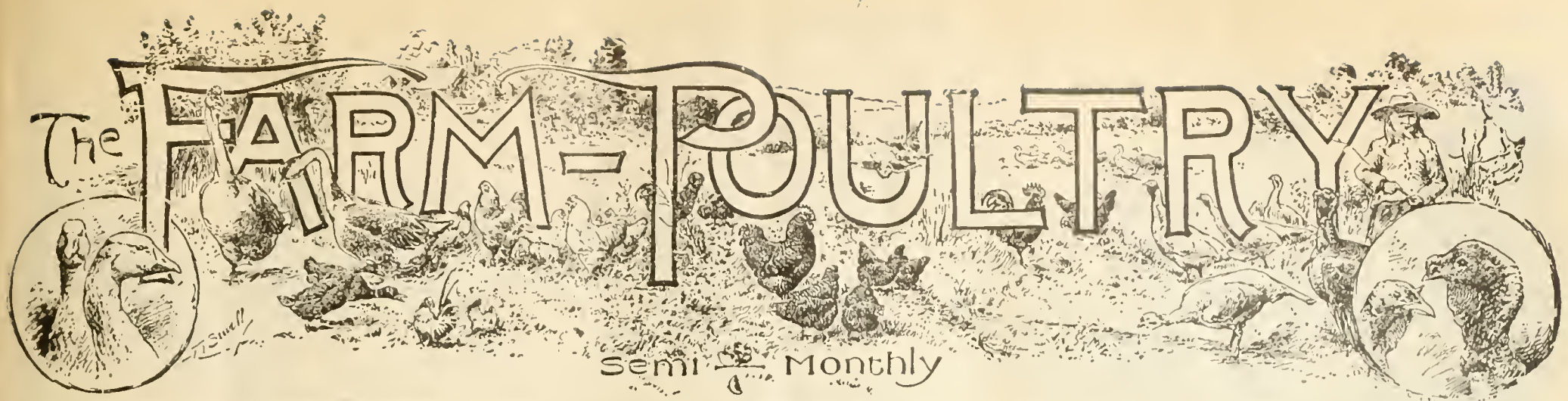


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Values of External Characters of Poultry

IN HIS book, "Races of Domestic Poultry," of which a brief mention was made in a recent issue of this paper, Mr. Edward Brown has a most suggestive chapter on "External Characters of Poultry, and Their Values." This is, I think, the first effort that has been made to present a systematic and complete statement of the correlation of the qualities evident to the eye as the fowls stand before us, and those economic qualities which are finally estimated in money, and in the extent and permanence of the popularity of a variety of fowls. The author's presentation of it is very interesting, and probably as unbiased as any man would make under the circumstances.

I make the above qualification not to "damn with faint praise," but because I appreciate to the full how difficult it is to avoid at least an appearance of bias at many points when treating a subject which introduces so many topics on which opinions differ quite radically, and so many in which even the best informed often have difficulty in determining how far their opinions rest upon experience and observation, and how far upon tradition. The chapter opens with a discussion of the effects of the exhibition system, and throughout there are frequent evidences of the irrepressible conflict between the "fancy" and the strictly practical, between beauty and utility, which seems to be waging today in England with more bitterness than was ever developed here. It may be that there is a reason for this. From the reports of the situation in England, I judge that fanciers there are less responsive to the demands of poultry keepers who attach less importance to externals. Yet it is possible that there will be found in this country some who will declare that Mr. Brown's strictures on British fanciers apply equally to American fanciers.

I think that Mr. Brown will readily admit a degree of prejudice against fanciers — or, at least, against some methods of fanciers, and the results that follow them. As I understood the statement of his position made at the meeting of the Suburban Poultry Club, in Boston, he has for a long time, and with an entirely praiseworthy purpose, maintained an open and vigorous opposition to the "fancy" in England, because while admitting a large measure of benefit from its influence, he judged that, on the whole, the balance of its influence was detrimental to the practical interests which he has labored to advance. In such opposition of motives and interests it is commonly impossible to keep free from prejudice, and to see a case in all its bearings without bias. We all have our prejudices, our leanings one way or another. We get at the truth, finally, in all such

matters, by discussion from which errors and misunderstandings are gradually eliminated. So I refer to Mr. Brown's prejudices not as one who has none of his own, but as one whose prejudices being different, will, to some extent, neutralize Mr. Brown's, and be neutralized by them in the understanding of the reader who considers with an open mind the statements of both.

I have been, and still am, quite radically opposed to some ideas which dominate the fancy in this country. Our fanciers seem to me to sacrifice substantial quality for the sake of securing some superficial excellence too

time, however, too much stress must not be laid upon this point. Many of those who study poultry forget that with a rapidly reproducing race the tendency to exhaustion must always be very considerable, and that unless the greatest care is exercised in the direction of out crossing, the breed is bound to lose ground. Thus the fact that many breeds are no longer popular which at one time were among the most valuable for economic purposes, must not be wholly laid down to fanciers. It is a natural influence."

In the forefront of the above quotation Mr. Brown expresses a view almost universally prevalent. It has been customary for a long time to charge the fanciers with destroying the popularity of certain breeds of fowls by neglecting their economic qualities. But is there one of these breeds that, in its best economic form, could have held its own with the breeds that have displaced it in popularity? I think not. When we talk of the one time popularity of some of the breeds now regarded as back numbers we should remember that at its height their popularity was small compared with that of the popular breeds of today. A fact which has an important bearing on this question, too, is that there has been an apparent close relation between the general utility of certain breeds and the development of interest in poultry. Rapid increases of interest in poultry culture have followed the introduction of breeds which immediately became popular, and the degree of the interest and the extent of the popularity of the breed or variety or class of fowls associated with it have apparently had a very close relation.

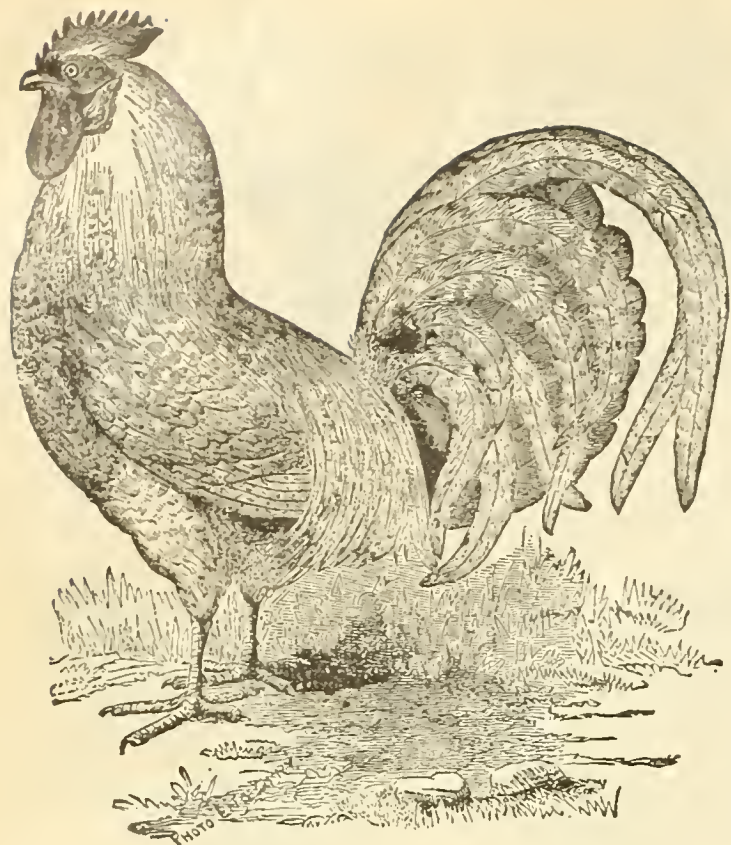
We have seen, too, several times in this country in recent years the fanciers very quickly responsive to popular demands with regard to popular breeds in which they were interested. We saw a few years ago, when Leghorn popularity seemed to be waning because the Leghorns were losing size, leading fanciers in different varieties of Leghorns bringing to the front Leghorns of good size and fine type, and with the coming of these we saw a revival of interest in Leghorns. More recently, following the adoption of a standard calling for absolute whiteness of plumage in white varieties, we found in our exhibitions classes of White Wyandottes sadly lacking in shape and size, and especially deficient in breast. Then within two seasons we saw a general recovery of size and shape. This was certainly due in part to the severe criticism of those who censured the departure from Wyandotte standards, but it is also largely due to the dissatisfaction "practical" buyers expressed with stock that was not of good Wyandotte type. Other illustrations of the point might be given. Those two are among



White Faced Black Spanish.

One of the breeds most frequently mentioned as spoiled by the fancier.

often and too much. But I cannot see that the fancier who does this hurts the breed as much as he hurts himself and his own stock — in any case where a breed could otherwise maintain its popularity. Mr. Brown says: "The bulk of the breeding of poultry is for practical purposes, and as soon as exaggeration of externals means that breeding becomes so difficult as to be confined in the hands of a few individuals, and also entails the sacrifice of those properties which recommend the breed to the ordinary poultry keeper, then the demand at once falls off. It is for this reason that many breeds which at one time were popular are no longer so. At the same



A Little Study in the Evolution of Breeds.
I.—Old "Hawk Colored Fowl."

the most prominent. From such considerations I conclude that as long as it is possible for a breed to maintain its popularity in competition with others which might be substituted for it the requirements of practical poultry keepers constitute a check which is on the whole effective on the tendency of fanciers to exaggerate superficial characters, but that with this check inoperative fanciers are likely to go to some extreme. Undoubtedly the rate at which they go toward any extreme is affected by the degree of general interest in the variety or breed in question, but I cannot readily mention a breed injured by breeding a superficial quality to an extreme that had not for some time previous lost standing as a fowl for the many.

What Mr. Brown terms the "natural tendency to exhaustion," and describes as another cause of the loss of standing by breeds, looks to me like something else. I can feel very severe on the shortcomings of fanciers as breeders until I begin to look for the virtues of breeders who are not fanciers. I have looked for a long time and am still looking in vain for a poultry keeper who is not at all a fancier who is a good breeder of poultry. I can find good breeders who served their apprenticeship as fanciers and poultrymen, who, as they acquire skill in breeding, gravitate toward the fancy, but never a man who lives up to his profession of caring nothing for fancy points who is a good breeder. So I have grown to believe that the most effective way to make a man a good poultryman and breeder is to develop his interest in the points that please the eye.

That these have a relation to economic qualities cannot be doubted. The precise nature and extent of this relationship is what Mr. Brown has undertaken to state.

To quality and color of plumage he attaches but little importance. He considers an excess of plumage beyond what serves for the protection of the body wasteful in production and detrimental to the usefulness of the fowl—a conclusion with which thoughtful poultrymen generally will agree. In discussing color of plumage he recurs again to the effects of the exhibition system and the fancier's habit of sacrificing every other consideration to color. How far conditions in England warrant charging this as the fault of a class, I do not know. In this country, I think that considering the fancy as a whole at any one time, it must be admitted that a reasonable consideration is shown for other matters. Neglect of other points for color is periodic both with breeders individually and with the breeders of any variety as a class. Perhaps (to indulge in a little strictly American boasting) this is because the country is so big and the industry so extensive that no fault of that kind can spread over it all at the same time.

In discussing this phase of the question, Mr. Brown introduces a point more familiar to students of evolution than to fanciers and breeders who work for uniformity of type. Says he: "The fancier desiring the pounds

(money) sacrifices every other quality. Not only so, but he deliberately and designedly eliminates the more vigorous specimens, as shown in sports and what are called mismarked feathers, retaining the more refined but weaker birds as breeding stock; thus enhancing the tendency to loss of virility which is ever present under such conditions. * * Variations are frequently the expression of dormant characters or qualities which would stem the downward influence, and preserve the race from enfeeblement. The fancier, however, sternly represses this influence by elimination of such specimens from his stock. As Darwin says: 'Man always tends to go to an extreme point in the selection, whether methodical or unconscious of all useful and pleasing qualities.' Our point is that while we must regard color of plumage as part of the whole, it is only part, and selection should not be too rigid. Buff tails in buff breeds may be pleasing in appearance, but are unnatural, and the birds with black tails are to be preferred."

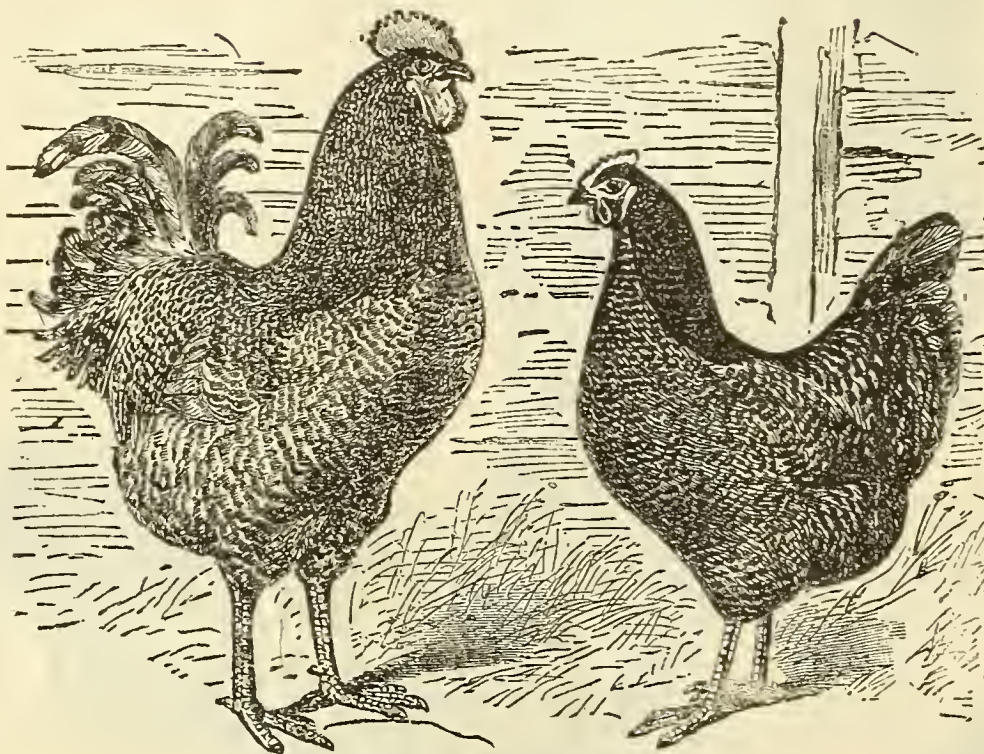
Is it true that fowls that vary in color from the standard or preferred type are more vigorous? I have not studied the English standards, nor am I familiar enough with the stock of English fanciers to say what is or is not true there; but if we examine our own standards and stocks with a view to discover what application that dictum may

seems to me that Mr. Brown could not have intended to mean as much as his words imply. As between two birds, the one perfect in coloring and the other a cull for color, the cull is sometimes, not always, the more vigorous; but it does not therefore follow either that it is the more vigorous because of the lack of color or variation from the type, or that it varies from the general type because it is more vigorous. That could only be true if specimens of its type generally proved to be more vigorous than specimens of the "correct" type generally. In the case of buff fowls, are those with black tails more vigorous than those with buff tails? I have not found them so, and I have grown some thousands of buff fowls. I think other breeders of buffs will, as a rule, agree with me.

Poultry fanciers and breeders recognize in variations from the types they seek to attain and establish some that (they suppose) indicate greater vigor, and some that indicate weakness of some sort. In applying such a theory as that stated by Mr. Brown, we have to assume that it will apply equally to all characters. We cannot limit its application to color, and say that birds that vary from the standard color are (probably) more vigorous. If the theory is correct, if it states a principle of development, it must be applicable to any character or quality. If we hold it for color we must admit it for shape. Here, it seems to me, is where the theory fails utterly.

We establish as our standard of shape in any breed a type which expresses the highest physical perfection in a fowl of that size and conformation. Rarely do we all agree wholly as to the type which we shall call the ideal. One would modify it here, another there, another somewhere else. But to one with no personal bias in favor of any of these modifications, a fowl which does in fact conform to the outlines required by the American Standard of Perfection is a fine model in form, and must be a vigorous bird to give to its form that station and style which by general consent is regarded as appropriate and pleasing. Take any one of our popular or moderately popular breeds of fowls. What variation from Standard outlines would indicate the possibility of greater vigor? I do not think that Mr. Brown would apply his theory to any character but a superficial one, and I do not think the appropriateness of its application even there will be acknowledged by many careful breeders and close observers.

By the way: It strikes me as singular that in a discussion of this kind shape, which is far and away the most important outward index of value, should be passed



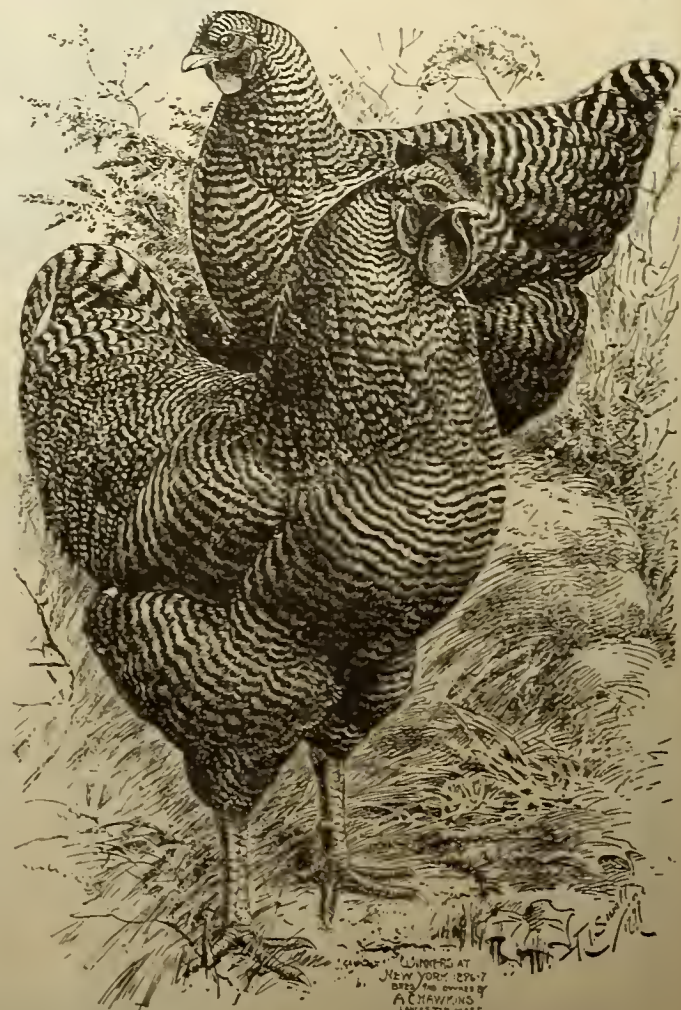
A Little Study in the Evolution of Breeds.
II.—Early Plymouth Rocks.

have here, I do not think we find any general confirmation of it.

In the case of the standard of color for white varieties, we do find the Standard of Perfection requiring a purity of color which is unnatural until procured by repeated washings—and sometimes bleachings. It was not always so. This requirement dates back only eight years. Originally our standards of color for white varieties allowed such a suggestion of creaminess as was consistent with the yellow skin also required. At first the striving to breed "dead white" plumage did lead to deterioration. I am inclined to think that a careful investigation now would show that in general the natural color of white varieties is the same as of old, but that the exhibitors of white varieties generally have attained such proficiency in the science of preparing birds for exhibition as in the old days was limited to a very few. But whether our standard white is a cream white or a dead white, would variation from the correct color type in white fowls indicate greater vigor? I cannot say positively whether it would or not. I have found it to be a general rule in my own experience in breeding that where standard requirements for color presented no inconsistencies the birds that were good in both shape and color were the finest specimens physically, the best layers, and the best breeders for reproducing quality in their offspring, though not always most reliable producers of numerous progeny.

With us the trouble is not so much with wrong ideals as with failure to follow them; not so much with misfit standards as with careless or indifferent interpretations of them.

The general objection to the theory that birds which depart from the approved or normal color of their kind are more vigorous is that it is too inclusive. Indeed, it



A Little Study in the Evolution of Breeds.
III.—Modern Plymouth Rocks.



American Type Black Minorca Male.

with this brief reference:—“Every breed should have its distinct type or character, and in breeding this must be kept to the fore. To describe type is difficult, but it may be explained as the combination of characters which give the race its individuality and distinguishes it

from others. Into type the shape, conformation, size and carriage enter more fully than coloration of plumage.”

There is a maxim often repeated in this country, and I suppose not unknown elsewhere:—“Shape makes the breed; color the variety.” It should be truer than it is in practice. Still it is a good thing that it gets as much recognition as it does. The point at which our fanciers, and all fanciers are most open to criticism, is not for their failure to follow up color variations which might produce a more vigorous race, but for their sacrifices of other qualities, and especially shape and vigor to color. They breed the bird of good color regardless of weaknesses at other points. The practical course is not to breed birds with bad color faults, but to exercise a more rigid selection, making shape, size, and stamina of first importance, but still requiring high excellence in color and other “superficial” points.

The final objection to the idea of seeking to preserve the value of a breed by following its variations is that as a general working plan its tendency is diametrically opposed to the efforts to secure uniformity and harmony of types which is at the basis of our modern poultry culture. It is a destructive, not a constructive, method.

Considering the values of comb and wattles, Mr. Brown concludes that the shape of comb has no meaning, and that the texture is an indication of quality of flesh. On the first point I agree with him. On the second I think he is probably right. It is a point I have never examined closely enough to form an independent opinion. He notes the development and condition of the comb as well known indications of development and activity of the reproductive organs. To size of comb he gives most attention. He says:—“A careful inquiry into the size of comb reveals the fact that all the most prolific races have large combs, and that with increased egg production there is a corresponding enlargement of the comb. In saying this we do not ignore the fact that one or two large combed breeds are moderate layers,” even where they have not been artificially selected for that point. The most striking example is the Dorking; but the size of comb must be compared with size of body. What would be a large comb on a Leghorn would be medium on a Dorking. By such a standard the Dorking comb may not be regarded as large, and must be classed as medium. We cannot therefore escape from the conclusion that size of comb is influenced by productiveness, for the shape does not concern us; it is the amount of flesh in the comb and wattles as compared with the bulk of the body. *Pro rata*, a Hamburg has as large a comb as a Minorca, or nearly so. The tendency to rose or flat combs in very cold countries is marked, as they are less liable to frostbite than single combs, and under such conditions small combed races will prevail unless artificial selection comes into play. It seems to me that in

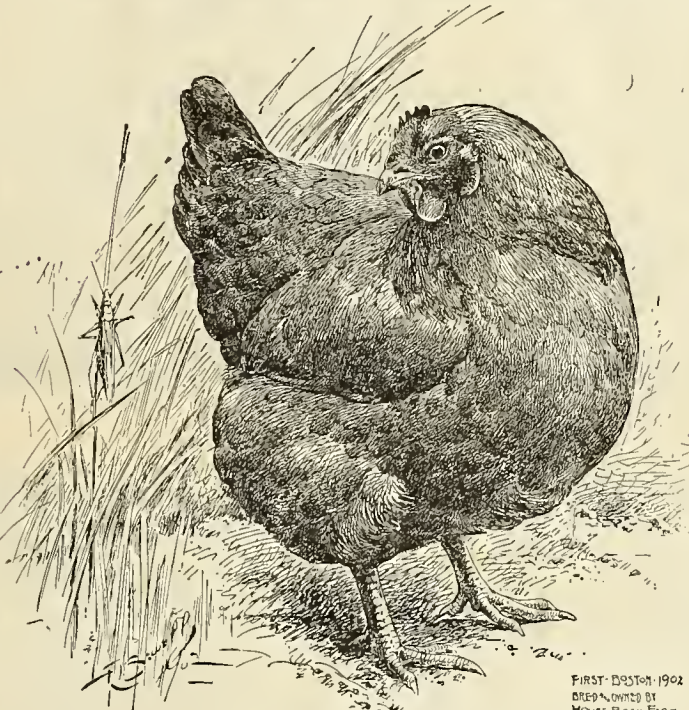


English Type Black Minorca Female.

this matter the author was too easily satisfied in the demonstration of a point which has more foundation in tradition than on careful observation. From time immemorial poultry keepers have regarded large comb fowls as better layers. This belief prob-

ably had its origin in general notice of the fact that when hens were laying their combs were larger than when not laying, in those with large combs conspicuously so. Believing that large combed hens were better layers, people would, to a very considerable extent, reserve and breed from such hens until in time the large combed type became established. Now it seems to me unreasonable to assume that there was a necessary correlation between the large comb and productiveness. When we come to investigate we can find many facts and instances which tend to confirm the conclusions stated by Mr. Brown. But, we also find many facts and instances which contradict them. The most that the balance of facts warrants us in saying is that in certain of the more active breeds, which, because of their activity, are better layers under ordinary conditions than the larger breeds, the long prevalent notion that large comb birds are better layers has operated to establish the large combed type.

That there is no necessary correlation between the size of the comb and laying capacity, seems to me to be perfectly clear from the fact that so many instances are to be found of fowls with very small combs, both breeds with small combs and individuals or stocks with unusually small combs for their kind, which are as productive as large combed birds or large combed breeds. The best laying stock of Plymouth Rocks I ever handled, stock which for years both in my own yards and in the yards of my customers was notable for laying qualities, had combs so small in the females that the development of the pullets' combs, as they approached laying maturity, often escaped notice, even when we were watching for it. There was, indeed, less development of the comb than desirable merely for looks in the females, yet this stock



S. C. Rhode Island Red Hen.

A small combed fowl that is reckoned a good egg producer.

was exceptional in laying quality, and as generally reliable for fertility as any I have ever seen. This matter of possible relation of size of comb to egg production is one I have watched closely for many years in many breeds. Long ago I came to the same conclusion with regard to it as I did with regard to the correlation of shape of body (egg type) to egg production—that it could not be demonstrated on an impartial consideration of facts. Many birds and breeds with very large combs are good layers. Many birds and breeds with very small combs are just as good.

That excessive development of the comb is objectionable and often injurious, as Mr. Brown states, will be universally admitted. Such excess of development is extremely rare in this country. The whole tendency is the other way, toward a medium to small comb, neat in appearance and fine in texture. I do not think it could be shown that those who avoided this tendency were the gainers by so doing.

In the concluding paragraph of the section of the chapter devoted to comb is this statement: “Large combs are desirable in connection with egg production, but when increased beyond a reasonable point a reverse influence is apparent. What the point is may be stated to be that on single combed fowls the height from the base to the extremity of the longest spike should not exceed twice the length from the center of the eye to the tip of the beak. Thus, if the latter were 2 inches, the comb should be 4 inches or a little less. In rose combed fowls it is more difficult to measure, but the height of comb should not be greater than the width, and the latter be the same breadth as the skull. Such birds

would yield all the advantages of large combs in relation to the size of body, without any of the evil effects of excess, and be well proportioned.”

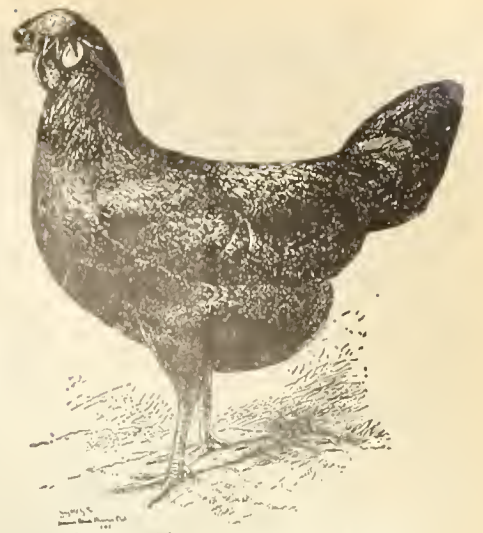
It would be interesting to know how that rule was derived. Also, if the rule is valid, and if it is held that up to certain limits the productivity of fowls of the same breed or size is in proportion to the size of their combs it would be interesting to know at what rate productivity increased with the size of the comb. If Plymouth Rocks with combs (in the females) in no case exceeding a half an inch in height, lay as well as Leghorns with combs an inch and a half high, what would be the production of Plymouth Rocks with combs three inches high? Three inches for the height of a Plymouth Rock female's comb would approximate what the rule given above requires. I first read that rule with amazement, and as I think it over it seems to me that the author could not have tested its theoretical application or he would not have published it.

With regard to the value of size, it is very positively said:—“In respect to the production of eggs there is no doubt whatever that the smaller bodied birds of any race are more prolific than bigger specimens of the same breed. . . . All the best laying breeds are small in size of body.”

As I have been emphatically denying that proposition for a number of years, it would take a much stronger presentation of the case than is given in this book to cause me to change an opinion arrived at by close observation extending over a number of years. I approached this subject as I think I did various others the study of which brought me to conclusions at variance with those most common and popular without special bias toward any view, but with the disposition to accept the popular view as probably the correct one, representing the consensus of qualified opinion. I discarded the popular views in several matters because I could not find either in facts or reason an affirmation of it. The conclusion to which my study of the relation of such points as size of body, size of comb, and shape of body to egg production, is that there is no necessary relation in any of them, that equally prolific individuals may be found in many sizes and types of fowls. At the same time I would not make an unqualified denial of any of the propositions respecting the relation between the several points alluded to and productiveness for which, I believe, that there is no necessary correlation; I also believe that the fact that a breeder or class of breeders supposed such a relation would lead to such selection that the character they supposed a mark of productiveness would soon become dominant in their flocks.

It is further true, I think, that in general poultry keepers get better egg production from the light and active breeds and fowls than from the larger and heavier ones; but this is not because of the greater laying capacity of the smaller specimens, but because they are more easily kept in laying condition, and lay more readily and freely under ordinary handling.

Given handling that will bring out all there is in a hen or breed, and (this at least has been my experience) the large breeds and large fowls will lay as well



American Type Black Minorca Female.



English Type Black Minorca Male.



Campine Fowls.

as the smaller ones — lay as many eggs, and larger eggs, salable at better prices, while the difference in cost of food is not noticeable. It would unduly extend an article already longer than I purposed to make it to go at any length into the question of relation of size to egg production. I would merely emphasize the fact that though the idea that small fowls are constitutionally better layers than large ones is probably held by more people than reject it, those who consider it a fallacy constitute a minority whose opinions are entitled to consideration, and whose reasons for the faith that is in them have not yet been answered with evidence that disproves them.

Of considerable interest is this suggestion: — “We do not see why in nearly every breed there should not be two distinct classes,— one bred for table qualities, and the other for eggs, the former a larger race than the latter by two or three pounds. And if the fanciers desired their part of the business they could have a third size, the bantams. For practical purposes in all the economic races the result would be satisfactory. Take Dorkings for instance; first, we should have a small type, not exceeding when matured, 6 pounds in cocks and $4\frac{1}{2}$ to 5 pounds in hens, which would provide splendid asparagus or milk chickens, and the hens be excellent layers; and second, as now, in respect to size, meeting the demand for table poultry of a greater bulk. So throughout the entire range of domestic poultry.”

In this country we have as a matter of fact in all the so-called practical and popular breeds, and possibly in all breeds, not two distinct classes, but a great variety of sizes and types, each breeder being within certain limitations a law unto himself in the matter. The harmonizing influences are the standard weights, which though not always faithfully applied in competitions, and often ignored by the breeders, still serve in a general way to keep the great bulk of the stock at about the average size and type. How far it is desirable for poultrymen to depart in their breeding from commonly preferred types, I do not presume to say. I have often advised individual poultrymen with a decided liking for a certain variety of fowls, but with a preference for fowls much larger or smaller than the general average, to select and breed a

strain that suits them in size. But, as a rule, I have advised those not satisfied with the size of a breed to take a variety of another breed having the size they want, for I think that, all things considered, results from year to year are better if we keep quite close to the established average type of the breed we work with, and it seems like a waste of efforts for one to go about making for himself a special type of one breed of fowls when there is already in existence another breed which is all that he wants except in name.

The general tendency of what Mr. Brown suggests would be retrogressive. It seems to be thoroughly established that breeding to a common ideal gives the most rapid, harmonious, and complete development. The nearer breeders can get together in their ideals and methods, and the closer the judges can agree in the disposition of awards, the more satisfactory is the general progress toward ideals in external appearance which here, at any rate, are not often inconsistent with economic values.

On this and the opposite page appear two pictures which show two races of fowls, evidently of the same

origin, which jointly conform to Mr. Brown's idea of the division of breeds into two classes. On this page is the Campine, a favorite in Belgium, which some fifteen years ago was introduced into America, extensively advertised as a superior layer, and railroaded into the Standard by the promoters of the boom. It did not last long here. On the opposite page is the Braekel, a larger and less active type of the same kind of fowl. These differentiations of a common ancestral type were brought about by general selection in two different localities for different purposes. Such selection as this seems to take place only in communities which preserve a sort of isolation. As soon as the poultry keepers of a community begin to meet and exchange views with those of other communities they begin to introduce new ideas and new breeds. With the introduction of new breeds comes a growing disposition to make the fowls of the district conform more rigidly to a single type, while at the same time rivalry with breeders elsewhere tends to bring into prominence the type which is nearest types in favor elsewhere, and so there gradually comes about a harmonizing of types and ideals.

A Fresh Start in Poultry Culture

AFTER a break of some months in our poultry keeping experiences caused by change of residence, a fresh start was planned and carried into effect early in March of this year. The outlook was most interesting; here was a chance to profit by all our previous experiences, start with a clean record, and not have to shoulder mistakes of the past in the way of unsuitable stock and equipment. It was decided to follow what appeared to be the “line of least resistance,” or the method that seemed to insure the greatest possibility of success — namely, to purchase chicks and eggs from hardy, vigorous, standard bred stock, a second hand incubator of recent manufacture, and made by a prominent maker, construct our own colony brooders and rearing coops, and handle the growing stock on the colony system and individual brooder plan supplemented

with dry hopper feeding to reduce the labor to a minimum. Our judgment in the selection of a brooding system was strongly confirmed by a prominent incubator manufacturer, who said in a recent number of F.-P.:— “If a person cannot raise chicks by the colony system and in individual brooders there is no help for him.”

At the present writing this is a strong enough indorsement of this system, and is in line with the most recent advice of the leading experimental workers in poultry culture. Given proper brooders placed on fresh ground each season, there is no reason why 80 to 90% of the chicks from healthy parents should not be reared during the spring and summer of each year. There is a great deal that is problematical in poultry culture as in the field of medicine, and leading authorities appear at times to be pulling in opposite directions; nevertheless there is

undoubtedly progress being made steadily in the direction of improved methods of poultry culture — giving more certainty of satisfactory and profitable results. Some notable examples of this progress may be seen in the more general adoption of the fresh air at all seasons idea; open houses; getting away from intensive methods to the more sanitary colony plan; the saving of labor with dry and hopper feeding. These are certainly milestones on the road to progress in poultry culture.

To get back to our story, as this poultry venture was begun in March the start was of necessity made with purchased chicks and eggs which were from large vigorous White Plymouth Rocks. The eggs were put in a second hand incubator of well known make, which was purchased at half its original price, and did as good work as any. Note: as a matter of fact, a machine not over two seasons old in good condition, and of a standard make appears to be a good proposition at about half its original price where economy has to be considered. The eggs used were purchased at a price which made the chicks that lived cost approximately 10 cents each, or about \$8 per 100, more than the cost would have been from eggs produced at home. When, however, we consider what the cost of breeders of equal quality to the ones that produced these eggs would have been the previous fall, it is doubtful if we could have saved anything over making the start in March. Furthermore, we have had no lice on the place to date.

Next comes the brooding and rearing proposition. We decided to try individual outdoor brooders, and for reasons of economy and because we have ideas of our own as to what constitutes a suitable brooder, we decided to build them ourselves. To make each brooder take care of 100 chicks per season, was the point aimed at, and at present they have each graduated a brood averaging 50 chicks to colony coops, and are carrying 50 more towards maturity. That the plan of brooder used had a great deal to do with the low mortality among the chicks, we have no doubt. (We have gotten 92% of the chicks by the "dead line," i. e., three weeks of age). The brooders are arranged as follows: Size 3 ft. deep, 8 ft. long, 3 ft. high front, 2 ft. rear; brood chamber 3 x 3;

exercising room 3 x 5; advantages — horse sectional for disinfecting, moving, or packing away for winter in small space. Heated by indirect radiation — fresh air drawn from outside brooder and heated before entering top of hover. Low cost of materials, including heater and lamp, which for brooder complete is less than \$4. Ease of construction, including heating apparatus. Exercising room large enough to provide space for a two compartment hopper which chicks begin to use after ten days old, when hard feeding is gradually discontinued.

Exercising room 3 ft. x 5 ft., with window in door, which raises and sheds rain, gives ample room for a large brood during rainy days. Brooder convertible to roosting coop. Additional roosting coops being a necessity, we planned one which will be described later, together with our colony house for winter layers and breeders, and the form of hopper we found best. We are now struggling with the art of caponizing, intending to dispose of the later cockerels as capons during the winter.

J. C. PATTISON.

Rape and Alternate Runs

THE article in the last number of FARM-POULTRY, by Mr. E. T. Brown, on poultry houses in England, serves to illustrate the fact that there is no one and only style of house suitable for chickens. Mr. Brown's system would undoubtedly apply well in this climate, and might be copied with profit, though many of us Americans do not feel the need of gravel runs. Most of us will agree with him as to the necessity of litter for hens to scratch in when confined; some of us would question the advisability of having chickens run among small fruit trees; but all of us would agree as to the benefit to be derived from chickens running on ground where there is vegetation.

Reading Mr. Brown's rather elaborate arrangements for securing fresh fields for growing poultry, I was minded of my own arrangements, which seemed to me simpler and quite as efficacious. Like Mr. Brown, I had long narrow runs; but I had runs on each side of the house — a north run and a south run. The north run I would use one year and the south run the next year — with a slight variation, as follows: If I was using my south run a certain year, I would plant the north run to Dwarf Essex rape, very early in the spring. Into this north run I would turn my flock just long enough to prevent the crop from being utterly ruined; I would then turn them back into the south run till the crop got in good shape again, when in they went again. This pro-

cess went on till frost came; the chickens had enough fresh fodder all summer, and the ground was freshened up every year thereby.

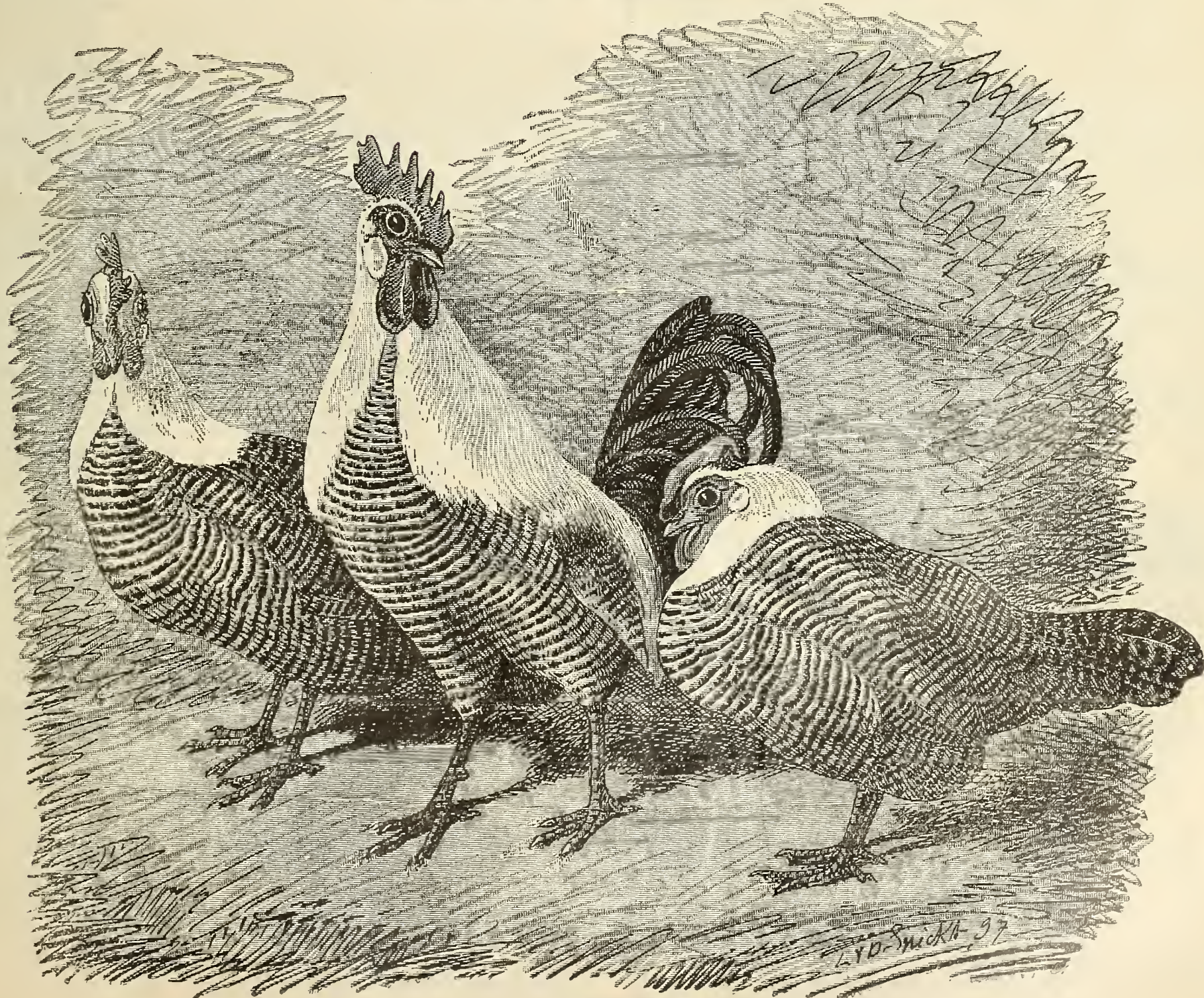
The next year the process was reversed, and the north run was used for a run, and the south run for vegetation. By this process I kept both runs sweet and clean, and the chickens in the best of health. Rape, under such conditions, is a tremendous grower, and my chickens always ate it most voraciously. I tried the system for five years, and it worked beautifully.

I noticed in Mr. Brown's article that the chickens were turned into certain fields at certain hours of the day by an attendant, so that each lot of chickens should have its turn at the vegetables. I managed my own chickens, and I was away from the house the most of the day. I simply gave mine free range in their run until I thought it best to take them out again. The only difficulty was to know when to turn them out without injury to the crop of rape. But rape, especially on well fertilized soil, will survive pretty rough treatment, and it doesn't take long to learn how much it will stand. I sowed mine broadcast very early in the spring, and let it get a fairly good size before turning the chickens in.

After a variety of experiments I settled down to the system outlined above. To those of the readers of FARM-POULTRY who are not familiar with rape and the system of north and south runs, I recommend a fair trial.

Chicago.

E. L. C. MORSE.



Brahma Fowls.

Editorial Page of Farm-Poultry

Writing From the Poultry Yard.

COMMERCIAL POULTRY, calling attention to its removal from the city of Chicago and to the opportunity afforded its editor to "get in practical touch with the real work of breeding poultry," provokes editor Purvis, of *Poultry*, to remark that there are now three poultry papers in this country "edited from the poultry yard," the other two being *Poultry* and FARM-POULTRY. Editor Barnes, of the *Michigan Poultry Breeder*, not willing to be left out of such good company, rises to say that for over thirteen years the *Breeder* has been edited from a "country-city home."

We do not know personally how all the editors of poultry journals are situated, but there are a few others to include in a list of this kind. Indeed we doubt that there are many papers in the growing list of poultry journals that have not either an editor, associate editor, or at least special contributor who is actually a poultry keeper. But the mere fact that a man or woman, whether editor or contributor, writes from the poultry yard, has no special value. Some of the most tiresome and worthless stuff about poultry that has ever been published came straight from the poultry yard, and a great deal of good and helpful matter has come from writers whose personal knowledge of the things they write about is far from intimate. We call to mind several writers whose offerings to this paper have been of such indeterminate quality that it seemed as safe to guess that they were compilations of what the writers had read as that they were written from experience, yet they had not the unmistakable "borrowed" tone which characterizes the usual work of the writer who draws mostly on others for his ideas and opinions.

There is, as a rule, a certain colorlessness and lack of force in the stuff that comes almost wholly from the desk and the easy chair; but some readers like that, and seem to be better able to assimilate ideas when filtered through the mind of someone who has no "views" of his own, than when presented full strength by one who writes from personal knowledge and belief, and sometimes with a great deal of personal bias.

And yet we think that to most readers, to know that a favorite writer had little or no practical contact with poultry would take away much of the power to appreciate his writings, while writers whose poultry experiences are limited rarely wish to let the public know how limited they are. Some of the hints given by those who don't wish to make outright misrepresentations, yet would like to have their readers suppose that they are giving information at first hand, are quite amusing.



Looks Like Revival of Interest in Turkeys.

WE have not seen many turkeys yet this season, but within the limited circle of our observation during periods when we cannot get far from home and office we have seen more turkeys this season than in all previous seasons of residence in Massachusetts. Here within a few miles of Boston, on small farms and even in back yard poultry plants, are small flocks of turkeys, — not enough to indicate that Boston and vicinity are to become noted for turkey growing, but enough to suggest that this interest may be only a part of an interest in turkey culture spreading to other parts of the state and of New England.

We have never been able to understand why there was not more interest in turkey culture here. True the conditions are not as favorable for that branch of the industry as in some other sections of the country, but in some other lines people here have learned that it is not best to altogether discontinue home production because the competition of more favored localities has made it less profitable than of old. Possibly, too, the demand for young turkeys for broilers has something to do with the seeming increase of interest in turkey culture.

It is not to be expected that in this territory at large turkey culture will interest people on farms as generally as in some parts of the west, but there are localities and farms where a little attention given to turkey growing would add to the receipts of those interested without in the least interfering with other lines pursued.



Why Do the Breeders Demand It?

THE poultry editors as a class must admit that the poultry press furnishes abundant reason for such criticism as that of Mr. D. Lincoln Orr, in a recent issue of the *American Fancier*, which we reprint elsewhere.

Mr. Orr let the editors down easy with the admission that "We breeders seem to demand it."

The question then arises — Why do the breeders demand it?

Our answer may not be the correct one, but we think that this is the correct genesis of the write-up:—Some advertiser foreseeing the advantage of personal mention by the editor of a paper in which he advertised, requested it. It was so easy to comply that the editor did not refuse. Then another advertiser wanted the same kind of notice. By and by there began to be some rivalry between advertisers as to who should get the most and best notices, and coincidentally editors began to take notice of the reading notice as an effective lever to pry off advertising contracts somewhat greater in bulk than could otherwise be obtained. Then he began to be free with offers of reading notices, to find afterwards when he would like to curtail them, that the poet who observed, "'Tis hard to claim what once is given," made a remark which would apply in business as well as in sentimental affairs.

The breeders demand notices because others are getting them. Therefore it is easily within the power of the editor whose back bone is stiff enough to stand the strain, to put an end to the abuse of reading notices.



Not to Foster An Incubator Trust.

IN THE little booklet received from the secretary of the Incubator Manufacturers' Association, with the notice of the meeting at Detroit next month, we notice this statement:

"The rumor that the association was formed for the purpose of organizing the various manufacturers into a trust is not the truth. Decided action has been taken against measures of this nature by the association, and concerns contemplating taking out membership need have no fear that they will be threatened with measures of this sort just as soon as they have identified themselves with the association."

If there has been recent talk of an incubator trust it has failed to reach us—except for the echo of it in the above quotation. A few years ago the air was full of rumors

of incubator trusts, and it was reliably reported that all that prevented such an organization was the refusal of one of the strongest concerns in the country to go into it.

Not so long before that various ambitious individuals were overworking their gray matter trying to devise ways and means for consolidating all the poultry journals — sometimes of the country, sometimes of a section. These plans, however, rarely got so far along as to look serious. Most of them were rather amusing. It naturally caused a ripple of excitement when the manager of a paper like F.-P. received a letter asking a price on the paper, but the excitement would subside with more than suddenness when the signature was reached and the identity of the writer of the letter discovered. One young man who started a little paper, ran it a few months without attracting much notice, and then sold it to a publisher who thought he had use for some journalistic junk, wrote that a group of capitalists with unlimited means wanted to buy the paper for him to manage.

All that, however, is ancient history now. Recent events seem discouraging to trusts. The trusts have not had the smoothest sailing imaginable. Some of them have lost money for their promoters, and the trust idea is not dominant at present.



Still on Earth.

THROUGH a circular letter from the secretary of the Incubator Manufacturers' Association, we learn that the Poultry Press Association contemplates a meeting at Detroit about August 14th. Perhaps we are uncommonly dense, but we fail to see why there should be any close relation between the meetings of the Incubator Manufacturers' Association and the Poultry Press Association. Is it to discuss the question of free readers, or are the poultry publishers more heavily and more generally interested in the manufacture of incubators than is commonly known?

The incubator meeting should have been, (according to the by-laws), July 18th, but is apparently postponed to the later date to suit the P. P. A., and is now scheduled for August 14, at the Hotel Cadillac. The incubator men's association seems to be thriving. The secretary says it is, and we have heard no note of dissent. The statement is made that "practically every incubator manufacturer in the United States, of any importance, will be in attendance." Now we don't know where we are "at." This strong association adapts its date (apparently) to that of the Poultry Press Association. The general impression has been that the P. P. A. was dead, though its secretary was "not sensible" of the fact. Looks now like it must have some life in it. We shall see what we shall see. By the way, the committee of fourteen meets at Detroit about the same time—a little earlier as we recall the date. Altogether there will be things of interest to poultrymen doing at Detroit, and we guess those in attendance will have a good time, too.



Actresses vs. Hens.

ONE of the Boston daily papers recently published a report of a "hen race" in which various actresses on a summer outing participated. The method of the race was to attach a hen to an actress by a string tied to each leg (of the hen), and used as reins by which the hands of the actress attempted to guide, drive, coax, persuade, or "shoo" the hen over a fifty yards course. Accompanying the report of the event were pictures of the actresses winning first and second prizes in the race. These pictures were not of the actresses during the race, but in poses designed to have an advertising value in their business.

Perhaps we should be grateful to the ladies of the footlights for giving the hen a little incidental advertising. As the hen doesn't need that kind of advertising we think the obligation is the other way. But the use of such "news" suggests that either the actresses or their agents, or the newsgatherers, have only faintly appreciated the advertising possibilities of domestic fowls.

Let one of the ladies get out in the dew of early morn, and trace a wary hen turkey to her nest, following her over rocks, through brambles and brush, and across oozy swamps. Let her run all the risks of mad bulls, snakes, et cetera, and let a corps of reporters, moving picture makers, phonograph record makers, and reporters attend, and let them give us the events of the route without exaggeration or imagination, and we will warrant that if the thing is done true to life the results will be of general interest.

If poultry must be used to amuse or advertise "the profession," let the fowls have a square deal instead of pitting a little hen from some obscure back yard against a woman of the world; let the lady match her strength and skill with those of a vigorous gander who objects to her presence on territory occupied by his family; or let her undertake to evict a flock (only a little flock) of hens from a flower bed for which they have formed an attachment. In such occupations they would find possibilities of excitement far beyond those afforded by one little hen tied by both legs. The contest is too unequal. It is not a square deal. Give the hens a chance.



The Meanings of Superficial Qualities.

IN THIS paper the writer has devoted a good deal of space to a discussion of some points with which he does not agree in Mr. Edward Brown's chapter on "External Characters of Poultry and Their Values." In the next issue we propose to discuss the same subject more "constructively," and in the way of a broader application of Mr. Brown's text. The subject is full of interest. Every student of poultry topics should study it as Mr. Brown presents it. Whether one agrees with his views or not, the treatment will be found suggestive and stimulating.



Lost, Strayed, or Stolen.

IT OCCURS to us as we glance through our exchanges coming in this month, and recall, in a general way, their contents for some months past, that quite a remarkable change has come over the poultry press. The general preponderance of "practical" matter is striking. Articles by and especially for fanciers are conspicuously absent from publications in which, only a few years ago, they were the most prominent feature.

Why is it? Are the fanciers, as a class, less inclined to "literary effort" than formerly, or are their contributions not in demand? Or, is it that with the increased number of journals, their productions are more widely distributed? Whatever the reason, the condition is abnormal and undesirable.

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Watching the Hens While Hatching.

I was much interested in the article on page 327, by G. D. McAllister. He says, among other things: "The incubators get more chicks from 100 eggs than the hen. Hens hatch about seven chicks from twelve fertile on fifth day eggs. More chicks die from dried inner skin under the hens than with the incubators."

Now seven chicks per hen seems to me a small average for the season when eggs give twelve fertile to a sitting, and no doubt those chicks that are unable to free themselves on account of the drying of the inner skin or membrane, is the prime factor in reducing the average hatch to so small a number.

Now I know a great many, perhaps the majority of poultrymen, argue that if a chick cannot by his own efforts free himself from the shell, he is not worth having, as he will die in a short time if helped out. I do not agree with this in all cases, at least. In this as in other things, "circumstances alter cases." Some hens are fools; when the chicks begin to pick the shell the hen begins to roll the eggs down, instead of rising up a trifle. When the chicks are trying to free themselves, consequently the shell is very apt to be crushed, leaving the chick imprisoned in the membrane, which quickly begins to dry to the chick, and he is as powerless to get out as a man would be if wound round and round with rope. The membrane when dry has considerable resistance, and no matter how strong the chick may be, he has little room to work in, and many will simply die, when if a part of the membrane were removed he would come out as good as

any chick. I have sometimes placed two or three large china eggs in the nests of "fool" hens, then when they roll the eggs the china eggs act as ball bearing, and prevent the eggs from being crushed; but if I have a number of hens hatching at the same time I plan to watch them and help those that are unable to help themselves.

In May last I bought from a neighbor who has pure blood S. C. Rhode Island Reds, six sittings, which were due to hatch June 10th. Of these 78 eggs I tested out two clears, and every other egg hatched except one broken during incubation. As one hen died after chicks began to come out, I had to double them up, making too many to each hen, and several were trod to death in the nest, but I took off 67 as smart chicks as I ever saw. They are now nearly four weeks old, and I have 63 left. Four disappeared during a week I was sick. These 63, I am free to say, are a little the most thrifty even lot I ever had anything to do with. This good hatch would have been only fair had I not watched the hatching. The weather was very warm, and the hens uneasy, and they crushed many eggs. I do not think over 45 chicks would have gotten out without help.

When chicks show they are weak by not beginning to pip until towards the end of the 21st day, I should say do not bother to help them, but when they are strong and pip early the 20th day, help them out of crushed eggs. They will live and thrive if you leave them until the yolk is absorbed and the abdomen healed so they do not bleed. D. J. RYHER.

To Get the Most for His Eggs.

EDITOR FARM-POULTRY:—I would like your advice about marketing my eggs. For three years I have been shipping to a commission merchant in Boston. For about seven months of the year, (from the middle of the summer until well into the winter), he does first rate for me, often giving me enough to make my eggs net me two cents higher than quotations for fancy hennery. But when eggs are plenty and cheap, he drops the price badly, so much so that often the country stores are paying more. For eleven weeks this spring my eggs that were sent to Boston netted me only 19c.; our country store a part of this time paid 18c., and a part 20c.; a collector was paying 20c. and 21c. during these eleven weeks. I managed this way: Sent my commission man a case a week in order to make a regular shipment each week right through the season, and sold the rest locally.

My eggs are of good quality, average large in size, and color of shell is the same as most flocks of Rocks and Reds give. I have from 60 to 90 dozen a week.

Now would you advise me to be satisfied with my commission man, perhaps taking most of my eggs away from him each spring, or ought I to hustle for a better market?

Would you advise me to grade my eggs? I never have; have just taken out the ones that are unsalable.

My commission man hardly advises me to grade them; says it might be a benefit when eggs are scarce and high, but that it would be unwise when eggs are cheap.

A collector who has had some of my eggs says he grades all the eggs he ships, and that mine grade high; has often urged me to let him have my eggs for just that reason, that they grade well. C. T. B.

Perhaps the best way would be to state the case plainly to the commission man, telling him that you do not feel disposed to ship eggs to Boston for less than they are bringing on the local market, but that you will send him eggs at any time, or all the time, if he can make it to your interest to do so. He might not object at all to your discontinuing shipments when eggs are low if he was sure of the eggs when eggs were scarce. Your eggs probably do not require grading as eggs collected from many flocks would. Yours are, I suppose, all one kind, while a collector, buying from scores or hundreds of people, gets many lots of eggs uniform in the lot, but not enough of them to make a case. Then many people will sell him whatever they have as it comes, small and dirty eggs with those that are clean and of good size. On the whole, I doubt whether it pays a producer to grade his eggs unless the proportion of inferior looking eggs is large enough to materially affect his returns. As noted in the rules for grading, which we at times have printed, the usual market requirement does not call for all eggs in a lot up to grade, but makes quite a liberal allowance even in the best grades.

Facing Houses East.

EDITOR FARM-POULTRY:—FARM-POULTRY is a most splendid journal. I like the practical side of it, down where the amateur needs help. Your questions and answers are of special interest to me.

I come to you with several questions. I want your help, and your answers may be of benefit to others, as other questions and answers have been so much benefit to me. I am working into the poultry business gradually—egg production the principal thing. This year I have 130 laying hens; will have next year 300. Expect to reach the 1,000 limit. I have 15 acres of ground. I want to put up a poultry house 100 ft. long, and to run it east and west on a piece of land that slopes to the east. To front the south will give a rather lopsided appearance and interfere with

view from house to road either north or south. As these improvements will be permanent, I want them to look well. You see I could run the building north and south fronting the east, running yards to road. This would give level ground for building, and show up poultry and all in good shape. But some tell me to never front to the east. A southern front is the only one for a certain front. The plots marked 1 and 2 are two acres each, four acres in all. I propose 250 hens per acre, yarded; double yards for each flock. Can I keep these yards pure by plowing once a year?

Now, Mr. Editor, what is your advice? Would you front the house south for best results, rather than east for looks and convenience?

I am breeding Silver Wyandottes, and

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am well pleased with them. Am trying a little cross breeding also. I will explain and want you to give your judgment. I have a thoroughbred S. C. White Leghorn hen that lays the largest and best shaped egg, her size considered, that I ever saw; and she has laid right along since March. I bred her to one of my S. L. Wyandotte cockerels. There will be single and rose combs among these chicks. I shall select the rose comb pullets and breed them to a White Wyandotte or Silver Wyandotte. Which do you think best in this cross? Had I better use cock or cockerel? How would it work to use cockerel of same brood? Have you an idea that I will get any of the laying qualities of their mother? That's what I am after, and to increase size of stock. Yes, I want to experiment a little on the side.

Another question: Would you build one continuous house 100 or more feet long, or build separate houses for, say 50 hens each?

Some time can furnish you farm record of my flock of last year's hens, 60 in number. I am also keeping full record of this year's 130. **J. L. DEVOR.**

I am shy about giving positive, definite advice in matters like the location and arrangement of poultry houses under the conditions described above. Descriptions and plots convey but uncertain knowledge of the conditions. Often there are features of the locality in question or of adjoining areas which should be considered. I would, however, advise Mr. D. to go slow on building a long house to front either way. Small houses of one or two pens each might be used facing south. Perhaps these could be so placed that the view from the house would not be at all obstructed. If it seemed desirable to try facing small houses east it might be done with one or two buildings, then if the arrangement proved satisfactory other buildings could be placed the same way, while if not, the buildings experimented with could easily be turned.

The Editor's Question Box.

In this department the editor will answer miscellaneous questions on poultry topics, and all special requests for his personal views which can be answered briefly. Inquiries will be answered as promptly as possible and as nearly as may be in the order in which they are received.

Conflicting Advices. (J. A. C.)—"I have asked two well known poultry supply houses their advice on how to cure chickens from eating each other's feathers, and one house says to give them lots of beef scraps, and the other says not to give them any at all. Your advice will be greatly appreciated."

The first advice is nearest right. I do not know that there is any one thing to feed or one thing to do that may be depended upon to stop feather eating, but abundance of animal food, variety in food, and something to occupy their time and thoughts seem to make the combination that gives the result wanted.

Blindness in Chicks. (J. B. G.)—"Will you give cause and a remedy for partial blindness in chicks two or three weeks old? Do you think lard, if placed under the wings of the hen, as a preventive against lice, might cause it? The chicks seem smart, but in the morning cannot open their eyes."

Such trouble is usually due to colds affecting the eyes, and making a discharge which, drying on the lids, prevents them from opening. The colds may come from either too much heat, and bad air in the coop, or from a hen low in vitality drawing strength from the chicks rather than imparting it to them as she broods them. I don't think lard on the hen would cause the trouble. In fact, lard or vaseline applied to the eyes is the simplest way of softening the discharge and allowing the eyes to open.

Keeping Bantams. (J. B.)—"I have a yard back of my house of which I can use 10 1/2 ft. in length by 5 3/4 ft. in width, for chickens. I came to the conclusion that it would be too small to keep large chickens in it, as I must also put the house in that space, so I thought it would be better to keep a few bantam chickens. Now what I wish you would tell me is how many bantams I can keep in that size space, and what would the best kind be—

I consider 250 hens per acre too many for permanent stock. More than that might be kept on the land for a while, but when so many hens are kept continuously on the same land it is only a question of time until the land becomes tainted to such an extent that the fowls do not thrive on it. Plowing the yards does not purify them thoroughly. To accomplish this the poultry should be off the land and a crop grown on it; or in case the land is in grass the stock on it should be kept down to such numbers that the grass can grow and take up the manure in the soil.

If Mr. D. in his crossing experiment wants to get the laying qualities of the White Leghorn hen he describes he should delay deciding how to mate her progeny until he sees whether any of the pullets lay an egg like their dam. If he finds pullets laying an egg like her I think his best course would be to mate them to one of their brothers, and if from the progeny of this mating he again gets pullets that lay the kind of egg he wants he can make two matings—one of the male used in this mating to some of his daughters, the other of a cockerel from this mating to his mother and aunts. In every case he should reserve the individuals used in a mating that gave him results he wanted until he sees how the next results. Then if he misses in any mating he can go back a step and duplicate the blood used with different individuals. Thus suppose the daughters of this Leghorn hen lay an egg like hers, but their daughters do not,—if he still retains the hens of the first cross he can mate them again, and may get pullets to suit him from the next mating. What he will get he can never tell beforehand. Experiments in breeding call for unlimited patience, and one has to learn to be satisfied with a very small proportion of his stock coming as he wants it. A single specimen that meets his requirements is theoretically worth a hundred that fall short of what he is breeding especially for, and may actually be worth as much as it is theoretically. That can only be determined by trial.

Sebright or Cochin Bantams—and also whether the method of feeding is different from other fowls, and if so, what is it? I expect to take it up next month after I return from my vacation, and if I am successful will buy a larger place in the suburbs, so that I can raise the large breeds."

The space mentioned is too small to successfully grow chicks on it. A pen of adult bantams might be kept there. I would say a male and not to exceed six females. Cochin Bantams are hardier than Sebrights, and generally considered better layers. Such experience as a few bantams on this very small space would give would be of little use as an indication of the owner's probable success on a larger scale.

Rose Bugs. (C. F. M.)—"I am in distress, and desire your immediate assistance or advice. I have about 550 March and April chickens weighing from one and one-half to three pounds each, all out in good new colony houses, on high, dry, and sandy ridge, all grassed over with witch grass, a few weeds only. Ground is covered with rose bugs. Have had to remove chickens to small quarters; some of them I have lost. What will I do to exterminate the bugs?"

Four years ago we had a little symposium on rose bugs, but all we got out of it was a better understanding of the reason they killed chicks, and the suggestion from one correspondent that he thought that with plenty of grit and grain before the chicks, and with ground bone fed liberally, the chickens were less inclined to eat the bugs. Personally, I have never had any trouble with them.

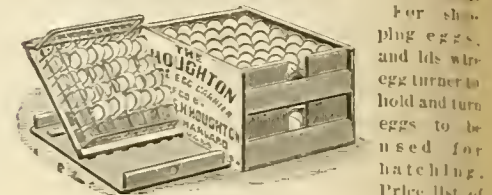
Hens Breaking Eggs While Sitting. (C. J.)—"Will you tell me through your paper why I have eggs crushed under sitting hens, and if it is a common trouble? I have had a dozen hens come off with fairly good hatches, but with nearly all of them I have had from one to three eggs

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day, and two again this morning. So I hope we will soon be rid of them.

Effects of Mild Attack of Disease. (O. M. R.)—"I have kept White Wyandottes for four years, but don't know very much about them after all, so would like your opinion. Have twenty-seven chicks that were hatched in incubator March 20th. They have done as well as chicks could do, (and they are good blood) but they would crowd so at night. Then we had a heavy rain that lasted several days, and the house leaked. I soon found some of them sneezing and with running noses. I separated the infected ones and have had them in a large yard for a week now, with Conkey's roup cure in the drinking water, but some of them still have wet nostrils, and sneeze—some were better and I have put them out. You would not know there was anything the matter with them. Have not dumped or been off their feed for one minute. What I want to know is, will the pullets be inclined to roup or cold next winter? I have been counting on them for winter eggs, but if they are likely to catch disease easily from this early attack, I don't want them. Never had sick chickens till last winter, and I don't want them again, ever."

If the colds do not continue there should be no trouble with the pullets next winter on account of colds now, but if the symptoms of cold persist until cool weather begins in the fall, there will probably be some of the affected stock developing serious troubles. Get them cured thoroughly and as promptly as possible. See that they have plenty of air, and are not allowed to crowd together and sweat at night, and they should soon be in first class condition. If these chickens were bred from fowls that were sick last winter, there may be a weakness of constitution somewhat difficult to overcome. They may develop colds under conditions in which thorough sound stock would not, but even in such a case it is possible by good care and abundance of fresh air at all times to build up strong constitutions.

Dalmatian for Turkey Poults. (W. L. R.)—"In June I number of F.-P., page 293, you speak highly of Dalmatian powder for lice on chicks. Please tell me if it works as well on young turks. We have used carboric acid, glycerine, and water with good effect, but it takes so very long to apply it."

I have used Dalmatian on only a few young turkeys, and that in a single season, but could see no bad results to the turks, and it was just as effective for the lice as on the chicks. Mrs. R. asks several other questions about Dalmatian powder which I think she will find covered in the references to it in the July 1 paper, except her question in regard to amount needed for 200 chicks. A pound should be an ample supply for that number for the season. I don't think we ever used as much as three pounds in a season, so a pound for 200 seems to me an allowance liberal enough to cover the use of the powder much more freely than I use it. Most poultrymen who use it seem to think they must use lots of it, and so use a great deal more than necessary. A close scrutiny of its effects on chicks on which lice are found gives the best indication of its strength.

Running Incubators in Hot Weather. (E. L. C.)—"Do you think it practicable to try to run an incubator during July and August in a room on the first floor? Would not hesitate if I could put my incubators in the cellar, but unfortunately can not, and I have some customers who want chickens at that time; have Cyphers incubator No. 3, with ventilators on top. Would you keep ventilators open until they begin to hatch? Should the eggs be cooled more than during cool weather? I have had fine success in hatching this season, but have lost a great many from diarrhea, but only from incubator hatched chickens; those with hens were all right. Can you give me any hints as to the cause for it? Hatched about 90% of fertile eggs, and they seemed strong and vigorous for a few days; tried giving some of

them to hens right from the incubator, but it made no difference; the fault is in the incubating, and I think it might be remedied if I knew what it was."

The success of hatches during the heated term depends much on the weather, but probably more on the eggs. It is seldom possible to get at this season eggs from stock in good breeding condition in quantities as required for artificial incubation. If the temperature generally is cool, machines might be operated successfully, but should a protracted "hot wave" appear during the hatch, results would be likely to be unsatisfactory, because of the difficulty of keeping the temperature and ventilation right. Either extreme of temperature in the air immediately around the machines makes it difficult to keep the egg chamber at the point required, and still secure ventilation enough. As to the details of operating the machine under conditions stated, Miss C. should apply to the manufacturers or agents. The best explanation of diarrhea, apparently due to some cause operating during incubation that has yet been suggested, is that it is due to lack of ventilation both in the machine and in the apartment where it is operated. The proper incubation of an egg, however, involves such a careful adjustment of temperature, ventilation, and moisture that it is not at all strange that many operators have just such experiences as Miss C. reports—nor surprising that the causes of their troubles are often obscure even to people expert in the use of the same makes of machines. This is a statement of fact that is not of direct help to Miss C., but may furnish what consolation it is possible to get from the fact that one's trouble is a common one. How to get out of it? I know of no way but by careful observation and experiment with machines under different conditions. It is here that the operator of a single machine is at a disadvantage, for he is not in position to make tests varying methods for the same atmospheric conditions, or with machines in different places run as nearly alike as possible.

Why Do the Turkeys Die? (W. L. R.)—"Could you give us any suggestions on the cause of our little turks dying? Feed them on the Model chick food. Hatched with hens. Seem to do pretty well till they weigh about 1/2 lb., then are found dead in the coop. No trace of lice, (have been treated for them). Ought they to have beef scrap? Saw some trace of diarrhea in one today, though had not been able to see any before. Turks and hens are not let out of the coops till the grass is dry."

In general little turkeys do not do well with hens. Some few people seem to have good luck with them, but most turkey growers want their young turkeys to run with turkey hens. I am inclined to think that confinement to keep them out of the

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crushed after the shell was pipped by the chick. Were the chicks weak, or was it because I bothered the hen when I looked under her while hatching? Chicks hatched seem to be strong and all right."

Such breakage of eggs as Mr. J. describes is quite common. There is nearly always more or less of it when hens are used for incubation. On this account some poultrymen like to take the eggs from hens about the nineteenth day, and let the chicks come out in incubators. Breakage is due to several causes—weak shelled eggs, badly formed nests, restless hens, (cause, lice), or to hens interfering with each other on the nests. It may also be due to some extent to the annoyance of the hen at inspection of the nest while chicks are hatching, though it has been my experience that more chicks were lost by letting the hens alone than by handling them.

To Get Rid of Rats. (H. D. H.)—"Tell me about driving out rats or killing them. One party says scatter sulphur flour, and the rats will not go there. Will sulphur flour hurt the chicks?"

The rat question has been up for discussion a number of times, and the consensus of opinion seems to be that to get rid of rats no one measure is always reliable, but you must keep after the rats by any and every method that promises results, as long as there is one left about the premises. Dogs, cats, and traps are all useful. Poison rather risky. Sometimes an organized rat hunt, with pick and shovel and club gives the rats a decided setback. For years we have depended on cats, and, until a few months ago, our cats have kept the premises free from rats. Then for some reason the cats lost interest in rats and mice, and about that time a family of rats established themselves under a big woodpile. They were shy of traps, and as the cats were not hunting it looked like it was going to be necessary to move the wood. But within a few days one of the cats has caught two, and, coincidentally, the rats have begun to make their way into the traps. I found two there yester-

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JERSEY STRAIN HOMERS always please. Catalogue free. Springer Bros., Bridgeton, N. J.

HOMER PIGEONS, large prolific breeders; every pair we sell are mated and breeding, \$1.50 a pair; discount on large orders; satisfaction guaranteed. A. J. Carlton & Son, Milford, N. H.

COLORED leg bands, double celluloid, 4 inch wide, 2 fast colors around leg; no disk; 3 times material, 3 times labor, 10 times durability and visibility of single celluloid disk band. Sample 12 for 30c. Booklet, "Secret of Profitable Squab Raising," 10c. Pigeonweal, a grit that prevents biliousness and indigestion — sample 10c. Starting beginners with right squab stock in Homers, Runt-Duchesses, Runt-Duchesses-Homers, a specialty. W. G. Todd, E. Bridgewater, Mass.

PLYMOUTH ROCKS.

BUFF ROCKS, winners of 100 premiums in three years; solid in color; stock and eggs. Dr. Coolidge, Warner, N. H.

BARRED P. Rocks and White Wyandottes; grand size, shape, color; result of 16 years breeding. Eggs from vigorous prolific stock, bred from our prize winners, \$1 for 13; \$6 for 100. Crystal Poultry Farm, R. F. D., Washington, N. J.

WANTED IMMEDIATELY, 400 March or April hatched White Rock pullets for general utility purposes. State price in first letter. Address L. Conn, South Braintree, Mass.

FOR sale, 1000 Buff Rock fowls and chicks. Hilton Poultry Yards, Hilton, N. Y.

RHODE ISLAND REDS.

17 PRIZES awarded on Shove's Rhode Island Reds and Homers at the great Hagerstown fair. Eggs \$2 for 15; \$5 for 40. D. P. Shove, Fall River, Mass.

RHODE ISLAND REDS, winners of 1st prizes, Boston, New York, Philadelphia, Rochester, and Cincinnati. Eggs at \$2.50 per 15; special mating at \$5 per 15. House Rock Poultry Farm, C. M. Bryant, prop., Wollaston, Mass.

ELMWOOD Poultry Farm, Bridgewater, Mass., headquarters for R. I. Reds. Stock for sale.

DE WOLF FARM, Pappoosequaw, Bristol, R. I. Standard bred 1 and 2 year old birds. Prices according to quality. Booklet free.

LARGEST winners at largest shows; 2 firsts New York and Boston, 1906; all 5 firsts Springfield, Mass. Send for egg list, and mating list. Large size, heavy laying strain. F. D. Read, Fall River, Mass.

WHITE BIRCH POULTRY FARM, Bridgewater, Mass. S. C. R. I. Red breeding stock for sale. A grand chance to obtain breeders at low prices. W. H. Withington, Mgr.

ALL yearling breeders, many show birds, 75c. each. St. Regis Farm, West Stockholm, N. Y.

CLARK FARM, Concord, Mass., offer for sale their entire stock of choice yearling hens and cockerels, Rose and Single Comb. Also all the incubators and hot water heating system for 60 ft. house; all nearly new and in good condition.

WANTED.

WANTED, two young men to buy my poultry and dairy farm; 112 acres, \$4000 worth of poultry houses; laid in a high state of cultivation; price \$6,000. Write for more particulars to J. C. Bowen, N. Springfield, Vt.

WANTED, — young man of 22 wishes a position on a poultry farm where he can learn the business. B. W., care H. A. Winstenbarth, Pratt St., Meriden, Conn.

WANTED, position on gentleman's place by experienced single man, both fancy and utility; must be up to date place. F., care Farm-Poultry.

WANTED, young chickens for table purposes, and yearling hens for roasters—but no Leghorns. Also, early hatched pullets; state prices; will pay good price for good stock, and prompt payments. Fort Washington Dairy and Poultry Yards, 160th St. and Fort Washington Ave., New York, N. Y.

wet too often means closer confinement than is good for them, and that close quarters and bad air do more damage than being out in the wet grass. Indeed I am quite skeptical about there being any serious harm to young turkeys from running in the grass unless they are weakly to begin with. This is the view of some of the best growers I have interviewed about it, and it coincides with my experience with little chickens, which many say should not be allowed to run in wet grass.

S. C. B. Leghorn Winners. (R. A. L.) — The winners of prizes on S. C. Brown Leghorns at Madison Square Garden, in 1905, were:—T. S. Inlay, Jr., Ridgewood, N. J.; E. B. Cridler, Danville, N. Y.; W. H. Wiebke, Ft. Wayne, Ind.; C. A. Sutton, Pine Grove, Pa.; J. F. Homeyer, Middle Village, N. Y.; J. A. Strunk, Reading, Pa.; A. M. Young, Pine Orchard, Conn. In 1906:—Grove Hill Poultry Yards, Waltham, Mass.; J. F. Homeyer; Wm. F. Brace, Victor, N. Y.; Exmoor Farms, Lebanon, Pa.; G. C. Brinkerhoff, Rutherford, N. J.; M. L. Bacon, Washington, D. C.; S. L. Tuttle, Hamden, Conn.; Rosemary Farm, Huntington, L. I.

Buying from One Breeder or from Several. (R. A. L.) — "Would you advise buying high scoring S. C. Brown Leghorns from several different breeders, and mate them together—or buy all from one breeder?"

Buy all from one breeder. To produce exhibition Brown Leghorns two lines of matings must be carried, and it is essential to start with birds that have been bred right and are mated right.

Wants Names of Dealers. (B. K.) — "I wish that you would give me the names of any reliable firms or persons in Providence, R. I., who would be likely to buy broilers in their season, and eggs the year round. We have subscribed for your paper since we started our poultry plant, and like it very much. We have about two thousand chicks on hand, and quite a few of them are ready for market."

I am not well enough acquainted in Providence to give Mr. K. the information he wants. As he lives not a long way from Providence, and has so large a stock of chicks, it should be to his advantage to go to the city and interview the dealers personally, and learn directly of their standing and reliability.

WANTED.

WANTED, a poultryman who can take charge, and build up a plant which I have started. White Rock breeder preferred. A. F. Aldrich, Magnolia Farm, Randolph, Mass.

WANTED, a young man on a gentleman's place who thoroughly understands care of pigeons for squab raising, also fancy poultry. Must come well recommended. Apply to A. B. Seeley, Marshfield, Mass., or 226 State St., Boston, Mass.

WANTED—POSITION AS MANAGER on poultry plant, by single American, age 40, strictly temperate, 10 years practical experience with full blood stock; capable to superintendent construction of plant; refer. Address, L. M., care Farm-Poultry.

WANTED, correspondence with reliable experienced poultryman desirous of renting or working on shares a fully equipped poultry plant, 1000 bird capacity. Hilton P. Yards, Hilton, N. Y.

WYANDOTTES.

BUSINESS W. Wyandottes, stock for sale; trap nests used. Michael K. Boyer, Hammoncton, N. J.

SILVER WYANDOTTES, winners of 15 out of 50 possible 16 firsts at Boston and Madison Square. We are booking eggs now. Send for list of matings. We will give you a "square deal." J. C. Jodrey, Box A, Danvers, Mass.

WHITE WYANDOTTES, our strains are winners the country over; stock for sale at all times. Barnes & Woodbury, Wenham, Mass.

WHITE WYANDOTTES—SNOWDRIFT STRAIN. We have mated up 25 pens of the short backed, deep bodied, blocky built, snow white kind. Book your egg orders in advance. All orders filled in rotation. High grade cocks, cockerels, and pullets for sale. Write for prices. Picturesque Poultry Farm, Box B, Trenton Junction, New Jersey.

COLUMBIAN Wyandottes, 20 trios, \$10 a trio. Prof. John Evans & Son, Meshanticut, R. I.

SILVER Laced Wyandottes 50 yearling hens \$1 up. H. F. Chase, Box 70, Andover, Mass.

COLUMBIAN Wy. breeders, from best pens; 4 trios, \$7 trio. Dr. Gooding, Box B, Brookport, N. Y.

BIG MONEY IN SQUABS. Write for our beautiful illustrated free book. People all over the U. S. are making money with our high class pigeons. Why not you? JERSEY SQUAB CO., Glassboro, N. J.

CET RID OF LICE.

For 25c, we send formula that never fails to exterminate lice. Costs less than 8c. per pound to make. Guaranteed. Used by many leading poultrymen. T. T. POULTRY CO., Springfield, O.

MARKET REVIEW.

BOSTON.

[From Boston Produce Market Report, July 5, 1906.]

Eggs.

Receipts for five days, 28,438 cases; same week last year, 22,417 cases; previous six days, 35,580 cases; since April 1st, 71,786; same time last year 64,577 cases.

There has been no material change during the past week. Receipts are still falling off, but demand is also lighter. Prices range about as quoted a week ago. Western, unless a good deal better than the average, have to sell at 16c@17c, with ordinary stock in full supply at 16c, and under, as to quality and condition. Strictly fancy Mich. and northwestern, free from heat, continue in steady demand at 18c. Fancy henery in light supply and ruling higher.

Quotations at Mark.

Fancy henery.....	24.00
Me., Vt., N. H., and N. Y., extras.....	19.00@20
Me., Vt., N. H., and N. Y., common to good.....	17.00@18
Michigan and northwestern fancy.....	18.00@19
Ind., Ills. and N. Ohio, best marks.....	17.00@18
Other choice western.....	16.00@17
Western fair to good.....	15.00@16
Western dirties.....	13.00@14

Dressed Poultry.

Receipts six days, 4,320 packages; same time last year, 1,336 packages.

The market has been fairly well supplied with western led fowls for the past week, but demand has been only moderate. Some early sales were made at 14c, but no quotable business was done on Monday and Tuesday at over 13c. At the close the market is quiet and unchanged. Fancy western broilers have been in moderate demand at about 20c. Old cocks steady at 9c@9 1/2c.

Choice northern and eastern fowls continue in moderate demand at 15c. Ducks in moderate supply and steady demand. Broilers not so plenty as last week, but have to be fancy to bring 22c.

Frozen poultry in full supply, dull, and unchanged.

Fresh Killed Northern and Eastern —

Fowls, choice.....	15.00
Fowls, common to good.....	13.00@14
Green ducks 3/4 lb.....	11.00@14

Nearby Broilers—

Choice 3/4 to 1 lbs. to pair, 3/4 lb.....	22.00
Fair to good, 3/4 lb.....	19.00@21
Pigeons, choice, 3/4 doz.....	\$1.50@1.75
Pigeons, common to good.....	1.00@1.25
Squabs, 3/4 doz.....	1.20@1.75

Western Ice-packed —

Turkeys, 3/4 lb.....	14.00@15
Fowls, choice western 3/4 lb.....	13.00
Fowls, choice southern and southwestern.....	13.00
Fowls, common to good.....	11.00@12
Broilers, fancy, 3/4 lb.....	20.00
Broilers, average.....	18.00@19
Old cocks 3/4 lb.....	9.00@9 1/2

Western Frozen—

Turkeys, No. 1, 3/4 lb.....	18.00@19
Turkeys, No. 2.....	14.00@15
Chickens, choice soft roasting.....	14.00@15
Chickens, fair to good.....	12.00@13
Broilers, 1 1/2 to 2 lbs.....	16.00@17
Broilers, over 2 lbs.....	14.00@15
Fowls, choice.....	12.00@13
Fowls, common to good.....	10.00@12
Ducks.....	12.00@13

Live Poultry.

Eastern fowls have been in moderate demand at about 15c. Spring chickens in full supply at 16c@17c. The few spring ducks received bring 12c@14c.

Fowls, 3/4 lb.....	15.00
Spring chickens, 3/4 lb.....	16.00@17
Roosters, 3/4 lb.....	8.00@9
Ducks, Pekin 3/4 lb.....	13.00@14

NEW YORK.

[From the Producers' Price Current, July 5, 1906.]

Eggs.

Receipts today 18,468 cases; last six days 71,009; previous six days 89,164. Receivers have been anxious to clean up as closely as possible, and a good deal of ordinary stock has been sold at rather easy prices, but there is still a firm market for fine to fancy goods, and a fairly good clearance of medium and lower grades having been effected, these are now rated steady. A good many of the northern graded eggs lack quality to exceed 17c, and yet fine lots command 18c, without much difficulty, and rare sales of fancy are reported a little higher. Closely graded eggs from southerly and central western points range 16c@17c, but are rarely good enough to exceed 16c@16 1/2c.

Ungraded or only slightly assorted lots from northern sections range 16c@17c, and from southerly and central western points 15c@16c, though comparatively few have to go under 15c. Dirties and checks dull, and must be unusually fine to reach top quotations.

N. Y. Mercantile Exchange Official Quotations.

Fresh gathered, extras, 3/4 doz.....	20.00
Nearby fresh gathered, firsts to extra firsts.....	17.00@18
Western fresh gathered, extra firsts.....	16.00@18
Western, fresh gathered, firsts.....	16.00@17
Western, fresh gathered, seconds.....	15.00@16
Kentucky, fresh gathered, seconds.....	14.00@15
Fresh gathered, thirds.....	14.00@14 1/2
Western dirties, No. 1.....	12.00@14 1/2
Western dirties, No. 2.....	12.00@13
Checked eggs.....	9.00@12

Dressed Poultry.

Receipts two days, 1,681 packages; last six days, 7,964; previous six days, 10,605; corresponding six days last year, 6,403. Supplies of fresh killed fowls were fairly large today; demand slow and unsatisfactory, and

To say, when writing advertisers, "SAW AD. IN FARM-POULTRY," will benefit you — please them—and help us.

feeling weaker. Some breeders are trying hard to sustain 13c. for fancy grades, but it is certainly extreme to sell with any freedom, and close buyers claim little difficulty in securing fancy stock at 13c., and we hesitate to quote any higher. Spring chickens continue in comparatively moderate supply, and showing very irregular quality; trading is moderate, and feeling weaker with 20c-21c. full prices for selected western dry picked, and 19c-20c. for selected scalded, with straight lots as they run selling at 18c., and poorer grades range all the way down to 12c. Long Island and other nearby spring ducks fairly plenty, and with a slow demand the tone is unsettled with 13c. the very top. Squabs selling slowly for all grades below 9 to 10 lbs. average to the dozen. Frozen poultry has a little movement in roasting chickens and broilers, but at a wide range in prices. Other frozen quiet.

Fresh Killed - Iced Turkeys-
Average lots.....@13
Poor to medium.....11..@12

Spring Chickens - 4 lbs. per pair and under-
Philadelphia, dry picked, fancy.....@25
Philadelphia, dry picked, average run.....22..@23
New York and Pa., dry picked, fancy.....22..@23
New York and Pa., dry picked, average run.....19..@20
Western, dry picked, fancy.....20..@21
Western, dry picked, average.....17..@19
Western, scalded, fancy.....19..@20
Western, scalded, average.....16..@18
Southern and southwestern, average run.....15..@17
Poor.....12..@14

Fowls--
Philadelphia, dry picked, fancy.....@13
Philadelphia, dry picked, average run.....@13
Western, dry picked, medium size, selected, ends out.....@13
Western, dry picked, selected, barrels, heavy.....@124
Western, dry picked, average run.....@124
Western, dry picked, poor to medium.....10..@12
South and southwestern, dry picked, selected, barrels.....@13
Western, scalded, medium size, selected, barrels.....@13
Western, scalded, average run.....@124
Western, scalded, poor to medium.....10..@12
South and southwestern, scalded, selected, barrels.....@13
Southern and southwestern, scalded inferior grades.....10..@12

Other Poultry--
Old cocks, dry picked.....@8
Old cocks, scalded.....@8
Ducklings, Long Island and eastern, 3 lb.....124..@13
Ducklings, other nearby.....@12
Squabs, prime white, 8 lbs. to doz., 3 doz.....@3.00
Squabs, prime white, 7 lbs. to doz., 3 doz.....@2.25
Squabs, prime white, 6@6 1/2 lbs. to dozen, 3 doz.....\$1.50 @ 1.75
Squabs, mixed, 3 doz.....@1.50
Squabs, dark, 3 doz.....1.25 @ 1.50
Squabs, ends, 3 doz.....50 @ 75

Live Poultry.

Receipts Wednesday, 5 cars western and 3 cars southern; and today (Thursday) 5 cars western and 1 car southwestern by freight, and about 2 cars scattering by express for the two days. Fowls are selling fairly, and chickens continue in good demand, with prices steadily sustained. Old roosters unchanged. Turkeys slow. Ducks irregular in quality and value. Geese selling slowly. Pigeons steady.

Spring chickens, nearby and western, 3 lb.....@18
Spring chickens, southern and southwestern, 3 lb.....@17
Fowls, 3 lb.....@13
Roosters, old, 3 lb.....@8
Turkeys, 3 lb.....11..@12
Spring ducks, Long Island, 3 lb.....@14
Ducks, western, old, 3 pair.....70..@80
Ducks, old, southern and southwestern, 3 pair.....40..@45
Spring ducks, southern and southwestern, 3 pair.....@50
Geese, western, 3 pair.....\$1.25 @ \$1.50
Geese, southern and southwestern, 3 pair.....90 @ 1.00
Pigeons, per pair.....25 @ 30

PHILADELPHIA.

[From official market report of the Philadelphia Produce Exchange, July 6, 1906.]

EGGS.-The market continues firm for all fine fresh stock free from the effects of heat. For this description there is a good demand that cleans up the limited offerings. The bulk of the supply is more or less heat damaged and unattractive to buyers, and prices have to be cut sharply in order to effect sales. Pa. and nearby, firsts, at mark.....@18
Pa. and nearby seconds, at mark.....@17
Western, extras, at mark.....@19
Western, firsts, at mark.....@18
Western, seconds, at mark.....15..@17
Southwestern, firsts, at mark.....17..@
Southern, fresh, at mark.....141..@161

DRESSED POULTRY.-Fresh killed fowls are firm, under small supplies and a good demand for choice stock. Broiling chickens are in moderate supply and fair demand at steady prices. Frozen poultry continues in ample supply and moves slowly at former rates.

Fresh Killed Poultry -
Fowls, choice dry picked.....@14
Fowls, fair.....@13 1/2
Old roosters, dry picked.....@8 1/2
Broiling chickens, nearby, weighing 3 1/2 @ 4 lbs., 3 pair.....23..@24
Broiling chickens, nearby, weighing 3 lbs., 3 pair.....20..@22

Broiling chickens, western, weighing 3 1/2 @ 4 lbs., 3 pair.....21..@22
Broiling chickens, western, weighing 3 lbs., 3 pair.....18..@20
Spring ducks, nearby.....121..@13
Squabs, 3 dozen, white, weighing 8 lbs. and over 3 dozen.....\$2.75 @ \$3.00
Squabs, white, weighing 7 lbs., 3 dozen.....@2.25
Squabs, white, weighing 6 1/2 lbs., 3 dozen.....1.75 @
Squabs, dark.....1.00 @ 1.25

LIVE POULTRY.-Supplies of fowls and chickens are moderate and the market is firm, with a fair demand that cleans up the offerings. Ducks and geese are in light supply and steady but dull.

Fowls, hens.....14..@14
Old roosters.....9..@9 1/2
Spring chickens.....18..@20
Ducks, old.....9..@10
Ducks, young.....10..@11
Geese.....9..@10
Pigeons, old, 3 pair.....22..@25
Pigeons, young 3 pair.....15..@20

Bounties in Rhode Island.

Editor FARM-POULTRY:—In the May 15th F.-P. I notice the article on "Bounty on Hawks and Crows," by W. B. Savary & Son. I think each town has a right and the privilege to pass an ordinance for bounty on foxes, hawks, and crows. It is so in my town, and all adjoining towns. Bounty on foxes \$5; on hawks and crows 25 cents, and it certainly is the proper thing, as many are killed for the bounty.
JAMES B. GREENE.

Ashaway, R. I.

Keep Cocks With Cockerels.

Editor FARM-POULTRY:—About keeping male birds, as per your request in the July 1st number, I always try to raise my young roosters, after they are half grown, with the cock birds. Then several times during the breeding season I turn them out with the old cock for an hour or so. In this way it is rare that I have any trouble. This year I have a cock turned in with two cockerels, and never a scrap. If they are not raised together it is a different story. I have R. C. Rhode Island Reds.
A. H. DOUGLAS.

Growing in Favor.

Chapman Chicken Compound, of Boston, Mass., report that while their preparation has been on the market but a short time, its reception by poultry keepers has been most flattering. Adherence to our well known policy of omitting testimonials from reading matter columns prevents printing a very strong one recently received from an enthusiastic admirer of the Compound, which it is asserted, saved some high priced chicks when all hope seemed lost. Anyone having trouble with chicks should investigate for themselves the merit of this preparation, which is claimed to be splendidly effective in carrying the youngsters through the first six weeks, generally recognized as the most trying period of their existence. Write Chapman Chicken Compound, Boston, Mass., for a copy of their neat booklet, which is mailed free, and look up their ad. in this issue.


PLYMOUTH ROCKS.

WHITE AND BARRED
Eggs for incubation. Breeders of utility fowl. Fine vigorous cockerels for sale.
AIREDALE POULTRY FARM,
Montrose, Mass.

KEEP YOUR EGGS

All summer while prices are low, and sell next winter at a good profit. Write for our plan; it will interest you.
T. T. POULTRY CO., Springfield, O.

Pasteur Vaccine Co. RAT VIRUS
Exterminates by contagion. Distributed in infested places on bread. Not a poison. Harmless to man and all domestic animals. No offensive odors. The only scientific rodent destroyer. Write for literature. 75 cts per tube; \$2.15 1/2 Doz.; \$4.00 1/2 Doz. Postage paid by us.
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Young Chicks

grow faster, are stronger, get to laying period earlier, if you use daily a small quantity of

Sheridan's Condition Powder

Used by poultrymen 40 years. One pk. 25c.; five \$1; two-lb. can \$1.20; six \$5. Exp. paid.

I. S. JOHNSON & CO., Boston, Mass.

Troubled With Rats?

Some interesting literature has been received at this office, sent by the Pasteur Vaccine Co., 366 West 11th St., New York, N. Y., and relates to the Rat Virus now being advertised in our columns. The results of demonstrations of this scientific rodent destroyer in Paris hospitals and sewers is given, together with full directions for its use. The preparation is absolutely guaranteed to be perfectly harmless to human beings or domestic animals, but rat or mice infested quarters are speedily cleaned out by its use. Poultrymen or farmers who are troubled with this specie of pest should, in their own interests, look into the subject of this effective destroyer. The New York office of this world famous institute will be pleased to send all necessary information upon request. Mention FARM-POULTRY when writing.

Show Incubator Chicks Did Well.

Editor FARM-POULTRY:—Last January I went to the Boston poultry show to buy some chickens to try my luck with them just to see how many I could raise. Had no brooder or anything to keep them in when I bought them. Carried home 18 Barred Plymouth Rocks and one White Rock just out of the shell. Made a brooder out of a large shoe box, and with hot bricks and a large glass

bottle for heat raised 17 chickens - 11 pullets, 6 cockerels. One of the pullets commenced to lay May 16th, and has skipped only two days since; another one commenced May 22d, and hasn't skipped a day since. The others are coming right along, and are as red as blood. They are most full grown, and shedding their chicken feathers; they weigh five pounds. May 26th I received four eggs from them. How is that for Barred Plymouth Rock pullets four months old? WALTER CUTTER.
12 Davenport St., No. Cambridge, Mass.

Poultry Instructor at R. I. Agricultural College.

Professor J. Willard Bolte, of the Experiment Station, at Logan, Utah, a graduate of the Michigan Agricultural College, has been appointed assistant professor of animal husbandry at this college. He will have practical charge of the college poultry yards and classes in poultry keeping. Dr. Curtee will still retain direction, but devote the major portion of his time to Experiment Station duties.
Mr. James C. Halpin, instructor in poultry keeping at this college, and graduate of the course in agriculture at Cornell University, will be assistant professor of poultry husbandry at the Michigan Agricultural College after July 1st.

THEY'RE GOING FAST

Here is one of those rare opportunities offered by FARM-POULTRY which are always eagerly taken advantage of. Only about fifty complete sets of Volume Ten remaining. They embrace a wealth of practical, helpful teachings on subjects of constant interest to poultry keepers, among which may here be mentioned.

Winter care of layers; how often to feed, how much, and some tested rations for laying hens. Conditioning of exhibition birds. Colds and roup; causes, prevention, diagnosis and treatment. Mash food symposium. Plans and detailed measurements of stationary and portable scratching room house. Poultry for meat and eggs. Duck breeding with points on mating, food and care of Pekin ducks. Hatching and raising chickens; a description of methods employed and coops, etc., used on the then editor's farm.

And hundreds of valuable short articles on houses, incubation, marketing, breeding, breed descriptions, etc. Until they are gone, we shall mail a set, postage fully prepaid by us, for the small sum of 35 CENTS PER VOLUME, which is practically

GIVING THEM AWAY

When we recently offered our limited supply of Volumes 6 and 7 for 50c. there were many who delayed ordering, with the result that we were compelled to return quite a few remittances, as our supply was quickly exhausted. Therefore, send in your order AT ONCE, and avoid disappointment. You do not often get the chance of securing such a rich fund of desirable information for so small an amount. The "Questions and Answers" in every number, if converted into a scrap book of ready reference, will easily be worth many times the price asked. Remit by cash, postal or express money order. Stamps will be accepted.

FARM-POULTRY PUB. CO., Boston, Mass.

Egg Binding.

To understand the causes of egg binding, we ought first of all to be acquainted with the anatomy of the egg organs. Briefly it may be said that an egg originates in the ovary, a chamber in which will be found a number of immature eggs crowded together very much like a bunch of grapes, varying in size, as everyone who has had experience in dressing poultry will know very well. Each one of these immature eggs is termed an ovum, and in their turn these ova enlarge; each one, as it becomes large enough, detaches itself from the bunch, and enters what is termed the oviduct, which is a long winding tube, in passing down which it becomes coated first of all with albumen, and then further on down it receives the membrane, which is always to be found inside the shell, and last of all it becomes coated with the shell itself. Now egg binding may be due either to inflammation in the ovary itself, or to inflammation in the oviduct. Generally it is in the oviduct that a mishap occurs. An egg becomes broken, or the organs are weak, and the natural process cannot satisfactorily be completed. When a bird is egg bound, and the egg can be distinctly felt, the best thing is to use hot fomentations, and apply carefully a little sweet oil by the aid of a feather.

There must be no rough handling. Some ignorant people are very fond of displaying their cleverness, or, rather, their clumsiness, in dealing with such cases as these, and there is no doubt that a very large number of poultry have died as the result of interference of this kind. Very

often in the case of young pullets, there is an appearance of egg binding, which disappears in the course of a few days, and is not due to the presence of an egg, but is merely due to local inflammation, which subsides of its own accord, very often without any treatment whatever; if the bird be kept quite quiet. Supposing it is evident that there is a broken egg in the oviduct, however, great care will have to be taken to get this away. A dose of castor oil should be administered, and after careful anointing with sweet oil, it will probably be possible for the shell to be brought away with care. So long as the shell can be removed comparatively little danger may be apprehended. The most frequent way in which a hen gets into this condition is by injuring herself; she may fall from a perch, or she may become caught in the fencing, and in her struggles to get free may break an egg internally. Or, there is another way in which hens become egg bound, and it is through overfeeding. Very often hens are fed with unsuitable food, such as corn and rice, to such an extent that the egg producing organs become cased in solid masses of fat, and this very often gives rise to the rupture of blood vessels, and inflammation is set up, which almost always proves fatal. I have seen many instances of birds which died in an egg bound condition, purely and simply brought about by this idiotic system of feeding, which has been denounced so many times by experts that repetition of the denunciation almost becomes wearisome.

W. R. GILBERT.

A Frequent Predicament.

EDITOR FARM-POULTRY:—Thus far I have never found it necessary to ask questions of a poultry journal (the other fellow has always done that), but must confess that I am a "lame dog" at last, and need a little helping. Will be as brief as possible. Our immediate neighborhood is one where poultry raising is carried on by natural methods, hence I have not been where I could see the things that I now ask about, and your conservative opinion may help others besides myself. Have been fairly successful with incubators and brooders, and now that I have a little more time to devote to it want to increase my flock next year. The brooder problem is the one that troubles me. My present stock and past results ought to give me about 1,200 chicks next spring. Individual brooders mean many lamps to care for, and a big coal oil bill. Sectional brooders would partly solve the difficulty, but seem to be going out of style. Why are they not considered satisfactory? Hot water systems are said to be fit only for expert use; while I have been successful with brooders, do not consider myself an expert. Then there are the open pipe systems and the closed systems, electric regulators and expansion regulation. Mr. Nix's lecture, which you recently printed, leaves the problem unsolved. Then there is the question of money invested. My brooder house will be made from dismantled freight cars—they are cheap here—the labor of putting them in the right shape comes to more than the cars. As I said before if I could see these things for myself would not trouble you, but as it is will be greatly obliged to know your opinion regarding the brooder question. Have had very good success with brooders constructed after the plans received from Dr. Nottage, although I cannot build them for less than double his estimated price. O. E. R.

What is best to do in cases like this it is hard to say—hard to advise, and hard to decide. Probably the wisest course is not to make the increase in production until the brooder problem has been satisfactorily settled. If old freight cars are to be used for brooders it seems to me that a system of brooding adapted to the cars as houses or sections of houses should be used. Perhaps the best way to get at this would be to look up brooder systems as described and advertised in manufacturers' catalogues, and see if there are any that look like they would suit. It occurs to me as probable that something might be found either in a sectional system applicable to a single car, or in a small pipe sys-

tem, with hot water heater, applicable to a series of cars. Having found something that looks "adaptable," it would be worth while to write the manufacturer, stating the conditions under which the brooding is to be done, and asking his advice about it. Manufacturers generally give advice in their best judgment when they give it at all. They are not always able to give questions of this kind attention, but it is worth while to take a chance on such an inquiry. Sometimes it happens that someone else has had occasion to work out a similar problem, and has reported on it to the manufacturer of the appliance he uses, and the inquirer can thus get a useful idea, or be placed in communication with someone who can help him.



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Washed in 15 to 30 minutes

I suppose the reason sectional brooders are not more extensively used is that there are comparatively few poultrymen growing chicks in large numbers in winter and very early spring who do not find a hot water system preferable. Most of them grow either a few chicks which they can handle in individual brooders, or enough to fill a fair sized brooder house with hot water system. Some use the individual brooders for large stocks of chicks, especially if they wish to colonize their brooder chicks outdoors after the weather is warm. So the short sectional brooder seems to have come into more limited use than the other systems, though in going about among poultrymen I have found a good many of them in use.

There's no royal road to advertising. If it was possible to insert a two-inch electro in any old publication, and then sit down and wait for a hundred times the amount of the advertising appropriation to come rolling into the mails, everyone would be an advertiser, and doctors, lawyers, ministers, plumbers, and ear conductors would become scarcer than the Great Auk.—Our Silent Partner.

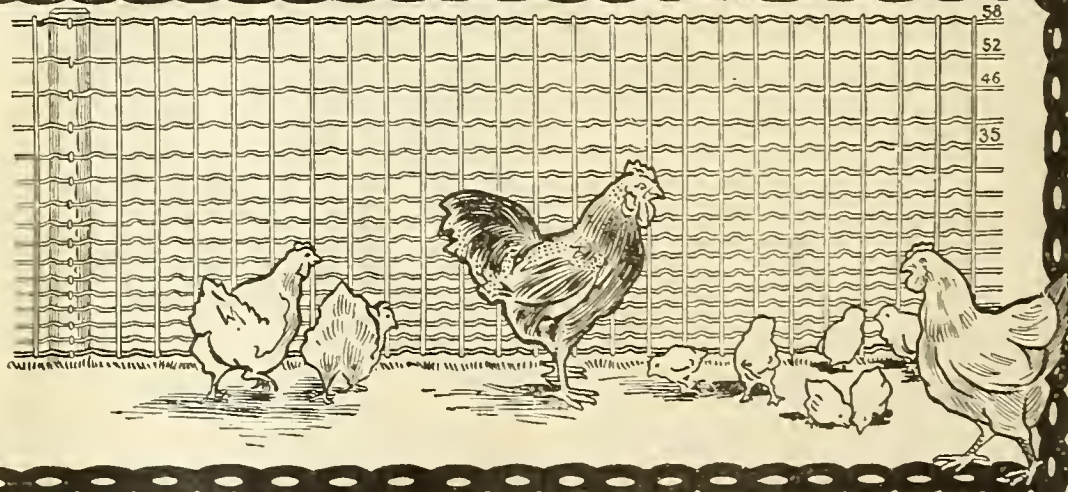
Leominster, Mass., Show.

The Leominster Poultry Association will hold its third annual exhibition Dec. 4-7, 1906, at Music Hall, Leominster, Mass. We have one of the largest and well lighted halls in New England; it is handy to the depot and express offices, and is in the center of the town. We have the largest cash special list of any show in New England outside of Boston, and we have a bank account sufficient to pay all premiums.

Our judges are known the world over. We have succeeded in engaging Messrs. Lambert, May, Hawkins, Shove, and Ballou, to do the work, which will be done the first day of the show, and all ribbons and score cards up the same day. We furnish coops for all varieties except pigeons. Our superintendent will look after all the cooping and feeding of birds, and will see that it is done in a satisfactory manner.

The premium lists will be ready for mailing Nov. 1st, and can be obtained of the sec'y, Mr. L. D. Mudgett, Box 382, Leominster, Mass.

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The "Pittsburgh Perfect" Poultry and Garden Fence is exactly what its name indicates. It is "Perfect" because made of special steel of our own formula; "Perfect" because heavily galvanized, thus preventing rust; "Perfect" because our electric welding process makes stay and strand wires one piece so that mesh cannot spread to let fowl through; "Perfect" because smallest wires in it are heavier than the wires used by most fence manufacturers for a regular stock fence; "Perfect" because it is the only fence that will not unravel if strand or stay wire is cut.

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To say, when writing advertisers, "SAW AD. IN FARM-POULTRY," will benefit you—please them—and help us,

Overcrowded Chicks.

EDITOR FARM-POULTRY:—I have 90 R. I. Red chicks March and April hatched, so now are feathered. From the time they were hatched until June 9th they had free range; since then have been in yard about 50 x 30. The Sunday after they had been two weeks in yard I noticed some of them acting dumpy, and in the evening when I shifted them so they would not be crowded, I noticed they were getting thin, and each day since more dumpy ones.

I have raised chickens three years with success on free range, never keeping any shut up excepting brooders and others long enough to teach them their place to roost.

Now I have to keep them in yards, and find myself up against it. I do not know how. I subscribe for FARM-POULTRY, and have always found lots of good information in it, but as I was not interested then in keeping chicks in yards, I expect I did not read any information on the subject deeply enough.

I feed wheat, cracked corn (equal parts) three times a day — more in morning and at night than at noon. In the forenoon I also give them a dry mash of 4 parts Indian meal, 2 parts wheat middlings, 1 part meat scraps; cut green grass and clover each day; water before them all the time.

When they were on free range I alternated the mash with meat scraps, but thought when in yard it might be too heating. How about it?

A Few Questions from a City Poultry Keeper.

EDITOR FARM-POULTRY:—I have lost two fine hens through the rooster, as I believe. Both of them had the skin on the back quite torn off on each side of the wings so badly that I killed them. There is no possibility of rats or weasels getting in the house, so I must blame the rooster. I have filed off the tips of spurs and nails, and have him by himself away from the hens.

Is it necessary to keep roosters with hens all the year around? Does the rooster's presence affect the laying of hens in any way? How would it answer to keep rooster by himself and put him in with the hens, say about the month of February to fertilize the eggs of the hens I may wish to set in March or April?

Have been fairly successful so far, although but a beginner, but sometimes I get mixed up with directions and experiences of other people. I prize your lessons very much and have found FARM-POULTRY a great help.

What do you think of my feeding now? I have 25 Plymouth Rocks. Morning 1 qt. wheat in litter; noon 1 qt. oats in litter; evening mash all they will eat. Mash contains—1½ pt. ground oats, 1½ pt. corn meal, 1 pt. beef scraps, 1½ pt. bran; all mixed together with hot water, and not mushy. When almost cold I feed in trough. Chickens have a run 60 feet by 75. They have cut bone, charcoal, and grit in hoppers in the house at all times.

A Whack at the Editor.

THE poultry industry is all right, and the poultry press is nearly all right. The poultry breeders, poultry judges, and poultry buyers are a good average aggregation of beings, but there are many things that ought not to be.

I would call especial attention to the editors of the press. They make many statements out of the goodness of their hearts that they know are wrong or misleading, or they take the breeder's word for it. I recall a conversation with a beginner, a man with plenty of money, well educated, and whose father had a country home. This man had to leave the city on account of ill health, and thought he would take up poultry. It made no difference to him whether it paid or not, but he was anxious to make as good a showing as possible just to prove his ability in handling the business. After he got nicely started, he placed an "ad." in a leading poultry paper — a good dis-

I enclose stamp in hopes you will answer me, as it makes me feel very badly to see my fine bunch of youngsters slipping away from me. The old hens under similar conditions are O. K. G. R. A.

I wrote Mr. A., suggesting that he provide several places where the chicks could be fed in litter. This would have a tendency to make them divide up. I consider 90 chicks too many to keep in one flock and have them do well in close quarters. It is much better to keep the number together down to 30 or 40. When 90 chicks begin crowding several of the most badly crowded are going to be badly damaged, and in a large flock of chicks crowding is more likely to take place than where there are not so many. Probably Mr. A. will find the results at the end of the season more satisfactory if he reduces the number kept in the inclosure by at least half. It is not at all strange that old hens under the same conditions should do better than the chicks. Adult stock can stand all kinds of unsatisfactory conditions much better than growing chicks can.

As I understand Mr. A.'s statement, until the chicks were confined he gave them meat scrap instead of mash every other day. Perhaps what he meant to say was that the meat scrap in the mash was omitted every other day. The amount he uses in the mash it is generally safe to use constantly, but it would not be advisable to give no mash and clear meat scrap every other day to stock in confinement.

I give them plenty of green stuff in the run between meals.

Which is the most practical way to stop a hen from sitting, — or do you think it more advisable to let the hens sit as long as they please? I have two began to sit yesterday, and I gave them eggs, although I do not care for any late chicks.

H. C. B.

Unless the male in question is a valuable one it might be better to dispose of him. Usually the male that lacerates the backs of hens is an old bird, and not likely to be worth breeding the following season. When the bird that causes the trouble is young I think it will be found that there is something wrong with him, and his efforts to serve the hens are ineffective. A male that is to be kept over for breeding, I prefer to keep with young chicks unless he acts viciously toward them. When kept by himself or with one or two hens the male reserved for another season rarely gets room enough to be kept in good condition. The presence of a male with the hens is not necessary for egg production.

The bill of fare given seems to me rather light, though if the hens get plenty of cut bone and green stuff it may be ample.

To break up a broody hen, confine her away from the nest for a few days.

play "ad.," and in the same issue was a write-up of the plant, as to the man's reliability, stock, etc. Now, the fact is, the editor nor none of his representatives ever saw this man's plant or stock, and he told me that he could never have any faith in any write-ups he ever saw. It just made him sick. I ask all editors if it is right? A man comes to our mill and buys a ton of feed or a hundred bushels of oats. You can rest assured that he does not look for, neither does he get some extra goods. He gets what he pays for — that's all he wants, and all he has a right to expect. I understand perfectly that if a paper has a man on the road looking up business and writing about his travels, that at the same time, over half of these reports about Mr. So-and-So's stock are not exactly hewed to the line, being misleading and in many cases a downright lie. Still we breeders seem to demand it. —D. LINCOLN ORR, in *American Fancier*.

What T. E. Orr says about the Prairie State Universal Hoyer

Read what Mr. Orr, sec.-treas. of the American Poultry Association, says of his experience with Prairie State Universal Hoyers. The Universal Hoyer has completely revolutionized the rearing of chicks. No device offered to the poultry raisers has ever received such an overwhelming endorsement. From the coldest parts of Canada and the Northwest to the warmest parts of the South have come flattering reports of the successful rearing of little chicks, under the most adverse conditions. When used in a portable Colony House chicks can be reared with this brooder out of season, during the hot dry months of June, July and August, when they cannot be reared with hens. There is practically no limit to its adaptability either to cold or heat. With a new Prairie State Brooder, it is now possible to raise every healthy chick. Send for our latest descriptive catalog of these brooders and get further information in regard to our open bottom Prairie State Incubators.

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Mr. Orr's Five Piano Box Brooders



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The Home of Prize Winning Wyandottes
Beaver, Pa., April 25, 1906
Prairie State Incubator Co.
Dear Sirs:—I think I ought to tell you how well we like your new Universal Hoyers. We now have five of them attached to our big piano box brooders, shown on this sheet, and it has been a constant surprise to me to see how thoroughly your hoyers, with a No. 2 burner, heat these immense brooders. Last night it was cold and windy, ice formed nearly an inch thick. We made a record of all thermometers at 7:30 p. m., 10:30 p. m., and 5:30 a. m. At first test they ranged, as we wanted them, from 85 to 92 degrees, varying with the age of the chicks. The two subsequent tests showed a variation of scarcely a degree in any one of them. Yours truly,
T. E. Orr

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LESSONS IN POULTRY KEEPING

Second Series.

LESSON XII.

Internal Parasites of Poultry.

PARASITIC worms — particularly intestinal worms — infest many fowls whose owners do not at all suspect their presence. By "infest" here I mean that the worms are present in sufficient numbers to be troublesome. Some good authorities say that intestinal worms, like lice on the skin and feathers of the fowl, are almost invariably present, but as long as they are not too numerous they make no trouble, and may even have some function of benefit to the fowl. Just what this is, or how it operates, I have never seen stated, nor so far as I have read on the subject have I seen any suggestion of usefulness for the gape worm which infests the œsophagus of the fowl.

The literature of this subject is not large. Salmon in the "Diseases of Poultry," devotes about thirty pages to worms, giving them, I think, more space than all other American poultry books combined. His material is drawn largely from European writers and investigators. Little original work in investigation of diseases of this class has been done in this country. Dr. Paige, of the Massachusetts Agricultural Experiment Station, has investigated several mysterious troubles in poultry yards in the state, and found worms causing the trouble, and has had a good many diseased birds at the station for observation and experiment. When I was last at the station he was testing remedies on a number of diseased specimens, and, as I understood, finding results too variable to warrant any general conclusions.

Salmon's treatment of worms, while the best accessible to poultrymen, is often far from satisfactory. He seems to write almost wholly after the European investigators of the subject, and is often too technical in descriptive statements.

Worms, when present in troublesome numbers, interfere seriously with the health of the fowl. Considering the conditions produced by them as diseases it is found that the symptoms are not marked until a rather acute stage, and even then are not so unique as to immediately identify them. The presence of the gape worm in the throat is most easily determined, yet "gapes" is commonly confounded with other troubles like gastritis, in which gas escaping through the mouth causes belching; acute lung troubles accompanied by labored breathing; or, indeed, any difficulty or distress in breathing. As — especially in small chicks — general weakness from any cause is apt to be accompanied by difficult breathing, it is readily seen that the possibilities of mistaking other things for gapes are quite unlimited. And, as a matter of fact, a great many reported cases of gapes are not gapes at all, and the general impression that "gapes" is a malady that annually ravages the crop of young chicks all over the country is a great big general mistake due to the fact stated above that a symptom which might be described as gaping accompanies other more common diseases.

With regard to intestinal worms we have just the opposite popular attitude. They are rarely suspected as the cause of trouble, and rarely discovered until diseased specimens or infested premises are examined by men with medical training. All in all, the detection and effective treatment of these parasites that live within the body of the fowl is one of the most puzzling propositions the poultrymen to whom it comes have to deal with.

What I can say on the subject is said from the rather peculiar standpoint editors sometimes attain. I have never seen a case of gapes, nor have I had any trouble with intestinal worms in my own fowls. I have frequently been able by reference to authorities on poultry diseases to indicate intestinal worms as a probable cause of troubles about which readers of the paper asked me, and in many such cases treatment for worms has seemed effective, furnishing reasonable grounds for concluding that worms caused the trouble, though I must say that in more than one case in which satisfactory result of treatment for worms was reported to me the correspondent had not been able to discover worms, and could only say that after applying the remedies conditions improved. So I am in the position, not of an authority on this or other diseases, but of a plain poultryman with perhaps a little more than average familiarity with both unprofessional statements of cases and the professional descriptions of diseases and prescriptions for the same.

The Gape Worm.

The disease known as the "gapes" takes its name from a small red round worm which attaches itself to the mucous membrane of the windpipe. The conspicuous symptom of the disease is the gaping which gives it its name. As has been said, gaping, while the characteristic symptom of this disease, is not peculiar to it, but is a symptom in several other troubles. So to make sure of the nature of the trouble, and of the proper treatment to apply, the windpipe should be examined for worms. If they cannot be detected by opening the mouth of the bird wide and looking into the passage, take a stiff feather, not too large, and having stripped the quill to leave only a little brush at the end of it, put it gently down the windpipe, turn once or twice, and then withdraw. If there are gape worms present some should be found adhering to the feather. If the worms are found, the only way to treat them effectively seems to be to operate on each chick separately with a feather, as just described, or with a looped horse hair, or a gape worm extractor made of fine wire. Anyone can make such an extractor for himself, using No. 30 wire. Take a piece about 12 or 14 inches long, double it, and then twist the two ends so that a loop just wide enough to go down the windpipe, and half to three-quarters of an inch long is left at one end, while the wires twisted together for the rest of their length, make the long handle for the instrument. When this is inserted in the windpipe, and turned around, the worms are cut loose, and what are not withdrawn with the wire will be coughed up by the chick. Several other remedies have been given. One that used to be very generally recommended was to put the chicks in a box, and cause them to inhale lime dust. This treatment seems to have survived on paper rather than in satisfactory practice, for though it seemed to have the indorsement of many writers I never could learn that it was effective.

When the disease is discovered on premises, give the affected birds the individual surgical treatment just described; then take precautions to prevent it in future. According to the best authorities, and also to the most observant poultrymen who have had to contend with it, the gape worm, (*syngamus trachealis*), is communicated to fowls through earth worms which they eat from ground on which chickens with the gapes have run. The eggs and embryos of the gape worm are scattered over the ground, some in the excrement and some coughed up by the sick birds. They may be taken by other chicks or fowls direct from the ground, but the common method of receiving them is believed to be through earth worms. It is said to have been shown conclusively that they are taken into the digestive tract of earth worms, and may be carried for some time there, and communicated to the chick by the worms it eats.

Sometimes the infested tract is small, and trouble may be avoided by fencing the chicks out of it. A lady in Pennsylvania wrote me some years ago that she found she had no trouble with her chicks if she kept them away from a particular spot in the garden.

A poultryman, some time ago, stated in one of our leading poultry journals that he raised

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Grove Hill Poultry Yards, Waltham, Mass., Nov. 25, 1915.
W. E. Bright, Proprietor; A. C. Smith, Manager.

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Gentlemen—We have used your Lice Killer all the past season among our growing chickens and mature stock, and find it stronger and more lasting and satisfactory than any other lice killer we have ever used. Yours very truly,
(Signed) A. C. SMITH.


So much for the bugs you can see. For the germs you can not see and that are always with us and must be kept quiet we sell PRESTO, the cleanest and strongest one of its kind on the market. This, also, on one gal. at \$1.50 and five gal. at \$7.00, we pay freight or express to your station east of Ohio.

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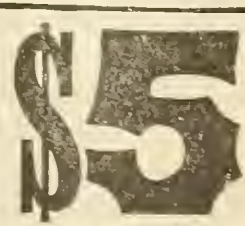
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THE RUSS Prize Winning Brooder.

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EXCELSIOR WIRE & POULTRY SUPPLY CO., DEPT. I
26 & 28 VESEY STREET, NEW YORK CITY.

chicks on infested ground by keeping them confined while small to pens or sheds, the ground under which had been treated with lime. In these enclosures the chicks could get no worms, and were free from gapes, while those outside soon became diseased. He says that he has found that if chicks are kept off an infested piece of ground for three years few gape worms will be left in it.

Where the gape worm is prevalent it is a most serious pest. It abounds most on wet heavy soils, that is, on soils least suited to poultry. On the sandy hills and knolls of New England, we have no trouble with it. It might get a foothold on some of our low, rather swampy spots, but very little poultry is kept in such places, the "sandy, well drained" locations having been favored more perhaps than their merits deserve.

When I was a boy in Illinois we used to hear much of the gapes, and from the character of much of the soil there, it is probable that many of the cases were genuine, but I never happened to come in contact with them. In Colorado, with its dry sandy soil, we had no gape worms. I am inclined to think that if a careful investigation of poultry and yards were made all over the country, and a map prepared to show the areas free from the gape worm, those in which it was found, but not generally as a serious pest, and those where it was very troublesome, poultrymen would be surprised at the small area actually badly infested. I mention this particularly because people so often, supposing they have a case of gapes, fail to prove it or find out what really is the trouble, and so allow some other serious trouble to develop to a stage where it is hard to deal with, when, if they had been more thorough in the first diagnosis they might have learned just what was wrong in time to treat the disease easily and successfully.

Intestinal Worms.

Salmon gives a list of forty-five parasitic worms found in the intestines of fowls and in the neighboring parts. Some of these are found only in one kind of fowls; others infest all kinds of domestic land and water fowls. These worms he groups as tape worms, round worms, flukes, and thorn headed worms, the most numerous in varieties and the most common in occurrence being the tape worms and round worms.

The general symptoms of worms in the intestines are the same. The kind of worm present can only be determined by finding worms in the droppings, or by post mortem, showing them fixed in the parts of the fowl. If the droppings as voided by the fowl before treatment show no traces of worms, a vermifuge may be given, and the fowl kept where its droppings are easily examined. It is not certain that no worms are present because none are evacuated. Some worms are very difficult to dislodge. But a dose of the remedy to endeavor to secure from the droppings confirmation of the suspicion of the presence of worms in the intestines of the fowl is the only way practicable for the poultry keeper, short of killing one or more fowls, and making a careful examination of the intestines.

The inexpert examination is, of course, especially liable to error, though often it does show the presence of worms. Wherever a state has its experiment station equipped for the examination of such animals and fowls, poultrymen in that state should communicate with the director or the veterinary at the station whenever a serious trouble arises which they do not understand. Write the experiment station authorities stating the case. If they find on correspondence that there seems to be a case requiring investigation they give directions how to proceed. In practically all of the eastern states the experiment stations are prepared to do work of this kind.

"The symptoms which indicate worms in the intestines," says Salmon, "are not very characteristic, but are such as would be expected from ill health due to any chronic disease. The birds become dull, weak, emaciated, isolate themselves, are indisposed to search for their food, are stiff in their walk, their plumage loses its brilliancy and becomes rough, they have diarrhea, and sometimes epileptiform attacks. In certain cases the symptoms develop rapidly, and the birds die as though from an acute disease. The most certain evidence of the nature of the trouble is the discovery in the intestines of large numbers of one or more species of worms * * * upon examination of birds from the flock which have died or have been killed."

For treatment Salmon recommends first hygienic preventive measures. Says he: "One of the most important of these measures is to move the fowls upon fresh ground every two or three years, or certainly in all cases where such parasites are frequently observed in the intestines of the birds. Another practical measure which may be adopted at the same time is to remove the excrement daily from the houses and destroy any parasites or their eggs which may be in it, by mixing with quick lime, or saturating it with a ten per cent solution of sulphuric acid. The acid is cheap, but requires that great care be used in diluting it, owing to danger of it splashing upon the clothing and flesh, and causing severe burns. It should always be poured slowly into the water for dilution, but on no account should water be poured into the acid, as it will cause explosions and splashing. When treating diseased birds these should always be isolated and confined, and their droppings should either be burned or treated with lime or sulphuric acid as just recommended. Without these hygienic measures, medical treatment can only be partially successful."

For medical treatment the same authority says:—"One of the best methods of treating tape worms in fowls is to mix in the feed a teaspoonful of powdered pomegranate root bark for every fifty head of birds. In treating a few birds at a time it is well to follow this medicine with a purgative dose of castor oil (two to three teaspoonfuls)." * * *

"For the treatment of the heterakis (round worm) Meguin recommends mixing santonine with the food given to the fowls. The powdered santonine may be incorporated in a cake, the dose being 7 or 8 grains for each bird. An efficient remedy is made by boiling an ounce each of male fern, tansy and savory in a pint of water. The resulting liquid is mixed with flour, which is then made into pills and administered to the affected birds. * * * Oil of turpentine is an excellent remedy for all worms which inhabit the digestive canal. It may be given in the dose of one to three teaspoonfuls, and is best administered by forcing it through a small, flexible catheter that has been oiled and passed through the mouth and esophagus to the crop. The medicine is less severe in its effects if diluted with an equal bulk of olive oil, but if it fails to destroy the parasites when so diluted it may be given pure."

The remedies given by Sanborn in "Farm-Poultry Doctor," are slightly different. He advises for round worm a two grain pill of santonine followed by a half-teaspoonful of castor oil. This to be given about an hour before feeding every other morning for a week. For tape worm he prescribes five drops of oil of male fern in one teaspoonful of sweet oil. This to be given before feeding in the morning, and the morning feed given about two hours after to be a warm mash of bran and milk containing for each bird one teaspoonful of castor oil.

The Last Resort.

When worms of any kind become so troublesome as to cause heavy losses it is probably the best policy to discontinue keeping poultry on the premises for a time proportionate to the violence of the epidemic and the general condition of the buildings and soil. On an old plant it might be advisable to keep no poultry for two or three years. On a new plant a thorough cleaning up and disinfecting preliminary to the introduction of new stock presumed to be free from the trouble should be sufficient.

To what extent losses of poultry are due to worms, it is not possible to say. Doubtless many epidemics of so-called cholera and dysentery are caused by worms, and the unfortunate poultry keeper never suspects the real cause of the trouble. It is for this reason that anyone engaged in poultry keeping who has heavy losses he cannot account for ought to try to have an expert examination of diseased fowls made. This will in most cases show where the trouble lies.

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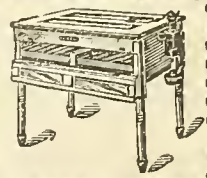
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At the regular quarterly meeting of the board of directors of National Biscuit Company, held at the office of the company at New York, on Thursday, 10th ult., Mr. Frank A. Kennedy was elected a director of the company.

The election of Mr. Kennedy introduces a new element into the directory of the Biscuit Company, and restores to active participation in the biscuit business one of the pioneers of the industry.

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The influence and ripe experience of such men as Mr. Kennedy insure a continuance of the wise and liberal policy, which has since its formation, made the National Biscuit Company the model industrial corporation of the country.

Of Interest to Poultrymen Who Garden.

In its crop report for May, out today, the Massachusetts State Board of Agriculture includes an article on "The Home Garden," by Prof. Frank Wm. Rane, of the New Hampshire College. This report will be sent free on application to J. Lewis Ellsworth, sec'y State Board of Agriculture, State House, Boston, Mass., and those wishing it may have their names placed on the mailing list for future issues.

In this article Prof. Rane says that the first necessary step to the planning of a successful garden is to awaken an interest in the subject, and to do this recommends careful study of certain bulletins of the experiment stations and departments of agriculture, a list of which is given, and also of the seedsmen's catalogues. He comments on the seemingly general impression that the large growers do not select the better varieties for home use, and states that his observation has convinced him that the commercial growers, as a rule, make far better selections, both for yield and quality, than do most of those who grow vegetables simply for their own use.

Prof. Rane recommends that the garden be fall plowed, and the furrows left on edge, to remain over winter, the alternate freezing and thawing, with free access of air to the soil, being very beneficial, and soils so treated drying out early in the spring. The keynote of success, however, lies in the plant food supplied. This should be abundant and suited to the purpose. While experienced growers attain marked success with commercial fertilizers, the writer holds that in the hands of the

ordinary person they are not nearly as satisfactory as are stable and barn manures. These should be well rotted and liberally applied. A very good rule is to put on what you think is enough, and then double the amount.

Cultivation is treated in detail, thorough culture from the start being urged, both for its mechanical effect on the soil and because it is essential to keep down the weeds. The tools necessary to the successful carrying on of garden work are also described and a full list given. Planting is taken up and proper dates given for all the principal garden crops for the vicinity of Boston, but this must of course be varied to suit the particular locality.

With the garden well enriched Prof. Rane says it should be our aim to produce all we can from it. To do this rotations must be arranged, so as to keep the ground constantly occupied, and suggestions are made as to the proper crops to follow each other in practice. A full list of varieties recommended is also given.

The article is fully illustrated with cuts of the best varieties of the most important vegetables, and there is also a large plan by Mr. Clarence Fowler, of the New Hampshire College, giving a proper arrangement for a garden, including all the varieties of berries and vegetables desired, arranged in proper rotations, and with the proper amounts of seed for each indicated in an accompanying table.

The Roofing of the Future.

Playing the music of the future on the pianos of the past is the reminder one receives when he hears the storm beating on the rusty tin roof. Present day shingles are little better, and the modern building is not satisfied with either. Modern conditions require modern methods, and Messrs. J. A. & W. Bird & Company, of Boston, the well known manufacturers of Rex Flintkote Roofing, have adapted their manufacture to these modern needs.

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A Show at Ashtabula, O.

The Northeastern Ohio Poultry and Per Stock Ass'n was organized at Ashtabula, Ohio, June 12th, with a large membership. The following officers were elected: W. W. Scott, president; Dr. H. M. Brown, vice-president; D. D. Whitaker, secretary; W. A. Kain and E. C. Horton, ass't secretaries; H. P. Smith, treasurer. The association will hold a score card show the coming winter. Judges of national repute will be engaged to place the awards.
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We find it a pleasant duty to announce that this picture will be sent free to anyone who will write for it to the J. Stevens Arms & Tool Co., Chicopee Falls, Mass., if they will send six cents in stamps, simply to defray the expense of packing and postage.

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The method of treatment is entirely new. An attempt is made to trace the origin, history, and distribution of the races of Domestic Poultry, and to show the evolution of breeds and their classification. Tables to facilitate classification are freely given, and in dealing with the various races the origin, history, economic qualities and descriptions enable the poultry keeper to easily discern their respective values.

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