population in 1906 was 907,700. The inhabitants consist of Little Russians (40%), Poles (43%), Jews (15½%) and Germans (1½%). The government is divided into nine districts, the chief towns of which are the capital Siedlce, Biala, Konstantinow, Garwolin, Lukow, Radzyn, Sokolow, Wegrow, Wlodawa. The main occupation is agriculture, the principal crops being rye, wheat, oats, barley and potatoes. The area under forests amounts to 19∙6% of the total. Live-stock breeding is second in importance to agriculture. Manufactures and trade are in­significant.

**SIEDLCE,** a town of Russia, capital of the government of the same name, 56 m. E.S.E. of the city of Warsaw, on the Brest- Litovsk railway. It is a Roman Catholic episcopal see. The Oginskis, to whom it belonged, have embellished it with a palace and gardens; but it is nothing more than a large village. Pop. 23,714 (1897), two-thirds Jews.

**SIEGBURG,** a town of Germany, in the Prussian Rhine Province, on the river Sieg, 16 m. by rail S.E. of Cologne by the railway to Giessen. Pop. (1905) 14,878. It has a royal shell factory, calico-printing mills, lignite mines, stone quarries and pottery and tobacco factories. The parish church, dating from the 13th century, possesses several richly decorated reliquaries of the 12th to 15th centuries. The buildings of the Benedictine abbey, founded in 1066, are now used as a prison. The town, which was founded in the nth century, attained the height of its prosperity in the 15th and 16th centuries owing to its pottery wares. Siegburg pitchers (*Siegburger Krüge)* were widely famed. Their shape was often fantastic and they are now eagerly sought by collectors.

See R. Heinekamp, *Siegburgs* *Vergangenheit und Gegenwart* (Siegburg, 1897); and Renard, *Die Kunstdenkmäler des Siegkreises* (Düsseldorf, 1907).

**SIEGE** (O. Fr. *sege, siege,* mod. *siége,* seat, ultimately from *sedere,* to sit, cf. Class. Lat. *obsidium,* a siege), the “sitting down ” of an army or military force before a fortified place for the purpose of taking it, either by direct military operations or by starving it into submission (see Fortification and Siegecraft). A special form of coin is known as a “ siege-piece.” These are coins that were struck during a siege of a town when the ordinary mints were closed or their issues were not available. Such coins were commonly of special shape to distinguish them from the normal coinage, and were naturally of rough workmanship. A common shape for the siege pieces which were issued during the Great Rebellion was the lozenge. A noteworthy example is a shilling siege-piece struck at Newark in 1645 (see Token Money).

**SIEGEN,** a town of Germany, in the Prussian province of Westphalia, situated 63 m. E. of Cologne by rail, on the Sieg, a tributary entering the Rhine opposite Bonn. Pop. (1905) 25,201. The town contains two palaces of the former princes of Nassau-Siegen, a technical and a mining school. The sur- rounding district, to which it gives its name, abounds in iron- mines, and iron founding and smelling are the most important branches of industry in and near the town. Large tanneries and leather works, and factories for cloth, paper and machinery, are among the other industrial establishments.

Siegen was the capital of an early principality belonging to the house of Nassau; and from 1606 onwards it gave name to the junior branch of Nassau-Siegefi. Napoleon incorporated Siegen in the grand-duchy of Berg in 1806; and in 1815 the congress of Vienna assigned it to Prussia, under whose rule it has nearly quintupled its population. Rubens is said to have been born here in 1577.

See Cuno, *Geschichte der Stadt Siegen* (Dillenburg, 1873).

**SIEMENS, ERNST WERNER VON** (1816-1892), German electrician, was born on the 13th of December 1816 at Lenthe in Hanover. After attending the gymnasium at Lübeck, he entered the Prussian army as a volunteer, and for three years was a pupil in the Military Academy at Berlin. In 1838 he received **a** commission as lieutenant in the artillery, and six years later he was appointed to the responsible post of superintendent of the artillery workshops. In 1848 he had the task of protecting the port of Kiel against the Danish fleet, and as commandant of Friedrichsort built the fortifications for the defence of Eckern­förde harbour. In the same year he was entrusted with the laying of the first telegraph line in Germany, that between Berlin and Frankfort-on-Main, and with that work his military career came to an end. Thenceforward he devoted his energies to furthering the interests of the newly founded firm of Siemens and Halske, which under his guidance became one of the most important electrical undertakings in the world, with branches in different countries that gave it an international influence; in the London house he was associated with Sir William Siemens, one of his younger brothers. Although he had a decided pre­dilection for pure research, his scientific work was naturally determined to a large extent by the demands of his business, and, as he said when he was admitted to the Berlin Academy of Sciences in 1874, the filling up of scientific voids presented itself to him as a technical necessity. Considering that his entrance into commercial life was almost synchronous with the introduc­tion of electric telegraphy into Germany, it is not surprising that many of his inventions and discoveries relate to telegraphic apparatus. In 1847, when he was a member of the committee appointed to consider the adoption of the electric telegraph by the government, he suggested the use of gutta-percha as a material for insulating metallic conductors. Then he in­vestigated the electrostatic charges of telegraph conductors and their laws, and established methods for testing underground and submarine cables and for locating faults in their insula­tion; further, he carried out observations and experiments on electrostatic induction and the retardation it produced in the speed of the current. He also devised apparatus for duplex and diplex telegraphy, and automatic recorders. In a somewhat less specialized sphere, he was an early advocate of the desirability of establishing some easily reproducible basis for the measurement of electrical resistance, and suggested that the unit should be taken as the resistance of a column of pure mercury one metre high and one square millimetre in cross-section, at a temperature of 0° C. Another task to which he devoted much time was the construction of a selenium photometer, depending on the property possessed by that substance of changing its electrical resistance according to the intensity of the light falling upon it. He also claimed to have been, in 1866, the discoverer of the principle of self-excitation in dynamo-electric machines, in which the residual magnetism of the iron of the electro-magnets is utilized for excitation, without the aid of permanent steel magnets or of a separate exciting current. In another branch of science he wrote several papers on meteorological subjects, discussing among other things the causation of the winds and the forces which produce, maintain and retard the motions of the air. In 1886 he devoted half a million marks to the foundation of the Physikalisch- Technische Reichsanstalt at Charlottenburg, and in 1888 he was ennobled. He died at Berlin on the 6th of December 1892. His scientific memoirs and addresses were collected and pub­lished in an English translation in 1892, and three years later a second volume appeared, containing his technical papers.

**SIEMENS, SIR WILLIAM** [Karl Wilhelm] (1823-1883), British inventor, engineer and natural philosopher, was born at Lenthe in Hanover on the 4th of April 1823. After being educated in the polytechnic school of Magdeburg and the uni­versity of Göttingen, he visited England at the age of nineteen, in the hope of introducing a process in electroplating invented by himself and his brother Werner. The invention was adopted by Messrs Elkington, and Siemens returned to Germany to enter as a pupil the engineering works of Count Stolberg at Magdeburg. In 1844 he was again in England with another invention, the “ chronometric ” or differential governor for steam engines. Finding that British patent laws afforded the inventor a pro­tection which was then wanting in Germany, he thenceforth made England his home; but it was not till 1859 that he formally became a naturalized British subject. After some years spent in active invention and experiment at mechanical works near Birmingham, he went into practice as an engineer in 1851. He laboured mainly in two distinct fields, the applications of heat and the applications of electricity, and was characterized