The highest ridge of the island is not more than 820 ft. above the sea. On the south-west side the coasts are inaccessible. According to Vélain, the island originally rose above the ocean as a mass of rhyolitic trachyte similar to that which still forms the Nine Pin rock to the north of the entrance to the crater. Next followed a period of activity in which basic rocks were produced by submarine eruptions—lavas and scoriae of anorthitic character, palagonitic tuffs, and basaltic ashes; and finally from the crater, which must have been a vast lake of fire like those in the Sandwich Islands, poured forth quiet streams of basaltic lavas which are seen dipping from the centre of the island towards the cliffs at angles of 20° to 30°. The only remain­ing indications of volcanic activity are the warm springs and emanations of carbon dioxide.

See C. Vélain, *Passage de Venus sur le soleil {9 décembre 1874*). *Expedition française aux Îles St Paul et Amsterdam* (Paris, 1877); *Description géologique de la presqu'île d'Aden . . . Réunion . . . St Paul et Amsterdam* (Paris, 1878); and an article in *Annales de géographie,* 1893.

ST PAUL, the capital of Minnesota, U.S.A., and the county- seat of Ramsey county, situated on the Mississippi river, about 2150 m. above its mouth, at the practical head of navigation, just below the Falls of St Anthony. It is about 360 m. N. W. of Chicago, Illinois, and its W. limits directly touch the limits of Minneapolis. Pop. (1880) 41,473; (1890) 133,156; (1900) 163,632, of whom 46,819 were foreign-born (12,935 Germans, 9852 Swedes, 4892 Irish, 3557 English-Canadians, 290o Norwegians, 2oo5 English, 1488 Austrians, 1343 Bohemians, 1206 Danes, and 1015 French-Canadians), 100,599 of foreign parentage (*i.e.* both parents foreign born), and 2263 negroes; (1910 census) 214,744. Land area (1906) 52∙28 sq. m. St Paul is served by the Chicago, Burlington & Quincy, the Chicago Great Western, the Chicago, Rock Island & Pacific, the Northern Pacific, the Minneapolis, St Paul & Sault Ste Marie, the Chicago & North-western, the Chicago, Milwaukee & St Paul, the Great Northern, and the Minneapolis & St Louis railways. Five bridges span the Mississippi, the largest of which, known as High Bridge, is 2770 ft. long and 200 ft. high. Four interurban lines connect with Minneapolis.

St Paul is attractively situated 670880 ft. above sea-level, on a series of lofty limestone terraces or bluffs, formerly heavily wooded. It lies on both sides of the river, but the principal part is on the east bank. In its park system the numerous lakes within and near the city have been utilized. Of the parks, Como Park (425 acres; including Lake Como and a fine Japanese garden and a lily pond), and Phalen Park (600 acres, more than 400 of which are water area), arc the largest. There are also 47 smaller squares and “ neighbourhood parks ” aggregating 560 acres. In Indian Park (135 acres), at the crest of the bluffs (Dayton’s Bluffs), in the east central part of the city, are burial-mounds of the Sioux. Summit Avenue Boulevard, 200 ft. wide and extending for 2½ m. along the heights, is a fine residential street. Boulevards along the bluffs on either side of the river connect with the Minneapolis park system. Harriet Island, in the Mississippi river opposite the business centre of the city, is attractively parked, and on it are public paths. Adjoining the city on the south-west, at the junction of the Minnesota and Mississippi rivers, is the Fort Snelling U.S. Government Military Reservation, with a round stone fort, built in 1820. The principal public building is the State Capitol, completed in 1905. It was designed by Cass Gilbert (b. 1859), is of Minnesota granite and white Georgia marble with a massive central white dome, and has sculptural decorations by D. C. French and interior decora­tions by John La Farge, E. H. Blashfield, Elmer E. Garnsey (b. 1862), and Edward Simmons (b. 1852). Other prominent buildings are the City Hall and Court House, a Gothic greystone structure; the Federal building, of greystone, opposite Rice Park; a Young Men’s Christian Association building; the Metropolitan Opera House; the Auditorium, which was built by public subscription; the St Paul armoury (1905), with a drill hall; the Chamber of Commerce; and the Union railway station. Among the principal churches are the Roman Catholic Cathedral, and the People’s, the Central Presbyterian, the Park Congre-

gational, and the First Baptist churches. The wholesale district is in the lower part of the city near the Union railway station; the retail shops are mostly in an area bounded by Wabasha, Seventh, Fourth and Roberts streets.

St Paul has an excellent public school system, which included in 1909 three high schools, a teachers’ training school, a manual training high school, forty-eight grade schools, and a parental school. Among other educational institutions are the Freeman School ; St Paul Academy ; Barnard School for Boys ; St Paul College of Law (1900); the College of St Thomas (Roman Catholic, 1885); St Paul Seminary (Roman Catholic, 1894), founded by James J. Hill as the provincial seminary of the ecclesiastical province of St Paul with an endowment of $500,000, 40 acres of land, and a library of 10,000 volumes; Luther Theological Seminary (1885); Hamline University (co-educational; Methodist Episcopal), chartered in 1854, with a medical school in Minneapolis (chartered 1883; part of Hamline since 1895), and having in the college and preparatory school, in 1908-1909, 17 instructors and 384 students; Macalester College (Presbyterian; co-educational), founded as Baldwin Institute in 1853, reorganized and renamed in 1874 in honour of a bene­factor, Charles Macalester (1798-1873) of Philadelphia; and the School of Agriculture (1888) and the Agricultural Experiment Station (1887) of the University of Minnesota, in St Anthony Park, west of Como Park and south of the fair grounds. Among the libraries are the City Public Library, the State Law Library and the Minnesota Historical Society Library. The Minnesota Historical Society, organized in 1849, has an archaeological collection in the east wing of the Capitol. In the private residence of James J. Hill is a notable art gallery, containing one of the largest and best collections of the Barbizon School in existence. The principal newspapers are the *Dispalch* (Independent, 1878) and the *Pioneer-Press*, the latter established by James M. Goodhue (1800-1852) in 1849. Among the hospitals and charit­able institutions are the City and County, St Joseph’s and St Luke’s hospitals, all having nurses’ training schools; the Swedish Hospital, the Scandinavian Orphan Asylum, the Home for the Friendless, the Magdalen Home and the Women’s Christian Home. Within the city limits (east of Indian Mounds Park) is the Willowbrook (state) Fish Hatchery, second to none in the United States in completeness of equipment; and adjoin­ing the city on the north-west are the extensive grounds (200 acres) and buildings of the State Agricultural Society, where fairs are held annually.

Although as a manufacturing city St Paul, not possessing the wonderful water-power of its sister city, does not equal Minneapolis, yet as a commercial and wholesale distributing centre it is in some respects superior, and it is the principal jobbing market of the North-west. Situated at the natural head of navigation on the Mississippi, it has several competing lines of river steamboats in addition to the shipping facilities provided by its railways and the lines of the Minnesota Transfer Co., a belt line with 62 m. of track encircling St Paul and Minne­apolis. St Paul is the port of entry for the Minnesota Customs District, and imports from Canada and from the Orient via the Pacific railways constitute an important factor in its commercial life, its imports and exports were valued at $6,154,289 and $9,909,940 respectively in 1909. Coal and wood, grain, farm produce and dairy products are important exports. St Paul is the principal market in the United States for the furs of the North-west, and there are extensive stock-yards and slaughtering and packing houses in the neighbouring city of South St Paul (pop. in 1910, 4510), St Paul ranks second to Minneapolis among the cities of the state as a manufacturing centre. The total value of its factory products in 1905 was $38,318,704, an increase of 27.5% since 1900. The following were among the largest items: fur goods; printing and publishing—book (especially law-book) and job, newspapers and periodicals; malt liquors; steam-railway car building and repairing; boots and shoes; foundry and machine-shop products; lumber and planing-mill products; men’s clothing; tobacco, cigars and cigarettes; and saddlery and harness.