FRAUDS IN STAFF OF LIFE

Food Value of Various Articles Materially Reduced by Adulterants.

PURE BREAD SAID TO BE RARE

Large Quantities of Corn Starch Mixed with Wheat Flour—Efforts to Combat the Evil—What the Microscope Reveals.

There are a good many people in this world interested in bread from the standpoint of food as well as the standpoint of health. Adulteration in food products is an offense, or, if you desire a stronger term, a crime, which is being fought by municipalities, by states, and by nations with a fiercer determination than ever before to bring the battle to a finish.

Leaving out of consideration the occasional use of various kinds of finely powdered earths, etc., it is worth while considering the kind of adulteration now practiced in the manufacture of flour, from which the American laboring man gets his staff of life.

No doubt the men who adulterate their wheat flour with cornstarch console their consciences with some such reassuring thought that the adulterant is not only not poisonous, but uninjurious in its elements, and yet they are guilty of the most despicable piece of robbery known since meanness began, and those who eat it to the extent that the laboring men of the United States eat bread simply enter upon a certain, and not so very prolonged, period of starvation.

But first, a word or two as to this adulteration and how the scientific men are discovering it—how they are working to render such adulteration as this in the future a practical impossibility.

The starch of the flour of every wheat berry and every corn kernel differ always and essentially as they come under the microscope. Take a sample of honest flour and you will find every tiny grain to the last hundredth that comes into your field of vision as you move the slide below the lens, roundish in shape, every one of them if cut in twain showing a series of concentric circles and a transverse section indicating the general form of a pair of dumbbells.

When the corn starch, like the wheat starch, has been washed clear of all other elements, every grain, to the fartherest millionth, instead of being round, is angular, full of corners, the flat body of the grain usually showing from five to six sharp angles. In the center of the grain the lines are not circular, as in the wheat, but straight, starting from a well-defined spot in the heart of the grain of starch and radiating out in perfectly straight lines, from three to five or six lines in each grain.

Each one of these grains is inclosed in a wall of cellulose. The character of the starch on the interior of each is precisely the same, whether of corn or wheat. In the wheat flour, however, as nature has given it to man in the wheat kernel, there is just the right proportion of starch for the needs of the human system, mixed with other ingredients which go to give the system its strength.

Why Adulteration Pays.

When the men who want to adulterate their flour find that wheat costs $1 and corn 25 cents a bushel it is a very natural thing, following the bent of a crooked mind, to mix the corn starch with the flour starch. The two are of precisely the same character as to appearance, etc.

But the detective is there, too, and, aided by that chief of all detectives, Mother Nature, the scientific chemist takes the adulterated flour, washes it in cold water so that every part of the gluten of the flour is cleared out, and then, placing a tiny portion of the flour or, as it now stands, starch, in a little tube, he puts it in solution, colors it with iodine a beautiful purple, puts a drop between the thin pieces of glass for his slide, tucks it under the microscope and there, swimming together side by side as purple as a sunset in the land of the midnight sun, are the two types of starch grains, hundreds of them, the one round, the other angular, the one having concentric rings on its interior, the other with lines as jagged as the greenish radiations from a fractured pane of glass.

It isn't a question of theory, but one of very cold, hard fact. The scientific chemist, especially the agricultural chemist, such a one as Prof. Harry Snyder of the state experiment station of the College of Agriculture in the university of Minnesota, doesn't have to depend upon any theories. He takes a sample of perfectly pure wheat flour, tests it, finds the grains of starch of the one type. He takes a sample of pure corn starch flour, the grains are all of one type and wholly different. He takes a sample of flour adulterated with corn starch and the two types appear. There is nothing left to chance.

But the adulterator knows his business. He has invented machinery which so rolls and powders the corn starch that in some cases the cell walls are broken down and the corn starch blends into the wheat flour starch. This would seem to be a blending beyond the power of a detective. But it is not. Prof. Snyder has been carrying on experiments which show that he will in the future—and, in fact, has already reached some decidedly satisfactory results—be able to detect the fraud even here, for by an iodine test he can tell the difference between a flour composed of mixed corn and wheat starch grains even after the cell walls of the grains are broken down. By far the greater proportion of all the adulteration, however, is quickly discernible by the other test.

Is Adulterated Flour Harmful?

A good many people have asked this question, but the answers have been in many cases quite vague—just such indefinite answers as would be apt to suit the man who is adulterating.

There are three main elements in the wheat flour which make it the staff of life when it becomes bread—ash, for the formation of bone; starch, for the heat of the body; gluten, or, in another word, protein, for the production of muscle. The gluten is made up of two substances, gluten and gliadin. The gliadin binds the flour together and makes it dough, the gluten prevents the dough from becoming soft and sticky. The gluten as a whole is the life-giving part of the bread. Now, suppose the man who gets his corn for 25 cents a bushel puts 40 per cent more starch into his flour than he ought to, corn starch. The man who eats bread made from this adulterated flour is robbed of 40 per cent of the life-giving powers of the bread, for the incoming starch drives out the gluten. Very many Americans use bread as the staple of their diet. Prof. Snyder has demonstrated, by experiments upon men in feeding them for days at a time certain lines of food, to arrive at what is a reasonable ration for a man at work, that a man must have, where he has but little meat and not many vegetables, at least two pounds of bread per day.

This must be honest bread, made from the very best of flour, containing not less than 12 per cent of gluten. In case any per cent of this gluten is driven out, to that extent the man's dietary is impaired. Suppose you were living on largely a bread diet, as so many American laborers are, they and their families. If suddenly, and without any knowledge of the fact—for the adulterated flour cannot be told by its appearance from the pure—your bread became from 15 to 40 per cent, or even in some cases 50 per cent, impoverished, how long before your strength and the strength of your family would show the effects? And, whether you are a laboring man or not, a very large part of your food is made up from bread or other articles of diet in which flour is used, and to the extent that this flour is adulterated with this corn starch to that extent you are robbed.

There is no theory here, it is plain fact; any one who wants to test it can go from a diet of two pounds of rich, nutritious bread, made from honest flour, per diem, with the few vegetables and the infrequent meat of a good many laboring men, to a diet on adulterated bread containing one-third as much strength-giving power and test it to their own satisfaction. If you try it long enough you will not need a diagram or a diagnosis to show you what is the matter with you.

Some months ago, when the price of wheat was 4 the dollar region, complaints about adulterated flour were made from various parts of the western and southwestern portions of the country. So persistent and frequent were these complaints that congressional action at last was invoked. Prof. Snyder, at the head of the department of chemistry in the University of Minnesota, has been called upon to test many samples of these adulterated flours. Here are three analyses, one showing what a typical honest wheat flour is composed of, one showing what an adulterated flour is composed of and one showing the constituent parts of rice flour. It need only be said in this connection that the sample of rice flour, largely the food of the Chinese laborer, is practically the same as to its food value as the sample of adulterated flour which is only one of many which Prof. Snyder has recently been testing.

The per cents of analyses are as follows:

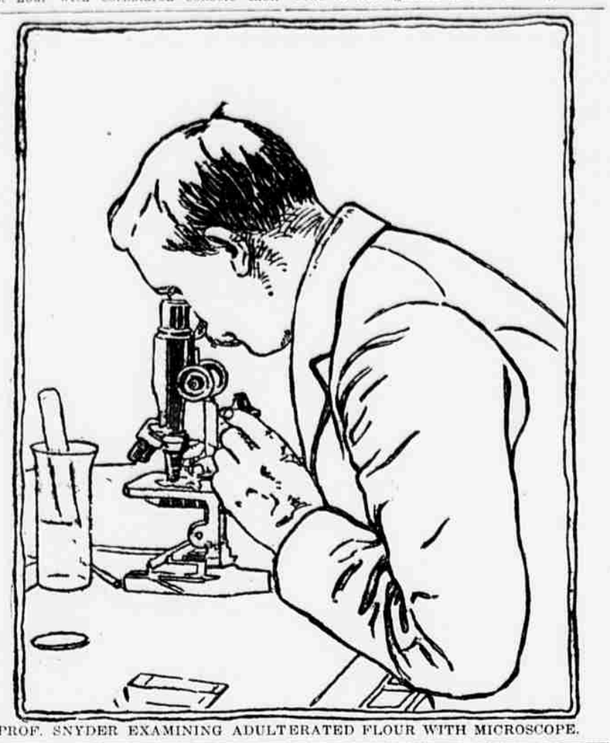
	Pure flour.	Adulterated flour.	Rice.
Water	11.9	12.4	12.2
Ash (mineral matter)	.4	.4	.3
Fat	.8	.4	.4
Protein (include gluten)	12.8	7.8	7.6
Starch and starch-like bodies	74.3	79.0	79.5

Here is another sample showing an extent of adulteration more pronounced, a sample not unlike many others sent in to Prof. Snyder from various parts of the west:

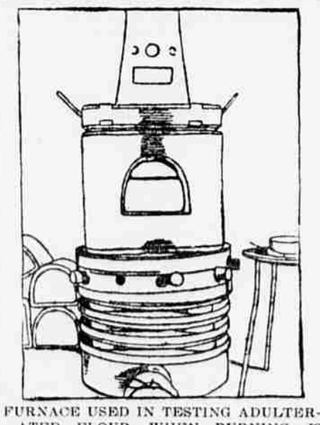
	Per cent.
Water	6.05
Ash	.25
Fat	.44
Gluten or protein	4.23
Starch	88.93

In this latter instance it will be seen that he who should eat bread from this flour would get 4.23 per cent of gluten, or protein, or life-giving power, as you wish to call it, one-third as much food value and one-fifth more starch than nature intended he should have.

The adulteration of one of the most important elements in the food of the nation is not lightly to be ignored; its detriment to the race, physical and in large measure mental, will be in direct proportion to its extent. You may produce a cadaverous Chinese laborer on this adulterated bread, but it will never make an American of the type of which America is proud.

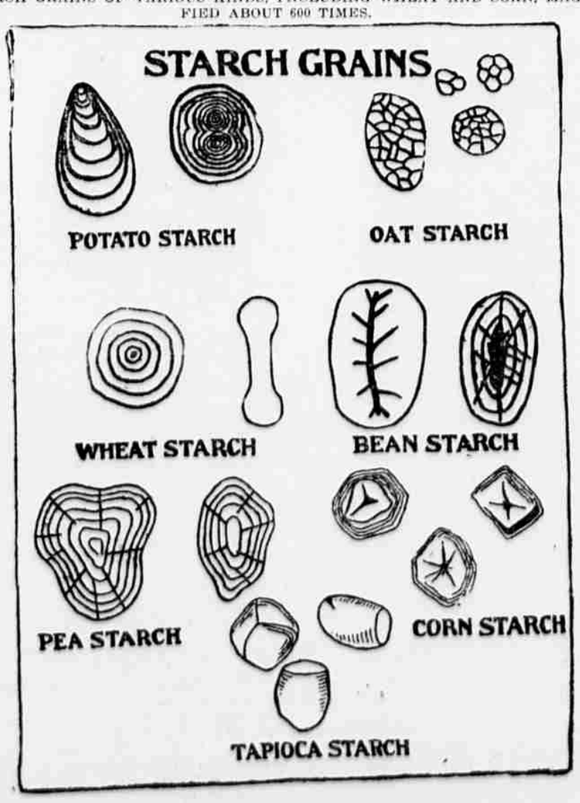


PROF. SNYDER EXAMINING ADULTERATED FLOUR WITH MICROSCOPE.



FURNACE USED IN TESTING ADULTERATED FLOUR WHEN BURNING IS NECESSARY.

STARCH GRAINS OF VARIOUS KINDS, INCLUDING WHEAT AND CORN, MAGNIFIED ABOUT 600 TIMES.



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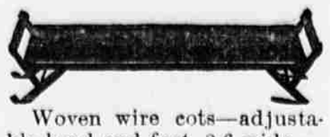

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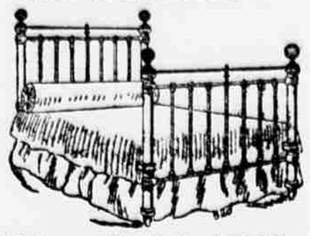

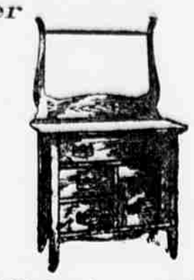

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Hot Weather Collars, Lounging Coats, Quaint Ties and Other Articles Bearing the Approval of the Fashionable.

For the dog days and lounging at home loose silk coats are beyond all dispute the coolest and the most presentable negligee jackets possible. Ribbed Japanese silk, that will wash like a teacup, makes a coat that is wondrously comfortable when the thermometer is establishing a record every minute. These coats are made up on this side of the water or come from the hands of Japanese tailors, taught the art of them by Englishmen in the east, who give a deal of attention to dressing with reference to the climate. The silks they are cut from are usually in light summery tint and the shape of the garment is that of the long-tried and never-found-wanting blazer.

Last season a manufacturer bethought himself seriously of the incongruous appearance of his sex on the fashionable beaches and tried to push a suit made of stiff green and white striped goods that more nearly resembled bed ticking than anything else in quality and no man could justifiably bring himself to the point of wearing it. At one or two places this season have been seen what are called French bathing clothes. They show points worth adoption.

The elastic dark blue breeches are met at the knee by rough wool long hose that, like those of the eighteenth century, roll up over the knee and curl back to cover the elastic circles necessary for keeping them in place. Some distance below the hips falls a tunic of rough dark blue flannel, short sleeved, with a emallish collar rolling away from a vest of stripes and held at its point by a white sailor's necktie. This tunic may or may not be worn with a broad flannel belt, and it surely deserves to be introduced at every sea beach where men take their dip along with the women.

The Brown Straw Bowler.

The straw hat season came in without a flourish and few novelties. Over in England they have been trying to introduce a brown straw "bowler," as the Britisher fondly terms his derby. The straw bowler is far cooler than the flat sailor with its nearly air-tight crown, to which we cling on this side, and perhaps, if the Prince of Wales would consent to crown his royal head with a comfortable dome of cigar colored straw, men on two sides of the Atlantic would follow his cue.

Around about the summer resorts the fishing, cycling, driving contingent of the male population seem to prefer their very heavy light-weight pearl gray Alpines to the new smart Japanese cane sailors that seem the one venture the manufacturers have attempted in deviation from the conventional tough, yellow skimming-dish affair.

Many of the straw hats have their crown belts of black gros grained silk drawn at the side through perfectly flat black enamel slides, and a considerable showing has been made of the blue-banded cream straws and caps that are shaped exactly like the German flat cap. The crowns of these last are done out of cream flannel, the broad varnished visor comes well over the eyes, but such a covering is rather intolerably hot for our summer suns.

Correct Height for Collars.

Two and a half inches is the lawful height for collars, though men with long necks are entitled to linen bands two and three-quarters inches high. Against short-necked men this collar ruling goes hardly, especially when evening dress is worn, for then the collar must stand up quite straight, measure a trifle deeper in front than at the rear and the points under the chin can be pressed out and apart ever so little. Double collars, with round points, have, for all save evening hours, pushed the single band out of usage. Men even dress for afternoon weddings in double collars, wearing them usually at weddings with waterfall ties of soft silk in two stripes and those dark blue and white most often.

Everybody is buying and wearing a quaint little stock evening tie that is one of the most unreasonable small novelties ever brought out. It is made of white lawn of the sheerest dimity, long enough to pass twice around the neck and a half inch wider at the middle than at any other point. There is a button hole in the center of this widest portion and that is made fast to the front collar stud. The ends are thrown back, crossed at the rear, brought forward and drawn in front into the typical evening bow. Of course this folding and refolding of even the finest lawn gives the neck a bulky appearance, but the argument is that by such an intricate device the tie is withheld from ever slipping up or, even in moments of intensest excitement, from vanishing under the wearer's ear, since necktie side pins have proven but an abomination of desolation to men who have tested their possible good offices.

Remarkable Rescue.

Mrs. Michael Curtain, Plainfield, Ill., makes the statement that she caught cold, which settled on her lungs; she was treated for a month by her family physician, but grew worse. He told her she was a hopeless victim of consumption and that no medicine could cure her. Her druggist suggested Dr. King's New Discovery for Consumption; she bought a bottle and to her delight found herself benefited from first dose. She continued its use and after taking six bottles found herself sound and well; now does her own housework, and is as well as she ever was. Free trial bottles of this Great Discovery at Kuhn & Co.'s drug store. Only 50 cents and $1.00; every bottle guaranteed.

The deep flounces extending from a hip yoke or from the belt to the hem of the skirt are a very popular trimmings for summer silks, crepe de Chine, grenadine, barege, nun's veiling, etc. This fashion gives the economical woman an opportunity to utilize skirts already in her possession, to which she can add triple flounces of new material.

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