*Commerce;* W. J. Ashley, *Introduction to English Economie History and Theory* (1893); W. Denton, *England in the Fifteenth Century* (1888). One of the best extant treatments of the whole subject is that by Roscher, in his essay, *Über den Luxus,* republished in his *Ansichten der Volkswirthschaft auf dem geschichtlichen Standpunkte* (3rd ed., 1878). (J. K. I.)

**SUMTER, THOMAS** (1736-1832), American soldier, was born in Hanover county, Virginia, on the 14th of July 1736. He served in the Virginia militia during the French and Indian War and was present at Braddock’s defeat (1755). Some time after 1762 he removed to South Carolina. He is best known for his service during the War of Independence, but he saw little active service until after the fall of Charleston in May 1780. In July 1780 he became a brigadier-general of state troops. During the remainder of the war he carried on a partisan cam­paign, and earned the sobriquet of the “ Gamecock.” He failed in an attack upon Rocky Mount (Chester county) on the 1st of August 1780, but on the 6th defeated 500 Loyalists and regulars at Hanging Rock (Lancaster county), and on the 15th inter­cepted and defeated a convoy with stores between Charleston and Camden. His own regiment, however, was almost annihilated by Lieut.-Colonel Banastre Tarleton (1754-1833) at Fishing Creek (Chester county) on the 18th. A new force was soon recruited, with which he defeated Major James Wemys at Fishdam (Union county) on the night of the 8th-9th of Novem­ber, and repulsed Tarleton’s attack at Blackstock (Union county) on the 20th, when he was wounded. In January 1781 Congress formally thanked him for his services. He was a member of the state convention which ratified the Federal constitution for South Carolina in 1788, he himself opposing that instrument; of the national House of Representatives in 1789-1793 and again in 1797-1801, and of the United States Senate from 1801 to 1810. At the time of his death at South Mount, South Carolina, on the ist of June 1832, he was the last surviving general officer of the War of Independence.

See Edward McCrady, *The History of South Carolina in the Revolu­tion* (2 vols., New York, 1901-1902).

**SUMTER,** a city and the county-seat of Sumter county, South Carolina, U.S.A., 42 m. by rail E. by S. of Columbia. Pop. (1900) 5673 (3160 negroes); (1910) 8109. Sumter is served by several divisions of the Atlantic Coast line and by the Southern railways. It is the seat of St Joseph’s Academy (Roman Catholic) for girls. The region produces tobacco, vegetables and cotton, and there are various manufactories in the city. Sumter was founded in 1800 and was named in honour of General Thomas Sumter; it was first chartered as a city in 1887.

**SUMY,** a town of Little Russia, in the government of Kharkov, 122 m. by rail N.W. of the city of Kharkov, founded in 1658. Pop. (1900), 28,519. It is an important centre for the trade of Great Russia with Little Russia—cattle and corn being sent to the north in exchange for manufactured and grocery wares. It has important sugar manufacture, and a technical school.

**SUN** (0. Eng. *sunnc,* Ger. *sonne.* Fr. *soleil,* Lat. *sol,* Gr. *ἥλιος*, from which comes *helio-* in various English compounds), the name of the central body of the solar system, the luminous orb from which the earth receives light and heat; (see Sunshine); hence by analogy other heavenly bodies which form the centre of systems are called suns.

To understand the phenomena of the sun, we should reproduce them upon the earth; but this is clearly impossible since they take place at temperatures which volatilize all known substances. Hence our only guides are such general laws of mechanics and physics as we can hardly believe any circumstances will falsify. But it must be remembered that these require extrapolation from experience sometimes sufficiently remote, and it is possible they may lead to statements that are obscure, if not contra­dictory. The body of the sun must consist of uncombined gases; at the surface the temperature is some 2000° C. above the boiling point of carbon, and a little way within the body it may probably exceed the critical point at which increase of pressure can produce the liquid state in any substance. But as the mean density exceeds that of water, and probably falls but little from the centre to the surface, these gases are gases only in the sense that if the pressure of neighbouring and outward parts gravitating to­wards the centre were relaxed, they would expand explosively, as we sec happening in the eruptive prominences. They have lost completely the gaseous characteristic of producing a line spectrum, and radiate like incandescent solids. The surface region which yields a continuous spectrum is called the *photo­sphere;* it possesses optically a sharp boundary, which is gener­ally a perfect sphere, but shows occasionally at the rim slight depressions or more rarely elevations. Enclosing the photo­sphere is a truly gaseous envelope which is called the *chromo­sphere,* and which shows a spectrum of bright lines when we can isolate its emission from that of the photosphere. This envelope is also sharply defined, but its normal appearance is compared to the serrations which blades of grass show on the skyline of a hill, and it is disturbed by the outbursts, called prominences, of which details are given below. Outside this again is an envelope of matter of enormous extent and extreme tenuity, whether gaseous or partly minute liquid or solid drops, which is called the *corona.* It has no sharp boundary, its brightness diminishes rapidly as we recede from the limb, and such structure as it shows consists of long streaks or filaments extending outwards from the limb in broad curved sweeps. Finally there is the envelope of still vaster extent and of unknown constitution which gives the *zodiacal light (q.v.);* its greatest extent is along the ecliptic, but it can also be certainly traced for 35° in a perpen­dicular direction. The lower gaseous cloaks absorb a large part of the light admitted by the photosphere, and especially at the limb and for the more refrangible rays the loss of intensity is very marked.

In the instants when a sharp image of the photosphere is seen or photographed, it shows a granulated appearance like white flakes strewed fairly evenly upon a dark ground. The figs, i, 2, 3, 4 (plate) show enlargements from photo­graphs by Hansky at Pulkowa (June 25, 1905); they arc separated by intervals from 25 to 80 seconds, and he has succeeded in showing identity in many of the granules, or more properly, clouds represented. Thus they exhibit at once general appearance and its changes. The diameters range from 400 m. or less up to 1200 m., and the speeds relative to the spot range up to 2 or 3 m. per second. Μ. Hansky believes these motions may be the consequences of matter rising from below and thrusting the surface groups aside. Usually the changes are such that it is impossible even to recognize the formations in successive photographs. Besides granulations the sun’s disk shows, as a rule, one or more spots or groups of spots. Each spot shows with more or less completeness a ring-shaped penumbra enclosing a darker umbra; the umbra, which looks black beside the photosphere, is actually about as brilliant as limelight. In the neighbourhood surrounding the penumbra the granules appear to be packed more closely, forming brilliant patches called *faculae.* In the shape of a spot there is neither rule nor permanence, though those that are nearly circular seem to resist change better than the others. They arise from combinations of smaller spots, or from nothing, in a short period, say a day. They are never wholly quiescent. Bridges, more brilliant than the rest of the photosphere, form across them, and they may divide into two parts which separate from one another with great velocity. The largest spots are easily seen by the naked eye, if the brilliancy of the disk is veiled; the umbra may be many—ten or more—diameters of the earth in breadth. The length of their life is difficult to assign, because there is some tendency for a new group to arise where an old one has disappeared; but one is recorded which appeared in the same place for eighteen months; the average is perhaps two months. They are carried across the disk by the sun’s rotation, partaking in the equatorial acceleration; they also show marked dis­placements of their own, whether with, or relative to, the neigh­bouring photosphere does not appear; at the beginning of their life they usually outrun the average daily rotation appropriate to their latitude. Spots are rarely found on the equator, or