INFLUENCE OF CHEMICAL FERTILIZERS ON POTATOES AND GRAPES.

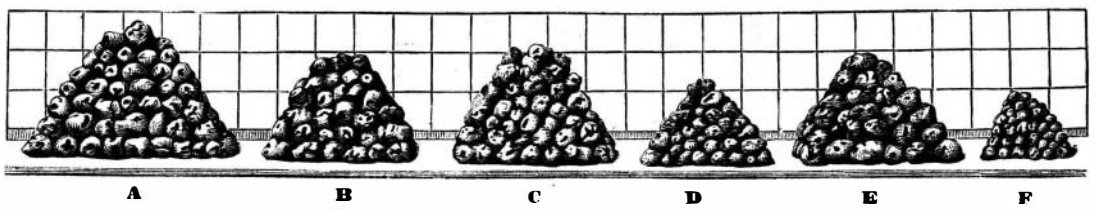
A second volume on this subject has recently appeared in France, written by Professor Ville, whose early experiments on the effect of various artificial manures attracted so much attention among agriculturists some years ago. In his first book, M. Ville gave a large number of engravings of plants, reproduced from photographs, exhibiting the influence of his so-called complete fertilizer, composed of nitrogenized matter, phosphate of lime, potassa, and lime, and noting the facts that, by the use of this compound, the yield of wheat per acre was more than double that obtained when nitrogenized manure alone was furnished, the ratio being about 46 to 20. When mineral manure alone was employed, the crop fell to 16, and finally, in earth without manure, the yield was represented by 11.

Applying these experiments to the potato and the vine, Professor Ville, in his recent volume, shows the astonishing effects of potassa. On the potato (see Fig. 1), his complete fertilizer, when used, gave a yield of 35,200 lbs. per 2·5 acres (A, Fig. 1); a like area yielded 25,960 lbs. (B), nitrogenized matter being absent; and with phosphate absent, the yield was 32,780 lbs. (C). When the potassa was removed, these figures fell to 16,590 lbs. (D). With lime absent, the yield determined was 29,700 lbs. (E), and with no manure at all (F), 7,700 lbs.

On the vine (see Fig. 2) the influence of potassa was still more evident. Complete fertilizer (two figures on the left of Fig. 2) caused a yield of 26,400 lbs. per 2·5 acres, or 2,534 gallons of juice; without nitrogen, 13,640 lbs. and 1,320 gallons; without phosphate, 16,060 and 1,531 gallons; without lime, 17,160 lbs. and 1,636 gallons; without potassa and without any manure (remaining diagrams, Fig. 2), no crop.

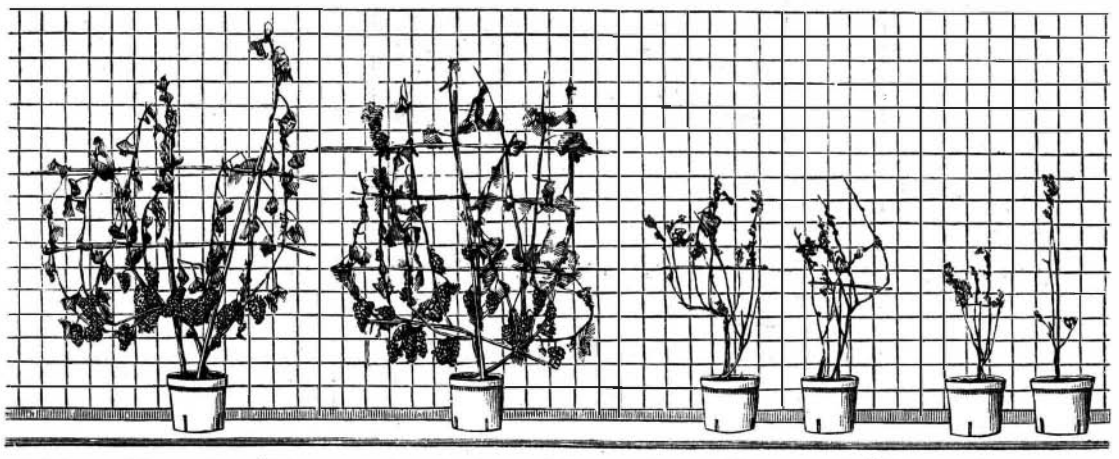
M. Ville affirms that, potassa being dominant in the potato, the absence of that base coincides with the appearance of the disease, and that vegetables deprived of it become the prey of inferior organisms, fungi, lice, etc.

Fig. 1.



A B C D E F

Fig. 2.



WATER PLANTS.

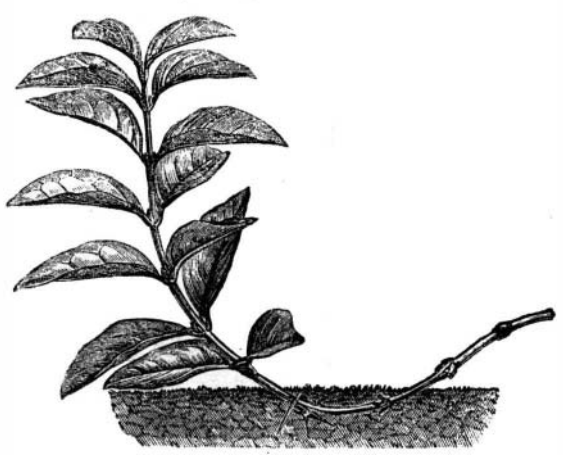
An American gentleman recently took some plants of the bog bean (*menyanthes trifoliata*) to England, rightly thinking such a pretty plant worthy of cultivation, and not knowing that it was a native of British as well as American bogs. The bog bean and bog arum, like a number of other plants, had common possession of the two worlds long before the white man had crossed the the Atlantic. Both these plants have something more in common, namely, they are both perfectly hardy, and thrive in boggy and muddy places, margins of lakes, mud banks, etc.; both are dwarf in stature, both have creeping stems that root as they creep, both have distinct and graceful foliage, especially when growing freely in rich ground, and both have beautiful flowers. They are plants which every one who cares for ornamental marsh and aquatic plants should possess.

THE BOG BEAN.

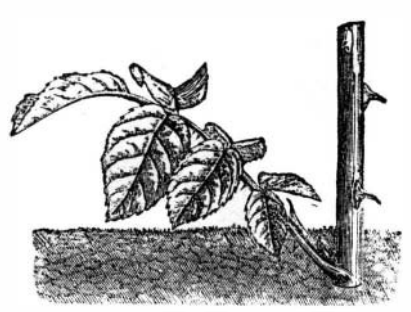
THE BOG ARUM.

MULTIPLYING PLANTS.

The simple method of propagation by layering is usually adopted for all low-growing or slender plants, those which cannot readily be multiplied either by division, cuttings, or seed. The operation is one of the simplest: A branch or stem of the plant is bent down, and pegged or otherwise fastened below the surface of the soil, while its growing extremity remains above the ground. The carnation is easily propagated in this way. Select the outward, strongest, and lowest shoots for the purpose. Trim off a few of the under leaves, and shorten the top ones even, with a knife; then cut a slit in a slanting direction on the under side of the shoot. This slit should be about an inch long, in an upward direction towards the next joint. Loosen the earth and make a small oblong hole one or two inches deep. Lay that part of the stem where the slit is made in the earth, keeping the cut open and placing the head of the layer upright and one or two inches out of the earth. Hold the layer in position by pegging it down with a little forked twig. Now cover to the depth of one inch, pressing the earth over it gently. Water immediately, and in dry weather give light watering every evening. This is best done in a cloudy day. In about two months the layer will be well rooted. Carnations and all kinds of pinks should be layered in June or July.



MULTIPLYING BY LAYERING.



MULTIPLYING BY CUTTINGS.

Propagation by cuttings is a very popular and expeditious mode, and one which, like division and layering, exactly reproduces the parent plant. Nearly all soft wooded plants—such as fuchsias, lobelias, and pelargoniums—are best multiplied from cuttings of the stem; while thick leaved begonias and gloxinias are readily multiplied by leaf cuttings, the fully developed leaf being inserted in a sandy compost. A cutting may vary in size, but it is generally from one to four inches long. It consists of a young shoot taken off the plant with a sharp knife, and afterwards cut off at an acute angle below a joint. This fresh-cut end is to be inserted in the earth if hardy, or in a pot of sandy soil if tender. Lobelias and fuchsias will root freely if severed between the joints, anywhere in fact; while geraniums will frequently rot off unless trimmed below a joint.—*The American Garden.*

The Grand Canal Du Midi.

M. A. Manier has proposed the formation of a maritime canal through France, from the Atlantic Ocean at Bordeaux to the Mediterranean. According to the description which has been published, the Grand Canal is intended to be 300 feet wide at the bottom, 30 feet deep throughout, to flow through Bordeaux, Agen, Toulouse, Carcassonne, Narbonne, and not Cette, but either La Nouvelle or some point still nearer Narbonne, which is the shorter course by about 40 miles. This canal will enable English ships, bound for the Mediterranean or the East, to save from 800 to 900 miles—in fact, it will complement the Suez Canal, and be, with regard to England, the missing link in the great waterway to India. Even when cut between the two nearest practical points, the Grand Canal must still be a very costly undertaking; but the capital and engineering skill are in Paris and London waiting for employment. All that is needed is to show the public that a good return may be expected. The French government will readily enough grant a concession if no guarantee or subvention is asked for. The Grand Canal du Midi will free for ever the South of France from all inundations; it will receive above 12,000,000 tuns of shipping a year; it will enable the owners to dispose of an average of 21,000,000,000 cubic yards of water a year, for irrigation or motive power. If the whole of this water were used for the wants of industry alone, it would give, in the valley of the Garonne alone, four times the power required for the cotton mills of the whole world. Very slight tariffs would procure from these two sources an income which would justify the outlay of a far larger sum than the projected canal is likely to cost.

On Salicin.

There is accumulating evidence for believing that salicin is a most efficient and unjustly neglected remedy. Dr. Maclagan, in the *Lancet*, and Dr. Senator, in the Berlin *Centralblatt*, speak of it as more desirable, in all respects, than salicylic acid, as an internal remedy in the treatment of acute rheumatism, typhus, parametritis, and febrile affections generally. Its antimalarial powers have long been known, and the Confederate surgeons employed it largely during the war. It is cheap, being quoted, at present, at fifty cents an ounce. To reduce the temperature in fever, the dose should be about two scruples. It does not cause any of the unpleasant itching, headache, or gastric troubles that occasionally follow salicylic acid.

Dr. Pavesi, of Mortara, Italy, highly extols the following mixture as an efficient anti-zymotic, and believes it will supplant quinine: Common salt 12 parts, iron in powder 5 parts. Mix and add: Muriatic acid 5 parts, salicin 1 part. He obtains a soluble, odorless crystalline substance, somewhat styptic and bitter to the taste, to which he gives the name *natrium muriaticum ferruginosum salicinatum*, a cheap and efficient tonic, anti-zymotic, and febrifuge.—*Medical and Surgical Reporter*

The Franklin Institute at the Centennial Exhibition.

The Franklin Institute of the State of Pennsylvania for the Promotion of the Mechanic Arts, through the kindness of the Centennial commissioners, has opened a reception room at the northwestern end of Machinery Hall, for the use of its members and visitors from abroad, interested in the mechanic arts. The Institute cordially invites all who desire to do so, to visit their room, in which will be found files of the "Journal of the Institute" and other periodicals devoted to industrial sciences. The room is in charge of a committee of thirty members of the Institute, one or more of whom is in attendance to receive visitors and give any information they may desire in reference to the Exhibition. The following objects, of great historical interest, have been placed in the room: 1. Franklin's electrical machine. This instrument is doubtless the one used by the great philosopher in making his wonderful experiments in the science of electricity. Presented to the Institute by Dr. John R. Coxe. 2. Oliver Evans' steam locomotive engine. This interesting model is among the earliest known, having been built about 1804. 3. Oliver Evans' high pressure steam engine. This is the model of an engine built by O. Evans, about 1804, and is described in Galloway's work on the steam engine, page 101, London, 1827. 4. Working model of a steam engine built by M. W. Baldwin, and presented by him to the Institute, about 1832.

Oil Pipe Lines.

The total mileage of iron pipe used in the oil region is placed by good authority at not far from 1,500 miles, some asserting 2,000 miles to be nearer the truth. This is owned by the following pipe line companies Atlantic, Union, Keystone, Antwerp, Relief, Sandy & Milton, United, Grant, Pennsylvania Transportation, American Transfer & Conduit. The principal area of these pipes lies in Butler county, Pa., where the producing districts are far apart, and the farms in some places are covered as by huge spider webs. The Conduit Company has over 100 miles in use, including 48 miles of main pipe, 3 inches in diameter, and 48 miles of connections, of 2 inch pipe. Before a gallon of oil was pumped, this line cost $400,000. Taking 1,500 miles as the quantity of pipe in use, and the cost and laying to be 30 cents per foot, it appears that $2,682 000 is invested in pipes alone. The cost of pumps, tanks, etc., will swell this to double the amount.

METROPOLITAN UNDERGROUND RAILWAY, LONDON.—The total number of passengers carried over the Metropolitan, the St. John's Wood, and Hammersmith and City Railways, on Whit Monday last, was 243,077.