Thin sections are almost colourless. Between crossed Nicols they show either a fibrous texture or a finely-granular aggregate of doubly-refracting particles without definite crystalline outlines. The mineral has never been found crystallized, but occurs as veins, nodules, stalactitic masses, and incrustations. Large pieces are exceedingly rare. The specific gravity of turquoise is about 2∙75, and its hardness below 6 ; it takes a fair polish and exhibits a feeble lustre. It is usually cut *en cabochon* or with a low convex surface, and in the East is frequently engraved with Persian and Arabic inscriptions, generally passages from the Koran,— the incised characters being in many cases gilt. Such objects are worn as amulets. The turquoise has always been associated with curious superstitions, the most com­mon being the notion that it changes colour with variations in the state of its owner’s health, or even in sympathy with his affections.

Persia is the chief centre of the turquoise trade, where the same mines have been worked for at least eight centuries. The finest stones are found near Nishápúr in Khorasan (see Persia, vol. xviii. p. 622). Tavernier, writing in the 17th century, states that the best turquoise, reserved for the sole use of the shall, was obtained from the mine which he describes as the *Vieille Roche,* while inferior stones were got from the *Nouvelle Roche.* These terms still survive, all turquoise of fine colour being said in trade to be from the “ old rock,” and that which is pale, or changes tint on exposure, is from the “ new rock.” According to a recent report by Consul Benjamin at Teheran the best turquoise is found at Abú Riáh, and all the Khorasan mines are farmed by a few prominent officials, who pay to the shah an annual rent of about £6500. Dr Tietze has lately described specimens of the matrix of the mineral brought to Vienna from Persia by General Schindler. These show that the turquoise occurs, not in clay-slate, as is often stated, but in a porphyritic trachyte or trachytic breccia, and in loose fragments in the neigh­bouring alluvium. The mineral is also found in Kerman in southern Persia, but the stone is of pale colour, tending to fade, and the mines which yield it are now nearly abandoned. In 1849 Major C. Macdonald found turquoise in Wady Maghara and Wady Sidreh, near Sinai *(q.v.* ), where, according to Mr H. Bauerman, it lines the open joints of a ferruginous sandstone, and is also embedded in small ochreous nodules in the rock itself. The redder the rock the finer the colour of the associated turquoise. As the colour is liable to fade, the Arabian turquoise has not a good name among jewellers, and the workings were abandoned by Macdonald in 1865. In Wady Maghara there are relics of extensive mining operations, pre­sumably for turquoise, of so early a date that the rock was wrought by flint implements. The early inhabitants of Mexico made much use of this mineral for inlaying obsidian ornaments, and for mosaic work with iron-pyrites. It was probably one of the stones known as *chalchihuitl.* In 1858 Prof. W. P. Blake called attention to the occurrence of turquoise at Cerillos, about 22 miles south­west of Santa Fé, in New Mexico, where mining operations for this mineral were carried on two centuries ago. The turquoise varies in colour from sky-blue to apple-green, and is found as nodules and small veins in a felspathic rock of microgranitic texture, probably of eruptive origin. The mines of Cerillos are no longer worked. A similar green mineral is found at Turquoise Mountain in Cochise county and at Mineral Park, Mohave county, Arizona. It also occurs to a small extent in southern Nevada, where it is found as blue grains disseminated through a sandstone. In Europe, the turquoise is found at Oelsnitz in Saxony and near Jordansmühl in Silesia, occurring at the latter locality in clay-slate. Under the names of *callais* and *callaina* Pliny described a green mineral which, if not our turquoise, seems to have been very closely related to it. A bright green mineral, wrought into beads, and found with stone hatchets in ancient graves at Men-er Hrœck (Rock of the Fairy) in Brittany, was described in 1864 by Μ. Damour, who, seeking to identify it with Pliny’s *callais,* revived this name. Dana afterwards brought the word into harmony with our mineralogical nomenclature by writing it callainite. The mineral in question is a hydrated phosphate of aluminium, apparently identical with Breithaupt’s variscite. By many mineralogists the true torquoise is called calaite (see vol. xvi. p. 405).

Turquoise is commonly imitated by enamels, but of late some ingenious counterfeits have been made with the same chemical composition as the natural stone. To increase the deception, ]>ieces of ochreous matter are inserted at the back of the artificial turquoise, to imitate the natural matrix. In order to distinguish between the genuine stone and its imitations, Pohl recommends that a splinter should be strongly heated in a platinum capsule, when the true turquoise is reduced to a brownish black powder or a friable mass with a decrepitating sound ; the false turquoise does not de­crepitate, but either fuses to a glass or is reduced to a frit.

For recent information on the turquoise, see “ Das Vorkommen der Türkise- bei Nischapur in Persien,” by Dr E. Tietze, in *Verhandl*. *d. k. k. geolog. Reichsuη- stalt,* No. 6,1884, p. 93; “Mikroskopische Untersuchung des Türkis," by H. Bücking, in *Zeitsch. f. Krystallog.,* vol. ii., 1878, p. 163; “Eine einfache und sichere Unterscheidungsweise der echten Türkise von deren Nachahmungen,” in *N. Jahrb. f. Mineralogie,* 1878, p. 364 ; “ Turqois from New Mexico,” by F. W. Clarke and J. S. Diller, in *Americ. Journ. Science,* Sept. 1886, p. 211 ; “Re­vision of Mineral Phosphates, No. iv., Calaite," by A. H. Church, in *Chem. News,* X. p. 290 ; and note in *Journ. Soc. Arts,* xxxii., 1884, p. 1084.

TURRETIN, or Turretini. Three theologians of this name figure in the history of Genevan theology.

1. Benoit Turretin (1588-1631), the son of Francesco Turretini, a native of Lucca, who settled in Geneva in 1579, was born in that town on 9th November 1588. He was ordained a pastor in Geneva in 1612, and became professor of theology in 1618. In 1620 he represented the Genevan Church at the national synod of Alais, when the decrees of the synod of Dort were introduced into France; and in 1621 he was sent on a successful mission to the states general of Holland, and to the authorities of the Hanseatic towns, with reference to the defence of Geneva against the threatened attacks of the duke of Savoy. He published in 1618-20 a defence of the Genevan translation of the Bible. Benoit Turretin died at Geneva on 4th March 1631.

2. François Turretin (1623-87), son of the preceding, was born at Geneva on 17th October 1623. After study­ing theology in Geneva, Holland, and France, he became a pastor in Geneva in 1647 ; after a brief pastorate at Leyden, he again returned to Geneva as professor of theology in 1653. He was one of the most influential supporters of the *Formula Consensus Helvetica,* drawn up chiefly by Heidegger, in 1675, and of the particular type of Calvinistic theology which that symbol embodied. His *Institutio Theologiæ, Elencticæ* (3 vols. 4to, Geneva, 1680-83) has passed through frequent editions, the last reprint having been made in Edinburgh in 1847. F. Turretin died at Geneva on 28th September 1687. He was also the author of volumes entitled *De Satisfactione Christi Disputationes* (Geneva, 1666) and *De Necessaria Secessione Nostra ab Ecclesia Romana* (Geneva, 1687).

3. Jean Alphonse Turretin (1671-1737), son of the preceding, was born at Geneva on 13th August 1671. He was educated at Geneva and in Holland, and after travelling in England and in France was received into the “Vénérable Compagnie des Pasteurs” of Geneva in 1693. In 1697 he became professor of church history. During the next forty years of his life he enjoyed great influence in Geneva as the advocate of a more liberal theology than had prevailed under the preceding genera­tion, and it was largely through his instrumentality that the use of the *Formula Consensus Helvetica* as a symbol was discontinued in 1725. He also wrote and laboured for the promotion of union between the Reformed and Lutheran Churches, his most important work in this con­nexion being *Nubes Testium pro Moderato et Pacifico de Rebus Theologicis Judicio, et Instituenda inter Protestantes Concordia (Geneva,* 1719). Besides this he wrote *Cogita­tiones et Dissertationes Theologicæ,* on the principles of natural and revealed religion (Geneva, 1737); and com­mentaries on Thessalonians and Romans were published posthumously. He died at Geneva on 1st May 1737.

TURTLE. See Tortoise.

TUSCANY (Ital. *Toscana),* one of the sixteen comparti­menti of the kingdom of Italy, contains eight provinces— Arezzo, Florence, Grosseto, Leghorn, Lucca, Massa-Carrara, Pisa, and Siena—and has an area of 9287 square miles, with a population of 2,208,869 in 1881. In 1859, im­mediately before it united with the kingdom of Sardinia, the grand-duchy of Tuscany, exclusive of Massa-Carrara, which then belonged to Modena, but including the islands of Gorgona, Elba, Pianosa, Formica, Montecristo, Giglio, and Gianutra, as well as the duchy of Lucca (united to it