

ALUNITE-POTASH MINING.

Possible Potash Supply for This Country; Shipping Utah Potash in Cotton Bags to South.

Manufacturers Record.

In reply to a telegram to the Interior Department for any additional information available on the alunite-potash development in Utah, about which the Department has issued a bulletin, Hon. Franklin K. Lane, Secretary of the Interior, sends us the following:

"The first mill for the treatment of alunite in this country, according to a special report made by V. C. Heikes, in charge of the Salt Lake office of the Geological Survey, has just been put into operation and reports a production of two tons of potassium sulphate and nearly 100,000 gallons of solution containing a large amount of potash.

"The mill is situated about five miles southwest of Marysvale, a small settlement near the central part of Utah. The claims from which the alunite ore is obtained are about four miles west of the mill. The main facts regarding the geological occurrence of the ore have been published by the Survey in Bulletin 511.

"Interest at the present time centers about the commercial production of potash from this ore. The following is an outline of the various steps in the process of extracting the potash salts:

"The ore after being mined is delivered to an aerial tram 62000 feet long and with a fall of 1900 feet, by which it is conveyed and delivered to a storage bin, from whence it is hauled by wagons to the mill.

"From the ore bins at the mill the alunite passes through a gyratory crusher; then through a set of rolls, and thence is delivered to a storage bin. This material is mixed with powdered slack coal and is fed into a rotary kiln in which it is roasted. The roasted material is elevated to a storage bin, from which it is drawn off into a digester. In the digester it is mixed with water and the sulphate of potassium dissolved out. The charges from the digester are stored in wooden tanks. From these tanks the mixture is pumped into a filter press, where the insoluble alumina and the water soluble potash are separated.

"The solution is then evaporated in triple effect vacuum pans. The sulphate of potassium crystals are separated out, drained and dried. The dried powder is pulverized, screened and sacked for shipment.

"The boiler plant uses slack coal for fuel. Boilers having a rating of 600 horsepower produce steam for driving three engines, running the machinery of the plant. The exhaust steam is used for evaporating the solutions and drying the product.

"The capacity of the first unit of the plant is estimated to be from 25 to 35 tons of sulphate of potassium a day. In addition to the valuable sulphate of potassium, the operators expect to gain a considerable return from the filter cake left after the potash solution has been removed from the calcined material. This cake consists of nearly pure alumina. This may be used for making refractory brick, for it is reported to withstand temperatures as high as 2800 degrees centigrade. It may also prove to be available for making aluminum."

(Special Dispatch to Manufacturers Record.)

Salt Lake City, Utah, Oct. 18. I returned this evening from our Marysvale mine and plant. The mine is developing splendidly and the process is working entirely satisfactorily and the product is superior to the imported potash. We have been delayed somewhat by the slowness of the contractor in completing aerial tramway, but the first unit should be running to capacity next week. The first car analyzed 92 per cent. sulphate potash, and goes to the Armour Fertilizer Works at Jacksonville, Fla., packed in Southern cotton bags.

Charles H. MacDowell, President Armour Fertilizer Works.

In July the Manufacturers Record published an interview with Mr. MacDowell, in which he stated that he and his associates had organized the Mineral Products Corporation for the purpose of developing a large deposit of alunite near Marysvale, Plute county, Utah, about 200 miles from Salt Lake City. Mr. MacDowell stated the plant was then being constructed for the company by Westinghouse, Church, Kurr & Co., of New York, and upon completion shortly would have an output of 25 tons of potash per day, this amount to be increased promptly to 40 or 50 tons a day. He added that while this quantity of potash was only a drop in the bucket to the fertilizer industry, it would probably lead to greater development along this line.

The foregoing telegram from Mr. MacDowell is of special interest as confirming his expectations announced in the interview with him, and especially important in that a statement is made that the product is superior to the imported potash and that the first shipment of it goes in cotton bags

to the Southern plant of the Armour Company.

This telegram from Mr. MacDowell is of particular interest in view of the announcement just made by the Department of the Interior bearing on the same subject. Referring to this situation, the report of the Department of the Interior says:

"The potash is found in a vein of a mineral known as alunite, which is the sulphate of aluminum and potassium. The vein found is some 10 feet wide, and has been traced for some 3500 feet. Its depth is not yet known. The alunite when removed is subjected to a very simple process of heating, dissolving in water, filtering and evaporating, and the potassium sulphate resulting is almost pure. Some 200 tons of alunite has been put through the mill and two tons of 39 per cent. pure potash has been produced, and there is still in solution nearly 100,000 gallons containing large amounts of potash salts which has not yet been evaporated."

The discovery that this mineral yields potash in commercial quantities is regarded by Secretary Lane as one of the most important discoveries made recently with reference to our natural resources, as it assures us of a domestic supply of potash for our national needs in the manufacture of explosives, at least.

Alunite is known to exist in the States of Colorado, Utah, Nevada, California and Arizona. In further discussing the subject the report of the Department of the Interior says: "It resembles in appearance disintegrated limestone. The technical description given by the Geological Survey of alunite is that it is a 'fine-grained, compact rock, breaking with conchoidal fractures, and having a porcelain-like appearance, but containing also considerable masses with a distinctly crystalline structure.'

"Heretofore the United States has been dependent upon the potash supply of Germany, where it is found in strata chiefly at a great depth. Our imports for 1913 of potassium salts were \$15,000,000. The world has been dependent upon this German supply as an ingredient in modern fertilizer and in the manufacture of explosives. Potash is known to exist in the United States in some of the salt lakes of the interior, but has not been produced heretofore in any commercial quantity. Some potash has also been produced on the Pacific coast from the kelp of the seacoast, which takes the potash from the salt water.

"The Interior Department is also drilling at various points in the United States in search for potash deposits similar to those of Germany. Should alunite deposits of a similar character be found in large quantities in other States, its significance to the agriculture of this country can hardly be overestimated, as it is an essential soil food and will re-establish from year to year the draught made upon the potash in the soil by the crops produced."

Investigation should be made throughout the South to see if alunite cannot be discovered in this section in sufficient quantity to justify development.

It is, however, important to utter a word of caution, for reports are being circulated that efforts are being made to sell stock to small investors based on reported discoveries of alunite. Indeed, Mr. MacDowell wires us that not enough progress has yet been made to warrant small investors to come in, and that lots of "wild-catting" is now going on in the search of alunite.

PRISONERS BREAK JAIL.

Eighteen Negroes Escape From Knoxville Jail.

Knoxville, Oct. 26.—Eighteen negroes, one of them under sentence of death for the murder of Chief of Police Campbell of Johnson City, saved their way out of the Knox county jail last night. During the early hours this morning one of the sheriff's posse shot and killed Lee Moore, a negro porter, mistaking him for one of the escaped negroes. Two prisoners have been recaptured.

GIVES NO DECISION.

Closing of Dispensaries Under Advisement.

Columbia, Oct. 26.—Gov. Manning said last night that he had not reached a decision relative to the closing of all dispensaries in Columbia this week. A petition asking that the dispensaries be closed has been filed by university students. The dispensaries will be closed Thursday anyway under statute, as will be the banks and the various public offices.

The dispensaries in Charleston will remain closed during today, when the second primary is to be held to select an alderman. The militia continues on duty. The governor had no announcement to make as to when the dispensaries would be reopened.

A big pea crop was made this year and an effort is being made to harvest a large part of it. Peas will sell for a good price next spring.

GERMAN CONSPIRACY CONFESSION.

Robert Fay of Saxony Details Plot Fostered by Kaiser's Secret Service to Disable Liners Sailing From United States Ports.

New York, Oct. 25.—Details of a plot to hamper munitions shipments to the allies by placing clockwork bombs on the rudders or propellers of ships to disable the vessels on their way across the Atlantic were disclosed today in the confession of one of five men charged with conspiracy to violate a federal statute.

After the confession of Robert Fay, a lieutenant of the Sixteenth Saxony infantry, who admitted that he came to this country last April through an agreement with the German secret service to blow up or delay steamers laden with war supplies for the allies, William J. Flynn, chief of the secret service, tonight filed before United States Commissioner Houghton an affidavit in which Fay and four others are charged with promoting the conspiracy. A hearing was set for November 4.

Fay confessed that while on the battlefield he talked with superior officers about a device to blow up ships, that later his idea of coming to America and carrying his scheme through was well received by the German secret service; that he came well equipped with money to act on his own responsibility and that he talked with Capt. von Papen, military attaché, and Capt. Eoyd-Ed, naval attaché of the German embassy, about the plan, but they had refused to have anything to do with it.

The confession of Fay, who said he had been decorated with the Iron Cross for fighting in the Champagne district in France, covers his arrival in the United States April 23, last, his making of clockwork bombs since then, and his activities in experimenting with explosives along the Hudson river.

Quantities of acid in the room occupied by Fay and Walter I. Scholz in Weehawken, N. J., and boxes containing chlorate of potash, used in making so-called sugar bombs, in a boat house on the Hudson, were found after the arrest of the men Sunday. Scholz, a brother-in-law of Fay, is a mechanic.

Two other men were arrested today and another, making the fifth, was named in the complaint but he had not been apprehended. The new arrests were:

Paul Daeche, Jersey City, N. J., who said he was a graduate of Cologne university and came here in 1912.

Herbert Kienzle, 28 years old, manager of a clock company, charged in the complaint with having aided in procuring explosive materials used by Fay.

Max Breitung, about whose identity no details were disclosed, was named as one of the conspirators. It was stated that Breitung had not been apprehended.

REVELATIONS OF PLOT CONTINUE.

German Conspirators Planned to Destroy New Jersey Plant.

New York, Oct. 26.—Paul Seib, the fifth member of the Fay plot, has made important revelations to police secret service men today, refuting Fay's claim that they did not intend to harm munition plants. He declared that the plotters planned to destroy the giant plant of the American Agricultural Company, at Roosevelt, N. J., last Thursday, but were prevented by the vigilance of the guards and decided to await a more favorable opportunity. The Roosevelt plant is owned by the Standard Oil Co., and is making chemicals for the manufacture of high explosives. The officials are convinced that the seeming willingness of Fay and Scholz to confess is merely a sly effort to conceal the true significance of the plot. Officers are looking for Maj. Breitung, who is said to be a relative of the millionaire banker Edward Breitung. Seib acted as the purchasing agent for the plotters, securing various explosives for the manufacture of bombs.

Reputable Fay Confesses.

New York, Oct. 26.—A doctor von Bernstorff today denied all knowledge of the Fay conspirators or that his government had anything to do with them.

DIABASIC LAWS NEEDED.

Fay Plot Shows Urgent Necessity of Law to Punish Espionage.

Washington, Oct. 26.—High officials see in the latest bomb plot discovered in New York additional reasons for drastic neutrality laws, and congress will be asked by the president to enact them. Already Assistant Attorney General Warren is drafting measures which would give the federal government absolute powers to punish sedition and espionage. Officials believe that the surface of the Fay conspiracy has merely been scratched. Additional secret service men have been sent to work on the case. All of the guilty partners will be prosecuted.

HOW TO CHOOSE POULTRY FOR PRODUCTION OF EGGS OR TABLE FOWLS

Characteristics of Chickens That Make Them Good Laying or General Purpose Breeds—White Leghorn and Barred Plymouth Rock Most Popular Varieties.

Breeds of poultry can be conveniently divided into two classes: (1) the egg breeds, and (2) the general purpose breeds. This division is like that of cattle into beef and dairy types, and of horses into light and heavy classes.

In the egg breeds of poultry the primary requirement is the production of a great number of eggs of standard size. The fowls are not expected to be prime table specimens, but they must lay throughout the year, except when they have to rest and recuperate. They do not sit and hatch chickens and they lay white-shelled eggs. The more popular egg breeds are Leghorns, Minorcas, Anconas and Campines. The most popular variety of these breeds is the Single Comb White Leghorn.

All large egg farms are stocked with White Leghorn pullets and hens, because it is possible to obtain breeding stock in this variety that has blood lines of heavy egg production behind it. Pullets from a heavy-laying strain are better layers than pullets of no special breeding.



How can one detect heavy laying characteristics in a mature pullet or hen? Notice the illustration of the egg type hen. Note how her body resembles the wedge shape of the dairy cow. Narrow and trim at her neck and wide and deep at the rear, she has the greater part of her body behind her legs. A good layer has a large, soft, flexible rear end, dropping down between her legs and so wide that the legs are set far apart to accommodate it. The rear end of the hen corresponds to the udder of the dairy cow and must be large and yielding, not small and hard.

A simple test of a good layer is to measure the distance from the two pelvic bones (one on each side of the vent) to the rear end of the breast-bone. This distance should be as wide as four fingers when the hen is laying. When the hen has this depth and is also wide across her rear it proves that she has an abundance of room to manufacture eggs constantly and particularly the egg shells, which are formed in this part of her body. Such a hen will lay well when properly cared for.

Hens with a small distance between the pelvic bones and rear of breast-bone and tight or unyielding rear body are not good layers. Put bands on the legs of your layers and note how many consecutive days they lay without resting. That will show how long each hen can maintain her egg flow and the better layers are those which can continue laying for longer periods.



The general purpose breeds have been selected primarily for the production of table poultry. They are also good layers of brown-shelled eggs. They hatch their chicks and are the most satisfactory for those who want one flock of purebred chickens for both meat and egg purposes. The more popular of the general purpose breeds are Plymouth Rocks, Rhode Island Reds, Wyandottes and Orpingtons. The most popular variety is the Barred Plymouth Rock. This is recognized as the best chicken for market as it is large and well-meated and fattens profitably when confined in crates.

FRANK C. HARE, Extension Poultry Husbandman, Clemson Agricultural College.

DESTROY CORN STUBBLE DO NOT NEGLECT TOOLS

Farmers Can Reduce Damage from Corn Stalk Borer by Turning Under Stubble in Fall.

Corn stubble should not be allowed to stand in the field all winter undisturbed. The corn stalk borer is one of the "reasons" for this. This insect is one of the most notorious corn pests of the South and evidence of its work can be seen in practically any corn field at harvest time. It is the cause of the holes that may occur in any portion of a stalk.

The corn stalk borer remains as a larva, or worm, in the base of corn stubble beneath the ground during the winter. Farmers do this insect a great favor, therefore, when they let their corn stubble stand undisturbed in the field during fall and winter.

Destroying corn stubble is not very easy, except on modernly equipped farms where there is sufficient horse power and the stubble can be turned under thoroughly. There is, therefore, some temptation to leave it undisturbed. But the advantages of turning stubble are such that a farmer cannot well afford not to do it. Turning it under helps very much in reducing the corn stalk borer for the next season.

When thorough turning cannot be practiced, there are other methods such as "busting out" the stubble and hauling it to the compost heap for rotting. By another method, after the corn is gathered, stalks, stubble, and everything else may be "busted out," raked into heaps and, after a few weeks for drying, burned. In experimental work a very large percentage of corn stalk borer larvae (worms) was destroyed during winter where the stubble was plowed out and left exposed to the weather.

But when these methods are practiced by farmers only here and there, it will not help the situation very much. The control of the corn stalk borer depends upon the co-operative action of the farmers of a community.

The fact must also be borne in mind that it is an extravagant practice to let corn fields lie idle and exposed during the winter months, not only on account of these insect pests, but also on account of the loss from washing and leaching of soils.

A. F. CONRAD, Professor of Entomology, Clemson Agricultural College.

Farmers Suffer Large Losses by Failure to Care for Implements That Are Not in Use.

The farmer who puts away his farm machinery without oiling and cleaning it is certain to lose in the deterioration of the machinery many times what the time to care for it would have been worth. Failure to take care of farm machinery is a source of large loss to the American farmer annually.

Most farmers realize that they would save money by taking good care of their machines, but neglect to do so, either through carelessness or indifference. The most important step toward having efficient machinery is keeping it in good repair. In spare time, each machine should be carefully inspected and all missing, broken or overworn parts noted. Write the names and numbers of missing parts on tags and fasten these tags to the machine.

All machines should have a general inspection at least once a year. A rainy day in late fall is very good for this purpose.

Exposure to weather injures both wooden and metal parts of machines and a machinery shed should by all means be part of the farm equipment. Every machine should be cleaned, oiled, and housed after it has been used.

Painting adds greatly in improving the appearance and prolonging the life of machines. It protects both wood and metal from the weather. Paint should be used freely when needed. One of the best paints for all farm implements is made with red lead and linseed oil.

The use of good farm implements is increasing rapidly in South Carolina and farmers owe it to themselves to be more careful of their tools. In the year that has gone, they have learned some important lessons in economy, but there is probably no more practical way in which a farmer can economize than by taking the proper care of his farm implements—repairing them, oiling them, housing them, and painting them.

SIDNEY S. RITTENBERG, Agricultural Publicist, Clemson Agricultural College.

SEMI HOLIDAY GRANTED.

Schools Will Not Close but School Children Permitted to Attend State Fair.

The Board of Education, instead of granting a holiday, has extended to the pupils the privilege of attending the fair tomorrow, without loss of credit. This privilege is confined to one day, as great confusion would result, if the pupils were absent on different days. This will allow all the pupils, who wish to do so, to be in Columbia on Sumter day.

A company of seventy cadets will go over tomorrow on regular military rates. This has been arranged for in obedience to the urgent wishes of the different committees of the Chamber of Commerce.

SHIP IN FLAMES AT SEA.

Mallory Liner Loaded With Six Thousand Bales of Cotton Burns.

Charleston, Oct. 25.—The Mallory liner Colorado, which cleared from Charleston for New York last night with a cargo of 6,000 bales of cotton caught fire and was abandoned at sea off Cape Romain, between 30 and 40 miles from Charleston, according to advices received at the local office of the Clyde line this morning. Capt. Congdon and his crew of 37 men were picked up by the Suwanee, a Merchants and Miners' steamship, bound for Baltimore. No word as to the origin and nature of the fire had been received late this afternoon. The local tugs Waban and Cecelia put to sea on receipt of the news, intending to salvage the vessel and part of her cargo if possible. Both are equipped with special fire fighting apparatus.

WOUNDS PROVE FATAL.

Vestel Hancock Dies From Shots by Negro.

Charaw, Oct. 25.—Vestel Hancock, who was shot by Charlie Chapman, a negro, Saturday night, died in a Hamlet hospital while on the operating table.

The coroner's inquest was held here this morning, the verdict being that Mr. Hancock came to his death from gunshot wounds at the hands of Charlie Chapman, his brother, Lewis, being accessory to the crime. Both are in jail.

MALLORY STEAMER SAVED.

Burning Cotton Ship Towed into Charleston.

Charleston, Oct. 26.—The Mallory steamer Colorado, which was abandoned at sea yesterday has been towed into port by two tugs, the flames having been extinguished. The superstructure and part of the six thousand bales of cotton in the cargo were destroyed.

EXPENSE STATEMENTS.

Mayorality Candidates Make Final Report on Expenditure.

Mayor John P. Grace and Major T. T. Hyde have filed with the clerk of court their final statements of expenses in connection with the recent mayorality campaign. Mayor Grace's statement after the primary reports expenses at \$176, for use at the polls, which, with the amount listed in his former statement, \$4,833.43, brings the total to \$5,009.43.

In Major Hyde's final statement, \$1,000 is stated as paid for watchers, challengers and railers on election day, and \$45 for rent of headquarters and sundry expenses there; the addition of these amounts bring the previous total of \$3,024.07 to \$4,029.07.

COTTON GINNING REPORT.

Only 5,713,347 Bales So Far Prepared.

Washington, Oct. 25.—The third cotton ginning report of the season, compiled from reports of census bureau correspondents and agents throughout the cotton belt and issued at 10 a. m., today, announced that 5,713,347 bales of cotton, counting round as half bales, of the growth of 1915 had been ginned prior to October 18. This compared with 7,619,747 bales, or 47.9 per cent. of the entire crop, ginned prior to October 18 last year, 6,973,518 bales, or 49.9 per cent., in 1913, and 6,874,206 bales, or 51 per cent., in 1912.

Included in the ginnings were 54,422 round bales, compared with 15,239 last year, 49,030 in 1913 and 41,745 in 1912.

Sea island cotton included numbered 40,257 bales, compared with 30,078 bales to October 18 last year, 31,139 in 1913 and 15,960 bales in 1912.

Some of the share-croppers, tenant farmers and lieners who were financially embarrassed last fall but were carried over by their creditors are being closed out, having been unable to pay their debts out of this year's crop. The effect of last year's disaster will be felt for years and a good many farmers as well as merchants have had to make a fresh start.