poulterers have metaphorically done so. I know of but one poultrywoman who got good results from a wood stove, and she had a stove that took green chunks and yet kept fire well. Hens do not need artificial heat daytimes, while exercising, but should have it at night, if at all, when they are still and cold, unless we can invent some way to fasten quilts and puffs on them. When people dare trust fires in an outbuilding, away from their immediate presence and care, I would recommend coal or oil heaters, particularly the latter, which may be used nights only. I have taken some pains to make inquires, and find the Barler oil heaters stand very high.

Our West Salem Insane Asylum, under its efficient manager, of course has a poultry department. The first one in charge was a German patient, the only poultrywoman I ever heard of who was too clean. Her course was to turn out and lock out the hens, most of the day, while she scrubbed nest-boxes fairly white. On the earthen bottom of their large henhouse, she arranged a few flowerbeds and planted some evergreens. The male patient now in charge does as well as some sane poulterers. The interior of the house has been whitewashed, and he has mostly abandoned the stationary nests, all in one piece, and hooked a number of little boxes, in irregular order, to the wall. The hens, when within these, apparently think they are lost or hiding, and lay better than ever before. Their 150 hens, though in too small quarters for that number, are this year hopefully expected to furnish the entire product of chicken flesh and eggs needed for over 100 patients.

During my travels, I saw a flock running at large, consisting of 22 rough-looking hens and seven roosters, for I counted them several times. Any one familiar with the vigor of farm flocks, knows that was just six superfluous roosters, just six wasters. "Something for nothing" is what people hanker after, and the nearest approach I know of, is to keep fewer and better fowls, getting, from half the food formerly consumed, probably more eggs than before. A hen which stole her nest this fall, hatched twelve chicks out of thirteen eggs, when my adult flock was consisting of 35 hens and one rooster. A friend bought two settings of eggs last spring, which hatched only two chicks, a disappointment, even after due allowance for jar of travel, because her home eggs came out well. I told her of two settings I learned about at Lake Park, Minn., which were not set for a month or so, and left unturned, while their owner brought them from the East, round by way of the lakes. Nearly every egg produced a strong chick, and disposed of the superstition that eggs carried over water will not hatch. Travellers tell of a peculiar custom, on St. Antonio's day, in Zacatecas church, Old Mexico, when the people bring their animals to be blessed,—barking dogs, refractory cattle, and even unsatisfactory hens. Not a bad idea, surely!

Seasonable Hints.

BY JNO. J. LENTON.

Do not let the droppings remain in the fowl house.

A good laying hen will frequently lay her weight in eggs in six weeks.

It is far better to be sometimes deceived than to be always suspicious.

If there is any one thing that the hen louse despises it is kerosene oil, the smell of it makes them walk lively.

A cure for frosted or frozen combs and wattles, is equal parts of turpentine and sweet oil, applied twice daily as soon as discovered. Glycerine is also good.

The catch-penny methods practiced by some who have no reputation to lose, is bringing discredit on the trade in fancy poultry in this country. What is the remedy?

Don't fail to add new blood to your poultry yards this season. It is necessary to keep up vitality in the flocks, and in order to do so all that need be done is to purchase other males.

Farmers who do not care to invest in full-blooded fowls may, with advantage, procure eggs to hatch, or breeding cocks from parties having Minorcas, Wyandottes or Plymouth Rocks, etc., and thus infuse the blood of the breed selected into that of their common stock, and largely increase their value.

A breeding pen composed of hens three or four years old, mated with an active young cock or cockerel, will produce more males from their eggs than a pen made up of pullets and a mature cock. So a close observer says.

No single breed of fowls will answer all requirements. If the object is to secure eggs without regard to the sale of fowls, a non-sitting breed is best. If broilers and table fowls are the object, the market breeds should be preferred. As a table fowl, a good fat duck is not to be despised by any means, and many epicures consider them superior to any other food, and for this reason they are never a drug on the market; they command good prices at all seasons in any of the large city markets.

A cheap and convenient disinfectant may be prepared by mixing one bushel of finely sifted dirt and one pound of chloride of lime. If fine tobacco dust be added it will assist in preventing lice. The dirt so prepared may be dusted over the floors or on any portion of the poultry-house, and it will greatly assist in keeping off diseases and vermin. The cost is but a trifle.

If you have not been very careful, your fowls are lousy, and if you find them so upon examination, exterminate the lice at once, by dusting the fowls with some reliable insect powder, or by adding it to the dust bath. Wash off the roosts with coal oil. If this does no good, write to us, and we will advise you personally by letter.

SHALL WE FEED SCREENINGS?

We often wonder at the advice given in poultry journals to feed wheat screenings. At the first glance this might be taken for good advice from an economic point of view, but let us see if it is. Wheat screenings is everything except good, sound grain. In it we find dirt, chess, cockle, weed seeds, and shriveled and partially developed grains of wheat. If a good, sound grain is found it gets there by accident, for the object in running the wheat through the screens is to separate the good from the bad. Screenings are fed by most persons because they are "cheap." Screenings will sell, say at fifty cents per bushel, while good, sound wheat can be had for sixty cents. Now, judge for yourself, which is the cheaper? this filthy, unwholesome stuff at fifty cents per bushel, or good grain at sixty cents. By using the former you not only run the risk of seeding your place with all sorts of weeds, but you also bring disease among your flock, caused by unsound grain. Much indigestion, bowel disease, cholera, etc., can be traced to feeding just such feed as this. Always feed good, sound grain, for it pays in the end.

MOULTING.

It frequently happens that a few fowls of a flock are late in moulting. Especial care should be taken with these, as when they do not moult until late in the season they are more or less liable to contract diseases, especially roup. The older the fowl, the longer the period of moulting is prolonged, and the later in the season it occurs. It will pay to look after them now. Fowls that are not yet through moulting ought to be put where they can have attention, as their vitality is reduced, appetite poor and the system run down. They need to be built up by giving stimulents and appetizers. During cold fall weather, and damp, chilly nights, the fowls really suffer more in their spent condition than during the severity of winter, when the air is dry and the birds full feathered. They should have warm and strengthening food. Warm mashes, savored with pepper, salt and considerable grease, give tone to the failing appetite, and encourage a steady growth. A plentiful supply of animal food is also good. Iron in the drink is of service, but do not "dose" too much, only sufficient to tone up the failing appetite. Frequently a change of food will be sufficient to give an appetite, but it must be nourishing food, as well as a change.

ENTOMOLOGY.

The San Jose Scale.

(*Aspidiotus perniciosus*, Comstock.)

BY JAMES FLETCHER, DOMINION ENTOMOLOGIST, OTTAWA.

The accompanying figure gives a representation of a small branch infested by the San José scale, a most injurious fruit-pest, which, during the past

year, has been detected in an orchard in British Columbia. Steps have been taken to secure, if possible, its eradication before it spreads any further.

This insect has had attention drawn to it of late by its unexpected appearance in injurious numbers in the Eastern States, during the summer of 1893, and the Division of Entomology at Washington, under the direction of the United States Entomologist, Mr. L. O. Howard, has, during the past summer, adopted such vigorous measures to combat it, that there is reason to hope that in all the localities from which it has been reported the insect has either been eradicated or brought under control.

Up to 1892, the San José scale was thought to be confined in North America to the Pacific States, where it has shown itself to be a most destructive enemy of the fruit grower. It was first brought to California on fruit trees imported from Chili about 1870, and the name, San José scale, was given to it by fruit shippers in 1873, from the name of the place in California where it was first noticed. It spread rapidly for seven years without any particular attention being paid to it. In 1880, however, Prof. Comstock pointed out the great loss which it was causing, and gave it the specific name *perniciosus*, for the reason that he considered it to be the most pernicious scale insect known in the country. It not only swarmed in countless numbers on fruit trees in certain orchards, but infested nearly all kinds of deciduous fruit trees grown in California. In a special circular, which Mr. Howard issued last year, when the insect appeared in the States of Virginia and Maryland, he says as follows:—"In the course of twelve years the insect spread through all the fruit growing regions of California, through Oregon and into the State of Washington. It is known as the worst insect pest of deciduous fruit trees on the Pacific coast, and has caused great pecuniary loss. Many crops of fruit have been ruined, and thousands of trees have been killed."

The above quotation shows what a serious pest this insect is, and it is of great importance that fruit growers in Canada who may find suspicious insects on their fruit trees, should send specimens without delay, either to the FARMER'S ADVOCATE or to the writer, for examination, as any neglect of indifference in such matters may result in enormous losses for themselves, and the country at large. Many of our injurious insects might have been controlled with comparative ease, had they been detected on their first introduction, and the proper steps taken to eradicate them.

The following is a description of the San José scale:—It is a scale insect, and belongs to the same group as the well-known Oyster-shell bark-louse of the apple, but may be easily distinguished from that species, and, in fact, from all Eastern species found upon fruit trees, from the fact that the scale is perfectly round, or, at most, very slightly oval. It is flat and adheres closely to the bark, which it resembles in color. When full grown, it is about one-sixteenth of an inch in diameter. In the middle of each scale there is a small black or yellow point. When occurring, as the scales frequently do, in large numbers, on twigs or leaves, they lie close to each other, in many cases over-lapping. They are then difficult to notice without close examination, as they merely give a grayish, slightly roughened appearance to the bark, as though it had been dusted with ashes. When the scales are crushed by scraping, a yellow, oily liquid appears, and this will at once indicate that the scales are living.

During the winter, the insect is in the half-grown or nearly full-grown condition. The young begin to hatch and to crawl from under the female scales, shortly after the trees leaf out, and from this time through the summer there is a constant succession of generations. The young lice are at first very small, yellow, crawling creatures. For a few days only are they able to move about, during which time they spread out over the new growth of the tree. They then pierce the bark with their beak, and remain in that place for the rest of their lives, each one protecting itself with a waxy scale, which is secreted from its body.

This insect affects not only the young twigs and limbs, but is also found upon the leaves and the fruit.

REMEDIES:—When trees are found to have become badly infested, the safest and most economical course will be to cut them down and burn them. Where the attack is less severe, insecticidal washes may be used successfully. From the experiments which have been tried in the United States, it has been found that the ordinary kerosene emulsion, Riley-Hubbard formula, is an effectual remedy, where carefully applied.

Mr. Howard says (Insect Life, Vol. VII., page 161):—"Remedial work against this insect is onerous; but our experience has shown that three sprayings, at intervals of ten days during the latter part of May and June, will practically destroy the insect. Whether the spraying be conducted with very considerably diluted kerosene emulsion, or with a resin wash, while during the winter, a single application of either of the three winter washes mentioned below will greatly reduce the numbers of the insect. Among the winter washes, our experience leads us to give the preference to strong kerosene emulsion, next to the winter resin wash, and finally to the lime, salt and sulphur mixture."

Mr. Howard also reports with regards to some investigations made by Prof. J. B. Smith, in New Jersey, that this latter gentleman "visited a locality at Atglen, Pa., and found that in an orchard of over seven thousand trees, all of certain varieties, and a few of others, were infested by the scale. As a result of his recommendations, kerosene emulsion has been applied three times to most of the trees, at intervals of ten days, up to the first week in June. The treatment has been absolutely successful." And Prof. Smith himself says (Insect Life, VII., page 167):—"Kerosene emulsion diluted nine times has been used successfully in one case on the mature scales, just before the young larvæ emerged. Diluted from eleven to fifteen times, it has proved ineffective against all the scales on the trunks."

It may not be amiss to repeat here the formulas for the preparations mentioned:—

KEROSENE EMULSION:

Coal oil	2 gallons.
Common soap or whale-oil soap	½ pound.
Water	1 gallon.

Boil the soap in the water till all is dissolved; then, while boiling hot, turn it into the kerosene, and churn it constantly and forcibly with a syringe or force-pump for five minutes, when it will be of a