In the matter of trade it has been said that he favoured one export only, that of olive oil, in which Athens was peculiarly rich; further he encouraged the settlement of aliens *(metoeci)* engaged in commerce, and compelled fathers to teach their sons a useful trade under penalty of losing all right to support in old age. The influence of women Solon regarded as most pernicious. Wealthy wives he forbade; no bride might bring more than three changes of raiment and a little light furniture to the house; all brothels and gymnasia were put under stringent state-control (see Prostitution). Solon also regulated intestate succession, the marriage of heiresses, adoption, the use and sinking of wells, bee-farming, the planting of olives and figs, the cutting down of olive trees, the calendar. Further, he ordained that each citizen must show how he obtained his living (Herod. ii. 177) and must, under penalty of losing the franchise, adhere to one or other party in a sedition (for these laws see Plutarch’s *Solon,* chs. 20-24).

The laws were inscribed on *Kyrbeis* or tablets framed in wood which could be swung round (hence also called *axones),* The boulē as a body swore to observe the laws, and each archon undertook to set up a life-size golden statue at Delphi if he should be convicted of transgressing them.

Solon appears to have supplemented his enactments by a law that they should remain in force for one hundred years, and accord­ing to another account that his laws, though not the best, should stand unchanged for ten years (Plut. *Solon,* 25; *Herod,* i. 29). Yet according to the *Constitution of Athens* (chs. 11-13) (without which the period from Solon to Peisistratus was a blank), when Solon went abroad in 593(?) the city was disturbed, and in the fifth year dissension became so acute that no archon was elected (for the chronological problem, see J. E. Sandys, *Constitution of Athens,* ch. 13, note) ; again four years later the same *anarchie (i.e.* no archon elected) occurred. Then four years later the archon Damasias (582 ?) continued in office illegally for two years and two months. The office of the archon was then put into commission of ten: five from the Eupatrids, three from the Agroeci and two from the Demi- urgi, and for twenty years the state was in a condition of strife. Thus we see that twelve years of strife (owing to Solon’s financial reforms) ended in the reversal of Solon’s classification by assess­ment. We are, therefore, driven to conclude that the practical value of his laws was due to the strong and enlightened govern­ment of Peisistratus, whose tyranny put an end to the quarrels between the Shore, the Upland and the Plain, and the *stasis* of rich and poor.

See editions with notes of *Constitution of Athens (q.v.);* histories of Greece later than 1891 *(e.g.* Busolt, &c.). See also Gilliard, *Quelques réformes de Solon* (1907); Cavaignac, in *Revue de Philol.,* 1908. All works anterior to the publication of the *Constitution* are so far out of date, but reference should be made to the work of Grote. (J.M.M.)

**SOLSTICE** (Lat. *solstitium,* from *sol,* sun, and *sistere,* to stand still), in astronomy either of the two points at which the sun reaches its greatest declination north or south. Each solstice is upon the ecliptic midway between the equinoxes, and there­fore 90° from each. The term is also applied to the moment at which the sun reaches the point thus defined.

**SOLUNTUM** (Gr. ∑oλσβs or ∑oλoυs), an ancient town of Sicily, one of the three chief Phoenician settlements in the island, situated on the north coast, 10 m. E. of Panormus (Palermo), 600 ft. above sea-level, on the S.E. side of Monte Catalfano (1225 ft.), in a naturally strong situation, and commanding a fine view. The date of its first occupation is, like that of Panor­mus, unknown. It continued to be a Carthaginian possession almost uninterruptedly until the First Punic War, when, after the fall of Panormus, it opened its gates to the Romans. In the Roman period it seems to have been of no great importance; an inscription, erected by the citizens in honour of Fulvia Plau- tilla, the wife of Caracalla, was found there in 1857. It was perhaps destroyed by the Saracens and is now entirely deserted. Excavations have brought to light considerable remains of the ancient town, belonging entirely to the Roman period, and a good deal still remains unexplored. An archaic oriental Artemis sitting between a lion and a panther, found here, is in the museum at Palermo, with other antiquities from this site. With the exception of the winding road by which the town was approached on the south, the streets, despite the unevenness of the ground, which in places is so steep that steps have to be introduced, are laid out regularly, running from east to west and from north to south, and intersecting at right angles. They are as a rule paved with slabs of stone. The houses were constructed of rough walling, which was afterwards plastered over; the natural rock is often used for the lower part of the walls. One of the largest of them, with a peristyle, is currently, though

wrongly, called the Gymnasium. Near the top of the town are some cisterns cut in the rock, and at the summit is a larger house than usual, with mosaic pavements and paintings on its walls. (T. As.)

**SOLUTION** (from Lat. *solvere,* to loosen, dissolve). When a solid such as salt or sugar dissolves in contact with water to form a uniform substance from which the components may be regained by evaporation the substance is called a solution. Gases too dissolve in liquids, while mixtures of various liquids show similar properties. Certain solids also consist of two or more components which are united so as to show similar effects. All these cases of solution are to be distinguished from chemical compounds on the one hand, and from simple mixtures on the other. When a substance contains its components in definite proportions which can only change, if at all, by sudden steps, it may be classed as a chemical compound. When the relative quantities of the components can vary continuously within certain limits, the substance is either a solution or a mixture. The distinction between these two classes is not sharp; though when the properties of the resultant are sensibly the sum of those of the pure components, as is nearly the case for a complex gas such as air, it is usual to class it as a mixture. When the properties of the resultant substance are different from those of the components and it is not a chemical compound we define it as a solution.

*Historical.—*Solutions were not distinguished from definite chemical compounds till John Dalton discovered the laws of definite and multiple proportions, but many earlier observations on the solubility of solids in water and the density of the resulting solutions had been made. As early as 1788 Sir Charles Blagden (1748-1820) made measurements of the freezing points of salt solutions, and showed that the depression of freezing point was roughly proportional to the amount of salt dissolved. About 1850 Thomas Graham published his famous experiments on diffusion, both with and without a separating membrane. In 1867 botanical investigations by Μ. Traube, and in 1877 others by W. Pfeffer, made known the phenomena of the osmotic pressure which is set up by the passage of solvent through a membrane impermeable to the dissolved substance or solute. The importance of these experiments from the physical point of view was recognized by J. H. van't Hoff in 1885, who showed that Pfeffer’s results indicated that osmotic pressure of a dilute solution conformed to the well-known laws of gas pressure, and had the same absolute value as the same number of mole­cules would exert as a gas filling a space equal to the value of the solvent. The conception of a semi-permeable membrane, permeable to the solvent only, was used by van't Hoff as a means of applying the principles of thermodynamics to the theory of solution.

Another method of applying the same principles is due to J. Willard Gibbs, who considered the whole problem of physical and chemical equilibrium in papers published in 1877, though the application of his principles only began to make extensive progress about twenty years after the publication of his purely theoretical investigations. The phenomena of solution and of vapour pressure constitute cases of equilibrium, and conform to the laws deduced by Gibbs, which thus yield a valuable method of investigating and classifying the equilibria of solutions.

*Solubility,—*Some pairs of liquids are soluble in each other in all proportions, but, in general, when dealing with solutions of solids or gases in liquids, a definite limit is reached to the amount which will go into solution when the liquid is in contact with excess of the solid or gas. This limit depends on the nature of the two components, on the temperature and on the pressure. When the limit is reached the solution is said to be saturated, and the system is in equilibrium. If the solution of a solid more soluble when hot be cooled below the saturation point, the whole of the solid sometimes remains in solution. The liquid is then said to be supersaturated. But here the conditions are different owing to the absence of solid. If a crystal of the solid be added, the condition of supersaturation is destroyed,