

with fine sand from the Libyan Desert. Still more dreaded are the miasmatic exhalations caused by the glowing sun playing on stagnant waters after the floods and giving rise to the "Sennar fever," which drives the natives themselves from the plains to the southern uplands. The temperature, which rises at times to over 120° Fahr., is also very changeable, often sinking from 100° Fahr. during the day to under 60° Fahr. at night.

The soil, mainly alluvial, is naturally fertile, and wherever water and hands are available yields bounteous crops of maize, pulse, cotton, tobacco, sesame, and especially durra, of which as many as twenty varieties are said to be cultivated. The forest vegetation, mainly confined to the "Isle of Isles" and the southern uplands, includes the *Adansonia* (baobab), which in the Fazogl district attains gigantic proportions, the tamarind, of which bread is made, the deléb palm, several valuable gum trees (whence the term Sennar often applied in Egypt to gum arabic), some dyewoods, ebony, ironwood, and many varieties of acacia. These forests are haunted by the two-horned rhinoceros, the elephant, lion, panther, numerous apes and antelopes, while the crocodile and hippopotamus frequent all the rivers. The chief domestic animals are the camel, horse, ass, ox, buffalo (used both as a beast of burden and for riding), sheep with a short silky fleece, the goat, cat, dog, and pig, which last here reaches its southernmost limit. The tsetse fly appears to be absent, but is replaced in some districts by a species of wasp, whose sting is said to be fatal to the camel in the rainy season.

The "African Mesopotamia" is occupied by a partly settled partly still nomad population of an extremely mixed character, including representatives of nearly all the chief ethnical divisions of the continent. But the great plain of Sennar is mainly occupied by Hassanieh Arabs in the north, by Abu-Rof (Rufaya) Hamites of Beja stock (Robert Hartmann) in the east as far as Fazogl, and elsewhere by the Funj (Fung, Fungheh), traditionally from beyond the White Nile, and affiliated by some to the Kordofan Nubas, by others more probably to the Nilotic Negro Shilluks. These Funj, who have been the dominant race since the 15th century, have become almost everywhere assimilated in speech, religion, and habits to the Arabs. Nevertheless on their sacred Mount Guleh the traveller Prussenaer found them still performing pagan rites, while according to Marno the Birins, the southernmost branch of the race between the Berta highlanders and the Nilotic Denkas, are addicted to cannibalism. The Berta highlanders themselves (Jebalain, as the Arabs collectively call them) are of more or less pure Negro stock and number about 80,000, grouped in several semi-independent principalities. The "no-man's-land" stretching north of Dar-Berta and east of the Tumat valley is also occupied by distinct nationalities, such as the Kadalos in the extreme north, the Sienetjos and Gumus in the east, here bordering on the Abyssinian Agawes, the Jabus and Gánti in the south. Most of these appear to be of Negro or Negroid stock; but the Sienetjos, said to be a surviving remnant of the primitive population of the whole country, are doubtless akin to the Sienetjos of Damot and Gojam in Abyssinia. They are certainly not blacks, and have a yellow or fair complexion, lighter than that of southern Europeans.

The Sennar people cultivate a few industries, such as cotton-weaving, pottery, gold, silver, and iron work, matting, and leather work (camel saddles, sandals, &c.), noted throughout Súdán. But their chief pursuits are stock-breeding, agriculture, and trade,—exporting to Egypt and Abyssinia gold, hides, durra, sesame, gums, ivory, horses, and slaves. The chief centres of population, all on the Bahr-el-Azrak, are Fazogl (Fazoklo), now replaced by Famaka, at the Tumat confluence; Roséres, formerly capital of an independent state; Sennar, also an old capital, which gives its name to the whole region; Wod-Medineh at the Rahad confluence; and Khartúm, just above the junction of the two Niles. A few miles above Khartúm are the extensive ruins of Soba, former capital of the Funj empire, which at one time stretched from Wady Halfa to Dar-Berta and from Suakin to beyond Kordofán, but which was overthrown by Ismail Pasha in the year 1822. (A. H. K.)

SÉNANCOUR, ÉTIENNE PIVERT DE (1770-1846), French man-of-letters, was born at Paris in November 1770. His family was noble and not poor, but its fortunes were ruined by the Revolution. Before that event, however, Sénancour had met with mishap. He was a sickly youth and was destined for the church, but ran away from home and established himself in Switzerland. Here he married and spent some years; his wife died, and he returned to Paris about the end of the century. In 1804 he published the singular book entitled *Obermann*, which has continued to be in a fashion popular to the present day, and the next year a treatise *De l'Amour*, which had even more vogue at first, but is now little read. *Obermann*, which is to a great extent inspired by Rousseau, which attracted the admiration of George Sand, and which had

a considerable influence over the last generation in France and England, is a series of letters supposed to be written by a solitary and melancholy person, whose headquarters were in a valley of the Jura, but who writes also from divers other places. The style is meritorious, the descriptive power very considerable, the thought sometimes original, and the expression of a certain form of the *maladie du siècle* effective and striking. But, viewed from the strictly critical point of view, there is perhaps a certain unreality about the book. Its idiosyncrasy in the large class of Wertherian-Byronic literature has justly enough been said to be that the hero, instead of feeling the vanity of things, recognizes his own inability to be and do what he wishes. Sénancour is tinged to some extent with the older *philosophe* form of freethinking, and expresses less revolt from the 18th century than Chateaubriand. Having no resources but his pen, Sénancour during the half-century which elapsed between his return to France and his death at St Cloud in February 1846 was driven to literary hack work, and even his more independent productions have none of the attraction of *Obermann*. When George Sand and Sainte-Beuve revived interest in this latter, Thiers and Villemain successively obtained for the author from Louis Philippe pensions which enabled him to pass his last days in comfort. He committed the usual mistake of writing late in life a continuation to *Obermann*, entitled *Isabelle* (1833), but it has been wisely forgotten.

SENEBIER, JEAN (1742-1809), a Swiss pastor and voluminous writer on vegetable physiology, was born at Geneva on 6th May 1742. He is remembered on account of his contributions to our knowledge of the influence of light on vegetation. Though Malpighi and Hales had shown that a great part of the substance of plants must be obtained from the atmosphere, no progress was made until more than a century later, when Bonnet observed on leaves plunged in aerated water bubbles of gas, which Priestley recognized as oxygen. Ingenhousz proved the contemporaneous disappearance of carbonic acid; but it was Senebier who clearly showed that this activity was confined to the green parts, and to these only in sunlight, and first gave a connected view of the whole process of vegetable nutrition in strictly chemical terms, so preparing the way for the quantitative researches of N. T. de Saussure. Senebier died at Geneva on 22d July 1809.

See Sachs, *Geschichte d. Botanik*, and *Arbeiten*, vol. ii.

SENECA, LUCIUS ANNEUS (c. 3 B.C.-65 A.D.), the most brilliant figure of his time, was the second son of the rhetorician Marcus Anneus Seneca, and, like him, a native of Corduba in Hispania. From his infancy of a delicate constitution, he devoted himself with intense ardour to rhetorical and philosophical studies and early won a reputation at the bar. Caligula threatened his life, and under Claudius his political career received a sudden check, for the influence of Messalina having effected the ruin of Julia, the youngest daughter of Germanicus, Seneca, who was compromised by her downfall, was banished to Corsica, 41 A.D. There eight weary years of waiting were relieved by study and authorship, with occasional attempts to procure his return by such gross flattery of Claudius as is found in the work *Ad Polybium de Consolatione* or the panegyric on Messalina which he afterwards suppressed. At length the tide turned; the next empress, Agrippina, had him recalled, appointed prætor, and entrusted with the education of her son Nero, then (48) eleven years old. Seneca became in fact Agrippina's confidential adviser; and his pupil's accession increased his power. He was consul in 57, and during the first bright years of the new reign, the incomparable *quinquennium Neronis*, he shared the actual administration of affairs with the worthy Burrus, the prætorian prefect. The government in the hands of these men of remarkable

insight and energy was wise and humane; their influence over Nero, while it lasted, was salutary, though sometimes maintained by doubtful means. When there came the inevitable rupture between mother and son they sided with the latter; and Seneca, who drew up all Nero's state papers, was called upon to write a defence of matricide. We must, however, regard the general tendency of his measures; to judge him as a Stoic philosopher by the counsels of perfection laid down in his writings would be much the same thing as to apply the standard of New Testament morality to the career of a Wolsey or Mazarin. He is the type of the man of letters who as courtier and minister rises into favour by talent and suppleness (*comitas honesta*), and is entitled as such to the rare credit of a beneficent rule. In course of time Nero got to dislike him more and more; the death of Burrus in 62 gave a shock to his position. In vain did he petition for permission to retire, offering to Nero at the same time his enormous fortune. Even when he had sought privacy on the plea of ill health he could not avert his doom; on a charge of being concerned in Piso's conspiracy he was forced to commit suicide. His manly end might be held in some measure to redeem the weakness of his life but for the testimony it bears to his constant study of effect and ostentatious self-complacency ("conversus ad amicos, imaginem vitæ suæ relinquere testatur").

Seneca is at once the most eminent among the Latin writers of the Silver Age and in a special sense their representative, not least because he was the originator of a false style. The affected and sentimental manner which gradually grew up in the first century A.D. became ingrained in him, and appears equally in everything which he wrote, whether poetry or prose, as the most finished product of ingenuity concentrated upon declamatory exercises, substance being sacrificed to form and thought to point. Every variety of rhetorical conceit in turn contributes to the dazzling effect, now tinsel and ornament, now novelty and versatility of treatment, or affected simplicity and studied absence of plan. But the chief weapon is the epigram (*sententia*), summing up in terse incisive antithesis the gist of a whole period. "Seneca is a man of real genius," writes Niebuhr, "which is after all the main thing; not to be unjust to him, one must know the whole range of that literature to which he belonged and realize how well he understood the art of making something even of what was most absurd." His works were upon various subjects. (1) His *Orationes*, probably the speeches which Nero delivered, are lost, as also a biography of his father, and (2) his earlier scientific works, such as the monographs describing India and Egypt and one upon earthquakes (*Nat. Qu.*, vi. 4, 2). The seven extant books of *Physical Investigations* (*Naturalis Quaestiones*) treat in a popular manner of meteorology and astronomy; the work has little scientific merit, yet here and there Seneca, or his authority, has a shrewd guess, e.g., that there is a connexion between earthquakes and volcanoes, and that comets are bodies like the planets revolving in fixed orbits. (3) The *Satire on the Death* (and deification) of *Claudius* is a specimen of the "satira Menippea" or medley of prose and verse. The writer's spite against the dead emperor before whom he had cringed servilely shows in a sorry fashion when he fastens on the wise and liberal measure of conferring the franchise upon Gaul as a theme for abuse. (4) The remaining prose works are of the nature of moral essays, bearing various titles,—twelve so-called *Dialogues*, three books *On Clemency* dedicated to Nero, seven *On Benefits*, twenty books of *Letters to Lucilius*. They are all alike in discussing practical questions and in addressing a single reader in a tone of familiar conversation, the objections he is supposed to make being occasionally cited and answered. Seneca had the wit to discover that conduct, which is after all "three-fourths of life," could furnish inexhaustible topics of abiding universal interest far superior to the imaginary themes set in the schools and abundantly analysed in his father's *Controversiæ* and *Suasoriæ*, such as poisoning cases, or tyrannicide, or even historical persons like Hannibal and Sulla. The innovation took the public taste,—plain matters of urgent personal concern sometimes treated casuistically, sometimes in a liberal vein with serious divergence from the orthodox standards, but always with an earnestness which aimed directly at the reader's edification, progress towards virtue, and general moral improvement. The essays are in fact Stoic sermons; for the creed of the later Stoics had become less of a philosophical system and more of a religion, especially at Rome, where moral and theological doctrines alone attracted lively interest. The school is remarkable for its anticipation of modern ethical conceptions, for the lofty morality of its exhorta-

tions to forgive injuries and overcome evil with good; the obligation to universal benevolence had been deduced from the cosmopolitan principle that all men are brethren. In Seneca, in addition to all this, there is a distinctively religious temperament, which finds expression in phrases curiously suggestive of the spiritual doctrines of Christianity. Yet the verbal coincidence is sometimes a mere accident, as when he uses *sacer spiritus*; and in the same writings he sometimes advocates what is wholly repulsive to Christian feeling, as the duty and privilege of suicide.

Eight of the tragedies which bear Seneca's name are undoubtedly genuine. In them the defects of his prose style are exaggerated; as specimens of pompous rant they are probably unequalled; and the rhythm is unpleasant owing to the monotonous structure of the iambs and the neglect of *synapheia* in the anapestic systems. The preterite *Oclavia*, also ascribed to him, contains plain allusions to Nero's end, and must therefore be the product of a later hand.

Our materials for a knowledge of Seneca are ample, and are variously presented in such works as Merivale's *Romans under the Empire*, cc. 52-54; Zeller's *Greek Philosophy* (Eng. tr. *Eclecticism*, pp. 202-245); and the histories of Roman literature by Bernhardt, Teuffel (§§ 282-285), and Simcox (ii. pp. 1-27, London, 1858). His elder brother Anneus Seneca Novatus, afterwards adopted by a Junius Gallio, was the prosecutor of Achaia before whom St Paul pleaded (Acts xviii. 13). The date of Seneca's birth must be approximately inferred from *Nat. Qu.*, i. 1, 3; *Ep.*, 108, 22. His mother's name was Helvia; her sister brought him as a child to Rome and nursed him tenderly. His teachers were Attalus, a Stoic, and Sotion, a pupil of the Sextii. In his youth he was a vegetarian and a water-drinker, but his father checked his indulgence in asceticism. Before his exile he had served as questor, was married, and had two children born. Caligula said his style was mere mosaic (*commisuras mearas*) or "sand without lime," and would have put him to death, had he not been assured that so conspicuous a subject could not last long (Suet., *Calig.*, 63; Dio Cassius, lix. 19, 7). Upon a Pompeian fresco a butterfly appears as charioteer of a dragon,—Seneca and Nero. His second wife was Pompeia Paulina, of noble family; she attempted to die with him. His enormous wealth was estimated at 800 millions of sesterces. He had 500 ivory tables inlaid with citron wood (*Inst.*, xi. 10, xii. 2). The judgment of Tacitus (*Ann.*, xiii. 4, 18, 42 sq., xiv. 52-54, xv. 60 sq.) is more favourable than that of Dio, who may possibly derive his account from the slanders of some personal enemy like Sullius. Seneca has found many champions—Lipsius (the introduction to his ed.); Diderot, *Essai sur les Éloques de Sénèque et de Néron* (ii. 1-407, Paris, 1875); Volquardsen, *Ehrenrettung* (Hadersleben, 1839); Martha, *Les Moralistes sous l'Empire Romain* (2d ed., Paris, 1866). For the dates of his works, see H. Lehmann, in *Philologia*, viii. p. 309; F. Jonas, *De ordine librorum Sen.* (Berlin, 1870); A. Martens, *De Sen. vita* (Altona, 1871); also R. Volkman, in *Mager's Pädagog. Revue*, xviii. pp. 219-276 (1857). At least eighteen prose works have been lost, among them *De superstitione*, an attack upon the popular conceptions of the gods, and *De matrimonio*, which, to judge by the extant fragments, must have been interesting reading. Since Gellius (xii. 2, 3) cites a book xxii. of the *Letters to Lucilius*, some of these have been lost. His style is elaborately criticized by Quintilian (*Inst.*, x. 1, 125-131), also by Fronto (p. 155 sq.; Gellius, xii. 2, 1). The doubt as to his authorship of the tragedies is due to a blunder of Sidonius Apollinaris (ix. 229-231); against it must be set Quintilian's testimony ("ut Medea apud Senecam," ix. 2, 3). Some of the Fathers, probably in admiration of his ethics, reckoned Seneca among the Christians; this assumption in its turn led to the forgery of a correspondence between St Paul and Seneca, which was known to Jerome (comp. Augustin, *Ep.*, 153: "Seneca . . . cujus etiam ad Paulum apostolum leguntur epistolæ"). This has given rise to an interesting historical problem, most thoroughly discussed in the commentary on the *Ep. to the Philippians* by Dr Lightfoot, bishop of Durham (London, new ed., 1879, pp. 270-338), who cites (p. 278 note) among earlier authorities A. Fleury, *St Paul et Sénèque* (Paris, 1833); C. Aubertin, *Étude* (1853), also new ed. *Sénèque et St Paul* (Paris, 1870); F. C. Baur (1858), republished in *Drei Abhandlungen* (Leipzig, 1878); F. W. Farrar, *Seneca's after God* (London, s.a.); and G. Boissier, in *Le Revue des Deux Mondes*, xcii. 1871, pp. 40-71. Also the articles by F. X. Kraus in *Theolog. Quartalschrift*, vol. xlix. pp. 609-624 (Tübingen, 1867) and by A. Harnack in *Theolog. Lit.-Zeitung*, 1881, pp. 444-449, the latter being a review of E. Westerburg, *Untersuchung der Sage, dass Seneca Christ gewesen sei* (Berlin, 1881).

The best text of the prose works, that of Haase in Teubner's series (1852), was re-edited in 1872-74; he followed the critical labours of Fickert (Berlin, 8 vols., 1842-45). More recently Gertz has revised the text of *Libri de beneficiis et de clementia* (Berlin, 1876) and H. A. Koch that of the *Dialogorum libri XII.* (completed by Valter, Jena, 1879). There is no complete exegetical commentary, either English or German. Bücheler's edition of the *Ἀποκρίσεις* may be found in *Symbola philol. Bonnens.*, i. (1864), pp. 31-80. Little has been done systematically since the notes of Lipsius and Gronovius. There is, however, Ruhkopf's ed. with Latin notes, 5 vols. (Leipzig, 1797-1811), and Lemaire's variorum ed. (Paris, 1827-32, 8 vols., prose and verse). The text of the tragedies was edited by Peiper and Richter for Teubner's series (1867), and more recently by F. Leo (Berlin, 2 vols., 1878-79). Nisard, *Études de mœurs et de critique sur les poètes de la décadence* (4th ed., Paris, 1878), has criticized them in detail. Of some 300 monographs enumerated in Engelmann may be mentioned, in addition to the above, G. Boissier, *Les tragédies de Sénèque ont-ils été représentées?* (Paris, 1861); A. Dörzgens, *Senecæ disciplinæ moralis cum Antoniniana comparatio* (Leipzig, 1857); E. F. Gelpke, *De Senecæ vita et moribus* (Bern, 1848); Holzherr, *Der Philosoph Seneca* (Rastadt, 1858). (R. D. H.)

SENECA FALLS, a post village and township of the United States, in Seneca county, New York, 41 miles south-west of Syracuse by the Auburn division of the New York Central Railroad, occupies a beautiful situation on Seneca river, the outlet of Seneca Lake. It turns the water-power of the falls to account in the manufacture of steam fire-engines, fire-extinguishing apparatus, pumps, machinery, knit goods, flour, yeast, &c. The population of the village was 5880 in 1880 and of the township 6853.

SENEFELDER, ALOIS. See LITHOGRAPHY, vol. xiv. pp. 697-698.

SENEGAL, a river of western Africa, which falls into the Atlantic about 16° N. lat., 9 or 10 miles below St Louis. It is formed at Bafulabé¹ (13° 50' N. lat. and 10° 50' W. long.) by the junction of the Ba-fing or Black River and the Ba-khoy or White River. The Ba-fing, which has a width at the confluence of 1475 feet, descends from the highlands of Futa-Jallon by a northward course of about 350 miles, during which it passes by a series of rapids from the altitude of 2460 feet, at which it takes its rise, to that of 360 feet, and receives from the right the Nunkolo and the Funkumah (with its tributary the Boki). The Ba-khoy, 800 feet wide at the confluence, has been previously flowing from east to west and gives that general direction to the Senegal, but its source is away in the south-east behind the country of Buré. That of its principal tributary, the Ba-ule (Red River), is more to the east and lies within a few miles of the course of the Niger in the Mandingo plateau. Below Bafulabé the Senegal, flowing north-west, passes a succession of falls—those of Guina (160 feet) and of Felu (50 or 60)—and arrives at Médine, after having accomplished 440 of its total course of 1000 miles. It receives only two important affluents,—from the right the "marigot" of Kulu, which comes from Kuniakhary, draining the slopes of the Kaarta plateau, and from the left the Falemé, which rises in the Futa-Jallon between Labé and Timbo and flows north-west in a permanent stream. Below Médine the Senegal presents a series of great reaches, which become more and more navigable as they approach the sea.

From the 1st of August to the 1st of October it is open as far as Médine to vessels not drawing more than 8 feet. Between Médine and Bakel (85 miles) there are twenty-seven "narrows," of which several, such as that at Kayes, are difficult; it is on this account that a railway has been projected between Kayes and the Niger. At Bakel below the confluence of the Falemé the river is navigable till the 1st of December, from Bakel to Saldé between the 15th of July and the 15th of December, and lastly from Mafu to the sea for a distance of 215 miles it is navigable all the year round. Outside the limits indicated navigation between Mafu and Médine is often precarious even for barges drawing little over a foot, and above Médine, though some reaches are deep enough, troublesome transshipments are necessary between reach and reach. Between Mafu and Saldé the Senegal changes its direction from north-west to west, and shortly before reaching the sea to south-west. The bar at the mouth can usually be crossed by vessels not drawing more than 10 feet, or at high tides a little more. Below Bakel the river becomes tortuous and encloses the great island of Morfil, 110 miles long, and a series of other islands, of which one is occupied by St Louis. At this point the right branch of the river is only 500 feet from the sea, but the dunes along the coast turn it south for other 9 miles. The scantiness of its sources, the steepness of its upper course, and the rapid evaporation which takes place after the short rainy season would soon dry up the river-system of the Senegal, especially in the upper regions; but natural dams cross the channel at intervals and the water accumulates behind them in deep reaches, which thus act as reservoirs. In the rainy season the barriers are submerged in succession, beginning with the farthest up, the reaches are filled, and the plains of the lower Senegal are changed into immense marshes. Like Lake Meris in antiquity on the Nile and the lake of Cambodia at the present time on the Me-kong, Lake Cayor on the right side of the lower Senegal and Lake Panieful on the left constitute reserve basins, receiving the surplus waters of the river during flood and restoring them in the dry season. For months together the latter forms the only drinking pond for the wild beasts of the surrounding country,—lions, elephants, leopards, panthers, ounces, cheetahs, hyenas, lynxes, giraffes, antelopes, gazelles, monkeys, jackals visiting it in crowds. In the upper part of the river the reservoirs are successively emptied to the level of the dams and receive no more water except from the permanent springs; but they are partially protected by curtains of verdure from the effects of the evaporation which makes itself so severely felt on the treeless seaboard. Owing to these natural "locks," similar to those of an artificial canal, the Senegal river never discharges less than 1700 or 1800 cubic feet per second. The lower Senegal forms the boundary between the dry and barren Sahara and the rich and productive region of the western Sudan; the line of its inundations is an ethnographic march between the nomadic Moor and the settled Negro.

¹ Bafulabé is a native word for "confluence."

SENEGAL,² a French colony of western Africa, composed of lines of fortified posts and a loose agglomeration of states and territories in various degrees of subjugation. The forts extend (a) from St Louis at the mouth of the Senegal to Bammako on the Niger,³ (b) along the coast of the Atlantic between St Louis and the mouth of the Salum to the south of Cape Verd, and (c) along the so-called rivers to the south which fall into the ocean between the Gambia and SIERRA LEONE (q.v.). French influence is fully dominant along those lines either in the form of actual territorial possession or of a recognized protectorate.⁴

The colony is ruled by a governor, sends a deputy to the French legislature, and elects a general council of sixteen members, ten for the electoral district of St Louis, four for that of Gorée-Dakar, and two for that of Rufisque. The three communes just named have each its municipal council. The population of those French possessions was in 1884 197,644,—46,364 urban, 143,200 rural, 8080 "floating." In the whole number there were only 1474 Europeans, of whom 1461 were French. The population of the protected countries cannot be ascertained. The most important places in the colony are St Louis (18,924 inhabitants in 1883), Dagana (5375), Rufisque (4244), Médine (3000), Joal (2372), Gorée and Dakar (each 2000). The colony has only a single true port, that of Dakar to the east of the peninsula of Cape Verd, since 1885 connected with St Louis by a railroad, 163 miles long, and visited by Atlantic steamers on their way from France to South America. Rufisque and Gorée have open roadsteads, where vessels anchor at some distance from the shore. The port of St Louis in the Senegal is difficult of access owing to the bar, but it is the only place where vessels can repair serious damages. The principal commercial centres are St Louis (imports and exports), Gorée (exports), and Rufisque (exports). The upper Senegal sends ground-nuts (known as Galam nuts), gum, millet, leather, and receives in exchange blue-calico (guinée) from India, England, and Belgium, various other cotton stuffs, cotton yarn, guns and ammunition, tobacco, crushed rice, sugar (raw and refined), molasses, biscuits, tinsmiths' wares, &c. The colony also imports Swedish iron, which is manufactured by the native blacksmiths into agricultural implements, knives, daggers, and spearheads. Cayor sells its ground-nuts for money. The rivers of the south district export ground-nuts, palm kernels, india-rubber, leather, coffee, in return for English and Belgian blue calico, Hamburg brandy, English gunpowder, English and Belgian guns, and American tobacco. An English firm has twenty-three factories on the Rio Nuñez, and others on the Rio Pongo and the Mellacorée. The total value of the exports and imports of the colony was £1,325,711 in 1879, £1,774,089 in 1880, and £1,888,657 in 1883, the imports slightly preponderating over the exports. The value of the ground-nuts exported in 1883 was £700,000, that of the gums only £120,000; and the ground-nut trade is still rapidly developing. The imports comprise French

² For the physical geography, &c., see SENEGAMBIA.
³ Along this line lie Richard Toll, Dagana (founded in 1821), Podor (1743 and 1854), Saldé (1859), Matam (1857), Bakel (1820), Kayes, Médine (1855), and Bafulabé (1879) on the Senegal, and between this river and the Niger the forts of Balumbé and Tukota on the Ba-khoy, Kita (1881), Koudu (1882), Niagassola (1884-85), and lastly Bammako (1883) or Bammaku, on the Niger.

⁴ ARRONDISSEMENT I.—On the circle of Bakel depend the post of Matam, the protected countries of Damga (1859), Guoy, Kamera, Guidimakha, Bondu, and Bambuk; on the circle of Médine, Khasso, Logo, and Natiaga; on the circle of Bafulabé, Barinta, Makadugu, Beteadugu, Farimbula, Bafing; on the circle of Kita, the province of Kita and Fulaadugu; on the circle of Bammako, Birgo and Little Beledugu. This arrondissement is under the command of a superior officer resident at Kayes. ARRONDISSEMENTS II., III.—These are formed by Lao and Toro (1863), protected countries attached to the circle of Saldé; the circle of Podor, which comprises the French portion of Toro and a fragment of Dimar; the circle of Dagana, on which depend the other portion of Dimar and a portion of Walo; the suburban district of St Louis, including the other portion of Walo, Ross, Merinaghen, the cantons of Gandiole, M'pal, Khatet, Gondu, Dialakhar, N'diogo, and Tubé; N'diambor and Merina N'guick, separate from Cayor and placed under French protection, as well as the kingdoms of Cayor and Baol; the suburb of Dakar with the island of Gorée, the cantons of Rufisque and the circles of M'bijem, Thies, Portudal, and Joal. ARRONDISSEMENT IV.—The Rivers of the South district constitutes the fourth arrondissement under a lieutenant-governor, and comprises the circle of Kaolack or Salum; those of Carabane and Sedhiu on the Casamance, with the protected countries of Pakao, Balmadu, Suna, Yacine, Firdu; the circle of Rio Nuñez formed by the Nalus and Landuman tribes; the circle of the Rio Pongo with the country of the Susus; the circle of Mellacorée with the protected countries of Samo, Kaback, Kabita, Kalua, Tabussu, Maneah, Corra, and the island of Tombo.

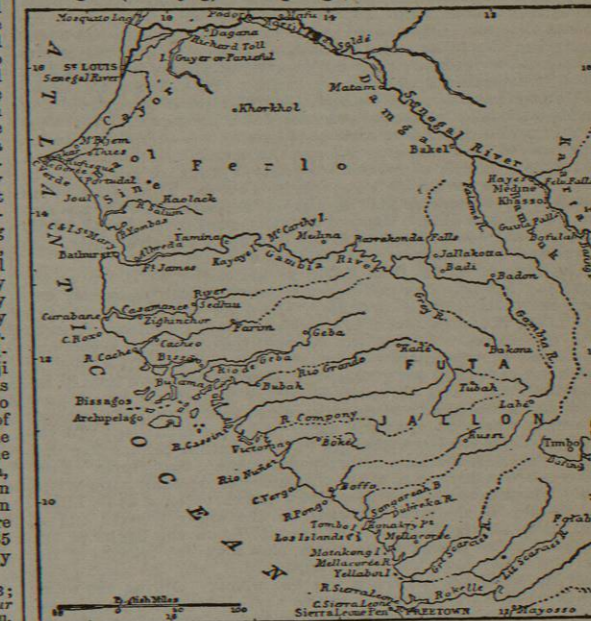
goods £360,000, goods passing as French £200,000, foreign goods £440,000, of which £240,000 represent English, £200,000 Belgian, £120,000 German, £80,000 American articles. In 1882 946 vessels entered and 960 cleared. The budget for the colony in 1884 was £100,320, for the communal expenses £14,560, and for the expenses of the capital £250,000.

History.—The navigators of Diéppe are said to have discovered the Senegal about 1360. The Portuguese had some establishments on its banks in the 15th century; and the first French settlements were probably formed in the latter part of the 16th or beginning of the 17th century. Between 1664, when these French settlements were assigned to Colbert's West India Company, and 1753, when the colony was seized by the English, Senegal had passed under the administration of no fewer than seven different companies, none of which attained any great success, though from 1694 to 1724 affairs were conducted by a really able governor, André Brué. In 1677 the French captured from the Dutch Rufisque, Portudal, Joal, and Gorée, and they were confirmed in possession of these places by the treaty of Niméguen (1678). In 1717 they acquired Portendic and in 1724 Arguin on the coast of the Sahara, which still belong to the colony. Gorée and the district of Cape Verd were surrendered by the English to the French in 1763, and by the treaty of peace in 1783 the whole of the Senegal was also restored; but the English again captured the colony in the wars of the first empire (Gorée 1800, St Louis 1809), and, though the treaty of Paris authorized a complete restitution, the French authorities did not enter into possession till 1817. Between that date and 1854 little was effected by the thirty-seven governors who succeeded each other at St Louis; but in this year the appointment of General Faidherbe proved the turning-point in the history of Senegal. He at once set about subduing the Moorish (Berber) tribes of the Trarzas, Braknas, and Diauis, whose "kings," especially the king of the Trarzas, had subjected the French settlers and traders to the most grievous and arbitrary exactions; and he bound them by treaty to confine their authority to the north bank of the Senegal. In 1855 he annexed the country of Walo and erected the fort of Médine in the country of Khasso. This last was a bold stroke for the purpose of stemming the advancing tide of Moslem invasion, which under Omar al-Hadji (Alegui) threatened the safety of the colony. In 1857 Médine was brilliantly defended by the mulatto Paul Holle against Omar, who with his army of 20,000 men had to retire before the advance of General Faidherbe and turn his attention to the conquest of the native states of the Sudan. By treaty of 1860 Omar recognized the French claim to half of Bambuk, half of Khasso, Bondu, Kamera, Guoy, Guidimakha, Damga, Futa-Toro, Dimar, &c. Since then annexations and protectorates have followed in rapid succession under the governorships of Jaureguiberry, Faidherbe, and Brière de l'Isle. It is sufficient to mention the treaties of 1881 and 1885 by which the confederation of Futa-Jallon and Buré respectively recognized a French protectorate.

See Jannetquin de Rochefort, *Voyage de Libye au royaume de Sénégal*, 1643; Adanson, *Histoire naturelle du Sénégal*, 1767; Mollien, *Voyage dans l'intérieur de l'Afrique fait aux sources du Sénégal et de la Gambie en 1818-1820*; Tardieu, *Sénégal et Guinée*, 1847; Faidherbe on "Populations noires des bassins du Sénégal et du Niger," in *Bull. Soc. de Géogr.*, Paris, 1854; *Sénégal et Niger, la France dans l'Afrique Occidentale*, 1879-83, published by the Ministry of Marine, 1884; Faidherbe, *Le Soudan français*, Lille, 1881-85; *Notices Coloniales pub. à l'occasion de l'Exposition d'Anvers*, 1885; *Annales Sénégalaises de 1854 à 1885, suivies des traités passés avec les indigènes*, 1886; and Rambaud, "Sénégal et Soudan Français," in *Revue des Deux Mondes*, 1885.

SENEGAMBIA, a country in the west of equatorial Africa, comprising, as the name indicates, the regions watered by the Senegal and the Gambia. It lies between 9° and 17° N. lat. and 6° and 17° 30' W. long., being bounded on the N. by the Sahara, W. by the Atlantic, S. by Sierra Leone, and E. by the Joliba or upper Niger. The area is estimated at about 400,000 square miles. Accepting the course of the Senegal and its right hand affluent the Ba-ule as the boundary towards the Sahara, the Joliba as the frontier towards Segu and Upper Guinea, and the watershed between the Mellacorée (Mellicoury) and the Great Scarcies as that between Senegambia and Sierra Leone, we have only for short distances to fall back on a mere conventional delimitation,—in the north between Sidian on the Ba-ule and Sansanding on the Niger via Murdia; in the south-east, from Sansanding to a point above Nyamina; and finally between the Joliba and the sources of the Great Scarcies. The Senegambian coast extends south-south-west almost in a straight line from the N'diadior or Mosquito lagoon (Marigot des Maringouins), formerly the northern mouth of the Senegal, to Cape Verd, the most western point of the African continent; then it bends south as far as Cape Roxo; and

afterwards south-east as far as the Mellacorée. With the exception of the two great capes just mentioned, the only headlands of any importance are Cape St Mary, forming the south side of the estuary of the Gambia; Cape Verga, between Rio Nuñez and Rio Pongo; and Konakry Point, opposite the Los (or Idolos) Islands. The only gulf on the whole coast is that which lies to the south of Cape Verd and contains the island of Gorée (q.v.); the other inlets, such as the bay of Sangareah, are mere estuaries or river mouths. Apart from the island in the Senegal on which St Louis is built and those formed by the deltas of the rivers, the only islands along the coast are Gorée, the Bissagos (or Bijug) Archipelago, the Los Islands, and the



Map of Senegambia.

little island of Matakong. The coast in the northern part has the same appearance as that of the Sahara,—low, arid, desolate, and dune-skirted, its monotony relieved only here and there by cliffs and plateaus. Farther south it becomes low, marshy, and clothed with luxuriant vegetation. Behind the low flat seaboard the country rises into a vast interior plateau terminating eastwards in a mountainous region. Though of no great height, these mountains cover a large area and have numerous ramifications. Farther to the east they sink abruptly towards the Niger valley, while southwards they are prolonged towards Sierra Leone and the interior of Upper Guinea, perhaps forming those Kong Mountains which are said to exist between the ocean and the Niger basin. Under the name of Mounts Badet, Yandi, Maté, Kissi (of which the first form, the "Alps" of Futa-Jallon) they descend on the west by a series of terraces to the plains of Senegambia, and on the north they extend to the left bank of the Senegal and even throw out some spurs into the desert beyond. The mountain region is cut by numerous erosion valleys. As to the general altitude nothing is accurately known, but the following points have been determined—Mount Daro, 4068 feet; Kuruworo, 3868; Warnani, 3799; Yenkina, 3560; Bogoma, 3524; Pampaya, 3290. The principal rivers are the Senegal, the Salum, the Yombas, the Gambia, the Casamance, the Cacheo, the Geba, the Rio Grande, the

Cassini, the Compony, the Rio Nuñez, the Rio Pongo, the Dubreka or Konakry, the Forecarah, and the Mellacorée. They all rise in the mountains of the interior or at the foot of the highlands and fall into the Atlantic. Their general direction is from east to west with a south-west deflexion, which becomes always more pronounced as we advance southwards. Unlike these rivers, the Joliba or NIGER (*q.v.*), flowing north and north-east, soon passes beyond Senegambia. Lagoons and backwaters are common; but there are no true lakes of any importance.

The geological constitution of the country is as yet very imperfectly known, especially in the interior. The low region of the seaboard has a very uniform character. It consists of sandstones or clay rocks and loose beds of reddish soil containing marine shells. At certain points, such as Cape Verd and Cape Roxo, the sandstones crop out; it is the red colour of the sandstone in fact which has given Cape Roxo or Cap Rouge its name. Clay slates also occur, and at intervals these sedimentary strata are interrupted by basaltic amygdaloid and volcanic rocks. For instance, the island of Gorée is basaltic; the Bissagos (Bissão) Islands are composed of scoria and other volcanic products; and a great part of the coast to the north of Rio Nuñez consists of basaltic and amygdaloid rocks. The base of the mountains is formed in certain places of clay slate, but more generally of granite, porphyry, syenite, or trachyte. In those districts mica schists and iron ores occur. Iron and gold are found in the mountains and the alluvial deposits. The streams also carry down gold dust. Many of the valleys are covered with fertile soils and there is generally a fertile belt along the river sides; but the rest of the country is rather arid and sterile.

The climate is far from being so unhealthy as is frequently asserted. Except when yellow fever is raging, Europeans may live there as satisfactorily as at home. There are two seasons, the dry season and the rainy season or winter, the latter contemporaneous with our summer. Along the seaboard the dry season is cool and agreeable; in the interior it is mild only for the three months which correspond to our winter, and then it becomes a time of intolerable heat. The annual temperature increases as we advance south and more rapidly as we advance east into the interior, except, of course, where an ascent is made to higher altitudes. To the south of Cape Verd the changes of temperature become less and less marked; Bissão has a more equable climate than Gorée. Eastwards the monthly range of the thermometer becomes more extensive. The maximum readings, which are exceptional at St Louis, become almost the rule at Bakel on the upper Senegal and at MacCarthy on the Gambia. In the north, on the banks of the Senegal, the north-east trade-winds blow for eight months of the year, the daily land and sea breezes which cool the atmosphere along the seaboard not being felt far inland. During the other four months there prevails a gentle south-west monsoon accompanied with frequent calms, storms, tornadoes, and rains. Southwards along the coast the trade-winds gradually decrease in both strength and duration, while the south-west monsoon becomes more powerful and persistent. The rainy season begins at Gorée between 27th June and 13th July, on the Gambia about 20th June, on the Casamance about the end of May, at the Bissagos Archipelago about the middle of May, and on the Rio Nuñez at the end of April. During this season Senegambia, drenched by heavy rains brought from the ocean, has everywhere one uniform appearance. The mean temperature is throughout very close on 81° Fahr. and the range of the thermometer is extremely limited. The rivers overflow and flood the lowlands. Storms are frequent. Vegetation displays its fullest energy. The fever exhalations are unfortunately also at their worst. At St Louis, Gorée, Dagana, and all along the Senegal there are 35 days of rain, a slight increase being apparent in the upper course of the river. At St Mary's, Bathurst, there are 48 days, at Sedhiu 84, at Bissão 111, at Boké 137,—a steady increase as we approach the equator. The number of storms follows almost the same ratio of increase, and showers which last two or three hours at St Louis give place to whole days of rain on the Casamance and the Rio Nuñez.

The king of the Senegambian trees is the baobab (*Adansonia digitata*), which sometimes at the height of 24 feet has a diameter of 34 feet and a circumference of 104. Acacias are very numerous, one species, *A. Adansonia*, being indeed the commonest of all Senegambian trees and valuable for its ship-timber. Among the palm-trees the *ronier* deserves to be mentioned, as the wood resists moisture and the attacks of insects; in some places, as in Cayor, it forms magnificent forests. The wood of the caïcedra (*Khaya senegalensis*), a tall tree, is used in joiner's work and inlaying, and its bark furnishes a bitter tonic. The mampatas grows sometimes 100 feet high, its branches beginning only at a height of about 25 feet. The tree producing the famous kola-nut¹ grows on the banks

¹ A very complete account of this nut will be found in Nachtigal, *Sahara and Sudan*.

of the southern streams. It is almost needless to mention the m'bilor, the gonat, the mimosa, fig-trees, orange-trees, cocoa-palms, mango-trees, pomegranates, sycamores, and so on. The dimb, the neteru, the tiamanoi, the dimbguton, the gologne, the n'taba yield edible fruits. The cultivated plants are millet, rice, tobacco, haricots, ground-nuts, indigo (wild indigo is also abundant), cotton (also found wild), maize, sugar-cane, and the butter-tree or karité.

The Senegambian lion is quite different from the Barbary lion; its colour is a deeper and brighter yellow, and its mane is neither so thick nor so long. Other beasts of prey are the leopard, the wild cat, the cheetah, the civet, and the hyæna. The wild boar is clumsier than the European variety. Antelopes and gazelles occur in large herds all through upper Senegambia; the giraffe is common in the region of the upper Senegal; the elephant is rare; the hippopotamus is gradually disappearing. Crocodiles swarm both in the upper Senegal and the upper Niger. Monkeys and apes of different species (the chimpanzee, the colobus, the cynocephalus, &c.), the squirrel, rat, and mouse abound. The hedgehog, marmot, porcupine, hare, rabbit, &c., are also met with. Among the more noteworthy birds are the ostrich, which migrates to the Sahara; the bustard, occurring in desert and uncultivated districts; the marabout, a kind of stork, with its beak black in the middle and red at the point, which frequents the moist meadow-lands and the lagoons; the brown partridge, the rock partridge, and the quail in the plains and on the mountain sides; and the guinea-fowl in the thickets and brushwood. Along the coast are caught the sperm whale, the manatee, and the cod-fish. The domestic animals are the horse, ass, ox, sheep, goat, dog, and camel.

The population of Senegambia cannot be ascertained with any approach to accuracy, but it may be roughly stated at from ten to twelve millions. It comprises three distinct races,—the Moor, the Negro, and the European. The Moors, or rather Berbers (Trarzas, Braknas, and Duais), belong strictly to the right bank of the Senegal and appear in Senegambia only exceptionally. The Negroes form the bulk of the population. They are divided into Poulis (Peuls, Fulbe, Fula, or Fellatah), Toucouleurs, Mandingoes, Sarakolés, Wolofs, Sereres, Diolas, Bambaras, Balantes, Biafares, Papels, Nalus, Landumans, Bagas, and Susus. The Poulis inhabit Futa, Damga, Bondu, and Futa-Jallon; they have a reddish complexion and almost straight hair, their body fairly stout, but their limbs slim. They are gentle and hospitable, but addicted to theft. The Toucouleurs, Poul half-breeds, belonging originally to Futa-Jallon, are similar to the Negro proper; they are treacherous, warlike, fond of plunder, and fanatical in their Mohammedanism. The Mandingoes or Malinkés inhabit the basins of the upper Niger and the upper Senegal and the western slope of the mountains of Futa-Jallon. They comprise the Mandingo proper, occupying Manding, and the Malinkés and Soninkés, scattered about Bambuk, Buré, and Fuladugu. Under the name of Wakore or Wangara they are also found in all the immense tract which extends to the north of the Kong Mountains. They are tall of stature and of great muscular strength. The Sarakolés are one of the branches of the Bambara race produced by crossing with the Poulis. Their character is mild and pacific. Scattered about in Guoy, Kamera, and Guidimakha, they are fond of trade and engage in it with activity. The Wolofs and the Sereres inhabit the seaboard from St Louis to Cape Verd and the left bank of the Senegal from its mouth to Richard Toll and Dagana. They are tall and robust, with black and glossy skin. Most of them are fetishists. The Diolas have flat noses, thick lips, harsh features, and a prominent belly; the body is tattooed. The Bambaras, who have invaded Kaarta and Khasso, have a coppery black complexion and frizzly hair; their cheeks are marked with deep scars. The Balantes inhabit the left bank of the Casamance; they are as cruel and as fond of pillage as the Mandingoes, but are more generous towards the vanquished. The Biafares live on the banks of the Rio Grande and the Papels in the valley of the Cacheo and the Geba. The Nalus and the Landumans are tributary to the French ports of the Rio Nuñez and the Rio Pongo. Islam is gradually detaching them from fetishism. The Bagas occupy the coast between the Rio Nuñez and the Rio Pongo. The Susus formerly dwelt on the upper Niger, but they were expelled by the invasion of the Mohammedans and are at the present time settled in the valley of the Rio Pongo. The principal languages of Senegambia are Wolof, Poul, Sereres, Mandingo, and Arabic. Wolof is spoken in a large part of Senegambia, in Wolof, Walo, Cayor, Dakar, Baol, Sine, Salum, and in the towns of St Louis and Gorée. The river Senegal marks the line of separation between Wolof and Arabic. Poul is the language of the Poulis and the Toucouleurs; Mandingo comprises several dialects,—Malinké, Soninké, Bambara. The few Europeans are mainly civil and military officials or traders. White planters are rare. The natives of Senegambia are generally divided into two quite distinct classes,—freemen and slaves. The griots are a kind of bards or trouvères who live at the expense of those whose praises they sing. Polygamy is generally practised. Circumcision of the adults of both sexes is a rite accompanied with superstitious

observances. Every canton, every village in independent Senegambia is governed either by a chief ("king") or by an "almamy" elected by a group of villagers.

Senegambia is divided into French Senegambia (with the territories placed under French protection), English Senegambia, Portuguese Senegambia, and independent Senegambia, comprising the native states not under the protection of a European power. French Senegambia is called the colony of SENEGAL (*q.v.*). English Senegambia comprises the establishments of the GAMBIA (*q.v.*) and the islands of Los. Portuguese Senegambia consisted till quite recently of Bissagos Archipelago and the "factories" of Zighinchor on the Casamance, Cacheo and Fariin on the Rio Cacheo, and Geba on the Geba. By an arrangement effected in 1886 Portugal ceded Zighinchor to France in exchange for Massabé on the Loango coast. Germany, which seemed at one time disposed to place various territories of Dubreka, Koba, and Kabital under its protection, has formally abandoned the plan. The independent states are not very numerous, but for the most part they are more extensive than the protected countries. They were quite recently—Jolof, lying between the Senegal and the Gambia in one direction and between the Falemé and the ocean in the other; Buré in the Mandingo region, a territory abounding in gold; Guidimakha in Gangara, on the right bank of the Senegal. There still remain among the more important Kaarta, the country of Segn, and Futa-Jallon.

Several lines of English, French, and German packets call at the Senegambian ports, and small steamers ascend the navigable portions of the rivers. A railway unites St Louis and Dakar, and another line is being constructed from Kayes to Bafulabé (on the upper Senegal), with a projected extension to Bammako. There is telegraphic communication between Dakar and St Louis, and a second line puts all the ports of the upper Niger and the left bank of the Senegal into connexion with St Louis, which has touch of Europe by means of a submarine cable passing by way of the Canary Islands to Cadiz. The foreign trade of Senegambia consists in the exportation of gums, ground-nuts, sesame, oil, india-rubber, birds' feathers, hides, wax, and ivory, coffee from the Rio Nuñez, and rice from the Casamance, and the importation of iron, alcoholic liquors, firearms, ammunition, coral, beads, tobacco, preserved foods, and blue calico (guinée). (D. K^r.)

SENIOR, NASSAU WILLIAM (1790-1864), English political economist, was born at Compton, Berks, on 26th September 1790, the eldest son of the Rev. J. R. Senior, vicar of Durnford, Wilts. He was educated at Eton and Magdalen College, Oxford; at the university he was a private pupil of Richard Whately, afterwards archbishop of Dublin, with whom he remained connected by ties of lifelong friendship. He took the degree of B.A. in 1811, was called to the bar in 1819, and in 1836, during the chancellorship of Lord Cottenham, was appointed a master in chancery. On the foundation of the professorship of political economy at Oxford in 1825, Senior was elected to fill the chair, which he occupied till 1830, and again from 1847 to 1852. In 1830 he was requested by Lord Melbourne to inquire into the state of combinations and strikes, to report on the state of the law, and to suggest improvements in it. He was a member of the Poor Law Inquiry Commission of 1832, and of the Handloom Weavers Commission of 1837; the report of the latter, published in 1841, was drawn up by him, and he embodied in it the substance of the report he had prepared some years before on combinations and strikes. He was also one of the commissioners appointed in 1861 to inquire into popular education in England. In the later years of his life, during his visits to foreign countries, he studied with much care the political and social phenomena they exhibited. Several volumes of his journals have been published, which contain much interesting matter on these topics, though the author probably rated too highly the value of this sort of social study. Senior was for many years a frequent contributor to the *Edinburgh Quarterly*, *London*, and *North British Reviews*, dealing in their pages with literary as well as with economic and political subjects. He died at Kensington on 4th June 1864.

His writings on economic theory consisted of an article in the *Encyclopædia Metropolitana*, afterwards separately published as *An Outline of the Science of Political Economy* (1836, 3d ed. 1854), and his lectures delivered at Oxford. Of the latter the following were printed—*An Introductory Lecture* (1827, 3d ed. 1831); *Two Lec-*

tures on Population, with a correspondence between the author and Malthus (1831); *Three Lectures on the Transmission of the Precious Metals from Country to Country, and the Mercantile Theory of Wealth* (1828); *Three Lectures on the Cost of obtaining Money and on some Effects of Private and Government Paper Money* (1830); *Three Lectures on Wages and on the Effects of Absenteeism, Machinery, and War, with a Preface on the Causes and Remedies of the Present Disturbances* (1830, 2d ed. 1831); *A Lecture on the Production of Wealth* (1847); and *Four Introductory Lectures on Political Economy* (1852). Several of his lectures were translated into French by M. Arrivabène under the title of *Principes Fondamentaux d'Economie Politique* (1835). Senior also wrote on administrative and social questions—*A Letter to Lord Howick on a Legal Provision for the Irish Poor, Commutation of Tithes, and a Provision for the Irish Roman Catholic Clergy* (1831, 3d ed. 1832, with a preface containing suggestions as to the measures to be adopted in the "present emergency"); *Statement of the Provision for the Poor and of the Condition of the Labouring Classes in a considerable portion of America and Europe, being the Preface to the Foreign Communications in the Appendix to the Poor Law Report* (1835); *On National Property, and on the Prospects of the Present Administration and of their Successors* (anon.; 1835); *Letters on the Factory Act, as it affects the Cotton Manufacture* (1837); *Suggestions on Popular Education* (1861); *American Slavery* (in part a reprint from the *Edinburgh Review*; 1862); *An Address on Education delivered to the Social Science Association* (1863). His contributions to the reviews were collected in volumes entitled *Essays on Fiction* (1864); *Bio-graphical Sketches* (1865, chiefly of noted lawyers); and *Historical and Philosophical Essays* (1865). In 1859 appeared his *Journal kept in Turkey and Greece in the Autumn of 1857 and the Beginning of 1858*; and the following were edited after his death by his daughter—*Journals, Conversations, and Essays relating to Ireland* (1868); *Journals kept in France and Italy from 1848 to 1852, with a Sketch of the Revolution of 1848* (1871); *Conversations with Thiers, Guizot, and other Distinguished Persons during the Second Empire* (1878); *Conversations with Distinguished Persons during the Second Empire, from 1869 to 1863* (1880); *Conversations and Journals in Egypt and Malta* (1882); also in 1872 *Correspondence and Conversations with Alexis de Tocqueville from 1834 to 1839*.

Senior's literary criticisms do not seem to have ever won the favour of the public; they are, indeed, somewhat formal and academic in spirit. The author, while he had both good sense and right feeling, appears to have wanted the deeper insight, the geniality, and the catholic tastes which are necessary to make a critic of a high order, especially in the field he chose,—that, namely, of imaginative literature. His tracts on practical politics, though the theses they supported were sometimes questionable, were ably written and are still worth reading, but cannot be said to be of much permanent interest. But his name will continue to hold an honourable, though secondary, place in the history of political economy. Senior regards political economy as a purely deductive science, all the truths of which are inferences from a few elementary propositions. It is, in his opinion, wrongly supposed by J. S. Mill and others to be a hypothetical science,—founded, that is to say, on postulates not corresponding with social realities. The premises from which it sets out are, according to him, not assumptions but facts. It concerns itself, however, with wealth only, and can therefore give no practical counsel as to political action: it can only suggest considerations which the politician should keep in view as elements in the study of the questions with which he has to deal. The conception of economics as altogether deductive is certainly erroneous, and puts the science from the outset on a false path. But deduction has a real, though limited, sphere within it. Hence, though the chief difficulties of the subject are not of a logical kind, yet accurate nomenclature, strict definition, and rigorous reasoning are of great importance. To these Senior has given special attention, and, notwithstanding occasional pedantries, with very useful results. He has in several instances improved the forms in which accepted doctrines were habitually stated. He has also done excellent service by pointing out the arbitrary novelties and frequent inconsistencies of terminology which deface Ricardo's principal work,—as, for example, his use of "value" in the sense of "cost of production," and of "high" and "low" wages in the sense of a certain proportion of the product as distinguished from an absolute amount, and his peculiar employment of the epithets "fixed" and "circulating" as applied to capital. He shows, too, that in numerous instances the premises assumed by Ricardo are false. Thus he cites the assertions that rent depends on the difference of fertility of the different portions of land in cultivation; that the labourer always receives precisely the necessaries, or what custom leads him to consider the necessaries, of life; that, as wealth and population advance, agricultural labour becomes less and less proportionately productive; and that therefore the share of the produce taken by the landlord and the labourer must constantly increase, whilst that taken by the capitalist must constantly diminish; and he denies the truth of all these propositions. Besides adopting some terms, such as that of "natural agents," from Say, Senior

introduced the word "abstinence"—which, though obviously not free from objection, is for some purposes useful—to express the conduct of the capitalist which is remunerated by interest; but in defining "cost of production" as the sum of labour and abstinence necessary to production he does not seem to see that an amount of labour and an amount of abstinence are disparate, and do not admit of reduction to a common quantitative standard. He has added some important considerations to what had been said by Smith on the division of labour. He distinguishes usefully between the rate of wages and the price of labour. But in seeking to determine the law of wages he falls into the error of assuming a determinate wage-fund, and states as an economic truth what is only an identical proposition in arithmetic. Whilst entertaining such an exaggerated estimate of the services of Malthus that he extravagantly pronounces him "as a benefactor of mankind on a level with Adam Smith," he yet shows that he modified his opinions on population considerably in the course of his career, regards his statements of the doctrine with which his name is associated as vague and ambiguous, and asserts that, "in the absence of disturbing causes, subsistence may be expected to increase in a greater ratio than population." It is urged by Périn, and must, we think, be admitted, that by his isolation of economics from morals, and his assumption of the desire of wealth as the sole motive-force in the economic domain, Senior has, in common with most of the other followers of Smith, tended to set up egoism as the legitimate ruler and guide of practical life. It is no sufficient answer to this charge that he makes formal reserve in favour of higher ends. From the scientific side, Cliffe Leslie has abundantly proved the unsubstantial nature of the abstraction implied in the phrase "desire of wealth," and the inadequacy of such a principle for the explanation of economic phenomena.

(J. K. I.)

SENLI, a town of France, in the department of Oise, lies on the right side of the Nonette, a left-hand affluent of the Oise, 34 miles north-north-east of Paris by the Northern Railway on the branch line (Chantilly-Crépy) connecting the Paris-Creil and Paris-Soissons lines. In 1881 it had only 6870 inhabitants; but its antiquity, its historical monuments, and its situation in a beautiful valley, in the midst of the three great forests of Hallatte, Chantilly, and Ermenonville, render it interesting. Its Gallo-Roman walls, 23 feet high and 13 feet thick, are, with those of St Lizier (Ariège) and Bourges, the most perfect in France. They enclose an oval area 1024 feet long from east to west and 794 feet wide from north to south. At each of the angles formed by the broken lines of which the circuit of 2756 feet is composed stands or stood a tower; numbering originally twenty-eight, and now only sixteen, they are semicircular in plan, and up to the height of the wall are unpierced. The Roman city had only two gates; the present number is five. The site of the prætorium was afterwards occupied by a castle occasionally inhabited by the kings of France from Clovis to Henry IV. and still represented by ruins dating from the 11th, 13th, and 16th centuries. In the neighbourhood of Senlis the foundations of a Roman amphitheatre, 138 feet by 105, have also been discovered. The old cathedral of Notre Dame (12th, 13th, and 16th centuries) was begun in 1155 on a vast scale; but owing to the limited resources of the diocese progress was slow and the transept was finished only under Francis I. The total length is 269 feet, but the nave (98 feet high) is shorter than the choir. At the west front there are three doors and two bell towers. The right-hand tower (256 feet high) is very striking: it consists, above the belfry stage, of a very slender octagonal drum with open-work turrets and a spire with eight dormer windows. The left-hand tower, altered in the 16th century, is crowned by a balustrade and a sharp roof. In the side portals, especially in the southern, the flamboyant Gothic is displayed in all its delicacy. Externally the choir is extremely simple. In the interior the sacristy pillars with capitals of the 10th century are noteworthy. The episcopal palace, now an archaeological museum, dates from the 13th century; the old collegiate church of St Frambourg was rebuilt in the 12th century in the style which became characteristic of the "saintes chapelles" of the 13th and 14th centuries; St Pierre, though enclosed by cavalry barracks, has preserved

its two towers. The ecclesiastical college of St Vincent, occupying the old abbey of this name, has a very elegant church, the date of which has been greatly disputed by archaeologists, who sometimes wrongly refer it to Queen Anne of Russia. The town-house and several private houses are also of architectural interest.

Senlis can be traced back to the Gallo-Roman township of the Silvanectes which afterwards became Augustomagus. Christianity was introduced by St Rieul at the close of the 3d century. During the first two dynasties of France Senlis was a royal residence. After the dismemberment of the Carolingian empire it belonged to the counts of Vermandois and then to the royal domain, and obtained a communal charter in 1173. Its bishop, Guérin, elected in 1214, signalized himself at the battle of Bouvines. The burgesses took part in the Jacquerie of the 14th century, then sided with the Burgundians and the English, whom, however, they afterwards expelled. The Leaguers were there beaten by the duke of Longueville and La Noue. In the time of Henry IV. the local manufactures employed 200 masters and 4000 men, but all industrial activity has now disappeared. The bishopric was suppressed at the Revolution, and this suppression was confirmed by the Concordat.

SENNA (Arab. *sana*), a popular purgative, consisting of the leaves of two species of *Cassia*, viz., *C. acutifolia*, Del., and *C. angustifolia*, Vahl. *C. acutifolia* is a native of many districts of Nubia, e.g., Dongola, Berber, Kordofan, and Senaar, but is grown also in Timbuctoo and Sokoto. The leaflets are collected twice a year by the natives, the principal crop being gathered in September after the rainy season and a smaller quantity in April. The leaves are dried in the simplest manner by cutting down the shrubs and exposing them on the rocks to the burning sun until quite dry. The leaflets then readily fall off and are packed in large bags made of palm leaves, and holding about a quintal each. These packages are conveyed by camels to Assouan and Darao and thence to Cairo and Alexandria, or by ship by way of Massowah and Suakim. The leaflets form the Alexandrian senna of commerce. Formerly this variety of senna was much adulterated with the leaves of *Solenostemma Argel*, Hayne, which, however, are readily distinguishable by their minutely wrinkled surface. Of late years Alexandrian senna has been shipped of much better quality. Occasionally a few leaves of *C. obovata*, Coll., may be found mixed with it. *C. angustifolia* affords the Bombay, East Indian, Arabian, or Mecca senna of commerce. This plant grows wild in the neighbourhood of Yemen and Hadramaut in the south of Arabia, in Somali Land, and in Sind and the Punjab in India. The leaves are chiefly shipped from Mocha, Aden, Jeddah, and other Red Sea ports to Bombay and thence to Europe, the average imports into Bombay amounting to about 250 tons annually, of which one-half is re-exported. Bombay senna is very inferior in appearance to the Alexandrian, as it frequently contains many brown and decayed leaflets and is mixed with leaf-stalks, &c. *C. angustifolia* is also cultivated in the extreme south of India, and there affords larger leaves, which are known in commerce as Tinnevely senna. This variety is carefully collected, and consists almost exclusively of leaves of a fine green colour, without any admixture of stalks. It is exported from Tuticorin.

Senna appears to have been introduced into Europe about the 9th century by Arabian physicians, by whom, however, the pods seem to have been preferred to the leaves. The medicinal activity of senna leaves appears to be due to a very unstable colloid glucoside to which the name of cathartic acid has been given. It is readily decomposed by a temperature much below 100° Fahr. (*Pharm. Jour. Trans.*, [3], xv. p. 704), and hence cold preparations of senna are the most active. In the free state it is soluble in dilute alcohol and in water, forming a brown solution, but is almost insoluble in strong alcohol and entirely so in ether and chloroform. Combined with ammonia it forms an active purgative. Two bitter principles named sennacrol and senna-picrin have been extracted from senna by Ludwig; the former is soluble and the latter insoluble in ether. A yellow colouring matter has also been obtained from senna, but it appears probable that it is only a decomposition product of cathartic acid. Senna must be included among the irritant purgatives, since cathartic acid has no aperient effect when injected into the

blood. Owing to its colloid character, it is absorbed with difficulty, and its action is thus exerted throughout the greater part of the intestinal canal.

SENNACHERIB. See BABYLONIA, vol. iii. p. 187, and ISRAEL, vol. xiii. p. 413 sq.

SENNAR. See SENAAR.

SENS, a town of France, chef-lieu of an arrondissement in the department of Yonne, lies on the right side of the Yonne near its confluence with the Vanne, and on the railway from Paris to Lyons, 70 miles south-east of the former city at the intersection of the line from Orleans to Troyes. It derives its importance from its antiquity and its archiepiscopal see. The cathedral of St Étienne occupies the site of an ancient temple on which St Savinian is said to have built, at the close of the 3d century, a little church consecrated to the Virgin. The present Gothic cathedral, erected between 1122 and 1168, subsequently underwent alteration in the 13th century and again under Louis XII. The west front measures 154 feet in breadth; the middle portal has good sculptures, representing the parable of the virgins and the story of St Stephen. The right-hand portal contains twenty-two remarkable statuettes of the prophets, which have suffered considerable injuries. Above this portal rises the stone tower, decorated with armorial bearings and with statues representing the principal benefactors of the church. The bells in the campanile, by which the tower is surmounted, enjoyed immense reputation in the Middle Ages; the two which still remain, La Savinienne and La Potentielle, weigh respectively 15 tons 7 cwt and 13 tons 13 cwt. The left portal is adorned with two bas-reliefs, Liberality and Avarice, as well as with the story of John the Baptist. The portal on the north side of the cathedral is one of the finest examples of French 16th-century sculpture. Glass windows of the 12th to the 16th century are preserved, some of them representing the legend of St Thomas of Canterbury. Among the interior adornments are an altarpiece finely carved in stone, the tomb of the dauphin (son of Louis XV.) and his consort, Marie Joséphe of Saxony, one of the masterpieces of Coustou, and bas-reliefs from the mausoleum of Cardinal Duprat. The treasury contains a fragment of the true cross presented by Charlemagne, and the vestments of St Thomas of Canterbury. It was in the cathedral of Sens that St Louis, in 1234, married Marguerite of Provence, and five years later deposited the crown of thorns. The official buildings of the cathedral, dating from the 13th century, have been restored by Viollet-le-Duc. The old judgment-hall and the dungeons had remained intact; in the first story is the synod hall, vaulted with stone and lighted by beautiful grisaille windows. A Renaissance structure connects the buildings with the archiepiscopal palace, which also dates from that period. The oldest of the other churches of Sens is St Savinian, the foundation of which dates from the 3d century, while the crypt is of the early part of the 11th, and the upper portions of the bell-tower of the first years of the 13th. The contents of the museum of sculptured stones have been mainly derived from the old fortifications, which were themselves constructed during barbarian invasion from the ruins of public monuments. The only town gate still preserved is that known as the dauphin's (1777). In the public library are a number of MSS. and a famous missal with ivory covers. The chemist Thenard has his statue in the town. The population in 1881 numbered 13,440.

Sens, when the capital of the Senones, one of the most powerful peoples of Gaul, bore the name of Agenticum. It was not finally subdued by the Romans till after the defeat of Vercingetorix. On the division of Gaul into seventeen provinces under the emperor Valens, Agenticum became the metropolis of the 4th Lugdunensis. Theatres, circuses, amphitheatres, triumphal arches, and aqueducts were all built in the town by the Romans. It was the meeting point of six great highways. The inhabitants, converted to Chris-

tianity by the martyrs Savinian and Potentian, held out against the Alemanni and the Franks in 356, against the Saracens in 731 or 733, and finally against the Normans in 886,—the last having besieged the town for six months. At the commencement of the feudal period Sens was governed by counts, who had become hereditary towards the middle of the 10th century; and the contests of these counts with the archbishops or with their feudal superiors often led to much bloodshed and disaster. Several councils were held at Sens, notably that at which St Bernard and Abelard met. The burgesses in the middle of the 12th century formed a defensive association which carried on war against the clergy, and Philip Augustus restored the commune. In the ardour of its Catholicism Sens massacred the Protestants in 1562, and it was one of the first towns to join the League. Henry IV. did not effect his entrance till 1594, and he then deprived the town of its privileges. In 1622 Paris, hitherto suffragan to Sens, was made an archbishopric, and the bishoprics of Chartres, Orleans, and Meaux were transferred to the new jurisdiction. In 1791 the archbishopric was reduced to a bishopric of the department of Yonne. Suppressed in 1801, the see was restored in 1807 with the rank of archbishopric. The town was occupied by the invaders in 1814 and 1870-71.

SENSITIVE PLANT. See MIMOSA: comp. PHYSIOLOGY, vol. xix. p. 62.

SEONI, or SEONEE, a British district of India, in the Central Provinces, lying between 21° 36' and 22° 58' N. lat. and 79° 14' and 80° 19' E. long., with an area of 3247 square miles, is bounded on the N. by Jabalpur, on the E. by Mandla and Balághát, on the S. by Nágpur and Bhandára, and on the W. by Narsinhpur and Chhindwára. Seoni is a portion of the upland tract formed by the Sápura Hills which extend along the south bank of the Narbadá (Nerbudda) from the plains of Broach on the west to the Maikal range in the east; and it is remarkable for the beauty of its scenery and the fertility of its valleys. The northern and western portions of the district include the plateaus of Lakhnádon and Seoni; the eastern section consists of the watershed and elevated basin of the Wainganga; and in the south-west is a narrow strip of rocky land known as Dongartál. The plateaus of Seoni and Lakhnádon vary in height from 1800 to 2000 feet; they are well cultivated, clear of jungle, and their temperature is always moderate and healthy. Geologically the north part of Seoni consists of trap hills and the south of crystalline rock. The soil of the plateaus is the rich black cotton soil formed by disintegrated trap, of which about two-thirds of the district are said to consist, but towards the south, where cliffs of gneiss and other primitive formations occur, the soil is silicious and contains a large proportion of clay. Seoni is hilly throughout, the hills for the most part being clothed with small stunted trees; but in the valleys and on the plateaus forest trees are very thinly scattered and are seldom of large size. The chief river of the district is the Wainganga, with its affluents the Hiri, Sagar, Theli, Bijná, and Thánwar; other streams are the Tímar and the Sher, affluents of the Narbadá. The average annual rainfall is about 50 inches.

The census of 1881 returned the population of Seoni district at 334,733 (males 167,925, females 166,808); of these 179,705 were Hindus, 13,442 Mohammedans, 99 Christians, and 139,444 aboriginals. SEONI (*q.v.*) is the only town with a population exceeding 10,000. Of the total district area of 3247 square miles only 1095 are cultivated, and of the portion lying waste 613 are returned as cultivable. Wheat forms the staple crop; rice and other food-grains are also extensively grown; and among miscellaneous products are cotton, fibres, and sugar-cane. In 1883-84 the gross revenue of Seoni amounted to £35,419, of which the land-tax yielded £15,379. Trade is chiefly carried on by means of markets in the towns. Manufactures consist of coarse cloth and some pottery of superior quality made at Kánhiwára. At Khawása, in the midst of the forest, leather is beautifully tanned. The only means of communication is by road, the aggregate length of which is estimated at 90 miles. Seoni came under British rule early in the 19th century, on the downfall of the Nágpur power, and it was formed into a separate district in 1861.

SEONI, principal town and administrative headquarters of the above district, is situated in 22° 5' 30" N. lat. and 79° 35' E. long., midway between Nágpur and Jabalpur.