

the strong fortifications of the town withstood a long siege by an army of 60,000 men. The women of Soest are said to have distinguished themselves in this contest (*Soester Fejde*). Papal intervention ended the strife and Soest was permitted to remain under the protection of the dukes of Cleves. The prosperity of the town waned in more modern times: in 1763 its population was only 3800; in 1816 it was 6687.

SOFÁLA, a seaport town on the east coast of Africa, at the mouth of a river of the same name to the south of 20° S. lat., the seat of a Portuguese commandant. It is now a wretched place of about 1000 inhabitants, with not more than twenty European residents, and, as its port is obstructed with sandbanks, there is only a small coasting trade with Chiluan and Inhambane. But Sofála was formerly a town of considerable importance, with a harbour capable of holding a hundred large vessels. Previous to its conquest by the Portuguese in 1505 it was the chief and populous centre of a wealthy Mohammedan state; and the first governors of the Portuguese East African possessions were entitled captains-general of Sofála. The identification of Sofála with Solomon's Ophir, to which Milton alludes (*Par. Lost*, xi. 399-401), is untenable.

See *Bull. Geogr. Soc. Mozambique* (1882) for an account of the Sofála mines; and, generally, *Edrisi, Climate* i., 8th section; Dapper; Baines, *The Gold Regions of South Africa* (1877); and Burton's notes to his edition of Camoens.

SOFIA, since 1878 the capital of Bulgaria, though previously only a district town of the Tuna (Danube) vilayet of Turkey, is situated 1755 feet above the sea, in the midst of a dreary plain between the Stara Planina or main range of the Western Balkans and the bare but imposing granite mass of the Vitosh Mountains (3400 feet). It stands at the meeting of five great routes from Nish and Belgrade, Lom and Vidin, Plevna and Rustchuk, Philippopolis and Constantinople, and Köstendil and Salonica. At present (1887) it is two days' journey from the nearest railway station (Tatar-bazarjik), and as the seat of government is inconveniently near the south-west extremity of the kingdom; but it lies on the prospective great railway route between Constantinople and Belgrade, and was in the eyes of those who selected it the prospective capital of a much more extensive territory. The climate of Sofia is subject to severe seasonal and diurnal changes: in January the thermometer sinks 4° below zero and in August approaches 100°, and the daily range is frequently 27 or 28 degrees. Minarets and gardens give a certain beauty to the aspect of the town itself, but the outskirts are painfully destitute of foliage. In an eastern suburb stands the royal palace, a vast building which cost more than 4,000,000 francs; and in that neighbourhood, on the site of an abandoned Turkish quarter, quite a new "European" town has sprung up. The rest of Sofia retains its Turkish character, with tortuous streets and mean wooden houses. The modern cathedral and the archbishop's palace are both large edifices of no special note. Of the many mosques the most striking is the Buyuk-Jami, with its nine metal cupolas; but more historical interest attaches to the Sophia mosque, occupying the highest point in the town to which it gave its name. It is now completely in ruins (the result of an earthquake), but tradition, which in this case is confirmed by the architecture of the building, asserts that it was a Christian church erected by a certain Byzantine princess Sophia. Kanitz in 1871 still observed remains of old Byzantine frescos in the narthex. The public baths occupy a very extensive building, with separate suites of apartments for different nationalities or rather religions. The water as it issues from the springs has a temperature of 117°. Sofia exports hides and skins to Vienna, &c., and especially goat-skins to Marseilles; its principal imports are Indian corn, wheat, and alcoholic liquors—the last a very large item. Formerly the population was 50,000. In 1870 Kanitz found 19,000—a

liberal estimate—8000 being Bulgarians, 5000 Turks, 5000 Jews (a colony dating from the expulsion from Spain), 900 Gipsies. At present (1887) the total is 20,000. Close to the north of the town are extensive remains of strong Roman fortifications.

Sofia is the *Serdica* or *Sardica* of the Romans and Greeks (so called after the Serds or Sards), the *Triaditza* of the Byzantine writers, and the *Sredec* of the Slavs. "Sardica is my Rome," said Constantine before he thought of his new capital on the Bosphorus. It had already been made the capital of Dacia Ripensis by Aurelian, and about 343 it became famous as the seat of a church council. The town was plundered by Attila; and in 809 it was captured by the Bulgarians, who held it until the Turks got possession of it by stratagem in 1378, or more probably 1382. In 1443 Sofia was for a brief period occupied by the Hungarian John Hunyady (Corvinus), and on the defeat of his enterprise was laid waste by the retreating army. In 1829 it was the headquarters of Mustapha Pasha of Scutari, whose ravages have made the name of Albanian a word of terror to the children in Sofia even now. The Russians entered Sofia on 4th January 1878, after Gourko's passage of the Balkans. See Kanitz, *Donaubulgarien*, 1877; Laveleye, *La Péninsule des Balkans*, 1886.

SOGDIANA, or **SOGDIANE**, in Old Persian *Sughdā*, a province of the Achæmenian empire, the eighteenth in the list in the Behistun inscription of Darius (i. 16), corresponded to the modern districts of Samarkand and Bokhara; that is, it lay north of Bactriana between the Oxus and the Jaxartes and embraced the fertile valley of the Polytimetus or Zarafshan. Under the Greeks Sogdiana was united in one satrapy with Bactria, and subsequently it formed part of the Bactrian Greek kingdom till the "Scythians" (the Yue-chi) occupied it in the middle of the 2d century B.C. (comp. vol. xviii. pp. 586 sq., 592 sq.). The valley of the Zarafshan about Samarkand retained even in the Middle Ages the name of the Soghd of Samarkand. Arabic geographers reckon it, as one of the four fairest spots in the world.

SOHÁR, the second port of 'Omán, Arabia, situated on the Gulf of 'Omán in 24° 22' N. lat. and 56° 45' E. long. It is a place of considerable trade and industry, well built, fortified with walls and a castle, and inhabited by a hospitable and far from bigoted population of the 'Ibádí sect. The anchorage is good, sheltered between two promontories, and the surrounding country is populous and fertile. Indeed the coast-land of 'Omán is naturally the most favoured part of Arabia.

The town of Sohár is older than Islam, and its cloths are mentioned in the life of Mohammed (Ibn Hisham, p. 1019). Before the Moslem conquest it was in the hands of the Persians, and the Persian name Mazûn is not uncommonly applied to it by older Arabic writers. Under Islam it became the capital of 'Omán, and it is sometimes called 'Omán, from which fact it has sometimes, but very precariously, been identified with the Omana of classical writers. In the earlier Middle Ages Sohár was one of the first commercial cities of Islam on the Indian Ocean and had an active part in the China trade. This prosperity was unabated when Mokaddasi wrote of it (p. 92) towards the close of the 10th century; in the 12th century, when Edrisi wrote, the China trade was a thing of the past; and about 1230 Ibn Mojawir describes it as a ruin inhabited by the demons of the desert. Its decay appears to be connected with the rise of other ports—Kallát on the Arabian and Ormuz on the Persian side of the Persian Gulf—but more especially with the political convulsions of 'Omán. This district, which has always had an isolated position in Eastern history, early became a stronghold of the Khawârij ('Ibâdiya) and paid very intermittent obedience to the caliphs till it was reduced by Mo'tadid about the year 900. Even after this conquest the native imâms held their ground in the mountainous inland country at Nazwa (Istakhri, p. 26), and renewed the struggle for independence with the Buwaihîd and Seljûk sovereigns of Fars, who succeeded in these regions to the power of the caliphate. Ibn Mojawir connects the destruction of Sohár with these struggles, and, though he seems to imply a later date, it is possible that his statement is to be combined with what Ibn al-Athîr (ix. 387) tells of the rising of Al-Râshîd billâh about 1050. After this event there is a period of obscurity in the annals of 'Omán; the independence of the country was ultimately secured under the native (Azdite) princes of Nazwa, but Sohár never recovered its importance. It is mentioned, however, by Marco Polo, under the name of Soer, as trading in horses with Malabar, and also by Ibn Batûta, and must therefore have been resettled soon after the time of Ibn Mojawir. Sohár was seized by

the Portuguese in 1508 and held by them till about 1650. In the 18th century Niebuhr speaks of it as a quite unimportant place; Wellsted in 1836 assigned to it a population of 9000; Palgrave in 1863 estimated the population at 24,000, an estimate the more remarkable that in the interval the town had suffered severely from the Wahhâbîs. *The Red Sea Pilot* (1883) gives the more probable figure of 4000 to 5000.

SOISSONS, a city of France, in the department of Aisne, the seat of a bishopric and a fortified post on the left bank of the Aisne at the junction of the Crise, lies 65 miles north-east of Paris by the railway to Laon. The population in 1881 was 10,895 (11,112 in the commune). The cathedral of Notre Dame St Gervais and St Protas, begun in the second half of the 12th century and finished about the end of the 13th, is 328 feet long and 87 wide; the vaulting of the nave is 100 feet above the pavement. The single tower dates from the middle of the 13th century and is a fairly good imitation of those of Notre Dame of Paris, which it equals in height (216 feet). The transepts are of different dates and dissimilar in their arrangement. In the north transept there is a very fine door on the east; the south transept is the oldest and most graceful portion of the whole edifice. The choir is surrounded with eight square chapels, and the apse with five large polygonal chapels, of which the three in the middle (as well as the high windows of the choir) still retain their fine 13th-century glass. The rose-window of the north transept represents the life of the Virgin in twelve medallions. The high altar is flanked by two marble figures representing the annunciation and above it is an Adoration of the Shepherds ascribed to Rubens; the cathedral also has some rich 16th-century tapestries. Considerable remains still exist of the magnificent abbey of St Jean des Vignes, where Thomas a Becket resided from 1161 to 1170, and which was rebuilt in the 13th century; these include the ruins of two cloisters (the smaller dating from the Renaissance), the refectory, and above all the cathedral-like façade of the church (recently restored). Of the three portals with twisted columns the central one is adorned with statues; above them runs a gallery, over which again is a large window; the two unequal towers (230 and 246 feet) of the 15th and 16th centuries are surmounted by beautiful stone spires, which command the town. The ruins of this fine building are unfortunately occupied by the military authorities. The church of St Léger, erected in 1139 and rebuilt at the beginning of the 13th century, was formerly attached to an abbey of the Génovéfains. Beneath are two crypts of the 12th and 13th centuries. Of the abbey church of St Pierre, built in the 12th century in the Romanesque style, the only remains are the façade and two bays of the choir. The royal abbey of Notre Dame was founded in 660 for monks and nuns by Leutrade, wife of Ebroin, the celebrated mayor of the palace. The number of the nuns (216 in 858), the wealth of the library in manuscripts, the valuable relics, the high birth of the abbesses, the popularity of the pilgrimages, all contributed to the importance of this abbey, of which there exist only some inconsiderable remains. The wealthiest of all the abbeys in Soissons and one of the most important of all France during the first two dynasties was that of St Médard, on the right bank of the Aisne, founded in 560 by Lothaire I., beside the villa of Syagrius, which had become the palace of the Frankish kings. St Médard, apostle of Vermandois, and Kings Lothaire and Sigebert were buried in the monastery, which became the residence of 400 monks and the meeting-place of several councils. It was there that Childeric III., the last Merovingian, was deposed and Pippin the Short was crowned by the papal legate; and there Louis the Pious was kept in captivity in 833. The abbots of St Médard coined money, and in Abelard's time (12th century) were lords of 220 villages,

farms, and manors. At the battle of Bouvines (1214) the abbot commanded 150 vassals. In 1530 St Médard was visited by a procession of 300,000 pilgrims. But the religious wars ruined the abbey, and, although it was restored by the Benedictines in 1637, it never recovered its former splendour. Of the seven churches and the conventual buildings of the ancient foundation there hardly remains a trace. The site is occupied by a deaf and dumb institution, the chapel of which stands over the crypt of the great abbey church, which was altered in the 12th century. In the crypt is a stone coffin, said to have been Lothaire's, and close at hand is an underground chamber, reputed to have been the place of captivity of Louis the Pious. The civil buildings of Soissons are not of much interest. The hôtel de ville contains a museum with scientific and archaeological collections; the hôtel dieu goes back to the 13th century; the library contains 40,000 volumes and curious manuscripts. Among the industrial establishments are tanneries, saw-mills, and foundries and factories for the production of stoves, agricultural implements, candles, and chocolate. Grain, flour, haricot beans of exceptional quality, pease, wool, hemp, flax, cattle, timber, and charcoal are the principal articles of trade. There is also a large bottle factory, and work is done for the flannel and blanket factories of Rheims.

Soissons is generally believed to occupy the site of the oppidum of Gallia Belgica called *Noviodunum* by Cæsar; but some writers identify this place with Noyon, Noyant, or Nourion. One thing is clear, that this oppidum was the capital of the Suessiones, who occupied twelve towns and whose king, Divitiacus, one of the most powerful in Gaul, had extended his authority even beyond the sea among the Britons. In 58 B.C. Galba, king of the Suessiones, separated from the confederation of the Belgians and submitted to the Romans. At the beginning of the empire Noviodunum took the name of *Augusta Suessionum*, and afterwards that of *Suessiona*, and became the second capital of Gallia Belgica, of which Rheims was the metropolis. The town was before long surrounded with a regular wall and defended by a citadel; and it became the starting-point of several military roads (to Rheims, Château-Thierry, Meaux, Paris, Amiens, and St Quentin). Christianity was introduced by St Crispin and St Crispinian, men of noble birth, who, however, earned their livelihood by shoemaking, and thus became patrons of that craft. After their martyrdom in 297 their work was continued by St Sinitius, the first bishop of Soissons. After the barbarians had crossed the Rhine and the Meuse Soissons became the metropolis of the Roman possessions in the north of Gaul, and on the defeat of Syagrius by Clovis the Franks seized the town. It was at Soissons that Clovis married Clotilde, and, though he afterwards settled at Paris, Soissons was the capital of his eldest son Lothaire, and afterwards of Chilperic I., king of Neustria. It was not till the time of Chilperic's son, Lothaire II., that the kingdom of Soissons was incorporated with that of Paris. In 752 Pippin the Short was at Soissons proclaimed king by an assembly of *leudes* and bishops, and he was there crowned by the papal legate St Boniface before being crowned at Saint Denis by the pope himself. Louis the Pious did penance there after being deposed by the assembly at Compiègne. Under Charles the Fat (886) the Normans failed in an attempt against the town, but laid waste St Médard and the neighbourhood. In 923 Charles the Simple was defeated outside the walls by the supporters of Rudolph of Burgundy, and Hugh the Great besieged and partly burned the town in 948. Under the first Capets Soissons was held by hereditary counts, frequently at war with the king or the citizens. Thus the latter bought in 1131 a communal charter from Louis VI. and their bishop. In 1155, at an assembly of prelates and barons held at Soissons, Louis VII. issued a famous decree forbidding all private wars for a space of ten years; and in 1325 Charles the Fair replaced the mayor of Soissons by a royal provost dependent on the bailiwick of Vermandois, the inhabitants retaining only the right of electing four *chevins*. Louis of Châtillon, count of Soissons, was killed at Crécy, and his son, a hostage for King John in England, sold his countship to Enguerrand de Coucy to obtain money for his ransom in 1367. Finally the last count of Soissons, sprung from a branch of the house of Bourbon, rebelled against Louis XIII., and defeated the royal troops at La Marfée in 1641, but perished in the battle. The town had to suffer severely during the war of the Hundred Years; in 1414, when it was held by the Burgundians, it was captured and sacked by the Armagnacs under the dauphin; and this same fate again befell it six times within twenty years. The treaty of Arras (1435) brought it again under the royal authority. It was sacked by Charles V. in 1544 and in 1565 by the Huguenots, who

laid the churches in ruins and, supported by the prince of Condé, count of Soissons, kept possession of the town for six months. During the League Soissons eagerly joined the Catholic party. Mayenne made the town his principal residence, and he died there in 1611. A European congress was held there in 1728. In 1814 Soissons was captured and recaptured by the allies and the French. In 1815, after Waterloo, it was a rallying point for the vanquished, and it was not occupied by the Russians till the 14th of August. In 1870 it capitulated to the Germans after a bombardment of three days.

SOKOTO, an important Fulah kingdom or empire in Central Soudan, comprising what are frequently called the Haussa states. Its boundaries (see vol. i. pl. II.) are irregularly marked off by the plateau lands of Air or Asben on the north, the kindred Fulah state of Gandu on the west, while the river Binué practically forms its southern limit as far as the meridian of 10° E.; beyond this it runs south into the Congo basin. On the east lies the kingdom of Bornu. From north-west to south-east Sokoto has a length little short of 900 English miles and its average breadth is about 280. The whole area has been roughly computed to be equal to that of Spain (about 195,000 square miles), and to have a population of from ten to twelve millions. The country may be described as a great undulating plain, rarely exceeding 1000 feet in height, with the exception of the province of Bauchi in the centre, which runs into a highland region with heights of 3000 feet, and the still more imposing masses of Adamawa in the south, which are said to attain an altitude of 10,000 feet in Mount Alantika. In other respects Sokoto presents more varied features, chiefly determined by the amount of rainfall, though the varying fertility of the soil is a not unimportant factor. In the southern parts, where there are almost perpetual rains, large streams and rivers are numerous,—the feeders of the Binué, the great eastern (left-hand) tributary of the Niger. Here grow the virgin forests with giant growths and exuberant foliage, with creepers, with bananas and plantains, palm-oil trees and yams. In the more temperate—because more elevated—districts of the middle area, with a smaller rainfall, the vegetation is less luxuriant, and such fruits as the date, lime, and pomegranate are cultivated. In the northern parts the climate is still more arid, and the country is burned up for the greater part of the year. This is the region of acacias and mimosas, of baobabs, of the branching düm palm and the curiously bulged deléb. Here are no forests nor rank grass, while the exigencies of a dense population have caused the clearing away of the bush except on the most barren spots, where it supplies the necessary fuel for domestic purposes. In this northern district there are no streams except in the wet season, and the wants of the people are supplied by fountains in the more favoured places, and by wells—frequently very deep—in those not so advantageously situated. Lying within the tropics, Sokoto is subject to excessive heat,—damp and steamy in the south, dry and furnace-like in the north, where it suffers from the hot winds from the Sahara. In Adamawa the rainy season—or, to be more correct, the season of excessive rains—commences in April and lasts till October or later, while in Guber in the north the rains commence in June and seldom last more than three months, during which the country becomes transformed from a repellent desert into a well-cultivated nursery garden.

For Central Africa Sokoto may be described as fairly healthy, though, as may be expected from a conjunction of excessive heat with excessive rain, fevers are not uncommon in the southern parts, while ophthalmia is prevalent in the north, especially among the poorer classes, who are compelled to expose themselves to the blinding dust from the deserts and the excessive glare of the sun reflected from the burning sands.

The natural productions of Sokoto are such as are more or less common throughout the whole of the SOUDAN (*q. v.*). Among cereals rice and wheat are cultivated in many parts, though the staple productions are Kaffre corn, millet, and maize. Sweet potatoes,

ground nuts, yams, onions, and other vegetables are largely grown. Of fruits dates, pomegranates, citrons, and bananas abound in more restricted areas. The Shea butter tree supplies an excellent oil for lamps, and also for cooking, though it is only used by the poorer classes. The palm-oil tree is only found in the damp basin of the Binué. The most important vegetable products are cotton and indigo, which are universally grown. The cotton is manufactured into cloth, being used by the native population as well as largely exported to neighbouring countries. In some parts a species of silk found in the forests is largely used, and the people of Yakoba in Bauchi are said to rear the silkworm. Of mineral products there seem to be few, though it is known that both silver and lead occur in the Binué area. Iron is extensively diffused and of excellent quality.

The inhabitants of this extensive region, held together by a conquering race and not by any natural tie into one common kingdom, are of diverse tribes and affinities. They, however, may be roughly divided into three groups. (1) First come the pure Negro races of Adamawa, of which the chief tribe is the Batta. (2) The Haussa form the mass of the population except in Adamawa. They are pre-eminent among Negroes for their physical appearance and intellectual abilities. They are wonderfully skilled in various arts and industries and noted for their commercial genius and enterprise. Mohammedanism is their religion, and indeed in all respects they are well advanced on the road to civilization. They are very fond of voluminous clothes. (3) The Fulahs are a Hamitic race, who from being simple herdsmen in the beginning of the 19th century have become the rulers and masters over a hundred alien races between the Atlantic and Lake Tchad. They have not the commercial or industrial skill of the Haussa, but in other respects have reached a higher level. They are of slender build and are distinguished by their light coppery colour. The inhabitants of Sokoto live mostly in large towns, many of which contain from 10,000 to 20,000 inhabitants. These towns are all protected by strong mud walls and outer dry moats. Their interior is divided into a series of compounds, each entered through a flat-roofed audience chamber. Inside are the beehive-shaped huts of the household. The gateways are also strongly fortified. The ruler over Sokoto is a Fulah sultan, whose power is absolute, though tempered by a species of feudal system. The governors of some of the larger provinces, though owing allegiance to the sovereign, are mostly hereditary, and beyond sending a yearly tribute are practically independent. The tie indeed is more religious than anything else. The great weakness of the empire is its want of coherence and the absence of a strong central Government. Yet, though always appearing to be on the point of falling to pieces, it contrives to keep together. The condition in which Barth found it in 1855 was practically the same as when the present writer visited it in 1885.

The chief provinces of Sokoto are Zari-phoro, Zaria, Katsena, Bauchi, Kano, and Adamawa. The most important towns are—Sokoto, the acknowledged capital of the empire, famed chiefly for its leather-work and straw hats (it divides with Wurnu the distinction of being the residence of the sultan; Clapperton died here in 1837); Wurnu, about 18 miles farther east, the present (1887) headquarters of the court; Kano, the great commercial emporium of Central Soudan; and Yakoba, chiefly noted for its large size,—said to contain 150,000 inhabitants.

The history of Sokoto may be said to have commenced with the 19th century. Previous to that date little is known further than that the country was divided among a number of small chiefs, a prey to the powerful kings of Bornu, Kebbi, and Songhai (Songhai). In 1802 the Fulahs, then little regarded and semi-serfs in position, were scattered all over the country, apparently without any national tie to unite them to common action. At last, however, an imám—one Othman dan Fodio—appeared, who with the watchword of Islam gave a new life to his tribesmen and in an incredibly short time transformed them from peaceable nomads into soldiers of the Crescent, and after a few initial reverses swept like a whirlwind over an enormous area, establishing himself as ruler and Mohammedanism as the religion of the whole of Central Soudan. At his death the parts now known as Sokoto fell to the share of his son Bello, and in the family of Othman the reins of government have since remained, though the descent is not as a rule from father to son, but either to a brother or a brother's son. The latest phase in the history is the proclaiming of a protectorate over a part of Sokoto on the Binué by the British Government, and the handing over of the administration of the Niger region to the Royal Niger Company. To this company the sultan has conceded all his rights on the Binué and a monopoly of trade throughout his dominions, thus making them practically masters of all foreign intercourse.

The most important sources of information regarding Sokoto are—Clapperton's *Journeys* in the early part of the 19th century; Barth's *Travels in Central Africa* between 1849 and 1855—a perfect mine of information; and Rohlf's *Reise durch Nordafrika vom Mittelmeer nach dem Tschad-See* in 1866-67. Among later and minor travellers have been Flegel, who visited Sokoto in 1880, and Thomson, who conducted a commercial and political mission to the court of the sultan in 1885. (J. TH.)

SOLAN GOOSE. See GANNET.

SOLARIO, ANTONIO (c. 1382-1455), a painter of leading importance in the Neapolitan school, is commonly called Lo Zingaro, or The Gipsy. His father is said to have been a travelling smith. To all appearance Antonio was born at Civita in the Abruzzi, although it is true that one of his pictures is signed "Antonio de Solario Venetus," which may possibly be accounted for on the ground that the signature is not genuine. Solario is said to have gone through a love-adventure similar to that of the Flemish painter, Quintin Massys. He was at first a smith, and did a job of work in the house of the prime Neapolitan painter Colantonio del Fiore; he fell in love with Colantonio's daughter, and she with him; and the father, to stave him off, said if he would come back in ten years an accomplished painter the young lady should be his. Solario studied the art, returned in nine years, and claimed and obtained his bride. The fact is that Colantonio del Fiore is one of those painters who never existed; consequently his daughter never existed, and the whole story, as relating to these particular personages, must be untrue. Whether it has any truth, in relation to some unidentified painter and his daughter, is a separate question which we cannot decide. Solario made an extensive round of study,—first with Lippo Dalmasio in Bologna, and afterwards in Venice, Ferrara, Florence, and Rome. On returning to Naples he rapidly took the first place in his art. His principal performance is in the court of the monastery of S. Severino—twenty large frescos illustrating the life of St. Benedict, now greatly decayed; they present a vast variety of figures and details, with dexterous modelling and colouring. Sometimes, however, Lo Zingaro's colour is crude, and he generally shows weakness of draughtsmanship in hands and feet. His tendency is that of a naturalist,—the heads life-like and individual, and the landscape backgrounds better invented and cared for than in any contemporary. In the Studj gallery of Naples are three pictures attributed to this master, the most remarkable one being a Madonna and Child Enthroned with Saints. The heads here are reputed to be mostly portraits. Solario initiated a mode of art new in Naples; and the works painted between his time and that of Tesaro are locally termed "Zingareschi." He had many scholars, but not of pre-eminent standing—Nicola Vito, Simone Papa, Angiolillo Rocca dirame, Pietro and Ippolito dal Donzello. It has often been said that Solario painted in oil, but of this there is no evidence.

SOLDER is a metallic alloy or metal employed for cementing or binding together two metallic surfaces. The solder is applied to the surfaces to be united in a molten state, and it is therefore generally either a more fusible body than the metal to be acted on or it is presented in a more fusible condition. The process of autogenous soldering consists in uniting the individual metallic edges themselves by melting and fusing them in the heat of the oxyhydrogen blowpipe or by means of an ignited blast of mixed coal gas and air. Autogenous soldering is extensively used in connexion with large plumber work. Ordinary solders are divided into hard and soft classes, the hard comprising such as require a red heat for their melting. The soft solders used by plumbers and tinsmiths consist of variable mixtures of lead and tin, and for pewterers' use bismuth is added to these. The hardest brazing solder has equal parts of copper and zinc, and for softer qualities increased amounts of zinc with tin and sometimes antimony are employed. For fine jewellery alloys of gold, silver, and copper are used; silver solder is employed for inferior qualities, and even common soft solder finds extensive employment in the jewellery trade. Silver is the proper solder for German silver manufactures

also; and gold is the medium for joining the edges of platinum vessels. In soldering, the metallic edges to be united must be free from oxidation and dirt; and to keep them unoxidized during the operation several fluxes are used, such as borax in brass soldering, rosin and solution of zinc chloride for tin-plate, zinc chloride for zinc, rosin and tallow for lead and tin, and olive oil in pewter work. Special machinery has been devised for the soldering of the tinned cases now so extensively employed in the preserved food trade. In common soft soldering the solder is melted and applied to the joint by a heated iron or copper soldering bolt, but solders are also applied by being melted on in the open fire, or in the muffle furnace, by immersing the joint in a bath of molten solder, or by pouring the molten material on the joint. In dealing with hard solders the heat of the blowpipe flame is used.

SOLE. Soles are a group of Flat-Fishes (*Pleuronectidae*), which is represented by numerous species in all suitable localities within the temperate and tropical zones; they become, however, scarce in the southern parts of the southern temperate zone, and are absent altogether in some districts—for instance, on the coasts of southern Australia. Many of the species enter fresh water freely, and some have become thoroughly acclimatized in it. Soles are a highly specialized type of flat-fish; their mouth is very narrow, twisted round to the blind side, and small teeth are developed on that side only. As they always lie or swim on one side, the pectoral fins have ceased to have a function, and consequently these organs are reduced in size, and in many of the species are mere rudiments or are lost entirely. The eyes are small, invariably on the right side of the fish, the upper occupying a position more or less in advance of the lower. Soles are littoral fishes, inhabiting sandy bottoms, shifting with the season from shallow into somewhat deeper water. Like all flat-fishes they are carnivorous, but feed on small animals only; none attain to a large size, scarcely exceeding that of 2 feet. Of the forty species known of the genus *Solea*, four are found on the British coast; the one most generally known and commercially most important is the Common Sole (*Solea solea*); it seems to occur in greater or less abundance on all flat coasts of Europe, but its numbers have been considerably thinned within the last quarter of a century, at least on the British coasts, doubtless in consequence of the introduction of the trawl. At any rate, that over-fishing is the cause of the decrease of this valuable table fish is amply proved by the fact that simultaneously with the quantity the average weight of the fish has been diminished, soles of 12 inches in length and of 8 ounces in weight being now in many localities the largest that can be obtained. At present young specimens form the majority of the soles in the market, and are sold under the names of "slips" or "tongues." During the breeding-season, which falls in the months from February to April, soles lose much of their flavour. It is a singular fact that male soles seem to be almost unknown, and some ichthyologists account for it by supposing that the males remain much smaller than the females, and are overlooked in consequence. The Lemon Sole (*Solea aurantiaca*) is much less esteemed than the common sole, and more rarely seen in the market, probably because it is locally distributed in deeper water. It is of a yellow colour, marbled with brown and irregularly spotted with black; the pectoral fin is ornamented with an ovate black spot on its hinder half. Even when this bright coloration has disappeared in the fish after death, it may always be distinguished from the common sole by its large dilated nasal opening on the blind side, which is surrounded by a broad fringe. The Variegated Sole (*Solea variegata*) is at times taken in considerable numbers