SAGUNTUM, now Sagunto or Murviedro, an ancient town in a fertile district of eastern Spain (Castellon de la Plana) 20 m. N. of Valencia, close to the coast. Its history comprises one brief flash of tragic glory and a long obscure happiness. At the outbreak of the Second Punic War (219 b.c.) it was a large and commercially prosperous town of native—not Greek— origin. It sided with Rome against Carthage, and drew Hannibal’s first assault. Its long and noble resistance, told by the Roman historian Livy in no less noble language, ranks with the Spanish defence of Saragossa in the Peninsular War. Finally in 218 Hannibal took it and passed on into Italy. Then we hear little more of it till at the opening of the Christian era it appears as a flourishing Romano-Spanish town with a Latin-speaking population and the rank of *municipium.* This later prosperity lasted most of the empire through, and is attested by inscriptions and ruins (notably a theatre, demolished by Suchet).

SAHARA, the great desert of northern Africa. The Sahara has an area, according to Dr A. Bludau’s calculation of the areas of African river basins, of 3,459,500 sq. m., made up as follows:—

|  |  |
| --- | --- |
| Drainage or slope to Atlantic .  Drainage or slope to Mediterranean.  Drainage inland . '  Slope to Niger basin | Sq. m. '131,000 . 502,000  2,602,500 224,000 |
| Total | - 3,459,500 |

This includes Tripoli and Fezzan, which practically belong to the desert zone, but does not include arid portions of the basins of the Nile and Niger, in which the drainage is at most intermittent, and which might with reason be included in the Sahara. The area would thus be brought up to at least 31/2 million sq. m., about the area of Europe minus the Scandinavian peninsula.

The physical limits of this region are in some directions marked with great precision, as in parts of Morocco and Algeria, where the southern edge of the Atlas range looks out on what has almost the appearance of a boundless sea, and forms, as it were, a bold coast-line, whose sheltered bays and commanding promontories are occupied by a series of towns and villages—Tizgi, Figuig, El Aghuat, &c. In other directions the boundaries are vague, conventional and disputed. This is especially the case towards the south, where the desert sometimes comes to a close as suddenly as if it had been cut off with a knife, but at other times merges gradually and irregularly into the well-watered and fertile lands of the Sudan. While towards the east the valley of the Nile at first sight seems to afford a natural frontier, the characteristics of what is usually called the Nubian desert are so identical in most respects with those of the Sahara proper that some authorities extend this designation to the shores of the Red Sea. The desert, indeed, does not end with Africa, but is prolonged eastwards through Arabia towards the desert of Sind. As the Nubian region is described under SuDan: *§ Anglo-Egyptian,* the present article is confined to the country west of the Nile Valley, the Libyan desert inclusive. Its greatest length, along the 20th parallel of north latitude, is some 3200 m.; its breadth north to south varies

from 800 to 14oo m.

The sea-like aspect of certain portions of the Sahara has given rise to much popular misconception, and has even affected the ideas and phraseology of scientific writers. Instead of being a boundless plain broken only by wave-like mounds of sand hardly more stable than the waves of ocean, the Sahara is a region of the most varied surface and irregular relief, ranging from 100 ft. below to 5000 and 6000 and even in isolated instances to 8000 ft. above the sea- level, and, besides sand-dunes and oases, containing rocky plateaus, vast tracts of loose stones and pebbles, ranges of the most dissimilar types, and valleys through which abundant

watercourses must once have flowed.

In the centre of the Sahara is a vast mountain region known as the Ahaggar (Hoggar) Tasili or plateau. The culminating peaks of this plateau. Mounts Watellen and Hikena, are about 900 m. in a straight line almost due S. of the city of Algiers and about 1200 m. due N. of the mouth of the Niger. They also occupy, speaking roughly, a central position between the Atlantic and the Nile.

The Ahaggar plateau is not inferior to the Alps in area, but its highest peaks do not greatly exceed 8ooo ft. They are believed to be volcanic like those of Auvergne. Upon their summits snow is reputed to lie from December to March/ South-east of the main plateau, and partly filling the valley between the Ahaggar plateau and the Tasili of the Asjer (see *infra),* are the Anahef mountains. To the north the valley is again contracted by the Irawen mountains.

Besides this central group of mountains, sometimes spoken of as the Atakor-'n-Ahaggar (Summits of the Ahaggar), there are various other massifs in the Sahara. On the north-west of the Ahaggar, and separated from it by a wide plain, is the Muidir plateau, which extends nearly east and west 200 m.

North-east of the Ahaggar (in the direction of Tripoli) is the Tasili of the Asjer (4000-5000 ft.), which runs for 300 m. in a N.E. to S.E. direction. South-east of the Tasili of the Asjer is a range of hills known as the Tummo (or War) mountains. Still farther south is the mountainous region of Tibesti (or Tu), with an average height of some 7ooo ft., the volcanic cone of Tussid rising to an estimated height of 88oo ft. Towards the south and east the Tibesti highlands are connected with the lower ranges of Borku and Ennedi, which merge into the plains of Wadai and Darfur. The slopes are bare and rocky. By some authorities the Tasili of the Asjer, the Tummo, Tibesti and Borku ranges are considered “ the orographic backbone ” of the Sahara.

In addition to the plateaus and ranges named, there are several disconnected mountain masses. Midway between the Atakor-'n- Ahaggar and Nigeria are the Air or Asben hills in which Dr Erwin von Bary discovered (1877) the distinct volcanic crater of Teginjir with a vast lava-bed down its eastern side. By some writers Air (*q.v.)* is not included in the Sahara, as it lies within the limit of the tropical rains; but the districts farther south have all the characteristics of the desert. West of Air, and north-east of the bend of the Niger, lies the hilly region sometimes known as Adrar of the Iforas or of the Awellimiden (the southern confederacy of the Tuareg). To the N.E., in Fezzan (*q.v.*), are the dark mountains of Jebel-es-Soda, which are continued S.E. towards Kufra by the similar range of the Haruj; and in the extreme S.W., at no great distance from the Atlantic, is the hilly country of the western Adrar (*q.v.*).

Nearly all the rest of the Sahara consists in the main of undulating surfaces of rock (distinguished as *hammada),* vast tracts of water-worn pebbles *(serir)* and regions of sandy dunes (variously called *maghter, erg* or *areg, igidi,* and in the east *rhart),* which occupy about one-ninth or one-tenth of the total area. The following is the general distribution of the dunes:—

From a point on the Atlantic coast south of Cape Blanco a broad belt extends N.E. for about 1300 m., with a breadth varying from 50 to 300 m. This is usually called the Igidi or Gidi, from the Berber word for dunes. In part it runs parallel with the Atlas mountains. Eastward it is continued, south of Algeria and Tunisia, by the Western Erg and Eastern Erg, separated by a narrow valley at Golea. South of the Eastern Erg (which extends as far north as the neighbourhood of the Gulf of Gabes) the continuity of the sandy tract is completely broken by the Hammada al-Homra (or Red Rock Plateau), but to the south of this region lie the dunes of Edeyen, which, with slight interruptions, extend to Murzuk in Fezzan. South of the hammada of Murzuk the dunes of Murzuk stretch south-east. This series of tracts may be called the northern zone of the Sahara ; it forms a kind of bow, with its extremities respectively at the Atlantic and the Libyan desert and its apex in the south of Tunisia. In the south are the Juf (depressions), covering a vast area to the south-east of the middle portion of the Igidi, another area between the Adghagh plateau and the Ahaggar, and a third between Air and Tibesti. The Juf or depressions are not, except in rare instances, below sea- level. In the Libyan desert is a vast region of dunes of unascertained limits; the characteristics of the Libyan desert being thought typical of the whole of the Sahara originated the idea of “ a sea of shifting sand ” as descriptive of the entire desert. Here a region of over 500,000 sq. m. extending east from the Tibesti mountains to the valley of the Nile, bounded south by Wadai and Darfur and north by Fezzan and the Cyrenaica, appears to be almost entirely sterile and increasingly covered by dunes. There is only one known route through this dreadful wilderness—one running north and south to the oases of Kufra, which lie in its centre. The dunes in the Libyan desert, so far as is known, run N.N.W. and S.S.E. In the Eastern Erg the dunes also lie in long lines in a N.Ñ.W. and S.S.E. direction, presenting a gradual slope to windward and an abrupt descent to leeward. There they are generally about 60 or 70 ft. high, but in other parts of the Sahara they are said to attain a height of upwards of 300 ft.

Under the influence of the wind the surface of the dunes is subject to continual change, but in the mass they have attained such a state of comparative equilibrium that their topographic distribution may be considered as permanent, and some of them, such as Gem (Peak) al-Shuf and Gern Abd-al-Kader, to the south of Golea, have names of their own. The popular stories about caravans and armies being engulfed in the moving sands are regarded as apocryphal (save perhaps in some instances in the Libyan desert), but there is abundant