a university joke founded on “ at length" as the dictionary rendering of the Latin adverb).

Bibliography.—English: Most of the authorities for the early history of English vagrant slang are reprinted in vol. ix. of the Extra Series of the Early English Text Society, edited by E. Viles and F. J. Furnivall (1869), which contains John Awdeley’s *The Fraternitye of Vacabondes* (from the edition of 1575), Thomas Har­man’s *Caueat for Common Cursetours* (1567-1573), and *The Ground­work of Conny-catching* (anonymous, 1592), besides extracts from other early works which furnish glossaries. *The Dictionary of the Canting Crew,* by B. E. (no date, but printed at the end of the 17th century; photographic reprint by J. S. Farmer), is valuable as containing the earliest known record of many words still in use; while mainly treating of thieves’ and vagrants’ language, it includes much that belongs to slang in the wider sense. Among the many later works, only the following need be mentioned here: Francis Grose’s *Classical Dictionary of the Vulgar Tongue* (3rd ed., 1796); *The Slang Dictionary,* anonymous, but understood to be by the publisher, J. C. Hotten (new edition, 1874), a work of considerable merit, with an excellent bibliography; *A Dictionary of Slang, Jargon and Cant,* by A. Barrère and C. G. Leland (1889); and *Slang and its Analogues,* by J. S. Farmer and W. E. Henley (1890- 1904), which surpasses all similar works in extent of vocabulary and abundance of illustrative matter, though the dates and even the text of the quotations are often inaccurate. For the slang of public schools see *The Winchester Word-book,* by R. G. K. Wrench (1901) and *The Eton Glossary,* by C. R. Stone (1902).

French: The earliest systematic treatment of *argot* is found in *La Vie généreuse des Mattois, Gueux Bohémiems et Cagoux,* by Pechon de Ruby (a pseudonym), which went through several editions in the early part of the 17th century, and has been reprinted in 1831 and 1868. The slang of the 15th century is discussed in *Le Jargon au quinzième siècle,* by Auguste Vitu (1883), which includes an edition of the *Ballades* of Villon ; in *Le Jargon et jobelin de F. Villon,* by Lucien Schöne (1887), and in *L'Argot ancien,* by L. Sainéan (1907). Francisque Michel’s *Etudes de philologie comparée sur l'argot* (1856) is important for its rich collection of material and its copious refer­ences to sources. Later works deserving attention are *Dictionnaire de la langue verte,* by Alfred Delvau (2nd ed., 1867), and *Dictionnaire de l'argot,* by Lorédan Larchey (1889). For modern slang, taken in a very comprehensive sense, the chief authority is Lucien Rigaud, *Dictionnaire de l'argot moderne* (1881). For the special slang of printers, see Eugène Boutmy, *Dictionnaire de l'argot des typo­graphes* (1883).

German: An admirable collection of the original documents for the history of thieves’ and vagrant slang from the earliest period has been published by F. Kluge, under the title *Rotwelsch* (1901). An earlier book of great importance is Avé-Lallemant, *Das deutsche Gaunertum* (1858). For modern popular slang see A. Genthe, *Deutsches Slang* (1892). University slang is ably treated in *Deutsche Studentensprache,* by F. Kluge (1895).

Dutch: Isidor Teirlinck, *Woordenboek van Bargoensch* (1886).

Italian and Spanish: F. Michel, in *Études de philologie comparée sur t'argot* (see above), gives a vocabulary of Italian thieves’ slang from *Nuovo modo da intendere la lingua zerga* (1619, reprinted at the end of the *Trattato dei Bianti,* 1828), and one of Spanish slang from *Romances de Germania* (ed. 6, shortly before 1800). For Spanish thieves’ language see also A. Besses, *Argot español* (Barcelona, no date) ; a large proportion of the words given by this writer is gipsy. (H. Br.)

**SLATE** (properly Clay Slate; in Μ. Eng. *slat* or *sclat,* from O. Fr. *esclat,* a small piece of wood used as a tile; *esclater,* to break into pieces, whence modern Fr. *éclat,* the root being seen also in Ger. *schleissen,* to split), in geology, a fissile, fine-grained argillaceous rock which cleaves or splits readily into thin slabs having great tensile strength and durability. Many other rocks are improperly called slate, if they are thin bedded and can be used for roofing and similar purposes. One of the best known of these is the Stonesfield slate, which is a Jurassic limestone occurring near Oxford and famous for its fossils. Slates properly so-called do not, except on rare occasions, split along the bedding, but along planes of cleavage, which intersect the bedding usually at high angles. The original material was a fine clay, sometimes with more or less of sand or ashy ingredients, occasionally with some lime; and the bedding may be indicated by alternating bands of different lithological character, crossing the cleavage faces of the slates, and often interrupting the cleavage, or rendering it imperfect. Cleavage is thus a superinduced structure, and its explanation is to be found in the rearrangement of the minerals, and the development of a certain degree of crystallization by pressure acting on the rock. Slates belong mostly to the older geological systems, being commonest in Pre-Cambrian, Cambrian and Silurian districts, though they may be found of Carboniferous or even of Tertiary age, where mountain-building processes have folded and compressed these more recent formations. The action of pressure is shown also by the fossils which sometimes occur in slates; they have been drawn out and distorted in such a way as to prove that the rock has undergone deformation and has behaved like a plastic mass. Evidence of the same kind is afforded by the shape of the knots and concretions sometimes present in the slate. If the bedding be traced, either in the slates or in the other rocks which accompany them, flexures will be frequently observed (the folding often being of an isoclinal type), while reversed faulting, or thrusting, is usually also con­spicuous.

The origin of slaty cleavage is in some measure obscure. This structure is by no means confined to slates, though always best exemplified in them, owing prob­ably to the fine­grained, argillaceous materials of which they consist. Grits, igneous rocks, ash­beds and limestones may and often do show cleavage. Coarse rocks and rocks consisting of hard minerals are always imperfectly cleaved. The cleav­age of slates must be distinguished from cleavage of minerals, the latter being due to different degrees of cohesion along definite crystal- lographic planes. The connexion of cleavage with pres­sure, however, is unmistakable. It is never exhibited except by rocks which have been sub­jected to the tangential stresses set up in the earth’s crust by fold­ing. These stresses may operate in several ways. They will alter the shape of mineral particles by broadening them in a direction at right angles to the principal pressures, while they are thinned in the direction in which the pressure acted. Probably the size of the particle will be slightly reduced. This method of reasoning, however, does not carry us far, as the minerals of slates vary considerably in form. Pressure will also tend to produce an expansion of the rock mass in a direction (usually nearly vertical) at right angles to the compression, for such rocks as slates are distinctly plastic in great masses. This flowage will help to orientate the particles in the direction of movement, and, opera­ting conjointly with the flattening above explained, will accentuate the liability to cleave in a definite set of planes. The recrystalliza­tion induced by pressure is probably of still greater importance. Slates consist largely of thin plates of mica arranged parallel to the cleavage faces. This mica has developed in the rock as it was folded and compressed. In the moist and plastic slate the mineral particles slowly enlarged by the addition of new crystal­line molecules. Those faces which were perpendicular to the pressure would grow slowly, as the great\* pressure would promote solution, and inhibit deposition; the edges or sides, on the other hand, being less exposed to the pressure would receive fresh deposits. In this way thin laminae would form, lying at right angles to the direction of greatest stress’. Micas and other platy minerals (such as chlorite), which naturally grow most rapidly on their edges, would show this tendency best, and such minerals usually form a large part of the best slates; but even