as 225 of them are running in this country. The speed at which the looms may be run seems also to be exceptionably high—so much so as to give a maximum production, with skilled labor, of 35 yards of carpet per day. The general all-round average production per day, amongst a variety of labor, is about 25 yards per day, which certainly speaks well for the construction and easy working of the loom.

THE WATER SNAKE—HOW IT EATS.

BY C. FEW SEISS.

If we wish to keep serpents alive and healthy in captivity they must of course be fed. They must, with few exceptions, have living food. I have endeavored in various ways to entice them to eat raw beef, without, however, any success. In only one instance, I believe, did I ever succeed in making a serpent devour a lifeless object. This was a water snake which I enticed to seize and swallow a dead minnow by moving it rapidly about in the snake's bath tub, with a piece of slight wire. But even after the fish was seized, I was obliged to move the minnow's tail from side to side, to imitate life, for fear the snake should perceive his mistake and relinquish his hold.

Garter snakes must be fed upon toads and frogs, and water snakes upon frogs, tadpoles, and fishes.

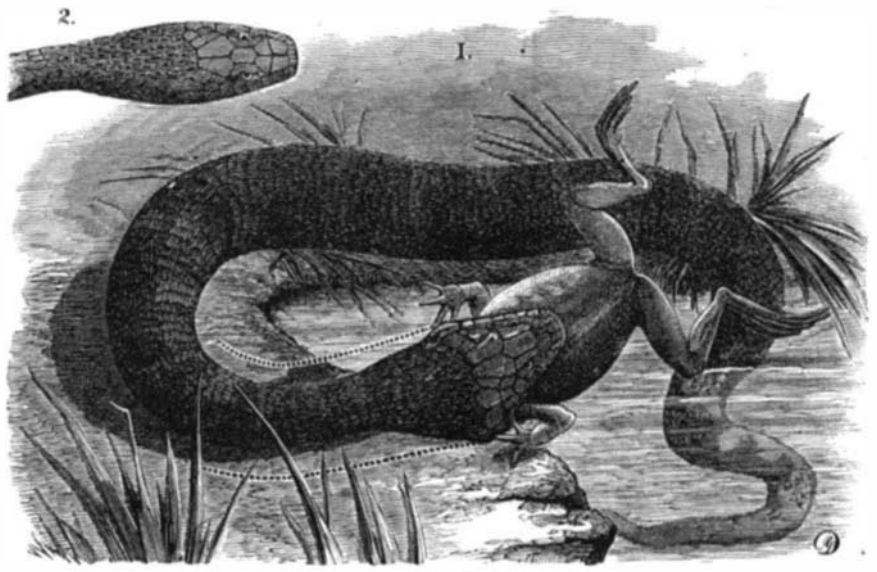
I cannot say I enjoy seeing a snake swallow a frog. The last time I witnessed our water snake (*tropidonotus sipedon*, Linn.) devour a frog, I must confess a feeling of pity for the little frog came upon me. The snake first, by a sudden dart through the water, caught the frog by one of its hind legs. The frog struggled in terror, and madly endeavored to free itself from its ferocious captor. It struggled in vain, for the snake slowly drew the frog into the dark vale from whence no frog ever returns. From the instant the frog was seized, until it was entirely swallowed, and the snake's mouth closed, it cried most piteously, first loudly, but by degrees growing fainter and fainter, until entirely hushed in the gullet of the snake. I imagine I can yet hear that young frog's death cry. It was repeated at intervals, and sounded something like the words "quaak! uck! uck! quaak! uck! uck!" uttered in a plaintive tone.

While the frog was passing through the œsophagus of the snake, and even after it had arrived in the ophidian's stomach, I observed by the external agitation of the snake's body how violently the frog kicked and writhed to extricate itself from its untimely tomb.

It may be said of most serpents that rather than eat, in the general sense of the word, they drag their jaws over and around their prey, previous to swallowing it.

Supposing the object to be made food of by a water snake is a frog. After seizing it, the snake unhooks from the frog the teeth of one side of its upper jaw, and forces them further forward upon the frog, where it rehooks them, and draws them backward; then the teeth of the opposite side of the jaw performs the same action, and thus they move alternately and regularly, the inferior jaw going through much the same action, until the head of the snake is drawn completely over the frog. The snake then forces the frog through its œsophagus to its stomach by violently contracting the muscles of its neck and body, at the same time its neck is contorted in a horizontal waving manner.

When the object swallowed is passing through the œsophagus, and into the stomach of the serpent, that is if the prey be of any considerable size, the ribs expand, widely distending the skin of the neck and body, leaving spaces between the scales, which, being generally light in color, cause the serpent, especially if it be a dark one, to have the appearance of being prettily speckled with white.



THE WATER SNAKE.

Fig. 1 represents a *tropidonotus sipedon* in the act of devouring a frog. The movable quadrate bones are forced outward, thus widely distending the head and neck of the serpent. The dotted line indicates the size of expansion while the frog is passing through the œsophagus of the serpent. Fig. 2 represents the same serpent in a state of quiet. The occipital plates of this specimen are somewhat smaller than they generally are in this species.

SUGAR of lead ground in linseed oil is a good paint dryer.

Reynier's New Electric Lamp.

The author's object in this invention has been to produce an electric lamp capable of acting for 24 hours. He has succeeded in almost completely suppressing the occultations hitherto supposed inherent in the use of discs. M. Cance submitted to the Academy of Paris a novel system of electro-magnets with a multiple nucleus, analogous to that of M. Camacho, but in which the tubular nuclei are replaced by series of small rods of soft iron in juxtaposition and enveloping in pairs the different layers of spirals.

Requirements for a Good Ship's Compass.

In order that a compass may be good, the needle should be very hard and well magnetized so as to retain its power, the cap should be of ruby or agate, carefully hollowed so as to be even and smooth, and the point should be hard, fine, and sharp.

No dirt or dust should be permitted to get into the cap, as it will make the needle sluggish, and enable the point to grind into the cap. The point should be examined from time to time and kept sharp. It is important also that the point should be exactly in the intersection of the two diameters passing through the gimbals, and that it should be exactly at the same height as the centers of the gimbals, a matter frequently neglected by the maker. It has been shown that a compass is more steady, and that the quadrantal correction is more perfect when the card has two parallel needles, the ends of which intersect the circumference of the card at points 60° apart. The admiralty compass has four needles.

If the bowl is of copper, or better if a stout copper ring surrounds the card, the vibrations of the needle will be calmed, that is their amplitude will be reduced, while the time of viration will remain the same, owing to an action being set up which appears to be due to currents generated by the relative motion of the needle and the copper. It may be suggested that no means of cutting off the action of the ship's iron from the compass can be effectual, since anything which will do that will also cut off the action of the earth's magnetism also, and render the compass useless.—*From Fairman Rogers' work on "The Magnetism of Iron Vessels."*

THE CURLY-HAIRED ANTELOPE.

Very little is known of this antelope in its wild state. Siebold, in his "Fauna Japonica," calls it *antelope crêssue*, and mentions that it is known to the Japanese by the name of "Nik," but that it is rarely found, and only then in the highest mountains of the Island of Niphon and Sikok. The appearance of the animal would indicate that it is a hardy inhabitant of a mountainous country.

THE CURLY-HAIRED ANTELOPE.—(JAPANESE CHAMOIS).

The illustration that we give was drawn from life and gives a good representation of the animal. It is about the size of a goat. Seen from the front, it has a wolf-like appearance, on account of its strong neck, encircling mane, and peculiar color of the head. The coarse long hair of the body is of a light slate color, the points of which are united so as to form tufts or curls. The back, neck, ears, and goat-like tail are of a dark black color. The hair from the eyes towards the forehead, the cheeks, and along the throat is of a dirty grayish white. The short spirally-twisted and backward-bent horns are grooved at their base and are nearly hidden by the long hair of the forehead. The insides of the ears are covered with long and thick hair. The eyes are dark brown. The hoofs are grooved on the inside and terminate in dull points.

A full grown female of this rare species was exhibited at the Zoölogical Gardens, at Cologne, in the winter of 1876. It was unfortunately killed by the inundation of last spring, which overflowed a part of the garden.

KID GLOVES.

The manufacture of kid gloves is an old French industry. Grenoble is the principal seat of the trade, over a third of its inhabitants being engaged in it, and it was from this city that the manufacture was introduced, some three hundred years ago, by wandering craftsmen, into other European cities, especially those of Germany. Paris not long ago grew to be the rival of Grenoble in the trade, mainly through the exertions of Jouvin, who brought the manufacture into prominent notice, and laid the foundation of that world-wide fame which the Parisian kid gloves have ever since enjoyed.

He introduced several important improvements, and was among the first to recognize the great superiority of machine work in his special department.

The French kid glove manufacture gives employment to over 70,000 hands, including those who attend to preparation of the leather. The yearly production amounts to something like 24,000,000 of pairs, representing a value of 80,000,000 francs.

Kid gloves are made of the skins of goats, kids, sheep, and lambs, which are supplied by all European countries, Saxony, however, furnishing the best. Great care is exercised in tanning in order to obtain leather of the required degree of softness and pliability. The dyeing of the leather is carried on in special establishments, for the convenience of glove makers who do not, like larger firms, attend to their own dyeing. The soft gloss of kid gloves is not, as some have been led to suppose, due to any peculiar treatment, but depends upon the quality of the leather and the care expended in its tanning.

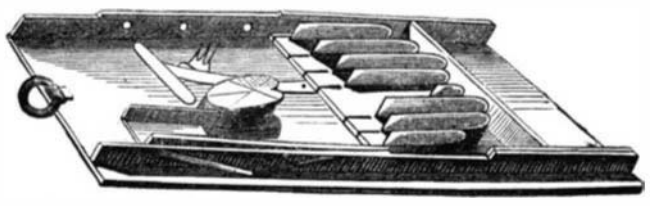


Fig. 1.—FORM FOR CUTTING GLOVE BLANKS.

The hides, after coming from the dyer, are spread out separately upon a marble table with the smooth side down, the other or flesh side being submitted to a scraping process in order to reduce the existing inequalities and to render the skin as smooth and as uniformly thick as possible.

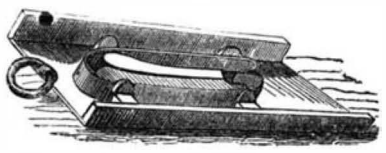


Fig. 2.—FORM FOR CUTTING THE THUMB PIECES.

The leather is now cut into strips of a little over twice the breadth of a hand, and these *établions*, as the French call them, are then stretched for some time in the direction of their length. The cutting, which now follows, was formerly accomplished by first tracing the outline of the glove upon the piece and then using the handshears. Next came sheet iron patterns, which had merely to be pressed upon the soft leather in order to leave an impression of the outline, when the shears as before completed the work. This method is still employed to some extent. The mode of cutting at present almost universally adopted is to stamp the gloves out by means of the contrivance shown in Fig. 1. Steel knives are so arranged upon a board, with their edge uppermost, as to form the outline of a double glove, including the opening for the thumb piece. Four to six pieces of kid of the proper size are placed upon these knives, a board is laid over both, and the whole is then submitted to pressure, after which the gloves, neatly and cleanly cut, are ready to be passed to the seamstress.

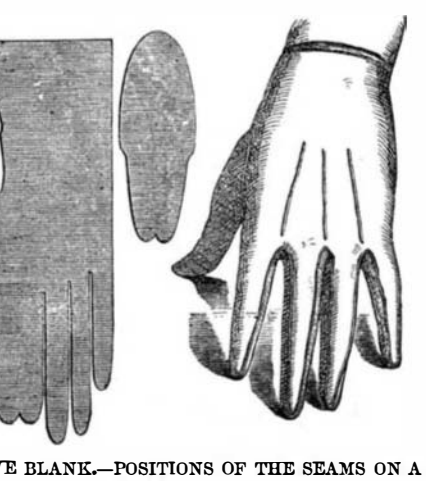


Fig. 3.—GLOVE BLANK.—POSITIONS OF THE SEAMS ON A GLOVE.

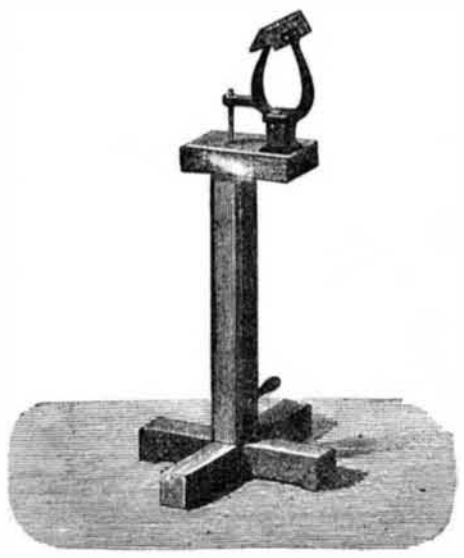


Fig. 4.—MACHINE TO ASSIST IN SEWING.—FRONT VIEW.

A separate apparatus, as shown in Fig. 2, is provided for cutting the thumb pieces. The knives used are made of the very best steel, and demand special accuracy in their manufacture.

In some Parisian factories they have a more complicated form of cutting tool, in which the glove, besides being cut, is provided at the same time with the holes through which the sewing thread is to pass. Such an apparatus has, however, from its complexity, been found to be too uneconomical to warrant its extended introduction.

In sewing the gloves, silk is ordinarily used. A small contrivance is employed for this purpose, which, besides serving to hold the glove while being sewed, furnishes also a guide in making the stitches. As shown in Figs. 4 and 5, it bears some resemblance to a vise, and is ordinarily kept closed by the pressure of a spring, but can be opened at pleasure by means of a treadle. The jaws of this vise are furnished with a pair of brass plates, changeable at will, which have their upper edges provided with a row of teeth, the latter being placed at varying distances apart on different plates.

In sewing, the two portions of the glove are allowed to project slightly above the comb, sufficiently to permit the seam being made with the necessary freedom. The needle is made to pass through the glove in the spaces between each two teeth, and the seam thus acquires its uniform and pleasing appearance. This machine has been in use ever since its invention, in 1807, by James Winter, of England, and is still extensively employed, despite the fact that special sewing machines have been brought to the notice of the trade, capable of sewing within the same time three times as many pairs as the most skillful seamstress.

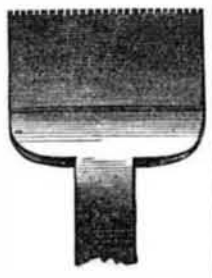


Fig. 5.—Machine to assist in sewing. Side view of head.

After sewing, the gloves undergo various minor operations, such as straightening those portions that may have become distorted, flattening the seams, pressing, etc., and are then ready for the market.

Hyposulphite in Diphtheria.

A very large number of diphtheria cases are cited by a Boston physician as having been successfully treated, in his own practice, by the use of hyposulphite of soda, in doses of from five to fifteen grains or more in syrup every two or three hours, according to age and circumstances; as much as the patient can bear without physicking being a good rule in the severer cases. The tincture can be used in doses of five drops to half a drachm, in milk, the amount for thorough stimulation being greater than can be taken in water, and, in the treatment of children, the milk thus used answers for food. As, however, the hyposulphite prevents the digestion of milk, it should not be given in less than an hour from it, though they may be used alternately, in frequent doses.

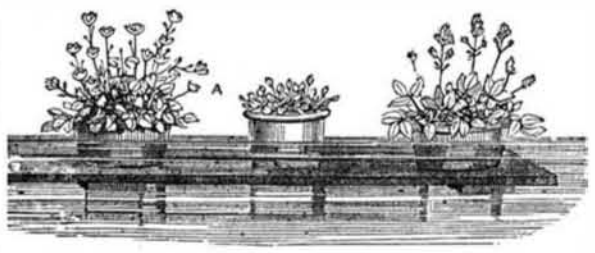
GRAVITY OF WOODS.—The woods which are heavier than water are Dutch box, Indian cedar, ebony, lignum-vitæ, mahogany, heart of oak, pomegranate, vine. Lignum vitæ is one third heavier, pomegranate rather more. On the other hand, cork, having a specific gravity of ·24, and poplar, ·383, are the lightest woody products.

Freezing Point of Ether.

Our common ethylic ether, improperly called sulphuric ether, because made by the action of sulphuric acid upon alcohol, is known to be a substance which does not freeze very readily. Its freezing point has been variously stated by different investigators, but Franchiment thinks that pure ether cannot be frozen. He has cooled it to —80° C. (—112° Fah.) and it remained a thin liquid showing no signs of crystallization. In ether containing any water, white crystalline flakes form at a very low temperature, but the less water there is present the lower the temperature required will be, and the smaller the quantity of crystals. Franchimont thinks that these flakes are not crystals of ether, but ice crystals. The question seems to be one not easily settled, for few experimenters care to work at such extremely low temperatures, obtainable only by the expenditure of so much time, labor, and expense.

A FLOATING FLOWER BED.

G. F. Wilson in *The Garden* gives his experience of a float which he has successfully used in the cultivation of bog and water plants, and says: The raft is 8 feet square and consists of nine planks, connected underneath by crosspieces, and having about 2 inches open spaces between; this was sunk by the weight of the pots, pans, and pieces of rock to 2 or 3 inches under the surface. On the raft bog plants in pots and water plants in pans were placed, with the result that, with no attention, they flourish as well as in their natural homes. After a time, when the wood has become saturated with water, and its floating power thus lessened, we nailed large pieces of cork underneath the raft; this enabled it to carry a heavy load. The plants now growing on the raft number twenty, and were chosen as representative plants. There are the North American pitcher plant (*sarracenia purpurea*), *saxifraga palmata*, buck beans, bog violets (*pinguicula vulgaris*), grass of Parnassus, several sorts of mimulus—the spotted mimulus overgrows its pan, and with floating roots in the water is most beautiful—*lobelia cardinalis*, bog myrtle, a large variety of yellow iris, and North American lady's slipper (*cypripedium spectabile*). It is obvious that, while the raft floats between 2 inches and 3 inches under water, each



pan or pot may be adjusted according to the requirement of its inhabitant; thus a water plant is sunk to the full depth, while a plant requiring only moist soil is raised up by a piece of wood placed under its pot. Probably a still more ornamental form would be a round raft of wood with cork or wood fastened with copper nails to form sides, the bottom to have only small holes all over to admit the water; there might be cross divisions for different mixtures of soil suitable for the various plants, made not deep enough to show above the surface; in this case the whole raft would be covered with soil, and all woodwork, except the sides, hidden.

A Fertilizer from Blood.

A Frenchman named Lissagaray has taken out a Bavarian patent for making a fertilizer from blood. High pressure steam is first passed into the blood so as to cause it to boil and coagulate the albumen. The coagulated blood, while still hot, is pumped up on a linen filter stretched across a frame, and the greater part of the liquid drained off from the coagulum, which is packed in bags made of stronger linen, piled one upon the other, and squeezed between the plates of a hydraulic press, then dried in a wheel divided into four compartments, into which is passed hot air. In this way the nitrogenous portion of the blood is all retained in a form in which it is not liable to immediate decomposition, rendering it less offensive to handle and transport. If the blood be subjected to this treatment while fresh, the operation should not be particularly disagreeable.

Tellurious Odors.

Some salts of bismuth, more especially the nitrate and carbonate, have recently come into favor, and been prescribed by medical men for certain disorders of the system (*Ann. Pharm.*) It has been remarked in several cases in England that persons to whom either of these preparations had been administered were affected in an unaccountable way, the breath and skin acquiring an intolerable odor. It appeared at first sight probable that the cause lay in the presence of arsenic in the bismuth, but analysis of the salts has shown them to be contaminated with tellurium. Tetradymite, a compound of bismuth and tellurium, is a mineral which has been met with in many localities, and may easily have caused the contamination of the crude metal.

We may add that among workers in ores containing tellurium in Colorado, it is well known that, if they inhale the vapors of that metal, or take it into the system, they soon begin to emit from every pore an odor, compared with which the smell of rotten eggs, sulphuretted hydrogen, or bisulphide of carbon are savory substances. Tellurium is a metal resembling tin in color, but it has many of the characteristics of sulphur.