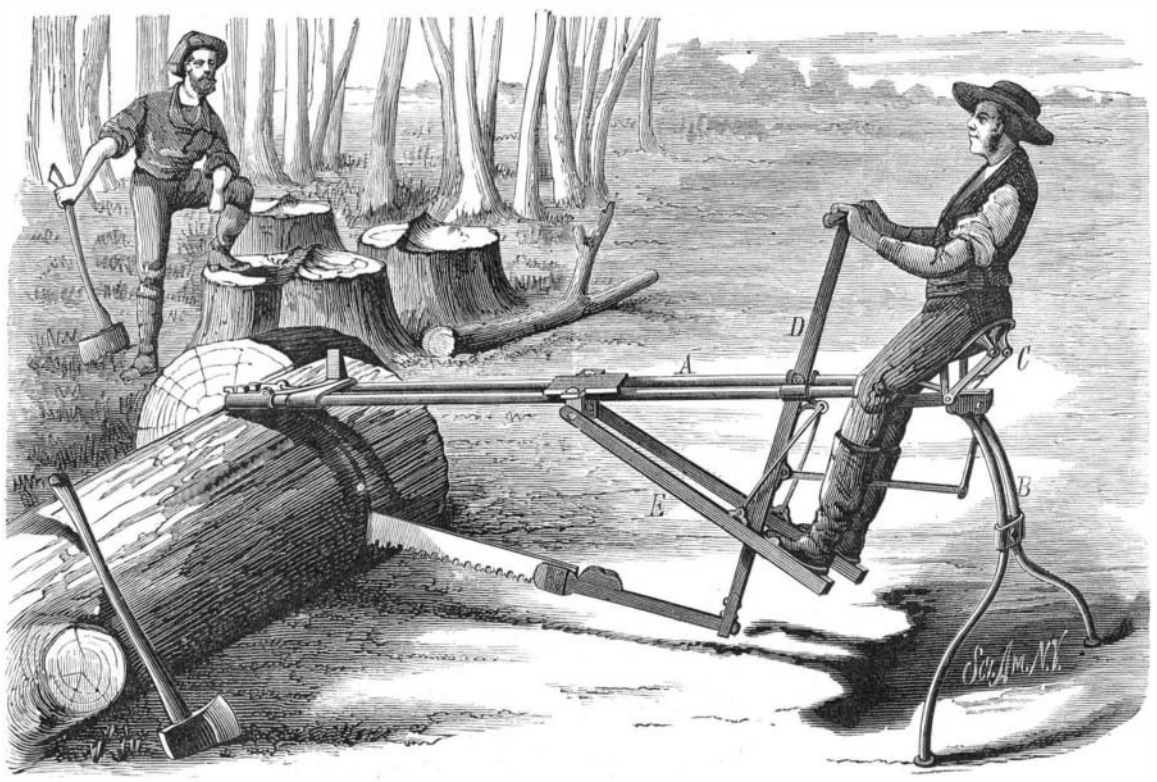
A NEW DRAG SAWING MACHINE.

The accompanying engraving represents an improved drag sawing machine, the invention of Mr. William W. Giles, of Chicago, Ill. The first machine devised by this inventor on the same general principle was the subject of an application for a patent in 1862. We are informed that the recently patented improvements have rendered the machine a marked success. It is so clearly shown in the engraving that but little explanation will be required.

The main frame of the machine is about eight feet long, and the front end rests upon the log being sawed. A wedge is fastened with a hinge to the main frame, and when the log pinches the saw the wedge is turned over and driven into the saw kerf. The seat upon which the operator sits is capable of sufficient motion to allow the machinery to work. The operator, by pressure of the feet upon the treadles, E, throws the saw forward; this movement is also supplemented by pulling the main lever, D, with the hands. By this means the saw is propelled with great force, as the most of the weight of the body and the strength of the arms are employed in doing the work. When the operator pushes the lever, D, before him, he transfers his weight from the treadles to the seat, and the latter will be pressed down; in fact, the operator may put more than his weight upon the seat in this way, and when the power is applied thus the saw is drawn backward. In using this machine the weight of the operator and the muscles of his arms and legs are all brought into action. The saw has a three-foot stroke, and is capable of doing considerable execution.

The manufacture of this machine is conducted at 741 W. Lake street, and the office is at room 20, No. 149 Clark street, Chicago, Ill.



GILES' DRAG SAWING MACHINE.

A NEW FIRE ESCAPE.

The fire escape ladder shown in the accompanying engraving is the invention of Mr. Joseph R. Winters, of Chambersburg, Pa. It is designed to be used both as a fire escape and a support for fire hose.

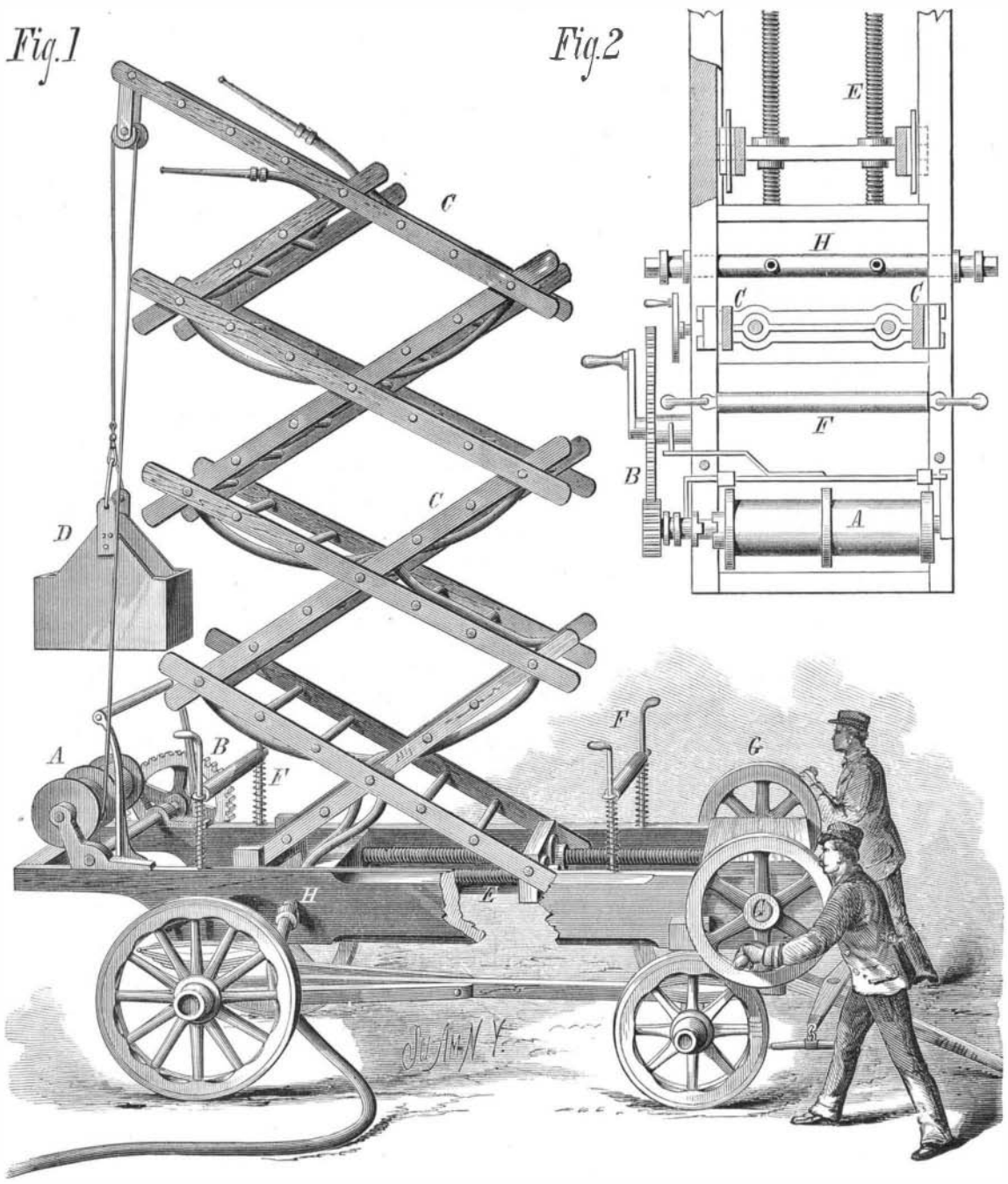
The main frame is mounted upon wheels and supports two screws, E, and the lazytongs, B. The screws, E, are provided with miter wheels, which are driven by miter wheels on a shaft at the end of the main frame. On the ends of this shaft there are fly wheels, G, provided with cranks set diametrically opposite each other. A bar pivoted to two of the lower levers of the lazytongs carries nuts which travel on the screws, E, as they are turned by the mechanism already described. The other pair of the lower levers of the lazytongs rests upon a support that is adjustable vertically by two screws which are turned by the gearing seen below the main frame. This adjustment alters the level of the base of the ladder, and consequently varies its inclination.

Hose, C, suitable for fire purposes, extends from the fixed pipe, H, to the top of the ladder, and is provided with nozzles. One of the upper pairs of arms is longer than the other, and reaches over to receive the pulley that supports the rope from the windlass, A. This rope carries a box or basket, D, used for lowering goods or persons.

The truck carrying the lazytongs is provided with spring-bearing pieces, F, which check the downward motion of the ladder and assist in starting it upward.

This fire escape, as will be seen, is capable of being raised to any height within the limits of the capacity of the machine, and it may be inclined at different angles to bring it into position for use under varying conditions.

The windlass and the basket, D, afford a means of escape for invalids and children, and the ladder itself affords ample means of escape to such as are able-bodied, while at the same time it is convenient and efficient as a fireman's ladder. This invention is patented in this country and in Europe. The New York office is in the Coal and Iron Exchange Building.



WINTERS' FIRE ESCAPE LADDER.

MISCELLANEOUS INVENTIONS.

An improved fountain brush has been patented by Mr. Martin J. Sunderlin, of Watkins, N. Y. This apparatus is designed for washing and cleansing horses, mules, and cattle, and articles such as wagons, carriages, etc., and also for washing and shampooing the human head and body. The invention consists in a brush having combined with it a sponge, and having a water distributing chamber, a flexible tube for supplying water, and a stopcock for controlling the supply, these parts being arranged so that the water is conducted to the distributing chamber in the brush, and passes to the sponge, from whence it passes in a uniform and continuous supply to the object to be cleansed.

Mr. Benjamin F. Fuchs, of Tiger Mill, Texas, has invented an improved washing machine having several novel features which cannot be described without an engraving.

Mr. Benjamin B. Blewett, of New York city, has invented an improved picket stake for picketing or tethering horses and cattle. It can be readily entered into the ground or removed therefrom without requiring the use of a mallet or other implement to drive it. It consists in a picket stake having the pin that enters the ground made as a blade, semicircular in cross section, and tapering lengthwise, and fitted at the base with a plate for driving the blade by pressure of the operator's foot, and the handle for holding the stake while it is being driven. The rope is attached to the handle, and the handle fitted to revolve to prevent winding.

An improvement in oil press plates has been patented by Mr George W. Campbell, of West New Brighton, N. Y. The object of this invention is to prevent the rapid destruction of the bag or wrapper that contains the ground seed while being pressed, and to avoid the use of the ordinary mats, so as to lessen the expense. The invention consists in providing the ordinary corrugated oil press plates with projections and indentations or short grooves.

An improvement in bridge walls for furnaces has been patented by Mr. John Mailer, of Pacheco, Cal. The inventor places a movable bridge wall in a boiler furnace to contract the area of outlet from the fire surface to the boiler flues

Mr Henry Morrison, of Pittsburg, Pa., has patented an improved device for holding ribbon-gold while teeth are being filled, to facilitate the operation, lessen the time required, the labor of the operator, and the exhaustion of the patient. It consists in one or more spools mounted upon rods, connected together by ball-and-socket joints, and provided with a clamp for holding the device in position in the mouth.

Mrs. Henry Dormitzer, of New York city, has recently patented improvements on the window cleaning chair for which letters patent Nos. 200,441, 206,935, and 206,936 were granted to the same inventor, February 19 and Aug. 13, 1878. The object of the present invention is to simplify the adjustment of the chair and to make it more reliable and complete. This device, although very simple, cannot be described without engravings.

Mr. Benjamin N. Shelley, of Anderson, Ind., has invented a combined implement for domestic and other

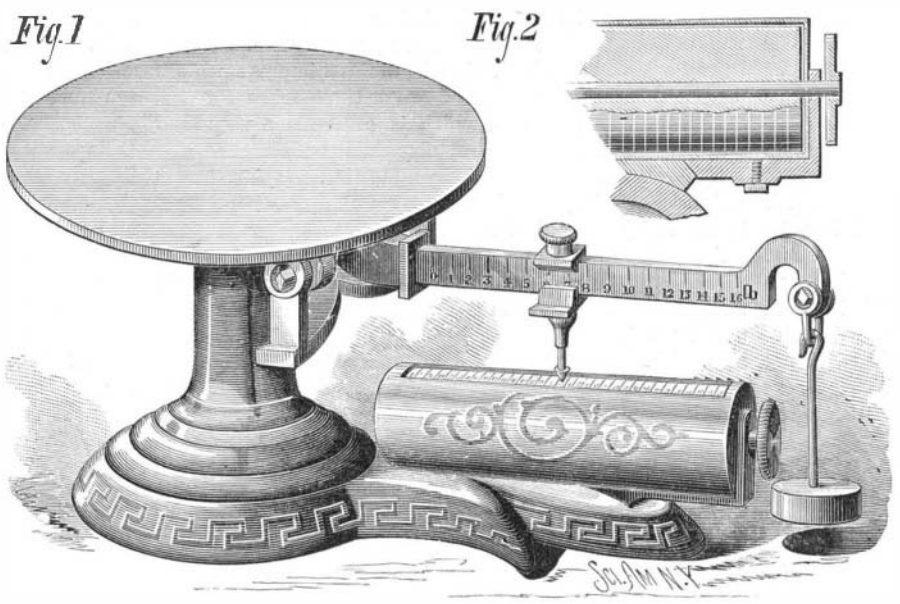
purposes, which presents in a single device and compact form, the functions of a hammer, screw driver, corkscrew, can opener, ice pick, glass cutter and breaker, stove lifter, tack drawer, saw set, knife sharpener, wrench, steak tenderer, and putty knife.

NEW CALCULATING ATTACHMENT FOR WEIGHING SCALES.

The improved attachment for weighing scales shown in the accompanying engraving was recently patented by Henry H. Ham, Jr., of Portsmouth, N. H. The object of the invention is to indicate the price of any number of pounds or ounces of the article being weighed.

The scales are of the usual construction, and to the base is attached a cylindrical case, slotted along the top, and containing a cylinder upon which are placed a number of rows of figures arranged in arithmetical progression, each row representing the price per pound or ounce of some particular article. The numbered cylinder may contain any desired number of rows of figures, and the row representing any particular class of goods may be brought opposite the slot in the casing.

The sliding weight on the scale beam is provided with an index which points to one of the numbers on the cylindrical scale. This number represents the price of the total quantity of the substance on the scale. It will be seen that this device avoids all calculating and insures accuracy.



CALCULATING ATTACHMENT FOR WEIGHING SCALES.

Carica Papaya.

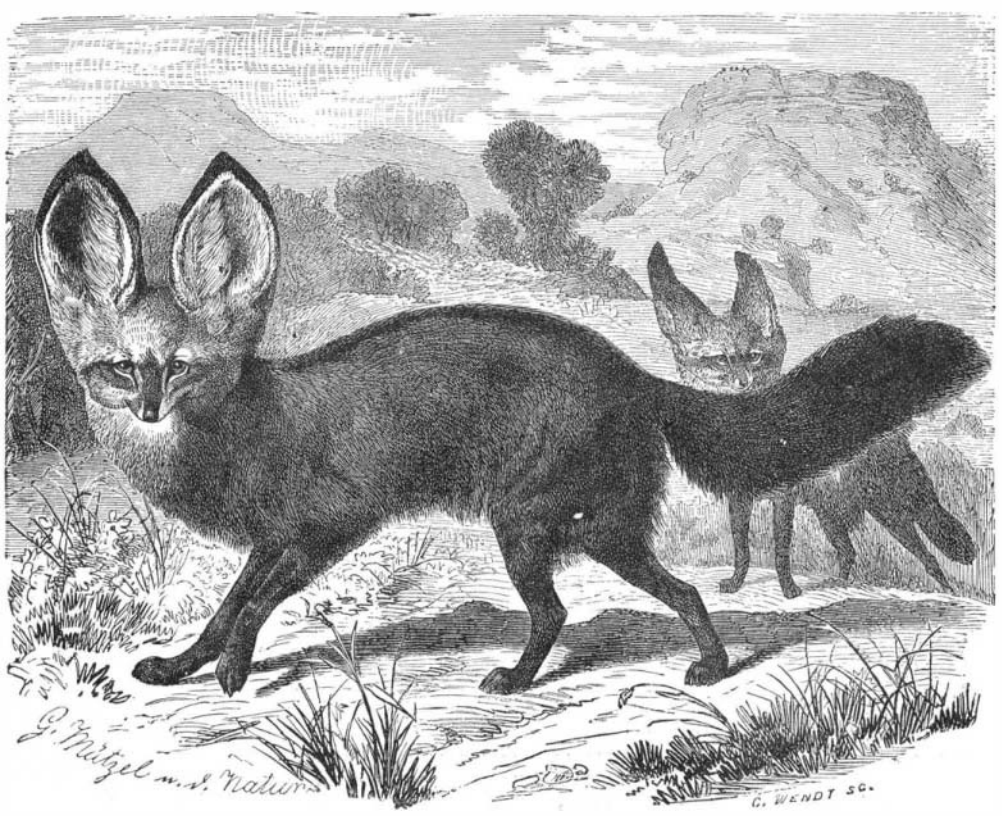
Not long since notice was taken in this paper of the strong digestive power of the juice of the pawpaw, *Carica papaya*, used in Brazil for giving tenderness to fresh meat. Dr. Bouchut, of Paris, has been experimenting with this remarkable vegetable product, and finds that it dissolves the false membranes which form in the throat of patients suffering from croup. It is also found to kill and dissolve intestinal worms. It would appear to have no injurious action upon the living mucous membrane. The pawpaw thrives in all tropical countries.

THE OTOCYON.

This animal is found in South Africa and in parts of East Africa, generally upon the bushy highlands near the rivers. It is about three feet in length from the tip of the nose to the end of the tail, the tail being about one-third of the entire length. The ears are enormous, entirely disproportionate to the rest of the animal. The eyes are sharp, the nose pointed, the legs are of good length. It sleeps during the day and goes out for its prey in the night. It lives on small animals and upon grasshoppers. The natives hunt it down for its fur and even eat its flesh, although it has a very offensive taste.

A Horse Crazed with Tea.

Lord William Beresford, in addition to his distinction as a gallant and chivalrous soldier, will be distinguished in history as the owner of a horse which was poisoned by tea. The *Veterinary Journal* reports the "case," and characterizes it as "unparalleled in the annals of veterinary or even human toxicology." A staff cook having left some pounds of tea in a sack, a Kaffir groom filled it with corn, and serving out the contents to a troop of horses, gave Lord William Beresford's charger the bulk of the tea, which was eaten greedily, and produced the most startling results. The animal plunged and kicked, and ran backwards, at intervals galloping madly around, finally falling into a donga, where it lay dashing its head on the rocks, and was dispatched by an assegai thrust through the heart. The *post-mortem* appearances indicated extreme cerebral congestion. The occurrence as an accident is probably unique. The phenomena exhibited were, however, characteristic of the action of caffeine—namely, cerebral excitement, with partial loss of sensibility, convulsions, and death. The sensory nerves are paralyzed without any corresponding paralysis of the motor nerves, so that the muscular action, which proceeds from ideation and volition, remains unaffected. The reversal of limb movements, which produce running backwards in quadrupeds, is a common symptom of brain disturbance, frequently witnessed, for example, in the case of puppies with unclosed crania. The case is one of great interest, and may help to throw light on the action of tea, which has not been sufficiently studied, and must be still classed as unexplained.—*Lancet.*



THE OTOCYON.—(*Otocyon Caffer.*)

RECENT AGRICULTURAL INVENTIONS.

An open-work partition for cattle stalls, formed of bars crossing each other diagonally, has been patented by Mr. Joseph B. Greenhut, of Chicago, Ill. By means of these partitions the cattle are kept in their places without chaining or tying, and yet ventilation is not perceptibly obstructed, nor is admission of light from the ends of the stable materially hindered. The expense of constructing the partitions is also small as compared with the usual close or tight board partitions.

An improvement in plows has been patented by Mr. Fernando Gautier, of West Pascagoula, Miss. The invention consists in combining with the plow an oscillating knife operated by means of an eccentric. The advantage of an oscillating knife over a rotary one is, that when plowing very deep or turning under coarse material it is not so liable to come into contact with the ground.

An improved machine or apparatus to be mounted on a plow beam for sowing and distributing seeds and fertilizers has been patented by Mr. William G. Humphreys, of Pendleton, S. C. Any two kinds of seeds, such as corn and beans or pease, which are often sown together, can with this machine be sown at the same time. Corn and guano, cotton seed and mineral phosphate, or any seed and fertilizer can be sown with accuracy at one and the same time, or in quick alternation, by this apparatus, the plowshare marking the furrow in advance of the sowing.

An improvement in harvesters has been patented by Mr. Alonzo N. Wilson, of Coon Rapids, Iowa. This is an improvement in harvesters whose platforms are made vertically adjustable at each end independently of the trucks to which they are hinged. It consists in a peculiar arrangement of parts for raising and lowering the platform without changing its horizontal angle.

Mr. Samuel L. Waters, of Genoa, Ill., has patented an improved harrow for loosening, pulverizing, and smoothing land. It consists in a harrow frame formed of a rod bent in its middle to form a loop or bail, and having its arms parallel and connected by cross rods, and supporting tubes which carry harrow knives of peculiar form.

NATURAL HISTORY NOTES.

Relations of Flowers and Insects.—For some years past—since the publication of Darwin's researches—we have been accustomed to look on the forms, colors, perfumes, and nectar-like secretions of flowers as so many adaptations and contrivances to secure the visits of insects, and the consequent fertilization of the flower. Recently, however, an observer has been found who is bold enough to challenge these opinions of Darwin, Delpino, Mueller, Lubbock, and others. M. Gaston Bonnier, after having observed during the last seven years some 800 plants in various parts of Europe, comes to the following conclusions, the details upon which he founds them being given in recent numbers of the *Annales des Sciences Naturelles* and of the *Bulletin* of the Botanical Society of France:

"1. The development of colors in flowers has no relation to the development of nectar. In closely allied species of the same genus, the most conspicuous flowers are not those which are most visited by insects.

"2. In dicecious flowers provided with nectar the insects do not visit first the male and afterwards the female flower.

"6. Bees become accustomed to colors, but as much so to those which are inconspicuous as to those which are brilliant. For the same weight of honey a green surface is as freely visited as a green surface with a background of red.

"4. The development of spots and stripes on the corolla has no relation to the production of nectar."

M. Bonnier, who has studied the anatomy and disposition of the nectar-secreting organs in a great number of plants, points out that these accumulations of saccharine material occur usually in parts of the plant where development is going on actively, as in young leaves or young ovaries. When the emission of liquid ceases, the saccharine matters contained in the nectaries return into the plant, and are probably used up by the neighboring parts in the course of this development. In fact, the nectaries, whether floral or extra-floral, whether they excrete liquid or not, act as reservoirs of nutriment which is in direct relation to the life of the plant.

Vegetable "Commensalism."—I wonder, says Mr. J. E. Taylor, whether botanists will ultimately discover that certain plants are "commensal," as well as certain animals, such as Prof. Van Beneden has told us about in his "Animal Messmates." For several years past, I have been particularly struck by the occurrence in the eastern counties (of England) of the yellow wort (*Chlora perfoliata*) so constantly in company with the bee orchis (*Ophrys apifera*), that when I have found one plant I have almost instinctively looked for the other. Has this association been noted elsewhere? It seems possible to imagine that flowers generally obscure should reap some advantage by growing in the neighborhood of more attractive kinds (although the bright yellow wort hardly needs to associate with the bee orchis on that account), just as you see little confectioners' booths springing up by the side of the itinerant circus, in order to profit by the greater attraction of the noisy exhibition. Again, I conceive it possible that other flowers may be advantaged in quite a different way, by growing in company with plants possessing some poisonous, stinging, or other defensive property. Thus, it is noticeable how certain kinds of umbelliferous flowers are always found growing in the midst of dense patches of nettles, or amid the thorny brambles and hedge rows. Have any of our botanical readers noticed anything approaching such "commensalism" as here suggested?

Multiplication of Weeds.—It has been found, says the *American Agriculturist*, by careful and patient counting of the number of perfect seeds produced in a number of seed pods, and then counting the number of mature pods, that on a single plant of purslane (*Portulaca oleracea*) there will be 1,000,000 seeds matured. This will furnish a seed for every square foot of ground on 23 acres. Suppose each of these plants of the second generation does as well as the single parent, we will have the enormous sum of 1,000,000,000,000,