white bag or cocoon, containing a chrysalis, whose movements were visible through the thin covering, or a small black beetle. This beetle also has six legs, and is provided with a long proboscis, armed with a pair of pincers. It is called by the Chinese the "buffalo," probably from its ungainly appearance. After a few days it turned out that each chrysalis developed into a black beetle, or "buffalo." If left undisturbed in the broken gall, the beetle will, heedless of the wax insects, which begin to crawl outside and inside the gall, continue to burrow with his proboscis and pincers in the inner lining of the gall, which is apparently his food. The Chinese believe that he eats his minute companions in the gall, or at any rate injures them with the pressure of his heavy body, and galls in which beetles are numerous sell cheaper than others. But careful investigation showed that the beetle does not eat the other insects, and that his purpose within the gall is a more useful one. When a gall is plucked from the insect tree an orifice is disclosed where it was attached to the bark. By this the wax insects escape. But if the gall remained attached to the tree no mode of escape would appear to be provided for them. The beetle provides this mode. With his pincers he gradually bores a hole in the covering of the gall, which is of sufficient size to allow him to escape from his imprisonment, and which allows egress at the same time to the wax insects. When the beetles were removed from the galls some of them made efforts to fly; but at that time their *elytræ* were not sufficiently developed, and they had to content themselves with crawling, a movement which, owing to the long proboscis, they performed very clumsily. Through the orifice thus created by the beetle the insects escape to the branches of the tree, if the gall be not plucked soon enough. When plucked, the galls are carried in headlong flight by bearers who travel through the night for coolness to the market towns, and every endeavour is made to preserve a cool temperature in order that the heat may not force the insects to escape from the galls during the journey.

The wax-tree is usually a stump, varying from three or four to a dozen feet in height, with numerous sprouts or branches rising from the gnarled top of the stem. The leaves spring in pairs from the branches. They are light green, ovate, pointed, serrated, and deciduous. The branches are rarely found more than six feet in length, as those on which the wax is produced are cut from the stems with it. The sprouts of one and two years' growth are too pliant, and it is only in the third year, when they are again sufficiently strong to resist the wind, that wax insects are placed on them. In June some of the trees bear bunches apparently of seeds in small pods, and specimens of these have been sent to Kew.

The wax insects are transferred to these trees about the beginning of May. They are made into small packets of twenty or thirty galls, which are inclosed in a leaf of the wood-oil tree, the edges of which are fastened together with rice-straw. These small packets are then suspended close to the branches under which they hang. A few rough holes are made in the leaf by means of a large needle, so that the insects may find their way through them to the branches. On emerging from the galls the insects creep rapidly up the branches to the leaves, where they remain for thirteen days, until their mouths and limbs are strong. During this period they are said to moult, casting off "a hairy garment," which has grown in this short time. They then descend to the tender branches, on the under sides of which they fix themselves to the bark by their mouths. Gradually the upper surfaces of the branches are also dotted with the insects. They are said not to move from the spots to which they attach themselves. The Chinese idea is that they live on dew, and that the wax perspires from the bodies of the insects. The specimens of the branches encrusted with wax show that the insects construct a series of galleries stretching from the bark to the outer surface of the wax. At an early stage of wax production an insect called by the Chinese the "wax-dog" is developed. Mr. Hosie was unable to obtain a specimen of this insect, but it was described to him as a caterpillar, in size and appearance like a brown bean. His theory (which, he confesses, is unsupported by outside evidence) is that the female of the "buffalo" beetle, already mentioned, deposits eggs on the boughs of the insect tree or the wax tree, as the case may be, and that the "wax-dog" is the offspring of the buffalo. There may possibly be a connection between this caterpillar and the gall containing the wax insects. It is said that during the night and early morning the insects relax their hold of the bark, and that during the heat of the day they again take firm hold of it. The owners of trees are in the habit, during the first month, of belabouring the trees with thick clubs to shake off the "wax-dog," which, they assert, destroys the wax insects. After this period the branches are coated with wax, and the "wax-dog" is consequently unable to reach his prey. The first appearance of wax in the boughs and twigs has been likened to a coating of sulphate of quinine. This gradually becomes thicker, until, after a period of from ninety to a hundred days, the wax in good years has attained a thickness of about a quarter of an inch. When the wax is ready, the branches are lopped off, and as much of the wax as possible is removed by hand. This is placed in an iron pot with water, and the wax, rising to the surface at melting-point, is skimmed off and placed in round moulds, whence it emerges as the white wax of commerce. The wax which cannot be removed by hand is placed with the twigs in a pot with water, and the same process is gone through. This latter is less white and of an inferior quality. But the Chinese, with their usual carefulness that nothing be lost or wasted, take the insects, which have meantime sunk to the bottom of the pot, and, placing them in a bag, squeeze them until they have given up the last drop of the wax. They finish their short, industrious existence by being thrown to the pigs. The market price of the wax is about 1*s.* 6*d.* per pound. It is used chiefly in the manufacture of candles. It melts at 160° F., while tallow melts at about 95°. In Sze-chu'an it is mixed with tallow to give the latter greater consistency, and candles, when made, are dipped in melted white wax to give them a harder sheathing and to prevent the tallow from running over when they are lighted.

UNIVERSITY AND EDUCATIONAL INTELLIGENCE

CAMBRIDGE.—The following courses of lectures and practical demonstrations are being given this term:—

Physiology, Elementary, by Prof. Foster; Physiology of Circulation and Respiration, Dr. Gaskell; Central Nervous System, Mr. Langley; Chemical Physiology, Mr. Lea: Preparation Class for 2nd M.B., Mr. Hill.

Elementary Biology, Mr. Sedgwick; Anatomical Characters of the Races of Mankind, Prof. Macalister; Demonstrations on Topographical Anatomy of the Head and Neck, Prof. Macalister.

Morphology and Entomology of Vertebrata, Mr. Sedgwick; Elementary Osteology and Advanced Course on Arthropoda, Mr. Harmer; Morphology of Vertebrata, Mr. Weldon; Development of Limbs of Vertebrata, Mr. Gadow.

Elementary Botany, Prof. Babington; Morphology of Cryptogams, with practical work, Elementary and Advanced Courses, Dr. Vines; Demonstrations in Systematic Botany, Mr. Potter; Morphology of the Flower, Mr. Hicks; Physiology of Plants, with Demonstrations, Mr. F. Darwin.

Geology, Local Stratigraphy, Prof. Hughes; Waves and Tides, Mr. Hill; Principles, Dynamical and Structural, Dr. Roberts; Irregular Accumulations of Doubtful Age and Origin, Mr. Marr; Palæontology, Wm. T. Roberts: Microscopic Petrology, Mr. Harker; Field Lectures, Prof. Hughes; Palæontology of Reptiles and Birds, Mr. Gadow.

Chemistry, General Equilibrium and the Dissipation of Energy, Prof. Liveing; Organic Chemistry, Mr. Main; Elementary Course, Mr. Pattison Muir; Course for Beginners, Mr. Sell; Gas Analysis, Jacksonian Assistant; Elementary Organic Chemistry, Mr. Heycock; Demonstrations, Mr. Sell, Mr. Fenton, Mr. Neville.

Physics: Optics, Prof. Stokes; Prof. Thomson, Kinetic Theory of Gases; Elementary and Advanced Courses, Mr. Shaw and Mr. Glazebrook; Elementary Physics, Mr. Hart; Demonstrations, Mr. Shaw and Mr. Glazebrook.

Mineralogy, Prof. Lewis; Demonstration Courses, Mr. Solly.

Machine Construction, Mr. Lyon; Surveying, Demonstrators of Mechanism.

Advanced Mathematical Lectures open to the University: Waves, Mr. Glazebrook; Elastic Solids, Mr. Macaulay; Solid Geometry, Mr. Ball; Analysis, Dr. Besant; Laplace's and Bessel's Functions, Mr. Pendlebury; Calculus of Variations, Mr. H. M. Taylor; Rigid Dynamics, Mr. Webb.