Insects in Medicine.

By Mark Reid.

Nowadays, the use of insects in medicine is a comparative rarity. It was not so in the time of the ancients; they were great on insects. Of course cantharides and cochineal are still with us; but little beside. Our forefathers found a use for all kinds of insects, even bed bugs. Seven bed bugs taken at the outset of a fever, had the reputation of doing away with the fever. Nowadays, we are so over-nice that we would rather have fever, and rather have it bad, too; and yet, who knows, but that the bed bug may be a good, sound, all round family medicine, that may be its real sphere of usefulness; we can't think of any other. Ah, when one reflects upon the lost arts of the ancients and the pithy, practical joys of the good old days, it makes a man yearn. Some fellows, of course, yearn more than others, but they were real good times when the doctor gave you extract of toads for cold in the head, and snake's milk with scorpion tongues and donkey's hoofs for a slight wheezing on the chest. They were times when a doctor had some scope and men built up constitutions which, heaven knows, could stand anything Nowadays a doctor is cramped and crippled in his flights of imagination as to the treatment of patients. He can't go and boil a dog in two pints of cats' blood, and administer it to his patient as a sleeping draught. No; that fastidious patient must have a tabloid; a gilded pill; a beautifully gelatined capsule. This is the age of ultra refinement. Brimstone and treacle is in banishment; epsom salts are in hiding; black draughts sneak sulkily into obscurity, and castor oil shrinks with guilty complacency out of sight We are not what we were—and a good job, too.

Palm Oil.

By Arthur Leslie, in *The Soapmaker and Perfumer.*

This fat, now so much used for soap and candle making, is the product of the seeds of two kinds of palm. both indigenous to Africa, but which are also cultivated in South America—in New Granada and Brazil—and in the Antilles. The best trees, however, grow on the West Coast of Africa, between about 10° N. latitude and 10° S. latitude. The two palms are *Elais guineesis* and *E. melanococea*. The latter is sometimes called *Alfonsia oleifera* by botanists.

Eais guineesis grows a trunk forty or fifty feet high, surmounted by a great crown or tuft of immense deeply cleft leaves, sometimes sixteen feet long by two feet wide. The flowers are borne in great spikes or club-shaped masses growing closely together all round and along a thick stalk or *spadix*. The flowers are very small and inconspicuous singly, and they are of two kinds, male and female. The male flowers consist of six stamens, having their stalks (*filaments*) connected together into a tube, and protected by three perianth leaves The female flower simply consists of an ovary surmounted by three *styles* to receive the pollen from the staminate flowers. The ripe fruit is a three-celled nut, each containing one seed buried in the fleshy pulp from which the oil is extracted. This pulp is so full of oil when the fruit is ripe that it yields it to the pressure of the finger nail.

Elais melanococca grows partly prostrate, and as its specific (second) name implies, its seeds are black, those of *E. guineesis* being yellowish brown or red.

The ripe spike yields from 600 to 800 nuts, each about an inch and a half long, and weighs from forty to fifty pounds. The seeds lie very close, but can be pretty easily detached by beginning at the top of the spke. Each ripe nut is three-chambered, with one seed in each chamber.

The oil is extracted either by pressing or by boiling with water. Most of the oil exported is got by a very primitive and wasteful process. The fruits are left to rot in heaps, to get some of the toughness out of them. They are then pounded with heavy pestles, the seeds are picked out, and the rest of the mass is packed in bags made of the leaves of the palm, and then pressed. The crude oil thus obtained is of a dark yellow or yellowish red color, with a violet-like smell and a sweetish taste. At ordinary temperatures it has the consistency of butter, and consists when fresh of about 70 per cent. of palmitine and olein and about 30 per cent. of free fatty acids. Owing to the presence of other constituents of the fruit which putrefy readily, palm oil very quickly becomes rancid when exposed to the air, and as the percentage of fatty acids in it becomes greater its color becomes lighter and its melting point higher. Perfectly fresh palm oil melts at from 27° to 30° C., and old samples of it have been known to have as high a melting point as 42°. Those with the latter melting point contain at least 80 per cent. of free fatty acid.

Palm oil is hardly at all soluble in cold alcohol, and although boiling alcohol dissolves some of it, it nearly all separates out again on cooling. Ether dissolves the oil readily and completely. Its specific gravity at 15° C. is 0.945. It is easily saponifiable by alkalies giving a yellow soap. The yellow color of the oil is destroyed by moderate heat even in closed vessels. If the heating is carried out in open vessels plenty of disagreeable fumes are given off, but the oil does not suffer much loss of weight. At 300° C the oil boils, giving off fatty acids and acrolein abundantly. The latter is formed by the decomposition of glycerine, itself set free by the decomposition of the palmitine and olein.

Palm oil used to be bleached by heating it to 100° C. and exposing it to the air. Various plans were adopted to make this exposure as thorough as possible and to ensure every portion of the oil undergoing it. One way was to fill ladles of the hot oil, and then to pour the oil back into the cauldron from a height and in a thin stream. A better plan was to fix a sieve at some height above the cauldron, and to ladle the oil into that. The sieve received the whole of the oil in a very short time, and exposed it to the air in a very large number of very thin streams or threads. A better plan was found to be to rotate a paddle-wheel, half immersed in the oil, so that the latter was constantly dripping back into the cauldron from the upper half of the wheel. The bleaching is now, however, almost universally done by chemical means. Filtration through animal charcoal will not do, and the four reagents chiefly employed are chromic acid, generated in the oil by adding to it sulphuric acid mixed with potassium bichromate solution, chlorine, generated in the oil from potassium bichromate solution and hydrochloric acid; thirdly, and best, peroxide of hydrogen; and, lastly, by sulphurous acid. If this reagent is selected, acid sodium sulphite ($NaHSO_3$) and an acid, preferably hydrochloric, are stirred into the palm oil to be bleached.

The Late Dr. Zaccharin's Peculiarities

By Ernest Reid

This well known professor, whose death occurred some short time since, was one of those rugged, unsympathetic natures which have their counterpart in our own