



## BOOK REVIEW

**Baja California's Coastal Landscapes Revealed: excursions in geologic time and climate change**, by Markes E. Johnson, 2021, The University of Arizona Press, Tucson, 264 pages. ISBN-13: 9780816542529 (paperback).

Markes E. Johnson is the Charles L. MacMillan Professor of Natural Science, Emeritus, at Williams College, where he taught historical geology, palaeontology, and stratigraphy in the Geosciences Department for thirty-five years.

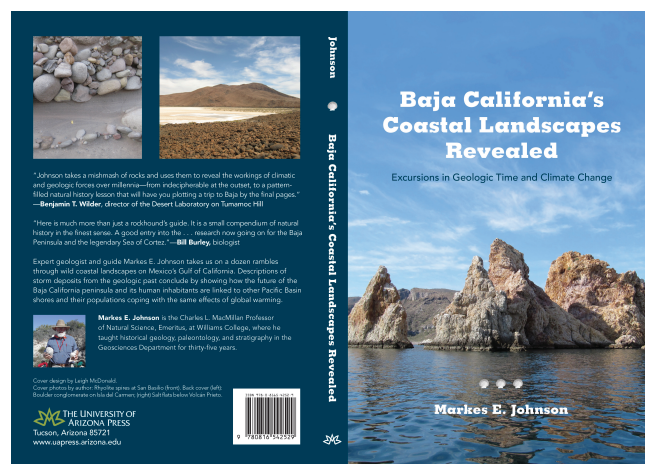
The book by M. E. Johnson is part of a series of his publications on various aspects of nature in the Baja California peninsula and the Sea of Cortez (i.e., Gulf of California). It is an unusually detailed and excellent work that also has the character of a guide or a diary, which originated during the author's work and field trips with students.

Geographically, Baja California is a narrow and long strip of land (more than 1,000 km), forming part of northern Mexico, separated from the Mexican mainland by the narrow Sea of Cortez (syn. California Gulf). On the western coast of this sea and on some of the islands lying in it, eight localities and study areas were surveyed and one more on the west side of the peninsula, adjacent to the Pacific Ocean. The Baja California peninsula gradually separated from mainland Mexico over the previous five million plus years. Large storms and hurricanes were an important shaper of the landscape during this process.

Markes E. Johnson's main interest was focused on the evaluation of various natural phenomena found in the study area in order to explain the genesis of the natural and sedimentary environment in the bay, from roughly the Early Pliocene to the Recent.

The book has 10 chapters: 1. Global Warming and Forewarnings from the Geologic Past. 2. Volcán Prieto and Salt Pan near Puertecitos. This concerns the basaltic monolith of Pliocene age and the Holocene delta and salt lagoon on its flanks. 3. Punta Ballena and the Pliocene Ballena Fan Delta. This concerns the delta that issued from a gap in the coastal granitic uplands. 4. The San Basilio Embayment and Pliocene Volcanic Islets. This is focused on the extraordinary area with important volcanic islets and younger (Holocene) storm deposits. 5. Isla del Carmen and Storms over the Pliocene Tiombó Mega-delta. This concerns the east coast of Isla del Carmen, the third largest island in the Gulf of California, where a cross-section through an enormous Pliocene delta system is exposed in the sea cliffs. 6. Secrets of Puerto Escondido and Nearby Tabor Canyon. Interesting faunal deposits, andesite boulders, interglacial phenomena. 7. Tectonic and Erosional Forces Shaping Isla Danzante. The geomorphology of Isla Danzante. 8. Reaching for Islas Santa Cruz and San Diego. Trip to the granitic islands. 9. Cabo Pulmo and the History of Fossil Reefs in the Lower Gulf. The rocky shores and fossil deposits bordering the gulf's only coral reef. 10. Pacific Bound and Coming to Terms with the Future.

The topics studied clearly follow from the titles of the chapters. Methodological approaches important for processing



data on marine storms and hurricanes were successfully worked up. The evaluation of these atmospheric phenomena is particularly important for monitoring the evolution of the environment, and aims to identify redepositions (often large-scale) and reworking of deposits. In this sense, the recognition of fossil, subfossil and recent faunal content of these sediments and the taphonomy and distribution of reworked fauna were most important (e.g., deposits with rhodolites), together with preserved faunal encrustations. Moreover, many new data point out the global warming of climate. By comparing older deposits with deposits laid down by current storms (like modern hurricanes), calculations and estimates of the intensity of past storms and hurricanes may be derived. The contribution of tectonics and glacial-interglacial processes is evaluated from the point of view of sea level changes and oceanographic conditions (El Niño in the Early Pliocene), mostly in the Pleistocene. Regarding the land's forms caused by climatic factors, changes in the Baja California peninsula landscape were influenced by major storms, showing a long history of erosion (hurricane passages in the distant past – millions of years ago).

Johnson's book brings not only very lively and relatively easy to read text, logically arranged in chapters, but contains many illustrations: (photographs) from the field, and very important and comprehensible drawings. This is an excellent example of how to summarize a large amount of data to show the interest and importance of geology and other natural sciences for understanding development of the environment and landscape changes. The significance of Markes E. Johnson's book for any geological and palaeoenvironmental interpretations of data, especially of those from marine coastal zones of whatever geological ages, is evident and enormous worldwide. However, this book is also an exciting and illuminating book of travels significant for all those interested in nature.

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