that the white is the larger, but how many have any idea how much larger? As a matter of fact, the white is, on the average, nearly twice the weight of the yolk. In other words, roughly, one-third of the edible weight of the egg is yolk, and two-thirds white. More exactly, the average figures are: Shell, about 12 per cent. of the whole egg; white, about 58 per cent. of the whole egg; yolk, about 30 per cent. of the whole egg; or, of the edible portion the white constitutes 66 per cent., and the yolk 34 per cent.

Taking these figures in conjunction with the respective proportions of water in white and yolk, we see that, of the total solids of the egg, about one-third is contained in the white and two-thirds in the yolk; for the yolk forms one-third of the contents of the egg, and about one-half of the yolk is solid matter, so the solid matter of the yolk constitutes (one-half of one-third =) one-sixth of the total weight of the egg contents And, of the white, which constitutes two-thirds of the total weight, only one-eighth is solid matter; accordingly, the solid matter of the white comprises (one-eight of two-thirds =) one-twelfth of the total contents. The yolk solids, therefore, weigh twice as much as the white solids; or the yolk contains two-thirds, and the white one-third, of the solid matter of the egg, exclusive of the shell.

If the solids of the yolk and white were identical in composition, then the food value of the yolk of an average egg woud be about twice that of the white But the solid matter of the two is by no means identical, and, to explain the difference, it will be necessary to define some chemical terms probably not understood by some of our readers, though doubtless familiar to many.

If we were to remove all the water from an egg, or from a chicken, or a piece of meat, we should find that the remaining substances—constituting the "dry matter" or "total solids"— could be divided into two classes, those which will burn, and those which will not. The former constitutes the organic substances of the egg or meat, the latter the inorganic substances or "mineral matter." When the dried egg or meat is burned, the mineral matter is left behind as an ash, while the organic matter disappears (being converted into gases, which pass off into the air). But if, instead of burning out the organic matter, we were to extract the dried substance with ether or with gasoline, we should find that a part goes into solution, while the remainder remains undissolved. The part which dissolves in the ether or gasoline is the fat. Fat is one sort of organic matter. The undissolved residue contains the mineral matter (ash), but also a quantity of organic matter, more abundant than the ash, and quite different in composition and properties from the fat. In the case of the pieces of meat, the organic matter left undissolved by the ether is the lean of the meat, the muscular fiber of the animal. It consists of what we call protein or nitrogenous organic matter. Fat contains carbon, hydrogen and oxygen but no nitrogen. Protein is about one-sixth nitrogen, the remainder being mostly carbon, hydrogen and oxygen.

Food has two functions: First, the replacement of worn-out cellular tissue; second, the production of heat and muscular work. For the purpose of the second of these functions, the supplying of heat to keep the body warm, and of energy to enable it to work, fat is the most concentrated, the richest, of our foods. One pound of fat supplies nearly, two and a half times as much energy (in the form of heat or work) as one pound of protein or one pound of sugar or starch. On the other hand, protein alone can build up new muscular tissue in the growing child, or replace the used-up tissues of the body of either child or adult. Protein is thus the most essential, the most indispensable food. It must form a part of every diet. One could not live on fat alone, nor on sugar or starchy foods. Fat pork requires, as accompaniment, either some lean, or a vegetable rich in protein, such as beans or peas. Even fat pork and potatoes would not form a satisfactory diet, since neither contains more than a very little of the indispensable nutrient, protein.

The organic matter of the egg consists of these two important nutrients (protein and fat), but the relative quantities of the two are very different in white and yolk. The diagram makes this very clear. The organic matter of the white is practically all protein (albumen), with the exception of a minute quantity. The yolk, on the other hand, has twice as much fat as protein. If we leave the water out of consideration, we find the proportion of the dry matter in white and yolk to be as follows

	Protein.	Fat.	Ash.
White.	94	2	4 per cent.
Yolk	33	65	2 per cent.

Remembering that the yolk contains twice as great a weight of total solids as the white, we get a better idea of the relative quantities of each class of solids in the two divisions of the egg by multiplying the second line of the above table by two. On doing so, we find that the white and yolk of an egg have about equal quantities of ash (the yolk actually somewhat the larger quantity—see below.). and that the yolk has two-thirds as much protein and sixty-five times as much fat as the white. We can compare the energy-producing powers of the two by multiplying the fat in each case by 2½ (more accurately, 2.4) and adding the protein. Doing so, we find that the yolk has nearly four times the value of the white. From this very important standpoint, then, nearly four-fifths of the nutritive value of the egg is concentrated in the little yolk. In energy-producing value, or "fuel value" (as it is often termed), egg yolk is about the equal, weight for weight, of wheat flour, roast beef, or medium fat mutton; while the white is hardly equal to a poor milk. The egg, as a whole, is about equal in fuel value to its own weight of very lean beef.

When we leave out of consideration the shell, which, with the exception of about four per cent. of binding material—similar to that in hoofs and horns—is entirely made up of mineral matter of the same composition of limestone, the mineral matter of the egg, like that of other foods, comprises only a small proportion of the total weight. The ash of the white only amounts to about 4½ per cent., and that of the yolk to only 3 per cent., of the total dry matter. But as the total dry substance of the yolk is, as we have seen, nearly twice that of the white, the yolk actually yields a somewhat larger quantity of ash than the white. What is more remarkable and more significant is that the ashes of the two divisions of the egg are entirely different in composition. Those of the white are alkaline, those of the yolk are acid. The ash of the white consists chiefly of common salt, and the allied substance, potassium chloride. The yolk ash, on the other hand, is rich in lime and exceedingly rich in phosphoric acid

Phosphate of lime being the chief constituent of bone, egg-yolk is a food peculiarly adapted to the formation of bone, and therefore an appropriative food for growing children. Excepting milk (which has over twice as much) no other food contains as large a proportion of lime in its ash.

In respect to phosphoric acid, egg-yolk stands at the head of the list, the proportion of this valuable mineral ingredient being more than twice as great in the ash of yolk as in that of milk. Egg-yolk contains, also, a notably large percentage of iron, and the iron is present in a form in which it is readily absorbed and utilized for the enrichment of the blood. Hence, eggs are good food for anaemic persons. Regarding their value as food for children, we cannot do better than quote Hutchinson's words: "The great richness of yolk of egg in fat, in lime salts, and in organic compounds of phosphorus and iron, make it a peculiarly valuable food for young infants, especially those who are suffering from rickets, for it is just those very compounds which a child needs, and a rickety child needs them most of all." (Hutchinson, *Food and Dietetics*.)

Though rich in protein and fat, eggs, like meat, do not contain any of the other great class of organic food substances, viz., carbohydrates, but the protein and fat are present in eggs in a condition in which they are readily combined with food materials rich in carbohydrates, so as to form a properly balanced ration Among the food materials rich in carbohydrates are flour and other cereal products, rice, sago, tapioca, cornstarch, etc.

Both yolk and white flow readily, and are easily mixed into the batter of cake or pudding. Moreover, the white has the valuable property of being readily beaten into a froth to render cakes light or to form soft icings. This adaptability to a variety of treatments is one of the characteristics which render eggs so acceptable to the cook, who produces many delicious dishes owing their protein and fat largely to the eggs contained in them, but supplementing this protein and fat with such carbohydrates as sugar and the starch of flour, rice, sago, etc.

HORTICULTURE

Fruit Notes From The Kootenay

BY OUR OWN CORRESPONDENT.

The season of 1908 has been a year of progress and development as far as fruit growing is concerned. More trees were planted than in any previous spring. All of the nurseries were sold out of most of the leading varieties early in the season. Some of the newcomers and inexperienced growers have not paid as much attention as they should, to the needs of the young growing trees, but they are fast learning that this is absolutely essential. As Farmer Vincent used to say "Trees are like children. In the beginning they give us a great deal of trouble and worry, but in the end we are proud of them."

The energy and enthusiasm of the fruit growers was evidenced early in the spring by the reorganization of the Kootenay Fruit Growers' Association. They secured a practical fruit man of many years' experience from Hood River, Oregon, to act as manager, signing a three year contract with him at a high salary, and although for several reasons that we will touch on later, their operations have not been singularly successful from a financial standpoint, yet they are full of hope and determined that with a big pull, a strong pull,and a pull altogether, they may overcome the difficulties of selling and transportation that now lie in the way.

The strawberry crop, the first fruit crop on the market was a heavy one. For several reasons it was not as renumerative to the grower as in some former years. The Hood River crop was late, and that threw the berries of Hood River and Kootenay on the market at about the same time. Commission men also complained that the depressed financial conditions on the prairie had a bad effect upon the market. Pickers were hard to obtain, and as a result some of the berries became too ripe to ship, and as a consequence were thrown on the local market causing a glut. The berries shipped through the Association netted about $1.60 a crate. One grower placed letters in the crates as he sent them out requesting the consumer to write and let him know what kind of condition the berries were received in, and what he had to pay for them. He received seven replies all stating that the berries were delivered in good condition, prices ranging from $3.25 to $3.50 a crate in Winnipeg. Thus the producer only got half the retail price—a rather big leak. Some growers have become rather discouraged, while some of the perhaps, shrewder ones, have intimated their intention of doubling their area in strawberries affirming that if handled right they are extremely profitable. And indeed, this is amply proved by the well-known success of O. J. Wiggen the Creston strawberry king, who last year sold $4,300 off four acres.

Cherries were a fair crop and good prices prevailed. The production of peaches is not large enough to be considered commercially as yet. Plums, prunes and apples are a good crop. The B. C., Fruit and Produce Exchange reports having received a large apple order from Australia, but intimate they will not be able to supply more than about thirty cars. Of this amount the Grand Forks district will supply fifteen cars, being guaranteed $1,15 per box f.o.b.Grand Forks.

A large number of settlers have come in from the prairie and from the British Isles. Also a few from Washington, Oregon, and California. The latter maintain that land can be procured more cheaply in British Columbia, and the better market facilities also appeal strongly. Outside small fruits, the home market is not yet nearly supplied. Nelson wholesalers imported last year forty thousand boxes of apples alone.

The migrating of a large colony of Doukhobours under the leadership and direction of Peter Veregrin from Saskatchewan to Kootenay has been the subject of a good deal of both favorable and unfavorable comment. They have located on the east side of the Columbia River near Waterloo. Many citizens have expressed themselves as being desirous of in every way assisting desirable immigration, but that people of that class were not wanted. However, the Doukhobours have gone quietly to work, already have a lot of land cleared, and expect to have one hundred and fifty acres ready for planting next spring. In view of the aggressive and industrious way they are conducting themselves, and, as so far they do not appear to have consulted the fashion plates of the days of our first parents, public sentiment is regarding them in a new light. Peter Veregrin intimated to your correspondent that as soon as arrangements could be made, he proposed bringing out a large number more, about seven thousand in all. The great difficulty is to get enough good land in one place, upon which to locate the colony.

Much interest is being taken in the prize lists of the local fairs. Kalso Fair will be held on the 17th and 18th, and Nelson Fair 23–26th. The competition for the district challenge cup will be very keen at the latter fair.

Our Bird Friends

EDITOR FARMER'S ADVOCATE:

Much has been written both helpful and harmful of late about birds, and yet people do not fully realize the value of our little feathered friends. There is one bird here that few people ever see, but that is amongst our most active insect exterminators.

It is of the nuthatch I speak. A careful observer may often see this little bird flying about amongst the trees; hopping from branch to branch; clinging to the bark, searching in all the nooks and corners for its food, which consists of myriads of insects of all kinds.

The nuthatch is no larger than a canary. It is slate colored on the back and wings. Just over the eyes are two stripes of pale fawn-color, and the same color covers the under part of the body, shading from very light at the throat, to quite a deep shade on the breast. The tail of the nuthatch is short, and square, while the beak is long and straight, and very sharp.

Sometimes the nuthatch finds its way to the houses and stables up on the plains. There it catches all sorts of flying and crawling insects. Our little friend