the alkalies, which had produced such unpleasant sensations in the stomach, that he could not be prevailed on to try them again in any form.

Under these circumstances he readily acceded to a new plan of treatment. He was directed to omit the use of spirituous medicines, and to take twenty grains of magnesia three times a day in water, but this operating too powerfully upon the bowels, the same quantity of magnesia was taken twice a day only, with an addition of five drops of laudanum to each dose.

This plan was pursued without intermission for three weeks, and he received considerable benefit, as far as concerned the state of the stomach, and pain in the region of the kidney. The urine, which was examined once a week, was also, on the whole improved, but it occasionally deposited a very copious sediment, consisting of uric acid, with a variable proportion of mucous secretion.

After a further continuance of the dose of magnesia for three weeks, the urine was often much loaded with uric acid and mucus; but these appearances, which before the use of the magnesia were continual, are now only occasional, so that the disposition to form a redundant quantity of uric acid is much diminished: it is also deserving of remark, that *there has not been the slightest symptom of gout* from the time of the last attack, which is more than a year back, a longer interval of ease than the patient has experienced for the last six years.

He has now discontinued the regular use of the magnesia; but on perceiving any unpleasant sensation in the stomach, he returns to it for a week or ten days, and then again leaves it off.

Mr. Brande tried the effects on the urine of various doses of sub carbonate of soda, with an excess of carbonic acid, of potash, of lime, of magnesia, and of carbonic acid, from which it appeared that the lime had very little effect, either in the form of chalk, or lime water, that the carbonic acid (which was found to be very grateful to the stomach) caused the phosphates to be voided in solution in the urine; but when it was left off at any time, they were voided in the form of white sand, that the alkalies occasioned too copious and sudden a precipitation of the phosphates; and that the magnesia, even in very large doses, neither produced so rapid an effect on the urine, nor so copious a separation of the phosphates, as the alkalies did: and on this its value as a medicine in calculous disorders seems materially to depend.

African Hemp.

A species of hemp manufactured from the leaves of a particular kind of palm, which abounds in Sierra Leone, and its neighbourhood, has been recently sent to England; and being made into cord, subjected to experiments calculated to ascertain its strength, as compared with the same length and weight of common hempen cord, the result was very satisfactory, it being found that hempen cord broke with a weight of 43 pounds and three fifths, while the African cord did not give way to less weight than 53 pounds two fifths, making a difference in favour of the latter of 10 pounds in 43 pounds.

An account of the Method of Manufacturing Salt at Moutiers, in the Department of Mont Blanc. By M. Berthier, Mine Engineer.

Journal Des Mines.

Continued from p. 148, *No.* XXV.

The brine that runs along the ropes speedily evaporates, and leaves on them a crystalline deposition of muriate of soda which encreases continually. In very fine weather, a boiling will yield all its salt in 12 or 16 hours; in general 27 boilings are passed in 45 days. By that time the ropes are coated very thick, so as to be sometimes 0.06 metres (2½ in.) in diameter; they are then stripped of their salt, which operation is called *abattue*, or a fall of salt. A small and very simple machine is used for this purpose, which has the advantage of stripping 46 ropes at once. It is formed of a piece of wood which serves as an axis to a large pulley cut in half, so as to form a

semicircle only. This axis turns in a rectangular frame, and is furnished with iron plates. The machine is hoisted to the top of the shed by means of a moveable roller. The principal piece is then placed between two rows of ropes, and two men rock it from side to side by drawing alternately the rope that runs over the pulley, while at the same time they permit the machine to descend slowly. The salt on the ropes being shut in between the frame and the axis armed with iron, is broken by the shocks, and falls on the floor of the shed. If any remains in some places, a workman beats it off with a tool which also serves to clear the top of the ropes where the machine cannot be raised on account of the roofing. They make from one to three falls in a year according to the seasons. When it rains there is scarcely any evaporation, and the shed is kept closed by means of the blinds which are rolled up in fine weather. It is because the rope shed was originally constructed for the purpose of evaporating the saturated brine from the boilers, that pumps could not be used to raise the brine. It was feared that the salt crystallizing in the pipes would embarrass the motion of the pistons.—The salt from the ropes, and that which crystallizes in the cisterns is collected into a storehouse used for that purpose only.

In every boiling a deposit sticks to the bottom of the boilers, which comes from the *schelot* that is not entirely taken away, and from the evaporation of some portion of the brine in contact with the iron plate and more strongly heated than the remainder of the liquid. Every 12 or 15 boilings, this sediment is knocked off by means of a hammer, and heaped up in the yard under the name of (*ecailles*) scales. The thicker these scales are, the more the boilers are injured by the fire. The bottom gets hotter, dilates unequally, becomes uneven and frequently cracks, so that the brine runs into the fire. When the workman perceives this, he encreases the heat under the crack, that the expansion of the metal may close the crack; but if this does not suffice, it is stopped by means of small bags filled with quicklime put into the boiler.

The mother waters are all conveyed into a single cistern, where they are left the whole winter without being touched. They deposit three different sediments successively, the last of which is crystallised sulphate of soda (Glauber's salt) nearly pure.—This is taken away at the beginning of spring, and deposited in a separate warehouse, along with such pieces of the same salt as they can pick out from the other sediment. The cistern is then emptied and the contents flung away.

As to the *schelots*, they are flung into the yard of the boiling houses, where they form considerable heaps, of which no use is made. That which is last formed is the only part of them that is collected, and put aside along with the scales.

The salt works do not work up all the brine yielded by the springs. In the winter, the smallest spring is sufficient, because the graduation goes on very slow, and the sheds will scarcely keep two boilers in use, and even these are sometimes stopped.—In summer the evaporation goes on quicker, so that all the four boilers are in almost constant use; and the the small spring not furnishing sufficient water, some of the brine from the larger ones is brought into use; but even in the most favourable weather, not one fourth of the brine is worked up.

The wood used for fuel is a mixture of larch and fir, barked and cut in lengths of between 1.2 and 1·3 metres, which are split. In general it requires 50 steres for a boiling in summer, and as far as 68 in winter when the air is cold, moist, and rainy.

The following experiment was made in the summer of the year 13, and all the substances weighed with great care.

Substances Consumed.

4690 myriagrammes of brine at 20° hydrom. containing 1050 of saline matters.

50 steres of wood, viz. 25 for the preparatory boiling, and 25 for collecting the salt.

Products.

34 of schelot containing	34	of saline substances.
790 of salt.	790	
21 of scales.	21	
51 of mother water.	20	
	865.	collected.
	185.	lost.
	1050.	

This loss is greater than in actual practice, the scales were calcined before they were weighed, and the mother water could not be accurately collected.

Each boiling produces in the rope shed, on a medium, 1750 myriagrammes (17 ton) of salt, viz. 1650 deposited on the ropes, and 100 in the boiler. But this salt is much purer than that made by boiling, and the mother water is more in quantity. the common fall of salt is 15,000 myriagrammes (150 ton) of salt.

The annual produce is from 4 to 5000 myriagr. (scores of lbs) of schelot, or the rakings: from 2500 to 3000 of scales that stick to the boilers. 70,000 of salt collected in the boilers, and 30,000 from the rope sheds, and from 9 to 10,000 of sulphate of soda, or Glauber's salt, besides the mother water.

The faggots in the sheds No. 1 and 2 are changed every three years, as they become rotten in that time, and the sheds themselves are obliged to undergo a thorough repair every 5 or 6 years.

The faggots in No. 3 become so thickly coated in 3 or 4 years that they must be changed; but the woodwork becomes coated with sulphate of lime, which preserves it.

The faggots in No. 4 are useful for a longer period; it is said that they would last more than 18 years if the brine were constantly graduated up to 14°.

30,000 faggots are used annually, which cost 75 fr. per thousand.

To be Continued.

On the causes and prevention of the Curl in Potatoes, from papers by Mr William Hollins.

Trans Soc Arts, No. 8.

The first cause of the curl in potatoes must be traced to the manner in which the seed was raised in the preceding year. If the potatoes be set late in the season, that is from the middle of May to the middle of June, in a rich soil well manured, having a southern aspect; and if the summer should be hot and dry, till (we will suppose) the beginning of August, when the blow of the plants has fallen off, then the seed will be exhausted in feeding the plant only, and very few potatoes will appear. Should the weather now become moist and genial, the plants especially if they should be earthed, will blow afresh, and a plentiful crop of very large potatoes may yet be produced.

These potatoes are perfectly fit for use as food; but as they were produced from the stalk of the plant after the seed itself was exhausted. they will be defective in moisture and vegetative power, and the plants which proceed from them the following year will be found to be curled.

The curl may be produced without manure or earthing provided the potatoes be sown (at the end of May) thick together, in a rich soil, and covered with fern, or other litter before the plants appear. The rain rots the fern or litter, and enables it to penetrate to the roots; and the plants are forced as in the preceding experiment, to a second growth, and blow. The seed thus raised produced plants that were curled.

The forcing potatoes by cultivation as above described, the author finds to be the cause of the curl, both from his own experiments, repeated for several years successively, and also from the observations he made on the practice and ill success of his neighbours.

Both healthy and curled plants may be raised from the same potatoe in the following manner.

Dig up, in the beginning of October, some potatoes raised as above described. Among the largest will be found some, that have in different parts, different degrees of moisture, the least at the butt, and the most at the crown end, the quantity of moisture gradually encreasing from