



THE SIMPLE LIFE



WITH THE POULTRYMAN

PROBING THE SECRETS OF THE HEN



It is a curious fact that there is less really known in a scientific way about poultry-craft than about almost any other country-life pursuit. For ages, biddy was allowed to conduct her domestic affairs according to the desires of her own heart, with but little interference from mankind, but with the advent of the modern incubator there came a rude awakening, and for the last few years she has been continually subjected to strange indignities, in an attempt to wrest from her the secrets which for so long have been hers alone.

Hatching an egg by machine is not the simple matter which people may imagine, for there are many problems to be met, involving temperature, moisture and the cooling and turning of the eggs; and poultrymen, like doctors, are prone to disagree.

Probably Professor Charles K. Graham, who is at the head of the poultry department of the State Agricultural College at Storrs, Connecticut, has done as much original investigation along the lines of poultry culture as any other man in the country; and some of his experiments show an originality and a resourcefulness which give them exceptional interest. He wanted, for instance, to find out for himself just how much a sitting hen actually does in the way of turning eggs which she is hatching, believing that such an experiment would indicate the practice to be followed in the case of the wooden mother.

He selected thirteen eggs (the traditional number for setting) and painted them in stripes of different colors from end to end, after which the eggs were placed in a secluded place in the charge of a motherly old sitting hen. During the hatching period, the eggs were examined every few hours; and at each examination note was made of the stripe which appeared at the top of each egg and the position of each egg in the nest. Upon consulting the record made in this manner, at the end of the test, it was found that the eggs had been continually rolled around, and over and over, so that the same stripe was seldom at the top twice in succession, and that the centre eggs were repeatedly shifted to the outside, and vice versa.

Again, Professor Graham desired to secure some definite information in regard to the moisture question. He had found, like many other people, that the hen which stole her nest out somewhere under a currant bush, and hatched her eggs on the ground, usually presented him with a large brood of thrifty, sturdy chicks; and the logical deduction was that a considerable degree of moisture was advisable.

In order to put the matter to the test, he filled the barrel with earth and made a nest for biddy on the top. He inserted a pipe through the barrel and into the earth which it contained, about a foot from the top. Every few hours throughout the twenty-one days of incubation, he would have a bucket of water poured through this pipe, so that by the time the three weeks were up the patient hen found herself sitting in what was hardly less than a barrel of mud. The hatch was a good one; but other experiments showed that an excess of water beyond a certain degree was not an advantage.

Another hen was placed on a nest suspended in a basket from the ceiling, so that the eggs would be open to the air, and the result in that case was much less satisfactory.

In order to ascertain the temperature of the eggs under the hen, an extremely important point in arranging for artificial incubation, a tiny thermometer was attached to an egg the contents of which had been blown out, with the bulb inside. A reading of this thermometer disclosed the exact degree of heat to which the hatching chicks were being subjected.

Professor Graham's experiments, however, are not confined to problems of incubation, for successful poultry keeping presents other difficulties almost as great as those encountered in securing a good hatch of chicks; in fact, it is admitted to be even more difficult to raise chicks than it is to hatch them. Much of the mortality among the youngsters is due to mistakes in feeding, and the results of Professor Graham's investigations show that this fact is not to be wondered at, for during the first ten days of its life, a chick has absolutely no judgment in regard to what it eats, repeated experiments having proven that it will munch on sawdust as readily as on almost anything else. After ten days when the chick may be said to have reached the age of discretion, less care is required on the part of the poultry keeper.

There are a lot of white Leghorn hens at the college confined in separate pens, for experimental purposes, the yards adjoining one another, and it soon became evident that the success of certain experiments was threatened because of the danger that a hen from one pen would find its way into another flock. After considerable thought in regard to this matter an admirable solution of the difficulty was discovered. One flock of hens was dyed green, another blue, while still another was ornamented with tails of a golden hue; the idea being of course that if a blue hen was running with a lot of green fowls, its presence would be detected immediately.

Professor Graham must be absolved from all blame for an amusing hoax of which a newspaper man, representing a paper in a small city, was made the victim. He was shown all over the place by one of the assistants, whose bump of humor was so well developed that, when the

visitor innocently asked if the strange colored hens represented a new breed, he could not refrain from telling him that they did, indeed, and that they had come direct from the Philippines. The reporter was glibly, and wrote a glowing account for his paper in regard to the remarkable Philippine fowls at the Storrs College.

There is much discussion nowadays among poultrymen in regard to poultry houses which are open at one side, or which have windows without glass, even during the coldest weather, and a number of poultry raisers are using this plan with success. For testing the practicability of the cold air method, the professor erected a tent made of ordinary duck, costing about six dollars. He placed a roost and nests in this tent, and made it the home of a small flock of white Leghorns—a variety of birds as is well known having unusually large combs. These birds have lived in this tent all through the past winter, and not one of them has had its comb even touched by frost, while the flock have laid fairly well. It is a fact, strange as it may seem, that the thermometer has shown the tent to be warmer than some of the regular boarded houses.

Probably there is no phase of poultry keeping which is more discussed than that which relates to feeding; and the experiments at Storrs along that line have been of exceeding interest.

When snow has been on the ground, one flock has been given no water, but allowed to eat the snow freely; another flock has been allowed access to cold water; while a third flock has been provided with warm water daily. A record has been kept of the number of eggs which each flock has laid. The result has been surprising, for a year's average shows that the flock which has been compelled to eat snow in lieu of water has produced more eggs than either of the other flocks.

During the past winter a number of flocks have been fed nothing but corn and beef scraps, and have laid well on this ration. Professor Graham believes that any flock of pullets will lay well on a beef scraps and corn diet throughout the year, if it has the range of a number of acres of ground; but that, in the case of a flock which is confined closely, other grains will be necessary.

The feeding experiments have been many and varied. The experiment station at the college has been investigating Camembert cheese-making, and some of the surplus cheese was fed to one flock of hens, with consequences which were quite unexpected. The poultry department of course is called upon to supply the families of the members of the faculty, as well as the students' boarding house, with eggs, and whenever an egg from the Camembert cheese-fed flock was broken, an odor was diffused such as was never known to man before. It can be imagined that, when an egg of this sort was opened at the table, there was consternation, especially if by chance it had been served to a guest. Sometimes the odor was apparent even before the shells were broken, and eggs which were opened the very day on which they were laid had much the appearance of those which were several months old, a fact which caused some embarrassment to the members of the poultry department, for they were quite in the dark for some time as to the cause of all the commotion. Professor Graham now feels that this experiment is pretty conclusive evidence of the fact that the ration which is fed to hens have an appreciable effect on the odor as well as the flavor of the eggs which the hens lay; at least he has the support of the faculty in this opinion.

There are many other problems yet to be worked out. There is, for example the question of the influence of the ration in fixing the color of the yolk of an egg. The statement has long been made, with supposed authority, that a diet in which corn predominates will result in eggs with a yellow yolk. Professor Graham has shown that this statement is not true, for the same hen will lay an egg one day which has a light yolk, and the next day an egg with a dark one. The question of breed does not seem to enter into the matter; certain breeds always lay eggs with brown shells, and other certain breeds eggs with white shells; but there is no rule of this sort in regard to the color of the yolk.

Nobody as yet has been able to determine whether an egg is fertile or not, from an examination, until it has been incubated for several days; but, as infertile eggs will keep fresh longer than fertile ones, such knowledge will prove of value.

Many people believe that the tiny white speck which is seen in the egg, when broken, is proof that the egg is fertile; and this theory is generally advanced in the classroom, but is quickly overthrown by the professor, who states that this speck, which is the undeveloped germ, is found in every egg, whether fertile or otherwise.—H. D.

POULTRY NOTES

If there is such a thing as vermin about the poultry premises, it will find the little chick, and nothing but heroic measures will rid a premises of the pest.

The farmer can make money on eggs if he can get the eggs. If he can produce eggs, and he ought to do this about as easy as to raise wheat or oats or barley.

Grease of any kind is very sickening to a chick, and yet a drop of oil on the head, one on the back and under each wing, we mean just the thinnest drop, will rid the chick of vermin. The same end may be accomplished by dusting the chick with insect powder. The powder is less apt to affect the chick, but is

not one-half as efficient as oil in riding the chick from vermin.

A writer in Poultry Success insists that white diarrhoea is hereditary. His plan of combatting it is to be careful to keep none of the chicks affected with this trouble for breeders. By this means he claims to keep his flock reasonably free from this dreaded complaint.

The hen is the best property on the farm; the cow second best, and the horse stands third. We, of course, refer to profit; if we referred to use we would say horse is man's best friend. It takes all these to succeed on the farm, but the hen will bring money right along, all the time.

The following having been found to be an effective remedy for egg-eating hens, I venture to suggest it to readers who may have occasion to try it. Take an egg and blow out half the contents, leaving the yolk in. Stop up one hole and refill with ammonia, shaking well to get it thoroughly mixed; put it down in the house and watch results. A rush, a peck, and a sudden recollection of good manners on the part of each hen as she gets a beakful and retires gracefully to allow her comrades to take their share. Next day put down a genuine egg, and note the disdain of the highly educated ladies who have had a taste of the doctored edition for anything so common as an ordinary new egg.

CONVENIENCES IN THE MODERN STABLE



Every architect were a horseman—which he rarely is there would be more comfortable and convenient stables on American country places. Too often the stable is made to conform to the general scheme of the place itself, to the cost of its equine inhabitants in comfort and welfare, and to the sorrow of their attendants as regards convenience.

The details of exposure, ventilation and light need not be elaborated here. A southern exposure, if need hardly be said, is best, and ventilation must be thorough—top and bottom. The windows in the stable should be fitted with the new stall window guards, which are so arranged that no direct draft can blow on the horse. The sash has iron bars in front of it to protect it from the horse, and has sides of sheet steel, so that when it is opened the air is forced upward. The average groom is apt to under-ventilate, as it is easier to groom the horses' coats under such conditions.

There is also a tradition among them that dark stables are very desirable. Unless a horse is very tired, he needs light as well as air, just as every other animal does. Common sense should regulate this matter, and the stable should be arranged so that the light can be controlled at will.

The modern aids to comfort and convenience in stable management are many, but they are not very radical in their nature. Generally speaking, the conduct of a well-kept stable has changed very little in the last fifty or sixty years. It is surprising to pick up such authorities as Frank Forrester's "Book of the Horse," published in 1877, or Harry Hilovier's "The Pocket and Stud," dating from a still earlier period, and see how many of the hints contained therein are applicable to horse management today, and also how little methods of such things as grooming have changed in half a century.

Most modern stables, however, are far ahead as to drainage, and this is a most important item. The proper drainage of stalls is a most vexed problem with stable builders. Perhaps the simplest and most popular plan is to lay the stall upon a slight slant (about two-inch fall) toward the rear, and to drain from there by a covered drain running the length of the stable into the manure well. If the floor is of asphalt or brick, it is covered, of course, by a false flooring of wooden gratings, placed close together, and so arranged that the grade of the stall may be neutralized. It is uncomfortable for a horse to stand with his fore feet much higher than his hind feet. In fact, if he is left free to assume his own attitude, he will invariably take the opposite posture in order to rest himself.

The most modern and complete arrangement for stalls is a patented device which consists of a heavy cast-iron basin, under the entire stall, over which is laid a rock-maple flooring of slats, so arranged that it can be easily lifted, and the stall thoroughly flushed at frequent intervals. A bell trap cesspool carries off all drainage immediately, and the bedding is kept dry and in good condition. This stall may be flooded by means of a hose, or a device may be arranged which floods it automatically. The grade for the drainage is entirely in the underlying basin and the horse stands upon a perfectly level floor. This arrangement does away also with the troublesome gutter at the rear of the stall, either covered or uncovered, and the floor of the stall may be flush with that of the rest of the stable. This device may also be used with a brick or a cement floor in place of the cast-iron basin.

The modern stable is fitted to provide for many contingencies. For instance, a horse frequently becomes "cast" in his stall at night. Sometimes he becomes entangled in his halter shank, or he may be attacked by colic. With the old fashioned standing stall it was exceedingly difficult and sometimes dangerous to aid a horse so situated. The up-to-date stall is so constructed that by simply unscrewing a couple of screws, the entire side can readily be removed, and two stalls practically thrown into one. In order to accomplish this, the planks which divide the stalls are fitted into grooves from which they can easily be lifted, instead of being fastened to stall posts as heretofore.

Stall guards of cast or wrought iron come in a variety of patterns, but advanced taste and experience favor simplicity as being most sanitary. The plain upright bars, which should run closer toward the head of the stall, so that the horse cannot get his nose through, are preferred. In this connection, a modern device is commendable and should not be overlooked. The guards, instead of being fastened tightly to the wall and stall posts, are fitted with sockets. This provides for heat and cold expansion and contraction in the guard itself, and also for warping of the wood, which is too often green when the stable is built.

The stall posts may be of wood or iron. Every stable should contain at least one box stall, and there are several excellent modern devices for their convenience. One is a sliding door hung on ball bearings, which can be operated without effort, while the door itself can be fitted with a sliding door lock, easy for the human, but impossible for the equine to operate. The door itself should be hung on the inside of the stall. This is neater in appearance and offers better resistance in the case of a kicking horse, as the door is then braced on each side by the heavy stall posts.

The stall posts of a box stall should be perfectly smooth on the under side so that a horse cannot injure himself in going out or in. The fastenings and catches should be of special patterns to insure this.

There are several new devices intended to prevent a horse from eating too rapidly, in the form of patent mangers. One of these consists of a sort of muzzle lying upon the grain, through which the horse can get only a small mouthful at a time. Others feed the grain out slowly by various devices. Such mangers are not necessary except in the case of horses which are inclined to eat too ravenously; but, in selecting the manger, it is well to get one that is easily cleaned, otherwise they become sour and dust accumulates in them. The best way to feed hay is from the floor; and the old fashioned hay rack, which compelled the horse to stretch his neck until he rivalled a giraffe, is now happily a thing of the past.

The old time manger generally contained a lump of rock salt, thrown there because salt is beneficial to horses and is greatly enjoyed by them. But this interfered with the proper cleaning of the manger, and usually formed a nucleus for an accumulation of stale and sour oats, dirt and dust, caused by the slobbering of the horse. This is replaced now by a neat rack holding a solid brick of white salt, which the horse may lick at his pleasure, quite independent of his grain.

No stable is now considered complete without an oats cleaner. The amount of foreign matter contained in the ordinary bushel of oats would astonish the average person, and all this dirt accumulating in a horse's stomach interferes sadly with his digestion, and ultimately causes colic and other complications. An oats cleaner costs about \$25, but will pay for itself many times over in the long run. Where a chute is employed for the oats, a modern device for automatically measuring a feed of oats is a useful adjunct. By a simple movement, exactly four quarts is emptied into the pan.

The arrangement of the carriage house is the point where many stable builders and architects make their greatest mistake. No matter how much room you have, if it is not so disposed that the carriages can be readily gotten at without moving all the others, much annoyance will ensue. Room for harnessing and unharnessing must be provided, and provision made for the washing of the carriages.

A pavement formed of cement, properly drained by a bell trap, is usually provided for this purpose. A carriage washer fitted into the ceiling, and so arranged that with a short length of hose any vehicle can be quickly and easily cleaned, is a great convenience. By means of this device the carriage can be reached from any point without dragging the hose around.

The newest and best harness racks have iron frames, fitted with wood wherever it comes in contact with the harness. They are practically of skeleton construction so as to permit the free circulation of air. This is a very important point as otherwise harness will not dry properly.

The harness room may be fitted with a swivel hook of modern invention, for cleaning and oiling harness, so arranged that the harness can be lowered or raised at will and turned in every direction. A harness washing sink is a great convenience. Such sinks are constructed especially for this purpose. They are on legs and vary in size from 36x26 inches to 48x30 inches. The swivel hook hangs directly over the sink, and thus all the sloppiness of the old fashioned bucket is done away with.—Suburban Life.

CARE OF HORSES DURING THE HARVEST SEASON

Horses during harvesting go up against a stiffer proposition in the way of hard work than they do at any other season, or at any other farm operation, and they require to be fed more carefully and to receive better attention than at any other time. A bunch of horses hung out in front of a binder and crowded every working hour of the day for every ounce of energy they are capable of generating, have no sinecure as horse labor goes and need feed and care of the right kind to keep them up to the top notch in performance.

It should always be remembered that a horse cannot gulp down great quantities of grain and fodder in a short time like an ox can. He needs more time to feed. A horse working on a binder requires from an hour and

a half to two hours to take in sufficient food to sustain him at work until meal time comes around again. Some farmers in the harvesting excitement forget these things and end up generally with a badly emaciated, if not seriously shattered, outfit of horses. Others again gorge their horses with grain during the hard work time and end up in about the same condition. Following either of these practices is simply laying out ground for trouble. And after all, the time a fellow saves by this kind of hustling, if it's saved at all, doesn't total up during harvest time to more than the working hours of a single day. It simply doesn't pay.

Attention to the horses at this season includes nothing more than the attention they should receive at all times when working and it certainly should not be any less. Sore necks and blistered shoulders are the two commonest troubles one is called upon to deal with. These can be largely prevented by using collars that fit snug about the animal's shoulders and by making the collars fit all the time the horses are at work. A horse that's unaccustomed to work, as some are that are crowded on to machinery at this season, is liable to burn up quite a bit of tissue during the first day or two he's on the job, and a collar that fitted perfectly at the start would soon be in good order to chafe the neck or gall the shoulders. This can be prevented by slipping in a sweat pad if the horse gaunts down from the work. Whatever else is done, the shoulders should be well washed at nights, and at noon also if it is possible to do so. A good strong brine wash is excellent for toning up the shoulders after a hard day's pull. A horse is better for being washed off completely once in a while, but in the harvest season with the nights becoming rather cold some injury may result unless he's dried off and the stable's warm.—Ex.

THE KINDS OF LIME TO USE

On soils which are exceedingly rich in organic matter, such as peaty soils and other swamp soils, it would seem altogether rational to make use of caustic lime to hasten the decomposition of the soil and consequent liberation of nitrogen, if such treatment is necessary.

There may possibly be conditions under which soils contain large amounts of phosphorus and potassium which are too slowly available for profitable crop production, and in such cases it might be good farm practice for a time to make use of caustic lime to hasten the liberation of these mineral elements of plant food. We should bear in mind, however, that this use of lime on a soil which is already deficient in nitrogen, phosphorus or potassium only serves to still further exhaust the soil of its meager supply of these elements. Without a doubt this is the most common condition and the most common effect of the use of caustic (fresh burned lime or water slacked lime.) Probably no method of treatment will exhaust such lands more rapidly than heavy or frequent applications of caustic lime. It is true that the immediate effect is usually somewhat increased crops, but it should be borne in mind that when a farmer pays out money for caustic lime to be used for this purpose, he is purchasing only a stimulant which will ultimately leave his land in worse condition than before, especially in the loss of nitrogen and organic matter; and in the exhaustion of phosphorus and potassium from the soil. In other words, this use of lime, if continued, tends rapidly to exhaust the soil and ultimately to leave it practically ruined. In this connection it may be stated that gypsum, or land plaster, produces a similar effect so far as the mineral elements are concerned, although it does not effect the destruction of the organic matter as the caustic lime does.

As a general rule, we should use lime only to correct the acidity of the soil, and this is necessary only where there is difficulty in obtaining a good stand and luxuriant growth of a leguminous crop, such as red clover. As to the form of lime to use for this purpose, the farmer must be governed, somewhat by the cost of the material. Fine-ground limestone will be both the best and the most economical form of lime to use wherever it can easily be obtained. If caustic lime be used we should make special provision to maintain the humus in the soil.

It would be expected that burned lime would produce a greater increase in the crops for the first year or two than would be produced by the ground limestone, more especially where the mineral elements, phosphorus and potassium are not applied; for the reason stated that ground limestone produces practically no direct effect except to correct the acidity of the soil and thus encourage the multiplication and activity of the nitrogen gathering and nitrifying bacteria, whereas, the burned lime not only produces this same effect, but also acts as a soil stimulant, or soil destroyer, attacking and destroying the organic matter and decomposing the mineral constituents and thus liberating plant food from the soil, usually resulting in more or less waste of valuable nitrogen and humus. The use of ground limestone to correct acidity and increase the fixation of atmospheric nitrogen is certainly altogether legitimate and commendable, but to use burned lime to force the soil to give up plant food more rapidly than it would otherwise furnish, thus producing an increase in the first few crops, but ultimately leaving the soil more impoverished than before the lime was applied, is not thought to be advisable or profitable in the long run, unless the soil contains comparatively large stores of unavailable plant food and abundant organic matter, which is certainly not the case with most Illinois soils.—Ex.