Scientific.

AMBER.

This fossil substance is supposed to be the product of extinct coniferæ. It resembles the resins and is sometimes found on fossil wood and inclosing the cones and leaves of the tree called by Göppert *Pinites Succinifer*. Insects which inhabited the ancient forests have been found embalmed in it. The electric properties of amber are well known. The Greeks called it "*elektron*," from which is derived the word "electricity." Amber is brittle and tasteless; it is a little heavier than water, generally of a whitish or light yellow color, and often transparent. The exact constituents of amber have not yet been ascertained. It is a mixture of resins, succinnic acid, and a volatile oil containing several hydrocarbons. After a treatment with ether, the insoluble part is said to have the same composition as camphor. Amber may be dissolved by pure alkalis and by sulphuric acid. When it is subjected to fuming nitric acid "artificial musk" is formed. The largest specimen of amber known weighs 18 lb. and is deposited in the Royal Cabinet of Berlin. Amber is found in various parts of the world, but the chief supply is now from Nurth-eastern Prussia, on the coast of the Baltic Sea, where it is washed out of the bluffs, and is generally found after a storm. Prof. G. Zaddach of the University of Königsberg has described in *The Quarterly Journal of Science* the geological formation of the amber region called Samland, lying north-west of Königsberg, from which we gather the following information: "The blue earth" or "amber earth" on the west, lies on the level of the sea, under deep beds of a green sand of the tertiary formation, the stratum of amber-earth being only three or four feet thick: in other places it reaches a thickness of eight feet. The amber occupies only a narrow zone in the whole formation; in this indeed it occurs abundantly, but is not equally distributed. For each square foot of the surface of the bed—that is, one cubic foot of sand—from one-half to one pound of amber may be reckoned as about the average. The pieces are of various sizes, those weighing as much as a half pound being seldom found, and larger lumps of one or more pounds are extremely rare. Their surfaces are dull and worn, and their edges and angles are somewhat rounded, but not to a sufficient extent to obliterate the various forms which they originally received as the liquid resin of a tree, such as pins, drops and plates, which were formed between the bark and the wood, or between yearly rings of growth of the stem. Frequently, also, fine impressions of the parts of the plants which produced them can be distinguished on their surfaces. It follows, therefore, that the pieces of amber were for some time, but not very long, rolled about by the water previous to their deposition. With the amber also occurs fossil wood, but generally only in small pieces, which were probably half-decayed when they were deposited. The complete system of a tree has never yet been found in the amber earth, and solid pieces of a foot or more in length are very rare. Such pieces of wood as still have amber attached to them are of special interest, and there are even some so completely penetrated with the amber-resin that they appear to consist, not so much of wood-fibers as of amber-filaments. In the "amber-earth" and in the lower part of the "quick-sand" just above it there also occur pieces of compact clay and marl which contain numerous fossils, the same as those which are found in the overlying ferruginous sandstone. The amber-earth by no means lies in its original bed—that is, not in the soil of the old forest in which the amber-pines grew; the whole deposit of the "glauconitic sand" is a marine formation, and the amber was washed into it by the sea, in which crabs, sea-urchins, and oysters lived. From the habits of these animals, and from the form of the pieces of amber, it may be inferred that the deposition of the latter occurred not very far from the shore; and from the condition of the amber, that its deposition took place in a proportionately short time, and that considerable stores of it must have been collected in neighboring localities. In the beds above and below the "amber-earth" only a few isolated pieces of amber occur. When lashed by the storms, the sea tears up the amber out of the deep-lying beds of amber-earth; by the help of the sea-weeds torn up at the same time from the beds of the sea the amber is heaved upward, and carried to the surface of the water; and, when the storm abates and the sea becomes calm, it carries the amber, together with pieces of older brown coal and fresh marine plants, on the beach, where a hundred hands are waiting to intercept it with nets. That is the "amber-drawing," a trying occupation, which demands a strong and hardy frame, for the cold winter storms yield the richest booty. But many pieces of amber, nevertheless, do not reach the shore, for the largest and heaviest pieces have already sunk to the bottom, and lie between the large boulders which cover the sea-bed. Therefore in calm weather, and with clear water, the inhabitants of the coast go in boats, and turning the stones with hooks fastened on long poles, endeavor to discover the amber in the interspaces, and to draw it up with small nets. This is called "striking for amber." For a long time people were contented with what amber they could recover by this means from the sea, and these modes of acquisition still furnish the greatest quantity of the amber which is obtained from Samland for commerce. For the last ten years, however, on all points of the coast where amber-earth does not lie too deep beneath the sea-level, endeavors have been made to lay it bare and obtain the amber immediately from it. The circumstance that it is overlaid by a bed of very loose sand, which contains a large quantity of water, has hitherto impeded the attempts to open out the amber earth by subterranean mining-works. And to make this possible, and therefore to render accessible the stores of amber which lie hidden in the interior of the country, will be the next progress in the acquisition of these, in so many respects, remarkable fossils.

COTTON WAX.

Mr. E. Schunck, in a paper read before the Manchester Literary and Philosophical Society "on some of the constituents of cotton fiber," describes the organic substances obtained by him from unspun cotton yarn, the most interesting of which was a waxy matter, insoluble in water, but soluble in ether and alcohol. If a concentrated solution in boiling alchohol be allowed to cool, the greatest part is deposited, causing the liquid to assume the appearance of a thick white jelly, consisting of microscopic needles or scales. When this jelly is filtered off and dried it shrinks very much, and is converted into a coherent cake, which has a waxy luster, and is translucent, friable, and lighter than water. Its melting point is between 83° and 84° C. At a higher temperature it is volatilized. When heated on platinum it burns with a bright flame. The author thinks it probable that this substance covers the cotton fibers with a thin waxy film, and this imparts to them their well-known property of resisting water. In its properties and composition it approaches very nearly the vegetable waxes, such as those found on the leaves of the sugar cane and of the carnauba palm. He proposed the name of cotton wax to distinguish it from other nearly allied bodies.

Rural Economy.

THE PRESERVATION OF LEATHER.

A contributor of the *Shoe and Leather Reporter* gives some valuable hints in relation to the preservation of leather. The extreme heat to which most men and women expose boots and shoes during the winter deprives leather of its vitality, rendering it liable to break and crack. Patent leather, particularly, is often destroyed in this manner. When leather becomes so warm as to give off the smell of leather, it is singed. Next to the singing caused by fire heat, is the heat and dampness caused by the covering of rubber. Close rubber shoes destroy the life of leather.

The practice of washing harness in warm water and with soap is very damaging. If a coat of oil is put on immediately after washing, the damage is repaired. No harness is ever so soiled that a damp sponge will not remove the dirt, but even when the sponge is applied, it is always useful to add a slight coat of oil by the use of another sponge.

All varnishes and all blacking containing the properties of varnish should be avoided. Ignorant and indolent hostlers are apt to use such substances on their harness as will give the most immediate effect, and these, as a general thing, are most destructive to the leather.

When harness loses its luster and turns brown, which almost any leather will do after long exposure to the air, the harness should be given a new coat of grain black, the grain surface should be thoroughly washed with potash water until all the grease is killed, and after the application of the grain black, oil and tallow should be applied to the surface. This will not only "fasten the color," but make the leather flexible. Harness which is grained can be cleaned with kerosene or spirits of turpentine, and no harm will result if the parts affected are washed and oiled immediately afterward.

Shoe leather is generally abused. Persons know nothing or care less about the kind of material used than they do about the polish produced. Vitriol blacking is used until every particle of the oil in the leather is destroyed. To remedy this abuse the leather should be washed once a month with warm water, and when about half dry, a coat of oil and tallow should be applied, and the boots set aside for a day or two. This will renew the elasticity and life in the leather, and when thus used upper leather will seldom crack or break.

Band leather is not generally properly used. When oil is applied to belting dry it does not spread uniformly, and does not incorporate itself with the fiber as when partly dampened with water. The best way to oil a belt is to take it from the pullies and immerse it in a warm solution of tallow and oil. After allowing it to remain a few moments the belt should be immersed in water heated to one hundred degrees, and instantly removed. This will drive the oil and tallow all in, and at the same time properly temper the leather.

BUTTER MAKING.

In the New York butter market, the Orange county product holds the highest rank and commands extreme prices always. Its excellence is, in some measure, to be attributed to the superiority of the pasture lands of that region over most, if not all, other sections of the state, but more particularly, perhaps, to the greater care and attention bestowed upon the manufacture of the butter and its preparation for market. The numerous springs of soft and cool water gushing from the hills in Orange and contiguous counties affording admirable sites for spring houses is a great and important aid in the manufacture of butter—an advantage that the western section of the state is but partially possessed of. In the process of manufacturing it is presumed there is but little if any difference between that pursued in Orange county and other sections. In hot weather, after the butter is salted and worked over, it is taken to the spring and immersed in the water, where it remains during the day, when it is worked and packed. For winter butter a small teaspoonful of pulverized saltpetre and a large table spoonful of white sugar are added for twenty odd pounds of butter at the last working. As a general thing no coloring matter is used in factory butter. The working is done on an inclined slab with beveled sides running down to the lower end, and within four inches of each other, at which point a wooden lever, fitted into a socket, is attached as a working instrument—performing the office of the butter ladle. The firkins for packing are of white oak, carefully and neatly made and well soaked in cold water before being used. When filled they are headed up, and strong brine poured into the top—a hole being made for the purpose—filling up any empty places that may remain after packing. Thus prepared it is ready for market.—*Rural New Yorker.*

BOTS IN HORSES.

Referring to the statement made in the United States Agricultural Report for 1864, Col. J. Hamilton writes from Raleigh, N. C., to the Department of Agriculture, stating that he has a recipe from Dr. Gee, of Florida, which he has not tested, but will do so on necessity showing itself. He says:

"You are aware that it is hard sometimes to distinguish between an attack of the bots and one of the colic; the following remedy, however, is equally efficient for either. The reason that a bot can resist the action of agents administered is his power of drawing his head into the walls of the stomach by his tentacles. But he cannot resist chloroform. A table-spoonful of chloroform screened by a couple spoonfuls of any good mucilage will make him let go his hold on the even after having bored nearly through."

KEEPING BUTTER.

At the recent meeting of the Diarymen's Association in Illinois, President King remarked that he had been a dealer in butter for thirty years, and considered that May, June, and July, produced the best, if properly made and put down. Butter containing whey, or lime, or milk will not keep. It should be made dry, come hard, and be properly cured. Most people salt too high. It should be salted to the palate, and it will keep. All in excess of this is injurious. The milk, cream, and the surroundings of the butter room should all be pure, as foul odors are certain to impart a disagreeable flavor. Mr. King stated that he knew a man to plant honey-suckles and roses around the place where his butter was made, for the purpose of giving it an agreeable flavor. This was a pleasant conceit, whatever the influence on the dairy-room may have been. *Rural New Yorker.*

CLOVER AND WHEAT.

A correspondent of the *Rural New Yorker*, in Central Illinois, in walking over a field where one of his neighbors was sowing clover with his wheat, and harrowing them in on a field which was plowed in the fall and was still frozen solid within four inches of the surface, asked him why he had always sowed clover. His reply was: "It don't do any harm; and I get a fine fall forage from it any way when I put in the seed in February and March. Sometimes I change my plans and do not plow the field in the fall; if I do the clover and its roots do not hurt the soil much. If I turn it over in the spring for corn, the crop plowed under, from the first to the 15th of May, is all that need be desired to ferment green and stimulate the germination of the seed. It is a profitable plan, any way. I like clover in my soil. Some people do not; but either I am a good deal of an egotist or some people are foolish. I find it good substitute for weeds."