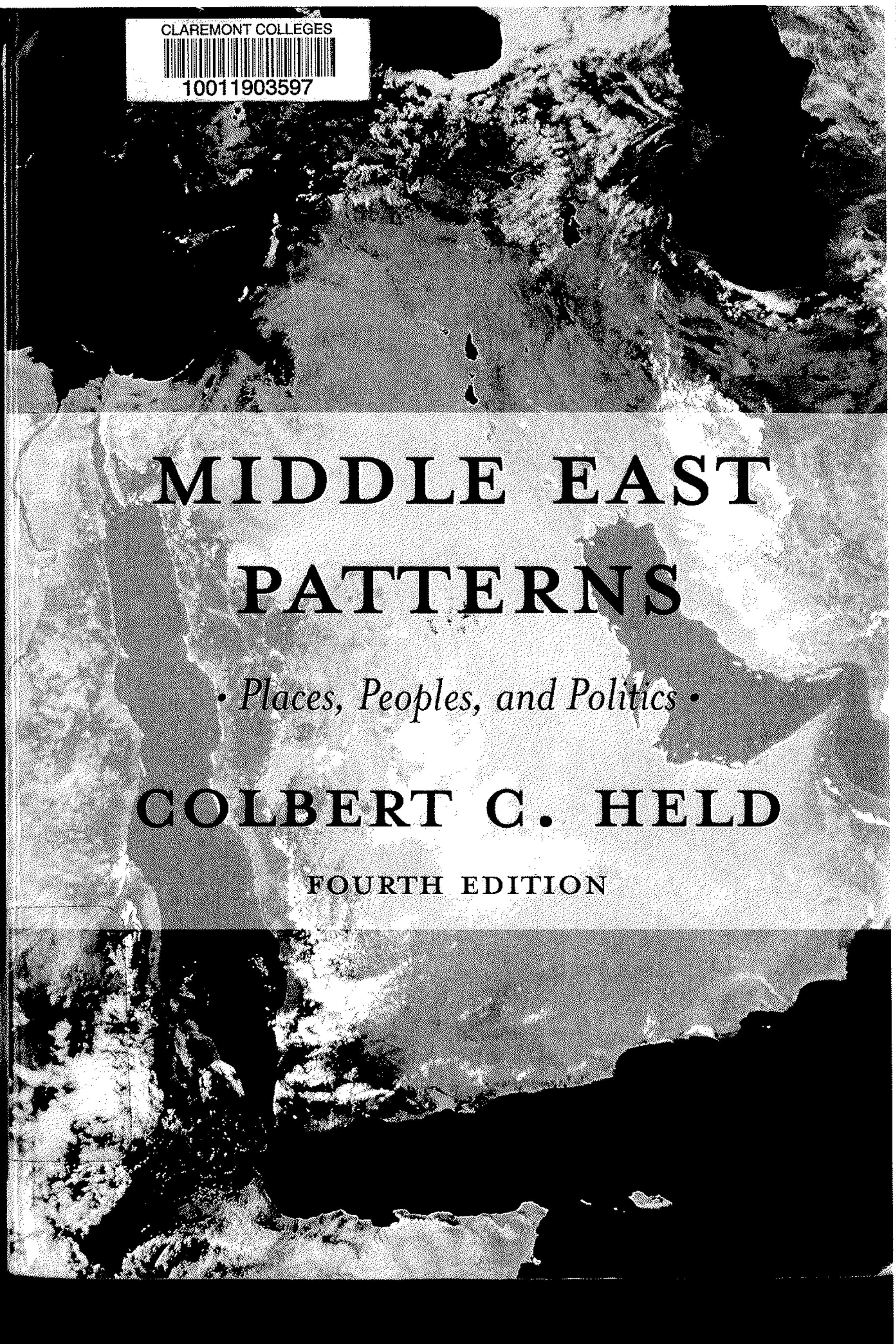


MIDDLE EAST PATTERNS

• Places, Peoples, and Politics •

COLBERT C. HELD

FOURTH EDITION

MIDDLE EAST PATTERNS

FOURTH EDITION

FOURTH EDITION

MIDDLE EAST PATTERNS

Places, Peoples, and Politics

Colbert C. Held

Baylor University

in collaboration with

Mildred McDonald Held

Cartography by John V. Cotter

Westview Press

A Member of the Perseus Books Group

2

The Face of the Earth

AN OVERVIEW

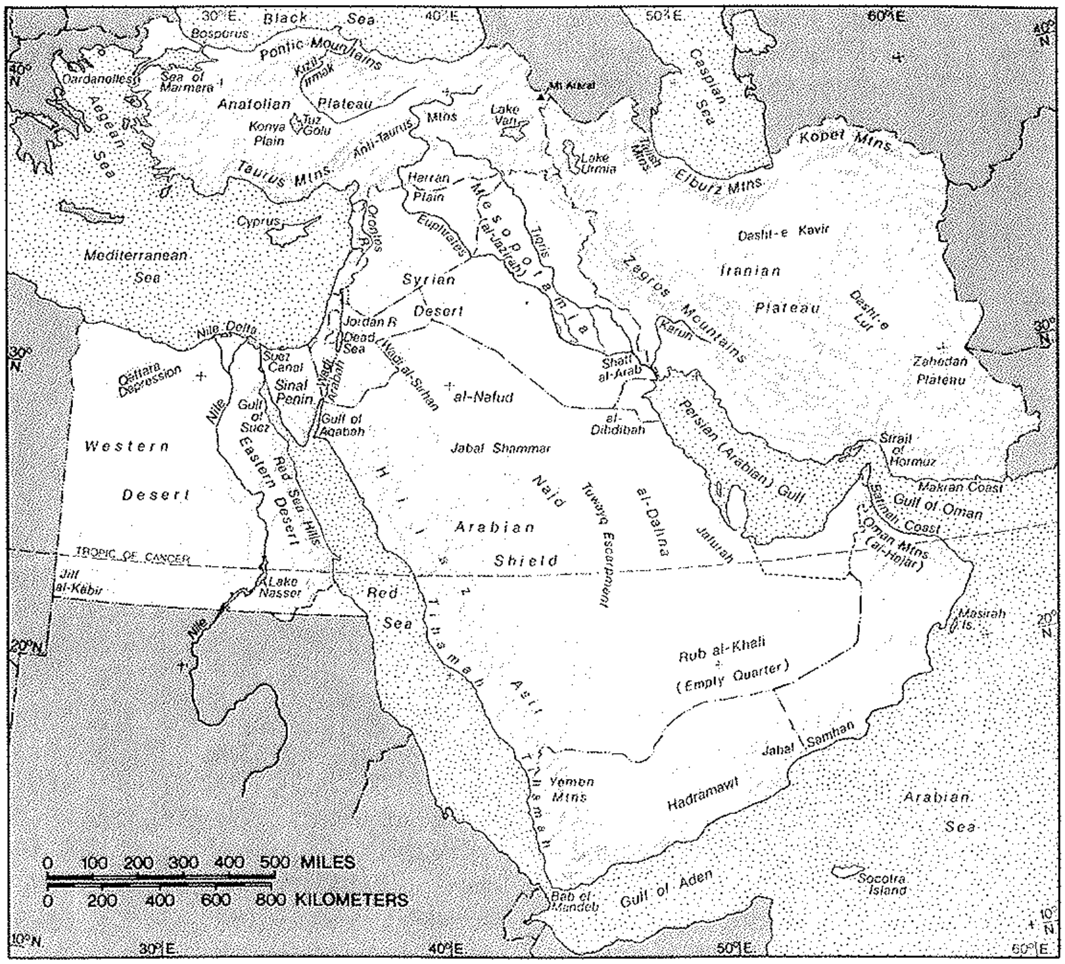
A basic tenet of geography is that physical features on the earth's surface and their related bioclimatic elements reciprocally interact with patterns of population, peoples, and human activities. Although the physical environment should not be adjudged to determine the human condition, it must nevertheless be understood to influence, sometimes powerfully, many aspects of human activities. Such influence can readily be seen to affect Middle East societies' modes of living, urban development, transportation, access to irrigation water, and share of energy resources. Furthermore, each environmental factor interacts with every other factor: Precipitation affects vegetation, elevation affects temperature, type of bedrock affects soils, and so on.

A reasonable appreciation of the Middle East physical environment and its influences is essential for an understanding of the regional history, economy, culture, and political development. It is with such a tenet that this chapter focuses on the basic physical environmental aspects of the Middle East—landforms, climate, soils, and natural vegetation. Chapters 3–8—that is, the remainder of Part One—consider history, peoples, and the range of human activities. Major influences of these factors on the peripheral areas of North Africa and Central Asia mentioned in Chapter 1 will be touched upon. Since the related factors of geomorphology (landforms) and climate have the greatest effects on cultural and economic patterns, those two factors are examined first.

FORMS OF THE LANDS

General Patterns

Map 2–1 and Figure 2–1 reveal that land and sea areas alternate like broad spokes around the Middle East hub, with four land areas forming great promontories into the seas and, conversely, five seas penetrating deeply into the land. In the northwest, Asia Minor, embracing the Anatolian Plateau, comprises a peninsular bridge to southeastern Europe. Southeastward from eastern Anatolia, the Iranian Plateau extends into Asia proper. Continuing clockwise, there is the massive rectangular Arabian Peninsula, which split from Africa along the axis of the Red Sea, and beyond which Egypt occupies the square northeastern corner of the continent of Africa. Finally, in the center, the regional hub consists of the Fertile Crescent area, which occupies the zone between the northern (Anatolian-Iranian) and southern (Egyptian-Arabian) belts of the region.



MAP 2–1 Major geomorphic (landform) features of the Middle East.

The largest of the five water bodies reaching into Middle East lands, the deep Mediterranean Sea on the west washes the shores of six of the core Middle East states as well as the four Arab Maghrib countries. The Black Sea, to the north of Asia Minor, lies between Turkey and the other five littoral states and overflows to the Mediterranean through the straits of the Bosporus and Dardanelles. The Caspian Sea to the northeast is really an inland lake with no outlet to the sea, and its surface is well below sea level. The Persian/Arabian Gulf—or usually just "the Gulf"—occupies the drowned, downbuckled tectonic trough between Arabia and Iran. Connecting with the Mediterranean through the artificial Suez Canal, the Red Sea, with its two extensions to the north and the related Gulf of Aden to the south, floods the great rift that separates the Arabian Peninsula from Africa (Fig. 2–2).

Penetration of seas into the land has several major consequences. Physically, the seas—the Mediterranean especially—intersperse sources of moisture in areas that would be far more desertic without them. In addition, deep penetration of the seas creates a great deal more coastline, which in turn increases the opportunities for human contacts with the outside world. The seaways provide, as they have for millennia, major routes for trade and movement of peoples.

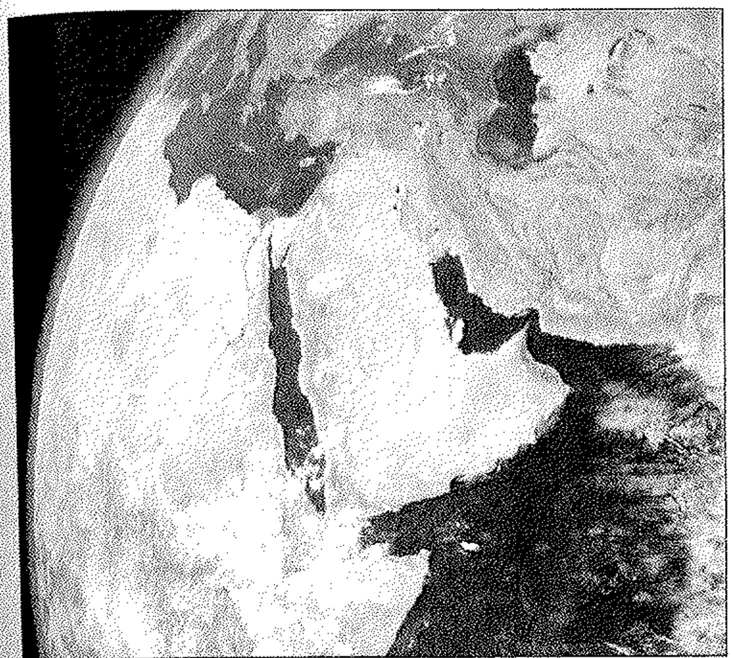


FIGURE 2-1
Image from space of the Eastern Hemisphere, enlarged to emphasize the Middle East. (Photograph courtesy of National Aeronautics and Space Administration)

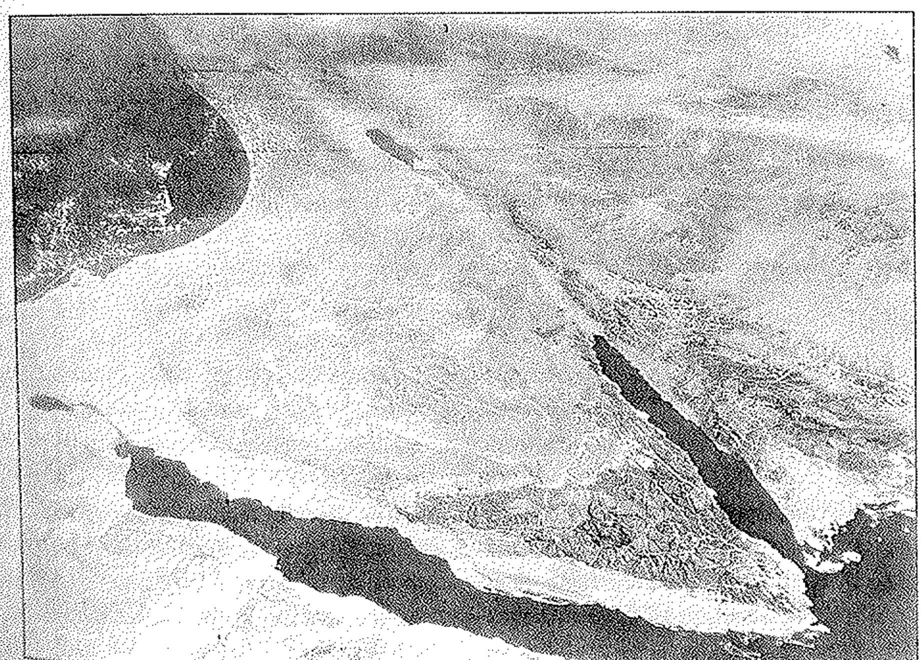
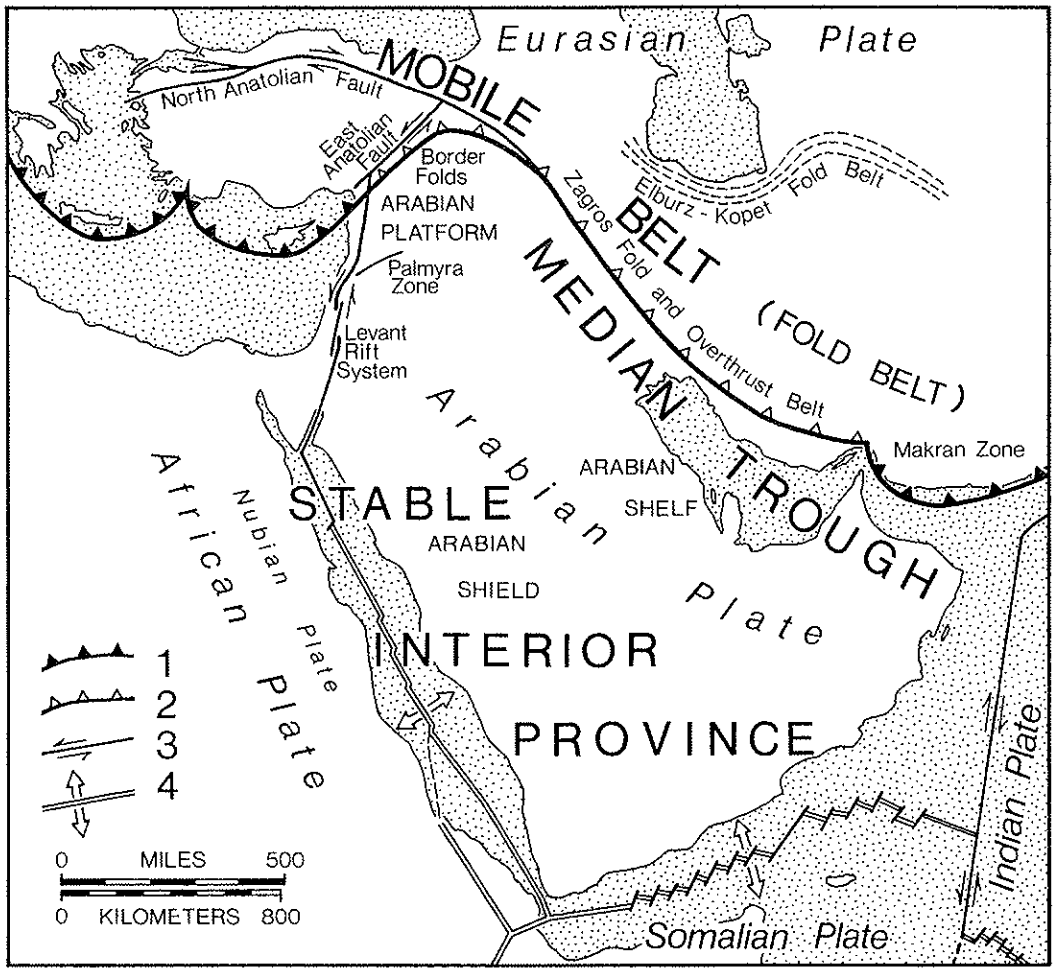


FIGURE 2-2 Image from space looking northeast across the Sinai Peninsula, with the Gulf of Suez on the west (lower edge of figure) and the Gulf of Aqabah on the east. The great Levant Rift System extends from lower right to upper left and cradles the Dead Sea and Sea of Galilee. The Suez Canal is left center, and the Mediterranean Sea in the upper left corner. Dark, rugged, ancient basement rocks are exposed in the southern Sinai and along the eastern coast of the Gulf of Aqabah. (Photograph courtesy of National Aeronautics and Space Administration)



MAP 2–2 Generalized tectonic map of the Middle East. Note the concentration of tectonic zones in eastern Anatolia. Symbols: 1 = collision zone involving subduction of sea floor along arcuate plate contacts; 2 = collision zone involving continental overthrusting (western Iran); 3 = horizontal displacement along transform faults (arrows indicate left-lateral or right-lateral); 4 = seafloor spreading, the pulling apart of the ocean's crust.

As elsewhere on earth, major landform provinces and features of the Middle East originated generally because of a shifting of large segments of the earth's outermost crust over millions of years. These crustal segments, or "plates," in the lithosphere[1] jostle one another periodically and in so doing profoundly affect one another's adjacent edges. According to the theory of plate tectonics,[2] at least four, and perhaps six or more, plates have collided or been pulled apart to create the present pattern of the Middle East (Map 2–2; Fig. 2–1). Typically, several plate contact borders are marked by major fault zones—in Anatolia and Iran, for example—some of which are still active and periodically cause destructive earthquakes. Other contact areas have resulted in compression-folded mountain ranges (the Zagros, for example) or downfolded troughs (the Gulf).

Although most of the gross landforms of the Middle East have evolved directly or indirectly from regional plate movements,

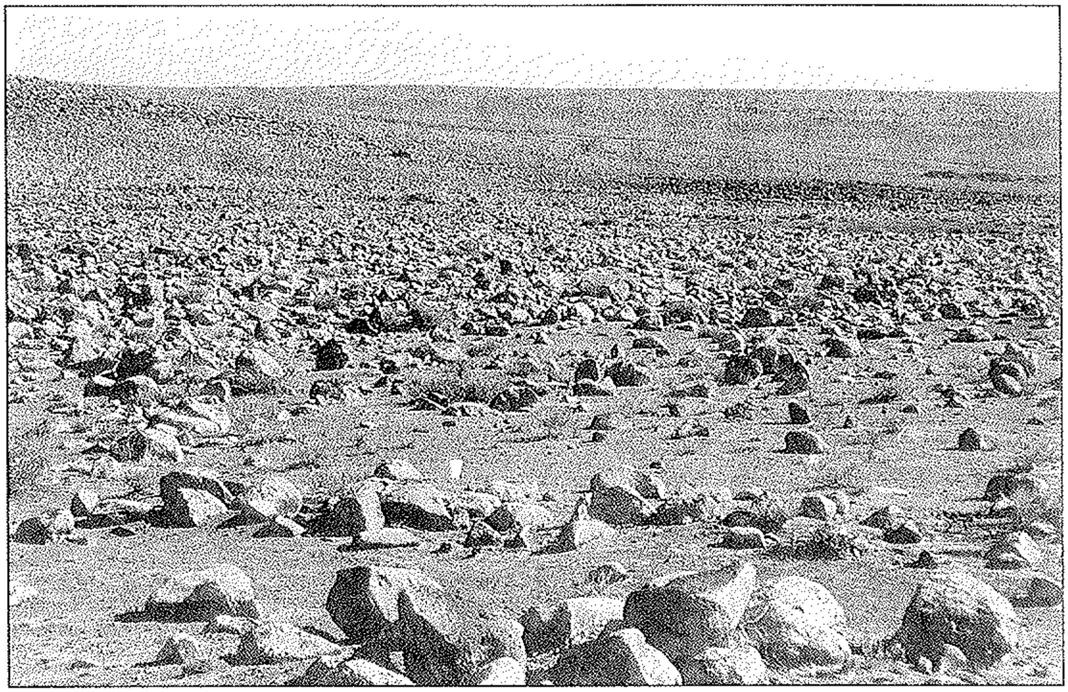


FIGURE 2–3 Rock-strewn steppe landscape in southwestern Syria—one type of *hamadah.* A thin lava flow has broken down to produce this type of surface. Angularity is typical of weathering in a dry climate area.

smaller and more local forms have been shaped by other factors. Local tectonic movements, erosion by water or wind, and combined wind erosion and deposition are some typical factors. For example, some of the extensive sand deserts of Arabia are reshaped deposits of sand blown in from appreciable distances, sometimes over hundreds of miles.

Elsewhere are broad plains areas of "desert pavement." Here the surface is blanketed with a layer of pebbles that lag behind after finer particles have been blown away by persistent winds. This pavement of pebbles serves as an armor for the underlying sand particles so long as the delicate ecological balance is undisturbed. Unfortunately, that equilibrium has been severely upset in extensive areas by modern development and activity, with its wheeled vehicles, construction equipment, bulldozers, and military tanks.

Running water, even though relatively limited in the vast arid realms that now dominate the region, has profoundly altered some of the desert landforms. However, many forms shaped by streams were developed in earlier geological ages when rainfall was higher and streams were much larger, with proportionately greater erosive power. Weathering and erosion of rock in arid areas produce a greater angularity and sharpness of outline than are typically found in more humid areas, such as northern Turkey, where the silhouettes are more rounded. Such angularity can be seen on a small scale in many places where thin lava flows have mechanically weathered into a rugged cover of sharp boulders, one type of *hamadah* (Fig. 2–3).

Usually the result of tectonic plate shifts, significant seismic activity and especially the effects of volcanism are widespread in the Middle East. The map of earthquakes

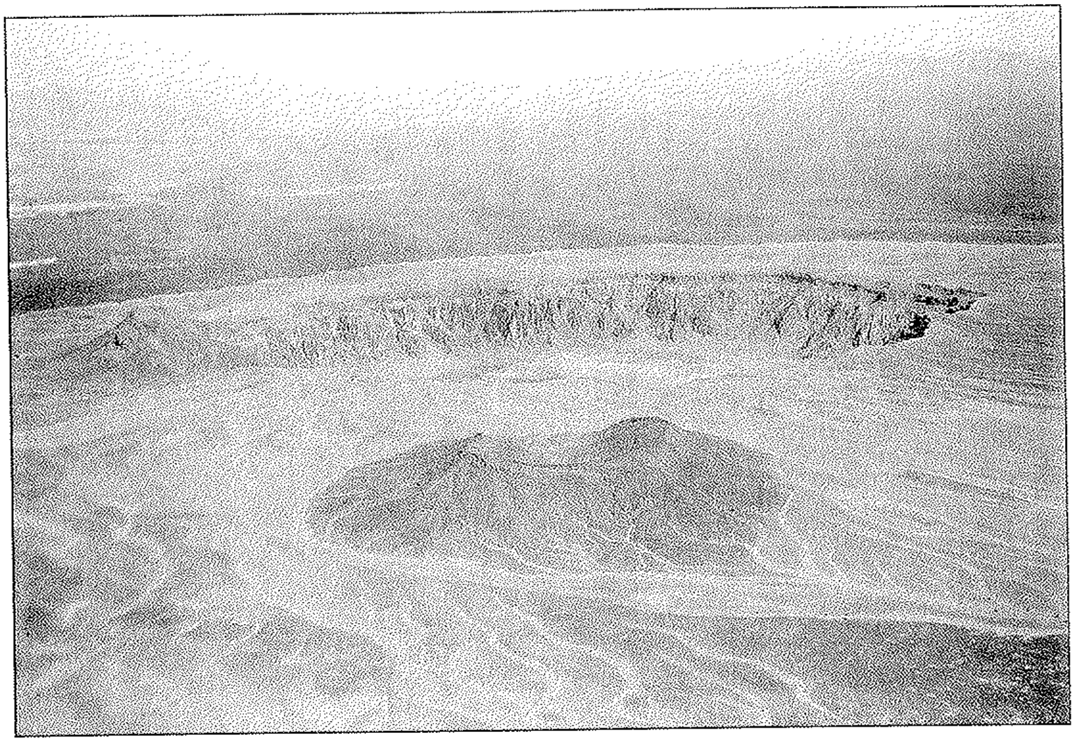


FIGURE 2–4 The extensive volcanic fields of the Western Arabian Shield include al-Wahbah explosion crater (above center) and scores of cinder cones, such as the one shown here.

(later in this chapter, Map 2–3) both indicates zones of actively colliding plates and illustrates the high incidence of seismic events in Anatolia, Iran, and Cyprus. Tectonic plate activity and folding become even more intensive in the junction area of Afghanistan, Iran, and Pakistan, as is clear from space imagery. Colliding plates, separating plates, and some shearing plates generate outpourings of lava either explosively from volcanoes or quietly through vents and fissures. Anatolia has numerous classic volcanic cones, including Mount Ararat, and large areas of southwestern Syria, central Jordan, western Yemen, and especially western Saudi Arabia are buried under extensive lava flows (Fig. 2–4).

Stable Interior Province

On a broad scale, the landform patterns of the Middle East may be grouped into three general structural and macro landform provinces: the Stable Interior Province, the Mobile Belt, and intermediate between the two, the Median Trough (see Map 2–2). This threefold division serves as a basis for a survey of major Middle Eastern landforms that will, in turn, aid in understanding the region's cultural patterns. Maps 2–1 and 2–2 show most of the features mentioned below, but reference to a more detailed map is recommended for the study of this chapter.[3]

Nubian-Arabian Shield. The Stable Interior Province lies in the southwesterly 60 percent of the Middle East proper, its nucleus an extensive area of ancient metamorphic basement rock constituting the Nubian-Arabian Shield. Planed down during millions of years, the shield is primarily a plateau in character but displays many remarkable volcanic features (Fig. 2–4) as well as scores of faults and mountain ridges along ancient sutures. A prominent uptilt has created mountains on either side of the Red Sea rift.

The shield's ancient basement rocks, some more than 1 billion years old but most 560–890 million years old by radiometric dating, have split open along the Red Sea axis of seafloor spreading and are exposed along both uptilted coasts of this slowly widening rift. After it was well developed, the shield was depressed except to the southwest, and the flanks were covered by thousands of feet of sedimentary rocks, principally limestones. The oldest strata deposited on sea floors more than 500 million years ago, these sedimentaries now outcrop in and underlie the great arc of territory sweeping from northern Egypt through the Fertile Crescent countries and around the eastern and southeastern flanks of the Arabian Peninsula. Some contain huge oil reservoirs.

Arabian Peninsula. A narrow coastal plain, Tihamah, extends virtually the full length of the Arabian Peninsula's Red Sea coast and is backed by a formidable mountain range. This linear barrier, the Hijaz Mountains, averages 7,000 ft./2,135 m and forms the uptilted western edge of the Arabian Shield. Back of the Hijaz, the ancient basement rocks of the shield extend in a semicircle, convex eastward, to the heart of the Arabian Peninsula. There the Central Arabian Arch bowed up the shield, generating greatly increased erosion to cause an eastward retreat of the edge of the older sedimentary cover that formerly blanketed much of western Arabia millions of years ago.

The opening of the Red Sea rift occurred in two stages, the first in the late Oligocene–early Miocene (about 25 million years ago), the second during the Pliocene (about 4–5 million years ago). This continental rifting followed by sea-floor spreading, plus faulting in the shield, induced the extrusion of several extensive flows of basaltic lava—one as large as 7,720 miles^2/20,000 km^2—from both fissures and vents in the shield (Fig. 2–4). Successive older lava series reach thousands of feet in thickness in the peninsula's southwestern corner and constitute the rugged mountains that give the High Yemen its character (shown in Chaps. 4 and 16).

To the north, northeast, and southeast of central Arabia, the basement is depressed and is buried under layers of sedimentary rock, the Arabian Shelf. These sedimentaries have a vital significance in the world economy, since around and under the Gulf they contain the world's greatest known oil resources.

Sand, wind, aridity, and open space have combined to create three large and several small sand deserts in the Arabian Peninsula. In the south center lies the Rub al-Khali (Empty Quarter), the world's largest single sand dune area (see Fig. 1–1). In the north is the Nafud (or the Great Nafud), one-fifth the size of the Rub al-Khali. Extending in a great arc from the Nafud to the Rub al-Khali through eastern Arabia is a belt of red sand known as the Dahna.

At the southeastern corner of the Arabian Peninsula are the rugged and curious Oman Mountains (or Jabal al-Hajar), with elevations typically around 5,000 ft./1,525 m but peaking at 10,000 ft./3,048 m. They also are a product of collision between the Arabian Plate and the Iranian subplate but are a case of the unusual process of obduction (the reverse of subduction). At their northern end, the Oman Mountains culminate in the dramatic Musandam Peninsula, informally and aptly referred to as the Horn of Arabia.[4]

Egyptian Deserts. Between the Red Sea and the Nile Valley, the Eastern Desert of Egypt culminates in the Red Sea Hills, a moderately rugged and barren mountain mass of domi-