

Plymouth Rocks.

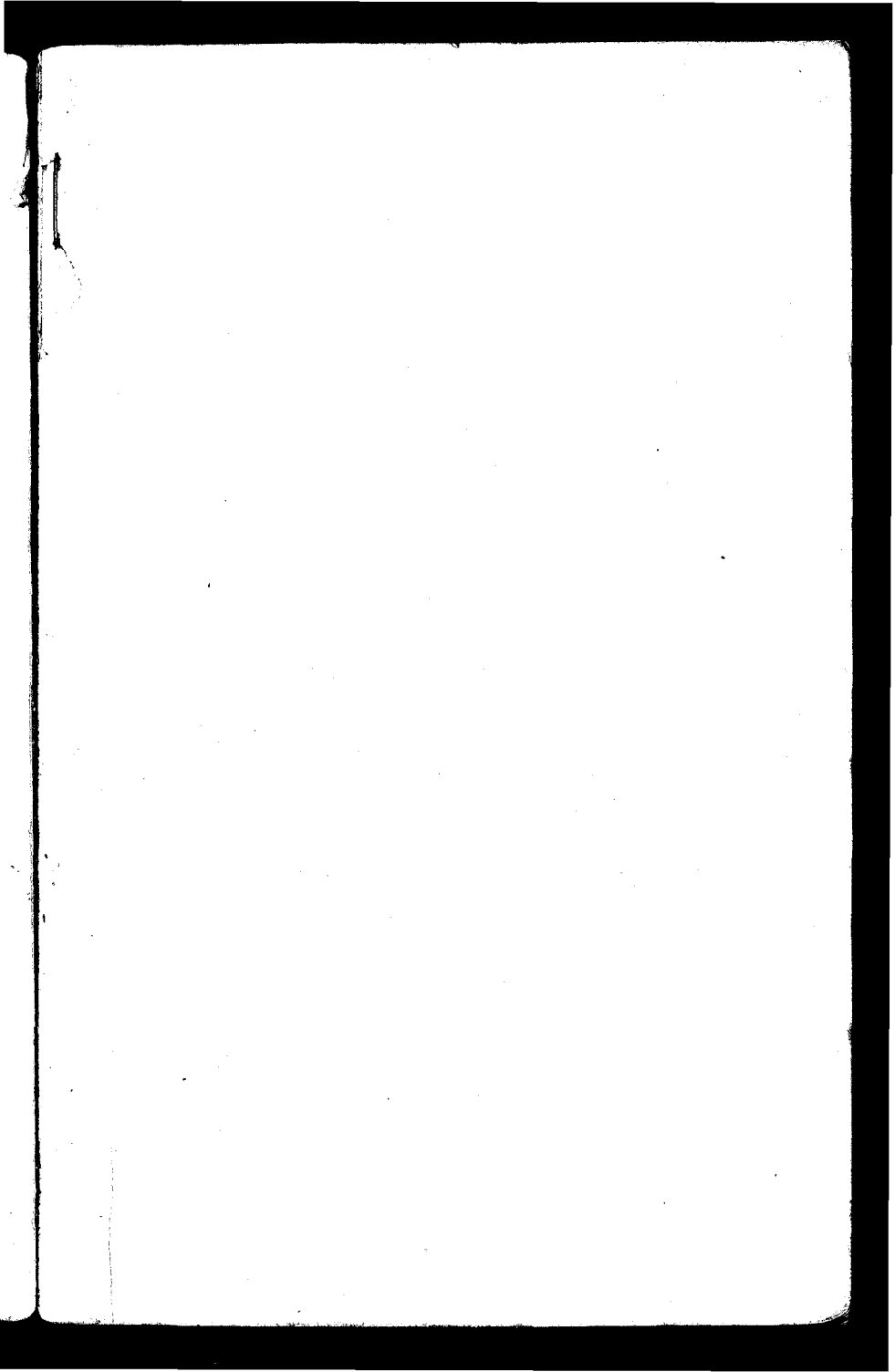
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Mine truly
F. H. Corbin.

PLYMOUTH ROCKS:

THEIR

ORIGIN, CHARACTERISTICS,
REQUIREMENTS, ETC.,

WITH

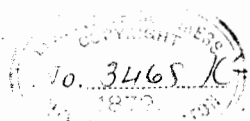
SPECIAL REFERENCE

TO THE

IMPROVED STRAIN.

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BY F. H. CORBIN. o



HARTFORD:

PRESS OF THE CASE, LOCKWOOD & BRAINARD COMPANY.

1879.

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PREFACE.

In offering the following work to the public for its perusal, we can but hope that the truths contained in its pages will be of some service to the beginner and amateur. We do not expect the breeder of large and varied experience to find many new facts presented for his consideration; but if it shall, to any extent, aid the beginner to escape the pitfalls and difficulties which we, in common with others, have experienced, we shall be amply repaid for our labor.

There has been much discussion upon the subject here presented, and not a little difference of opinion, even among breeders of first-class birds; but we believe there has been no considerable work written, although the need of one has been felt for some time.

Whether this treatise supplies the need or not is for the public generally, and especially those interested in breeding this justly popular fowl, to determine.

THE POULTRY BUSINESS.

For quite a number of years the interest in the raising of fowls has been steadily increasing, and those who, twenty years since, prophesied that the business was being overdone, and must, inevitably, soon collapse, have been perfectly amazed to see the rapid strides with which it has advanced, until to-day it forms one of the leading industries of this country.

The amount of capital invested in this pursuit is simply enormous, and yet it is constantly increasing. Pass through the country in any direction, and at nearly every habitation you will find more or fewer fowls of some kind, while here and there may be seen the more pretentious buildings of the fancier or amateur.

The reason for this is obvious. Men will do, as a rule, whatever it pays them best to do, and this of itself is a tacit acknowledgment of the value of this pursuit.

Let us briefly examine the annual value of some of the other leading industries of this country, and compare the result with this branch. This will enable us to obtain an approximate idea, at least, of their relative importance.

The Report of the Department of Agriculture for the year 1877 gives the total cash values of several products as follows: Corn, four hundred and eighty million dollars plus (\$480,643,400); wheat, three hundred and ninety-four million dollars plus (\$394,675,779); hay, two hundred and seventy-one million dollars plus (\$271,934,950); oats, one hundred and eighteen million dollars plus (\$118,666,550); and potatoes, only seventy-six million dollars plus (\$76,249,500).

It is, of course, impossible to give the exact value of the poultry business, but a sufficiently accurate estimate may be made.

The number of inhabitants in the United States will not vary far from forty-five millions (45,000,000). Now, suppose that each one, on the average, consumes directly or indirectly five eggs per week (which is a small allowance). Estimating on this basis, we shall find that the production of eggs amounts to nine hundred and seventy-five million (975,000,000) dozen, which, at the low price of twenty cents per dozen, yields a total value of one hundred and ninety-five million dollars (\$195,000,000) for eggs alone.

Each inhabitant will also consume, on the average, about five dollars' worth of dressed poultry during the year, which will amount to the respectable sum of two hundred and twenty-five million dollars (\$225,

000,000) for all. Add the two amounts together and we find the total value of the poultry business to be four hundred and twenty million dollars (\$420,000,000).

This, of course, does not include the foreign or export trade, which, if added, would materially increase its value.

It will thus be seen that the value of the poultry business is greater than that of either of the products named, with the exception of corn, and, also, that if the export trade were added it would closely approach that in value.

This business, however, like any other, requires to be conducted upon fixed principles, and demands both skill and attention in order to render it remunerative.

The greatest mistake made by beginners is in supposing that they can engage in poultry-raising with nothing more than a theoretical knowledge of the business, and yet obtain exactly the same results, and that, too, with a large number of fowls, that a breeder of many years of experience does.

Any one who should engage in extensive mercantile pursuits with no practical knowledge of the branch to which he proposed to devote himself, would be considered but little better than a lunatic; and yet this is precisely what many have done, and are still doing, in this business.

A few failures must be expected at the start; it cannot be otherwise; but with careful attention to details there need not be many.

Every beginner should make choice of some one breed, and, before adding others to his yard, devote himself to this until he has made it a success or proved it a failure. He can then use his acquired skill to advantage.

It is with a hope of helping him, in some measure, in making an intelligent choice of such stock or breed, and then of aiding him in breeding and caring for the same, that the following pages are written.

ORIGINAL PLYMOUTH ROCKS.

Something like thirty years since, a cross-breed fowl was originated by Dr. J. C. Bennett, then in the height of his popularity. A few of this cross-breed were exhibited at Boston in 1849. To this breed, Dr. Bennett gave the name of Plymouth Rocks, for what reason it is impossible to see, as the severe austerity of the early settlers of that region have little resemblance to this gay, parti-colored fowl, whose plumage was as varied as Joseph's coat, and as changeable as a chameleon.

The first cross seems to have been quite a success, and to have caused considerable expectations; but the subsequent breeding of its progeny did not, apparently, fulfil these expectations; probably because it was found to be impossible to permanently fix its characteristics, the tendency to revert being strengthened by mixing the blood of so many different breeds.

Taking Dr. Bennett as authority for the composition of this breed (as appears both in his book and in the *Boston Cultivator* of Aug. 25, 1849), we find it was a cross of a Cochin China cockerel with a hen, herself a cross between the fawn-colored Dorking, the great Malay, and the Wild India.

The Doctor adds: "The Plymouth Rock fowl, then, is, in reality, one-half Cochin China, one-fourth fawn-colored Dorking, one-eighth great Malay, and one-eighth Wild India. The pullets commenced laying when five months old, proving themselves very superior layers. Their eggs are of a medium size, rich, and reddish-yellow in color. Their plumage is rich and variegated; the cockerels usually red or speckled, and the pullets darkish-brown. They are very fine-fleshed, and easily made fit for the table. Their legs are very large, and usually blue or green, but occasionally yellow or white, generally having five toes upon each foot."

This breed continued to exist for several years, and quite a number of fanciers became interested in its success; but it was found impossible to cause it to breed true or to transmit its qualities with any degree of certainty, and therefore it gradually gave place to other and more reliable breeds.

ORIGIN OF PLYMOUTH ROCKS.

The breed of so-called Plymouth Rocks mentioned in the previous chapter is now wholly extinct, and is, practically, of no account, except that the name leads to some confusion where the facts are not known. For this reason a short account was deemed necessary in order that the reader might clearly understand the difference between those and the Plymouth Rocks of the present day. It was not until several years after the practical disappearance of the former breed that the latter sprang into existence; and the facts concerning its origin caused an amount of controversy almost unprecedented in the history of fowls.

The theories advanced were various, and were urged *pro* and *con* by many of the leading fanciers of the country. It is a true saying, and one well worthy of acceptance, "That all men like to father a success and disown a failure." It proved to be true indeed in this case, for while little was heard or written in regard to them previous to their being exhibited in 1869, and while, in fact, for some years afterwards, they were but little known except to a few prominent breeders, and found only in their yards, no sooner was it generally understood that the most successful

cross of the century had been made, and that its characteristics had been sufficiently fixed to allow its being admitted into the Standard as a fixed and permanent breed, than numbers of articles from fanciers of well-known ability began to appear in poultry papers and journals in regard to them. Most of these writers wielded a trenchant pen, and, for a time, the fate of the subject-matter seemed in doubt. The fact that there were apparently several different origins only confounded the discussion and added fuel to the flames.

The Upham-Ramsdell controversy was conducted with both vigor and bitterness. The conceded ability of these gentlemen, together with their readiness of pen, only magnified the contest, diffused a knowledge of the question among the poultry fraternity, and caused others to take up the pen, both as principals and advocates. After a time, it began to be uncertain whether any such breed ever existed, and if there was any, where or from whence it sprang.

Another question intensified the controversy. While all were agreed as to the Plymouth Rock being a "cross"-breed, scarcely any two were agreed as to what the cross was. The Black Java, Cochin, Dominique, Dunghill, Gray Chittagongs, and English Gray Dorkings, were all named as entering into the cross.

This disputation itself showed that the fanciers

considered the Plymouth Rock well worthy of attention, and also that it was advancing with rapid strides to the first place in the estimation of breeders generally.

As before intimated, there were several different suspected origins to this breed, and some two or three, perhaps worthy of mention. The most reliable one, however, in the estimation of breeders of the present day, was the cross of a single-combed Dominique cock with Black Java hens. This may not be admitted by all, but it has the best authority, and is now generally acquiesced in.

IMPROVED PLYMOUTH ROCKS.

There has probably never been a breed of fowls that has given rise to a greater range of discussion, and that, too, in regard to the minutest details, than the Plymouth Rock.

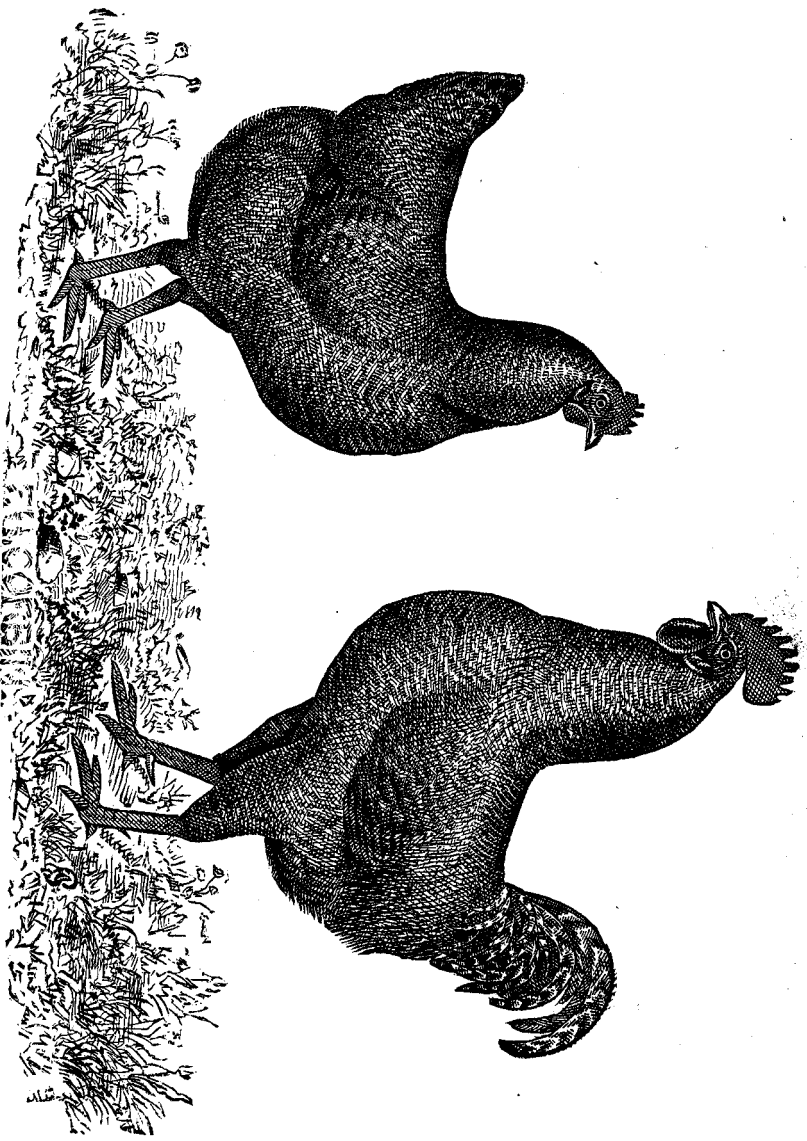
We have seen that the halo of its early prosperity had scarcely covered it when the honor of originating it was hotly contested by foemen worthy of their steel; or, perhaps, it would be more in accordance with facts to say, foemen worthy of their quills.

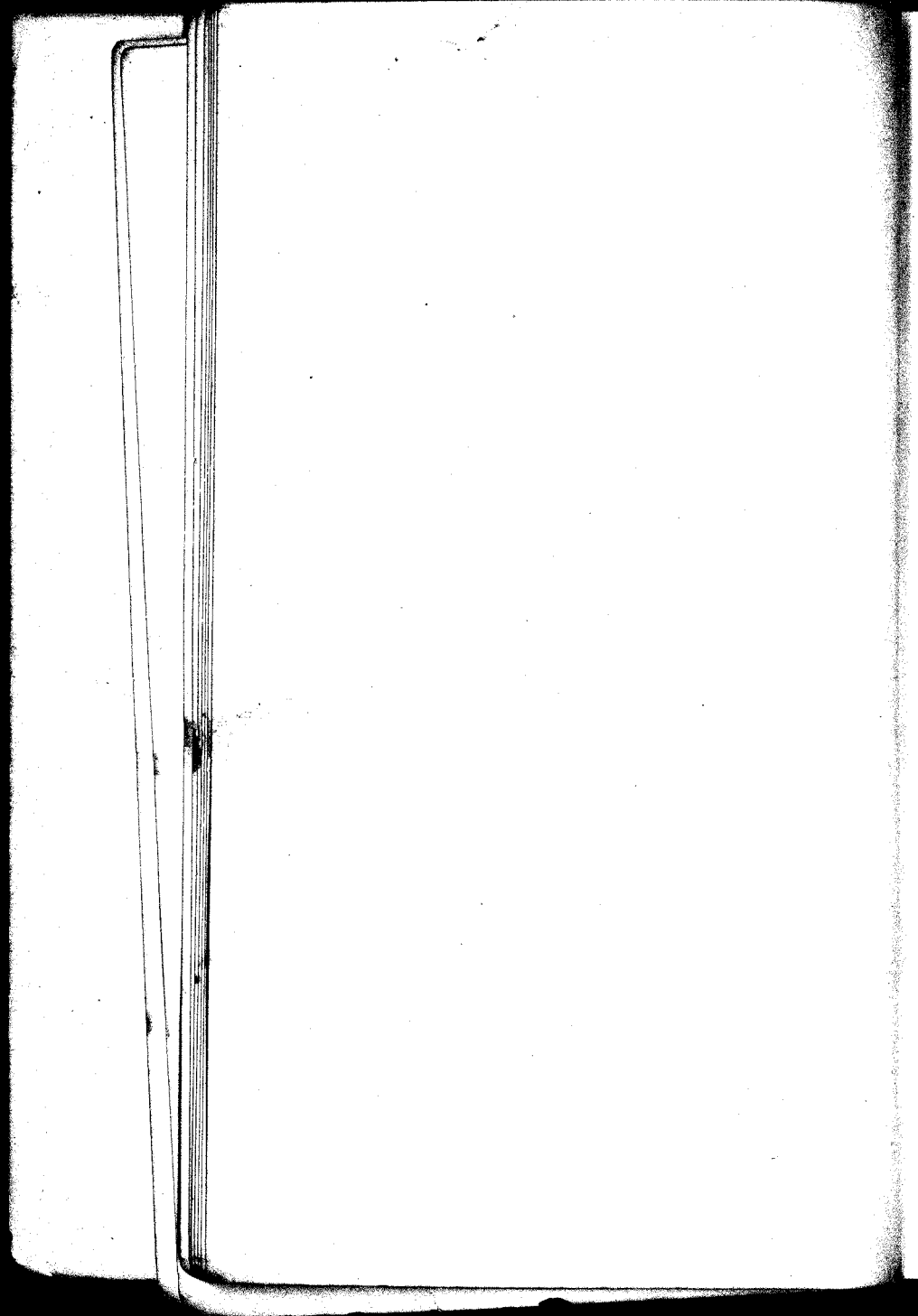
Hardly had the heat of this literary contest subsided when the question what the Plymouth Rock really was begun to be agitated. The question now was, not "What was the cross?" but, "What is the breed?" These two questions, being similar to each other and of a kindred nature, are frequently confounded. They are, however, entirely distinct; the first, viz., "What was the cross?" dealing with the elements procuring a certain result; and the second, viz., "What is the breed?" dealing with the result already produced.

Writers of greater or less note, some of national reputation, took up this latter question; a portion of whom, by substituting cause for effect, endeavored to

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prove that it was only a modified form of some other breed, forgetting, in their haste, that however much it might resemble others in certain points or peculiarities, still it was a distinct breed with a form, shape, comb, color, and marking, peculiar to itself and recognized as such by the Standard; and that the only way to change or modify any of its peculiarities was by improvement, to which all breeds are susceptible.

Considerable dissatisfaction having arisen in regard to the shape, the writer was induced to try a series of experiments for the purpose of modifying this if possible. After repeated failures, he succeeded in fixing permanently upon his strain what he considers the true Plymouth Rock shape, or rather one peculiar to itself.

This partakes much more of the Dorking than of the Cochin, being deeper and longer than the latter. An examination of the fowls themselves shows, at once, their manifest superiority.

The following editorial from the *American Agriculturist* of Dec., 1877, gives something of an idea as to the estimation in which they are held by first-class judges: "First among the good qualities of a fowl is size. This the Plymouth Rocks have in an unusual degree. There are many excellent breeds of poultry which are all that can be desired, except as to size, and the lack of this is fatal to their popularity; for,

after all, profit is the chief object with most people in choosing a kind of fowl to keep. Hardiness of constitution, vigor, pleasing form, handsome and attractive plumage, and prolific production of eggs are all very desirable qualities in fowls, and these all belong to this breed. It will probably be noticed that the birds pictured in our illustration are remarkably heavy-bodied. This is a peculiarity which belongs in an especial degree to a strain bred by Mr. F. H. Corbin of Newington, Conn." In the case of the birds here represented, they come fully up to the accepted Standard of Excellence of American breeders and meet it in every respect. The form of these birds is therefore nearly perfect. *The Country*, an English paper, contains the following article: "An American contemporary informs us that the Improved Plymouth Rock fowls originated with F. H. Corbin of Newington, Conn. This strain reproduces itself true to feather and form. The form is peculiar, being plump in the breast and square as to the body, and is very much better than the original American Dominique, which was a smaller bird. The Improved Plymouth Rock is one of the best breeds for eggs and the table, as it combines the fleshy body of the Asiatic fowls with productiveness in eggs of the Leghorn. The hen is a good mother, and, what is unusual, the cock is a remarkably good foster-parent to the young chicks."

In regard to this improvement, the *American Poultry Yard* editorially says: "Mr. Corbin once expressed to us his preference for a long, square-bodied fowl in opposition to a tall, or a triangular, or Cochinchina-shaped bird, and signified to us his intention to breed to his ideal type. On the occasion of a quite recent visit to his fine flock, we remarked that he had some of the most decidedly Dorking-shaped birds that we ever saw of that breed. Not that we mean that they were anything other than true Plymouth Rocks in outline, or that they were shaped exactly like Dorkings, but they *suggested* the Dorking type. Mr. Corbin claims that his efforts have *improved* the breed, and *we see no reason to doubt it.*"

EXCELLENCES OF PLYMOUTH ROCKS.

HARDINESS.

The Plymouth Rock is one of the most, if not the most, popular breeds of the present day, and the elements of its popularity are such that its permanency seems to be assured. It combines within itself all of the essential properties that contribute to make a breed preëminent, and which are justly sought, by both the fancier and the farmer.

First of all, it is a very hardy and vigorous fowl. There can be no question on this point. Scores of letters from amateurs in all parts of the country testify as to this fact, while the experience of the best breeders also shows that there is not a more hardy fowl bred, or one that will succeed better, even under neglect and ill usage.

Hardiness is generally understood to mean health, strength, and vigor; together with a constitution able to resist disease. This, of course, is a secondary meaning of the word, but is the one now generally accepted, certainly in the breeding and raising of stock.

The Asiatics have always borne the palm for hardy and vigorous constitutions. That they possess these qualities in an eminent degree, all will admit. But where they are bred in connection with Plymouth Rocks, so that they may be compared under the same circumstances, it will be found that the latter breed is fully equal if not superior to any breed in existence in point of hardiness.

This is a very important consideration, and one that it is impossible to overestimate. Without it we can do comparatively little. Our winters are so cold, and the temperature so liable to change, that a breed possessing a weak or delicate constitution had better be let severely alone by the ordinary poultry-breeder; as there will nothing but failure and disappointment follow its breeding.

Those who have all the conveniences of the fancier may succeed measurably well in breeding from stock lacking in hardiness; but the class of men breeding and raising most of the fowls in this country should never touch such stock. We would not be understood now as advocating this quality in order that the fowls may be neglected, for that is never advantageous; but only to show that the Plymouth Rock will measurably succeed in spite of it. Their hardiness, thrift, vigor, and alertness, all combine to render them very active foragers, and thus on good runs they are enabled to

procure a great part of their food, and that of the kind and quality best suited to their needs.

This inures to the benefit of the breeder in several ways. It conduces to the general health of the fowl and prevents disease, which is far better than any system of cure, and also diminishes largely the cost of feeding, which is a very great desideratum, as it determines, to a certain extent, the amount of profits in poultry-raising; or, at least, largely increases them.

EARLY MATURITY.

Early maturity is another attribute which any breed of fowls must possess, if it would rank high in the breeder's estimation; and here it is that the Plymouth Rock stands without a rival. Not that it matures earlier than any other breed; for some of the smaller ones may equal it, simply taking weeks and months into account. It will, however, produce more pounds of flesh, well laid on, in a given space of time, than any other fowl.

The Asiatic will, perhaps, produce nearly as many pounds weight, but has so large and bony a frame that it is in a most undesirable condition for market until fully matured, which is fatal to its popularity in this respect; while the Plymouth Rock always presents a fine appearance, when well fed, and is fit for broiling at the age of three months.

A large fowl, maturing in the early fall, and ready for market before extensive shipments are made from the West and interior sections, is very desirable for a number of reasons, and, other things being equal, will always remain *the popular breed*. The cost of grain is much higher here than at the West, and the expense of transportation is greater in its natural condition

than after being transformed into poultry. We must therefore, fit our fowls for market before the arrival of theirs, in order to secure the greatest amount of profit. This operates to the advantage of all concerned, as the exhaustion of our home supply creates a demand for western poultry at the proper season.

A strong competition is inevitably fatal to the profits of almost any business; and poultry-raising is no exception to the rule.

It should be borne in mind also, by the reader, that the cost of producing poultry for market purposes is in inverse ratio to the time consumed in producing it. The cost of simply keeping fowls or other stock and supplying their wants will equal a certain amount in value. Therefore, where flesh is the object sought the stock must sufficiently increase in size or flesh to meet this cost, in order that there may be no actual loss. Now the secret of profit in raising fowls for this purpose consists in obtaining a greater increase of weight than merely sufficient to pay the cost of keeping, and will be in direct proportion to the extent the breeder is enabled to do this. To illustrate: Suppose that B has a pen of Plymouth Rocks consisting of twelve cockerels bred for market, and costing him \$1.50 per month for feed. Now, estimating poultry at twenty cents per pound, those cockerels must increase at the rate of seven and one-half pounds per month.

in order that B may lose nothing. If they do less than that, he makes an actual loss. If, on the other hand, however, they increase at the rate of fifteen pounds per month, he makes a clear profit of one hundred per cent.

It will thus be seen that the time consumed in preparing fowls for market is an important factor to be considered in determining what breed to keep, and in estimating the profit to be derived from them.

Thus far we have discussed the flesh-forming properties of this fowl; but there is another point worthy of notice. Pullets will begin to lay, on the average, at the age of six months, provided they have anything like proper care and attention. Many will lay at an earlier age, but the average will be as above stated.

Now, if chickens are hatched in March or April, as they should be, they will be all ready to give us a good supply of eggs before November 1st, when most of the other breeds begin to fail.

Here again is a point where their hardy and vigorous constitution is of paramount importance. Most breeds, other than the Asiatics, are so much affected by the cold, inclement weather of this season, that it is useless to expect them to give us a plentiful, or even a fair number of eggs, unless artificial heat is used to raise the temperature sufficiently high; and even then the attempt is usually a partial failure.

But give the Plymouth Rock good care and a sufficient supply of varied food, and you will find no trouble in having an abundance of eggs all through the winter months. This in itself is a great desideratum; as one egg at this time is worth two in the warm season.

We have the statement of the Rev. J. M. Bates, that his Plymouth Rock pullets, in 1878, laid at the age of four and one-half months. They also averaged two hundred and twenty-five eggs each during the following year; and one of them laid seven eggs in four days; that is to say, three out of the four eggs had double yolks.

As we know the gentleman in question to be perfectly reliable in all matters, we can vouch for the accuracy of this statement.

In 1878, J. S. Pollock had five Plymouth Rock pullets which laid before the age of four months, viz.: one at the age of three months and twenty days; a second at three months and twenty-three days; a third at three months and twenty-seven days; while the others laid at the age of three months and twenty-eight days.

PRODUCTIVENESS.

Another excellent characteristic is productiveness ; and any one who has bred and kept Plymouth Rocks will readily concede that they possess this in an extraordinary degree. It is true that some writers claim the palm as layers for the Leghorns, and write eulogistic works by the score to prove their superiority over any other breed.

That they are fine layers, and have few equals in this respect, is certainly true ; but with the same care and attention the Plymouth Rock will lay fully as many, if not more, eggs during the year than the Leghorn. Both were bred in our yards for years. Many and varied experiments were made as to this very point, and the result invariably showed that the Plymouth Rock was the more productive.

The value of the eggs from the latter breed was found to be far greater than the former, from the fact that a great part of their eggs were laid in winter when eggs were scarce, and brought a good price, in fact nearly double the price obtained in summer. In regard to the number of eggs annually laid by each hen, the best authorities agree that, while with small flocks and good care you may average one hundred

and seventy-five per hen, still, with an ordinarily large number of fowls it would be useless to expect more than about one hundred and fifty. That will be found to be about the average number laid by good, fair Plymouth Rock hens or pullets; although frequently they will lay a much larger number.

In this estimation, an allowance is made for the hatching and rearing annually one brood of chickens by each hen. This course will usually be found much more advantageous than to prevent their sitting altogether; as their egg-producing functions really need a respite from their labors. This, the period of incubation and the time spent in rearing the chicks will give.

Many have advocated the use of incubators and "artificial mothers." None of the former have as yet been so arranged or constructed as to be of any practical use to the ordinary breeder, and probably will not, for many years to come. It is a very difficult thing to supplant nature; and while it may sometimes be done, it nearly always costs more, in some form, than it amounts to.

Artificial mothers may be used with profit when a large number of chicks is desired, and with close care and attention will be found a success; but, as before stated, it is better to let each hen rear one brood a year herself. It has been found, in prac-

tice, that small flocks pay the best in proportion to numbers kept. To this rule the Plymouth Rock is no exception.

On the 20th of May, 1874, S. F. Peck had one Plymouth Rock cockerel and eight pullets; and from these eight pullets he obtained, during the succeeding year, one thousand eight hundred and forty-one eggs; an average of two hundred and thirty each, or nineteen and one-sixth dozen; which at thirty cents per dozen would amount to the modest sum of \$5.75 per head.

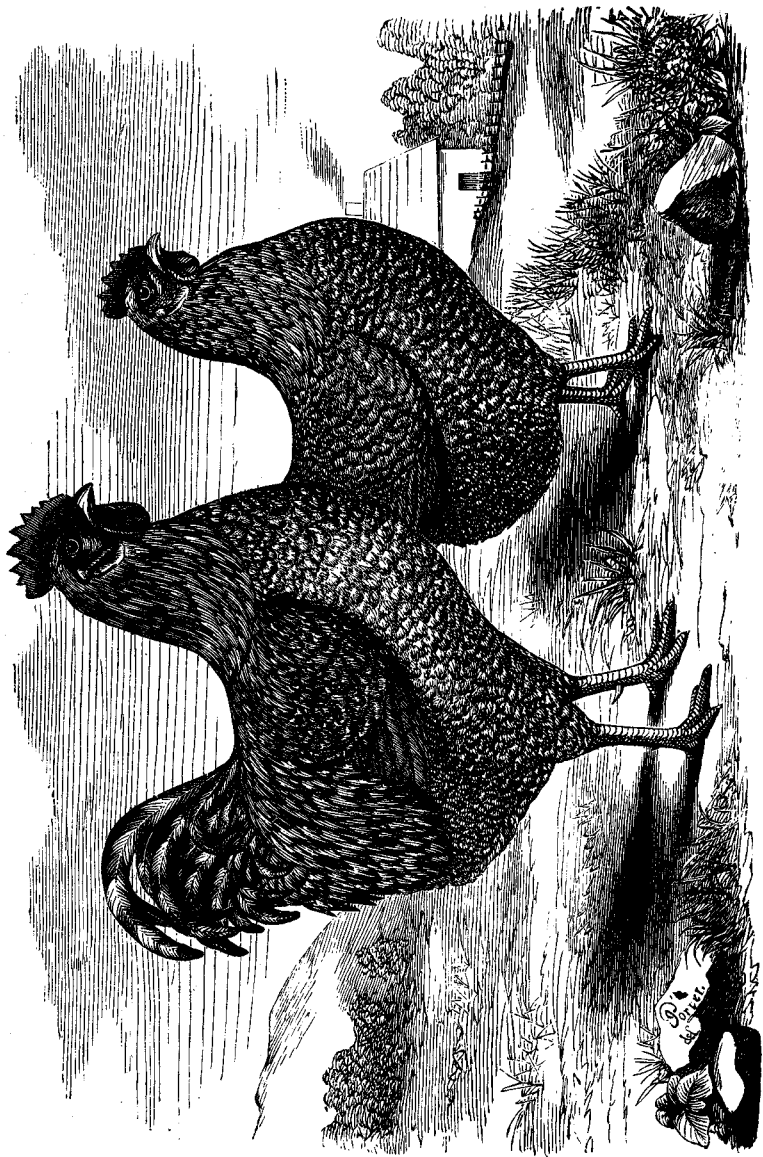
Now, if we estimate the feed at \$1.25 each, which is a liberal allowance, we shall find the profit on each hen or pullet to have been \$4.50; or on all, \$36.00; proving, conclusively, that where proper attention is given, a good breed of fowls will pay better than anything else bred or raised on the farm.

TABLE QUALITY.

Considered as a table fowl, few, if any, who have ever raised, sold, or eaten them, would care to make any exchange. In market their full breast, compact body, and yellow skin make a decidedly attractive appearance. This has caused a strong demand to be made for them by market-men, where they are known, and better prices are paid than for any other breed. This is certainly true in the Eastern States, where from two to five cents additional per pound is nothing unusual.

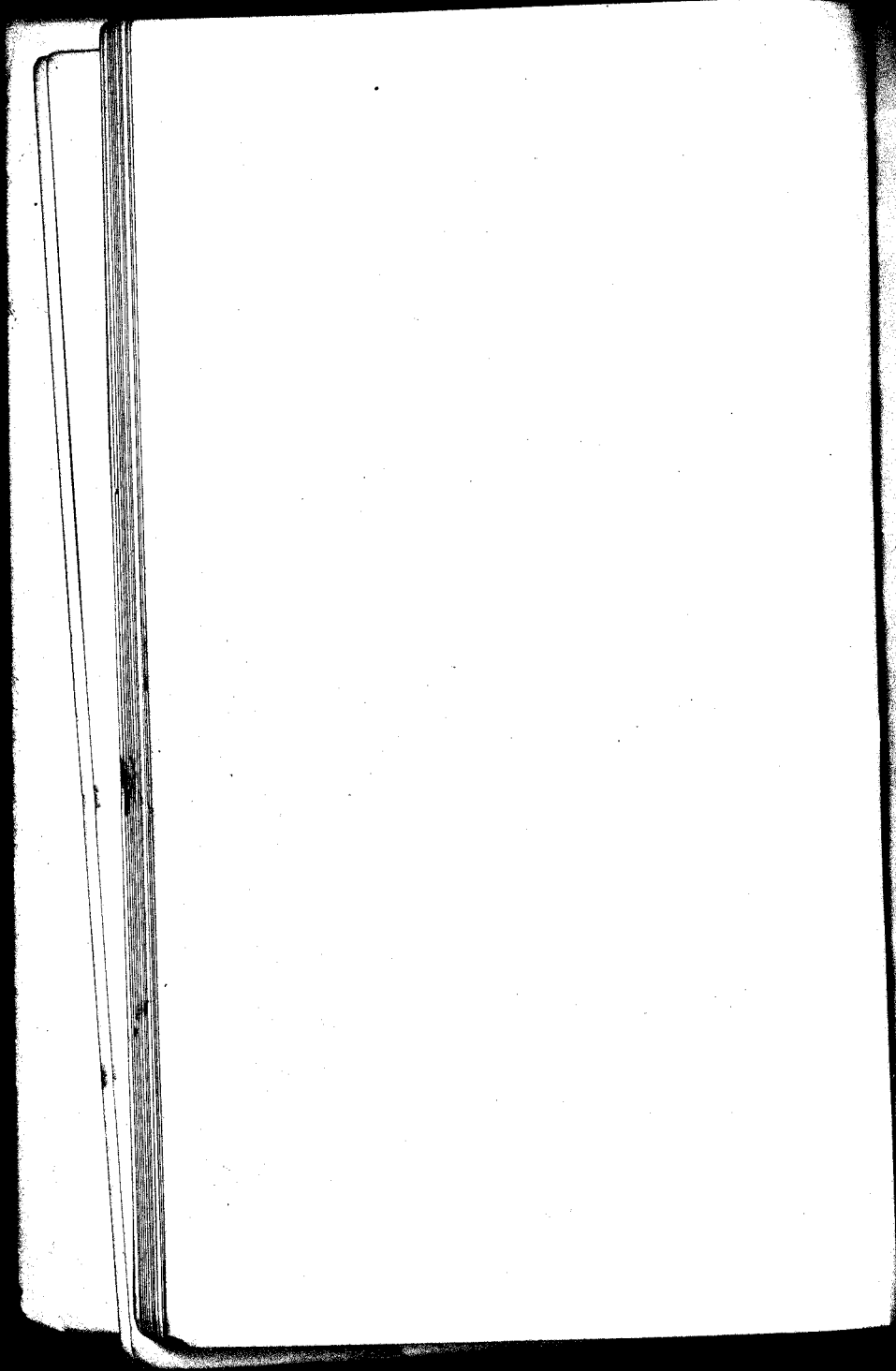
In fact, it would be practically useless to discuss this quality, if it were intended to limit this work to New England; for there are comparatively few in this section who do not know and fully appreciate this truly valuable fowl. It is in fact *the fowl for farmers*.

It is almost impossible to raise the smaller breeds at a profit, on account of their lack of size; while the Asiatics are so long in maturing, meanwhile being exposed to all the vicissitudes incident to poultry life,



MODERN PLYMOUTH ROCKS.

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that the profit in breeding them for market is certainly a debatable one.

The Plymouth Rock, on the other hand, combines all the elements essential to success, in this respect, at least. It grows rapidly, fledges quick, lays on flesh fast, matures early, and eats less according to size than any other breed, and is always ready for market, when well cared for, from the age of three months upwards.

The size and shape should be closely looked after in breeding for this quality, as the Improved will lay on flesh much faster, with the same amount of feed, than the old triangle-shape. This has been proven by a number of reliable breeders, using a system of varied experiments, which can be cited, if necessary.

As regards size, there is really but little difference of opinion, although a few breeders profess to have a preference for small-sized birds. Those would probably succeed better with "Dominique improved."

The best authorities, however, agree that a large size is desirable and much more profitable. In point of fact, the larger birds you can breed, the better, provided you still retain early maturity, and that plump appearance, at once so tempting and so valuable in a market-fowl.

We do not wish to be understood as advocating any further crossing with Asiatics, in order to increase the

size ; as that in effect would practically change the breed, without receiving in return anything really valuable ; but we would advocate breeding from the largest hens and cocks of pure blood in the flock, provided they were suitable for mating in other respects, and thus gradually increase the size within the breed.

If this be done, no fear need be entertained of losing, either in early maturity, or plump appearance ; for *neither of these qualities is controlled by the size, but by the blood.* This is a mistake made frequently by breeders. They reason, and, in fact, breed, on the principle that one quality or characteristic controls others, when the truth of the matter is, the blood controls them all.

The amount of flesh produced, is, of course, important, and this is directly affected by the amount of waste or shrinkage in preparing poultry for market. Too little attention is given to this point. Many have no idea what per cent. of waste there should be ; while others seem to think that all should be alike in this respect. This is a great mistake, as the several varieties differ materially, and it is important in selecting a breed of fowls to understand how much they differ, and also what the waste should be in any given variety.

It has been asserted by some that the Houdan was incomparable in the small per cent. of shrinkage in

dressing ; but full experiments have shown that it has one superior at least, and that one is the Plymouth Rock. The waste in this fowl, when well-fattened, will vary but little from fifteen per cent., and frequently will be less.

FANCIERS.

It is sometimes said that the fancier produces nothing of practical utility; while the truth is, that if it were not for the fancier, we should have nothing but a scrub lot of fowls not worth the trouble and expense of keeping.

It is the fancier who at considerable cost and trouble makes experiments, originates new breeds, fixes their characteristics, and learns the best mode of management. The ordinary breeder has neither the time, skill, nor necessary means for arriving at satisfactory results in these particulars.

This is the fancier's true forte, who, if he is only true to himself, has a position alike honorable in itself and of great benefit to the people at large. One that is reliable, and a true lover of fine-bred stock, will so mate and breed his birds that their progeny will breed true in the hands of purchasers.

His aim will be to do this rather than to produce a single pair or trio for exhibition purposes, and sell the remainder of his stock on the reputation of those exhibited, though well aware that most of his birds will not breed true to all their characteristics.

We do not wish to be understood as saying that exhibitors do not sell fine stock, for such is not the fact; but we wish to impress upon the mind of every fancier the fact that it is for his individual interest to send out birds, as far as possible, which will breed true in every particular. Fortunately, the number who do not do this is very small and constantly decreasing. The poultry fraternity is no place for them.

FANCIER'S MATING AND BREEDING.

This is at once the most difficult, and at the same time the most interesting, operation during the entire year, requiring the exercise of all the skill and knowledge gained by long experience, and frequently perplexing the most noted breeders.

It not only determines the character of the stock to be produced during the current year, but has, also, an important influence on future generations. In mating fowls, man takes the place of nature, or rather he seeks to guide and control, to the best of his ability, well-known natural laws.

It is a fixed natural law that the best and fittest survive. It makes no difference, in the application of this law, whether you are treating of an analytical truth or the propagation of life ; it still remains the central point around and towards which all researches must be directed. It is in direct proportion to the observance of this law by fanciers that they are enabled to perpetuate and improve all classes of fowls.

The first requisite in mating fowls for any purpose, is to secure birds possessing strength, vigor, and stamina. Select stock famed for these requirements, and you will be very sure of obtaining strong, hardy

chicks. Let the parent stock consist of birds standing head and shoulders above ordinary stock, and you will be little troubled with roup and its kindred diseases.

Breeders disagree as to the age of breeding-birds; but we have found that cockerels nearly or quite a year old, mated to two-year-old hens, usually give the best results. A cock two years of age, mated to early pullets, will also be found satisfactory.

The best authorities agree that the ages of the males and females should vary, and for this reason cockerels and pullets should seldom be mated together, unless it is particularly desirable to secure or render permanent some peculiar characteristic or point in that way, and then they should be at least a year old.

If the cocks and hens have been entirely separated during the several months preceding the mating, so much the better, as the added amount of vigor is very beneficial. Most breeders find it advantageous to pursue this plan. In the breeding of no other choice stock is it considered beneficial, or allowable, even, to permit the male to roam at will with the females during the entire year, and choice fowls will be found to be no exception to the rule.

Whatever may be the practice of the breeder on this point, it is certain that a male of another breed should never have been allowed access to your breeding stock, as it will surely destroy the purity of their

progeny for at least the coming season. We are aware that a different opinion has been held and ably advocated by a few well-known fanciers; but facts are stronger than any mere theory, however plausibly advanced, and experience has abundantly shown that our statement is correct.

In breeding for "fancy points," one should understand exactly the object sought, and have a clear idea of the means to be employed in obtaining that object.

The different elements, about to be brought together and harmonized, must be carefully studied, and if there is necessarily a defect in either cock or hen, it should be counterbalanced by perfection on this point in the other.

For instance, if the cock's comb be defective in any way, as lop-combed, the hen's comb should stand perfectly erect, and be fine in other respects, in order to breed out the defect arising from the comb of the cock. Of course, no defective bird should be bred from unless it is absolutely necessary, and under no circumstances should a male and female both having the same defect be bred from.

No over-fattened birds should be used in the breeding-pen, as non-fertile eggs will abound if they are.

The respective influence of cock and hen has been a fruitful topic of discussion, and as a fair understand-

ing of this subject is desirable in "fancy" breeding, to say the least, it is necessary to give the question a little attention. It has been held by many writers that the cock possesses the greater influence over externals, and the hen over the interior and life-giving qualities; the reason given for this being that the procreative act of the cock stamps upon passive materials already prepared his image, and forms the embryo chick; while the materials before mentioned, which furnish food for the chick until hatched (and, in fact, for several hours after), and all of the other life-giving properties are furnished by the hen.

The result obtained by this course of reasoning is probably true, to a certain extent, while the course of reasoning itself by which it is obtained is as evidently fallacious.

It is well understood that in the act creating animal life, the parent possessing the greater amount of vitality, other things being equal, will indelibly stamp his image upon the embryo created.

In all forms of animal life the proportion of the sexes is about even. In the human race, where, necessarily, but one object is sought by the male, this proportion results in no particular culling; that is, of necessity. But with the feathered tribe, where the cock necessarily requires several hens, the case is entirely different. There the culling is certain and

extensive. No sooner do the cockerels arrive at a suitable age for mating, than the question as to who shall be lord of the harem arises. Frequently the battles to determine this question are long and bloody, extending over a period of several days; the result, however, being certain from the beginning. The one possessed of the most vigor and the greatest amount of staying power will win; while the weaker and inferior specimens will either be killed or driven into such obscurity that they can have no perceptible influence in fixing the characteristics or qualities of the progeny.

It will be seen, therefore, that, in a state of nature, comparatively few of the males are used for the purpose of begetting progeny, and these the *crème de la crème* of the flock, while all of the females are employed.

In a state of domestication this course has been followed in a greater or less degree, especially by farmers and amateurs who breed most of the fowls. This is true of all kinds and classes of animal life. Choice specimens of fine-bred stock, possessing this power of vitality in an eminent degree, are selected from the males for breeding purposes; while in most cases no attention whatever is paid to this quality in the females, but all are bred from indiscriminately, provided they possess the other requisite qualities.

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This method, of course, endows the male with far more vitality than the female, and, necessarily, causes him to transmit or fix his image upon the progeny to a far greater extent than the female. Wherever a hen is found, however, surpassing the cock in vigor and vitality, the rule is reversed; and this fact enables the breeder of experience to mould, shape, and fashion his birds to an almost unlimited extent.

In a perfect mating, the sire should possess beautiful plumage perfectly marked, fine symmetry, and as large size as is compatible with full vigor. The constitutional requirements, which apply with equal force to the hen, have already been spoken of, and need not be repeated here.

The dam should excel in productiveness and size, while the shape and plumage must not be lost sight of. This union is the most desirable one for any purpose. Symmetry is especially important in breeding for "points," as, in the show-pen, it is marked higher than any other single qualification, and by many judges is again marked in estimating breast and body.

The *Standard of Excellence* requires that the breast of a Plymouth Rock be "broad, deep, and full," and the "body large, square, and compact." This necessitates birds for breeding that are both of large size and the Improved shape; as no other is or can be square in shape.

In breeding Plymouth Rocks to feather, it should be remembered that they are parti-colored and therefore more difficult to breed exactly true to a particular shade than the solid-colored breeds. Moreover, being a somewhat recent cross, the tendency to revert in color is stronger and the result more perceptible.

That there has been no well-settled rule in regard to mating with a view to breeding true to feather is well known, and each breeder, be he experienced or a beginner, has been left to his own devices. The result has been a whole or partial failure in a majority of yards.

Five different matings have been advocated and practiced as follows :

No. 1. A male light in color mated to dark females.

“ 2. “ dark “ “ light “

“ 3. “ “ “ “ dark “

“ 4. Birds matching in the show-pen.

“ 5. A female medium in color mated with a male about two points or shades lighter in color.

Now, in deciding this question, it is necessary, as in other matters, for the breeder to understand exactly what he proposes to accomplish. If the ordinary interpretation of the *Standard* is correct, then it certainly follows that two different matings are required; one for breeding purposes, and one for exhibition. But is the ordinary interpretation the correct one?

The Standard does not refer to this matter, except under the head of disqualifications, and here "birds not matching in the show-pen" are said to be disqualified.

What does this phrase mean? Most judges have construed it to mean not only that birds exhibited in pairs (or trios, as was formerly the custom,) must match closely in color, but also in shade of coloring. There is no necessity for such a forced construction, as there is nothing said or intimated in regard to the shade, nor in regard to color, even, which would require it.

One of the main objects in exhibiting fowls in pairs or trios has been supposed to be for the very purpose of showing birds mated for breeding. If this be true, as we think it is, either the *Standard* is unnatural and arbitrary, and should be changed, or the present construction is erroneous.

The same phrase, or one similar, is used in the *Standard* in regard to a variety of other breeds, not one of which (except those of one single color) is required to be of exactly the same shade in the show-pen; and many differ widely.

We are pleased to see a disposition on the part of some of our judges to modify this construction, and allow a greater latitude in color.

There should be but one mating necessary. That

for exhibition should be precisely the same as that for breeding. The trouble and annoyance of being obliged to have two different styles of mating is obvious to any one, and it utterly befogs amateurs.

There is no necessity for this. The best mating for breeding purposes is that of No. 5, and this is or should be the same as No. 4. Mating No. 1 is urged by many as the proper one; and where a beginner has no really suitable birds, and does not feel able to pay the prices demanded for the finest ones, he will do very well with fine bred stock mated in this way: that is, he will obtain a certain percentage of the progeny fitted for a proper mating the next season.

But where you have already obtained the desired medium shades by careful breeding, it is worse than useless to again return to the extremes and expect more favorable results. Mating No. 2 is objectionable, and should not be practiced, except as a necessity to utilize stock, and even then seldom proves satisfactory. Mating No. 3 should never be made use of; as the pullets from such a mating would run from very dark to black, while the cockerels would be splashed with black or too dark either for the breeding or show-pen. Possibly a few cockerels could be obtained fit to be exhibited; but they would not be suitable to use as breeders, and their proportion would be very small.

It is impossible, also, to obtain by this mating any number of chicks having the required yellow legs and beaks. They will invariably have legs either dark or spotted. This is a disqualification in exhibition birds, and, of course, destroys all but their economic value.

If birds exactly alike could always be bred from, or if the mingling of like elements always produced the same results, there would be but little difficulty in breeding exhibition birds by the score; but such is not the fact.

That "like produces like" is usually true (to a certain extent), but here the law of reversion comes in and seems to say that it also produces unlike. That is to say, the rule is that parents transmit their own characteristics to their progeny. This transmission of qualities greatly depends, however, upon the ancestry of the breeding stock. Birds having a long line of noble ancestors, of the same blood, possessed of the same prominent qualities or characteristics, and breeding true to them in each generation, will almost certainly transmit those qualities or characteristics to their offspring, while with birds of no particular ancestry or of different blood, there is no surety of success.

It is this underlying truth that gives such an extraordinary value to certain strains. Breeders understand that in order to render valuable any strain, the peculiar points pertaining to it must be

rendered fixed and permanent to such an extent that these peculiar points will be reproduced with certainty in their descendants. It is the work of years to perfect such a strain, and is accomplished only after much labor and expense.

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IN-AND-IN BREEDING.

The merits and demerits of the above system of breeding have been discussed and experimented upon for a long series of years by many and prominent breeders, both of fowls and other stock, and there have resulted no very satisfactory results; that is, none accepted by all as authority in deciding this question.

That it is a question of great practical importance in the propagation of any species of stock, will be readily admitted; and any course of experiments which shall succeed in definitely settling this vexed question will procure for the fortunate experimenter the gratitude of breeders in general, and will endow him with a fair portion of this world's goods.

In-and-in breeding has been practiced for generations, sometimes successfully and sometimes with injurious effects.

The value of strains has been heretofore shown, and it is in forming or perpetuating these that this system has been mainly resorted to.

It is obviously true that in such cases close breeding is a necessity, if we would retain the peculiar qualities pertaining to any particular strain. It is

also true that birds can be bred truer to feather, of finer bone, of greater uniformity, and in a shorter space of time, in this way than by any other method.

The main question then arises as to whether it will cause the progeny to deteriorate in strength and vigor, and other points of equal value, as it is asserted by many. We believe that it will, if resorted to in any considerable degree, or by any but the most experienced breeders. Doubtless there are occasions when it is beneficial, and where breeders may resort to it with advantage, in fixing and perpetuating the characteristics of their birds; but the occasions are very rare which will admit of its being tolerated for more than one generation, and then only by those perfectly well versed in the matter. That the degeneracy of much once famous stock may be traced to this cause is unquestionably true; and the less we have of it, the better. It certainly gives a violent shock to the system, and it requires birds exceptionably strong and hardy to be able to resist it. That the Plymouth Rocks possess these qualities in an exceptional degree is an undeniable fact, and they could, probably, sustain the shock much more easily than most breeds; but it would be at the expense of those very qualities so much desired, and so difficult to regain when once lost.

That which is the most difficult to obtain is usually

the most valuable; and it is true in this case. It is far better in breeding "to feather," to breed as close as possible, and avoid in-and-in breeding, even if this be at the expense of a little time. It is a good plan to have several yards of the same blood, and select your breeding stock from these different runs, mating a male from one with females from the others.

MATING AND BREEDING FOR UTILITY.

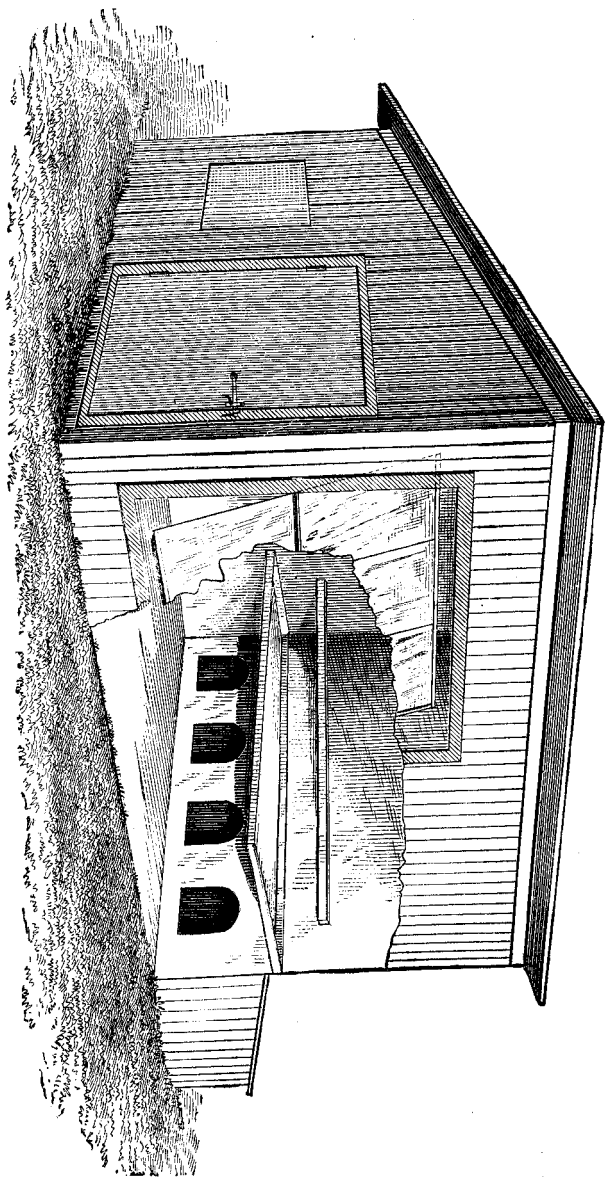
In mating and breeding for utility, the first requisites are hardiness and vigor. These are of paramount importance; for, however perfect a chick may be in all other respects, without a sound constitution it is a failure.

Not only should the birds mated be strong and vigorous at the time of mating, but they should have always been so; since one that has ever been weak and puny will be very apt to produce a certain proportion of puny chicks, under the most favorable circumstances.

Of course, their ancestors should have been the same; otherwise it is useless to breed from them for utility. It is always better to breed from a moderately indifferent bird descended from a long line of hardy and vigorous ancestors, than to breed from a good specimen descended from debilitated stock. In this mating, also, the value of a good strain becomes apparent.

The four main points to be sought after in breeding for utility are hardiness, early maturity, productiveness, and table quality. These are of importance in the order named. When the above-named qualities

MOVABLE HOUSE FOR A DOZEN FOWLS.



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have been carefully sought by the breeder, and rendered fixed and permanent, in any strain, by a judicious system of mating for years, it will be found much more advantageous to breed from this stock than from ordinary choice specimens.

In the matter of productiveness, it is necessary to be particularly careful in the selection of the dam, since this quality is almost solely under her influence.

Fowls, from a utilitarian standpoint, are mere machines for the conversion of food into eggs and flesh; and their value is in direct proportion to the quantity and quality produced.

The size and shape now demand attention, and require more consideration than is usually given them by breeders. Other things being equal, a fine, large, early-maturing fowl is, of course, more valuable than a smaller one; since the cost of feed is about the same in one case as in the other, and the amount of flesh produced much more in one case than in the other.

It is comparatively easy to allow stock of any kind to deteriorate either in quality or size; but it requires both skill and patience on the part of the breeder to reverse the operation. For this reason, if for no other, large-sized birds of this variety should be sought and bred from.

The shape of the Plymouth Rock should also be

closely looked after, as it will make quite a difference in the cost of the feed necessary to produce a certain number of pounds of flesh within a given time, whether one breeds from the ordinary or Improved shape.

In order to secure fertility in the eggs, and vigorous chicks, the males and females used for breeding should have been kept separated up to the time of mating, which ought to take place in December or January.

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CARE AND MANAGEMENT OF STOCK.

WARMTH.

The number of fowls kept should depend both on the experience of the breeder and the accommodations for them. Expensive houses are not necessary, though the amateur possessing ample means, and desiring to beautify and adorn his grounds, will doubtless find pleasure in furnishing and ornamenting his buildings. Shelter of some kind must, however, be supplied, and the more simple the better, provided it fully serves the purpose required.

Before entering into any description of houses, it may be well to consider a few requirements that are absolutely essential to success in this pursuit. During the cold winter months the fowls need warm, comfortable quarters; and they must have them, if one expects any eggs at this season.

It must be borne in mind that a certain amount of warmth is absolutely necessary for the preservation of life. When the atmosphere surrounding animal life of any kind possesses the requisite amount of heat, of course no artificial means are needed to increase it;

but when the air becomes deficient in life-giving warmth, the supply must be artificially given, and if it is not externally supplied, it must be internally. In other words, if fowls are not kept sufficiently warm, the food given them will be appropriated to supplying the deficiency, rather than to the production of eggs or flesh. This is a very costly way of warming stock, and one never resorted to by breeders of experience.

Let every one bear in mind, then, that the growth of fowls, as well as the production of eggs, is retarded by undue exposure to cold, and especially to variable weather and chilling winds, which, being a good conductor of heat, leave the fowls in a benumbed and torpid state. They then require the best of care, together with extra feed, to restore their vigor; and very frequently all is of no avail; the fowls or chicks will die in spite of your tardy care.

If the house has a sunny exposure, is well battened, and has large glass windows reaching nearly to the floor in the south side, there will usually be no necessity of supplying artificial heat, which we do not approve of with most beginners, at least. But if the situation or construction of the house renders it absolutely necessary, it needs much greater care to prevent sudden changes of temperature, especially when the fowls are allowed a run, as they should be.

VENTILATION.

It must not be supposed, however, that you can furnish heat by building perfectly tight quarters, and not allowing for ventilation. It is scarcely possible to exaggerate the importance of this latter requirement, in breeding poultry of any kind. We all know how deleterious are the effects of the want of it, upon the human system. Fill a room with people, and allow no ingress of fresh air, and how soon will its evil effects be perceived. The reason for this is obvious. In respiration, animal life of every species and kind is constantly consuming oxygen, without which no animal life can survive, and throwing off carbonic acid gas, which, mixed in sufficient quantity with atmospheric air, is fatal to animal life. This process is continued as long as a proper supply of oxygen is furnished by suitable ventilation; but as soon as that is withheld, it becomes necessary to again inhale the carbonic acid gas. What is true of the human race, is also true, in this respect, of fowls. The decomposition and fermentation of the droppings in the fowl-houses generate other gases also, which contaminate and pollute the air, unless a means of egress for them is afforded.

The necessity of suitable ventilation, therefore, is

obvious. A supply of pure fresh air, at all times, is a vital requirement in raising poultry, and the beginner who disregards it will be very sure to experience evil consequences of which he little dreams.

This supply must not be furnished in such a manner as to cause a draught upon the fowls. This is always bad, and especially at night. It is far better to have the ventilator in the upper part of the building, several feet above their heads, since bad air rises as it becomes heated, and is thus carried off in a natural manner, while the fowls are preserved from the evils effects of a constant draught of cold air.

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RANGE.

In selecting quarters for stock, it should be remembered that a large range is very beneficial. A limited number of fowls can be kept in close quarters, but even that is not desirable. In their natural condition the range was unlimited, and they were enabled and in a measure forced to take exercise in procuring food. Domestication has changed all this, and to a great extent taken away this necessity. Exercise in some form is an absolute requirement. Without it no one can possibly breed poultry at a profit. Hens will not lay, and their eggs would not hatch if they did, without they have it. Inactivity enervates the system and renders it liable to disease of every kind, to which it falls an easy prey.

This is one great reason why so large a proportion of our fine-bred stock is said to be weak and debilitated. As well leave a fine trotting horse for months in his stall, and then expect him to win a race, as to deprive fowls of exercise, and then expect them to lay or be hardy.

Chickens will, however, take sufficient exercise, if allowed to follow their natural inclinations. Walking and scratching are the principal means by which

this desirable result is secured, and where fowls are closely confined, or the quarters quite limited, some provision must be made for this purpose. Perhaps one of the best, and at the same time most convenient means, is to scatter whole grain over the runs in the morning, and cover with straw or leaves to the depth of several inches. This will furnish them an opportunity to scratch for their food, which they always relish much better when obtained in that manner; and will also give the required amount of exercise.

When they have a ground run, which is almost essential to success, it should be dug over every few days, particularly in the warm season. The fowls will appreciate this, and the owner will appreciate their increased productiveness.

A range is also desirable on account of the variety of food it enables the birds to procure in its proper season. Where they are allowed their liberty, they will obtain, in the warm season, all of the green food and insects necessary, together with gravel, lime, etc., and obtain it, too, in a much better proportion than any fancier or breeder can supply them.

Therefore, where but one breed is kept, it will be found more profitable to give them their liberty; but where, for any reason, this is impossible, the runs should be so arranged that they may have as much space allotted to them as is compatible with the surroundings.

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QUARTERS.

The location of the poultry-house is a matter which requires consideration. The house need not be expensive, but it should be comfortable and convenient. It should always be built on dry ground, which has a sufficient slope to carry off the surface water. A moist or damp atmosphere is detrimental to both the comfort and the health of fowls, and they should not be forced to live in it.

The house should be sheltered, as far as possible, from cold and chilling winds, since it will cost more to feed the same number of fowls when exposed, and the number of eggs will be much smaller.

The size of the house will depend upon the number of fowls to be kept in it. The beginner must be reminded that too many must not be kept together, since small flocks always pay better in proportion, and are far less liable to disease.

It is better and more economical, in the long run, to build several small houses rather than to crowd a large number under the same roof and compel them to inhale each other's exhalations.

Where from forty to fifty are housed under the same roof, there should be several pens, so that the

flock may be divided. Fifty is about as many as can be kept together with advantage, and some prefer less. The partitions between breeding pens should be boarded up to a height of two feet, for the purpose of preventing trouble among the different males. Wire netting is much better for the upper portion, as it allows the free circulation of air.

The old-fashioned perches, or roosts (where one rises above the other), should be avoided, since they cause the birds to crowd and soil each other. Perches should never be placed or arranged at a distance of six or eight feet from the floor, no matter what approaches are made to them, since fowls will almost invariably fly off the perch, and are very liable to hurt their feet, as well as suffer other injuries, if the distance from the floor is considerable; and, moreover, the air is purer nearer the floor. Those perches which are stationary are not as convenient as those which can be easily removed, and the same is true of a platform for the droppings. The better plan is to make them both removable, with the perch three feet from the floor, and the platform about midway between. This latter article should always be placed under the perch in every pen, since it saves much time and trouble, besides keeping the pen cleaner and giving more room to the fowls.

The floor should be of earth, where it is possible to

build upon dry soil; but where the ground is inclined to be a little damp, sand may, with advantage, be spread to the depth of several inches. In fact, a sandy loam makes the best possible floor.

The nests for laying hens should be arranged beneath the platform, and, where they are so arranged, single boxes, about fifteen inches square, *without bottoms*, are the best. These are much more easily cleaned, and not as liable to be troubled with vermin.

If the platform, perch, nests, etc., be arranged as suggested, and the floor be of earth, it will be a comparatively easy matter to keep the pen in a perfectly sweet and fresh condition, as the construction and height of platform render its scraping the work of a few minutes, and the floor may be quickly raked over.

The fact of all the *furniture*, if we may so speak, being non-fixtures, reduces the amount of necessary labor.

It is convenient, also, to have a passage-way at the rear of the pens, opening into each pen, and furnished with a trap-door opening into the nests.

By this means the attendant is enabled to collect the eggs without disturbing the hens, and is forced to enter the pen only for the purpose of conveying the necessary food and drink, and collecting the droppings. This is of some importance, as quiet tends to an increased production of eggs.

The room for *sitting hens* should be in another section of the building, entirely separated from the laying quarters, and will be treated of elsewhere.

In addition to the quarters already mentioned, there ought to be a shed on the outside of the house, for the use of fowls in wet and cold weather. This should be provided with a roof, and be covered on all sides except the south, and kept perfectly dry. Where the space is limited to a few feet, it is usually better to cover the whole and form a covered run, being careful to leave plenty of sunlight. In this shed or run should be placed a dust-bath, which is very essential to the well-being of the fowls.

For this purpose, dry, pulverized earth is the best. That gathered dry from the road where it has been pulverized by the passing wheels is admirable. Where this is not easily obtained, coal ashes will do, but are not as good, and when used may be mixed with loam to advantage.

If fowls are confined during the warm season, a shade of some kind must be furnished their runs, for the unobstructed rays of the sun are very detrimental to their health, frequently causing death. In a state of nature, birds always seek the shade during the warmer part of the day, and domesticated do the same, when allowed their liberty. Fowls, therefore, should never be forced to endure the sweltering rays of the sun or to retreat to the roost.

A southern front is very desirable, with the windows so placed or arranged that all possible sunlight may be admitted during the cold season.

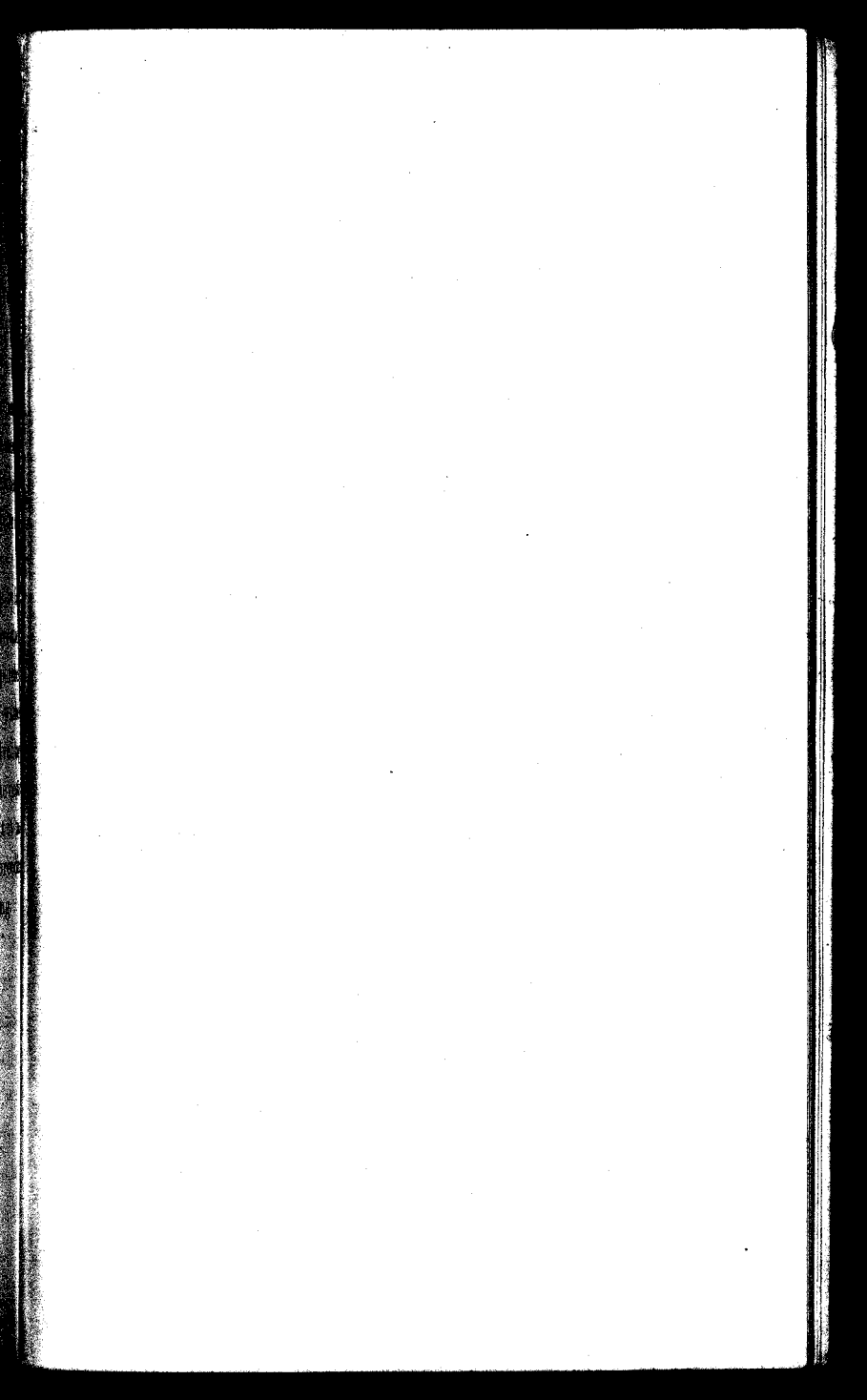
Light you must have, and the more the better. Very few kinds of life, either animal or vegetable, can long survive, and certainly cannot be expected to be productive, without it. For this reason, the windows should cover as much of the south side of the house as the style of the building will allow of.

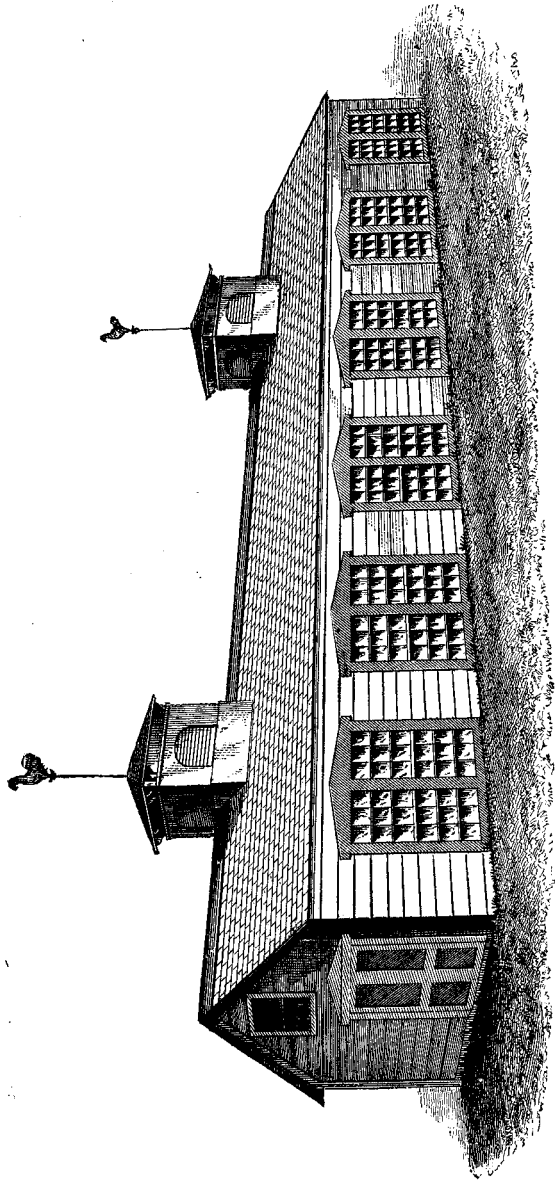
Cleanliness must also be carefully looked after, as it greatly aids both health and production. The house ought to be cleaned at least once a week, and the platform scraped. In the warm season it is better to do this every day, since the droppings befoul the air very quickly in warm weather. This may seem a small matter; but a little experience will prove that it is a very important one.

The great pest of the fowl-house, however, is vermin. Against them an unrelenting warfare must be waged. Perfect cleanliness will almost certainly prevent their obtaining a foothold, but where they have already done so, other means must be used. The Persian Insect Powder is the best weapon to use for this purpose, but is rather expensive. Powdered sulphur is a very good remedy, and should be plentifully sprinkled in the nests and throughout the house, especially on and around the roosts. Carbolic acid is also

good, and should always be mixed with whitewash when applied to the interior of the house. This should be done as often as once in six months, using the wash thoroughly and filling all cracks and crevices with it. This is one of the best means of subduing vermin. If sassafras poles are used for perches, no vermin more harmful than the wood-louse will be found on them. This is the result of ten years of experience. These poles should be at least three inches in diameter at the large end.

After the breeding-season is over, kerosene is by far the best to use, either as a preventive or remedy, since it is more powerful and acts quickly. The perches, especially the under side, should be frequently washed with it, and it may occasionally be used to advantage upon the other parts of the building, and in the nests; remembering not to use it in any way so that it may come in contact with the eggs during the breeding-season, as it sometimes prevents their hatching.





POULTRY-HOUSE OF F. H. CORBIN, NEWINGTON, CONN.

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POULTRY-HOUSE.

In the illustration on page 70, a fowl-house is represented that is desirable for the reason that it combines utility, convenience, and cheapness. It can, of course, be modified to suit circumstances. It is seventy-five feet in length by twelve in width; posts seven feet in height. At one end, a space twelve by fifteen feet is reserved for sitting hens and early chicks, leaving a space sixty feet in length to be used as breeding-pens, of which there are five.

In the rear is a passage-way two and one-half feet in width, extending the entire length of the breeding-pens; opening at one end on the outside of the building, and, on the other, into the room for the sitting-hens. This arrangement gives five pens, twelve by nine and one-half feet, which will accommodate from fifty to sixty fowls. This is as large a number as should ever be kept in one building, and some prefer a less.

The partitions between the pens are made of boards, to the height of two feet, and the remaining portion of wire netting. The platform, to catch the droppings, is two feet wide and four inches deep, and is placed at the extreme rear of the pen upon a frame eighteen inches in height.

The perch proper is made of scantling, two by three inches, with the upper edges well rounded. This is fitted into a frame made for the purpose, the whole forming what is termed a "wooden horse." The height of perch is twenty inches above the platform.

The nests are single boxes, fifteen inches square, without bottoms, and are placed under the platform. A trap-door from the passage-way opens into them, thus obviating the necessity of entering the pen for the eggs, which should be collected several times a day, especially in cold weather. Each pen is furnished with two windows. These can be both raised from the bottom and lowered from the top.

The floor is a sandy loam. The room for sitting hens is, as before stated, twelve by fifteen feet, and, in the extreme rear, is furnished with three tiers of nest-boxes, fifteen inches square. Each nest has a separate space in front where the food, drink, and dust-bath are placed. This prevents confusion as to nests, and, at the same time, allows the hen perfect liberty.

In this room most of the early chicks are cooped. A coal stove is placed here, insuring warmth and comfort for both fowls and chicks.

The roof being double, gives an upper room, the ends of which are used for cooping either chicks or single birds in the cold season, and for fattening

fowls ; while the remaining portion is very serviceable as a store-room. The ventilators are at the junction of the roof, and are so constructed that a plentiful supply of fresh air is constantly obtained. Nearly all of the interior portion of this house is put together by means of grooves, so that all parts may be easily detached, and rooms of different sizes constructed. On page 53, an illustration of a small movable house is given. This is sufficiently large for a dozen fowls, being six by eight feet. This style of house is very convenient, since it can easily be moved to any part of the yards ; and thus any particular fowls or breed can be completely isolated from the others.

It will be seen that the nests are on a level with the house-floor, but entirely beyond and outside the house. This obviates the most serious objection to this style of house, viz., the constant disturbance of fowls. The food and drink may also be given from the outside, so that it is not necessary to enter the house, except to clean it, and remove the droppings.

FOOD FOR ADULT FOWLS.

There is, perhaps, no part of the poultry business so apparently easy and yet so difficult as the proper feeding of fowls. A regular and judicious system is very necessary both to the birds themselves and to the breeders' profit.

In considering this subject, the ulterior object sought should be kept constantly in mind. There are two classes who breed poultry with the expectancy of profit, viz., fanciers, so called, and the ordinary breeder for eggs and market fowls. These are not necessarily distinct, and each may include the other; yet, for practical purposes, it will be found that they are sufficiently distinct to be classified as above. The main object of the former is to produce fine, standard birds, breeding true to form and feather; while the latter seeks the greatest possible number of eggs and amount of flesh.

The feed and care necessary for fowls devoted exclusively to laying eggs, differ somewhat from that given breeding stock; inasmuch as the object now is to obtain as many eggs as possible without regard to quality.

All that has heretofore been said will have been

said in vain, if there is now a lack of care and attention.

In order that the greatest number of eggs may be obtained, it is requisite that a regular supply of nutritious food be furnished. That half-starved fowls will not prove profitable is obvious to all; neither are those which are half-fed at one time and over-fed at another. If an egg *daily* is desired from each hen, it is evident that a proper supply of egg-producing materials must *daily* be furnished the hen, or she cannot produce the egg. *Ex nihilo nihil fit.*

On the other hand, too great a supply of food will surely over-fatten the hen, and cause her to lay very few eggs, while she is thereby rendered much more subject to disease. It may be objected that this does not apply to all fowls, and we are willing to admit that some of the smaller breeds may be fed all they will eat, with perfect impunity, so far as over-fattening is concerned; but it does apply to the larger breeds, among which is the Plymouth Rock.

It will be seen, therefore, that it requires considerable care and forethought to secure a proper medium. It has been urged by some that fowls should receive no more feed—and that of the same quality—than they obtained in a state of nature. This is obviously incorrect, for in that condition they rarely laid more than were sufficient for a single hatching during the

season, and their lives extended over a period of several years. But it does not pay to keep them for that number of eggs, nor for a longer period of time than two years; therefore they should receive a much greater amount of food, and that of a much more stimulating nature.

The proper amount of food varies. When the fowls are confined they will need more than when at liberty; at the same time, the danger of glutting them is greater, from their lack of vigorous exercise. Cold weather also increases their demand for and need of food. The exact amount can never be stated, as different fowls of the same breed and under the same circumstances will consume different amounts. A good rule is to feed them as long as they show an eager desire for it, and stop as soon as they cease to run after it, when scattered on the ground or floor. The food should be varied in its character, and whatever variety may be mentioned as being excellent should not on that account be exclusively used.

During the cold season, a soft, warm feed of some kind should be given once a day. The morning is the best time for this, since it is much more quickly digested than whole grain, and therefore more quickly introduced into the system. This food must be mixed nearly dry. If too wet it will improperly dilute the gastric secretions, and thereby impair the digestion.

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A good plan is to mix it sufficiently dry to readily mould into a ball, and break on being thrown upon the ground.

Boiled potatoes, mashed, and thoroughly mixed with corn meal, while warm, are eagerly devoured by fowls, and form one of the best morning feeds possible in cold weather. At this season, all *ground grains*, and, in fact, all soft food, ought to be either cooked or thoroughly scalded, the former being preferable. Barley meal, provender, and wheat middlings are all good, and each should be given as a change. During the winter, and when the fowls have no run sufficiently large to procure any food, a light repast should be given in the middle of the day; at other times, none. This meal, and that at evening also, should usually consist of whole grains, as they digest more slowly, and therefore furnish a more constant support through the long night. Of these, wheat, oats, buckwheat, cracked corn, and corn are all good, and for the production of eggs are valuable in about the order named, with the possible exception of corn, which, in some form, is and should be the staple food.

Meat, in some form, is very beneficial, and should always be furnished in cold weather, when worms and insects cannot be obtained, and at all seasons when the birds are closely confined. Cheap pieces may be procured of the butcher at a trifling cost, and after

being chopped fine, mixed with the soft feed. The fowls relish it fed in this way, and it enables all to obtain a share, which they would not be likely to do if it were fed separately. If meat is first boiled, it will be all the better. Chandlers' scraps are also good, but should first be cut into small pieces and thoroughly soaked. These are now ground fine and offered for sale in that form. In this condition they are much more convenient to feed.

Another necessary article of diet is a plentiful supply of green food; this, too, should be furnished daily. Most vegetables are good for this purpose, and may all be used in turn. One, however, is so excellent in its effects that we cannot forbear mentioning it. We refer to the onion. This vegetable is of a highly stimulating nature, increases the production, and preserves the health. By its unlimited use, combined with the Douglass mixture, we have been enabled to keep our fowls in fine health for a number of years, and very rarely have a sick bird. Any quantity may be given with perfect safety, and they may be fed whole, thus saving the labor of chopping. We believe that prevention is much better than a cure in any case; and if fowls can, by any reasonable course of care or feeding, or both combined, be kept in a healthy condition, it obviates one of the greatest of known evils in the raising of poultry.

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Lime is also necessary, since it is requisite in the formation of egg-shells and bones. The most convenient way to feed this is in the form of broken oyster and clam-shells, the former being preferable. Fresh bones pounded, or burnt, even, are always good, much better, in fact, than anything of the kind to be purchased in market. The refuse bones should be utilized in that way.

Gravel is also essential, as it performs the same function with fowls that teeth do with the human race. For this reason, it ought to be given both regularly and liberally, when the fowls are so confined that they cannot obtain it for themselves.

Charcoal should occasionally be fed. This stimulates digestion and thereby benefits the health and increases the production. It is best fed as burnt corn, or, when this is not convenient, any charcoal may be powdered and mixed with soft food. Most fowls will eat it also broken into small pieces and mixed with the corn.

Where but few fowls are kept, the refuse from the table will in great part supply their wants. This is a far more valuable food than is usually supposed. If the refuse be abundant, it will cause the birds to thrive and lay better than any other food. It ought, however, to be fed while fresh. Remember that in feeding fowls the main things are regularity, a proper amount, and variety.

Milk is the best drink that can be furnished fowls; combining, as it does, at once drink and food of the most nourishing nature, causing the birds to largely increase their productiveness. This may be given to them in any form, and either sweet or sour. It is almost the only article that can be so given, and yet be relished by the fowls.

If it is not convenient to obtain milk, water certainly may be had, and enough of it. This should be furnished freely, in a perfectly clean and fresh state. In the winter, it should be slightly warmed, as it is thus made more acceptable to the fowls, and does not freeze as quickly.

If it is not given regularly and in sufficient quantity, the birds will eat snow or drink snow-water, which checks production, renders them dull and stupid, and chills the entire system.

The vessels in which food and drink are given fowls should be kept perfectly clean and wholesome, both because they will relish food and drink much better when contained in such vessels and also because it does them far more good.

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CARE OF BREEDING-STOCK.

Having properly mated such stock as is desirable for breeding purposes, the next step is to give them suitable care and attention. Not the same food, either in quantity or quality, should be given as is proper for laying-birds.

The object now sought is not a large number of eggs, but such as will give the greatest number of fine chicks. For this reason, care must be taken not to feed a sufficient quantity to over-fatten the fowls, as otherwise many eggs will be sterile. Neither should stimulating food be given, since this forces the productive powers, and, as a consequence, gives inferior progeny.

The first laying of pullets does not give as good satisfaction as the second; but with hens the rule is reversed.

For market purposes, the chickens ought to be hatched in March, and, with suitable quarters, may be to advantage in February. This applies with equal force to chickens intended for the show-pen.

Those intended for future breeding-stock should be hatched not earlier than April or May, since their chances of developing into strong, hardy birds will

be much greater than if hatched before; neither will they be as apt to lay a large number of eggs before the time for mating arrives, and so enter the breeding-season in a debilitated condition.

If but a limited number of pure-blooded hens are kept, the cock should be allowed to remain in the breeding-pen but a small portion of each day, or a sufficient number of other hens, laying an egg different in color, may be introduced. This is perhaps the better plan.

Under ordinary circumstances, from ten to twelve hens may be given to a vigorous, agile cock. Care must be taken, however, to observe whether he pays a proper amount of attention to the hens; too much being as detrimental as not enough.

If he has been allowed to run with the females for some time previous to mating, he is very apt to have become sluggish; in which case strong, hardy chicks need not be expected, as they cannot possibly be bred.

The eggs should be plainly marked when they are taken from the nest; as the exact date when each is laid is very desirable, to say the least. By keeping such a record upon the eggs themselves, one avoids the danger of setting those which are not sufficiently fresh, and is able to select, as far as possible, those laid upon the same day. This is an advantage, since the age of eggs makes quite a difference in the number of days required for hatching.

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Eggs are good for setting until they are two weeks old, but after that, they are constantly losing their life-giving quality; although they will frequently do well at the age of three weeks.

INCUBATION.

The successful hatching of chickens is quite difficult, and requires care, good judgment, and careful attention to accomplish it.

If possible, a separate room should be given to sitting hens, where they will be undisturbed. If they are allowed to remain in the same room with the layers, it is almost impossible to prevent their being disturbed by the laying hens. This is very apt to result in breaking the eggs, and, at least, will force the attendant to daily remove those freshly laid. Only the most constant care will insure any degree of successful hatching in a room devoted to both laying and sitting fowls.

The nest itself should be about fifteen inches square, and, during the cold season, should be made warm. We have found that broken hay or straw for the bottom, covered with feathers, makes a very good one. Later in the season, however, this plan should be reversed, and a piece of fresh turf hollowed out into a concave form and covered with broken straw will be found to serve every purpose.

The nests should be in as secluded a place as possible, as they are more inclined to sit steadily if per-

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mitted a certain amount of privacy. It is far better to allow each hen a small pen by herself in front of her nest. In this pen should be placed food, drink, and the dust-bath; which last is of especial importance at this time.

This plan may be followed in most houses, and in all except those where the quarters are very restricted, since it requires but little more space than furnishing a large room for several sitters. This prevents the confusion likely to result from changing nests, and does away with the confinement necessary where the nests all open into one room.

Never set a hen or pullet that will leave the nest at your approach. Such hens are always unsteady sitters, and are liable to break their eggs while sitting. It is better to purchase hens of some ordinary breed to use for this purpose than to use such stock. Under ordinary circumstances, however, the Plymouth Rock is a fine sitter and a good mother.

During the early season, from seven to nine eggs only should be given each sitter, since in the case of a larger number those upon the outer edge would be liable to become chilled, and, as their position is changed daily, all in turn might be rendered of no value. With warm weather, however, thirteen may be given to an ordinarily large hen with perfect safety.

These should always be placed under the hen in the evening, as this course is less likely to frighten the hen and cause her to leave the nest. Where valuable eggs are to be used, it is better to give artificial ones for a day or two, or until the hen becomes reconciled to her new quarters. They should be required to leave their nests daily, in order that the eggs may receive a supply of fresh air, without which very few chickens would be hatched, and those weak and puny specimens.

Seven or eight days after setting, the eggs should be examined with reference to their fertility. The non-fertile ones should be removed and may still be used as food for young chicks. If a number of hens were set at about the same time, which is advisable when convenient, the fertile eggs may now be placed under a part of the hens and the remainder furnished with fresh ones. In this manner quite a saving of time is made, and the number of chicks increased. The fertility of the eggs may be determined by means of an egg-tester (which is the most reliable), or looking through them at the light. Those that are fertile will have a thick, cloudy appearance, while the others will not.

Of course, both hens and eggs must be kept free from vermin during the period of incubation. This may readily be done by means of sulphur and the

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dust-bath. Sprinkle sulphur plentifully through the nest and a little upon the hen before setting; then provide a suitable dust-bath easy of access, and you will seldom be troubled with vermin.

Medium-sized eggs, and those that are smooth and regular in shape, are the only ones that should be used.

A good supply of pure, fresh water, and whole grain, corn being preferable, must be given, and should be so placed that the hen may be able to eat and drink whenever she feels so disposed. Soft food at this time would (by reason of its quick digestion) cause the hen to become hungry too often, and, consequently, leave her nest. Therefore, it should not be given.

The Plymouth Rocks are gentle, patient, and tractable, and, therefore, better results follow their use as sitters than fowls of many other breeds.

In warm weather, sprinkling the eggs daily with tepid water for three or four days immediately preceding the hatching is advisable. While hatching, the hen should be disturbed as little as possible, simply removing the broken shells and allowing nature to take its course. Chickens helped from the shell seldom pay for the trouble.

CARE OF CHICKS.

Chickens should not be disturbed for at least twenty-four hours after being hatched, neither should any food be given them, as their last act within the shell is to absorb the yelk of the egg into the abdomen, and that will furnish a sufficient supply of food for the time mentioned. If the hen is not inclined to remain quiet for that length of time, feed and water her on the nest.

When the chicks are ready to leave the nest, they, together with the hen, should be placed in a perfectly clean coop. The germs of disease, as well as vermin, cling to filthy, uncleaned ones. This proves a fruitful source of disease among otherwise healthy chicks, and renders the proportionate loss much greater than it need be.

Early in the season, this coop should have a board bottom, or else be placed in a warm room having a sunny exposure. This is to prevent the tender chicks from coming in contact with earth that is cold, or wet, as such continued contact is very likely to produce colds and rheumatism.

If they are allowed a warm room, or one so sheltered and exposed to the rays of the sun that the

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earth is dry and warm, a dirt floor is much more congenial to their nature, and will cause them to thrive better; but under no circumstances must they be exposed to cold rains or chilling winds.

Remember that sudden changes in temperature and exposure to wet, occasion a greater loss in chicks than all other causes combined, and, therefore, should be more closely guarded against.

Many seem to think that chicks may be crowded into close, ill-ventilated coops, while the adult stock require large, roomy quarters, and those well ventilated; at any rate, this is their practice. This is on the principle that a young and delicate child requires less care and attention than a strong, robust man.

The absurdity of this course is so apparent that it only needs to be stated to be perceived. Give the young birds, then, suitable accommodations and they will amply repay you for the extra care or slight expense this course entails.

Of course chicks do better with as much liberty as is compatible with other desirable things, and it is advisable, therefore, to allow them this, a portion of each day, when it is warm, dry, and sunny, gradually increasing the length of time allowed them, until, in suitable weather, they are given their entire liberty.

Many fanciers partially rear their early chicks in a room having a fire in it; and there is no question but

what they thrive better and grow faster in such an atmosphere. Where these are to be sold as broilers, direct from the warm rooms, this plan is advantageous; but the danger lies in the necessarily sudden change of temperature when the artificial heat is removed.

Without greater care than most ordinary breeders give, a far greater loss would occur at this time than the extra growth would compensate for. A check in growth at this juncture, or, in fact, at any time while chicks, should be avoided, if possible, as they seldom recover from it.

Later in the season, it is not necessary to use so great care in regard to the degree of warmth. Dews and rains are the things to be especially avoided then. If the down upon a young chick becomes thoroughly saturated with moisture, it will almost certainly cause death or render it of little value; for, even if it lives, its growth will be checked, and it will become delicate, a most undesirable condition for a Plymouth Rock.

When they have a grass run, therefore, they should be closely confined in the morning, until the dew has disappeared, and always in rainy weather.

Where there is a good range, it is better to allow the hen her liberty in pleasant weather when the morning dew has disappeared, and after the chicks are about two weeks old, as the Plymouth Rock makes

a good mother, being attentive to the wants of her brood, and a very active forager.

This should not be construed to mean that the hen must be set at liberty when the chicks arrive at a certain age, regardless of other circumstances, nor that she should be permitted to roam from early morning until late at night, as frequently there are heavy dews which the chicks should not encounter.

It should be construed to mean that when such a course is in harmony with other requirements, the hen should have the greatest possible amount of liberty, after the chicks have arrived at the age above mentioned.

FOOD FOR CHICKS.

The best food for chicks, for several days after they are hatched, is hard-boiled eggs. The length of time that these should be fed depends somewhat upon the character of the stock you wish to raise.

For standard birds they should, of course, be fed longer than for those intended for market. The same is true of most kinds of expensive feed. You can now make a good use of the non-fertile eggs taken from the sitting hens.

Corn meal and ground oats mixed with stale bread soaked in milk may be gradually substituted as food in the place of the eggs. Wheat middlings mixed with other ground grains is also good for a change.

All soft food should either be scalded or be wet with milk, and allowed to stand for a short time before feeding, especially when scalded, as there is a tendency with all ground grains to swell on being moistened, and this should take place before being introduced into the chick's crop. It is always better to moisten the soft food with milk, since nothing contributes more to the thrift of chicks than this article of diet. For this reason it is a good plan to have

vessels filled with milk so placed that the young birds may drink it whenever they wish.

The early broods require to have everything they need furnished by the attendant, and therefore especial care should be taken to understand just what their wants are, and then to see that these are properly supplied.

A variety of food is always beneficial to fowls, and at no period more so than when young. Their nature also demands a very nourishing diet, since they are not only growing rapidly, but fledging also, which is a severe tax upon the system. Both, taken together, cause the chick to require more nutritious food, in proportion to size, than at any other period of life.

Being small, however, they can partake of but a small amount of food at a time, and therefore should be fed often. This ought to be at least every two hours, while the chicks are young, gradually increasing the length of time between each meal, until they are fed four times a day. Regularity, both in the amount of food and time for feeding, is even more essential than in the case of older birds.

Many of these delicacies are not needed by the hen, and consequently it is well to have an outside coop so arranged that none but the chicks can enter it.

Milk or clean fresh water should always be kept within their reach, but too much of either should not

be mixed with their food, as too wet food causes them to take a greater amount of liquid than is necessary, dilutes the gastric secretions, and deranges the system generally.

Green food of some kind must be furnished until the grass has sufficiently started for them to obtain that. For this purpose the fresh sprouts of onions, or the onions themselves, together with cabbage leaves, chopped fine, are all good. These may be mixed and fed with their soft food. Ground bone should occasionally be fed.

As soon as the chicks are able to eat it readily (say at the age of two weeks), cracked corn should be given, and from this time corn in some form should be the staple food. There is no danger of over-fattening chicks, whatever amount of food be given; but *no more should be fed them than they will eat up clean*. It is apt to sour, and not only that, but the chicks will not eat it as readily after they have pecked it over and left it.

If any be left by them, remove it at once and give fresh at the next feeding.

As in the case of adult fowls, the vessels for both food and drink should be kept perfectly sweet and wholesome by frequent cleansing, since the chicks will not eat as much, nor grow as fast, if the vessels are dirty and unfit for use, and, besides, will waste more food.

FATTENING OF FOWLS.

At the age of three months, those which it is not desirable to keep, either for breeding or for later fattening, may be sold to advantage for broiling, and frequently will bring more than if kept to the age of six months, while the cost of food is saved in addition. When the birds are late in hatching, however, or when it is not convenient to sell for broiling, they must be marketed later in the season. September, or early in October, is the best time for this purpose in the Eastern States. We have advocated generous feed from the shell, and if our advice has been followed, the fowls, at the age of five or six months, are ready for home use; but for market, a greater weight is desirable, and therefore a system of fattening must be resorted to.

Ten days or two weeks are sufficient for this purpose. As soon as the fowl has reached the required degree of fatness, it must be disposed of at once, since it will lose in weight from this time.

The fowls should be placed in a long, narrow coop, giving them but little more than standing-room, as exercise is not now desired. If this can be darkened, except at meal time, so much the better.

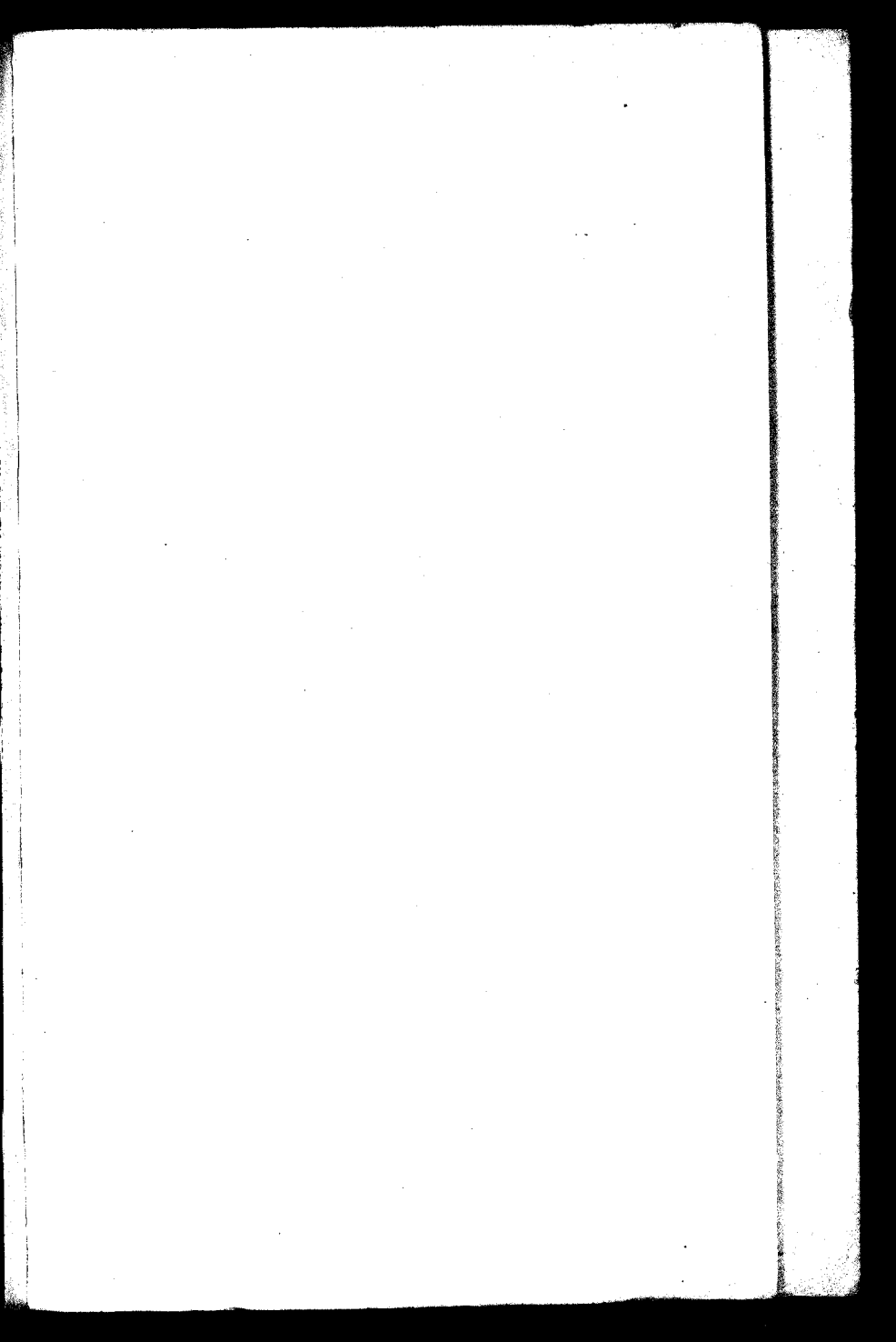
Corn-meal, mixed with milk, should be the staple food, with provender for a change. Green food and gravel should also be regularly given.

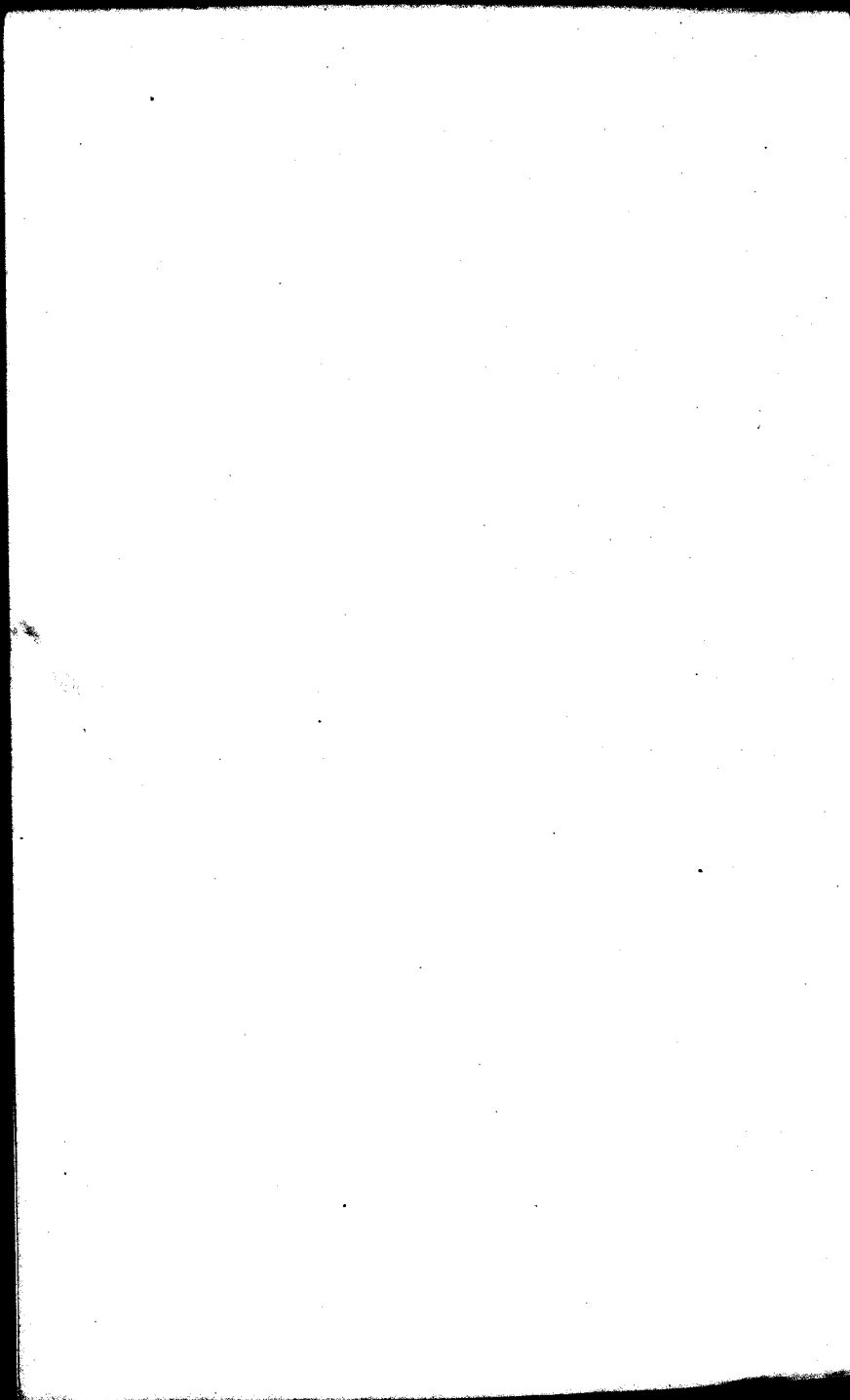
They should be fed at least three times a day, and, while they must have all that they will eat, no more than that should be given, as such a course will cloy them.

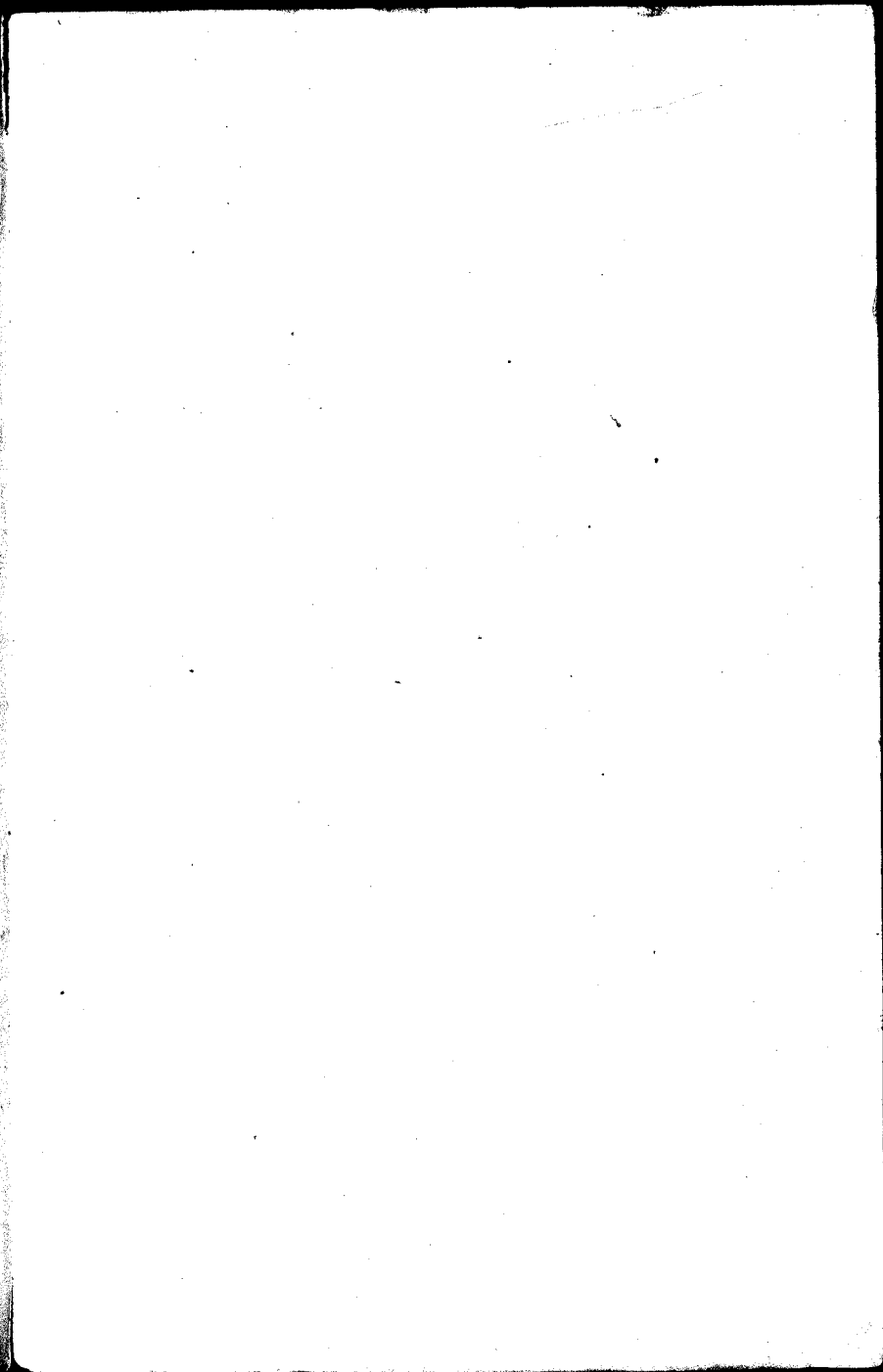
Pure water should be easy of access at all times. When a fowl begins to neglect its food and be dainty, the sooner it is disposed of the better.

The cockerels and pullets should have been separated ere this, and from now until the close of the year should receive the care advised for adult stock.

Our thanks are due to a number of our most noted fanciers, for facts furnished us during the preparation of this book. These facts were received with pleasure, and the weight of authority has been the rule in determining any point. Our thanks are also due to H. H. Stoddard, Esq., for the use of his cut of Modern Plymouth Rocks.







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