Brienz (1839). The first railway opened within Switzerland was that (14 m. long) from Zürich to Baden in Aargau (1847), though the Swiss bit of that from Basel to Strassburg had been opened in 1844. From 1852 to 1872 the cantons granted concessions for the building of railways to private companies, but from 1872 onwards the conditions were other and the lines were con­structed under Federal supervision. In the ’fifties and ’sixties many lines were built, but not always according to sound finan­cial principles, so that in 1878 the great “ National Railway ” became bankrupt. Hence the idea of the state purchase of the chief lines made considerable progress, so that in 1898 such a scheme was accepted by the Swiss people. Accordingly in 1901 most of the great lines became Federal railways, and the Jura-Simplon in 1003, while the Gotthard line became Federal in 1909. This state ownership only applies to the main lines, not to the secondary lines or to the mountain cog-wheel railways (of which the first was that from Vitznau up the Rigi, 1871) now so widespread throughout the country. The highest point as yet attained in Switzerland by a mountain railway is the Eismeer station (10,371 ft·) of the line towards the Jungfrau. Many tunnels have been pierced through the Swiss Alps, such as the St Gotthard (1882), the Albula (1903) and the Simplon (1906). The highest line carried over a Swiss pass is that over the Little Scheidegg (6772 ft.).

*Industries.—a. Of the Land.* If we look at the annual turnover there is no doubt that the principal Swiss industry is that of the entertainment of foreign visitors, for its gross receipts are larger than those of any other branch. It appears from the official statis­tics that in 1905 its gross receipts amounted to rather over £7,500,000 (as against about £1,500,000 in 1894, and rather over £2,000,000 in 188o), the net profit being nearly £1,500,000 (as against £656,000 and nearly £300,000 respectively), while in 1905 the capital invested in this industry was rather over £31,000,000 (as against £20,750,000 and £12,750,000 respectively). In 1905 there were in Switzerland 1924 hotels (of which 402 were in Bern and 358 in the Grisons) specially built for the accommodation of foreign visitors, containing 124,068 beds, and employing 33,480 servants (the numbers for 1894 and 1880 are 1693 and 1002, 88,634 and 58,137, and 23,997 and 16,022 respectively). Part of this increase is due to the fashion of visiting Switzerland in winter for skating, tobogganing, skiing, &c.

Of the actual “ productive ” soil about two-thirds is devoted to arable or pasturage purposes, but the latter branch is by far the more important, occupying about 83 % of this two-thirds, for Switzerland is much more a pastoral than an agricultural country. In 1906 the number of cattle was officially put at 1,497,904 (as against 1,340,375 in 1901 and 993,291 in 1866). In summer they are supported on the numerous mountain pastures or “ alps " (see Alps, 2), which number 4778, and are of an estimated capital value of rather over *£3,ooo,ooo,* while in winter they are feci on the hay mown on the lower meadows or purchased from outside. Two main breeds of cattle arc found in Switzer­land, the dun race (best represented by the cattle of Schwyz) and the dappled race (of which the Simme valley beasts are of the red and white kind, and those of the Gruyère of the black and white variety). The best Swiss cheeses are those of the Emmenthal and of the Gruyère, while the two principal condensed milk factories (Nestlé at Vevey and that at Cham) are now united. It should be noted that the proportion of the land devoted to pastoral pursuits increases, like tne rainfall, from the west and north-west to the east and north-east, so that it is highest (nearly 90%) in Appenzell and St Gall. As regards other domestic animals, the number of swine increased from 304,428 in 1866 to 566,974 in 1896 (the maximum recorded), but in 1906 fell to 548,355. The number of goats has remained pretty steady (359,913 in 1906 to 375,482 in 1866, the maximum, 416,323, being attained in 1886), but that of sheep has decreased from 447,001 in 1866 to 209,443 in 1906.

It is stated that but 14 % of the “ productive ” area of Switzerland is corn-growing, this proportion being however doubled in Vaud. Hence for its food supply the country is largely dependent on its imports, the home supply sufficing for 153 days only. Tobacco is grown to a certain extent, especially near Payerne in the Broye valley (Vaud) and in Ticino, while more recently beetroot has been cultivated for the purpose of manufacturing sugar. Fruit and vegetables are made into jams and concentrated foods at Lenzburg and Kemptthal, while *kirschιvasser* (cherry brandy) is made in Zug. Forests cover about 281/2% of the “ productive ” area of Switzerland. They are now well cared for, and produce considerable profits.

Vineyards in Switzerland now cover 108·7 sq. m. though the area is steadily decreasing owing to the competition of foreign cheap wines. The only cantons which have over 10 % of their area thus planted are Vaud (25%), Ticino (20%), Zürich (17%) and the Valais (10∙7 %). Among the best Swiss wines are those of La Côte, Lavaux and Yvorne (all in Vaud), and Muscat, Pendant and Vin du Glacier (all in the Valais). Those grown near Neuchâtel, at the northern end of the lake of Zürich, near Baden (Aargau), and along the Swiss bank of the Rhine, are locally much esteemed.

Among the raw mineral products of Switzerland the most impor­tant is asphalt, which is worked by an English company in the Vai de Travers (Neuchâtel). Various metals (even including gold and silver) exist in Switzerland, but are hardly worked at all, save iron (Delémont), copper (Val d’Anniviers) and argentiferous lead (Lötschenthal). True coal is wholly absent, but lignites occur here and there, and are sometimes worked (*e.g*. at Käpfnach, Zürich). An­thracite is found in the Valais, while peat is worked in many parts. Salt was first found at Bex (Vaud) in 1544, and the mines are still worked. But far more important are the saline deposits along the Rhine, from near Basel to Coblenz (at the junction of the Rhine and the Aar), which were discovered at Schweizerhall in the year 1836, at Kaiseraugst in 1844, at Rheinfelden in 1845 and at Ryburg in 1848. Marble, sandstone and granite are worked in various spots for building purposes. Marl, clay and limestone are also found, and are much used for the manufacture of various kinds of cement. There are said to be 620 mineral springs in Switzerland, the best known being those at Baden in Aargau and at Schinznach (both sulphur), Schuls-Tarasp and St Moritz, Stachelberg, Ragatz and Pfäfers, Leukerbad and Weissenburg. The most important slate quarries are those in the canton of Glarus. The relative importance of the Swiss industries concerned with the land is best shown by the census taken in 1900 as to the occupations of the inhabitants. No fewer than 1,035,010 (about one-third of the total population) were engaged in pastoral or agricultural pursuits, as against 19,334 employed in market gardening, 18,233 in various matters touching the forests, 12,785 in the vineyards and 12,323 in extracting minerals (of these 8004 were employed in stone or marble quarries).

*b. Manufactures.—*The same census also shows the relative importance of the chief branches of manufacture in Switzerland— textile industries 270,114 (of which 88,457 were in the silk branch and 63,853 in that of cotton), watchmaking 115,617, embroidery 89,558, besides 74,148 engaged in the manufacture of machinery. Eastern Switzerland is the industrial portion of the land, though watchmaking and some minor industries are carried on in the Jura. The textile industries are by far the most important in Switzerland, Zürich and its neighbourhood being the main centre both for silk (this branch was revived by the Protestant exiles from Italy in the 16th century) and cotton, while St Gall, Appenzell and Thurgau are mainly devoted to embroidery, and Basel to the silk ribbon and floss silk departments. The watchmaking industry has been estab­lished in Geneva since the end of the 16th century, and spread in the early 18th century to the Neuchâtel portion of the Jura (centre La Chaux de Fonds and Le Locle). Musical boxes are chiefly made at Ste Croix in the Vaud section of the Jura, while Geneva is famous for its jewelry and goldsmiths’ work. The growth of the manufacture of machines is much more recent, having originally been a mere adjunct of the textile industry, and developed in order to secure its independence of imports from England. Its centres are in and around Zürich, Winterthur, St Gall and Basel. Among other products and industries are chocolate (Suchard, Cailler, Sprüngli, Tobler, Peter, Maestrani, &c.), shoemaking (Schönenwerd), straw plaiting (Aargau and Gruyère), wood carving (Brienz in the Bernese Oberland since 1825), concentrated soups and meats (Maggi’s factory is at Kemptthal near Winterthur), aniline dyes (Basel), aluminium (Neuhausen in Schaffhausen).

*Commerce.—*Switzerland is naturally adapted for free trade for it depends on the outside world for much of its food-stuffs and the raw materials, of its manufactures. After the adoption of the Federal Constitution of 1848, customs duties within the land were abolished, while moderate duties only were levied on imports, the sum increasing as the articles came more or less within the category of luxuries, but being lowest on necessaries of life. Down to 1870 Switzerland was all but entirely on the side of free trade. Since that time it has been becoming more and more protectionist. This change was due in part to the increased tariffs levied in Germany and France, and in part to the strong pressure exercised by certain branches of the Swiss manufacturing industries, while treaties of commerce have been made with divers countries. Hence in 1903 the Swiss people adopted the principle of a greatly increased scale of duties, the detailed tariff of the actual sums levied on the various articles coming into force on the 1st of January 1906. These higher duties were meant to serve as a weapon for obtaining better terms in future commercial treaties, but were finally increased still more at the instigation of certain of the great manufacturers, so that Switzerland became decidedly a protectionist country. In 1901 the receipts from the customs duties were about £1,858,000, while in 1905 they were £2,541,000, and in 1907 rather more (£2,894,000).

Excluding goods in transit, the total value of imports rose from about £36,500,000 in 1895 to about £55,000,000 in 1905, while between the same dates the exports rose from about £26,500,000 tθ £58,750,000—in other words, the unfavourable balance of trade had increased from £10,000,000 in 1895 to £16,250,000 in 1905.

The increase during the same period in the case of the four great articles of export from Switzerland was as follows: silk from nearly £8,500,000 to rather over £10,000,000, embroideries from nearly £3,000,000 to £5,000,000, watches from £3,500,000 to £5,250,000, and machinery from rather under £1,000,000 to £2,250,000.