(ι) Supposed likenesses of Timur are to be found in books and in the splendid collection of Oriental manuscripts and drawings in the British Museum. One contained in the *Shah Jahan Nãma* —a gorgeous specimen of illuminated Persian manuscript and exquisite calligraphy—represents a most ordinary, middle-aged Oriental, with narrow· black whiskeς fringing the cheek and meeting the tip of the chin in a scanty, pointed beard; a thin moustache sweeps in a semicircle from above the upper lip; the eyebrow over the almond-shaped eye is marked but not bushy. But it wrere vain to seek for an expression of genius in the countenance.. Another portrait is included in a set of sketches by native artists, some of which., taken probably from life, show great care and clever­ness. Timur is here displayed as a stoutιsh, long-bodied man, below the middle-height, in age and feature not unlike the first portrait, but with thicker and more straggling hair, and distincter, though not more agreeable character in the facial expression, yet not a sign of power, genius, or any elements of grandeur or celebrity. The uncomfortable figure in the Bodleian Library does not give much help. Sir .John Malcolm has been at some pains to invest his portrait of Timur with individuality. But an analysis of his results leaves the reader in more perplexity than satisfaction at the kind of information imparted, and he reverts insensibly to the sources from which his instructor has himself been instructed. (2) As regards plays, in Marlowe’s *Tamburlaine* Timür is described as tall of stature, straightly fashioned, large of limb, having joints strongly knit, long and sinewy arms, a breadth of shoulders to “ bear old Atlas’s burden,” pale of complexion, and with “ amber hair wrapp’d in curls.” The outline of this description might be from Sharifu ’d-Dîn, while the colours are the poet’s own. A Latin memoir of Tamerlane by Perondinus, printed in 1600, entitled *Magni Tamerlanis scytharum imperatoris vita,* describes Timür as tall and bearded, broad-chested and broad- shouldered, well-built but lame, of a fierce countenance and with receding eyes, which express cruelty and strike terror into the lookers-on. But Jean du Bee’s account of Timur’s appearance is quite different. Now *Tamburlaine* was written in 1586. The first English translation of Jean du Bee is dated in 1595,. the *Life* by Perondinus in 1600, and Petis de la Croix did not introduce Sharifu ’d-Dîn or ,Ali Yazdï to European readers till 1722. The dramatist must have heard of Timür in other quarters, equally reliable it may be with those available in the present stage of Oriental research. At the beginning of the 18th century Timür was represented in Rowe’s *Tamerlane* as a model of valour and virtue. The plot, however, has little to do with history, and is improbable and void of interest. By Matthew Gregory Lewis again “ Timour ” is depicted as the conventional tyrant of a gorgeous melodrama, slaying, burning, slaughtering and commit­ting every possible atrocity until checked by a violent death and a poetical climax.

Apart from modern European *savants* and historians, and the more strictly Oriental chroniclers who have written in Persian, Turkish or Arabic, the following authorities may be cited—Laonicus Chalcondylas, Joannes Leunclavius, Joachimuε Camerarius, Petrus Perondinus, Lazaro Soranzo, Simon Mairlus, Matthew Michiovius. A score or so of other names are given by Samuel Purchas.. See also Sir Clements Markham's *Clavijo,* in the Hakluyt Society’s publications; White's edition of Davy’s translation of the *Institutes* (1783); Stewart’s translation of the *Malfi⅛at∙,* Malcolm’s *History of Persia·,* and *Trans. Roy. Soc.* (1885); Horn, “ Gesch. Irans in islam. Zeit,” in Geiger and Kuhn, *Grundr. der iranisch. Philol.* (1904); works quoted, *s.v.* Mongols. (F. J. G.)

**TIN** (Lat. *stannum,* whence the chemical symbol “ Sn atomic weight = 117∙6, O=16), a metallic chemical element. Being a component of bronze, it was used as a metal thousands of years prior to the dawn of history; but it does not follow that prehistoric bronzes were made from metallic tin. When the unalloyed metal was first introduced cannot be ascertained with certainty. The “ tin ” of the Bible (κασσiτepos in the Septuagint) corresponds to the Hebrew *bedhil,* which is really a copper alloy known as early as 1600 B.c. in Egypt. All we know is that about the 1st century the Greek word κασσiτeρos designated tin, and that tin wτas imported from Cornwall into Italy after, if not before, the invasion of Britain by Julius Caesar. From Pliny’s writings it appears that the Romans in his time did not realize the distinction between tin and lead: the former was called *plumbum album* or *candidum* to distinguish it from *plumbum nigrum* (lead proper). The word *stannum* definitely assumed its present meaning in the 4th century (H. Kopp). By the early Greek alchemists the metal was named Hermes, but at about the beginning of the 6th century, it was termed Zeusor Jupiter, and the symbol μ assigned to it; it was also referred to as *diabolus metallorum,* on account of the brittle alloys which it formed.

*Occurrence.—*Grains of metallic tin occur intermingled' with the gold ores of Siberia, Guiana and Bolivia, and in a few other localities. Of minerals containing this element mention may be made of cassiterite *(q.v.)* or tinstone, SnO2, tin pyrites, Cu4SnS4+(Fe,Zn)2SnS4; the metal also occurs in some epidotes, and in company with columbium, tantalum and other metals. Of these “ tinstone ” is of the greatest commercial importance. It occurs in its matrix, either in or closely associated with fissure veins or disseminated through rock masses. It is also found in the form of rolled lumps and grains, “ stream tin,” in alluvial gravels; the latter are secondary deposits, the products of the disintegration of the first-named primary deposits. Throughout the world, primary deposits of tinstone are in or closely connected with granite or acid eruptive rocks of the same type, its mineral associates being tourmaline, fluorspar, topaz, wolfram and arseni­cal pyrites, and the invariable gangue being quartz: the only exception to this mode of occurrence is to be found in Bolivia, where the tin ore occurs intimately associated with silver ores, bismuth ores and various sulphides, whilst the gangue includes barytes and certain carbonates. Over five-sixths of the world’s total production is derived from secondary alluvial deposits, but all the tin obtained in Cornwall (the alluvial deposits having been worked out) and Bolivia is from vein mining, while a small portion of that yielded by Australasia comes from veins and from granitic rocks carrying disseminated tinstone.

*Production.—*During the 18th century the world’s supply of tin was mainly drawn from the deposits of England, Saxony and Bohemia; in 1801 England produced about 2500 tons, while the supplies of Saxony and Bohemia bad been greatly diminished. The English supply increased, with some oscilla­tions, to between six and seven thousand tons annually in the period 1840-1860, when it suddenly rose to about 10,000 tons, and this figure was fairly well sustained until about 1890, when a period of depression set in; the yield for 1900 was 4336 tons, and for 1905 about 4200 tons. In the opening decades of the 19th century supplies began to be drawn from Banka; in 1820 this island contributed 1200 tons; the production was increased to 12,000 tons in 1900, when a diminution set in, 9960 tons being the output during 1905. Billiton became of note in 1853 with a production of 40 tons, which increased to 6000 in 1900 and has since declined to about 3000 tons in 1905. The Straits Settlements ranked as an important producer in 1870 with 2337 tons; it now supplies the greater part of the world’s supply, contributing 46,795 tons in 1900, and over 60,*000* tons in 1905. Australian deposits were worked in 1872, and in the following year the production was 3000 tons; the maximum outputs were in 1881-1883, averaging 10,000 tons annually; but the supply declined to 2420 tons in 1898 and has since increased to about 5028 tons in 1905. Bolivia produced 501 tons in 1883, 10,245 in 1900 and 12,500 in 1905.

The world’s supply in 1900 was 72,911 long tons; this increased in 1904 to 97,790 tons, but in 1905, principally ow,ing to a shortage in the supplies from the Straits and Banka, the yield fell to 94,089 tons.

*Metallurgy.—*The operations in the metallurgy’ of tin may be enumerated as: (1) mining and dressing, (2) smelting, (3) refining. The first stage has for its purpose the production of a fairly pure tinstone; the second the conversion of the oxide into metallic tin; and the third preparing a tin pure enough for commercial purposes.

*Mining and Dressing.*—The alluvial deposits are almost invariably w’orked opencast, those of the Malay Peninsula and Archipelago chiefly by Chinese labour: in a few instances hydraulic mining has been resorted to, and in other cases true underground mining is carried on; but the latter is both exceptional and difficult. The alluvial extracted, which in the Malay Peninsula and Archipelago carries from 5 to 60 lb of tinstone (or " black tin,” as it is termed by Cornish miners) to the cubic yard of gravel, is washed in various simple sluicing appliances, by which the lighter clay, sand and stones are removed and tinstone is left behind comparatively pure, con­taining usually 65 to 75% of metallic tin (chemically pure tinstone contains 78∙7 %).

Lode tin, as tinstone derived from primary deposits is often termed, is mined in the ordinary method, the very hard gangue in