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R.C. MITCHELL - THOMÉ

GEOLOGY OF THE MIDDLE ATLANTIC ISLANDS

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This work treats of those islands long known before the age of tourism has made many almost household words. Of all the islands spread out across the immensity of the Atlantic Ocean, none are so well known to the world at large, none have captivated adventurer, scholar, traveller to the same extent. The motives propelling such people to these islands have differed, yet all who have known them have been unanimous in their enthusiasms, whether for material gain, scholarly acquisition or relaxation, that these Atlantic archipelagoes have an attraction, from

many points of view, which can scarce be met anywhere else in the world. Travel brochures should rightly be scanned with a jaundiced eye, but as regards natural attractions, of climate, seascape and landscape, for once such blurbs come very near the truth.

Since the publications of Gagel in 1910 and von Wolff in 1931, no book has appeared treating of the geology of these Middle Atlantic islands. In the past 45 odd years, a great amount, of new knowledge has come into our hands, as perusal of the bibliography will show. Further, the pace of geological and geophysical interest is quickening, at this time several projects are under way by institutions and scientific groups, the tempo of new publications increases. It is with the intention of providing an appreciation of geological studies ranging over a period of 170 years," condensing into the limits of a convenient-sized volume, that the writing of this book has been undertaken.

As these are all volcanic islands, the importance of the volcanics and all aspects of such must obviously take a prominent place in what follows. But because the petrography, petrochemistry, petrogenesis of igneous rocks looms so large in the literature, the writer intentionally has tried to give a fair coverage of other geological considerations, in order to present a more balanced account. Slowly a start is being made in geophysical and geochronological studies, the new global tectonic approach no less is paying attention to the general region, though at times, some schemes proposed often seem rather akin to special pleadings.

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Of the five Middle Atlantic archipelagos, three, Azores, Canaries and Cape Verde, have been volcanically active probably from the mid-14th century onwards. Though Fogo is the only island in the Cape Verde group to show such activity, of all these islands it has erupted most frequently. Historic submarine volcanism is associated only with the Azores. As per the imperfect data available, it is possible that the sixty five eruptions here recorded, have resulted in the production of some 24 km³ of lavas and ejecta. The matter of correlating volcanism in these islands with Sunspot activity and/or Earth minima tides is open to question. Geology. The Atlantic Ocean was formed when the supercontinent Pangaea broke up about 200 million years ago. Europe and Africa started to drift away from today's Americas. The ocean is divided into three areas. The continental shelf extends up to a few hundred kilometers into the open ocean and is about 100 to 200 meters deep. Beyond the shelf the continental slope drops slowly to a depth of about 4,000 meters, where the ocean floor spreads across most of the Atlantic. A giant mountain range, the Mid-Atlantic Ridge, rises in north-south direction along the middle of the Atlantic Ocean. It is the borderline between the European and the American plates. New seafloor is constantly created in this area by magma which rises up through the crust of the Earth. The Mid-Atlantic Ridge (MAR) is a mid-ocean ridge, a divergent tectonic plate boundary located along the floor of the Atlantic Ocean, and the longest mountain range in the world. It separates the Eurasian Plate and North American Plate in the North Atlantic, and the African Plate from the South American Plate in the South Atlantic. The Ridge extends from a junction with the Gakkel Ridge (Mid-Arctic Ridge) northeast of Greenland southward to the Bouvet Triple Junction in the South Atlantic. Although the Mid-Atlantic Ridge is mostly an underwater feature, portions of it have enough elevation to e

The Mid-Atlantic Ridge (MAR) is a mid-ocean ridge, a divergent tectonic plate or constructive plate boundary located along the floor of the Atlantic Ocean, and part of the longest mountain range in the world. In the North Atlantic, it separates the Eurasian and North American plates, and in the South Atlantic, it separates the African and South American plates. The ridge extends from a junction with the Gakkel Ridge (Mid-Arctic Ridge) northeast of Greenland southward to the Bouvet Triple Junction in