HOW TO SELECT EGGS.

In selecting eggs try them in a pan of cold water The freshest sink first Those that float are to be rejected; or shake the egg gently at your ear, and if you hear a gurgling sound the egg is bad. Eggs should be kept in a cool place To keep them for weeks grease with linseed oil and pack in either bran or coarse salt, with the small end downward.

SOFT BOILED EGGS.

Although one of the simplest form of diet, there is nevertheless an art in preparing a soft boiled egg, so great an art that every housekolder is advised to provide herself with an egg boiler. For most persons one minute and a half is allowed; others, again, only one minute, and yet others, two.

When soft boiled eggs are served there should be placed conveniently a pot of fresh butter, pepper and salt, also a plate of cold loaf bread.

POACHED EGGS.

One quart boiling water in a spider with a tablespoonful of salt. Break the eggs, one at a time, in a saucer and slip carefully into the water. Cook till the whites harden and remove with a skimmer. Place on toasted bread (1) and serve hot.

SCRAMBLED EGGS.

Break into a bowl a dozen eggs, salt to taste; one teaspoonful of butter and one cup of milk. Pour all into a spider (which has been dipped in water to prevent the milk from sticking) with a silver fork or spoon. Stir the egg constantly until the consistency of a heavy custard. Serve at once, else it will toughen. Sprinkle with pepper.

Canning Material for pies. — Two-quart cans are good, but, if your family is small, one quart cans are better. One of the latter holds materials for four pies, as thick as they ought to be. Pieplant or rhubarb is the first material of the season. To can rhubarb, peel it, cut into half inch lengths, cook in a porcelain kettle until soft, with a very little water. When soft fill your can and seal. Or peel, cut into ½ inch lengths, pack tight in a jar, fill with cold water and seal. Both are to be used as if fresh. A third recipe is to peel, cut into ½ inch lengths, and to every pound of the pieplant allow ½ lb. sugar. Make a syrup of the sugar and when thickened a little put in the pieplant and cook until thick before putting into the cans. Brown or maple sugar is better than white for this purpose This is for shortcakes in the winter. The children like it on their bread at school, and I don't think John will refuse some on his bread when he goes chopping.—(Adda Rondack.)

Orange Marmalade is a desirable and convenient addition to the winter stock of "sweets." To every pint of granulated sugar allow one pound of oranges before peeling, then pare off the yellow rind only, avoiding the bitter inner skin of half the oranges, and put over the fire in cold water sufficient to cover; cover closely and simmer till tender; do not boil rapidly. Grate off the yellow rind of the remaining oranges and set aside; halve the oranges and squeeze out all the juice and pulp, rejecting the seeds and white skin. Put the sugar into a porcelain kettle, and to each pound add one pint of cold water; allow the frothed white of one egg to every three pounds of sugar, add while boiling, and skim till no more impurities rise. Cook for twenty minutes, or till thick and clear. Then take the boiled parings and put into a wooden bowl, and pound to a paste with a potato masher, put them into the syrup and stir and boil ten minutes longer, then add the pulp, juice, and grated rind; boil all together for half an hour, slowly stirring often, till it is a transparent mass. Correctly made, this is a condiment that very generally relishes, as well as a handsome dish of itself; but the merest bit of the white skin inadvertently left in will make it bitter. Lemons can be used in exactly the same way, but require at least one third more sugar. —*Katherine Armstrong, in Exchange.*

(1) Moistened slightly with hot water. Ed.

Tomato Catchup,—Slice the tomatoes, boil until soft, then strain and measure. To one gallon of the tomatoes add ¼ lb. salt, ⅛ oz cayenne, ½ oz cloves, ¼ oz. celery-seed, ⅛ oz cinnamon, ½ oz allspice, ⅛ oz ginger-root, ¼ oz garlic, 1 pint of vinegar. Use whole spices. Boil all together until reduced to thick pulp. Strain it, and when cool bottle and cork tightly. Tapioca is not a grain like rice. It is a starchy substance obtained by washing and scraping the roots of the cassava plant. Most of it comes, we believe, from Brazil. The cassava plant does not grow in the United States.

BITS OF PRACTICAL SCIENCE.

The rays of the sun kill disease germs on the surface, as in towels and blankets, but is insufficient for thick goods like pillows.

LAUGH.

There is absolutely nothing that will help you bear the ills of life so well as a good laugh. Laugh all you can. If the clothes-line breaks, if the cat tips over the milk and the dog elopes with the roast, if the children fall into the mud simultaneously with the advent of clean aprons, if the new girl quits in the middle of house-cleaning, and though you search the earth with candles, you find none other to take her place; if a neighbor in whom you have trusted goes back on you and keeps chickens, if the chariot wheels of the uninvited guest draw near when you are out of provender, and the gaping of an empty purse is like the unfilled mouth of a young robin, take courage, if you have enough sunshine in your heart to keep a laugh on your lips.

Farmer's Ad.

LAWES ON WHEAT AND TURNIPS.

By Jenner Fust.

(*Republished by request.*)

As I found lately, in a quarter in which I should not have looked for it, an utter misconception of the conclusions at which Sir John Lawes and his coadjutor Dr. Gilbert arrived after long experience in the cultivation of wheat and turnips, I propose to give an account of their earlier experiments in the use of manures for those crops, showing, 1st, why the experiments were undertaken, 2nd, by what means the land was prepared for them; 3rd, what the experiments were; and, lastly, what the experiments proved. If I succeed in my attempt, the reader of this Journal will see at any time by a glance at the analysis, whether any special manure which may be offered to him be fitter for one or the other of the two crops treated of in this article.

Somewhere about the year 1840, professor Liebig, of the University of Giessen, published his celebrated work on Organic Chemistry in its relation to Agriculture and Physiology, and thereby aroused such a spirit of investigation as had never before been known in England. Among other labourers in this field, Mr. John Bennett Lawes and Dr. Gilbert, commenced, in 1843, the systematic investigation of the action of chemical combinations when applied as manures to the most important crops of the farm; more especially devoting their attention to the proof or disproof of the starling announcement of what is commonly known as Liebig's *mineral theory;* which is embodied in the following sentence, to be found at page 211 of the third edition of his work on Agricultural Chemistry: "The crops on a field diminish or increase in exact proportion to the diminution or increase of the *mineral* substances conveyed to it in manure?"

In a subsequent edition of his work, Liebig still more strongly asserted the truth of his theory; for he says, speaking of the farms of England, "sooner or later they must see that in this so-called "mineral theory," in its development and ultimate perfection, lies the future of agriculture."

This then was the assertion which Lawes and Gilbert set themselves to disprove: That all that the cultivated plants on a farm required for their support was the mineral matters contained in their ashes!

The first idea that struck them was, that in order to discover what a certain piece of land required to be added to it to enable it to produce a crop, it would be as well to make a chemical analysis of the soil But, upon consideration, they were deterred from this by the reflection that the addition of a quantity of ammoniacal salt containing 100 lbs. of ammonia – an (1) unusually large dressing = 400 lbs. of sulphate of ammonia—to the acre, would only increase the percentage of ammonia in the soil by 0.0007 or $\frac{7}{10,000}$—the acre of land six inches deep being taken to weigh about 1,344,000 lbs. It is quite clear that no method of analysis would enable the chemist to appreciate the difference between the soil before and after the application. There, we see that they acknowledged at first starting the inutility of seeking to discover the productive power of a soil from its percentage composition, a position that I have maintained many a time in this periodical.

The next question that the two partners in these trials asked themselves was: In what condition should the land be to make it fit for replying fully to the inquiries to be propounded to it? Now, the answer involved the following considerations:

Some system or other of rotation is invariably pursued in British agriculture; what is called a *course* of rotation is the period of years which includes the circle of all the different crops grown in that rotation; as a general rule, in the course of rotation no two crops of the same kind are grown consecutively on the same soil. (2) Wheat, for instance, is never sown immediately after wheat, but only after some other crop has intervened, and at such a period of the rotation as, by experience. it is known that the soil will, by direct manure or by other means, have recovered its power of producing a profitable yield of that crop.

So, looking at these considerations, it was decided to begin the experiments on land that had just been put through a course of rotation, and which was, in consequence, in what may be called a *practically* exhausted state. And this exhaustion of the soil before trying experiments in manure on it, I esteem of the very highest importance; for I am sure that the utter failure of many of the numerous experiments tried at some of our agricultural colleges, notably at Guelph, may be attributed to the neglect of this precaution.

Thus, it was determined after a full investigation to proceed by way of *synthesis* instead of by the *analytic* method, and in carrying out the inquiry it was decided to take Wheat as the type of cereal plants and Turnips as the type of root-plants. Beans were also experimented on, but as these are rarely grown in this province, I shall not describe that part of the work.

And in order to carry out the experiments in so full a manner as to be convincing to the most sceptical, it was determined to devote 14 acres to the continuous growth of wheat, and 8 acres to the continuous growth of turnips. My readers will please to remember that the experiments began in 1843, and have been continued, though on a much more extensive scale, ever since.

Let us, first, pay attention to the series of experiments on the manures supposed to be adapted to the growth of wheat; for it is here that, as I believe, we shall see more clearly than elsewhere the utter futility of Liebig's mineral theory.

No one doubts that, in the case of vegetation in a native soil, the atmosphere is found to be a sufficient source of the nitrogen and the carbon; but agriculture is essentially an artificial process; and we shall see that, especially as regards the production of wheat, it is only by the accumulation within the soil itself of nitrogen, naturally derived from the atmosphere, rather than of the peculiarly soil-constituents, that our crops can be *increased.*

We have seen that all the experimental fields were selected when they were in a state of agricultural exhaustion—they had grown, that is, the regular number of crops which constitute a rotation since the application of manure. In fact, the wheat-field was regularly scourged, for, since the manured turnip-crop, it had grown barley, pease, wheat, and oats, without any further manuring.

In the first season, the 14 acres intended for wheat were divided into about 20 plots, and it was by the *mineral theory* that Mr. Lawes was mainly guided in the selection of manures, ammonia being, at that time, considered of less importance. Rape-cake, containing, besides some minerals and nitrogen, a certain quantity of *carbonaceous* substance, in which both corn and straw so much abound, was added to one or two of the plots.

I shall not apologise for asking my readers to attend most seriously to the repulsive mass of columns of figures that will pass under their eyes in the tables that follow. I believe with all my heart and understanding that the whole future of the agriculture of all lands, after the first virgin fecundity

(1) 100 lbs. of ammonia = about 80 lbs. of nitrogen.

(2) In parts of Hampshire, Sussex, and other southern counties in England, I have known the rotation to consist of two root-crops, both fed off by sheep, and then two grain-crops, the latter of which is invariably barley sown down with grass-seeds. The reason for this is, that if the barley were to succeed a fed-off crop of roots on these soils it would lodge, destroy the young grass, and not be fit for the maltster. A. R. J. F.