

bursts with plethora and corpulence; whilst he drags his heavy mass, *latamque trahens inglorius alvum*, he still dreams of new festivities until a cruel death puts an end to his frenzy for swallowing and engulfing like a bottomless pit.

Would they take as a sign for an eating-house the sober goddess, Hygeia, offering her cup to the wise serpent of Epidaurus, emblem of abstinence and mother of health? Would the allegorical statue of Temperance place a bridle on their devouring jaws? No, doubtless, the age would view with horror such shackles imposed upon its pleasures. Temperance is one of the four cardinal virtues. She restrains concupiscence, and inspires us with pure thoughts; infuses wisdom into the mind and puts the animal appetites of man in subjection. Epicurism and voluptuousness will still be the fashion until man and woman are educated otherwise by a better knowledge of their physical organization. Doctors have no reason to complain because our vices make them a necessity. Cato, the censor, would have banished them from Rome, but it was necessary first to expel vice, the nurse of disease, before medicine could be considered as superfluous. She will always be indispensable, wherever luxury brings in her usual train intemperance and vice. The epicurean Horace occasionally exclaimed:—*Me pascent olivæ, me cicorea levesque malvæ*, etc., but the favours of Mæcenas made him frequently sing,—*Nunc est libendum, nunc pede libero pulsanda tellus*.

In like manner the descendants of the sober Curius, as we have seen, having become rich, constantly spent their fortunes in bacchanalian revels.

Incontinence is still more blameworthy than intemperance, because it degrades still more the intellectual and moral faculties. A drunken man inspires disgust, but the riot of debauchery is hideous and revolting. How many people mistrust wisdom and sobriety, who, if they retraced their benefits, would find them the only roads to health and happiness! It is not the grim face, nor religious austerity that prescribe moderation: it is rather reason, the sound medicine, and none the less the true voluptuousness.

Cibus, potus, venus, omnia moderata.

A. KIRKWOOD.

ASBESTOS.

The comparatively recent discovery of the existence of asbestos, in workable quantities, in Newfoundland, and on the shores of Hudson Bay and Straits, gives impetus to the mining of that mineral on the North American continent. For several years the principal supply was yielded by Italy, for though asbestos occurs in Germany, Russia, Spain, Portugal and other countries in Europe, Australia, China, and Japan, and a section of Africa, it is unfit to enter into competition with the long-fibred Italian variety, or the still more valuable Canadian product—though of shorter fibre,—which hold a distinct place in our industrial arts. The Italian asbestos differs from the Canadian article in color, being a brownish-grey, while the latter is almost a pure white, and, when newly broken, possesses a pretty green tint. Though asbestos has been known to exist in the province of Quebec for more than half a century, it is only a few years ago that the minds and means of capitalists were turned to the development of the vast deposits which abound in Thetford and

Black Lake, on the line of the Quebec Central Railway, between Quebec and Sherbrooke. Twenty years since, the mineral was used in but few manufactures, to-day it is employed in more than a hundred, and new uses are found for it continually, in the various arts of commerce. The Quebec asbestos was represented at the World's Fair at Chicago in a monster trophy, where it attracted wide attention, and one magnificent specimen, having a fibre eleven and a half inches long, and very pure and silky, was highly praised by the experts who examined it. The Canadian mines yield the best quality for spinning and fine manufacturing purposes, and easily commands superior prices in the markets of the world. A few years ago, the first quality readily brought \$250 a ton. It is considerably less now, owing to a variety of causes, chief among which may have been over-production, but its prestige is still maintained. Asbestos is one of those minerals which does not require the expenditure of a fortune to mine. It is accessible and the work of extraction costs but little, while the profits are large. There are three grades, and each of these has a place in our manufactures. No. 2 and No. 3 are largely used in the coarser arts, while No. 1 is employed in spinning and weaving. Canadian asbestos, as both Dr. Ellis and Mr. J. A. Fisher—a high authority, who has visited the mines and personally inspected them, points out, belongs to the talc or serpentine group of minerals. It is called chrysotile, and extends through the eastern townships, from the boundary of Vermont to the Peninsula of Gaspé. The area of the mines is confined, practically, to the townships of Thetford, Ireland, Coleraine and Wolfestown. A forest fire in 1877 brought to light the valuable mines at Thetford and Coleraine. The rocks of serpentine were exposed to the air. A French-Canadian named Fecteau detected the peculiar, fibrous mineral, specimens of which he selected, and it was not long after that his discovery was found to be important, and mining was begun in earnest, with exceedingly satisfactory results.

Asbestos, which is sometimes spelled *asbestus*, is derived from the Greek word *ἀσβεστος*, unconsumable; *amianthus* is also from the Greek, and means undefiled. Its property of resisting fire and intense heat is well known. "It was recognized by the ancients," says Dr. Ellis, "since we read in several of the earliest authors that the custom prevailed of wrapping the dead bodies of their important personages in an incombustible cloth by which the ashes resulting from their cremation were retained intact. The process of weaving this cloth from the fibres of amianthus shows that considerable skill in the textile arts had been acquired by those people, judging from the difficulty which has been experienced, even in modern applications of the art, and it is supposed that the requisite degree of tenacity was imparted by the admixture of threads of flax or silk, which could afterwards, if necessary, be removed by burning. The wicks of the lamps in the early heathen temples, which were supposed never to be extinguished, were also held to have been made of this material. The resistant action of the asbestos fibre, or of the cloth woven from this fibre, to heat, is one of its most wonderful properties. Temperatures of 2,000° to 3,000° are easily withstood, while with some varieties a temperature of 5,000° Fahr. has apparently produced no visible effect. Its property, also, of successfully resisting the action of acids is one of great value, and

these properties render this substance of great importance in certain chemical operations, so much so that its use in this direction is rapidly increasing."

The uses to which this remarkable product has been put are numerous, and include the manufacture of clothing for firemen, theatre curtains, mail-bags, fire shields, fire-proof paper, roofing and flooring, packing in fire-proof safe, piston packing in steam-engines, filters, fire-proof paints, wall papers, coverings for steam pipes and boilers, mill boards, etc. To the story which the encyclopædias tell of Charlemagne and his amianthine table-cloth, which he used to throw into the fire at the close of his feasts, to the astonishment of the guests, who saw it taken out cleansed, and fit to be used again, may be added that of a translation from the French-Canadian author, Montpetit, who relates that "at a certain lumber camp in one of our great northern forests, one of the men, newly engaged, upon his return from his day's work in the soft, melting snow, when the rest of the crew were gathered about the stove, coolly proceeded to remove his boots and then his socks, which he dashed into the open fire. He, however, speedily extricated his foot-gear, now cleansed to immaculate whiteness, and proceeded to dress his feet as if nothing unusual had occurred, a proceeding which, it is needless to say, among a group of people unaccustomed to witness such marvels, resulted in something stronger even than amazement, and with a sudden accession of terror at the presence of a man who could thus perform such miracles with apparently flaming garments, they incontinently fled and left the uncanny stranger undisputed master of the situation, under the impression that he could be no other than the evil one himself. Explanation was of no avail, and the men refused to return to work until the foreman had discharged absolutely the unfortunate wearer of asbestos socks."

Another story is told by Dr. Ellis about a gentleman who owned a pair of asbestos mittens, and believing that they were indestructible by fire, and desirous of astonishing the crowd which had assembled around the stove in a country store, proceeded to throw one of them into the flames. His success, however, was not great, for upon withdrawing his mitten from the blaze, after a brief interval, it was found that the action of the fire had rendered the fibre so brittle that its tenacity was almost entirely destroyed and the mitten was of no further use. It is explained that the Quebec asbestos of commerce and the true asbestos are two distinct substances, and belong to two distinct groups of minerals, the one being a member of the serpentine group, and the other belonging to the pyroxene or hornblende group. Another writer mentions that Chevalier Aldini, of Milan, had a complete outfit, consisting of cap, gloves, tunic and stockings, and his experiments with the suit in resisting fire were most amusing and successful. It has been urged that paper for charters and important documents and even bank-notes, might be made from asbestos, but the danger is that the writing would disappear after a red heat.

Mr. J. A. Fisher, who has a large practical knowledge of asbestos mining, in all its stages, thus describes the Quebec asbestos: "In the asbestos-bearing rock proper, the veins of asbestos are seen, without any special arrangement, intersecting the mass of the rock, generally in every direction. In size they range from mere threads, sometimes close together, to a thickness of one