

LITTLE THINGS WHICH ONCE WENT TO WASTE AND WHICH NOW BRING FORTUNES.

(Copyrigth, 1906, by Frank G. Carpen-Maryand to grind up granite for this purpose, and, if they are successful, I other plants will probably be crected all over the country. ter.)

ASHINGTON, D. C .- The agricultural department is Unele Sam's Aladdin. It rubs its old lamp and a horde of new genfi go to work for the nation. It is looking up the waste places of our country and making them blossom like he rose. It brought macaroni wheat rom the edge of the Sahara, and out of built up a farming industry on the deserts of the west. It has thrust its long arm into the swamps of the south, and put in Japanese rice is pulling mil-



INDIAN CORN. From Which Our Paper of the Future Will be Made.

Hots out. By its discoveries as to the inestation of the soil it has made myriads of bacteria work for man, and is now gathering more fertilizer from the air than comes from the nitrate fields

Chile and Peru. The latest discovery of the department is as to cheap potash. This forms in important element in our fruit, to-acco and grain crops. It is about as aluable as nitrogen, and the small percentage of it in our commercial ferlizers makes them cost many dollars ton. Potash itself is worth about a undred dollars a ton, and we are paywhich we bring in from abroad. By this discovery we know that potash lies all around us, and that we can have it for the grinding. It is on the edge of ar orchards, and it is accessible to al-most every farming district. It is which with the granite of the hills, and that in such a way that a rock-crushing machine can get it out. All that is needed is to grind the granite te powder and let the potash loose. By this means it may be secured at a cost of alltile more than 1 cent per pound, or five or six times as cheap as the hich we bring in from abroad. By this

dividends come from the saving of every scrap in the refuse. If the choice cuts of the meat alone were sold, the cuts of the meat alone were sold, the packing houses could not exist. They have scores of products which our fore-fathers never thought of from potted meats to boulflons, liquid extracts and drugs. Indeed, the by-products of these ex-tablishments bring in millions and a small army of scientists are kept busy analyzing the waste and making new things for man. It is said that every bit of the hog is now saved, excepting the squeal and the kick, and that not an atom of the beef goes to waste. A few years ago I visited a packing fac-tory in Buenos Ayres and saw the blood running away in a stream. In our factories in Chicago the blood is worth \$40 a ton and is used to make worth \$40 a ton and is used to make albumen and other things. It is sold to printers, tanners and sugar refiners, and, as a fertilizer, it brings a big price per ton. In some of the Australia and New Zealand factories I saw the bones thrown aside. At Chicago the bones are first cooked to extract the fat and gelatine. Certain kinds are saved to make umbrella, tooth brush and knife handles, and other things in which hard bone is needed. The hoofs of the cattle

are molded into ornaments, and the tips of the horns are flattened out and eventually sold as combs and buttons. The backs of brushes are made of horn tips, and some of the finest hoofs are shipped to Japan to be made into no-tions which are again sold in the United States. DRUGS FROM THE SLAUGHTER

HOUSES. The packing houses are now get-

UNCLE SAM WORTH 125 BILLIONS.

Many people imagine that the United States is at the maximum of its pros-

States is at the maximum of its pros-perity. The truth is we are at the be-gluning. We shall make more during the next generation out of what now goes to waste, than we made a genera-tion ago out of our staple crops. In-deed the waste of today makes the for-tunes of tomorrow. In 1870 our national wealth amounted to about 30 billion define and 30 years tates it bad al

dollars, and 30 years later it had al-most reached the 100-billion mark. We

are probably worth 25 billions more to-day and the great part of the increase comcs from by-products once classed as waste. Take the beef trust. Its big

Its big

The packing houses are now get-ting big money out of chemicals and drugs of various kinds. They produce pepsin from the stomachs of pigs and pancreatine and other digestants as well. From the calves they get a gray brain matter which is now used for nervous diseases, and is especially without in more sthematic income to see the second

valuable in neurasthenia, insanity and St. Vitus' dance. One of the most important of the One of the most important of the chemical by-products of the slaughter houses is employed in gold mining. It is a poisonous stuff, known as cyan-ide of potassium, which looks like alum. It comes, I think, from the hoofs of certain animals and other such refuse. This stuff has a strong hoofs of certain animals and other such refuse. This stuff has a strong affinity for gold and a certain pro-portion of it, mixed with water, is used to take the gold out of ground quartz. The gold goes into the liquid just like sait and the fluid is then drawn off and the gold caught again, by running it over zinc shavings. The bristles of the hogs are saved, cattle hair is used for camel's hair pencils, and also to make shoddy. The bile goes to the bookbinder, and the stomachs of the young calves to the cheese manufacturors.

FORTUNES IN COTTON BY-PROD-UCTS.

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We have any quantity of good, useful articles that would make admirable Christmas pres-

ents. Why not buy something that will be useful and ornamental, instead of squandering your

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2014

A SPECIMEN COTTON PLANT.

One Fifth of the Profits of the Cotton Crop Are From Cotton Seed Meal.

make many millions more. The latest cliccoveries there are as to the fiber of the cotton plant. It has been found that it will make the finest of book We have little reason to worry, how-

The agricultural department is

We have little reason to worry, however. investigating certain sources of paper supply which will furnish the world all it needs for the future. One of the most important of these investigations re-lates to paper as a by-product of the

paper, and the scientists predict that the stalks will be gathered for this purpose, and that a great industry will purpose, and that a great industry will grow up in so using them. About a generation ago the cotton seed of the United States went to waste. Today it is ground up and the oil pressed out for food and for use in manufactures of various kinds. Much of our so-called Italian oil comes from cotton seed. Our sardines are packed in it, and it is taking the places of lard and butter in cooking are packed in it, and it is taking the places of lard and butter in cooking. It is burned for light by miners and also in cathedrals. It is used in bak-ing, it makes excellent soap, and it is manufactured into giveerine and can-dies. The value of the cotton seed is said to be about one-fifth of the total value of the cotton crop. The refuse from the grinding and pressing is made into cakes and sold to feed

is made into cakes and sold to feed stock, while the hulls are ground up for the same purpose. THE PAPERS OF THE FUTURE.

A great deal of paper is now made from balfa grass, found in Morocco and Algeria, and it is probable that the papyrus swamps of the Upper Nile will some day be harvested for this pur-pose. Between Uganda and Khartoum there are vast tracts of swamps, cov-ered with papyrus. They lie right along the line of the Cape to Care road and Many people are now deprecating where we shall get our forests to where we shall get our newspapers where the trees have disappeared. It takes a number of acres of forest to the line of the Cape to Cairo road, and it may be that this will make them supply the paper for the annual issues urnal, and the she you are now reading was once a part of some spruce, poplar or other softwood tree. The forests of Canada are

Within late years a business has grown up in saying the grease of our great cities. The garbage is full of oleaginous stuff, and it is so treated that this is saved. In New York city the waste food is run through cookers which take out the grease, and this grease is shipped off to Europe, where it is made into glycerine, lard oil and

lates to paper as a by-product of the corn crop. Indian corn stalks have a fiber which will make every kind of paper and cardboard, and I am told that it will be but a short time before mills will be grinding them for this purpose. I have seen samples of paper and cards made from Indian corn stalks. The best paper comes from the outside fibers, and a lower grade from those within. The pith itself is already used to make linoleum, and also as a packing for the walls of our gunboats. The pith is spongy and it swells quickly other products. There is another kind of grease which was once washed away by the streams I refer to that in sheep wool. Now the wool is sold without washing, and the grease and dirt in it make up a large part of the weight. The wool is cleansed at the factories, and inventions have been made for saving the wool fat which contains potash and potash salts. It is estimated that more The pith is spongy and it swells quickly upon touching water. If a shell breaks through the armor plate of a vessel so packed the water rushes in, and the packing is soon enough swollen to fill than 2,000,000 pounds of carbonate of potash are now annually taken from the wash waters of the wool scouring establishments of France and Belgium. establishments of France and Belgium. England is saving its wool fat, and there have been a number of patents granted for this purpose in the United States. Indeed, it is said that if we had the proper plants in our western wool districts, millions of dollars' worth of this stuff could be saved and that the wool shipped would realize as much as it does now and also result in the it does now and also result in the saving of a vast amount in freight charges. OLD RAGS AND NEW CLOTH.

Recent Discoveries of the Agricultural Department-Mountains of Potash at One Cent a Pound-Costly Drugs From the Slaughter Houses-Paper From Cotton Stalks and Cardboard From Indian Corn-The Papyrus Fields of the Nile and Our Future Paper Supply-Where the Tin Buttons Come From-Money in Grease and Garbage - Old Rags for New - The Chinese and French as Economisers New Kinds of Fuel, Etc.

is a regular business in China in old the and old iron. The Standard Oil cans, for instance, are flattened out and used for house roofing, and the best of the Chinese razors are made of worn out horseshoes, which are imported by the shipload from Europe As to food in China, nothing goes to waste. Almost every part of a chicken is eaten, even to the entrails. Tea grounds are used over and over egain. and every scrap of meat is consumed. As to fuel, the fallen twigs and branches are gathered up, and straw is often burned for cooking. The Chinese un-derstand how to get the post out of manure, and nothing of this sort is thrown away. The house sweepings are saved for the gardens, and even the

beds of the streams are scooped up from time to time into scows and spread over the fields. WHY THE FRENCH ARE RICH. It is similar economies which largely It is similar economies which largely aid in making the French one of the richest nations of the world. Every one thought they would become bankrupt when, in 1871, the Germans compelled

when, in 1871, the Germans compelled them to pay a billion dollars in the way of indennity. Since then they have wasted millions on the Panama canal, and are today about the wealthiest of all European nations. It is said that the French loaned about \$150,000,000 to our capitalists during the year 1305, as well as \$250,000,000 to Germany, and an even greater sum to Russia. They now hold foreign securities to the now hold foreign securities to the amount of \$14,000,000,000, and more than one-fourth of this is in Russian bonds and industrials. France is said to have an annual surplus of \$500,000,000. and she is gradually placing this is var-lous investments throughout the world. If she has no war, she will soot have an interest in every national enterprise, and be the world's chief creditor.

All this comes from saving the pennies and watching the waste. The av-erage breakfast of the Frenchman costs about 2 cents, while that of the American is at least 10 cents, or five times as much. France has 40,000,000 people and at this rate she daily spends \$500,000 for breakfast, whereas at 10 cents our breakfasts cost us \$8,000,000, Had we the same population as France our

morning meal would cost us \$3,000,000 more every day than it does her, ot more than \$1,000,000,000 every year. A similar saving goes on as to other things and the common people are al-ways saving and investing. They could live on what we throw away and still, through their knowledge of cooking, have better eating that we have.

FUEL WASTE.

In the matter of fuel saving also, the French are making great strides. They are using the due, of their coal mines, and making it up into bricks or bri-queites of about the size of our building bricks. Many of the railroad trains are run with such bricks, and one sees cords of them near the larger stations. In St. Ettenne they are now making briquettes which are half coal dust and half petreleum, and also some which contain 97 per cent of petroleum. Pe-troleum bricks sell for about \$15 per tou but they have three times as much heating power as easl, and they weigh only one-third as much. They burn without odor or smoke and will keep a long time without descripting.

Coal biquettes are largely used for Germany and also in Belgium and Hol-land. The Germans make such fuel of a lignite, so poor that it would be re-garded as of no value here in the Unit-ed States.

FRANK G. CARPENTER.

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valuable. Papyrus was used to make the paper of the ancient Egyptians. The many scrolls of the famed Alexandrian library were written on papy-rus, and the fiber will, it is said, make some of the best paper known to man.

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WHERE THE BUTTONS COME FROM.

One of the great questions of man-kind since we began to wear more than fig leaves has been "what becomes of all the pins?" Another interesting one is as to where the buttons come from. Is as to where the buttons come from. They are largely from waste and by-products. The packing houses supply many made of horn and bone, and the big tin shops and can factories furnish their share. In the latter factories there are many little pieces of the left after the bottoms and tops of the cans have been cut off. These are saved, and from them buttons are stamped. Each have been cut off. These are saved, and from them buttons are stamped. Each scrap may be only big enough for one button, but there are so many that they provide a large source of supply. Many buttons are made from shells and many from vegetable lyory. The pearl fishers make more money out of the shells of the pearl oyster than out of the pearls themselves, and just now there is a great industry in gathering. there is a great industry in gathering the shells of the fresh water mussels Such shells are used chiefly for buttons, and it is said that at least 5,000,000

Speaking of wool, that which is man-nfactured into cloth is used over and over again. Woolen rags are saved, respun and rewoven as shoddy. Somerespun and rewoven as shoddy. Some-times wool is mixed with the shoddy and the product is sold as woolen goods. In 1900 as much as 75,000,000 pounds of such stuff was used in Great Britain. Nearly all the shoddy we

Britain. Nearly all the shoddy we manufacture comes from American rags, while Great Britain gets its rags from all parts of the world. Cotton rags are used largely in the manufacture of paper, while the waste of the cotton mills, which is too short for spinning, is employed for cotton batting and wadding. We make about 10,000,000 pounds of such stuff every year. year.

SOME CHINESE ECONOMIES.

There is probably less waste in China than in any other country. There china than in any other country. There are no big factories, but nevertheless everything finds a use. Cloth of all kinds is carefully saved. Old clothing is sold to second-hand dealers, and it goes from one class to another until it becomes rags. Even then the rags are washed and ironed and then pasted one upon another to make the soles for Chinese shoes.



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