timbers that the old source of supply and means of production—that from the incineration of terrestrial vegetation—are fast losing their prominence by the supercedure of new raw materials and new methods of manipulation. We procure potash now by the incineration of marine and litoral plants, as well as by that of land vegetation. We derive it from inorganic nature by the decomposition of feldspar and other potash-bearing minerals, and by the treatment of certain material from the rock-salt mines of Prussia. Farther, even the animal kingdom has been placed in certain countries, under contribution towards the same end. Let us examine into these several sources, and arrive at the present status of potash production the world over, omitting, however, the old source of the ashes of land vegetation as being sufficiently familiar to require nothing further than mere mention.

The salt deposits which underlie the variegated sandstone of Stassfurt, Prussia, have a thickness of more than six hundred feet, and present marked differences in appearance and composition at various depths. Four distinct levels are easy to be recognized, and there are, according to Daubree, in the ascending order, as follows :—107 metres of beds of rock-salt separated by thin layers of water-free sulphate of lime (anhydrite) ; 31½ metres of rock-salt in beds separated by seams of polyhalite (hydrated sulphates of lime, magnesia and potash, containing from 15 to 26 per cent. of the last-named salt ; 28 metres of mixed rock-salt (70 per cent.) Kieserite (hydrated sulphate of magnesia, 17 per cent. of the mass) and carnallite (the potash salt—a double chloride of potassium and magnesium, 13 per cent.) ; on this last is superimposed the layer in which the carnallite forms 55 per cent., the rock-salt 25 per cent., and the kieserite 16 per cent., associated with several allied minerals, such as tachydrite, sylvite and kainite. "The explorations have developed the existence of a mass of carnallite equal to 6,000,000 tons of chloride of potassium." The quantity removed from two pits, one at Stassfurt and one at Anhalt, about half a mile distant from each other, has gradually increased from 2,500 tons in 1861 to 150,000 tons in 1866, and is now worked at thirteen establishments into chloride of potassium, which, at some of them, is converted into caustic potash and the carbonate, as well as into potash compounds designed for employment for fertilizing purposes. The effect of the opening of these deposits "has been greatly to diminish the cost of potash, to disturb its production from other sources, and to extend its use even to agricultural purposes. As yet, no other workable deposits of carnallite have been discovered, although it is found in small quantities in many other mines of rock-salt, and there is every reason to suppose it will be discovered in large quantities elsewhere." From 20,000 to 30,000 tons of 82 per cent. chloride are now annually produced at this locality and find ready sale in all parts of Europe, bringing in France, about $40 per ton.

Feldspar, containing say about 13 per cent. of potash, has been proposed as a source of one alkali. Lawrence suggests its extraction, in the form of the caustic or carbonate, by mixing the finely pulverized orthoclase with sawdust and straw, and arranging the mixture in heaps, which are to be dampened from time to time with urine or some other nitrogenous liquid. After undergoing for six months this process of decomposition through fermentation, the materials are mixed with a thick cream of lime, made into bricks, which are calcined at a high temperature By leaching this residue, the potash dissolves and silicate of lime, etc., remain behind.

Hack proposes to heat the mineral with lime, and to treat the calcined mass with water under a pressure of eight atmospheres, for the production of a strong lye, through which carbonic acid is passed for the precipitation of silica and alumina, and for the formation of carbonate of potassa. Meyer's plan is essentially the same as Hack's. Ward uses fluor spar along with lime for the decomposition of feldspar for obtaining the potash. None of these methods have as yet been utilized on a practical scale, but doubtless, in time some of them, as well as those of Wurtz and Tilghman, for extracting the alkali as chloride or sulphate from green sand marl or feldspar, will become technically important.

From about twenty-two tons of wet seaweed there are, on the average, produced somewhat more than five hundred pounds of chloride of potassium in addition to bromide, iodine and various soda salts. This source of potash has, however, since the discovery of the Stassfurt deposits, become of minor importance, but the weeds still continue to be collected, mainly for the extraction of the bromine and the iodine, more especially for that of the latter. In 1862, when American "ashes" were selling at thirteen and a half cents per pound, the chloride from this source corresponding to 49 per cent. of anhydrous potassa, costs about one hundred dollars per ton, making the real potash cost nine and one half cents per pound.

About twenty-five years ago it was suggested by Dubrunfaut that the molasses from the manufacture of beet-root sugar could be utilized in the direction of the production of potash compounds, by first converting the uncrystallizable sugar into alcohol, which is distilled off, and subsequently evaporating the liquor to dryness and incinerating the residue. According to Payen, the ash of this molasses contains 49.88 per cent. of potash soluble in water, and 1.7 per cent insoluble. This plan was first carried into practice at the distillery of Serret & Co., but has since been adopted on a large scale at several places in both France and Germany. The establishment at Waghaeusln, Baden, annually produces upwards of 300 tons of commercial potashes, containing from 88 to 94 per cent. pure carbonate of potassa.

In 1862, Dr. Hoffman, in his report on the London Exhibition, called attention to a new source of potash utilized in certain parts of France, more especially at the great seats of the woollen manufacture, as Rheims, Fourmies and Elbœuf. Here the liquors in which more than 27,000,000 kilog. of sheep's wool are washed are bought for the "suint" they contain. This "suint" is a compound of potash with a peculiar nitrogenous animal acid, about which but little is known, which was first pointed out by Chevreul as forming no less than a third of the weight of raw merino wool, and a somewhat less proportion of ordinary, coarser wools. It forms on the average about fifteen per cent. of the weight of raw fleece and is exceedingly soluble in cold water. The washings of the amount of fleece above given would give, according to J. Lawrence Smith, about 1,167,750 kilog. of pure potash, worth, at the average rate of American potashes, from $400,000 to $450,000. The process of extraction is a simple one, and consists simply in boiling the washing liquor down to dryness and calcining the residue, which somewhat resembles baked molasses in appearance, in retorts with the production of gas, tar, and ammonical liquid, together with a coke-like substance which is leached. From the solution thus obtained, sulphate, chloride and carbonate of potassa, *free from corresponding soda compounds*, are separated by continued evaporation.

Unguentum Sabinæ.*

BY T. H. BATEMAN.

To judge from the limited demand for this ointment, it does not now find much favor among the medical professisn generally, although, in the opinion of some eminent surgeons, forming one of the best external irritants and escharotics we have, acting much more efficiently in keeping open blisters, etc., than does the ung. elemi. of the British Pharmacopœia, which, to some extent, has taken its place.

Looking at this ointment from a pharmaceutical point of view, it is exceedingly unsatisfactory ; the specimen I have before me (supplied by a London wholesale house) is perfectly rancid, and resembles in appearance "old green elder ointment."

Dr. Royle says, "When made in a porcelain vessel, or a water-bath, it is of a yellowish-green colour, efficient and active, and will keep good for a long time," which it certainly does not, as far as my experience goes.

The B. P. orders fresh savin-tops, collected in spring, to be used, thus compelling manufacturers to make their year's stock at once, which is decidedly objectionable, as it is thus frequently sent out rancid. Although this condition does not in any way interfere with its effect as an irritant, yet it prevents its coming under the category of "elegant preparations."

Pharmaceutists (excepting those in a large way) are in the habit of trusting to their wholesale druggists for it, the demand as a rule, being too small to justify their making even the quantity ordered in the Pharmacopœia ; besides, made on a small scale, it is exceedingly wasteful, the savin-tops being so bulky as to render it difficult to strain the ointment from them.

For satisfaction's sake I have prepared some myself, adopting the somewhat modified formula, which differs only from the B. P. in the addition to gum benzoin :—

Fresh Savin-tops (bruised).....	8 oz.
Yellow Wax.....	3 oz.
Prepared Lard..... 10	oz.
Gum Benzoin (coarse powder)	1 oz.

Melt the wax and lard on a water-bath, add the gum benzoin, and digest for half an hour, constantly stirring, then add the savin-tops, and further digest for twenty minutes ; lastly, strain with pressure through calico or flannel, stirring occasionally until cold.

Resulting ointment, pale yellowish-green, with the odour of savin distinctly marked, which odour I have failed to detect in most, if not all bought specimens. The addition of gum benzoin (judging from its preserva-

*From the Pharmaceutical Journal, London.