Scientific Poultry Raising

The Road to
Wealth,
Health and
Happiness

By A. R. Bowers

SCIENCE APPLIED TO POULTRY RAISING

A. E. BOURKE
POULTRY EFFICIENCY EXPERT

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PREFACE

Scientific farming has transformed the over-worked plodder to an affluent aristocrat.

Science, when applied to stock raising has been fully as beneficial. What about poultry raising? Why is it that science is not applied as well as in other branches of endeavor? Why does all scientific farmers agree on all problems of farming? True, some are more successful than others. Why? Because some are more scientific than others. Did you ever see any great number of poultry-raisers agree on poultry raising? Of course not. Why? Because science is not being applied. If science were applied to poultry raising all would agree. You may rest assured that there is an exact science governing poultry raising. That is what has prompted this little book. If its precepts are followed there can be but one result, and that is—Success.

THE AUTHOR.

SCIENTIFIC FACTS

The world is divided into three kingdoms—mineral, vegetable and animal. First comes the mineral kingdom, because from it sprung the other two kingdoms; and without the first nothing animate or inanimate can live.

First let us understand what composes the mineral kingdom: The whole earth and all that it contains (without the vegetable and animal kingdom) even the gases surrounding the earth—oxygen, nitrogen and hydrogen, even water (rain) is the offspring of minerals. Oxygen and nitrogen, which we have all about us, which is the air we breathe, while hydrogen floats around in clouds or stratas, and when these clouds or stratas of hydrogen are broken up by any air disturbance, and comes in contact with the other gas (oxygen) water is formed and rain is the result. So then rain is the offspring of mineral gases, and is, in truth, mineral, or a combination of minerals.

When this rain falls upon the earth it causes at once a chemical action, the result of which is a growth of vegetable life, and having for its parents mineral earth and mineral rain it must be in turn mineral, or a combination of minerals. Furthermore, these vegetable plants, with their roots extending into the earth, getting their life-giving properties from the minerals of the earth, and rain from the skies, and the air that it breathes (oxygen and nitrogen) it must be in turn the essence of minerals.

Now let us go a little further: this vegetable life gives in

turn life to animals. Now if animal life gets its sustenance from plants which are mineral, drinks the water which is mineral, and breathes the air which is mineral, it is quite plain that animal life is composed of minerals.

Now you may say what has all this talk of minerals to do with chickens? Well, be patient, I am coming to that, and this first subject must be understood before we can proceed and be master over the care of our chickens and properly care for them. And not only chickens but all animals are governed by the same laws.

What we need to know most of all is what are the minerals which are the most beneficial or necessary to the animals which are under our care? That is logical, is it not?

Well, then, let us proceed and find out.

Did you ever notice that in the spring of the year, in California, with the first rains, all nature revives, the grass and vegetable plants come to life, after a long dry and dormant period, and when all animal life has been living under artificial or unnatural conditions; when their physical condition is away below par, how quickly they revive when turned loose to feast upon the young and tender shoots of grass, plants, etc.

Why? Because these young plants are heavily charged with sap, (essence of minerals) which is so indispensible to the physical make-up of animal kind. Anyone who has lived in the country can testify to the wonderful reviving properties of vegetable growth in the spring of the year, when all

animal kind comes up to its best and remains in that condition until these reviving conditions cease to exist.

TEN MINERALS

There are ten elements (minerals) which are necessary to the growth of useful vegetables or plants; plants that in turn will give and sustain life to animals which have an affinity to the human race. These elements are oxygen, nitrogen, hydrogen, carbon, iron, sulphur, potassium, magnesium, phosphorus and calcium. Five of these elements seem always present in the soil in quantities necessary and inexhaustible; they are carbon, hydrogen, oxygen, iron, and sulphur. Of the other five elements (minerals) some of them may be absent from certain soil or locality or may have become exhausted by the growing of certain crops which will absorb one or all of them. These elements (minerals) are magnesium, potassium, phosphorus calcium and nitrate. The scientific farmer knows when any of the last named elements are absent in his soil and he at once applies the required minerals (fertilizer) and practices crop rotation.

Having discovered one of the secrets of plant life, and knowing that all of the above-mentioned minerals are indispensible to their growth, and perpetual welfare, what about ourselves and our domestic animals?

Don't our very existence depend upon the vegetable kingdom? Of course it does.

We have discovered that certain elements (minerals) are indispensible to the life and growth of the vegetable plant which we must have for our own life and growth; do we understand as clearly the importance of minerals in our daily life? I am fearful that this knowledge or information has been neglected to a great extent; to the great sorrow, suffering and loss to animal kind. But it is not too late to look into this great problem. To go into full details it would, I fear, take too much space and I do not believe that it would do any good to the average person; so I will content myself with a brief explanation, and leave it to the reader, if he has any inclination in that line, to read between the lines, and I predict that it will be found a very interesting subject.

Animal kind, like vegetable plants, must have its proper quota of mineral elements for its normal growth and health; and if any of these elements are absent in the food of the animal that animal will not be normal; it will become a prey to disease, may possibly linger along under abnormal conditions, and it will be short lived. But, given all of its natural elements, each animal will live its allotted life (barring a violent death) in a healthy and natural way.

It is conceded that practically all diseases come from one source, and that is poison in the blood, or impure blood; and impure blood comes from faulty digestion. Indigestion is food passing through the system without being properly assimilated, for the lack of the necessary mineral or minerals in the system.

Now it is up to us, like the vegetable grower, to supply the missing mineral or minerals.

You may ask, can it be done? Of course it can, and if you carefully read on I will lead you to that point, where you will have that simple knowledge, a knowledge which is indispensible for the successful carrying on of general farming and animal husbandry.

THE MISSING MINERALS

In a previous chapter I called your attention to the effect which spring vegetation had on the toning up of the animal kind. You will also note in another chapter I mention that it took ten known important minerals to produce vegetable plants essential to the life and welfare of animals with an affinity to the human kind. I will beg of you to follow me closely on this subject, for it is important to get that clear in your mind so as to appreciate the bearing it has upon the health and general welfare of the animal kind.

In passing, allow me to make an explanation as to why I mention animals which have an affinity to the human kind. There are minerals which are very poisonous to the animals which have an affinity to the human kind, and these poisonous minerals produce vegetables that are in turn poisonous, and there are animals which thrive upon these poisonous vegetables; and in turn these animals are poisonous to our kind. That is the reason why I have made the distinction, so from

now on I will only mention animals, but always bear in mind that I mean animals which have an affinity to the human kind.

Now, as I have said before, the rain or melting snow, which is the same, (contain the same minerals) coming in contact with the earth minerals, produces a chemical action, dissolves or extracts essences of the various minerals which are indispensible to the life of the vegetable plant. In turn these plants spring up with new life, getting their life-giving properties into their blood (sap), through their many roots, and up into the general circulation of the plants sustaining the plant up to its allotted life; unless it has been prematurely destroyed through some unnatural causes.

Now why does this great phenomenon which is so beneficial, or in truth indispensible to the animal kind, occur at this particular period? Simple after you have looked into it and understand it.

It is certain minerals that remain in the plant only for a short time, or, in other words, while the sap is running in the various species of plants, but as soon as the sap ceases to run then these certain minerals, essences, passes out of the plant, evaporates into various gases into the air. We will not follow these minerals any further, for it would be a long and tedious job, for they are taken up and combined with other elements and come down again in due time under other names, to continue their good work.

We have noticed that as long as the animals feed upon these tender blades of grass and shoots their bowels are de-

cidedly loose, or, in other words, it acts as a purgative, and that is the time that they do their best. (Note—Please remember this laxative condition and its beneficial effect.) That is the time when the mammals of all kinds give the most milk. Our hens revive back to health and laying, and continue to do so as long as those favorable conditions last; but as soon as it ceases the milk flow stops from the mammals, the egg yield stops from the hens, etc., and they revert back little by little to their sickly, unnatural condition, until the following spring, if they have lived through the ordeal.

OVER FAT

Abnormal fat is a sign of an unhealthy condition, caused by a sluggish liver, for a normal, healthy fowl is never fat, nor under fat, but they are plump, hard and muscular. If a fowl gets over fat and is not killed she will very likely die suddenly or linger along and waste away until there is nothing left of her but the dry frame and shaggy feathers. This is called going light; so keep the liver of your fowls active. (Follow formula.)

SCIENCE TO THE RESCUE

Through untiring investigation science comes to the rescue to help these unfortunate animals. I will cite one branch of our animal husbandry:

To the modern cattle or dairy man the silo is probably one of the greatest improvements of the age, as by its use many lives are saved and the animals kept in a healthy condition when the natural resources have failed.

How it works: The vegetable plants which are used to fill the silo are cut just at the time or just before the time the sap stops running. It is harvested, cut into proper size and carefully packed into the silo, which is positively air tight, so as to preserve all of the mineral essences. After a short interval of time, which it takes for the chemcal action to take place, the ensilage is ready for use; and what have we got? We have practically the same condition which is manifested in the tender plants in the spring of the year. When fed to cows they keep on giving the same quantity of milk which they did under spring conditions, and it has been demonstrated that a cow can be kept with practically the same flow of milk for three years without calving but once. Besides the animal fed on this ensilage is kept the year around in perfect health; and the mortality has been reduced to practically nil, while in the old way, when the cattle roamed at large, the mortality was anywhere from 10 per cent to 25 per cent, even more when the seasons were abnormal.

I hope thus far that I have made it clear that there must necessarily be some certain elements which are missing in the old style of feeding fowls. You may rest assured there is; and what are these elements which are missing? The

first and principal one is magnesia, next sulphur, iron and potassium.

In what form and in what way and when these different elements are to be given I will go into, in detail, in another chapter.

EGGS AND THEIR MATERIAL COMPOSITION

Eggs when analyzed will be found to contain various elements which are classified and given each their proper technical names. But for the purpose of imparting a clear, plain understanding of what effect different foods have on the physical make-up of an egg I will use only two terms. a lean egg and a fat egg. We all know that there is a vast difference in the flavor and food value of eggs. A lean egg may contain 90 per cent of what is termed water to 10 per cent of what is termed fat, while a fat egg may contain 70 per cent water to 30 per cent fat. Now what is the cause of this great difference? Well, I will try and give the explanation in a plain and comprehensible manner without going into technical terms, which are, as a rule, more or less confusing to the average reader. An egg is composed of the various elements which the hen has been eating, or the essence of those elements. We will, for instance, feed a hen on certain food the flavor of which is disagreeable to a person, and when eaten the disagreeable flavor will be

detected in the egg. Take onions, garlic, fish, etc., if fed to hens in quantity will impart their flavor to such an extent that the eggs are positively objectionable to the average person. Even the flesh of the fowls takes the flavor of what is eaten. Now that this point is clear let us proceed. The modern poultry plant, as we know it today, where in most cases the fowls are kept in great number, in a small enclosure, their food is brought to them and doled out to them in what is known as a balanced ration. These balanced rations are composed of very rich, dry, concentrated foods, producing an egg rich in fat, very pleasant to the taste but lacking the essential life-giving properties which are only contained in the lean egg, which I will now describe. The lean egg is an egg which has been laid by a hen that has been feeding on tender blades of grass, succulent vegetables, and little dry grain. These eggs will be lean, containing little fat and will not have the pleasing flavor of the fat egg; but you may rest assured if you are using eggs for medicinal purposes, you will get the desired result from the lean egg, while you may aggravate your trouble with the fat egg. Maybe this is something new to you, so probably you wish more proof to convince you. I could give you stacks of proofs, but a few will, I believe, be sufficient to enable you to look up your own proofs, which you can easily do and you will not find them lacking.

In another chapter I mention that fat animals and very lean animals are the result of an unhealthy condition and the same is true of an egg, for an egg is the embryo of an

animal; so if it is fat the embryo is in an unhealthy condition, similar to what it would be if it were full grown; and that egg soon spoils, if not kept in cold storage, while the lean egg will keep for a long time. I have seen eggs layed by hens in tropical countries, hens which lived in a natural way, fed mostly on vegetable diet, when the eggs were kept in a room where the temperature averagd 85 degrees for six weeks, and yet be fit for human consumption. The contents of a lean egg is not solid like a fat egg and it dries up quickly and the contents may be shaken but it is not spoiled.

EGGS FOR HATCHING

If you wish to produce eggs for hatching purposes and your desire is to get big hatches of strong, healthy, robust chicks, then you will have to feed your hens a vegetable diet in order to produce a lean egg. That will contain the essential mineral elements which the embryo must have in order to develop and grow into a normal fowl. A lean egg has all the necessary elements which is needed to make a normal chick. The white of the egg (albumen) is what is used up to make the body of the chick, while the yolk is what feeds the chick when the digestive organs are formed, and the balance of the yolk will be absorbed through the navel just before the chick breaks out of the shell, and that yolk will continue to nourish the newly born for two days after it is hatched, when the yolk will be completely utilized

and digested. Then the chick is ready to take other nourishment that is appropriate to its nature. While a fat egg not only lacks some of the vital elements needed to produce a normal chick, it makes an over-fat chick, which means a chick born with a sluggish liver, indigestion and bowel trouble, and most poultry raisers know the hard job it is to raise to maturity such chicks. In the course of incubation the embryo dies at all stages of the game, principally just before the hatching time. They will be hatching for as long as two days, when it should not last more than ten hours from the time the first egg pips till they are all out, which will be the case with the lean eggs; and perchance there are eggs in this lot of fat eggs which were produced by a hen that was more partial to what little green food was doled out to the flock and she at once produced an egg which was better fitted to hatch a healthy chick, and produced a chick that will stand a better show to live. Another point or two I wish to make and then I am done on this subject: If you are incubating lean eggs you will note that the air cell of the eggs are about one-third the size of the eggs on the eighteenth day, and that is what they should be, and they will be practically all alike in that respect, all large air cells, giving the chick a chance to pip its way out; while fat eggs, no matter what you do with the ventilator or artificial moisture, you have mostly very small air cells, although in a few cases you may have a few with larger air cells, due to some of the hens having eaten more green food than the others, and the ones with the larger air cells are the ones which hatch on time

and produce the best chicks, while the others either don't hatch or hatch a cripple, either outwardly or inwardly, but certainly a poor, sickly chick, which will be hard to raise if it can be raised at all. And still more proof: Take eggs which have been layed by hens that have had no green food of any kind, and you will find that not one of the eggs can be hatched; but if by chance one should be hatched it will not live long after coming out of the shell, for it has not in it the vital essential minerals. You will also note when these chicks die, whether it be in a week or a month after they are hatched, they will still have the undigested yoke in them, even hens two or three years old will be found with the undigested yolk, but grown to enormous size, it having taken on the form of a sort of a tumor.

INCUBATORS

I do not claim that any old way of incubating will successfully hatch the lean eggs; not by any means. There is a fixed law governing incubation but that branch of the poultry business I am not going into in this booklet. That is a knowledge which I will go into with those who desire to make incubation a specialty, or to the manufacturer of incubators. There is a law governing incubation, you can rest assured, and that law is not generally understood; at least I have not yet met with any who understood it; nor have I seen any incubators which were built on the right lines, nor

have I seen instructions which went with the incubators which showed that the makers had had any knowledge of the law governing incubation. For proof of what I have stated I desire to remind those who have been operating any one make of incubators or of the various makes, to note that each year brings forth a new set of directions, and in most cases radically different from those of the previous year, as well as radical changes being made in the make-up of their incubators. We all know that nature's laws, or science, does not change from year to year to accommodate the various notions of Tom, Dick or Harry; then why the continuous changes? I will leave it to you to answer. I know that you will see my point.

As I have said before, I am willing to instruct and give this information to those who are interested, and they can take the matter up with me and we can arrange date, terms, etc.

In concluding this chapter I desire to say that having proper eggs, as before mentioned, and an incubator properly constructed and operated, you will hatch more and better chicks than in the nature way. Why? Because in the nature way not every hen is a good setter, that we all know, while the mechanical setter will attend to the job at any time, and all the time, if given proper attention by a competent attendant, and will bring forth its quota of large, fluffy chicks which will live if given half a chance; and last, but not least, it will build up generations of hens which will have a constitution to assimilate food that will go to making eggs, which is the aim of all poultry-raisers. With proper stock,

and knowing how to take care of it, and then practice what you know and success is yours.

ALFALFA

For some reason alfalfa has been recommended by most authorities on poultry as a valuable green food for chickens, but I must say that I take a decidedly differently view. It is true that alfalfa does contain some very highly nutritive properties, but given as an exclusive green food it wll prove to be a sad disappointment. Of course you will want to know why, after being told in many different instances that it was just the right green food for chickens.

To those who have been feeding alfalfa as a steady green diet, to the exclusion of other greens, such as kale, Chinese cabbage, chard, etc., it has been evident that there is more or less sickness, and quite often some very serious epidemic occurs, and frequently the flock is afflicted with worms. You know that this is true, and yet you have never located your trouble as coming from feeding of alfalfa.

Alfalfa is a legume, and all legumes get their life-giving properties from the air. It absorbs the nitrate out of the nitrogen of the air, which in turn gives life to the plant. Its blood (sap) is composed principally of nitrate which flows downward and is deposited in the soil, to the great benefit of the soil for other crops.

As I have said, alfalfa does contain certain valuable nutritive properties, but its sap is certainly injurious, not only to

fowls but to other animals that eat it. In fact, it is very dangerous, especially in the early morning when there is a heavy dew; that is when the legume plant gets its greatest ration of nitrate, and if animals partake of it at that time it will in most cases cause such an accute case of indigestion (nitrate poisoning) that if quick and drastic relief is not given it generally proves fatal.

When the alfalfa is cured into hay it is not so bad, because the essence of the nitrate is evaporated. It is then undoubtedly good for cattle, but for hen food I certainly would not recommend it.

A few more remarks about legumes, as a food:

The potato, which is a legume, is a very valuable vegetable for food, but it has been proven that it is undesirable to feed in large quantities to chickens. Why? Because as a rule the potatoes are cooked with the skins on, and the water in which they have been cooked is used along with the skins to mix into the chicken mash, causing indigestion (poisoning) from the nitrate in the skin of the potatoes; but if the skin is removed before cooking it becomes not only harmless but beneficial.

Beans and peas are also legumes and may prove harmful if given to fowls with the water in which they were cooked; but if boiled for a short time and then the first water poured off it will remove most of the nitrate, making them wholesome. If parched or roasted, then ground, beans and peas are very valuable food, as all of the nitrate is evaporated.

I think this is enough on the danger of feeding legumes in

a careless manner. Bear in mind that what causes the trouble is the nitrate which goes into the system, generating gas, and in some cases proves very disastrous. Many sudden deaths may be traced to eating some legume, in both human and other animals. The verdict is usually "heart disease," but in fact if it were known that it was gas pressure on the walls of the heart, causing the heart to stop beating.

For quick and efficient relief in the case of an animal being taken with an acute case of nitrate poisoning, as I call it, but better known as gas bloated, administer a large dose or doses if need be of the purgative. A dose for a cow would be about 12 ounces, or even more; there is no danger of giving an over dose. For small animals gives the dose in proportion; for an adult person one ounces is about right for quick action. Sometimes it has to be repeated, especially when the patient has a high fever. The principal thing is to get the bowels to move. It is safe and advisable to use the purgative on any animals or human, whenever there is a pain in the stomach, or fever.

If administered at once it will certainly end the trouble, no matter what caused it.

VEGETABLE DIET FOR EGGS

In this chapter I hope to make it clear to the reader that the maximum of eggs can be produced on a vegetable diet, or nearly all vegetable, except a small ration of grain

a day, if the vegetables are of the proper kind. They would be lean eggs, and not so desirable for table use, for the market demands fat eggs, which have been layed by hens fed on highly concentrated food. An exclusive vegetable diet, or nearly so, will produce a lean, watery egg, and often with an offensive odor. These eggs would be proper for incubation. So let us see what would make a proper feeding ration: First, hens will eat most all kinds of garden truck, either cooked or raw. We will take rutabaga turnips and stock carrots, cooked, are excellent, to be mixed in with the grain mash, even the veins of kale and Chinese cabbage leaves are good, to be chopped up fine or cooked and mixed into the mash. A few potatoes, cooked, not much, but a little, is very good to mix with the rest. If you are accustomed to feed, say nine pounds to the 100 hens of the balanced rations mash you can reduce that to say four or five pounds with the balance in cooked vegetables. Of course the bulk will be much larger than if you had all grain mash. In a short while you will learn just about what amount of vegetable matter to feed, and yet produce an egg that will pass muster on the market. Chopped up greens, raw, should be given twice a day, all they can eat up clean in one and a half hours.

As I have said before, hens will eat most all kinds of garden truck—onion tops in moderation (for they will taint the eggs), turnip and carrot tops, etc., but as a crop to grow especially for them, I recommend Jersey kale, Chinese cabbage, rutabaga turnips, stock carrots, a little squash and

pumpkin. All of these are easily grown, and can be had the year round.

ENSILAGE

I would recommend to the large poultryman, who keeps, say, 2,000 hens or over, that he looks up the feasibility of feeding ensilage to his hens. A small silo of a few feet in diameter, or it might be tried with whisky barrels—they ought to be cheap now. Chopped up grass, when it is green and tender, along with most any kind of wild weeds, which grow so plentifully at the beginning of the wet season, or spring, all may be used to advantage in filling the silo. I would recommend getting from the government a book on silo and ensilage. (Write to your Congressman, and he will gladly send you one.)

Or any company manufacturing silos or ensilage machines will furnish you with books which will give you all the information needed on the subject. These books are to be had for the asking.

A FOWL'S ANATOMY

As this booklet is written mainly for the benefit of poultry raisers, I will try and keep that subject from now on in the fore ground, only deviating from it when necessary to make a point clear.

A fowl's anatomy is practically the same, in all respects, as the anatomy of the mammal, which most of us understand more or less about; so if the reader will bear this in mind it will not be necessary to go into details as to the construction of the fowl. She has the same organs we have, if not just alike in construction, at least they perform the same function. We will take, for instance the digestive organs: they go through the same process as our own: the food must be mixed with saliva and gastric juices, masticated, mixed and churned to the proper consistency, so that when it travels through the intestines it can impart its life-giving properties which is being absorbed by untold numbers of small absorbers which line the insides of the intestines, absorbing the nutriment which goes to build up the different cells of the body. Now that which is absorbed is in reality essence of minerals, and what is left to be evacuated is solid mineral waste. All of this process will work to perfection if the fowl gets the proper quantity of each mineral that is indispensible to be normal. But if one or more of these minerals are lacking the fowl will not digest her food properly, the system will become clogged, causing fermentation, poisoning the system, which finds its way into the blood, when the fowl becomes an easy prey to the diseases which may be lurking around, and which are always present.

How can the average poultry keeper tell whether there are certain elements lacking in the poultry diet? By the general deportment of the flock. It may be at first they don't seem to get enough to eat; they are always looking for more and

not contented with what they have before them; and finally gradually losing their healthy looks. Their combs will begin to turn black, first noticeable at the tip; then the whole comb begins to shrivel up, turning pale; and finally entirely losing their appetite, and seeming to have lost all interest in what is going on about them, scarcely cares to leave the roost, never bathe, etc., etc. These are some of the infallible symptoms which cannot be mistaken. Of course it goes without saying that the egg production has ceased and your flock is liable to some epidemic that may prove very costly, so that instead of having a profitable business it has been turned into a disastrous and losing game. Then at the first symptom all you have to do is to give the required mineral tonic, as it is named for convenience, and fully explained later on.

Referring again to the organs of the fowl, as I have already stated, the fowl has the same organs which we have; the hen has two ovaries and when they begin to function, that is, to discharge, a multitude of egg germs are deposited into the egg sack or dock. At the time of this discharge if the hen is in prime physical condition these egg germs, or a certain number of them, will develop and will be laid; and the hen cannot help herself; it is a process of nature over which she has no control, and as long as the hen is kept in this prime physical condition the process will be continued the year around, with no intermission up to the time her ovaries cease to discharge, and that will be her alloted life, about fifteen years.

But if at the time of the discharge of the ovaries the hen

is below par, physically, these egg germs will perish and pass off, and it will be another month before this process will be repeated, and until the hen is physically fit she will continue to be sterile, or non-productive.

Note.—From the time of the discharge of the ovaries until the time the first egg is laid is about eighteen days.

PROLIFIC HENS

All hens are not equally prolific; some may be able to produce 30 eggs in 30 days, and it is recorded that a hen has produced 60 eggs in 48 days, thus producing two eggs a day for several days during the period, but of course these are wonderful exceptions. Other hens are not capable of laying more than 15 eggs in 30 days, but they will run from 15 to 30, and it is not uncommon for flocks of thousands to average during the most favorable months, where the flock is in good condition, 25 eggs per month, and this not from selected hens. Let me state here that there is no practical rule whereby a hen can be selected as a probable heavy layer, or a poor layer. I have seen some of the worst looking specimens turn out to be the best layers, while some of the best looking turned out to be sterile; and yet both give the direct lie to all established rules. I do not mean to insinuate that the worst looking specimens are the best layers, or vice versa; not by any means, but what I want to point out is that there are no set rules by which we can positively go by in selecting

the most prolific from those of a lesser degree, or sterile. The percentage of sterile hens, however, is so small that it hardly pays to try and ferret them out.

There is a way to tell, however, whether a hen is laying or about to lay, and that is by the pelvis bone, and that even, is not always a sure indication, as it may be that in certain hens the pelvis bone is unusually abnormal, and for some reason does not open, while in a normal hen when she is about to lay, and that means she is going to give birth, the pelvis bone spreads or opens, as it does in other animals. But, again, what is the use of all this talk about when a hen is laying or about to lay? Her general healthy appearance is a sufficient sign; her bright red comb, her normal appetite, her cackling, scratching, dusting and her general lively interest in the pursuit of her daily happiness; that is a sure and positive sign, and you know that it is so, because you are getting the eggs, unless you have a flock of pullets among them which are just coming on. Then you can rely on the other sign.

Now if your hens are spiritless with shriveled and pale combs, there is only one thing to do, and that is to tone them up according to formula until you get the desired result. It is up to you to provide what is needed, and if you don't you have no cause for complaint, but you simply have to take your medicine until you are capable of or willing to supply that which is needed to put them in normal or prime condition. Just like the gardener, if he fails to provide the proper fertilizer, water, etc., etc., to his plants they will be fruitless, sicken and finally die.

A few more remarks about selecting your stock for breeders will suffice on that subject. I certainly do believe that each poultry keeper should try to improve his flock, both as to uniform looks, for beauty as well as productiveness, for like breeds like, and what is more pleasing to look at than a beautiful lot of chickens of uniform appearance? So in making selections for breeders, have your ideal in looks, if possible, but be sure to select those which have proven to have been the most prolific. It can be done in various ways, and most poultry keepers know how, so I will not take up space on that subject. Don't forget, however, that a hen has two ovaries, and they work every month in the year, and there are mighty few that are sterile, and the poorest ones will give not less than fifteen eggs per month, and that kind are few, so you can figure it out for yourself, if you keep your hens in tip-top condition the year round they will give you eggs the year round, and that will be a good many more than 200 per hen.

DISCARDING HENS

It has been the general custom to send hens to market after the second or third year of laying. Why? The answer is because they were over fat and old, and non-productive in sufficient quantity to pay for their keep. In a way this is true, but let us see why they were old and yet so young. They have become prematurely old, because the allotted life of a hen is fifteen years and over.

What is old age? Old age is caused by the hardening of the arteries and the hardening of the arteries is caused by impure blood, and impure blood is caused by indigestion, sluggish liver and kidneys. Knowing the causes which produce these effects, then why don't we remove the cause and prevent the effect? And when you do you will find that your hens will be just as productive the last year of her allotted time to reproduce her species and that will not be less than twelve years, and she will not look any older than she did when she was at two years of age.

DISEASES OF FOWLS

I want to say first of all that I don't believe in diseases, and I hope to be able to instill the same belief to the reader of this book. Diseases in fowls is unprofitable and mighty disagreeable, and at times very costly to get rid of; so I believe in preventing instead of waiting to cure, as it is so much easier. However, I will point out what brings on diseases, although a fowl which is getting into its system the required minerals in a properly balanced quantity will, in a great measure, throw off or withstand the pernicious attacks of the various poisons. That is why you hardly ever see barnyard fowls, which have access to all the premises and surrounding fields, ever die of disease. Why? Because her system is, as a rule, well supplied with the required essential minerals, keeping her digestive organs in tip-top working condition, making her immune from any poisonous substance which may be intro-

duced into her system, along with her food and water, although the surrounding premises may not always be free of filth, such as I will now point out.

PTOMAINE POISON

Ptomaine poisoning is probably one of the most common causes of sickness and death in chickens. It causes more chickens to die than all other causes put together. In fact, there are few other causes.

What is ptomaine poison? In order to enable the average person to locate the trouble that affects chickens, I will here point out a common source of ptomaine poison. Musty food, straw or litter; decaying fruit or vegetables; tainted meat, milk or buttermilk. Shady or dark places where decaying wood or other vegetable substances will produce fungus, that will poison any food that will come in contact with it, or the gases coming up from it, this fungus may be under the floor of your hen house or brooder house. Wilted or fermented greens of any kind, will cause untold trouble. Sour, wet mash, grain and dry mash hoppers is often the cause of trouble if not cleaned out once in a while, especially in rainy weather.

Greens should not be thrown on the floor, for the fowls to tramp upon; it will surely bring on trouble. Greens should be cut and fed fresh.

Watering troughs should be kept clean, very clean, and

the waste water should be taken care of so it will not pollute the premises.

These are a few but common causes of ptomaine poisoning.

Ptomaine poison may cause sudden death or may be a lingering death, but in all cases it is indgestion, either in an acute or milder form, and if not attended to quickly may develop into one of the many diseases known to affect fowls —and in most cases hard to cure, but if taken at the least sign of indisposition, by giving the fowls a purgative, it will end the trouble. Hunt for the cause and remove it.

PURGATIVE AND WHEN TO GIVE

The poultryman should pay particular attention to the droppings of his fowls, as it is a pretty sure barometer of the condition of how they are digesting their food. If they are feeding on the right kind of green food their droppings will generally be right, that is, soft, and usually dark or black, with a very offensive odor, while if they are hard and dry, and occasionally some with yellowish or dark red and soft it is a sure sign of indigestion and bowel troubles. The yellowish indicates worms, the dark red indicates inflamed intestines, both caused by indigestion. You will also notice the fowls eating their own droppings, proof that it is undigested food. If you look into the dropping pile, that is if you clean the droppings every day, you will find maggots in the manure,

another sure sign of undigested food, because there could not be maggots in the droppings if it had been reasonably digested. So my advice is to always see that the droppings are kept soft and dark, or black, by giving them the purgative as often as need be to keep up that condition. If you are obliged to give the purgative every day, then give the tonic once every two weeks. It will keep up the richness of their blood; otherwise the blood may get too thin.

For dose of either purgative or tonic see formulas.

THE WORLD-RENOWNED MINERAL SPRINGS

We are all familiar with the health-giving properties of a vast number of world-renowned mineral springs. Those which contain in their composition magnesia, sulphur and iron are the ones which are positively efficient in the cure of any and all diseases that affect the human body; but unfortunately the population of the world cannot go to the springs, but we can at least avail ourselves of the minerals just as effectively in our own homes, not only to the benefit of ourselves, but to the animals depending upon us?

All that is needed is to know just how to prepare and compound these various minerals to get the desired result, and if used in time, I mean before it is everlastingly too late I have yet to see any sickness which it did not conquer if taken at home as faithfully as it would be taken at the springs.

Baths can even be prepared at home, getting practically the same result as one would if they were at the springs.

I may prepare a small book sometime in which I will go into full details of how I cured myself when all the doctors had given me up as a hopeless case, when I was dying of old age, crippled and afflicted with all the ailments which go with the breaking down of the human body, such as rheumatism, piles, nervous breakdown, sleeplessness, and all the pains which go with them; in other words I was dying with old age when I should have been in the prime of life. I had spent untold amounts of money to get relief, but to no avail. In desperation I decided to treat myself along the same lines as I had been treating chickens, and to my great astonishment I got relief from the first few days. Within three months I was apparently cured of all my ailments and I have not had an ache nor a pain since, and instead of an old looking old man, which I was ten years ago, today I am still what a man should be, a man in the prime of life. And aside from this I have had the pleasure to note the wonderful results it has accomplished upon others who were afflicted with the curse of pain-racking diseases such as the human body is heir to.

SOLUBLE, MAGNESIA AND SULPHUR

Magnesia and sulphur in their original state are not soluble with water, nor does it dissolve to any great extent when taken into the system. It has been known for untold

ages that these minerals were being subjected to a chemical process in the bowels of the earth and the essences of each come up to the surface of the earth and are known as magnesia and sulphur waters, and in some instances these two are found to be combined in the same water. But thanks to the science of chemistry both of these indispensible minerals can now be had in a soluble form. By a process of sulphuric acid on the rock of magnesia it precipitates the magnesia into a crystal, making it soluble in water, and this combination is called.....

BATH

There are very few poultry keepers who pay any attention to proper bathing facilities for their chickens. If proper bathing facilities are not provided for in the poultry yard all your other efforts in their behalf will be more or less wasted. What is the proper bath and what good does it do you may ask. I will answer the first by explaining how a bath should be prepared. Place in a convenient place an ample sized box or boxes to accommodate your lot of chickens. In these boxes put in clean, wholesome soil (not sand) at least once a week. Every morning prepare their bath as follows: To every gallon of water dissolve one-fourth pound of coarse sea salt and a pinch of permanganate of potassium. You then sprinkle this solution in their bath, mix it in the soil to make the soil moist. The soil must be kept in such a way that it is light and free from lumps. If

your fowls have a yard or run to go in these baths may be kept outside in convenient places, a shady nook preferred.

As to what good it does: First, it enables them to keep themselves clean and free of body lice and skin diseases. Second, it enables them to eat a quantity of this prepared soil which contains, after the addition of the above solution, minerals which are indispensible to their health and welfare. The soil itself contains certain minerals, and when the solution comes in contact with it a chemical action takes place, the result of which seems to be just the right thing for the fowl, just what she has been looking for.

People who can afford it take mineral baths and drink mineral water to their great benefit. We even prepare baths for our cattle, sheep and all other domestic animals, and why not fowls? Third, it is the most wholesome way for the fowl to take her daily physical exercise. Any exercise of a more violent nature is not only unnecessary, but positively injurious and expensive. Expensive in many ways. First if you have a scratching pen system with six or eight inches of straw on the floor, or any other similar system which may be used for the purpose of making the hens work for her grain, any of these systems involves a great deal of work to keep them in a clean, wholesome condition, does it not? Of course, and work is money. Then you have the straw which is also costly, all to make her work. Work for what? To get her food. Don't you realize that every ounce of energy spent in this laborious work is costing you more grain, more food to make up for the wasted energy you are subjecting your

fowls to? This hard work stuff has been, in my estimation, greatly overdone. It has worked all right for untold ages to benumb the intellect of the working masses, both human and the other beasts of burden, into the belief that honest, hard work was good for the soul and body.

Well, all I ever saw come out of a long life of physical hard work was a deformed being, deformed physically and intellectually. No, I thank you, I prefer to take mine in a milder form, and I have noticed since I have been practicing it that I haven't any aching joints and muscles and my mind seems to work in a broader, clearer way. So I make this plea for the innocent and helpless hen; we want her to lay 200 to 300 eggs or more per year, and on top of that we scatter her food at extra cost to ourselves into a mass of obstacles, and tell old biddy, "now, old girl, get in here and dig; it is good for you; it keeps your mind occupied so you won't have any time to get into mischief, besides the exercise is good for you."

Well, I have made my plea in behalf of old biddy and hope for both your own and biddy's welfare, that she can have time if not to broaden her mind, to at least have more time to attend to her motherly duties, viz: egg-laying.

Now, dear reader, these are some of the reasons why you should not neglect the daily bath for your fowls from the time they are born until you dispose of them.

TO BE AVOIDED

Any sudden change in feeding will be followed with a

material drop in egg-production. A change should be made gradually if possible. Chickens are creatures of habits, and they are very keen to notice the least change in their accustom diet, or arrangement on the premises. Hens seem to have the power to withhold the laying of an egg at will, but I do not think so, I attribute it to her extreme nervous organism, which seems to disarrange the normal functioning of her other organs.

It is advisable to be very careful in making any changes too often. Strangers should not be permitted to go too near your poultry yards; it should be the same person to feed and care for the flock. One should adopt a certain noise when approaching the poultry yard, so that they get to learn that particular noise as meaning that the attendant is coming with something good for them. If one enters a poultry house without giving warning when the door is open, the flock will fly in all directions at once, and if this is repeated several times in a day serious consequences may follow. So it behooves you to be careful not to excite your chickens nor do anything that may cause them to be suspicious or disappointed.

BOWEL TROUBLE

Under this heading we have a great number of names to distinguish the various bowel troubles which affect chickens of all ages; no matter under what name it may go by, whether in grown fowls or baby chicks, it all comes from indigestion. The only way to cure it is to give the purgative and give as

many times as required, or until the symptoms are gone; above all find the cause and remove it.

INDIGESTION

How to tell when your fowls have indigestion: In mature fowls a sure sign is by their comb turning black at the tip, and of course a general depressing look, while in small chicks their general droopy appearance and their desire to bunch up or cuddle together is a pretty sure sign. If not checked before long it is liable to develop into serious complications which may prove hard to cure; but if attended to at the first sign one dose of the purgative will as a rule be all that will be needed.

BODY LICE

Blue ointment can be gotten from any drug store. Hold your hen by bringing her two wings over her back—in that way you can hold her with one hand. On the tip of your index finger of the other hand have a very small amount of the ointment; no more than the size of a pea. Grease under each wing on the flesh. Over the vent on the flesh and on top of the head just back of the comb. Do not use it on very small chicks.

SPRAY

For mite and disinfectant, dissolve two pounds of coarse

sea salt and one ounce of permanganate of potassium in three gallons of water. Dissolve fresh each time; use a wooden bucket.

CATARRH

Of all diseases of chickens, catarrh is probably the most to be feared, and it can be avoided if proper care is taken It comes from draughty and damp houses. At the least sign of catarrh act quickly by giving a purgative—dose or doses —and remove the cause. If you don't it will develop into the many subsequent diseases, such as canker, diphtheria, roup, swell head, etc. Besides giving the purgative you will have to take each chicken affected and squeeze out the mucus from their nostrils and disinfect the head by immersing it in a solution of one-half teaspoonful of permanganate of potassium in a quart of water. Allow the solution to get into their mouth. You probably will have to repeat this more than once in bad cases. The bad fowls should be removed from the rest so they can be treated with ease. If taken in time, by giving the purgative and removing the cause, you will not have any trouble.

CHICKEN POX

The trouble can mostly be traced to musty straw, but don't stop till you find the cause and remove it. This disease is easily cured. Give them the purgative. If your fowls are badly affected, give the purgative every few days until

all signs of the pox are gone. It is well to remove the worst cases, to be treated separately. Some individual fowl may have to have its head disinfected, and, besides, if the great bulk of the hens are all right it is not advisable to be dosing them for the sake of a few.

WORMS

Worms come from undigested food in the intestines, and if not removed will make your hens unprofitable and often cause death. In addition to the purgative add one teaspoonful of muriatic acid to each 100 fowls, give the purgative and acid for three days; stop for one week, then again for two days. It will generally be enough.

GRAIN

Grain should be kept before the fowls at all times in self-feeding hoppers. You can also keep before them in self-feeding hoppers dry mash, but these hoppers should be so arranged that they can be closed up at night, so that the hens will not be able to fill up on dry feed before they get their wet mash. They can be opened after the wet mash is cleaned up.

I don't recommend throwing the grain on the floor, ground or straw. It is a very unsanitary way of feeding, besides being expensive. I recommend just enough straw on the floor of your hen house to absorb the moisture of the droppings.

The hens will scratch it about, keeping the floor clean, and it can be cleaned out often, as it don't involve such hard work as it would if you had five or six inches of straw on the floor.

GREENS

Greens should be fed twice a day, cut fresh each time, and give them all they can eat of it in 1 1-2 hours.

GRIT AND SHELL

Grit and oyster shell should always be kept before them.

TONIC FORMULA

To every 5 lbs of .....
Goes one ounce of ....

PURGATIVE FORMULA

.....

SATURATED SOLUTION

Put into a bottle two-thirds of.....

Add enough water to fill the bottle. When dissolved it is ready for use. I advise having a bottle of this solution in a convenient place, so that when you are going through your

poultry house and you should see an individual fowl not looking just right, catch it and give it a dose. It may be that you will prevent a serious sickness, and stop further trouble from that source. A dose is one tablespoonful for a grown fowl and for smaller chicks a less dose in proportion. A glass drop counter should be used for very small chicks.

PURGATIVE

The purgative is given in the mash. Dissolve the quantity of purgative required in warm water so as to dissolve it quickly, then put that solution into the quantity of liquid that you are going to use to mix your mash. It is important to get an even distribution of the purgative into the mash. A purgative dose is as follows, according to ages:

1 week old 1 ounce to 100 chicks.
2 weeks old 2 ounces to 100 chicks.
3 weeks old 3 ounces to 100 chicks.
4 weeks old 4 ounces to 100 chicks.
5 weeks old 5 ounces to 100 chicks.
6 weeks old 6 ounces to 100 chicks.
7 weeks old 7 ounces to 100 chicks.
8 weeks old 8 ounces to 100 chicks.
9 weeks old 9 ounces to 100 chicks.

After they are 9 weeks old they are classed as grown fowls—it takes 9 or 10 ounces to the 100.

If you would see the need of giving the purgative more

than three days in succession the dose should be reduced one-half to one-third. There is where good judgment comes in. Note the droppings and the general appearance of your fowls. If the purgative has been given regularly for say ten days it is well to give a dose of tonic so to keep up the quality of their blood.

TONIC

The tonic is dissolved and fed the same way as the purgative and in like amount per 100 fowls. The tonic is to enrich the blood and should be given once a month to grown fowls so to keep up the quality of rich blood.

SUNSHINE AND LIGHT

Pure air, sunshine and light should be one of the first requisites in your hen house and brooding house. The houses should face the south if possible, but southeast or east will do. Build so that the sunshine and light will penetrate to all parts of the house. If you have dropping boards, they should be so arranged that light and sunshine will reach clear under. Personally, I prefer no dropping boards. A laying room, conveniently arranged, makes it easy to gather eggs and attend to broody hens. Have your broody hens' calaboose built adjoining your laying room and so arranged that you can put the broody one from your position from the inside of the egg room, through a trap door into the calaboose. The cala-

boose should be in three departments, so as to put each day's broody hens in one department, so at the end of three days' confinement your hens are ready to go back to their jobs of laying—provided you have treated her right by having fed and watered her, the bottom of the calaboose should be slats or wire netting so that the air will come up and cool her feverish condition.

WET MASH TROUGH

To feed wet mash you should provide ample troughs so that each and every hen will have a place at the feast, and these troughs should not be left on the floor to be soiled the rest of the day. They should be kept reasonably clean.

YARDS

I believe in yards, no matter whether large or small, for your hens to go out. It gives them a chance to get out in the real sunshine and pure air and once let out they should not be restricted for it makes them nervous and discontented—and a nervous and discontented hen does not do her best.

YEAST AS FOOD AND MEDICINE

There are probably mighty few people who know that yeast is more than what it is commonly used for. In fact, yeast, besides being a ferment, is food and medicine. As a food it is a top notcher, and as a medicine it has all the

necessary mineral essences which go to promote health in animal kind. Yeast is a plant; it belongs to the vegetable kingdom. The mineral atoms called wild yeast, are all about in the air. It is caught by preparing the right kind of food likely to attract it where it will propagate very rapidly in this favorable environment, like seed in a well prepared hot bed. It will germinate, grow and multiply. While this wild yeast in its new environment becomes what is known as domestic yeast and if properly cared for its tiny cells will multiply themselves several million times in a short time.

As I have stated before in a previous chapter that there are certain elements indispensible in the growth of animals and to maintain health and vigor in both young and old some of these elements, vitamine, are found in various foods, especially in the various grains, we give our fowls, but without other essentials that are found in the young tender shoots of grass, etc. This vitamine that is so essential, indispensible to the growth of the young remains dormant or without power, while the yeast has a most wonderful power to take from these grains the elixir of life, vitamine, and send it coursing through the system in its life and health giving properties. Yeast can be made at home. I dare say that there is not one in a hundred farmers' wives who do not know how to make yeast, and those who do not know can get the information from her nearest neighbor. Or it can be bought at most any grocery store. I recommend the compressed yeast cake. It should be used in the following manner: Prepare your yeast in the usual manner to make bread, only

put twice to three times as much yeast as if you were going to mix bread dough. For every pound of flour you would use so much yeast. Well, to every pound of chicken mash put two or three times as much yeast as you would for your bread. It is well to mix the yeast 12 hours or so before mixing the mash; that is, mix the yeast in a thin batter, composed of your regular mash and let it stand for 12 hours. Then add enough water to the batter to make a crumbly mash.

FEEDING WET MASH

The mash should be mixed in a convenient mixing trough so it can be well mixed. There is a wet mash power mixer that does the work to perfection. Mash should be fed the first thing in the morning, being their first meal, all other feed being kept from them until they have eaten their mash. Cooked vegetables, such as rutabagas turnips and stock carrots, are most excellent. Chopped up greens mixed into the mash are desirable; in fact, preferable. If you have skim milk or butter milk in plenty it can be used instead of water to add to your yeast batter. Make your mash as tasty as possible by putting in seasoning. It pays. Try it.

EGG MASH FORMULA

Bran	150 lbs.
Shorts	75 lbs.
Corn meal	125 lbs.
Cocoa meal	25 lbs.
Beef scraps	75 lbs.
Coarse bone meal	50 lbs.

Feed 5 to 9 lbs. of this mash per 100 hens for a wet mash, depending upon how much cooked vegetables you are using, if any.

BROODING BABY CHICKS

Owing to the fact that there are nearly as many different brooding systems as there are poultry raisers, it is impossible for me to go into detail of how each brooder and brooding arrangement should be arranged to conform to certain fundamental laws governing the welfare of growing chicks. Briefly, I will point out certain fundamental things that must be embodied no matter what kind of brooder you are using: First, the brooding house must be well lighted with plenty of fresh air and all the sunshine possible. And positively there must not be any draught. There should never be two or more opposite openings to admit and let out air, that creates a draught. The best way is to have one side open, more or less, like a corning house, provided with a cotton curtain, so it can be let down in stormy or very cold weather, but otherwise open—the rest of the walls may have windows to give light, but must not be open—*there must not be any draught.*

Next in importance is to get your chicks on the roost. They must have air under them. When they are two weeks old, contrive some arrangement suitable to your brooding system that will take your chickens off the floor. Use your ingenuity and think out some way to build a lattice grill where they brood, so that there will be one inch or so of space above the floor, allow-

ing the air to pass under the chicks. When this arrangement is first put in you can camouflage it by putting a little straw over it. After a few days they will be used to it and will not mind it; then, a little by little, you can raise it higher. If you don't do this, you cause your chicks to sweat and catch cold, causing indigestion and the subsequent troubles. The artificial heat should be lowered every day, so when they are three to four weeks old they are well broken to the roost and need no more artificial heat. If you do not practice this you cannot be real successful in raising robust, healthy hens—hens that will have a digestive capacity that will enable them to withstand the many unnatural treatments that they will be subjected to in their future life.

I hope that I have made it clear enough to enable the average person to use his or her ingenuity to contrive some arrangement that will bring about the above requirements, and yet enabling you to utilize your present brooding arrangement without going into any great additional expenses.

FEEDING BABY CHICKS

Feeding baby chicks is not a complicated proposition, if you do as advised in brooding.

Baby chicks should not be fed before they are 50 to 60 hours old. They should be kept in boxes, covered with one-ply gunny sack, and keep them in a cool, dark room until the night before they are to be fed. Place them in their brooder. The brooder should not be over 95 degrees of heat. The floor of the brooder should be covered with burlap, so that they cannot

eat anything that might be on the floor—such as sand, sawdust or cut straw. Next morning, place before them their water fountains with clean water and see to it that after that they are well supplied with it. Now for their meal. Get from your dealer white quartz, baby chick grit; give them enough so that they will all have a small pinch. In about two hours you can give them their first real meal, which is rolled oats or steel cut oats—a little every two hours for two days; then you can give them all the room possible. After the two days of feeding, as stated above, you can start on feeding a crumbly mash—which is prepared as follows: 100 lbs. middlings, 100 lbs. corn meal, 40 lbs. beef scrap, 14 lbs. cocoa meal. After the chicks are three weeks old you can add to the above mash 75 lbs. wheat bran.

Prepare enough of this mash to feed your chicks what they will clean up in one hour. Mix it with yeast batter. If you have rutabaga turnips and stock carrots, cook some and mix it with the mash, or any coarse leaves of cabbage, kale, etc., will help, if cooked. The juice helps to flavor the mash and helps out in the feed bill. This mash should be fed twice a day, in the morning, say about 8, and afternoon about 3 o'clock. You can have before the chicks scratch feed and dry mash in hoppers, so they can help themselves when they want it. Give them greens when a week old. Don't throw it on the floor for them to tramp upon—it soon turns bad, and if they should eat it it will cause ptomaine poisoning.

Most chick scratch feed is all right, but here is a good mixture: Two parts cracked wheat, two parts cracked milo maize,

one part fine cracked corn, one part pearl barley, one part steel cut oats.

GRIT

Keep grit before them at all times. White quartz grit preferred.

WATER

Water must be plentiful, fresh and clean at all times.

BATH

They must have their bath, it is indispensible. (See bath formulas.)

WHOLE GRAIN

Feed whole grain as soon as they are old enough to eat it. At six weeks old they can be fed like any grown fowl.

SANITATION

It goes without saying—keep premises clean and sanitary.

RUNS

Growing chicks must have large runs; without them they

cannot do well. They get nervous and dissatisfied and will contract bad habits, such as feather pulling, eating one another, etc. Instead of a large house divided in small pens with corresponding small runs with a few chicks to the run, I advise to have the house all in one room. In this way you can have more chicks—1000 to 1500 together is all right, with a correspondingly large outdoor yard. Make this yard as attractive as possible.

TONIC

Your chicks should be given the tonic once every two weeks until they are six weeks old, then every month.

GARLIC

Garlic is probably one of the most potent vegetables we have, and if used in the chick mash will add strength and vitality greatly beyond your expectation. It works wonders. Two ounces of garlic to every 100 chicks, increasing the amount as they grow older, remove the coarse skin and run the head through a meat chopper and mix in their mash.

No chicken raiser should be without a good sized patch of garlic. The time to plant it is from December to February. Heavy soil is the best.

FINAL, BUT MOST IMPORTANT

Dear Reader: Before this you have undoubtedly come to

some conclusion in your own mind, either that you have been "stung" or that it is possible for you to derive benefit from what I have endeavored to impart to you. To the first thought I will earnestly ask you not to stand in your own light. Undoubtedly much that I have written does not agree with your previous line of thought, although you well know that you have not scored the success in your poultry raising which you had hoped and desired. Then why not get out of the old rut and get in on this new line of reasoning?

Did it ever occur to you that if I had written the same old stuff which you have been accustomed to reading, and which more or less conforms to your own ideas, that I would not have helped you at all? Stop and think. You know very well there is something radically wrong with this chicken business, otherwise you would not be looking for something better. It takes a radical change to bring about better conditions out of something which has been going wrong for untold ages. My advice may look radical to you, but it is not. It is simply conforming to well established laws, the laws of nature. My idea of what is radical is something which would go contrary to nature's laws.

So in this book I have tried to give, as plain, concise and comprehensible a manner as possible, so all those who could read could understand. Of course I could write volumes on the same subject, but I believe that I have said enough to enable those with a will and a disposition to put into practice what they have learned, to succeed, and it certainly cannot but help them to better their condition.

And that is why I have written this book, to give to my

fellow men the benefit of my long years of experience in a work that to me has been most interesting; interesting at first because it was apparently mysterious, but after years of dilligent search, experimenting and testing, I have made these wonderful discoveries; wonderful because I had to get away from all established rules and established customs. I stood alone as it were, an outlaw. So, naturally, in this great selfish world of ours, I jealously guarded my acquired knowledge, which was acquired in such a painful, costly and discouraging manner, for a number of years; but at last circumstances have changed which enables me to impart the knowledge to my fellowmen.

In conclusion I beg of my readers to read this book over and over until you have it fixed in your own mind, so that you will be able to appreciate nature's laws, especially those of the mineral kingdom and its relation to the other two kingdoms.

THE AUTHOR.