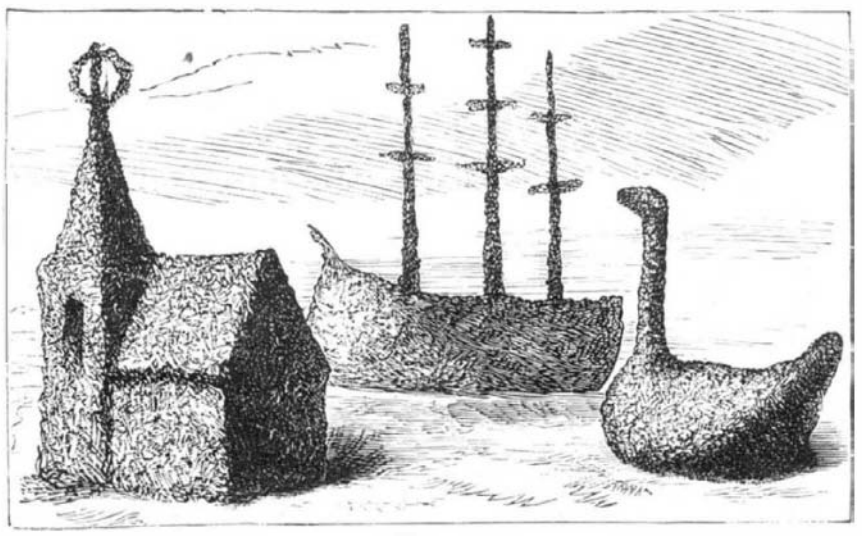
Tests for Good Burning Oil.

Professor J. Lawrence Smith, in his report as Centennial judge, says that good petroleum should have the following characteristics: 1. The color should be white or light yellow, with blue reflection; clear yellow indicates imperfect purification or adulteration with inferior oil. 2. The odor should be faint and not disagreeable. The specific gravity at 60° Fah. ought not to be below 0·795, nor above 0·84. 3. When mixed with an equal volume of sulphuric acid, of the density of 1·53, the color ought not to become darker, but, on the contrary, lighter. A petroleum that satisfies all these conditions and possesses the proper flashing point may be set down as a pure and safe article. Too much care cannot be exercised in examining this oil for household use.

CURIOUS HEDGE FIGURES.

It was the fashion, a century ago, to trim hedges and close-leaved trees into fantastic forms, resembling animals, buildings, etc. In many old gardens in France this custom is still maintained, and the visitor may walk through alleys on either side of which are high walls of dense verdure cut perfectly square, and occasionally arching overhead. At corners these fantastic figures in living green are often encountered, they being the product of the gardener's skill in training and clipping. Our engraving represents three quite large objects made in box, and exhibited growing in the Dutch Garden at the Paris Exposition.



CURIOUS HEDGE FIGURES.

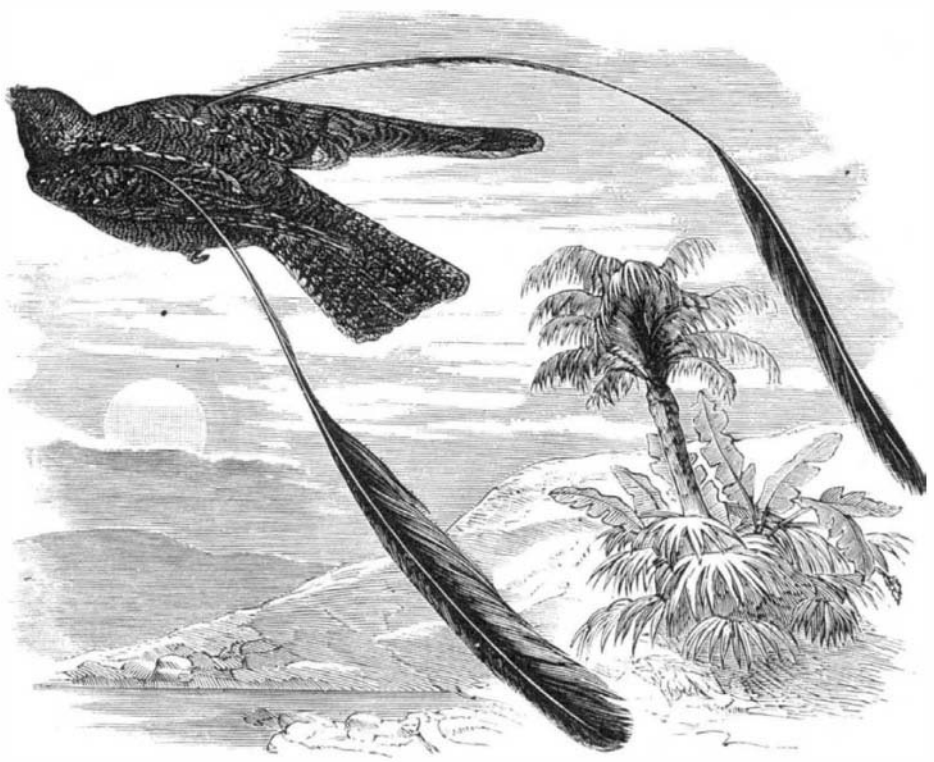
Food Supply of Paris.

There are 26 millers in the environs of Paris, St. Denis, and Sceaux, who employ 234 men. There are, in the departments of the Seine, 1,694 bakers, who employ 7,264 hands, 2,251 being females. Besides these there are 1,062 pastry cooks, who employ 3,156 men and 555 women. In the mills the men get, on an average, 7s. per day; the bakers about 5s. 6d. for men in the town, and 3s. for women, in the suburbs the men 3s. 6d., and the women 2s. 3d. The pastry cooks in Paris get 6s. for men and 5s. for women; in the suburbs 3s. 6d. for men, and 2s. for women.

THE LEONA GOAT SUCKER.

The curious feature about this bird is the long and very elastic feather shafts which rise from the middle of the wing coverts and extend to a length of twenty-eight inches. They are totally destitute of barbs except at the extremity, where they suddenly give out a broad web of four or five inches in length. The object of these odd appendages is not known. They are found only on the male bird, and evidently bear an analogy to the train of the peacock and the long tail feathers of the pheasant among the birds, as well as to the beards, horns, tusks, manes, and similar masculine appendages of male quadrupeds.

The plumage of the Leona goat sucker is very prettily marked with spots and bars of rusty red and black upon the usual brown ground. Every primary feather possesses nine rusty red spots and as many of a black hue, and there are many other spots and bars scattered over the body and wings. The bird is not a long one, measuring only eight or ten inches in total length. It is a native of Western Africa. We take our illustration from Wood's "Natural History."



Oatmeal.

Liebig has chemically demonstrated that oatmeal is almost as nutritious as the very best English beef, and that it is richer than wheaten bread in the elements that go to form bone and muscle. Professor Forbes, of Edinburgh, during some twenty years, measured the breadth and height, and also tested the strength of both the arms and loins, of the students in the university—a very numerous class, and of various nationalities, drawn to Edinburgh by the fame of his teaching. He found that in height, breadth of chest and shoulders, and strength of arms and loins, the Belgians were at the bottom of the list; a little above them the French; very much higher, the English; and highest of all, the Scotch and Scotch-Irish from Ulster, who, like the natives of Scotland, are fed in their early years with at least one meal a day of good oatmeal porridge.

Salt in Beer.

The presence of a small percentage of salt in malt liquors may be unobjectionable, or even necessary to bring out the flavor of the principal ingredients; but it is impossible to vail the fact that, whether a very saline water is selected for brewing purposes or salt be introduced in any considerable quantity during the manufacture of beer, the expedient is a device to create thirst and increase the demand for drink. It is, therefore, a matter of public interest to see that the adulteration of malt liquors with salt is prevented by the enforcement of the law. If the brewers take the hint given to them by Mr. Sclater-Booth recently, and carry a representative case to the Court of Appeal, those who are anxious to minimize that excess in drinking which constitutes a ceaseless cause of loss and injury to the working classes of this country, should see that the true nature of the adulteration is exposed. We can easily understand that beer containing an "insufficient" quantity of salt will not be profitable. It may well find its way back to the brewers, because, the thirst producing element being absent, the publican would find the article lie on his hands. The mysteries of the trade in intoxicating beverages are many and bewildering, but we venture to hope the legislature and the public are too deeply impressed with the importance of encouraging temperance to be greatly moved by compassion for the hard case of the makers and sellers of beer which cannot be sold in quantities satisfactory to its producers unless they are allowed to drug it with enough salt to render their customers inordinately thirsty!—*Lancet.*

Dr. Morfit's Method of Preserving Animal and Vegetable Food.

We have received a number of biscuits and other preparations containing preserved solid and liquid food, both animal and vegetable, which are the practical results of a new process lately patented by Dr. Campbell Morfit. They include substances of the most diverse nature, such as milk, cream, cheese, beef, garden rhubarb, cabbage, tomato, pork sausage, and a variety of other alimentary products, all of which are perfectly savory and toothsome, in spite of their being more than a year old. It is, however, more with Dr. Morfit's process than with its present results that we have now to deal, for we must look upon his discovery as being as yet in its infancy.

Dr. Morfit's experiments, which he has prosecuted uninterruptedly for the last two years, seem to prove that ordinary gelatin, when it is once thoroughly diffused through a vegetable or animal substance, and dried in and with it, will protect it from decomposition or other alteration for a prolonged period, in spite of atmospheric or climatic changes. This is clearly proved by the samples submitted to us, which —although they have been exposed to the constant changes of temperature and moisture consequent on their having been kept for more than a year in the store room of an ordinary dwelling house—are still perfectly good and sweet, their natural characteristic flavors being well preserved. Some lime fruit juice biscuits, for instance, which are more than a year old, have preserved, in a very perfect manner, the peculiar flavor by which the juice of the lime can always be distinguished from that of the lemon.

The primary principle of Dr. Morfit's process is the getting rid of nearly the whole of the natural water contained in the substance to be preserved, by submitting it to a certain degree of heat, the place of the water being supplied by gelatin. The compound is then dried, and in this state it may be kept for any length of time, or else it may be made up into biscuits by incorporating it with biscuit powder.

Let us take Dr. Morfit's method of preserving beef as an example. The beef must be as free from fat and bone as possible, and should be first stewed in its own liquor, or with the least possible quantity of water, and seasoned or not according to taste. The whole is then reduced, by any available mechanical means, to a state of smooth and fine pulp, and triturated with a solution of gelatin in water. One pound of gelatin is enough for 15 pounds of meat, fowl, or fish, the gelatin being dissolved either in a sufficiency of water or in the natural juice of the substance itself. In the case of fruit—such as gooseberries, currants, or plums —they are stoned or skinned when necessary, and cooked or not, as the case may be. They are then made into a pulp and mixed with gelatin dissolved in water or their own juice, heated so as to insure a thorough mixture of the ingredients, and then poured into coolers. In certain cases the gelatin may be replaced by mucilage of Irish moss, but the result, although cheaper, is not so good.

Dr. Morfit's method of condensing milk without the use of sugar is of great interest, seeing that the Swiss and other descriptions of condensed milk, which are now so largely sold, cannot be taken by delicate infants or by persons of weak digestion, owing to the large amount of sugar contained in them. One pound of gelatin is dissolved in one gallon of fresh milk at a temperature of from 130° to 140° Fah., the whole being allowed to set into a jelly, which is dried. The dried jelly is then dissolved in another gallon of fresh milk and allowed to set and dry as before, the operation being repeated with fresh milk until the original pound of gelatin has taken up eight gallons of milk or more. Consommé of meat may in like manner be condensed until one pound solid shall represent thirty times its weight of fresh beef. As may be readily guessed, the process may be carried on without any of the expensive plant and troublesome manipulation involved in the usual modes of condensing milk and making Liebig's extract, besides which, in the latter case, the whole of the nitrogenous parts of the meat is preserved intact.

From a hygienic point of view, the lime fruit juice biscuits ought to be admirably suited for use in the navy. Without entering into the question as to whether it is the citric acid, or the phosphatic salts, or the potash contained in the lime juice that is the real anti-scorbutic agent, it is sufficient to say that the 40 per cent of Montserrat lime fruit juice preserved by Dr. Morfit's process, and incorporated with the biscuits, has preserved all its properties without any change for more than a year, and, *a priori*, there is no reason to suppose that it would not keep good for ten or twenty times that period. It may be mentioned, in conclusion, that the different jellies may be dried into hard tablets or flakes at a uniform temperature of from 38° to 40° C., and sent into the market in this convenient form, as well as under the more bulky guise of biscuits. A few cases of lime fruit juice tablets, prepared according to Dr. Morfit's method, would probably have saved the lives of several brave men during the late expedition to the Polar regions.

Speaking from a purely scientific point of view, and judging by the results we have already described, the principle of Dr. Morfit's invention seems to be theoretically a sound one. These results we must regard at present as tentative, and it only remains to the inventor of the process to confer a large benefit on the community by extending its application, thereby notably increasing our not too abundant stock of hygienic and alimentary products.—*Chemical News.*

M. GARRIGOU has lately discovered that the salts dissolved in mineral waters have special properties which render their chemical reactions different from those of the same salts under ordinary conditions.