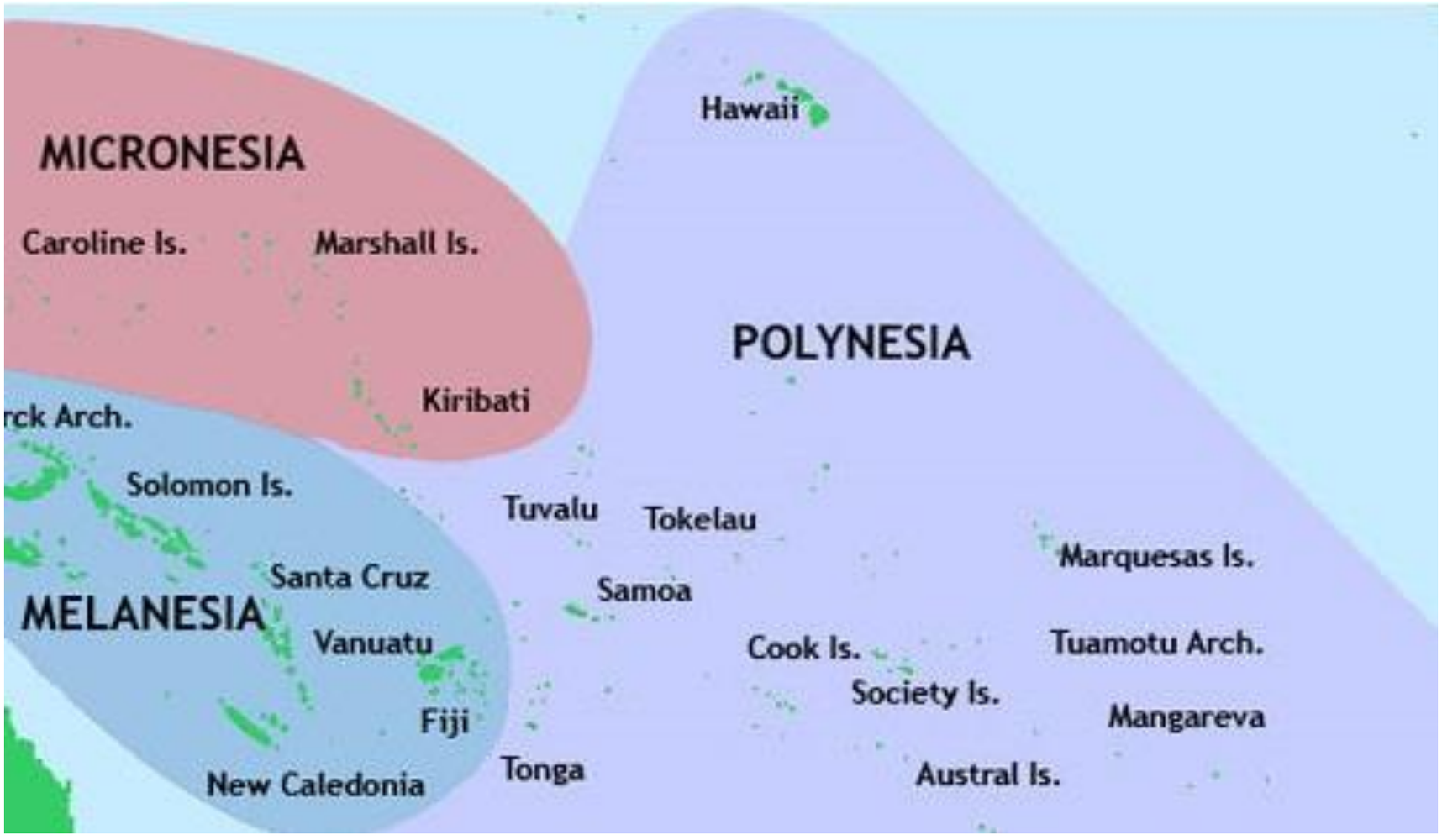
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Environmental variation

- Tikopia, a young volcanic island outside of the main Polynesian Triangle in the Eastern Solomon Islands

- Mangaia, a relatively old volcanic and *makatea* island in the southern Cook Islands

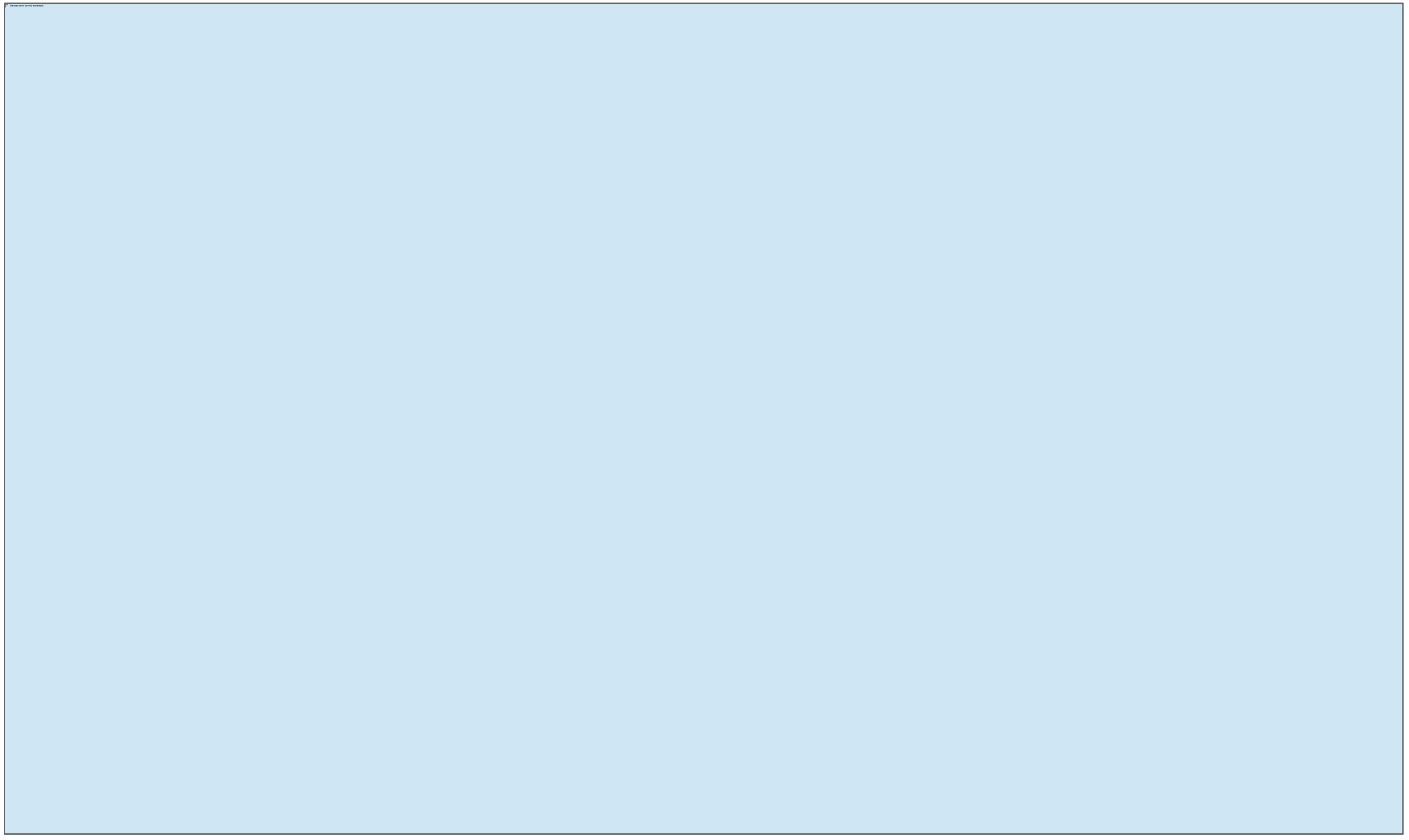
- Mangareva, a small cluster of volcanic islets encompassed by an extensive barrier reef and lagoon system

- Hawaiian Islands, an extensive age progressive volcanic arcipelago

Island Size

- Island size imposed constraints on human population (most directly in terms of agricultural “carrying capacity”)
- However, the extent of arable land is not directly correlated to island size

Cultural Characteristics



Population size and density

- Tikopia, maximum value (density): approaches the highest densities known anywhere in the tropics for pre-industrialised agroecosystem
- When density is considered asa function of arable land resource, all these Polynesian agroecosystem were marked by relatively high density levels

Economic systems

- Common pattern of a dual horticultural-marine economic base
- Specific adaptations to local environmental conditions and historical contingencies

Sociopolitical systems

- Traditional form of Polynesian society with religious system

- open form of Polynesian society (more strongly military and political than religious)

- stratified system

- Population density levels at the time of European contact were relatively high in all four cases

- Tikopia, a culturally explicit model of population regulation (collective social sense)

- Mangaia and Mangareva, lack of conscious, socially-mandated policy of population control

- Hawaii, elites transformed ideological structures of their society (and also land tenure and tribute system)

All over Polynesia, human settlement on islands that had developed for millions of years in the absence of humans led to habitat damage and mass extinctions of plants and animals. Mangareva was especially susceptible to deforestation for most of the reasons that I identified for Easter Island in the preceding chapter: high latitude, low ash and dust fallout, and so on. Habitat damage was extreme in Mangareva's hilly interior, most of which the islanders proceeded to deforest in order to plant their gardens. As a result, rain carried topsoil down the steep slopes, and the forest became replaced by a savannah of ferns, which were among the few plants able to grow on the now-denuded ground. That soil erosion in the hills removed much of the area formerly available on Mangareva for gardening and tree crops. Deforestation indirectly reduced yields from fishing as well, because no trees large enough to build canoes remained: when Europeans "discovered" Mangareva in 1797, the islanders had no canoes, only rafts.

With too many people and too little food, Mangareva society slid into a nightmare of civil war and chronic hunger, whose consequences are recalled in detail by modern islanders. For protein, people turned to cannibalism, in the form not only of eating freshly dead people but also of digging up and eating buried corpses. Chronic fighting broke out over the precious remaining cultivable land; the winning side redistributed the land of the losers. Instead of an orderly political system based on hereditary chiefs, non-hereditary warriors took over. The thought of Lilliputian military dictatorships on eastern and western Mangareva, battling for control of an island only five miles long, could seem funny if it were not so tragic. All that political chaos alone would have made it difficult to muster the manpower and supplies necessary for oceangoing canoe travel, and to go off for a month and leave one's garden undefended, even if trees for canoes themselves had not become unavailable