

REVIEW OF DOMESTIC POTASH PRODUCTION
(Continued from page 1)

Many products begun in 1916 became active producers in 1917, and many former producers enlarged their capacity. At the close of 1917 there were 91 potash plants (including 45 producing potash from wood ashes) in operation, and the production of the year amounted to 32,573 tons of potash (K₂O) valued at \$13,989,577. About 45 per cent of the output came from Nebraska brines, 18 per cent from Searles Lake and other brines, 11 per cent from kelp, 9 per cent from molasses distillery waste, 7 per cent from alunite, 5 per cent from cement mills, and the other 5 per cent from blast furnaces. Steffins water, from sugar refineries, wool washings and wood ashes.

During 1918 more than 108 firms produced potash in the United States from ten distinct sources. At the close of the year several new potash plants were about ready to begin operations, several were under construction, and a number of new companies had been organized. The estimated productive capacity was about 100,000 tons, valued more than \$20,000,000 and represents more than 22 per cent of our normal consumption.

Sources of Domestic Potash.
Miscellaneous Organic Sources.—The production of potash from wool washings, tobacco stems, olive oil residues and other miscellaneous organic sources, though important, is small and will probably never amount to more than a few hundred tons annually. This statement does not refer in any way to natural potash manures, which may be used in wood ashes.

Wood Ashes.—At the present time about 45 companies are producing potash from wood ashes, principally in Wisconsin and Michigan. The product is essentially a mixture of the carbonate and hydroxide, containing probably about 60 per cent potash (K₂O). The production increased from about 419 tons of K₂O in 1916 to about 567 tons in 1917, and to about 600 tons in 1918. The production from this source will never be large because of the scarcity and widespread distribution of wood ashes.

Steffins Waste Water from Sugar Refineries.—A recent important development is a by-product recovery of potash ordinarily wasted in the Steffins waters from the beet sugar refineries. Estimates put the amount of potash (K₂O) now going to waste in Steffins water at about 8,000 tons. Seven companies produced 1,174 tons of potash (K₂O) from this waste material in 1918 and several other companies installed potash plants. This source is being from a large industry, already established and so gives promise of permanence.

Molasses Waste.—Molasses residue from distilleries have been utilized as a source of a production of potash in California, Louisiana, Massachusetts, Pennsylvania, and Porto Rico, by far the largest yield from California. The production in 1916 was 1,845 tons of actual potash (including the small amount produced from Steffins waste waters). In 1917 the production from distillery waste alone was 2,846 tons and in 1918 about 3,352 tons. Estimates indicate that about 30,000 tons of potash are lost annually from the 25 or more distilleries using molasses. Efforts should be made to bring the production from this source up to capacity, and utilize a waste product from a well established industry.

Kelp.—More than ten companies have erected factories on the Pacific coast for producing potash from kelp, with a combined annual capacity estimated at between 5,000 and 10,000 tons of K₂O. The Hercules Powder factory is the largest plant and has been the largest producer. The production from kelp increased from 1,556 tons of K₂O in 1916 to 3,572 tons in 1917, and to 4,637 tons in 1918. It has been predicted that the available resources in raw material would not permit of a large increase in production from this source. Furthermore the cost of production is high and the price of potash is falling. Nearly all the kelp potash producers have closed their plants in anticipation of a price at which they could not operate.

Alunite.—The only known alunite deposits in the United States of commercial value are located in the vicinity of Marysville, Utah. Several companies are interested in

these properties. The Mineral Products Corporation produced potash from one of the principal claims during most of 1916, 1917 and 1918. The Florence Mining and Milling Company has a calcining plant near Marysville; the American Smelting & Refining Company has built a plant at Mirray, Utah; and other companies have been active.

Sufficient data are not available to justify an estimate as to the quantity of alunite rock available for potash production. Butler and Gale estimated the amount in one group of claims at 300,000 tons for each 100 feet in depth, and Loughlin increased this estimate to 475,000 tons. Loughlin suggests the deposit may reach a depth of about 1,000 feet. The quantity available in other claims is largely a matter of conjecture. It appears, certain, however, that there is sufficient alunite in the Marysville district to yield a large tonnage of potash for many years.

Blast Furnace.—Apparently systematic efforts have not been made to produce potash from blast-furnace dust, although several companies have reported production. Estimates based on inconclusive evidence have placed the amount of potash (K₂O) charged annually to blast furnaces in the United States at 380,000 tons a large part of which is volatilized and goes to waste with the gases. This source may eventually supply a substantial part of our demands. Developments should be encouraged.

Cement Kilns.—Several cement plants have installed the Cottrell electric precipitation system and some have installed other dust-collecting apparatus in order to obtain potash as a by-product in the manufacture of cement. Much experimental work has been done in connection with the problem. Production has been small but regular for more than three years.

In 1914 there were 12 cement-producing plants in the United States, with an annual capacity of about 90,000,000 barrels. Recently W. H. Ross and others of the Bu-

reau of Soils have made a careful study of the potash content of the operating conditions in nearly all the cement plants in the United States and Canada with the view of determining the amount of potash recoverable in the dust from these plants. Their conclusion is that under the present operating conditions about 1.66 pounds of potash is recoverable in available form for each barrel of cement produced representing a total of about 75,000 tons of actual potash (K₂O) annually and that by changing the operating conditions slightly the amount could be increased to about 100,000 tons.

Silicate Rocks.—Many processes have been devised for extracting potash from silicate rocks and considerable experimental work on a comparatively large scale has been done to demonstrate the commercial practicability of some of these processes but so far only a very small production from this class of raw materials has been reported. Several large plants however, are about ready to begin the extraction of potash from silicate rocks.

Among the raw materials to be considered in this connection are the deposits of greensand (glauconite) in New Jersey, Delaware and Maryland which carry about 7 per cent of potash; the fieldspar deposits from Maine to North Carolina;

the potash bearing rocks of the Leucke Hills in Sweetwater county, Wyoming, which carry about 16 per cent of potash; sericites and slates of Georgia, said to carry about 9 per cent of potash; and the tilings collected in dumps at certain copper and gold mines in the west, which carry probably from 5 to possibly as high as 10 per cent of potash. Fieldspar often contains from 10 to 14 per cent of potash (K₂O) but a series of analysis (unpublished) by the United States Geological Survey indicates that the average quarry product rarely contains over 7.5 per cent.

No estimates of quantity for fieldspar and sericite are available but the quantity of these materials is known to be very large. Washington estimated the potash in the greensands of New Jersey at 2,034,000 metric tons. Schulz and Cross

(Continued from page 6)

The Lindell Hotel
Palm and Palm, Props.
LINCOLN, NEBRASKA

Try Our Popular Price Lunch Room and Coffee Shop

All Modern Conveniences—Rooms \$1.00 Up

Under New Management - Political Headquarters

EXCESSIVE ACIDITY
is at the bottom of most digestive ills.
KI-MOIDS
for indigestion afford pleasing and prompt relief from the distress of acid-dyspepsia.
MADE BY SCOTT & BOWNE
MAKERS OF SCOTT'S EMULSION

TIRE shopping is responsible for your having a good tire one time and a poor one the next.

It pays to buy the Firestone Gray Sidewall consistently.

Its excellent qualities are to be found in every tire bearing the name Firestone.

Firestone
TIRES
Most Miles per Dollar

The Post of Permanence

The post that drives like a stake—that requires no hole digging—that is cheaper installed than wood or concrete posts—that lasts!

Let us demonstrate
Red Top Steel Fence Posts

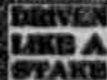
made of durable A-1 angle steel—rot-proof—fire-proof—unbreakable. Used extensively by the U. S. Government.

Protects cattle from lightning—permits fence line burning—improves and beautifies your property—saves work.

Sharp bevel edged points make it easy to drive. Patented anchor plate makes it bind tight in any soil.

Ask for the post with the RED HEAD. Come in today; no obligation to buy.

DIERKS LUMBER & COAL COMPANY



Camel CIGARETTES

Cigarettes made to meet your taste!

Camels are offered you as a cigarette entirely out of the ordinary—a flavor and smoothness never before attained. To best realize their quality compare Camels with any cigarette in the world at any price!

Camels flavor is so refreshing, so enticing, it will win you at once—it is so new and unusual. That's what Camels expert blend of choice Turkish and choice Domestic tobacco gives you! You'll prefer this blend to either kind of tobacco smoked straight!

As you smoke Camels, you'll note absence of any unpleasant cigarette aftertaste or any unpleasant cigarette odor. And, you'll be delighted to discover that you can smoke Camels liberally without tiring your taste!

Take Camels at any angle—they surely supply cigarette contentment beyond anything you ever experienced. They're a cigarette revelation! You do not miss coupons, premiums or gifts. You'll prefer Camels quality!

13 cents a package

Camels are sold everywhere in scientifically sealed packages of 20 cigarettes or ten packages (200 cigarettes) in a glassine-paper covered carton. We strongly recommend this carton for the home or office supply or when you travel.

R. J. REYNOLDS TOBACCO CO., Winston-Salem, N. C.

FORD
The Universal Car

The Ford Touring Car is literally the pioneer for it has brought about the solution of the Good Roads problem, because three million or more in operation brought up to the millions of America the necessity of good roads if quick transportation at low expense was to be enjoyed. The simplicity of the Ford car, its stability in construction, the famous heat-treated Vanadium steel with its marvelous strength and flexibility, the low cost of operation, all have made the Ford car the great favorite in every land in the world. It's the one car that always satisfies and serves. A utility beyond question that all can afford. Don't delay, because the demand is heavy all the time. Leave your order with

Coursey & Miller
Alliance, Nebraska

"BAYER CROSS" ON ASPIRIN

Always Ask for Genuine "Bayer Tablets of Aspirin"



Only Aspirin Tablets with the safety "Bayer Cross" on them are genuine "Bayer Tablets of Aspirin," owned and made by Americans and proved safe by millions of people. Unknown quantities of fraudulent Aspirin Tablets were sold recently by a Brooklyn dealer which proved to be composed mostly of Talcum Powder.

"Bayer Tablets of Aspirin" should always be asked for. Then look for the safety "Bayer Cross" on the package and on each tablet. Accept nothing else! Proper directions and dosage in each Bayer package.

Aspirin is the trade mark of Bayer Manufacture of Monoceticoindoster of Salicylicacid.