

AN ITALIAN "BATTLE OF DORKING."

A pamphlet entitled "The Narrative of a Coastguard, Caprja, 180—" has recently appeared in Rome. It is supposed to be written by an experienced officer of the Italian navy, and it describes, in much the same fashion as the "Battle of Dorking," of which it professes to be a free translation, the catastrophe which the author believes to be inevitable if Italy continues to neglect her navy. The "Coastguard" relates to his grandchildren how, at the beginning of the eighteenth year of the present century, Italy was at the height of her prosperity. After long and arduous efforts the unity of the nation was established, and the dispute with the Pope was practically closed by the occupation of Rome. Italy had everything in her favour; her industry and commerce were flourishing, and her good fortune was the envy of other nations. But the appearance was more brilliant than the reality, for what the Italians begin with enthusiasm they often abandon soon after with indifference. Parliament was somewhat too lavish of new laws, and there was something to complain of in the administration; but the narrator says that, being a seaman, these are matters which he does not profess to understand. Much money was spent on railways and harbours. But since 1865 nothing had been done for the fleet. In Parliament there were few members who understood naval abuses, and those who did had good reasons for holding their tongues. The Ministers did not dare to propose reforms, and even allowed their colleagues to appropriate to their own departments the funds voted for the Admiralty; and the pay of the officers and clerks of the Admiralty was so small that every other career was preferred to that of the navy. This was the state of things when France declared war against Italy. It was said that the pretext was a trifling one, but the real cause was easily to be found in the event of the last ten years. Italy had upwards of a million soldiers on paper, but only 450,000 of them actually existed. There were also 150,000 volunteers collected in Central and Southern Italy, who, however, had to be armed and drilled. The Chamber voted all the necessary funds, and there was great enthusiasm in the country. But in the navy it was otherwise. Italy had twelve iron-clad frigates with large engines, thick plates, and heavy guns; the enemy, however, had guns of longer range, and some of the Italian ships were built before the new big naval guns had been introduced. It soon appeared that the iron plates of two or three of these frigates were so eaten up with rust that they could be penetrated with one's fingers. Some of the engines, too, were defective. After much trouble and labor the Admiralty succeeded in making nine ironclads and a dozen avisos and cruisers fit for sea. The confusion was tremendous; everybody wanted to help, but few understood how to do it, as no serious work had been done in the fleet before, and people had grown accustomed to wait for orders and shirk responsibility. The crews were totally inexperienced. The sailors had had no military drill, and there were few officers or sub-officers who had been trained on board ship. Only those had remained in the service who were married or had no other means of obtaining a living. All aspired to wipe out the disaster of Lissa, but even those who understood but little of naval affairs knew that a useless sacrifice would be made to the national honour. Something was done to fortify the harbours, but all was unfinished and antiquated, and everywhere there was a want of guns. More than half of the gulf of Spezia was still open, and as the useless ships had been sold, it was necessary to buy new vessels at great expense and then sink them. Moreover, the sea there is eight fathoms deep, and cables and chains therefore had to be used in order completely to close the harbour. Most of the torpedoes, too, had to be given to the commercial ports, so that the naval arsenals had to dispense with the additional protection. Such was the state of things when the French fleet, consisting of thirty-two ironclads, sixteen floating batteries, and an immense number of gunboats, started from Toulon, while at the same time an army of 400,000 men was posted on the frontier, and another of 200,000 behind it in Provence. The "Coastguard" then describes how the fleet at Spezia was destroyed, the arsenal and the town bombarded, and the army in the valley of the Po isolated by a French army which landed at Piombino, and forced to retreat to the Quadrilateral, where it was attacked on both sides and obliged to capitulate. Naples, Genoa, and Leghorn were burnt, and the storehouses and merchant fleet destroyed, after which Italy purchased peace by the loss of Sardinia and Sicily. The story is told with much vigour and animation, and it has produced a deep impression on the Italian public.—*Pall Mall Gazette.*

INSECT WAX.

In China, prior to the thirteenth century, beeswax was employed as a coating for candles; but about that period the white wax insect was discovered, since which time that article has been wholly superseded by the more costly but incomparably superior product of this insect. The animal feeds on an evergreen

shrub or tree (*Ligustrum Unidum*) which is found throughout Central China, from the Pacific to Thibet.

Sometimes the husbandman finds a tree which the insects themselves have reached, but the usual practice is to stock them, which is effected in spring with the nests of the insect. These are about the size of a fowl's head, and are removed by cutting off a portion of the branch by which they are attached, leaving an inch each side of the nest. The sticks with the adhering nests are soaked in unhusked rice water for a quarter of an hour, when they may be separated. When the weather is damp or cool, they may be preserved for a week; but, if warm, they are to be tied to the branches of the tree to be stocked without delay, being first folded between leaves. By some, the nests are probed out of their seats in the bark of the tree without removing the branches. At this period they are particularly exposed to the attacks of birds, and require watching.

In a few days after being tied to the tree, the nests swell, and innumerable white insects the size of mites emerge and spread themselves on the branches of the tree, but soon with one accord descend towards the ground, where, if they find any grass, they take up their quarters. To prevent this, the ground beneath it is kept bare, care being taken also that their implacable enemies, the ants, have no access to the tree. Pinding no congenial resting place below, they reascend and fix themselves to the lower surface of the leaves, where they remain several days, when they repair to the branches, perforating the bark to feed on the fluid within. From mites, they attain the size of lice; and having compared it to this, the most familiar to them of all insects, our Chinese authors deem further description superfluous. Early in June, they give to the trees the appearance of hoar frost, being changed into wax. Soon after this, they are scraped off, being previously sprinkled with water. If the gathering be deferred till August, they adhere too firmly to be easily removed. Those which are suffered to remain to stock trees the ensuing year secrete a purplish envelope about the last of August, which at first is no larger than a grain of rice; but, as incubation proceeds, it expands and becomes as large as a fowl's head, when the nests are transferred, in Spring, to other trees, one or more of each, according to their size and vigour, in the manner already described. In being scraped from the trees, the crude material is freed from its impurities, probably the skeletons of the insects, by spreading it on a strainer, covering a cylindrical vessel, which is placed in a cauldron of boiling water; the wax is retained in the former vessel, and, on congealing, is ready for market. The yellow or white wax, in its chemical properties, is analogous to purified beeswax and also spermaceti, but differing from both, being in my opinion an article perfectly *in genere*. It is perfectly white, translucent, shining, not unctuous to the touch, inodorous, insipid, crumbles into a dry, inadhensive powder between the teeth, with a fibrous texture resembling felt-pap; melts at 100° Fahr.; insoluble in water; dissolves in essential oil, and is scarcely affected by boiling alcohol, the acids or alkalis.

The aid of analytical chemistry is needed for the proper elucidation of this most beautiful material. There can be no doubt it would prove altogether superior in the arts to purified beeswax. On extraordinary occasions, the Chinese employ it for candles and tapers. It has been supposed to be identical with the white wax of Madras; but as the Indian has been found useless in the manufacture of candles, it cannot be the same. It far excels, also, the vegetable wax of the United States (*Myrica Coulieri*).

Is this substance a secretion? There are Chinese who regard it as such—some representing it to be the saliva and others as the excrement of the insect. European writers take nearly the same view; but the best native authorities expressly say that this opinion is incorrect, and that the animal is changed into wax. I am inclined to think that the insect undergoes what may be styled an anæreous degeneration, its whole body being permeated by the peculiar product, in the same manner as the *coccus cacti* is by carmine. It costs at Ningpo from 22 cents to 35 cents per pound. The annual product of this humble creature in China cannot be far from 400,000 pounds, worth more than \$100,000.—*Dr. D. J. Macgowan.*

THE ORIGIN OF PETROLEUM.—The recent development of the reproductive power of petroleum wells that had been for some years abandoned because they were believed to be exhausted (says the *Petroleum Monthly*), is not alone a matter of value to the owners of the territory that was until lately presumed to be incapable of further production, but it affords a more trust-worthy basis than any the world has hitherto been able to obtain for forming an approximately correct opinion concerning the chemical process whereby petroleum is generated. Until within a few days, a popular opinion prevailed that petroleum, in spite of its name, was the product of coal; and so nearly was this idea general among a majority of people, that many foreign receivers of pe-

troleum are still accustomed to order it as "coal oil." The belief, however, that the terrene oil of Pennsylvania and Canada is exclusively a product of bituminous coal may now safely be pronounced to be an error. There is certainly no evidence that coal is not one of the substances from which petroleum is distilled; but, at the same time, it is a somewhat strange fact, allowing a proper degree of credit to the belief that coal does enter into the composition of petroleum, that no coal beds susceptible of being worked are known to exist within fifty miles of the oil-producing territory. Again, it is a manifest and recognized fact that carbon does predominate as an integral essence of petroleum; and the other fact that the oil territory of Pennsylvania is surrounded by beds of bituminous coal, renders it eminently reasonable to believe that coal enters largely—if not, indeed, more largely than any other substance—into the process of distillation whereby petroleum is produced. Petroleum is certainly a mineral oil. But whatever may be the number and chemical variety of the minerals from which it is formed, the distillation of it is more intimately associated with limestone than with any other mineral. Sandstone is also found in boring oil wells, but it is from the pores of limestone that, in the chemical process of extracting oil from the minerals found in connection with its production, the greatest quantity of petroleum is taken. It is singular that, in boring for oil, no coal has ever been found, even in the smallest quantities, while sand, sandstone, and limestone abound. The inference, therefore, cannot be escaped that petroleum is the product of the distillation of at least two, and probably of more than three distinct mineral properties.

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