

There are numerous modified and subsidiary processes connected with refining, as well as with all branches of the sugar industry, regarding which it is not possible here to enter into detail. The industry is essentially progressive and subject to many changes.

SORGHUM SUGAR.—The stem of the Guinea corn or sorghum (Sorghum saccharatum) has long been known in China as a source of sugar, and the possibility of cultivating it as a rival to the sugar-cane and beetroot has attracted much attention in America. The sorghum is harder than the sugar-cane; it comes to maturity in a season; and it retains its maximum sugar content a considerable time, giving opportunity for leisurely harvesting. The sugar is obtained by the same method as cane sugar. The cultivation of sorghum sugar has not found much favour in the United States; the total yield from that source in 1885 did not exceed 600,000 lb.

MAPLE SUGAR.—The sap of the rock or sugar maple, Acer saccharinum, a large tree growing in the United States and Canada, yields a local supply of sugar, which also occasionally finds its way into commerce. The sap is collected in spring, just before the foliage develops, and is procured by making a notch or boring a hole in the stem of the tree about 3 feet from the ground. A tree may yield 3 gallons of juice a day and continue flowing for six weeks; but on an average only about 4 lb of sugar are obtained from each tree, 4 to 6 gallons of sap giving 1 lb of sugar. The sap is purified and concentrated in a simple manner, the whole work being carried on by farmers, who themselves use much of the product for domestic and culinary purposes. The total production of the United States ranges from 30,000,000 to 50,000,000 lb, principally obtained in Vermont, New York, Ohio, and Pennsylvania. In Canada also a considerable quantity of maple sugar is collected for domestic use.

Palm sugar.

PALM SUGAR.—That which comes into the European market as jaggery or khaur is obtained from the sap of several palms, the wild date (Phoenix sylvestris), the Palmyra (Borassus flabelliformis), the cocoa-nut (Cocos nucifera), the gomuti (Arenga saccharifera), and others. The principal source is Phoenix sylvestris, which is cultivated in a portion of the Ganges valley to the north of Calcutta. The trees are ready to yield sap when five years old; at eight years they are mature, and continue to give an annual supply till they reach thirty years. The collection of the sap (toddy) begins about the end of October and continues, during the cool season, till the middle of February. The sap is drawn off from the upper growing portion of the stem, and altogether an average tree will run in a season 350 lb of toddy, from which about 35 lb of raw sugar—jaggery—is made by simple and rude processes. Jaggery production is entirely in native hands, and the greater part of the amount made is consumed locally: it only occasionally reaches the European market.

Starch sugar

STARCH SUGAR.—This, known in commerce as glucose or grape sugar, an abundant constituent of sweet fruits, &c. (see p. 623 above), is artificially elaborated on an extensive scale from starch. The industry is most largely developed in Germany, where potato starch is the raw material, and in the United States, Indian corn starch being there employed. The starch is acted on by a weak solution of sulphuric acid, whereby soluble starch is formed, which ultimately results in a mixture of glucose and dextrose in varying proportions, constituting the starch sugar of commerce. The operations embrace the boiling of the starch with water containing the requisite proportion of acid, the neutralization of the acid with lime, and the formation of a precipitate of sulphate of lime, which is separated by filtration in a filter press. The filtered liquid is, when necessary, deprived of colour by passing it through a bed of animal charcoal, and then it is concentrated to a density of from 40 to 45 Baumé in a vacuum pan. If the resulting syrup contains little dextrin it will on cooling slowly solidify into a granular concretionary mass; but if much dextrin is present it remains in the condition of a syrup. Starch sugar is very largely used by brewers and distillers, and by liqueur makers, confectioners, and others for making fruit and other syrups. Burnt to caramel, it is also employed to colour beverages and food substances. As an adulterant it is largely employed in the honey trade and for mixing with the more valuable cane sugar. In 1885 there were about fifty factories in Germany engaged in starch sugar making, in which 10,000 tons of hard sugar, 20,000 tons of syrup, and 1250 tons of "colour" were made.

Commerce.

At the present time, judging by the amount sent to the market, cane and beet sugars are produced in about equal amount; but, since vast quantities of cane sugar are grown and consumed in India, China, and other Eastern countries of which we get no account, there cannot be a doubt that the annual production of cane far exceeds that of beet sugar. Still, as a growth of not more than forty years, the dimensions to which the beet sugar trade has attained are certainly remarkable. But these dimensions would not have been so suddenly attained had it not been for the system of protection established in the producing countries and of bounties paid to the beet manufacturers on exporting their produce. The

United Kingdom is the only open market for sugar, which is consequently sold there at an unprecedentedly low price. The following table shows the relative proportions of the beet and the cane sugar trade and the principal sources of the supply for 1880-85.

Table showing relative proportions of beet and cane sugar trade and principal sources of supply for 1880-85. Columns include years (1880-81 to 1884-85) and tons for 1. BEET SUGAR and 2. CANE SUGAR across various countries like German empire, Austria-Hungary, France, etc.

The relative values of beet and of a low quality of raw cane sugar for 1879-86 are shown in the following table:—

Table showing average price each year (1879-1886) for unclayed Manila (taal) on spot and German beet, basis 88 per cent. f.o.b. per cwt. Includes a section for Average Price of the Fourteen Years 1872 to 1885.

(J. PA.)

SUGAR-BIRD, the English name commonly given in the West India Islands to the various members of the genus Certhiola (generally regarded as belonging to the Family Cerebidae) from their habit of frequenting the curing-houses where sugar is kept, apparently attracted thither by the swarms of flies. These little birds on account of their pretty plumage and their familiarity are usually favourites. They often come into dwelling-houses, where they preserve great coolness, hopping gravely from one piece of furniture to another and carefully exploring the surrounding objects with intent to find a spider or insect. In their figure and motions they remind a northern naturalist of a Nuthatch, while their coloration—black, yellow, olive, grey, and white—recalls to him a Titmouse. They generally keep in pairs and build a domed but untidy nest, laying therein three eggs, white blotched with rusty-red. Apart from all this the genus presents some points of great interest. Mr Sclater (Cat. B. Br. Museum, xi, pp. 36-47) recognizes 18 "species," therein following Mr Ridgway (Proc. U.S. Nat. Museum, 1885, pp. 25-30), of which 3 are continental with a joint range extending from southern Mexico to Peru, Bolivia, and south-eastern Brazil, while the remaining 15 are peculiar to certain of

1 Known in French as Guit-guit, a name used for them also by some English writers. The Guitguit of Hernandez (Rer. Medic. N. Hisp. Thesaurus, p. 56), a name said by him to be of native origin, can hardly be determined, though thought by Montbeillard (Hist. Nat. Oiseau, v. p. 529) to be what is now known as Cercoea carulea, but that of later writers is C. cyanea. The name is probably onomatopoeic, and very likely analogous to the "Quit" applied in Jamaica to several small birds.

the Antilles, and several of them to one island only. Thus C. caboti is limited, so far as is known, to Cozumel (off Yucatan). C. tricolor to Old Providence, C. flaveola (the type of the genus) to Jamaica, and so on, while islands that are in sight of one another are often inhabited by different "species." Further research is required; but even now the genus furnishes an excellent example of the effects of isolation in breaking up an original form, while there is comparatively little differentiation among the individuals which inhabit a large and continuous area. The non-appearance of this genus in Cuba is very remarkable. (A. N.)

SUGDEN, EDWARD BURTONSHAW. See ST LEONARDS, LORD.

SUHL, a manufacturing town in an isolated portion of Prussian Saxony, is picturesquely situated on the Lauter, on the southern slope of the Thuringian Forest, 6 1/2 miles to the north-east of Meiningen and 29 miles to the south-west of Erfurt. The armourers of Suhl are mentioned as early as the 9th century, but they enjoyed their highest vogue from 1550 to 1634. The knights of south Germany especially prized the swords and armour of this town, and many of the weapons used in the mediæval campaigns against the Turks and in the Seven Years' War are said to have been manufactured at Suhl. Its old popular name of the "armoury of Germany" is more appropriate, however, to its past than to its present position, for, already seriously crippled by the ravages of the Thirty Years' War and by frequent conflagrations, it has suffered considerably in more modern times from the competition of other towns, especially since the introduction of the needle-gun. It still contains, however, large factories for firearms (military and sporting) and side arms, besides iron-works, machine-works, potteries, and tanneries. The once considerable manufacture of fustian has declined. A brine spring (Soolquelle) at the foot of the neighbouring Domberg is said to have given name to the town. The population in 1880 was 9937 and 10,605 in 1885. Suhl, made a town in 1527, belonged to the early principality of Henneberg, and formed part of the possessions of the kingdom of Saxony assigned to Prussia by the congress of Vienna.

SUICIDE. The phenomenon of suicide has at all times attracted a large amount of attention from moralists and social investigators. Though of very small dimensions, even in the countries where it is most prevalent, its existence is rightly looked upon as a sign of the presence of maladies in the body politic which, whether remediable or not, deserve careful examination. To those who look at human affairs from a theological standpoint, suicide necessarily assumes a graver aspect, being regarded, not as a minute and rather obscure disease of the social organism, but as an appalling sign of the tendency of man to resist the will of God. Compare FELO DE SE. As a great number of persons are, either directly or indirectly, under the influence of the theological bias, and as the act of suicide is in itself of a striking character to the imagination, the importance of the phenomenon from a sociological point of view has been to some extent exaggerated, especially in those countries of the Continent where suicides are most numerous. Moreover, the matter has during the last twenty years become of direct interest to the Governments of those countries where the whole able-bodied male population are more or less under the control of a military organization; for, rightly or wrongly, a portion of the recent considerable increase in the suicide rate of Prussia, Saxony, Austria, and France is attributed to dislike of military service. It may be observed in passing that the

1 In the article BIRDS (iii. p. 749) attention was drawn to what was then believed to be a fact—namely, that the form found in this island was identical with that which inhabits the Bahamas; but now the two forms are regarded as distinct.

suicide rate among soldiers is high in all countries, Great Britain not excepted, as was shown by Mr W. H. Millar in the Journal of the Statistical Society, vol. xxxvii., 1874, and more recently by Dr Ogle in the same Journal, vol. xlix. (March), 1886. As enlistment is voluntary in the United Kingdom, the alleged dislike to conscription cannot be the sole cause of the high rate prevailing in some of the Continental states. Before referring to the more general characteristics of suicide, it will be well to furnish some idea of its magnitude in relation to the category of social phenomena to which it belongs, namely, death. The following tables are constructed for this purpose. The first (I.) gives the absolute number of cases of suicide as officially stated in a number of countries for a series of

I. Statement of the Number of Cases of Suicide in the Principal Countries of Europe during the undermentioned Periods and Years.

Table I: Statement of the Number of Cases of Suicide in the Principal Countries of Europe during the undermentioned Periods and Years. Columns include Periods, Sweden, Norway, Denmark, Prussia, Belgium, France, Baden, Wurtemberg, Bavaria, Saxony, Austria (proper), Italy.

II. Statement of the estimated Population of the undermentioned Countries in the Years 1868, 1876, and 1882; the Number of Deaths from Suicide and other Causes in the same Years in the same Countries; and the Proportions borne by the Deaths to the Population in each case.

Table II: Statement of the estimated Population of the undermentioned Countries in the Years 1868, 1876, and 1882; the Number of Deaths from Suicide and other Causes in the same Years in the same Countries; and the Proportions borne by the Deaths to the Population in each case. Columns include Countries, Estimated Population in the Middle of the Year, Deaths (Suicide, Other Causes, Total), Number of Deaths per 1,000,000 Inhabitants (Suicide, Other Causes, Total).

1 Uncertain data. 2 Still-births are excluded. 3 Adding natural increase of 1868 to population of 1867 (Col. 1). 4 Estimate, deducting natural increase of 1869-82 from figure in census of 1871. 5 159,186 including still-births.

years. Table II. (A, B, C) refers to three separate years and shows the number of cases of suicide relatively to all the deaths and to the population for certain countries. The totals for the countries in question are also given. Table I. is obtained from Morselli (Table I.) with the addition of figures that have been published since his work appeared.<sup>1</sup> Table III. gives the figures relating to three States of the American Union which have published statistics on the subject.

II. B.—1876.

Countries.	Estimated Population in the Middle of the Year.	Deaths.			Number of Deaths per 1,000,000 Inhabitants.		
		Suicide.	Other Causes.	Total.	Suicide.	Other Causes.	Total.
Austria	21,319,544	2438	631,925	634,363	114	29,686	30,800
Baden	1,507,179	269	40,054	40,323	178	26,582	26,760
Bavaria	5,022,390	522	153,674	154,196	104	30,596	30,700
Belgium	5,396,185	439	116,348	116,787	82	21,818	21,900
Denmark	1,899,130	506	36,859	37,365	267	19,433	19,700
France	36,905,788	5804	823,270	829,074	157	22,445	22,600
Italy	27,625,825	1024	795,396	796,420	37	28,763	28,800
Prussia	25,921,687	3917	656,462	660,386	151	25,349	25,500
Saxony	2,800,000	981	77,140	78,121	350	27,550	27,900
Sweden	4,429,713	409	85,925	86,334	92	19,508	19,600
United Kingdom—England and Wales	24,370,267	1770	508,545	510,315	73	20,827	20,900
Ireland	5,277,544	111	92,213	92,324	20	17,279	17,300
Scotland	3,552,183	131	73,998	74,129	37	20,863	20,900
	105,961,405	18,321	4,096,816	4,115,137	110	24,690	24,800

II. C.—1882.

Countries.	Estimated Population in the Middle of the Year.	Deaths.			Number of Deaths per 1,000,000 Inhabitants.		
		Suicide.	Other Causes.	Total.	Suicide.	Other Causes.	Total.
Austria	22,316,567	3530	688,421	691,951	158	30,642	30,800
Baden	1,596,208	283	38,654	38,937	177	24,228	24,400
Bavaria	5,389,732	724	152,423	153,147	134	28,276	28,410
Belgium	5,653,187	585	118,703	119,288	105	20,095	20,200
Denmark	2,008,100	513	38,225	38,738	255	19,046	19,300
France	37,769,000	7213	881,326	888,539	191	22,000	22,200
Italy	28,596,512	1889	785,937	787,826	66	27,461	27,500
Prussia	27,706,189	5312	694,979	700,291	191	25,009	25,200
Saxony	3,040,000	1128	85,106	86,234	371	27,999	28,370
Sweden	4,579,115	482	78,924	79,406	105	17,295	17,400
United Kingdom—England and Wales	26,413,861	1965	514,689	516,654	74	19,526	19,600
Ireland	5,007,853	105	88,395	88,500	21	17,379	17,400
Scotland	3,785,400	167	72,822	72,989	44	19,256	19,300
	174,043,732	23,406	4,178,609	4,202,015	134	21,086	21,120

III. Statement of the Number of Deaths by Suicide in the under-mentioned States of the American Union, in the Years named, with their Proportion to the Population.

Years.	Massachusetts.		Rhode Island.		Connecticut.	
	Total.	Per 1,000,000 Inhabitants. <sup>4</sup>	Total.	Per 1,000,000 Inhabitants. <sup>4</sup>	Total.	Per 1,000,000 Inhabitants. <sup>4</sup>
1870	91	62	27	124	..	..
1871	122	82	19	84	..	..
1872	117	76	18	77	..	..
1873	117	74	8	33	..	..
1874	115	71	18	72	..	..
1875	159	96	23	101	..	..
1876	119	72	18	69	49	83
1877	163	98	22	83	52	84
1878	126	79	21	78	55	83
1879	151	94	13	48	58	95
1880	133	75	10	36	45	77
1881	165	88	23	82	69	109
1882	162	88	31	109	65	101
1883	167	89	25	..	..	..
1884	134	86	85	..	..	..

<sup>1</sup> The figures for Austria up to 1871, although collected by the official registrar, are far from trustworthy. Since 1873 more reliable data have been obtained by the sanitary service. The registrar's figures for 1871 and 1872 have been corrected by Dr Neumann-Spallart; those for the succeeding years are the figures of the sanitary service. A comparison of the returns from the two official sources shows that the figures of the latter authority are (except in two cases) 30 per cent. greater than the corresponding figures furnished by the former. <sup>2</sup> 1st December 1875. <sup>3</sup> 2,760,586 in 1875. <sup>4</sup> Population calculated from average annual increase since 1880.

The first feature which appears prominently in connexion with these tables is, as already observed, the small absolute amount of suicide officially reported. There is, however, a general consensus of opinion among those who have made a special study of this branch of vital statistics, to the effect that the number of suicides which actually occur is rather greater than is shown by the official returns. This opinion is based on the known natural repugnance on the part of those concerned to make a declaration that any person found dead committed suicide if his death can be accounted for in any other way. Continental statisticians think that this tendency to "give the benefit of the doubt" in cases of apparent suicide in the manner least likely to give pain to the relatives and friends of the deceased is more strongly operative in England than in other countries, — an opinion which may be fairly considered doubtful when we bear in mind the remarkable difference between the two sets of official figures for Austria. It is not, however, maintained that the number of suicides is much understated, even in England, at any rate of late years. It may be observed that the information on the subject in any country cannot be much relied upon for years previous to 1850, at the earliest, and previous to 1860 for the United Kingdom. Perhaps an exception may be made in favour of the figures for Norway and Sweden. Differences in the mode of determining cases of supposed suicide in different countries make it necessary to be very careful in preparing "international" statistics of suicide. The remarks made by Dr Ogle in the paper already referred to are worth careful attention. He says: "I have been tempted to compare the English figures with those of foreign countries. I have, however, rigidly abstained from doing so. Those who have read the laborious treatise of Morselli on suicide, and have noted how heterogeneous in form and how unequal in numerical efficiency were the materials from different countries with which he was forced to be content, will, I think, agree with me that it is at present more essential that statisticians should look to the accuracy and sufficiency of the returns of their own several countries than that they should indulge in premature comparison." The tables given above are not conceived in a spirit contrary to these judicious observations, but are merely intended to supply indications of the general nature of the phenomenon as met with in different countries. Those who wish to inquire more fully into the matter will find all the available information in the works of Morselli and Legoyt.

It is quite admissible, subject to the above reservations, to point out briefly, and if possible to explain, the leading features brought into relief by the tables. It will be seen that from 1868 to 1876 suicide increased in all countries for which returns were available in both years, not merely in number, but relatively (except Denmark, Prussia, and Scotland) to the population, and the figures for the years subsequent to 1876 do not show any improvement in this respect. It will also be observed that the figures for the United Kingdom and Italy are low, those for Austria, Bavaria, Belgium, and Sweden moderate, those for Prussia, Baden, and France high, and those for Saxony and Denmark very high. Attempts have been made to account for these differences by considerations derived from (1) race, (2) climate, (3) density of population, and other circumstances; but it cannot be said that any satisfactory result has been obtained from these investigations, owing no doubt to the fact that the phenomenon is too minute to furnish numbers large enough for the proper application of the statistical method. Investigations into certain other points have been more successful, such as the relative proportions of the two sexes as regards number of suicides, the relation of the number of suicides to the age scale (see POPULATION) of the population, and also the distribution

of the cases of suicide over the months of the year. Most valuable inquiries have also been made into the distribution of suicides with regard to occupation, with results which appear to show that suicide is more prevalent among the educated than among the illiterate classes. For the suicidal tendency in insanity, see vol. xiii. pp. 105-6.

Sex.—It will have been observed that, apart from fluctuations in particular years, the various countries maintain fairly constant relations to one another as regards number of suicides. The series of numbers in Table I. is fairly regular, in each country usually increasing as the population increases, but in several cases faster. The proportion of female to male suicides is also fairly constant, so far as experience has hitherto gone. Broadly speaking, female suicides are never less than 15 per cent. and never more than 30 of the average annual number of suicides in any country. In England the proportion is high, having during the period 1863-76 averaged 26 per cent. In France the rate is nearly as high, though it appears to have been decreasing of late. In Prussia and most German states the rate is under 20 per cent. For further details reference may be made to Morselli, and for England and Wales to Dr Ogle's paper already mentioned.

Age.—The influence of age on suicide shows considerable regularity in each country from year to year, and a certain degree of similarity in its effects is perceptible in all countries. Morselli gives a number of tables and diagrams, a study of which indicates a variety of interesting features. The observations already made as to the minuteness of the whole phenomenon in relation to the social organism must be particularly borne in mind in drawing conclusions from investigations which involve the breaking up of numbers already small into parts. It is true that, by adding together the corresponding figures for a series of years, fairly large numbers may be obtained, even for those parts of the age scale which, in any single year, yield only one or two cases of suicide, or even occasionally none. But this mode of obtaining an enlarged image of the age scale of suicide must be employed with caution, since there may have been changes in the tendency to suicide, in the age scale, and in the occupations of the people during the period. Dr Ogle has prepared a table (IV.) which gives as correct a representation of the effect of age on suicide in England and Wales as it is possible to furnish. The age scale of suicide in question is also fairly representative of the corresponding age scales of other countries, though in each country slight variations from the typical case are apparent at different parts of it.

IV. Average Annual Suicides in England and Wales at successive Age Periods per million Lives, 1853-83 (Ogle).

Age.	Rates per Million.			Age.	Rates per Million.		
	Persons.	Males.	Females.		Persons.	Males.	Females.
10	4	4	3	55	251	396	119
15	28	26	30	65	243	394	113
20	47	62	34	75	183	306	85
25	69	99	42	85	116	226	46
35	118	175	62				
45	184	271	103	All ages	72	104	41

It will be seen that, taking both sexes together, the suicide rate rises steadily and rapidly after the tenth year has been passed, attaining its maximum in the period fifty-five to sixty-five years, after which it remains almost stationary for another ten years, when it sinks rapidly. Although no figures are given for any period previous to the tenth year, Dr Ogle mentions that there were actually four cases of suicide of children between the ages of five and ten during the twenty-six years observed. Child suicide is apparently of more frequent occurrence on the Continent than in the British Isles. It is important to notice that the age scale of suicide for women is materially different from that for men. If represented by a diagram its curve makes a smaller angle with the base line than the corresponding curve of male suicide. As might be expected from the fact that females become fully developed, both in mind and body, at an earlier period of life than males, the suicide rate for women is relatively very high during the years fifteen to twenty, being in England and several other countries actually higher than that for men. Comparison between different countries in this respect is difficult, but the figures given by Morselli (Table xxvi. in his work) show that during the period in question the number of female suicides increases with great rapidity in all countries. Regarding the suicide of young persons of both sexes, Dr Ogle observes that it is higher than is generally supposed. "Few," he says, "would imagine that one out of every 119 young men who reach the age of 20 dies ultimately by his own hand; yet such is the case." According to Dr Ogle's figures, 1 out of every 112 girls who reach the age of 15 ultimately dies by her own hand.

Influence of Occupation.—The difficulty of investigating the mode in which the suicide rate is affected by differences of occupation is

considerable. Dr Ogle has with great labour worked out the figures for males for the six years 1878-83 in England and Wales. He obtained about 9000 cases of the suicide of persons with known occupations; these he compared with the statement of occupations obtained from the census of 1881, taking account of the very considerable variety in the average age of the persons in each occupation. This precaution was necessary in an attempt to ascertain whether the persons engaged in any particular occupation were more liable to suicide than those in other occupations, for the effect due to the occupation would in some cases be entirely obliterated by the effect due to age. The general result of his labours<sup>1</sup> was that the rate for soldiers is enormously in excess of that for any other occupation. It is followed at a considerable distance by innkeepers and other persons having constant access to alcohol,—a fact which certainly suggests that an excessive use of spirits is one of the principal causes of suicide. But another reason for the high rate among soldiers is certainly the fact that they have a ready and effective means of destruction constantly at hand. In like manner the high rate of suicide among medical men, chemists, and druggists may be attributed in part to their familiarity with poisons. Hardly any other general inferences can be drawn without entering on matters of conjecture, except that, excluding the case of clergymen, the rate of those occupations which involve no serious bodily labour is higher than that observed in persons who work chiefly with their hands. It is impossible to make any satisfactory comparison in this respect between England and Wales and other countries, as the divisions of occupations in different countries are not on the same plan. It would be very advantageous if some approach to a common list of occupations could be adopted by all states; but there is little prospect of that being realized for some time to come. It is, however, satisfactorily established that in all countries the suicide rate is higher for the educated than for the uneducated classes.

Season.—May and June are in most countries the months in which most suicides occur; but in some countries, such as Bavaria and Saxony, the maximum is in July. The difference between the warm and cold portions of the year is more marked in female suicides than in male suicides, especially in Italy. This is probably due to the fact that women show a tendency to adopt drowning as a mode of killing themselves, and that there is more shrinking from a plunge into water in cold than in warm weather. The fact that the maximum number of suicides occurs in the hot season, during which, according to Morselli and other Continental statisticians, insanity is more frequent than in the cool portions of the year, has been alleged as a reason for the high suicide rate in May, June, and July.

Modes of Suicide.—The favourite mode of suicide in England is among men hanging and among women drowning,—about one-third of the suicides of each sex being effected in these modes respectively (Morselli, Table xlv.). In Italy, however, the most common mode is by gunshot among men, and after that by drowning, hanging being less usual. A very large number of Italian women drown themselves, the proportion being in some years over 50 per cent. of the total. In Prussia considerably over one-half the male suicides hang themselves, and women also make use of the rope more than in England. The use of poison is more common among English women than among those of Italy and Prussia. Dr Ogle observes that women take less care than men to select painless poisons, nearly 50 per cent. of female suicides by poison in England during the years 1863-82 being effected by means of strychnia, vermin killer, carbolic acid, and oxalic acid, while 60 per cent. of the men employed prussic acid, laudanum, and other comparatively painless poisons. Dr Ogle, Morselli, and other writers have investigated the connexion between the choice of means and the age of suicide. Dr Ogle has also compiled a valuable table relating to method of male suicide in relation to occupation.

The whole subject has been treated exhaustively by Morselli in his *Il Suicidio*, *Saggio di Statistica Morale Comparata*, Milan, 1879 (Eng. trans., *Suicide: Essay on Comparative Moral Statistics*, London, 1881). Reference may also be made to A. Legoyt's *Le Suicide Ancien et Moderne*, Paris, 1881. This volume contains much interesting historical matter, but is inferior as a statistical work to that of Morselli. It contains, however, a useful bibliography of works on suicide.

Official Information.—Accurate information regarding suicide has for many years been given for all the countries of which mention has been made above in the publications of their respective Governments. For other countries the available statistics are meagre, accurate figures having in many cases only recently been obtained from Finland, Switzerland, Holland, Hungary, Croatia, Spain, and three or four of the States of the American Union. There are no figures for the whole United States, and none of value for any other countries. Such statistics as are in existence for these countries will be found in *Confronti Internazionali per gli Anni 1865-83* (Rome, 1884), published by the Italian General Statistical Department. (W. H. O.)

SUIDAS, the author of a Greek lexicon. His personal life is totally unknown and even his date is uncertain. He must have lived before Eustathius (12th century), who quotes him repeatedly. Under the heading "Adam" the author of the lexicon gives a brief chronology of the

<sup>1</sup> See *Stat. Jour.*, March 1886, p. 112.

world, ending with the death of the emperor John Zimisces. Under "Constantinople" are mentioned the emperors Basil and Constantine, who succeeded John Zimisces in 975. It would thus appear that Suidas lived in the latter part of the 10th century. The passages in which Michael Psellus (who lived at the end of the 11th century) are referred to are thought by Küster to be later interpolations; one of them is wanting in the Paris MSS. The lexicon of Suidas is arranged alphabetically, with some slight deviations from the strict alphabetical order. It partakes of the nature of a dictionary and encyclopædia, containing not only definitions of words but also short articles on historical, biographical, geographical, and antiquarian subjects. It includes numerous quotations from ancient writers; the scholiast on Aristophanes in particular is much used. Although the work is uncritical and the value of the articles very unequal, it contains a great deal of important information on ancient history and life. It deals with Scriptural as well as pagan subjects, from which we infer that the writer was a Christian. Prefixed to the work is a notice stating "the present book is by Suidas, but its arrangement is the work of twelve learned men," and then follow their names.

The first edition of Suidas was that by Demetrius Chalcondylas (Milan, 1499), the next by Aldus (Venice, 1514). The chief later editions are those by L. Küster (Cambridge, 1705), by T. Gaisford (Oxford, 1834), and by G. Bernhardt (Halle, 1834-1853). There is a cheap and convenient edition by Im. Bekker (Berlin, 1854).

**SULLA** (138-78 B.C.). The life of Lucius Cornelius Sulla makes one of the most important chapters in Roman history. Both as a general and as a politician he stands in the foremost rank of the remarkable figures of all time. It was by his ability and his force of character that Sulla, who had neither great wealth nor noble ancestry<sup>1</sup> to back him up, pushed himself to the front in early manhood, distinguishing himself in the Jugurthine War in 107 and 106, and being able with a good show of reason to claim the credit of having terminated that troublesome war by capturing Jugurtha himself. In these African campaigns Sulla showed that he knew how to win the hearts and confidence of his soldiers, and through his whole subsequent career the secret of his brilliant successes seems to have been the enthusiastic devotion of his troops, whom he continued to hold well in hand, while he let them indulge themselves in plundering and in all manner of licence. "Rome's soldiers from Sulla's time," says Sallust (*Cat.*, 11), "began to drink, to make love, to have a taste for works of art, to rob temples, and to confound things sacred and profane." From the year 104 to 101 he served again under Marius in the war with the Cimbric and Teutones and fought in the last great battle near Verona, which annihilated the barbarian host. Marius, it is said, was jealous of him, and any friendly feeling there may have hitherto been between the two now finally ceased. Sulla on his return to Rome lived quietly for some years and took no part in politics. What with his genuine love of letters and his love of gay company he was never at a loss for amusement, and he must always have been a particular favourite with fashionable society at Rome. In 93 he was elected prætor after a lavish squandering of money, and he delighted the populace with an exhibition of a hundred lions from Africa, from the realm of King Bocchus. Next year (92) he went to the East with special authority from the senate to put pressure on the famous Mithradates of Pontus, and make him give back Cappadocia to its petty prince Ariobarzanes, one of Rome's dependants in Asia, whom he had driven out. Sulla with a small army soon won a victory over the general of Mithradates, and Rome's client-king was restored. An embassy from

<sup>1</sup> He belonged to quite a minor branch of the Cornelian gens.

the Parthians now came to solicit the honour of alliance with Rome, and Sulla was the first Roman who held diplomatic intercourse with that remote people. In the year 91, which brought with it the imminent prospect of revolution and of sweeping political change, with the enfranchisement of the Italian peoples, Sulla returned to Rome, and it was generally felt that he was the man to head the conservative and aristocratic party. Who was to have the command in the Mithradatic War and be entrusted with the settlement of the East was the question of the day, and the choice lay plainly between Marius and Sulla. The rivalry between the two men and their partisans was as bitter as it could possibly be. Marius was old, but he had by no means lost his prestige with the popular party.

Meanwhile Mithradates and the East were forgotten in the crisis of the Social or Italic War, which broke out in 91 and threatened Rome's very existence. The services of both Marius and Sulla were needed, and were given; but Sulla was the more successful, or, at any rate, the more fortunate. Of the Italian peoples Rome's old foes the Samnites were the most formidable; these Sulla thoroughly vanquished, and took their chief town, Bovianum. But his victories were, after all, followed by the concession of the franchise to the Italian towns and communities generally, though an arrangement which made them vote in separate tribes greatly diminished their political power and became a further source of irritation. It was clear that Rome was on the eve of yet further troubles and revolutionary changes. Her armies, now recruited from the very scum of the population, had not the loyal and honourable spirit of former days, and cared only for licence and plunder. On every side it seemed that public life was demoralized and politics degraded. In 88 Sulla was consul; the revolt of Italy was at an end; and again the question came to the front—who was to go to the East and encounter the warlike king of Pontus, against whom war had been declared. The tribune Publius Sulpicius Rufus moved that Marius should have the command; there was fearful rioting and bloodshed at Rome at the prompting of the popular leaders, Sulla narrowly escaping to his legions in Campania, whence he marched on Rome, being the first Roman who entered the city at the head of a Roman army. Marius now had to fly; and he and his party were crushed for the time.

Sulla, leaving things quiet at Rome, quitted Italy in 87 for the East, taking Greece on his way, and for the next four years he was winning victory after victory against the armies of Mithradates and accumulating boundless plunder. Athens, the headquarters of the Mithradatic cause, was taken and sacked in 86, and Sulla possessed himself of a library which contained Aristotle's works. In the same year at Chæroneia, the scene of Philip of Macedon's memorable victory more than two and a half centuries before, and in the year following, at the neighbouring Orchomenus, he scattered like chaff, with hardly any loss to himself, immense hosts of the enemy. Crossing the Hellespont in 84 into Asia, he was joined by the troops of Fimbria, who soon deserted their general, a man sent out by the Marian party, now again in the ascendant at Rome. The same year peace was concluded with Mithradates on condition that he should resign all his recent conquests, give up all claim to meddle with Rome's Asiatic dependencies, and pay a considerable indemnity. In fact the king was to be put back to the position he held before the war; but, as he raised cavils and Sulla's soldiers wanted better terms and more spoil, he had in the end to content himself with being on the same footing as the other princes of Asia,—simply a vassal of Rome.

Sulla returned to Italy in 83, landing at Brundisium,

having previously informed the senate in an official despatch of the result of his campaigns in Greece and Asia, and announced his presence on Italian ground. He complained, too, of the ill-treatment to which his friends and partisans had been subjected during his absence. The revolutionary party, specially represented by Cinna, Carbo, and the younger Marius, had massacred them wholesale, confiscated his property, and declared him a public enemy. They felt they must resist him to the death, and with numerous bodies of troops scattered throughout Italy, and the support of the newly enfranchised Italians, to whom it was understood that Sulla was bitterly hostile, they counted confidently on success, but on Sulla's advance at the head of his 40,000 veterans many of them lost heart and deserted their leaders, while for the most part the Italians themselves, whom he confirmed in the possession of their new privileges, were won over to his side. Only the Samnites, who were as yet without the Roman franchise, remained his enemies, and it seemed as if the old war between Rome and Samnium had to be fought once again. Several Roman nobles, among them Cneius Pompeius (Pompey the Great), Metellus Pius, Marcus Crassus, Marcus Lucullus, joined Sulla, and in the following year (82) he won a decisive victory over the younger Marius near Præneste (Palestrina), and then marched straight upon Rome, where again, just before his defeat of Marius, there had been a great massacre of his adherents, in which the famous and learned jurist Mucius Scaevola perished. Rome was at the same time in extreme peril from the advance of a Samnite army, and was barely saved by Sulla, who, after a bloody and very hard-fought battle, routed the enemy before the walls of Rome. With the death of the younger Marius, who killed himself after the surrender of Præneste to one of Sulla's officers, the civil war was at an end and Sulla was master of Rome and of the Roman world. Then came, with the object of breaking the neck of the Marian or popular party, the memorable "proscription," when for the first time in Roman history a list of men declared to be outlaws and public enemies was exhibited in the forum, and a reign of terror—a succession of wholesale murders and confiscations throughout Rome and Italy—made the name of Sulla for ever infamous. The title of "dictator" was revived after a long period and conferred upon him; Sulla was in fact emperor of Rome, with absolute power over the life and fortunes of every Roman citizen. There were of course among them some really honest well-meaning men who looked up to him as the "saviour of society." After celebrating a splendid triumph for the Mithradatic War, and assuming the surname of "Felix" ("Euphroditus," "Venus's favourite," he styled himself in addressing Greeks), he carried in 80 and 79 his great political reforms (see *ROME*, vol. xx, pp. 761-762). Of these the main object was to invest the senate, the thinned ranks of which he had recruited with a number of his own creatures, with full control over the state, over every magistrate and every province, and the mainstay of his political system was to be the military colonies which he had established with grants of land throughout every part of Italy, to the injury and ruin of the old Italian freeholders and farmers, who from this time dwindled away, leaving whole districts waste and desolate. Sulla's work had none of the elements of permanence; it was a mere stop-gap purchased at the cost of infinite misery and demoralization.

In 79 Sulla resigned his dictatorship and retired to Puteoli, where he died in the following year, probably from the bursting of a blood-vessel, though there is a story that he fell a victim to a particularly loathsome disease similar to that which cut off one of the Herods (Acts xii. 23). The half lion, half fox as his enemies

called him, the "Don Juan of politics," to quote Mommsen's happy phrase, the man who carried out a policy of "blood and iron" with a grim humour, amused himself in his last days with actors and actresses, with dabbling in poetry, and completing the *Memoirs* of his strange and eventful life.

For Sulla and his times, there is his *Life* by Plutarch, who had his *Memoirs* for one of his authorities, and there are very numerous references to him in Cicero's writings. The best and fullest modern account of him is that of Mommsen (vol. iii., bk. iv. ch. 8, 9).

(W. J. B.)

**SULLY, MAXIMILIAN DE BÉTHUNE, DUKE OF** (1560-1641), French statesman, was born at the château of Rosny near Mantes on 13th December 1560. He derived his early appellation and the title of baron from the place of his birth, and was known as Rosny during the greater part of his life. Some one of his numerous enemies pretended that he did not really belong to the illustrious family represented four centuries earlier by the trouvère and warrior Quenes de Béthune, but that his race was derived from Scottish Bethunes of no mark. There is, however, no reason for giving any credit to this story. Sully was a second son; his elder brother died when but just of age, and even before this his father (if his own account may be trusted) treated Maximilian (so he himself spelt his name, and not Maximilien) as an eldest son. He was only eleven years old when his father, who was a Protestant, was presented to Henry of Navarre, and from that time he was more or less inseparably attached to the future king of France. He had a narrow escape on St Bartholomew's Day, but he did escape, and when little more than sixteen began to take an active part in the Civil Wars. He distinguished himself not a little, especially in the character of engineer. In 1583 he married Anne de Courtenay, who, however, died in 1589, and in the intervals of war he lived the life of a country gentleman at Rosny. At the battle of Ivry, 1590, he had the good luck, though seriously wounded, to capture Mayenne's standard. As soon as Henry's power was established, Sully, who, though by no means always a complaisant or obliging servant, had been uniformly faithful, received his reward in the shape of numerous places, estates, and dignities. In 1601 he was made grand-master of the ordnance and in 1606 duke of Sully. He was also practically the king's minister of finance during the greater part of his reign. After the assassination of his master he makes no further figure in history, though he survived for many years, saw the rise of a far greater minister than himself, and did not die till (less than a year before Richelieu himself died) the 22d of December 1641, at Villebon near Chartres.

He had married a second time, and anecdote is not complimentary to his second wife, while his daughter, who married the great duke of Rohan, also had a not unblemished reputation. Sully, however, who, though deprived of (and indeed resigning) all control of public affairs after Henry's death, retained great wealth, lived in what was almost a caricature of the stately fashions of the time, and busied himself in the composition of memoirs which are among the most curious in form, and not the least interesting in contents, of the kind. He instructed his secretaries to draw the book up in the form of an elaborate address to himself: "you then did this"; "you said as follows"; "as you have been good enough to inform us, the affair went on this wise"; and so forth. And he not only had the book executed in this extraordinary fashion but had it read out to him. Its title is as odd as other things about it and runs thus: *Mémoires des Sages et Royales Economies d'Etat, domestiques, politiques, et militaires de Henry le Grand, l'Exemplaire des Rois, le Prince des Vertus, des Armes, et des Loix, et le Père en effet de ses Peuples François. Et des servitudes utiles, obéissances convenables, et administrations loyales de Maximilien de Béthune, l'un des plus confidans, familiers, et utiles soldats et serviteurs du grand Mars des François. Dediés à la France, à tous les bons soldats, et tous peuples François.* Two folio volumes were splendidly printed, nominally at Amsterdam, but really under Sully's own eye at his château, in 1634; the other two did not appear till twenty years after his death. As his wealth, his im-