able Moorish decoration in the delicate stucco arabesque work for which Tunis was formerly famous. The chief attraction of the old town lies in its bazaars, which retain their Oriental character unimpaired. Water is supplied to numerous fountains by an ancient aqueduct from Jebel Zaghwán, repaired at a cost of half a million sterling by the late Bey Mohammed al-Sádik. The principal educational establishments besides that of the great mosque are the Sádikíya college, founded in 1875 for gratuitous instruction in Arabic and European subjects, the college of St Charles, conducted by priests and open to Christians and Moslems alike, and the normal school, founded in 1884 by the bey to train teachers in the French language and European ideas. The population of Tunis is about 125,000, of whom one- fifth are Jews and one-fifth Europeans, chiefly Maltese and Italians.

The environs of Tunis are admirable from the beautiful views they present ; the finest prospects are from the hill on the south­east, which is crowned by a French fort, and from the Belveder on the north of the town (Jebel al-Túba), on which stands a very ancient fortress. Half-an-hour’s drive west of the town is the decaying palace called the Bardo, a little town in itself, remarkable for the “ lion court ” and some apartments in the Moorish style. The port of Goletta, with 4000 inhabitants, is connected with Tunis by a railway 10 miles long. The older or southern part of the town next the canal has a fortress, now used as barracks, built by the Turks on the site of the Spanish fortress destroyed in 1574. The ruins of Carthage lie a few miles north of Goletta. The chief manufactures of Tunis are still textiles, as in the time of Leo Africanus. The manufacture of silk dates from the settlement of Moorish refugees from Spain about 1600. There are also tanneries, a tobacco factory, and some minor industries. The annual exports of grain, oil, stuffs, hides, and essences are valued at £720,000, and the imports, chiefly of cotton goods, at £560,000. There are two French steamers weekly between Marseilles and Goletta, and the coast towns are served and connected with Malta both by French and Italian packets.

*History.—*Tunis was a Carthaginian city and is repeatedly men­tioned in the history of the Punic wars. Strabo speaks of its hot baths and quarries. Under the Arabs it rose to importance, be­came the usual port for those going from Kairwan to Spain, and was one of the residences of the Aghlabites. In the 10th century it suffered severely, and was repeatedly pillaged in the wars of the Fátimites with Abú Yazid and the Zenáta Berbers. For its later fortunes see above in the history of the country, of which since the accession of the Hafsites it has been the capital.

TUNNELLING. The process of making a more or less horizontal underground passage, or tunnel, without removing the top soil is known as tunnelling. In former times any long tube-like passage, however constructed, was called a tunnel. At the present day the word is sometimes popularly applied to an underground passage constructed by trenching down from the surface to build the arching and then refilling with the top soil ; but a passage so con­structed, although indistinguishable from a tunnel when completed, is more correctly termed a “ covered way,” and the operations “cutting and covering,” instead of tunnel­ling. Making a small tunnel, afterwards to be converted into a larger one, is called “driving a heading,” and in mining operations small tunnels are termed “galleries,” “ driftways,” and “ adits.” If the underground passage is vertical it is a shaft ; if the shaft is commenced at the surface the operations are known as “ sinking,” and it is called a “ rising ” if worked upwards from a previously constructed heading or gallery.

Tunnelling has been effected by natural forces to a far greater extent than by man. In limestone districts innumerable swallow-holes, or shafts, have been sunk by the rain water following joints and dissolving the rock, and from the bottom of these shafts tunnels have been excavated to the sides of hills in a manner strictly analogous to the ordinary method of executing a tunnel by sinking shafts at intervals and driving headings therefrom. Many rivers find thus a course underground. In Asia Minor one of the rivers on the route of the Mersina Railway extension pierces a hill by means of a natural tunnel, whilst a little south at Seleucia another river flows through a tunnel, 20 feet wide and 23 feet high, cut 1600 years ago through rock so hard that the chisel marks are still discernible. The Mammoth cave of Kentucky and the Peak caves of Derbyshire are examples of natural tunnelling. Mineral springs bring up vast quantities of matter in solution. It has been estimated that the Old Well Spring at Bath has discharged since the commencement of the 19th century solids equivalent to the excavation of a 6 feet by 3 feet heading 7 miles long ; and yet the water is perfectly clear and the daily flow is only the 150th part of that pumped out of the great railway tunnel under the Severn. Tunnel­ling is also carried on to an enormous extent by the action of the sea. Where the Atlantic rollers break on the west coast of Ireland, on the seaboard of the western Highlands of Scotland, and elsewhere, numberless caves and tunnels have been formed in the cliffs, beside which artificial tunnelling operations appear insignificant. The most gigantic subaqueous demolition hitherto carried out by man was the blowing up in 1885 of Flood Rock, a mass about 9 acres in extent, near Long Island Sound, New York. To effect this gigantic work by a single instantaneous blast a shaft was sunk 64 feet below sea level, from the bottom of which four miles of tunnels or galleries were driven so as to completely honeycomb the rock. The roof rock ranged from 10 feet to 24 feet in thickness, and was supported by 467 pillars 15 feet square; 13,286 holes, averaging 9 feet in length and 3 inches in diameter, were drilled in the pillars and roof. About 80,000 cubic yards of rock were excavated in the galleries and 275,000 re­mained to be blasted away. The holes were charged with 110 tons of “rackarock,” a more powerful explosive than gunpowder, which was fired by electricity, when the sea was lifted 100 feet over the whole area of the rock. Where natural forces effect analogous results, the holes are bored and the headings driven by the chemical and mechanical action of the rain and sea, and the explosive force is ob­tained by the expansive action of air locked up in the fissures of the rock and compressed to many tons per square foot by impact from the waves. Artificial breakwaters have often been thus tunnelled into by the sea, the com­pressed air blowing out the blocks and the waves carrying away the débris.

With so many examples of natural caves and tunnels in existence it is not to be wondered at that tunnelling was one of the earliest works undertaken by man, first for dwellings and tombs, then for quarrying and mining, and finally for water supply, drainage, and other requirements of civilization. A Theban king on ascending the throne began at once to drive the tunnel which was to form his final resting place, and persevered with the work until death. The tomb of Menptah at Thebes was driven at a slope for a distance of 350 feet into the hill, when a shaft was sunk and the tunnel projected a further length of about 300 feet, and enlarged into a chamber for the sarcophagus. Tunnelling on a large scale was also carried on at the rock temples of Nubia and of India, and the architectural features of the entrances to some of these temples might be studied with advantage by the designers of modern tunnel fronts. Petrie has traced the method of underground quarrying followed by the Egyptians opposite the Pyramids. Parallel galleries about 20 feet square were driven into the rock and cross galleries cut, so that a hall 300 to 400 feet wide was formed, with a roof supported by rows of pillars 20 feet square and 20 feet apart. Blocks of stone were removed by the workmen cutting grooves all round them, and, where the stone was not required for use, but merely had to be removed to form a gallery, the grooves were wide enough for a man to stand up in.