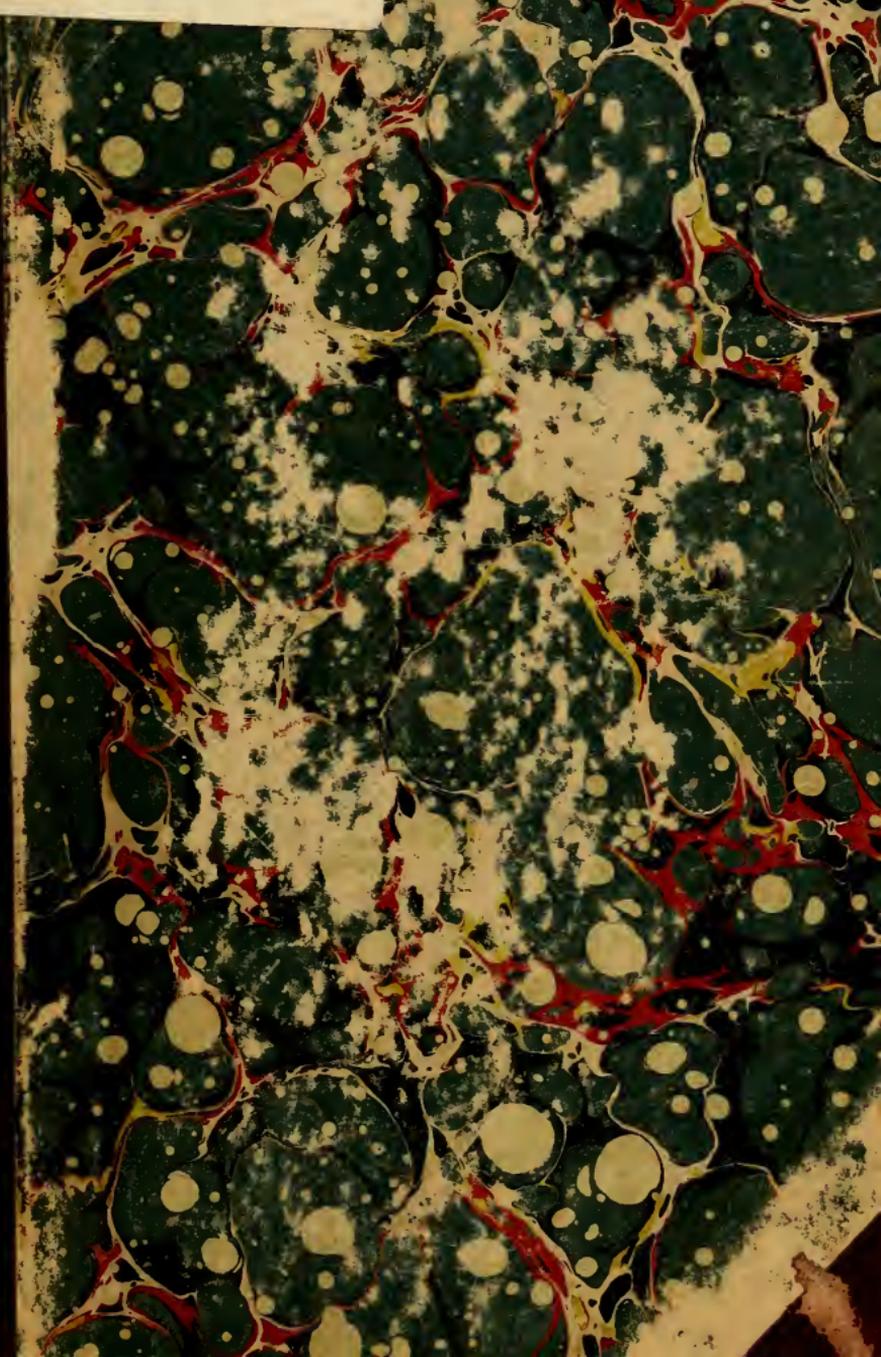


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THE
A B C
POULTRY BOOK.

BY
M. A. WILSON.

Third Edition.

CASSELL & COMPANY, LIMITED:
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P R E F A C E.

VARIOUS circumstances have contributed during the last few years to direct the attention of English people to an industry which has been only too long neglected in this country. The rearing of poultry and the production of eggs, from being a mere fashionable amusement or adjunct to a farm, form already a commercial enterprise of some importance, to which the introduction of improved incubators and artificial chicken rearers has given an impetus altogether unforeseen.

Questions week after week in the pages of the various Live Stock and Farm Journals bear witness to the demand which exists for knowledge on the most elementary points connected with Poultry management; and some work seemed much needed which should supply the desired information in a cheap and accessible form.

In the following pages the Author has endeavoured

to be concise and practical. They contain the results of some years' experience; and by the kind permission of the Publishers, free use has been made of Mr. Lewis Wright's classical work on Poultry, to which the reader is referred for more detailed information, when such is required.

There will, doubtless, be faults both of omission and commission, but it is hoped that this little work, with its A B C arrangement, may prove useful not only as a guide to the beginner, but as a handy book of reference for the more advanced Poultry-keeper.

Westal,
Cheltenham.

THE A B C POULTRY BOOK.

Accidents.—Prevention, as a general rule, is much better than cure, seeing that the latter process is costly and tedious.

Broken Leg.—The leg can be bound round with stiff leather, or tightly fixed in a cork splice bound round with wool. If placed in a shallow basket, with linen cover sewed all round and a hole made through which the neck can move freely, this will leave the leg in perfect quiet, and give it time to set. Food and water can be placed within reach, and three days will suffice for repairing the injury. Let it take exercise little by little. Ducklings spiked by a sharp garden fork in the web of foot or bill will soon recover, as the place heals of itself; if through the neck, bind it carefully round with diachylon plaster.

Drowning.—No water-tubs or large pans of water, buckets of pigs' wash, &c., should ever be allowed to stand about uncovered in the poultry-yard, as young birds especially are very

inquisitive, and often fly or fall in. If discovered in time, and any sign of life is left, immerse the bird at once in warm water, dry it, and then wrap carefully in cotton-wool or flannel, and place near a good fire. Give from half to a whole tea-spoonful of port wine, and be careful not to expose again to cold too suddenly.

Loss of Birds by Rail.—Accidents of this kind would be less frequent if exhibitors and breeders of poultry would print their name and address in large type on the holland covers of their hampers. This insures the safety of birds on return journeys from exhibitions, where labels are tied on somewhat hurriedly.

Loss of Sickle Feather.—This occurs to exhibition birds at times. It does not disqualify. Should two birds be exhibited equally good, the one with the uninjured tail would no doubt be the winner.

Paint on Feathers.—Rub care-

fully the way of the feathers with turpentine or benzine.

Tar on Feathers.—Get it out with butter or oil; but prevention is better than cure.

Torn Comb.—Of frequent occurrence, from the fighting of cocks through wire partitions. Should the wattles be much torn, cut off hanging and jagged parts, and cleanse with cold water. Apply cobwebs or styptic colloid. When scabs form, zinc ointment will help to soften them.

Aconite.—No. 1. Mother tincture is the strong poisonous chemists' tincture, and must be used with discretion.

Adding Fresh Stock.—If this has to be done into an established, carefully re-bred, and famous strain, it must be looked upon as a necessary evil, and the buyer will do well to go to the best known yards and spare no expense in purchasing. A first prize or cup bird at a show may introduce much trouble and disappointment into a pen of choice birds, and it is only when the antecedents of the cup bird are first-rate that the introduction is a safe one. By keeping an accurate address-book with notes, the fancier will be able to see the names which stand highest as prize-winners. The number of honours taken is a good test of the purity of the strain; and it is well to ascertain whether the prizes are won by one solitary show bird or pair, or whether the breeder's resources are strong enough to produce fresh winners at several

successive shows. If you can trust the breeder from whose yard you wish to purchase, it may be noted that a bird that has won no prize may yet be superior to the winners as a stock bird.

Addled Eggs.—Those which have been sat upon, and which have been clear from first day, or "unfertile." Such eggs, if taken out of the incubator or nest on the fifth or sixth day, are fit for cooking; if left in, they will injure those that are fertile, and eventually, when broken, may explode and be very offensive; if incubation is continued with a "clear" egg it will become "addled." An egg becoming fluid shows that at some time it must have been chilled.

Addresses.—When much engaged in the sale or exchange of poultry, careful notes should be taken of all addresses, and copies made of all business letters; also, if a study is made of any particular breed at a show, the addresses should be noted of those exhibitors whose entries are remarkable for any good qualities—though not necessarily winners—and of those whose birds have marked defects. In buying fresh stock such notes may assist the fancier in avoiding such yards as may be dangerous to cross with his already good stock. The Crystal Palace and Birmingham Catalogues and lists of awards are useful, as containing the names of *all* exhibitors; and a study of the prize-list for two or three consecutive years may be a fair guide to those who do

not frequent shows or visit the great poultry-yards of England, as to the most trustworthy runs from which to procure fresh blood. The "Fanciers' Directory," published by Cassell, Petter, Galpin & Co., is useful in many ways to the fanciers of poultry, particularly in giving addresses of breeds kept by all the poultry dealers in England.

Age of Hens and Pullets to Lay.—Pullets lay at from four and a half months to six and a half; their time for laying is in the hands of the clever poultry-woman or breeder. If hatched for egg produce only, and with intent to keep up a succession of layers, eggs should be incubated during almost every month: January to April being the best. If your object is to secure eggs at the earliest moment, take care not to move the pullets about from place to place, as it seriously delays and checks egg production; as soon as pullets are over their fifth month they should be mated, and, if possible, in the same quarters in which they have been brought up. Chicks hatched in September will not be so forward to lay at five months in January as those hatched in January are in April. Hens, if they are old and have laid on late into the season, cannot be expected to lay before February.

Age to Breed at.—Pullets, on the contrary, meant for exhibition and prize stock must be hatched in the months of January to March inclusive, and it is wise to give the pullets a fre-

quent change to prevent laying, and so lengthen the period for growth. Pullets from which to breed exhibition stock should be quite seven to eight months old before they are mated, and when this is done an adult cock should be in their run, while the cockerels should be placed with the adult hens. Hens from two to three years of age are more valuable to breed from than pullets: their chickens are stronger as a rule.

Age to Fatten.—Cockerels of from four to five months are in prime order for fattening; it is little use commencing earlier if size is an object, but birds of this age should be ready for table if well kept without special fattening. (See FATTENING FOWLS.)

Age, To Judge, in Poultry.
—If for table, examine the feet and legs; the size and appearance of the spur form an unfailing guide in hens as well as cocks. The skin of the pullet or cockerel is smooth and fresh-looking, the adult bird yearly grows coarser and shrivelled; place the thumb and forefinger on either side of the back near the pope's nose or oil receptacle, and press it; in young birds that part is supple, in old birds it is difficult to bend. In ducks the age is very hard to tell, even great judges find a difficulty; ducks of two or three years' standing have, however, a deep depression down the breast feathers, and their waddle becomes yearly more ungainly.

Age to Kill.—If you are breeding for exhibition kill off any birds not fit for show pur-

poses, HOWEVER SMALL, unless you have special runs for table stock into which to draft all false-feathered specimens. It is bad economy to keep them crowding your prize birds preparing for exhibition. Hens should be killed in their second year, the moment they cease laying their summer batch of eggs; do not let them get into moult, or you will have to keep them through it at a disadvantage. A hen hatched, say, in March, 1878, should lay up to the end of July in 1879, and then be fattened and killed; if well hung, she will be excellent eating still. In case of prize stock the rule is different, and the moment for killing must be decided by the value of the specimen in question; no valuable stock bird should be discarded till the completion of her third or fourth year, as even a dozen or two of her eggs may be invaluable for incubation.

Age to Show.—The exhibitor who wishes to be early in the field must hatch early. Cockerels for August and September shows must be hatched out in January and February. In from six to seven months the plumage of the cockerel is fairly perfected, and pullets, if kept from laying till six or seven months and then paired, and exhibited when laying has just commenced, will be in perfect order. Adult birds must be exhibited when over moult, and when laying re-commences; the cock bird is not in spirits and will mope in his pen if shown before the moult is over, and the adult hen's comb will look dry

and shrivelled up till she lays. (*See PRIZE BIRDS: THEIR TREATMENT.*)

Air Bubble, or Air Cell, in an egg, is at the round or blunt end: it contains the air which is to supply the chick during the process of incubation—it is known to contain a greater proportion of oxygen than the air we breathe. As the chick increases in size the air bubble grows larger, and when on the point of hatching it occupies one-fifth of the whole egg. The slightest perforation of this air chamber will prevent success in hatching out. About the nineteenth day of incubation the air cell is ruptured, and the chick breathes with its lungs; it is at this date that the lively movements seen in eggs placed in water are observable.

Alarm.—The attendant in the poultry-yard should by all means try to make friends with his flock, and never alarm them or drive them needlessly. He should never shout at them in an angry tone, and should acquire a habit of calling them always in a special manner when coming to feed them at meal hours. When laying hens are alarmed soft eggs are the result; and if afraid of their keeper, exhibition birds in being caught and dressed for shows run the greatest risk of spoiling combs and plumage by knocking themselves about in their fright.

Ale may be used with advantage occasionally as a treat in severe weather for laying stock. Should a bird's comb turn blue,

from confinement at a show in cold weather, a warm house and bread soaked in ale once a day will effect wonders. But ale should not be used constantly, as it is too stimulating.

Allowance of Food. (*See Food.*)—No absolute scale can possibly be given, and yet on the proper allowance of food being given to each fowl hangs the question, “Does poultry pay or not?” Most fanciers’ birds are over-fed, and in this lies great danger. The various breeds require more or less food according to size and character, and the only safe rule to lay down in case of adult birds is to give at the morning meal and supper time only as much as they will pick up greedily—never leave food on the ground or in the pans—at mid-day give only a few grains, more as an occupation than as a meal. I find a (lady’s) handful of grain to each bird is ample; while of soft food in the morning, *about* as much as would go into a gill measure is almost too much for each bird. Green food should be given *ad lib.*, and should never be forgotten, but too large a supply of fresh-mown grass given at rare intervals is injurious; birds are apt to eat too much, and scouring is the result.

American Breeds.—(*See DANVER’S WHITES, JERSEY BLUES, LEGHORNS, PLYMOUTH ROCKS.*)

American Bronze Turkey.—Remarkable for great weight. The cocks reach 35 to 40 lbs., the hens 24 lbs. They attain their full weight at three

years of age, when they are at their prime for breeding from; medium hens of 15 lbs. are best to breed from, but cocks must carry weight. They are obtained by crossing the wild with the domestic turkey of America; the produce is superior in size to others. First eggs are usually set under hens, and the second batch under turkeys. The mother may be confined; the young birds require feeding constantly, very little at a time, on hard eggs, chopped dandelion, curds, chopped chives, and onion-tops.

American Light Brahmas differ from the English strains, are less compact, long in leg and back, larger and heavier, but not so handsome; in colour of a pearly white. The long-bodied hens of American type crossed with an extra short-legged specimen of one of our English noted strains makes a grand cross.

Anconas originate from crossing black and white Minorcas, whose shape they bear. In plumage they are mottled-grey, or cuckoo, or dominique in colour; comb, face, and lobes follow the Minorca. (*See MINORCA.*) They are scarce, hardy, excellent layers, non-sitters; white, red, yellow, or black in plumage will disqualify in the show-pen.

Andalusians.—The origin of this breed is somewhat obscure. It has, however, been recognised and cultivated in England since the year 1846, when some blue and speckled fowls were introduced by Mr. Barber from Xeres de la Frontera, in Andalusia.

These, by careful selection and much crossing, have resulted in the Blue Andalusian of to-day; but the constant occurrence of black, speckled, and white chickens in the purest strains make it probable that the breed has at no very distant date arisen from a cross between the black and white Minorca. The fowls originally imported were noted for their laying qualities and the size of their eggs, and these are now the chief characteristics of the breed. The eggs are large and of excellent flavour. Andalusians do not sit. They thrive well in confinement, and are perfectly hardy. The "points" have undergone considerable modifications since the year 1851, when Andalusians began to be seen in the show-pen; but at present the typical Blue Andalusian should have a bold, upright, and graceful carriage, a fairly long, thin leg, and a full-flowing tail carried rather high. The general contour should be Spanish, but of the Minorca rather than the white-faced type. The head should be tapering and rather narrow; the comb in the cock large, but not coarse, straight and erect, evenly serrated in bold spikes, rising from a firm, broad base. In the hen the comb should rise up appreciably from a broadened base before arching over in a graceful sweep. The face in both sexes should be red (without any admixture of white), with as little red skin as possible over the eye; the ear-lobe flat, sharp cut, and of a pure, satiny white. The cock's neck is long, and the hackle rather short; the breast full and round;

the legs long and grey; the plumage a bluish shade or slate colour, clear all over the ground colour, laced round the edges with black; the breast in cock and hen well piled. Some latitude is allowed in colour, which may vary from a pale dove to a deep slaty blue; but fashion has of late decidedly pronounced in favour of the latter. The hackles in the cock on neck and saddle, which were at one time a grey slate, are now generally of a rich, lustrous purple, or nearly black.

The chief faults to be avoided are large, coarse combs, with thumb-marks, white on the face, red on the ear-lobe, red, white, or black feathers in the plumage, a squirrel tail, and white legs. The chickens are most precocious, feather very rapidly, and the pullets commence laying at five months.

Animal Food. (See Food.)

—When fowls are kept without grass run or ample range, meat is all but a necessity; the number of eggs in winter will be greatly increased on meat diet. Bullock's liver, slightly boiled, and chopped in an American chopper, peppered and mixed with pot-liquor, and thickened with oatmeal, warm, is much relished. Scraps and cuttings from the butcher, at 3d. per lb., are well worth getting for the same purpose. Tallow-chandlers' greaves are not good; they tend to make soft fat of coarse flavour. The French give horse-flesh to their poultry, in the management of which they are notably successful. During moult and in severe weather

it is bad economy not to buy meat; for breeding stock and early supply of fertile eggs it is essential. It may be given chopped small and mixed with rice, meal, Spratt, or other soft food; or, for a change, a piece of meat may be nailed or tied to the wall of the pen for the fowls to peck at on rainy days. For chicken supply, cook the meat and chop it fine. This may be given to chickens at three days old and upwards. A supply of maggots is the best animal food for young chickens. If in the country, a dead lamb, or sheep, or a calf may at times be procured, and provided that death was caused by anything but a long and severe illness, there is no reason why these should not be used in the poultry-yard. Attentions of this kind in a poultry-run ward off evils, such as egg and feather eating.

Animal Food: Kinds to procure.—*Meat*: Gravy-beef, slightly boiled, salted and peppered and finely chopped, should be got at 7d. per lb. Horse-flesh, much used in France, can be had at the kennels; only fit for very large establishments.

Earth-worms are excellent, but some fowls will not eat them.

Scraps from table.—Very good; and if near a boarding-house or school, arrangements should be made to take the remnants.

Ants' Nests.—Excellent for young chickens. School or village children may be encouraged to bring them in for a few pence.

Meal-worms.—These for chicks are unsurpassed, and produce

wild excitement. A regular supply can be procured by expending a little trouble and thought on the matter, which is, however, not an agreeable one. (*See MEAL-WORMS.*)

Cheap Winter Food.—Get a sheep's or cow's head; boil it down, after chopping it small with an axe or a bone-crushing machine. Boil in the stock, cabbage, potatoes, carrots, parsnips, a handful of red chillies, and thicken to a crumbling mass with pollards or dry boiled rice.

Ants' Nests.—(*See ANIMAL FOOD.*)

Apoplexy.—Generally the consequence of over-feeding in small pens or of injudicious diet, such as unlimited feeds of maize. There are seldom any premonitory symptoms—birds go to roost and drop dead from their perch; but at times a bird may show signs of giddiness—unsteady walking, in which case fasting or a dose of 1 gr. calomel with 15 grs. of jalap will be useful, or bleeding may be resorted to by cutting the large vein under the wing. After free bleeding, stop the flow with some strong styptic. (*See STYPTICS.*)

Appetite.—To maintain birds in a really healthy state appetite must be kept up, and it is good management to have the poultry in such a state that they will fly up to meet the poultryman, and scramble for their food. Loss of appetite comes from unwise feeding on over-spiced food.

Approval, Sending on.—In purchasing new stock it is

best to make this arrangement beforehand, as you are not then bound to keep the birds sent unless it suits you to do so. The buyer must pay carriage to and fro, and he is expected to return the birds without delay if not suitable. If "on approval" is not bargained for, the intending purchaser has *no* right to return the birds; they are understood to be sold out and out.

April, Work for.—March chicks are always more in demand than later ones; but April is the month when the birds get on best, and hatching should be vigorously continued. If warm and dry, nests should have very hot water poured *round* the outer edge of the straw — not *on* the eggs; avoid doing this so that the water runs into the nest. The eggs should not lie in the water for a moment. Drench all the parts of the nest except the eggs.

Chicken feeding becomes complicated; the elder broods of January and February will be growing large and very bold. If it has not been done already, separate them; draft off the older broods to open quarters as weather permits, so that younger chicks may have a better chance. Place the food about in a number of glazed saucers or tins, so that all may have an equal share. Let all eat until they will eat no more, then clear away the remains.

Continue constant disinfection of chicken boxes and coops; eschew hay beds—they breed vermin. If a brood looks sickly, suspect vermin—"lice"—and treat accordingly.

(See ENEMIES TO POULTRY—LICE.) Show cockerels and pullets should now be penned up separately and receive especial care. Commence to fatten early hatched January chicks not fit for show or stock. Feeding the young chicks at 10 p.m. may now be abandoned, but soft sweet food and handfuls of grain should be placed about in the evening after the chicks are gone to bed, to be ready for the early morning.

Artificial Incubation has been practised from the earliest times in the East, chiefly in China, India, and Egypt. In the latter country large *mamals*, or ovens, holding from 40,000 to 80,000 eggs, are still used for the purpose; and the villagers bring their eggs in the expectation of receiving, after a lapse of 21 days, 200 chicks for every 300 eggs deposited. In 1851 Cantelo exhibited a hydro-incubating machine in London, and the subject of artificial incubation has occupied much attention in France from that time to this. Rouillier's and Voitellier's machines have there taken the lead, while quite recently in England the matter has been taken up with more or less success by several competitors for public favour.

The chief desiderata in artificial incubation are a regular temperature—from 100° to 106° Fahr. at the upper surface of the eggs—moisture, and after the tenth day adequate ventilation (without chilling) of the eggs. The source of heat is immaterial so long as these essentials are secured; practically, however, a lamp,

or gas, and boiling water are utilised for the purpose. The chief incubators now in the market are:—

i. A gas machine with an excellent regulator, patented by Mr. Henry Boyle, of Amble-side.

ii. Penman's Patent, worked also by gas. The water is separated from the eggs by waterproof cloth, and thus direct contact of the warm surface is obtained.

iii. Cashmore's lamp machine, with regulator.

iv. Watson's "Scotia."

Hydro-incubators are:—

i. Voiteillier's nest, a favourite in France. Agent in this country, Miss May Arnold, Acton, Middlesex.

ii. Christy's, framed on the Rouillier pattern.

iii. Howell's "Gem Hatcher."

The choice between a gas or lamp machine and one worked by boiling water will be probably determined by the greater or less facility with which boiling water in quantity, say two to three gallons, night and morning, can be obtained. Excellent results have been secured by both systems, and 75 per cent. and upwards may be hatched out by either method with reasonable care and attention to detail. The chief points to be attended to in artificial incubation are:—

i. Position of incubator: an out-house, conservatory, or room on the ground floor is best, where there is an equable temperature, good ventilation, and no risk of jar.

ii. Let the eggs be as fresh as possible: allow travelled eggs to settle for twenty-four hours, before placing in the incubator.

iii. Avoid putting eggs in the drawers by twos and threes, as far as possible; if unavoidable, warm the eggs well at 104° to 105° Fahr.

iv. Aim at a regular temperature of 103°, increasing after the 9th day to 104° Fahr.; with high-bred eggs a degree higher is an advantage towards the close of hatching. Occasional extremes of 90° Fahr., or even 108° Fahr. have been borne with impunity, but safety lies between 100° and 106°. Overheating is more dangerous than under-heating.

v. Clean the eggs well; mark them on one side with date, &c., rather nearer the smaller end, and place the eggs date downwards, for the first twenty-four hours; your marks will then be preserved when the chick is hatched.

vi. Keep the trays of earth or sand always moistened beneath the eggs, but avoid sprinkling the eggs themselves with water.

vii. Turn the eggs slightly every twelve hours. Air them during the first ten days for ten minutes at night and a quarter of an hour in the morning; for the last eleven days allow twenty minutes in the morning and fifteen minutes in the evening.

viii. Sixth day examine all

eggs, and reject those which do not show embryo and distinct veining; the clear eggs are still fresh for cooking, even for custards.

ix. After the ninth day air is required by the chicks, but chills must be avoided, especially when nearing the last stage of incubation.

x. When eggs at different stages of development are in the same drawer, it may be well to reserve one portion for those last put in, and to cover them with a flannel, whilst those in a more advanced stage are aired more freely.

Cf. "Library of Entertaining Knowledge," "Domestic Habits of Birds" (Knight and Co.); "Practical Artificial Incubation," by Edward Brown (*Fancier's Chronicle* Publishing Co., 317, Strand); "Hydro-Incubation in Theory and Practice," by Thomas Christy, F.L.S. (155, Fenchurch Street, London); also the various standard works on Poultry.

At five or six weeks, according to the weather, chicks do better without artificial heat, and a run on grass or dry earth beds when the sun is shining will be found most beneficial to health.

A late vinery with earth floor is one of the best places for rearing early chickens. Great care, however, will be required if many are bred, to keep the earth fresh dug. Cleanliness also is essential, especially in the mothers, which should be well aired daily, as well as being provided with a fresh earth floor. A

little disinfectant, such as carbolic acid or terebene, will often be a useful addition.

Artificial Rearing.—The chick, after leaving the egg in an incubator, may be either placed with a hen or be brought up under one of the many artificial mothers which have been invented for the purpose. In the Boyle and Penman machines the mothers are attached to the incubator. Christy's drying box and hydro-rearers are warmed by boiling water, like the incubator, and are very effective. A hot water bottle suspended by flannel in an open box forms a cheap and useful arrangement for infant broods. A well-sustained heat of about 80° Fahr. is essential for the first week at least, as a chill is fatal; after that time it may be ten degrees lower. The run should not be large at first, and should be protected, by wire or netting, from the access of older birds. The broods should be carefully sorted under different mothers as to size, and the greatest cleanliness insisted upon. For twenty-four to thirty-six hours after leaving the egg the chick requires no food. It may stand in the midst of plenty, but it will not peck or do anything but pipe. If healthy, it will begin to pick when hungry; a little tapping on the floor, however, or showering crumbs on the backs of the chicks will excite the more backward ones to help themselves.

The first food should be hard-boiled egg, chopped fine, and milk, to which may be added fine

shreds of lean meat or bread-crumbs.

Aseels, or Indian Game, are shown in all colours: black, black-reds, piled, whites, spangles, the latter having none of the regularity of the *Hamburgh* spangle, but merely a general mixture of white and coloured feathers. In size they are to look at like a *Hamburgh*, but are hard-feathered. The cocks show less comb than even a *Malay*, and the hens no comb. Legs are short, and they are strong in bone, of low carriage, with compact form and glossy plumage.

Asiatic Breeds comprise the various kinds of *Cochins*, the light and dark *Brahmas*, *Malays*, *Langshans*, &c. They have, as a rule, feathered legs, and lay rich chocolate or yellow eggs, small as compared with the size of the birds. They bear confinement well, have no taste for roaming, and are of a phlegmatic nature. They lay in winter, but the supply is limited, owing to their constant desire to incubate. Of a contented turn of mind, they are willing to keep within the limits marked out by a wire fence two feet high. As mothers they are devoted, but exceedingly clumsy, and woe betide the newly-hatched chick caught beneath their weighty tread. One great advantage of the *Asiatic fowl* as hatching-machines is that they harbour no lice or vermin; they are gentle and easy to handle. Chicks of these breeds feather very slowly, especially if hatched late in season,

or the produce of young pullets' eggs.

Asiatic Diseases.—Various liver derangements, over-feeding being the cause; *Scaly Leg*; *Apoplexy*.

Aspect of Runs and Pens.—Build them as "lean-to's" against a wall where there is a chimney running up, constantly in use if possible; this is far better than stove heat, and let the aspect be south. Catch every ray of sun. Keep the roof as high as possible in front, so as to let in all the light; shelter by judicious use of boarding from wind, and, above all from cold draughts.

Asphalt. (*See CONCRETE.*)—The original soil is as good as anything for the flooring of a poultry-house. If pulverised and screened lime rubble from old walls and buildings be thrown on the earth, and all is kept clean, and well dug over after cleansing twice a week, it makes a soft, dry, and deep bed of the best possible dusting material; but asphalt is also useful: it keeps out rats, and, if covered with six inches of sand and rubble screenings mixed, forms an excellent flooring; it must, however, be entirely cleared out every two months or so, and fresh dusting material supplied.

Atropine.—Used in severe cases of roup. Apply a drop to the eye if matter begins to accumulate.

August.—Many early birds will be making their adult plumage now, and it will be possible to estimate which are the spe-

cimens to gain credit in the show-pen. Proceed accordingly, and remove such birds into the preparing pens. Each cockerel should have one to himself, with ample room; or if dull alone, put with him a known companion younger than he is, but not one for show, just to keep him company. Kill or draft out of the way all wasters, and devote all energy to the prize birds and those which will come for sale as stock birds.

Pullets can be kept in *small* flocks, as they never quarrel, but not more than ten together, unless the enclosed covered runs are very extensive. Prize birds and stock must not be allowed to scuffle and scrimmage for their food like farm-yard mongrels; full diet is necessary, and fighting must not be tolerated when birds are bred for feather, weight, &c.

Early cases of moult in cocks should be seen to, and the birds isolated where hens do not worry. If sudden moult and general loss of feathers takes place there is no cause for anxiety; it is better than a tedious moult later in the year.

Continue weeding and killing; the more room gained the better.

Take steps to procure ducks' eggs to hatch in October. They are always difficult to procure at that time, and it is well to bespeak them beforehand.

Awards.—The young poultry fancier should not be discouraged if he only gets honourable mention; true, it does not help, as do

prizes, to pay the entrance fees and carriage, but it has been said, with justice, that a run which produces specimens which win honours wherever shown is often better than one which gains several prizes with, it may be, the same well-known bird. Let him make up his mind to be beaten, dress his birds with care, and send the best he can; and then, expecting a beating, victory may come as a pleasant surprise, and defeat will not affect him otherwise than to urge him on to "try again."

Aylesbury Ducks.—Hardiness, great size, and early maturity are their merits. They have now formidable rivals in the "Pekin" breed, which exceeds them in apparent size, but does not beat them in solid flesh weight.

Their plumage must be spotless white, yellow legs, and beaks of flesh colour; weight of adult birds 6 and 7 lbs. They have been exhibited up to 20 lbs. the pair.

For breeding, running water is the best, and failing that, a pond is indispensable. They commence laying in December. The colour of the egg varies from green to cream colour.

At six weeks ducklings should be 4 lbs. each and fit for table; their food should then have cost about 2s. each, and if ready by February or March they should realise up to 21s. or 30s. the couple in the London market.

The ducks should always have gritty substance put into their water, wherewith to purify their bills and help them to digest

their food; this is of great importance. Ducklings for exhibition may be brought up with more water to swim in than those kept for fattening; their houses should be well bedded with clean straw. Feed at first on chopped eggs, milk, and oatmeal, warm; then with oatmeal, varied with barley-meal and Spratt's food, boiled with greaves quite stiff, given as often as they are willing to feed. As to green food, the supply should be unlimited. It is not well to let food remain in the pans; however often you feed the ducklings, remove what remains, so that they may have an appetite when the next meal hour arrives. It is very necessary to give ducklings the means of collecting worms and slugs; the moment they are old enough to roam for this, their natural food, they will be the better for it. Dry bedding is essential, and warm night shelter; otherwise ducklings will not bear the cold of early spring days without injury.

Bahama Ducks.—Seldom shown and rare. Colour is dark brown pencilling on light brown ground.

Bakies.—(See DUMPIES.)

Bantams.—Miniature fowls of various breeds, all very pretty and good layers, though the eggs are small. They can be kept in a very limited space, and are tame and easily managed. (See BLACK-BOOTED, COCHIN, CUCKOO, GAME, JAPANESE, LACED, NANKIN, WHITE, WHITE-BOOTED.)

Barley. (See FOOD.)—Good uninjured barley should be

a staple article of diet in the poultry-yard. Buckwheat is preferable, but not always to be had, and barley is a safe and favourite grain. Damaged cheap grains must not be ventured upon. Barley warmed in a tin or pipkin in the oven, dry, and given hot, as an evening meal in cold weather, is very wholesome; and for a change, if with water added and a little pepper it is baked till it swells up to twice the original bulk, it forms a much relished dish.

Barn-door Fowls.—To the present day many amateur poultry lovers continue in the old and popular error, that barn-door fowls "pay" better than pure breeds, and are less trouble to rear. "Fancy" fowls are, without a thought, voted useless, whereas many poultry-yards fail of success owing to the mistake of starting by buying up a lot of mongrel birds, age unknown. Every distinct breed has some leading characteristic, for which in the past it has been selected and bred: it is prized, and, with much care, bred for either size or hardihood, for laying qualities, as good mothers, or as super-excellent table fowls; while the barn-door is *not* remarkable for any speciality, neither producing so many eggs as the Andalusian or Leghorn, nor being so well flavoured as the Game, nor so white and full of meat as the Dorking, the Houdan, or any of the table breeds, nor so content with small pens as the Asiatics: in fact, even from a commercial point of view they

are not to be recommended, and are a mistake. For beauty certainly no one would select them.

Baskets for Exhibition.—Prizes at many shows are given for the purpose of improving the designs for these hampers, but nothing has at present superseded the old-fashioned circular wicker form, with a hinged cover at top. Size must vary according to the breed exhibited. Birds travelling are charged by weight, so the lightest basket is the best, provided it is strong enough. They should be twenty-two inches in diameter by twenty-six inches high for Asiatics and Dorkings; for Hamburgs and lesser breeds, two or three inches smaller. The size for all birds must be judged by the exhibitor; if too small the plumage will suffer, and birds will arrive cramped. Good scrubbing flannel should be used to line the hampers: it is much superior to the holland generally employed, being warmer, with, at the same time, freer ventilation; it also turns off the rain more effectually. On the top of the basket there should be a fitting cover of holland, or, best of all, waterproof sheeting, with the exhibitor's address in full, also, "Live Birds: to be returned without delay," printed distinctly. To complete the basket, attach a pocket easy of access for the prize ticket, or you will find it under the bird's feet when they return, unfit for use, or partially eaten. (See PACKING EGGS.)

Bedding for Chicks.—Straw put through the chaff-

cutting machine is undoubtedly the best, but on no account give it uncut, or it will be the source of broken legs. Care must be taken to remove the soiled straw and to replace it with fresh every morning. A small quantity changed daily is far better than a deep bed left uncleansed for a day or two. Cleanliness is the first consideration; sprinkle the bed with powdered sulphur three times a week, to keep away vermin. No bedding should be given to birds put up for fattening. The coop in this case should have a barred floor, so that the dirt shall not rest upon it. Otherwise, in such a small space the birds will quickly suffer from bad air and dirt.

Benzine.—Good for cleaning accidental paint off the feathers, which it will not injure.

Black Bantams.—One of the hardiest and best laying of the varieties; the eggs are good-sized, the hens are good sitters, the pullets lay at seventeen and eighteen weeks old (see POINTS OF BLACK HAMBURGH); the chicks are delicate when making feather; cockerels very precocious. Separate at four months; plumage complete at three months. Hatch in April, not earlier. September is the best month if small size is aimed at. (See WHITE BANTAMS.)

Black East Indian Duck.—Small, neat-shaped birds, round heads, short bills and bodies, pure black plumage, with metallic green lustre. Drake's bill olive-green, black bill for the

duck; feet black. They throw white feathers during the first year, which will moult out. Weight should not be above 2 lbs. or 2½ lbs. Excellent eating and good layers, hardy, and will forage to a great extent for themselves if allowed free range.

Black Game.—Splendid black, metallic shades of green and purple; coral-red face; legs dark willow or black. Subject to brassy wings.

Black Hamburgs.—Of the Hamburg tribe the best, being larger, and laying an egg of more useful size. They are non-sitters, being crossed with Spanish; white face crops up, and is a difficulty in breeding. Chicks, when hatched, are from the throat downwards to the under part of the body white, the rest black. It is only after the second moult that their glorious plumage of green black glossy hue is perfected. These birds are delicate; damp, dirt, cold, and improper food bring on liver disease. They do not thrive in confined pens, and it is unwise to attempt breeding them unless you can give a grass run.

Points.—Beak black or horn; comb, face, and wattles rich red; deaf-ears white; eyes red; legs blue lead colour; plumage deep black, brilliant gloss of metallic green or bluish purple: the greener the better; comb double and evenly serrated.

Black Rot.—A disease to which Spanish fowls are subject, but not often seen now. The comb becomes black and the legs swell, with general pining and

loss of spirits, flesh, and gloss. Calomel and castor-oil should first be given, and then generous diet, with tonic and warmth, may pull the bird through.

Bolton Greys.—An old name for silver-pencilled Hamburgs, *which see.*

Bone-dust.—Very beneficial for the feeding of growing birds up to five or six months of age, a preventive of weak legs and diarrhoea; an aid also in postponing the development of young birds, while it provides materials needful for continuous growth, and gives strength and size to the frame. It should be about the fineness of coarse oatmeal, and should be sifted into and with the meals used, in the proportion of 1 quartern to the cwt. Fresh bones chopped and pounded, or burnt bones, are not so useful for the above purposes as they are for laying stock or for birds of an age for exhibition.

Books, Best, on Poultry.

- (1) "The Illustrated Book of Poultry," by Lewis Wright (Cassell, Petter, Galpin & Co.). (2) "The Poultry Book," by Tegetmeier, F.Z.S. (George Routledge & Sons). (3) "The Poultry Book," by Rev. W. Wingfield and G. W. Johnson, Esq. (William S. Orr & Co.). (4) "The Poultry Book" (Messrs. Orr & Co., Amen Corner). (5) "The Practical Poultry Keeper," by L. Wright (Cassell, Petter, Galpin & Co.). (6) "The Brown Leghorn Fowl: How to Rear, Manage, and Breed," by Charles R. Harker (Cassell, Petter, Galpin & Co.). (7) "The Brahma Fowl," by L.

Wright (Cassell, Petter, Galpin & Co.). (8) Prize Essay by Tegetmeier on "Feeding Poultry"—American Standard of Excellence. (9) "On Game," by Dr. Cooper (Sampson Low & Co.).

Borrowed Fowls for Exhibition.—Borrowing for this purpose is not allowed. Any one exhibiting poultry not actually his own property would be disqualified if discovered.

Brahmas.—Light and dark should in shape, size, and carriage be alike, only differing in colour. The weight of an adult cock bird should be not under 12 lbs. to 14 lbs., hens 8 lbs. to 10 lbs., six months' cockerels 7 lbs. to 9 lbs., pullets 6 lbs. to 8 lbs. The head of the Brahma should be small, short and arched, with a "pea comb." (See COMBS.) The neck must be full of hackle; the back wide and flat; the saddle rising from the neck and sloping upwards to the tail; saddle-feathers must hang well over the wing-points, being abundant and flowing; the short tail should resemble that of the black cock, and should open out laterally, and the sickles like a fan. The breast should project, be deep, full, and broad; the shanks of moderate length, and feathering as heavy as possible to the tips of outer and middle toes. The hen must be short-legged, abundant in fluff, broad in chest, deep, full in shape, with a peculiarly small head.

Light Brahmas.—Beak yellow, with or without a dark stripe; deaf-ears, face, comb, and wattles red; eyes red; shanks orange in

both sexes. The cock: silver-white head; white hackle, black stripe; saddle ditto; tail and coverts glossy green-black; body pearl-white; shank-feathers white, mottled black. The hen: silver-white head; hackle white, deep stripe black; tail black, except top pair of feathers, which should be edged white; body pure pearl-white, no tinge of yellow.

Dark Brahmas.—Both sexes: beak yellow, horn, or black, or yellow with stripe black; eyes red; comb, face, deaf-ears, and wattles red. Cock: head silver-white; hackle white, heavy stripe of black; saddle ditto; back and shoulder silver-white, except between shoulders, where black must be laced with white; upper wing-butts black; bow white, end of every feather black; breast, under-parts, and leg glossy-black, or evenly mottled with white, but *best* black; tail pure black, glossed green; shanks orange. Hen: head and hackles silver-white, deep stripe black; black tail, top feathers edged grey, rest silver-grey, dull grey, or steel; pencilled crescent form, deep grey, black-grey, or black breast pencilled, no streaks, chestnut tinge allowed if bright leg-feather to match body-pencilling; shanks yellow.

Bran.—A few handfuls should be mixed with soft food, as it is decidedly wholesome, though not a favourite poultry diet.

Breast-bone Crooked or Breaking.—This is caused by perches being placed too high from the ground when the roosting-place is of small size. Objections are

made to letting chickens roost early, but little harm will come of it if the perches are at a proper height. It is the perpendicular sudden flight to the ground in a confined space which injures and breaks, or bends, the tender breast-bone. In limited space, and with chickens brought up in confinement, shelves, sanded, and then littered with chopped straw, are safeguards against this evil.

Bredas.—A useful non-sitting, good-laying, hardy, and fair table fowl, not equal to the Houdan, being smaller. Shape is Polish; the crest very slight, just perceptible, coloured like the body, and in place of the comb there is a depression just over the nostrils. The legs are grey; Cuckoo or Dominique Bredas are called Gueldres; while the black variety bear the name of the breed; there are also white sports. Birds seldom exhibited, there being no class for them at the shows.

Breeding Cocks must be vigorous during December, January, and February. Feed them extra well, and alone. They should be examined when perching at night, and if poor must be at once fed up; they should not be exhibited, and the breeding-pens should be made up by Christmas time, as the cocks become attached to their special hens, and changes affect the fertility of eggs. —

Breeding in and in.—Less dangerous than a constant introduction of fresh blood into an already-formed prize strain; but judgment must be used, and in a tolerably large establishment,

where the hens are kept away from the cocks during moult, and re-mated in December, arrangements can be made not to mate too nearly-related birds, without recourse yearly to purchases from a fresh yard. It is well to keep a spare cockerel or two in stock, and let them run on some farm, and re-introduce them the following year into your breeding-pen, when the relationship cannot produce evil results. If only one pen or yard of poultry is kept, the results of mating the produce from it may be most unsatisfactory, and a fresh cock becomes a necessity.

Breeding-pen for Ducks.—Four ducks are ample to one drake. Ducks may be bred in a small pen, where there is merely a tank of water 4 feet by 2, and 2 feet deep. Many of the eggs, however, will be unfertile. For success on a large scale a good-sized pool of water is essential. The birds should have the run of a field. Care should be taken not to overfeed breeding ducks; and if early eggs be required meat diet must be given, and warm quarters at night.

Breeds best to keep.—*For Laying*: Andalusians, Minorcas, Leghorns, Hamburgs, Houdans, Brahmas, Cochins, Spanish, La Flèche, Polish, Dorkings.

For Choice Flavour of Meat.—Dorkings, Crèves, Malays, Houdans, La Flèche, Game, Dominiques.

For Size.—Brahmas, Cochins, Dorkings, Crèves, La Flèche.

For Hardiness. — Leghorns,

Andalusians, Minorcas, Brahmas, Cochins.

As Mothers.—Dorkings, Dummies, Silkies, Asiatic breeds.

With a view to constant egg supply and table produce, if space will admit, and pure breeds can be kept distinct, Andalusians and Leghorns can be recommended for eggs, Brahmas for laying the winter supply, while Houdans and Brahma Dorkings should be bred for fattening purposes.

Breeds Crossed for Food.

—Houdan-Dorking, Game-and-Dorking, Brahma-Dorking, Malay-and-Minorca, Langshan-and-Dorking, - Brahma - and - Andalusian. Five toes are an advantage if your birds go to the London market, where the five-toed white-legged breeds fetch higher prices than others.

Breeds for Crossing.

—Never cross with a bird which is already the production of a crossed breed. First crosses are the most satisfactory, and take care that the cock chosen for the cross is full-sized, symmetrical, short-legged, with fine bones, plump breast, and strong constitution. The cock of the walk should be pure-bred. White Dorking with light Brahma, or silver-grey with dark Brahma, produce good large birds, and well fitted for fattening for the table, while the Dorking improves the Cochin's laying power. For laying purposes, the Brahma crossed with an Andalusian cock cannot be surpassed, and a propensity to sit is added to the Andalusian's laying qualities.

The Houdan crossed with Brahma or Cochin matures early, and becomes a prolific layer. For table use the dark Brahma and Crève-cœur are good. The Crève-cœur is excellent as a layer, and its size for table and early maturity can hardly be surpassed; but constitution and hardihood may be added by the Brahma or Cochin cross. The flesh of Malay and Game fowls is said to be of super-excellent delicacy. To increase the amount of flesh cross with grey Dorkings, when an excellent plump table fowl will be produced, the couple weighing when fed up from 16 lbs. to 18 lbs. The advantage of a cross is that the produce is usually hardy and larger than the parent birds.

Broken Bones. (*See FOOD and FRACTURES.*)—Machines may be had for breaking bones from the kitchen into small pieces. Such fare is excellent for the growing stock, and will encourage laying in the adult birds; but it does not take the place of bone dust, mixed in meal, which retards development and forms bone and framework, while fresh bones stimulate laying powers, etc.

Bronchitis shows itself by a husky sound in the throat, and cough; no cold in the head whatever. Remove to a warm place, and give 5 drops of dilute sulphuric acid to 1 oz. of water; 5 drops of nitric acid sweetened with sugar to the drinking fountain, and at the same time give warm food seasoned with pepper or ginger.

Broody Hens. — When broody, *i.e.*, wishing to sit, hens go about clucking for several days, sit longer and longer on the nest after laying, cease laying finally, and do not leave the nest. If a sitting hen is not required, remove her at once to a fresh run and new companions. Shut her out for a few days where no nests may tempt her. If, on the other hand, she is required to incubate, encourage her by false eggs in the nest, and partially protect the entrance to the nest from other prying hens. All Asiatics are much given to sitting, and Dorkings and Silkies are good mothers. No hen even crossed with Spanish, Leghorn, Hamburgh, or Polish blood will incubate satisfactorily. The broody hen should be fed once daily on sound grain, some grass or lettuce, and a treat of scraps; soft food now and again keeps her in better condition than an exclusively grain diet. (*See SITTING HENS.*) On no account deprive the broody hen of her dust-bath, and if your brood is valuable, take the trouble to dredge her under wings, legs, &c., with powdered sulphur.

Brown Leghorns. — One of the most stylish and ornamental breeds of poultry—noted for egg production and hardihood—originally taken from Leghorn in Italy to America, where they have been cultivated and brought to their present standard. The points especially to be aimed at in breeding brown Leghorns are an evenly serrated comb, firm, upstanding well over back of head, without thumb-marks or

creases—not coarse; and the snow-white ear-lobe must be combined with a rich orange leg—a great difficulty, for as the ear-lobe is perfected the leg will lose colour, and shade off to pink. The face must be smooth and brilliant red, and any inclination to squirrel tail must be bred out. The colour of cock's head bay; the long neck with full hackle striped black on golden bay; back rich dark red, striped golden brown; breast and thighs black; wings compactly folded; bows red, touched golden bay; primaries black, edged rich brown; saddle rich red-brown, with black stripe narrowing to point; tail lustrous metallic black, with green glossy sheen; yellow legs and feet. Hen: Head-feathers striped black; neck yellowish brown, minute black pencilling, leaving golden fringe; tail black; breast salmon-brown, lighter tint under body; thighs ashy brown, firmly pencilled. Other points as cock. If your pullets are light in hackle, use a dark-hackled cock.

These birds like to roam about, and do not require much care; they bear severe cold well, and seek their food diligently if allowed free range. For farm cross, Leghorn cockerels mated with light Brahmas bring large, but small-boned birds, light buff in colour, excellent layers and mothers. Brown Leghorns are unsurpassed as layers, unless perhaps by the Andalusians, whose eggs are as numerous, and much larger.

Brown-red Game may be slightly larger than the black-

reds. Cock : starling-breasted ; head and hackle deep red orange ; shoulder coverts crimson ; saddle maroon, shading to deep lemon ; breast dark ; tail black ; sickles narrow, with greenish bronze gloss ; eyes black or brown ; feathering hard and close ; face clear dark red.

Hen : brown head ; face and eyes same as cock ; neck, brassy ground with black stripe ; legs dark or willow ; body feathers dark brown, almost to black, and a brassy hackle.

Bucks County Poultry.—

An American breed entirely gone out of fashion, supposed to have been identical with Jersey blues ; and these, there is good reason to suppose, were the same as Andalusians.

Buckwheat should be a staple article of corn diet. The colour is a drawback till the birds learn to recognise it as food, when it is greedily devoured. It is not fattening like maize, but good for stimulating egg production. This grain, as prepared in Russia for the use of the lower classes, cleared of the husk, and split up into coarse grit, is invaluable for feeding chickens ; it is devoured greedily at three days old, and eaten in preference to the best cuttings or grits. Baked in the oven with water, it makes a most valuable soft food, and is much relished by old and young. (*See CORN.*)

Buenos Ayres Ducks.—

Called also Black East Indian, Labrador, or Black Brazilian. For prize-winning they must be

very small, with neat round heads, short bills, short bodies ; plumage pure black, with brilliant lustrous sheen of green all over. This metallic green lustre cannot be too great, or the size too small. The bill olive green, the legs and feet black. Easy to breed, for if you do but start with a good pair, the produce will be good ; but the smaller you breed them the more delicate they become, and less prolific. They are most excellent table birds, of delicious flavour, and are often bred for this purpose in numbers, though they are also great favourites in the exhibition pen.

Bumble Foot.—A disease to which Dorkings are peculiarly liable. Houdans have lately shown signs of the same complaint, and it has been generally traced to the effect of a Dorking cross. It consists of a corn or abscess at the bottom of the foot. Best treated by the application of lunar caustic or iodine ; if matter forms it must be lanced.

Buttermilk is excellent for poultry ; but do not let it stand in the sun, as it is very unwholesome if sour.

Buying Poultry and Eggs.

(*See ADDRESSES and ADDING TO STOCK.*)—Buy none to mate with prize strains without careful investigation of the antecedents of the yard and strain. Have the birds on approval ; even if the carriage both ways costs ten shillings, it is well spent if it saves an introduction which may bring nothing but trouble, and spoil the strain.

Strangers to your poultry run and your breeding plans may, without any dishonesty or unfair dealing, send what would ruin your plans. Therefore see your birds before you buy. Be careful how you feed newly-bought birds; give soft food and sparingly of dry grain at first, gradually increasing the quantity; eschew maize and new wheat, which may bring on various troubles. In buying eggs for incubation *early* in the season, make special terms as to the date by which eggs ordered are to be delivered. Eggs offered and ordered to be sent in December or January for ten-and-sixpence or twenty-five shillings may not be worth five or ten shillings if not delivered for three or four weeks, on the plea of "orders in rotation," &c., &c. Do not purchase eggs for incubation in the two first months of the year without some arrangement about "clear" eggs being replaced by others at one-half or one-third price. Many eggs are then unfer- tile, and most breeders will replace at half-price if a decent number of chicks do not hatch out. See that your eggs, if valuable, come from known respectable breeders, remembering that one good shake given to the egg when bringing it from the nest may ruin every hope of successful incubation.

Cabbage.—A useful vege- table in winter for poultry. It comes fourth on the list. Even the outer leaves and stems will be greedily picked up if they are chopped up in an American chopper. Stalks of cabbage

should not be left about, as they give a very offensive smell when rotting in the wet and sun. Whole cabbages nailed or tied to the walls of the pens give amusement to poultry in con- finement; there is no better pre- ventive for feather-eating, which is often caused by the idleness of an imprisoned life.

Call Ducks.—Two kinds, ex- actly like the Pekin and Rouen ducks respectively in miniature; more ornamental than useful. So-called from the shrill and constant "call" which they keep up. This makes them useful as decoys, and they are kept for the purpose.

Cambridge Turkeys.—(See TURKEYS.)

Canada Geese.—(See GEESE.)

Canker.—An ulcerated state of the eyes and head; the disease sometimes attacks the mouth and throat. It comes from neglected cold, and damp, improper housing. No well-ordered poultry-yard should suffer from such serious ailments. They may be relieved, however, by washing persever- ingly with chlorinated soda diluted with four parts of water, and dabbing the throat and tongue with the pure solution. Put sulphur in the food, and do not expect immediate cure.

Capons and Caponising.—The weight and delicacy of birds are greatly increased by this operation, and it is only in England that birds are fattened for table without having recourse to it. The proper age for the

operation is four months ; it is not considered dangerous—about one in forty succumbs. (For full particulars see Mr. L. Wright's book on "Poultry," pp. 84, 85.) Capons will remain tender for table up to eighteen months of age, and may be utilised during that time by bringing up broods of chickens, to which they become as devoted as mothers.

Carbolic Acid. (See DISINFECTANTS.)—One of the best. Prepare thin lime-wash, and into two gallons put two ounces of acid crystals, with which let all be whitewashed. On a real hot summer's day, if the poultry pens are crowded and any fear of vermin should arise, it is well to turn the birds into the open grass run, and with a fine rose water-pot to sprinkle the floors, nests, and perches, after thoroughly sweeping all out, with the same mixture made of double strength.

Care of Birds at Show. (See EXHIBITING BIRDS.)—Do not send to insignificant shows. Note who are the judges, and whether the rules of the poultry club are carried out, and if so you may trust your birds to the care of the committee, whose object is to please exhibitors and to return birds safely, that they may be tempted to show again. No one need travel with the birds, proper addresses are sent in return for entry fees, and mistakes seldom arise if the exhibitors carry out the rules well and clearly.

Care of Exhibition Birds

at home. (See EXHIBITING.)—Protect their plumage from every risk of injury through rough or broken wires, from high perches, from shelves too near the wall or roof of the roosting-house ; see that your trap-doors are smooth at the bottom, and large enough to admit adult birds without touching their sickle feathers ; never let the pen remain uncleaned even for half a day. Give plenty of clean straw, and see that the dusting material is quite clean and dry. Do not let birds be exposed to a fierce sun, and never to rain. Prevent any fights or sparring between neighbours in pens. Give all the run and freedom you can in fine weather. Feed well with the best and most nourishing food. Give meat and green food, but beware of excess, and never leave food on the ground. Give iron in the water, it produces brilliant combs, and is a tonic ; avoid spices and condiments. Hemp now and then, linseed boiled to a jelly and thickened with Spratt or oatmeal three times a week for about three weeks before showing, will add to gloss on plumage ; the last two meals before showing should be of rice boiled stiff in milk, with meat chopped up in it. (See WASHING FOR SHOW.) Prepare your bird for the confinement of a small pen and its trials by gradually penning him up, and getting him accustomed to small quarters, and never send the birds off crammed with hard grain for a long journey. Get the pair to be exhibited acquainted with each other during the last twenty-four hours, lest

they should fight in the hamper and disfigure their combs; but do not pen the exhibition pullet with the cockerel till the last day. Rather give him any other bird as a companion, so as to accustom him to ladies' society, and save the wear and tear of plumage to the show pullet in a small pen.

Carolina Duck.—These birds, with their brilliant plumage, bear confinement well, and will breed satisfactorily under favourable circumstances and when used to their home. They should be about the size of widgeons, and when exhibited brilliance of plumage wins the day. The drake should be red in bill, margined with black; orange-red eyes; head bronze-green shading to violet, and a remarkable line of intense white runs from behind and over the eye, mixing with the long green-and-violet coloured feathers of the crest. The neck and collar are white; breast claret, specked with white, size of specks increasing downwards. The sides of the body under the wings are marked with black lines on yellow, and the flanks with stripes of black shaded white; tail-coverts black tinged with yellow. The back is a bronze with greenish hue, while the wings are adorned with spots or marks of blue and green. Legs and feet a reddish-yellow. The duck is much more sombre than its mate; crest smaller; the eye-bar, chin, and throat all white; head, neck, and breast shading from dark drab to brown, spotted white; back and wings glossy bronze, with gold and

green reflections, and less brilliant wing-spots than the drake. All these brilliant colours and strong contrasts become more vivid with advanced age.

Catalogues.—These, containing the awards and list of exhibitors, should be applied and paid for when the entry forms are sent to the secretary of the show; they are then forwarded as soon as the awards are made.

Catarrh.—The moment cold in the head exhibits itself by the usual signs of sneezing and running at the nose, the bird should be removed to a dry, draughtless place, nostrils washed with vinegar-and-water, giving every third day two tea-spoonfuls of castor-oil; diet—oatmeal and bread in hot beer, and plenty of grass. If not soon cured, *see* Roup.

Cayuga Ducks.—Large ducks of American breed, prolific and hardy. May be fed up to 20 lbs. the pair, and are more gamy in flavour than wild ducks. They are jet-black, with brilliant green or purple lustrous gloss. In shape and size they are like the Aylesbury. Their legs are dark, dull orange, with network of black over them. These ducks are not often seen, but are invaluable for table purposes.

Chalybeate Spring Water.—This is a splendid tonic for poultry, and may be given with advantage, where convenient, three times a week in drinking fountains.

Change of Place.—Poultry

are truly domestic and love their homes. If eggs are an object, it is most important birds should not be moved from pen to pen, as it will delay egg production, and diminish it greatly. Pullets for early laying should, if possible, be brought up in or within sight of their future laying run, pen, or paddock; if, on the other hand, it is wished to delay the laying of a pullet, and to encourage growth for prize purposes, her home *must* be changed often. A sitting or broody hen may be best cured by removing her to a new scene with fresh companions—a more reasonable and humane way of checking her maternal instincts than that of half drowning her, or shutting her up in darkness and dirt.

Chemical Food, Parrish's.

—An excellent tonic, highly to be recommended. If some valuable chicks should need extra *help* in fledging, or in supporting an early and heavy development of feather, half or a whole tea-spoonful, with as much water, twice daily to a weak chick, according to size, or one table-spoonful in a pint of water to small brood daily, is a great help. It is, however, expensive, and available for prize stock only. In breeding Crèves, Hamburgs, La Flèche, and breeds known to fail in stamina, this syrup of phosphates is most advantageous.

Chickens, General Treatment of.—During the first twenty-four hours give no food, and remove, till all are hatched, from the hen or incubator to a box, having ventilating holes

bored in the side, and a hot water-bottle slung, by means of coarse flannel, so that the chicks may feel the warmth and the least pressure on their backs. When all are hatched, cleanse the nest completely, and well dredge the hen's body with sulphur powder; give her the chicks, and place chopped egg and bread-crumbs within reach. The less they are disturbed during the first two or three days the better. Warmth is essential, and a constantly brooding hen is a better mother than one which fusses the infant chicks about and keeps calling them to feed. Pen the hen in a coop and let the chicks have free egress. The best place to stand the coops is under sheltered runs, guarded from cold winds, the ground dry, and deep in sand and mortar siftings. Further warmth is unnecessary if the mothers are good; and if the roof is of glass, so as to secure every ray of sun, so much the better. Cleanliness of coops, beds, flooring, water-vessels, and food-tins must be absolute. The oftener the chicks are fed the better, but food must never be left; water must be made safe, or death from drowning and chills may be expected. The moment weather permits, free range on grass for several hours daily is desirable, but shelter should always be at hand.

Diet.—The longer the supply of hard-boiled eggs chopped fine is kept up, the better. As the birds get on, every kitchen-scrap is invaluable, and the following mixtures may be given for meals in turn as convenient, variety

being essential for success. 1st meal: as early as possible—6 a.m.—egg chopped, mixed bread-crumbs and Spratt's food. 2nd meal: Spratt and a few grains of Scotch groats. These can be bought at the corn-dealer's, their place being taken by good wheat as birds get on, or by crushed barley. 3rd meal: kitchen-scrap chopped fine in an American chopper, given warm, and mixed to a crumbling mass with pollards or gurgeons. 4th meal: rice boiled in milk, and dried up crumbly with Scotch oatmeal. 5th meal: Spratt's food,³ with a little "crissel" mixed in. 6th meal: barley-meal mixed crumbly with the liquor in which meat has been boiled. 7th meal: meat chopped fine and pollard reduced to crumbs (not necessary daily). These preparations given in turn and with judgment will, with occasional handfuls of small, dry grain, and barley and buckwheat baked with water in the oven, give the chickens all that is necessary for building up the strong framework which is so essential to a finely-developed bird. The use of bone-dust must not be omitted, and a constant supply of green food, together with mortar, oyster-shell, gravel, and all manner of grit and dust should be ensured. Pure water, not left to stagnate or freeze or to get hot in the sun, and, if possible, milk occasionally, will render the diet perfect; chicks so kept, the quantity given being increased with their size and appetite, will be found at four months, or, at any rate, at five,

to be fit for table without the unhealthy and unpleasant process of cramming; if destined for the show-pen, they will be ready to "go in" for the further care and preparation needed for exhibition. At this age cockerels must be divided from pullets, and the chicken period may be considered over. (See AGE TO SEPARATE, BONE-DUST, LIST OF FOODS.)

Chilled Eggs. (See EGGS.)—The moment at which an egg is fatally chilled is not certain. If a hen is off her nest for twenty minutes in cold February weather the eggs will be chilled, but not to death. Endeavour to get the hen on in ten minutes on a frosty day, or cover the eggs with a layer of cotton-wool, flannel, or even hay. Some hens *will not* be hurried, and to try it will only bring trouble. A shorter period of *chilling* will destroy vitality in eggs during the first stages of incubation than a longer period when the chicks are nearer perfection. The first thing to do if the eggs are chilled is not at once to force the hen on to her nest, but to immerse the eggs in warm water at 105° or even 107°. Meantime get the hen back on to some false eggs; and when the chilled ones are thoroughly warmed through, replace them under the mother. Valuable eggs should not be despaired of even if the hen has been off for some hours, but should be treated as above, and next day, if examined with aid of the egg-tester (see TOOLS), their vitality, if it is not destroyed, will be clearly seen.

Chinese Geese.—(See GEESSE.)

Chittagongs.—A breed of poultry exhibited in America in 1850, apparently a cross between Malays and Dorkings; a large, coarse, grey bird, said to have been seen in India and Ceylon, not now exhibited.

Chittaprats in Yorkshire, Bolton Greys in Lancashire, and known all over England as Silver-pencilled Hamburgs. (*See SILVER-PENCILLED HAMBURGS.*)

Choice between Defects.

—In breeding-pens it is at times necessary and politic to breed from a bird which may have a marked defect as a show-bird. If unable to procure perfection, choose a cock which is quite free from that particular defect from which the hens may be suffering. If, *i.e.*, the hens, black Hamburgs or Andalusians have red splashes on their earlobes or white on their faces, choose a cockerel of very good strain and entirely free from these evils to mate with them—even though his colour, his tail, or his comb be *imperfect*—rather than one perfect in all these latter points and failing in the former. If the hens are meagre in comb, mate with a male bird carrying a comb large to a fault. If the cockerels' combs are coarse and large, mate with hens whose combs are extra small, and so on, making use of defects to produce perfection.

Cholera.—Caused by want of fresh water and green food, and means of sheltering from excessive sun. The symptoms are those of aggravated diarrhoea,

and constant thirst. A tea-spoonful of castor-oil with five drops of laudanum should be given, or 5 grs. of Gregory's powder, in place of the castor-oil, with the same dose of laudanum, every five hours till the diarrhoea ceases. Soft food with cayenne pepper, fresh green food, and as little water as possible. The bird must be sheltered from the sun, also from damp. Such severe diseases should not arise, they come from mismanagement and neglect.

Cleanliness.—Must be absolute to ensure pleasure or success. This is not difficult if daily attention is given. The daily routine in the poultry-yard should be—first, scrape the droppings from all the boards under the perches or from the ground beneath, and lightly sweep them into a dustpan. Scatter fresh sand over the boards (earth or dusting material will do), rake and sweep the runs over, and once or twice a week, after cleaning, runs with soil floors should be dug over after cleaning. If straw is given besides the rubble, dust, or soil, shake it up to let the manure drop through. This must be collected, and the straw renewed every week, or it will smell unpleasantly. Remnants of food must on no account be left about to get sour, nor yet cabbage-stalks. Water and food vessels must be immersed if possible in hot water daily, their perfect cleanliness greatly adds to health. Twice a year runs, if not of grass, should be scattered with quicklime and double dug; twice a year, also,

several loads (according to number of pens) of sand, fine gravel, and screened old mortar rubbish should be added. These mixed together make the most perfect flooring for pens, and when an open run is available for a certain number of hours only in the day to each pen it makes the best *dusting* medium, as it provides the grit, lime, &c., necessary for the healthy action of the digestive organs in confinement. It is important to collect the droppings in a dustpan with a stiff hand-brush *rather* than sweeping or raking them out, or sifting the top soil as elsewhere recommended; it mixes the manure less with the dusting material, and the whole ground is less impregnated with offensive matter. Whitewashing must be attended to at least three times during the six warmer months, and a warm day in October should be chosen for all to be made sweet and clean ready for winter.

Clubs.—The Poultry Club; Secretary, O. E. Cresswell, Esq., Morney Cross, Hereford. The Leghorn, Plymouth Rock, and Andalusian Club; Secretary, Mr. S. L. Bradbury, London Road, Gloucester, from whom all particulars may be had. The Langshan Club; Secretary, A. E. Croad, Esq., Durrington Manor, Worthing. The Sultan Club; Rev. J. P. Wright, Newbury Vicarage, Derby.

Clucking.—The noise which a hen makes when she is broody, and in calling her chickens together. If *not* wanted for incubating purposes, any hen be-

ginning to “cluck” should at once be given change of scene, which will divert her ideas and prevent a tedious spell of broody idleness.

Cochins.—A cock should weigh from eleven to fifteen pounds; comb single, upright, not excessive; comb, face, wattles, and lobes all red and of fine texture; neck short, and thick, and full; hackles flowing over shoulders and back; very broad across back; chest prominent, and the saddle should rise up at once from base of neck and gradually also rise up towards tail; the legs must be short, wide apart, and well feathered; the hocks well covered with soft curling feathers and abundant fluff; the carriage is stately, quiet, and slow. Hens should weigh seven to eleven pounds; the body deep and wide, with neck bending forward and hind-quarters carried high; the saddle must be raised “cushioned,” and fluff must be abundant; tail *very* short.

Varieties: Buff.—Beak rich yellow; comb, face, ears, and wattles brilliant red; legs bright yellow; cock’s breast and under parts any shade of lemon buff, light buff, or cinnamon: no mottled appearance; the head, hackle, back, shoulders, wings, and saddle a deeper shade of lemon colour, or gold orange, or cinnamon; tail still darker, but free from black: white or mealy colour would disqualify. Hen must match the cock in shade of colour and in size.

Partridge Cochins.—Beak yellow or horn; comb, wattles,

&c., as in Buffs; legs dusky. Cock: hackle orange-red with marked black stripe; back, coverts, and wing-bow rich red, darker than hackle; the wing-coverts metallic green-black, making a sharp cut bar across the wing; secondaries rich bay outside web, black inside, every feather tipped black; saddle rich orange-red; breast, under parts, thighs, leg-feathers glossy black; tail ditto. Hen: broad striped hackles, rich deep gold colour; plumage a pencilled brown, even to leg-feathering.

White Cochin.—Beak yellow; comb, wattles, &c., as in Buffs; legs yellow; plumage snow-white, straw colour to be bred out at any expense.

Black Cochin.—Beak yellow, or horn, or even black and yellow; comb, face, &c., as in Buffs; eyes very dark red; legs dusky; plumage rich glossy black no reddish or golden hue.

Cuckoo Cochin.—Beak, comb, &c., as in Buffs; eyes red; legs yellow; plumage bluish grey, pencilled with dark blue-grey. Gold, red, black, or white feathers disqualify.

Disqualifications.—Birds not matching, primaries twisted, absence of feather on legs, imperfect combs, legs other than yellow or dusky, black feathers in buff, or cuckoos, or white; any deformity, want of pencilling in partridge hens.

General Remarks.—If brought up in confinement, for which they are admirably adapted, great care must be taken to give unlimited green food, and on no

account to let them eat as much food as they will, as they have a great aptitude for laying on internal fat, which brings disease and death. They are good winter layers, but not first-rate for table purposes; and they are constantly broody. Good as sitters and mothers, they, however, leave their young very early, and commence laying about three weeks after hatching. Their large frame and hardihood make cochins valuable for crossing purposes, but the leg-feathers are a drawback for table use. (See BREEDS FOR FOOD, CROSSES FOR TABLE.)

Cockerels may at a very early age be distinguished from pullets by the incipient spur, the more developed comb, and tail-cushion. At from eight weeks to twelve remove the cockerels from the pullets, and keep them separate for six months at least. At four months weed out into the fattening pens or yard all those birds which do not promise for exhibition or prize stock, and treat the few remaining accordingly. Any very promising bird, if observed to be shy and worried by more advanced or pugnacious cockerels, should be given a run to himself with a few companions of whom he is not afraid. A bully in the cockerel pen is a source of much mischief, as he prevents valuable birds from feeding, and thus getting on well. Do not spare bone-dust, lime, oyster-shell, green food, and meat, and give unlimited range to growing birds so as to get the frame and bone well developed;

the fat will be easily put on afterwards. Sound grain of wheat, barley, buckwheat, or Scotch groats—as much as will be picked up *clean*—should be given, and for soft food table scraps, Spratt's food, oat and barley meal; these will keep birds in good health, glossy and firm in plumage.

Cocks should not be kept over their third year for breeding unless of especial value. Early in the season adult cocks are not lively, and the eggs from their pens are not as a rule fertile. They should be mated with pullets, not with adult hens. During moult remove the cocks from the hens. The former can then live together, and will not fight if they have free range, but care must be taken that all food is well scattered, or placed in many pans, that all should feed well. To insure fertile eggs, cocks must be fed apart from their hens when mated in December, till March, as their gallantry often causes them to go on short commons. When once the breeding pens are made up, do not change the cocks about; they become fond of the hens, and it is a great risk disturbing the family during the hatching season. Some cocks are very sulky and even savage to the hens during moulting time; if this is perceived, at once remove the bird and give him a pen to himself; he requires rest and good stimulating food, and with new plumage good temper will return.

Colds.—Generally caught by birds kept in damp and ill-ventilated houses. First symptoms must be taken in hand at

once, as an ordinary cold neglected may turn to roup. The first sign is sneezing and running at the nose. Isolate the bird at once, place it in a warm draughtless place, wash the nostrils with vinegar and water, give a table-spoonful of castor-oil to a very large bird, less to a smaller, feed on soft food, oat-meal warmed in beer, or bread and beer, with plenty of grass. An excellent thing to stop the running at the nose is to fill the nostril with a pinch of Ferrier's snuff. Wash the face well in warm strong tea, and put the fowl in an exhibition basket, out of draughts. A pinch of Epsom salts may also help. Colds are *most* catching.

Cold Weather.—Frosty cold is less dangerous than damp; to insure success in poultry keeping, keep houses and covered runs dry. Let the weather be ever so frosty or wet the birds will not suffer if allowed free run in the day for some hours, provided home shelter be perfectly dry and free from draught. Breeds with excessive comb development, *i.e.*, Minorcas, Leghorns, &c., during hard weather should have lots of straw about in the covered run, and mats should be nailed up to shelter from keen east winds. Do not allow birds to drink snow water, and it is well to give prize stock warm water in their tins in severe frosts, it keeps unfrozen longer, and is more comforting. It saves much trouble to empty out all water vessels in severe frost at night. Soft food should of course be given warm in winter, and the grain at night may with advantage be warmed

through in the oven *dry*, without water; the birds relish it, and it is a source of warmth and comfort through the long winter night.

Hampers for exhibition birds should have an extra swathe of scrubbing flannel put round them in severe cold weather, allowing, however, ventilation at the top of the hamper, or the birds will arrive at their destination with *blue* combs.

Vaseline rubbed on the combs of breeds subject to frost-bite is an excellent preventive. The food should have a dash of red chillies, black pepper, Brown's Aromatic Compound, or some of the many excellent condiments advertised. Some stimulant in severe weather may be used to advantage.

Collecting Eggs. (*See Eggs.*)—A basket filled with bran, or chaff, should be kept for the purpose, and every egg as taken from the nest must be marked with date and number or name of pen on the small end, and the eggs should be placed with the small end uppermost.

Columbian Fowls.—A name once attached to Spanish crossed with Malay, now extinct. The produce was grand; large-winged, heavy in breast, and the plumage in lustrous sheen surpassed even the black *Hamburgh*.

Combs, their Diseases.—(*See WHITE COMB, SHRIVELLED COMB, CANKERED COMB, SCABBY SPOTS ON.*)

Combs, their Varieties.—**DOUBLE OR ROSE COMB**, as in

White *Dorkings*, Black *Hamburghs*, &c., &c., a flat square comb, wide in front and narrowing to a peak, pointing backwards, evenly serrated, presenting an even surface free from hollows or elevations. **PEA COMB**, as in *Brahmas*, a triple or ridged comb, the middle higher, longer, and thinner than the side ridges, the whole being firm, of moderate size, and firm on the head. **SINGLE AND PENDENT COMB**, as in *Spanish*, *Minorcas*, *Andalusians*, *Leghorns*, &c., &c. The single comb is upright, quite straight, free from any excrescences, fine in texture, having no thumb-marks, and evenly and regularly serrated. Pendant combs are seen in hens only of the last-named breeds; fine, smooth, evenly serrated, without side sprigs, they must fall gracefully over the side of the head and face, taking a slight curve to one side before falling over on the other.

Common Fowls.—If a paying poultry-yard is desired, do not run into the error of purchasing a "few common fowls;" and if poultry are kept "for pleasure," this will not be attained with barndoor mongrels. Should "a few common fowls for eggs" be desired, a cock and five pullets of *Andalusian*, *Minorca*, or *Hamburgh* breed are the best, and such birds can be purchased young in July from any of the well-known breeders, pure and true to breed, but set aside by them as not perfect enough for prize-stock or exhibition. If time allows, get a first-class sitting of eggs, and hatch them in March; you

will then have a pen giving pleasure to the eye, and more paying too than any barndoor deteriorated cross-breeds. A cheap coop for the common cock and five pullets can be made out of a very large sugar hogshead, whitewashed inside, with split pine-tree top inserted across for a perch, and a pot basket hung at the side on two strong hooks for the laying nest. Cover the cask with tarred felt, coming over the top and down the sides; it will give dryness and warmth. If expense is no object a dry outer shelter is to be desired, and free range. (See ASPECT OF RUNS.)

Concrete. — Nothing is so good for the flooring of all houses as the original soil over which they are built, dug up and mixed with screened mortar rubble. If rats abound, it is advisable to concrete the floors of roosting places, but they must then be covered deep in screened dusting material of some sort. Birds kept on concrete flooring without these precautions, however well swept and cleaned, will not flourish.

Condiments, their Use and Abuse. — Only needful where the poultry-keeper is struggling against the difficulties of producing first-class birds in confined space and without grass range. Birds kept in condition as directed above will never require them, unless the season is an especially damp or severe one. The necessity for spiced foods or condiments bespeaks a low state of health and want of vigour. A handful of red chillies boiled and chopped into the food

in winter is as much spice as is needed, and this certainly does good to early laying stock. No doubt condiments should be used as medicine and *not* as food, and our doing it brings on an unnatural, forced, and weakly stock which will not bear any tear and wear in the way of exhibitions, bad seasons, or any other drawbacks.

Condition Paste or Pills.

—A resort to these tells of mismanagement somewhere, overcrowding, breeding in and in, &c. Walton's Paste is a great help when birds are in low condition, and will be necessary after roup. 1s. tins with full directions may be had from any chemist.

Condition to keep Birds in.

—This depends on constant attention to a thousand small details: proper diet, clean water, and perfect cleanliness, of course; abundant sand and mortar, always pure and dry; grass runs, which must be kept mown if for feathered-legged Asiatics; perches arranged so that the cocks' tails do not rub and get injured against the walls; entry trap-doors not too low or narrow; covered runs available so that in wet weather the birds have light, air, and space to scratch amongst dust and straw without roaming out in the wet, and shelter for some breeds from the scorching midday sun; water-tins arranged so that they cannot upset; paint, tar, and large water-tubs kept out of reach; ducks kept out of the poultry runs; fights and sparing through wire partitions prevented; cleaning of the poultry-

houses done first thing every morning, and not left till the birds have trampled the droppings about all over the place. If birds are to be caught for any purpose, or counted, it must be done at night to save beating about. If necessarily done in daylight, a piece of dark cloth drawn over the window will enable the poultry-man to catch the birds without injury or fright. When whitewashing, put grease in the wash, or it will be likely to come off and soil the plumage. Laying boxes, or hampers, and nests of all kinds should be constantly replenished with clean short straw, and should never be so small that the tail and breast feathers rub as the hen turns about. All partitions and wire-work to be kept free of jagged crooks or points. Injured feathers cannot be replaced till the yearly moult.

Condy's Fluid. — Useful, diluted half-and-half with water, for rinsing all feeding and water-vessels when colds or roup have appeared in the yard. For a cold it is useful to wash the beak, eyes, and face, and for cough or noise in the throat dip a camel's-hair brush in it and well swab out the throat and mouth.

Confinement, Best Breeds for. — Decidedly Andalusians and Minorcas. They can be kept in high condition, lay splendidly, produce fertile eggs, and win prizes in the most confined space, all conditions of health being attended to; but the smaller the space the greater must be the labour and care to be expended

upon it to produce any great results. Leghorns are good, but their spirits are more depressed than the Andalusians by penning up. Brahmas and Cochins of all classes will be content to squat all their lives in a pen a few feet square, but they are apt to grow fat and diseased, and lose all gloss; and when not eating they are brooding, and neither occupation fills the egg-basket; they are, however, most tractable, and nothing looks handsomer than a pen of Light Brahmas confined in a villa-garden by a wire two feet high strained round a portion of lawn-grass: it will effectually keep within bounds these models of contented domesticity. Andalusians and Minorcas require wire-fencing, without woodwork at the top to rest their feet on, at least seven feet high.

Consumption. — Its signs are constant cough, pale hue about the face, and wasting away in spite of ample food. A bird so affected should be killed, being dangerous for stock and miserable to look at. The fully-developed disease is incurable, but if suspected when a bird is young it should have Parrish's Chemical Food, and the surroundings should be as sanitary as possible. The disease comes from cold, damp, dark, and unclean housing; it is hereditary. Dorkings and Hamburgs are very liable to it.

Contagious Diseases. — Colds, roup, diphtheria are highly catching, and such cases should at once be isolated. Birds suffering

from diarrhœa or cholera should be parted also, as they make the ground very unhealthy for the other stock. The slightest ailment should be *at first* treated as contagious, and isolation effected; when the nature of the complaint is discovered, treat accordingly. Doctoring poultry is most troublesome and very expensive; prevention is better than cure.

Cooking for Poultry.—A little trouble in this respect will be amply repaid in the poultry-yard. Every establishment where 100 head of poultry are kept should have its lock-up food store-room, and if a gas-stove can be put up its help is invaluable. House-scrap can be regularly brought out to the food-house hot from the kitchen by 8 a.m., and with boiling (not cold) water let meals of all sorts in turn be mixed with the scraps till it forms a crumbling mass. All food for ducklings is better given warm than cold, chickens also appreciate their milk and their porridge with the chill off. Liver given raw is not palatable, but if put in water over the gas-stove for ten minutes, and chopped, hot with Spratt or pollard, and thrown to the birds in pellets, it is greedily devoured, and more good is got out of it. Grain baked in the oven dry, and given warm to the birds, is very good in the winter-time.

Cooking Old Hens.—An old hen is a very difficult thing to dispose of. The *Live Stock Journal* gives a recipe for making old birds tender: Wrap the bird in vine-leaves and bury it, for two

or three days, deep in pure soil; when boiled slowly it will be as tender as possible.

Coops for Chickens.—One of the delights of artificial incubation is that the poultry-keeper can dispense with all troublesome coops, each with its quarrelsome maternal occupant. For broods of chicks hatched in an incubator, the covered run rearers, Christy's and others, are indispensable *out of doors* for the first month, at least. As the chicks advance use one of Reynolds's wooden hen-coops, with sliding floors, but fitted with a hot-water tin, raised at the further end at a proper height from the floor by movable screws for the chicks to creep under; a small run should be attached, say four feet long and as wide as the hen-coop, made with fine wire, rat-proof, and roofed so as to shoot the rain, with door to let the brood out when dry enough. Coops on the same principle made larger could be used as the birds increase in size. Every coop with young stock should be cleaned out daily. Renew the floor with sand and rubble sifted, and over this chopped straw makes an excellent bed, but the latter is worse than useless if *not* renewed daily; coops should be of a size to move easily from place to place, the runs being hooked on so as to give fresh ground or grass. All chicken-coops, after having the dirt scraped out, should be powdered from a large dredger with sulphur, in which M'Dougall's, or Terebene, or Ferralum disinfectant

has been mixed; this purifies the air and destroys insect life. Finally, the less chickens are cooped the better; give complete freedom, but make provision for cleanliness and warmth, and shelter on wet days and cold or damp nights.

Corn.—The best staple foods are, 1st, buckwheat; 2nd, wheat; 3rd, barley; 4th, dari. Hemp may be given occasionally; and as for Indian corn, it is better to give none than to give constantly, it is much too fattening for laying or breeding stock. It is of great advantage to give a change. Buckwheat promotes laying, and is also good if birds are poor and out of condition; for young birds it is excellent, and being smaller and more fattening, it comes before barley. Dari is a favourite with poultry, and wholesome, although not so nourishing as the grains previously mentioned. Hemp must not be given regularly, being too heating; if persevered with it will cause loss of feathers, but it is a necessary help in preparing birds for shows. (*See PRIZE BIRDS, THEIR TREATMENT.*) Do not be persuaded to buy "sweepings," or "poultry mixtures," or "poultry grain;" these preparations are simply injured grain of all sorts mixed up together, some a little and some very seriously damaged, so as to be unfit for food, but in the bulk it is hard to find this out. It has another disadvantage: you cannot give your fowls change of grain, which is most beneficial. Sound, good grain is always economical

in the end, care being taken not to leave it on the ground, but to feed in moderation, so that not a grain is lost. It is a great saving of expense to buy it by the quarter rather than by the bushel. Scotch groats are the best to be had, and for exhibition stock (young) much to be recommended, and worth the carriage; it is very fattening, and can be used dry, or boiled like rice, in water or milk, and dried to proper consistence with oat or barley meal or pollards. Oats are not much relished by poultry, having too much husk; they are altogether the least profitable grain, though cheapest. (*See SUNFLOWER.*)

Courtes Pattes, or short-legged fowls.—Prolific layers, and splendid sitters and mothers. Very wide in breast, with very short legs, which prevent their scratching or doing harm in gardens. A pure breed is hard to get, and a doubt exists as to whether it is possible to breed them true, though the pen may be perfect in itself. They come from the department of La Sarthe. Pullet à la Reine is another name often given to the breed.

Cramming.—Any one who purposes fattening poultry for market should study in detail the chapter on cramming in Mr. Lewis Wright's "Poultry Book." Ordinary cramming or fattening such as it is possible for the amateur to carry out is simple. In a shady and cool outhouse or shed, the stall of a disused stable or cow-house, or a poultry-house, confine the birds for fattening,

six or eight, according to the size of the enclosure. Sand the floor deeply, keep clean, give little light, and feed with soft food three times daily, with as much as the birds will consume without leaving any behind. In this case liquid food cannot be given, though highly thought of. Buckwheat, maize, oatmeal, and barley-meal are all excellent mixed with half-and-half milk and water, not too dry. Birds for this purpose should be about four months old, and they should be ready in a month at the outside. Perfect quiet and cleanliness are needful, and as soon as fattening is completed they should, after twelve hours' fast, be killed. If kept too long after the process is complete, emaciation and sickness set in, and the work is undone. The French process of cramming by machinery is too complex and lengthy to enter upon here, and any one intending to carry it out should study some of the larger works on poultry.

Another simple mode of cramming consists of confining the birds each in a coop, with floor of round bars, through which the droppings fall and can be cleared away daily; three times a day take them out and force pellets of milk-mixed meal dipped in water till the crop is full. If digestion has not cleared the crop out a meal must be missed. Do not confine the birds where they can see or hear their fellows. Perfect coolness, quiet, and shade to semi-darkness is needful. (See FATTENING FOWLS.)

Cramp.—No. 1. If in the legs, foment or stand the bird in hot water, bandage with flannel strips half an inch or one inch wide, according to size, and put it in a dry, warm greenhouse, with a sandy, gravel bed, and straw-chaff litter. Give tonics in the water, or in bad cases a tea-spoonful of Parish's food twice daily.

No. 2. Rub the legs with hot oil, turpentine, or camphor.

No. 3. Wrap in flannel, and keep by a fire at night; give free dry run by day; diet ample and nutritious, with meat. For a chick three months old, opium (quarter grain) three times daily is a help. (See RHEUMATISM.)

Cramped Sitting Hen.—Rheumatic or gouty hens only are subject to this; they cannot stand when they get off the nest. Give four drops of sal-volatile occasionally; rub legs with turpentine and oil daily.

Crests.—The head-ornament, or top-knot of feathers, with which the Polish, Crèveœur, and sundry other breeds are decorated.

Crèveœur.—A French breed, of large, fully-developed make, brilliant glossy black plumage, flowing tail, with crest, beard, and two-horned comb. Non-sitters, good for table, of very white meat, and large, but poor layers, though their eggs are large. In constitution somewhat delicate, as they are liable to roup and colds, and quite unfit for clay soil or damp districts. In a dry place, splendid birds to keep for table purposes. If

crossed with Minorca or Andalusian would become more useful as egg producers, and more constitutional vigour might be attained. Crèves occasionally hatch blue, and white specimens have been seen very handsome.

General Characteristics.—Head and neck like Polish; beak, medium in size; comb, two-horned, no tynes or branchlets; rounded moderate wattles; deaf-ears hidden by muffling, which must be so full as to hide throat and cheeks; neck carried upright, with flowing hackles; body massive and neat; deep, prominent breast; broad, flat back; short shank, no feather; large tail; very lively and important, of noble carriage. Colour: glossy brilliant black; legs slate; black beak; *red eyes* denote a better constitution than other shades.

Crissel.—A preparation made by Spratt, of Bermondsey, London, containing animal food; very useful for mixing with food when birds are confined, and when the supply of meat is a difficult matter.

Crooked Breasts.—The usual theory as to crooked breast-bones is that they are caused by giving perches to chickens *too early* in life, or by the perch being too large or too narrow. Experience shows, however, that crooked breast-bones are found if the strain is a weakly one and wanting in constitutional vigour, or if the birds are pampered and brought up at high pressure, in confined and over-crowded pens, where stimulating condi-

ments and excess of feeding take the place of free range, fresh air, and ample, nutritious food. White Dorkings brought up with and treated in all respects like their companions, Andalusians, suffered (under my care) with this weakness, while the Andalusians, treble their number, showed not a single example of this evil. High perches in a *small* roosting-house, where birds have no space to make the sweep which they would in freedom take from the highest tree without injury, are highly mischievous, and cannot be condemned too strongly; but these, though they injure the breasts and ruin the birds, do not account for the peculiar bend in the ordinary "crooked breast-bone." Birds so formed should not be bred from for prize stock. (*See PERCH; ROOSTING.*)

Crop.—The crop is the receptacle into which the food goes before it passes on to the main digestive organs. It may easily be felt, especially after feeding, just in front of the merry-thought bone.

Crop-bound.—One of the most common of crop ailments, caused by improper and excessive feeding, by lack of gravel, mortar, lime, and gritty rubbish, which birds eat so greedily, and which are necessary for digestion. The crop becomes choked up and distended with a solid mass, often very hard; the bird cannot eat, mopes about, and loses flesh. Pour warm water down the throat if a

slight case, and work the mass about with your hand, starve the bird and give no water. A tea-spoonful of gin now and again is good; when softened give castor oil, a dessert-spoonful to an adult. After recovery feed very little for a few days. If these measures fail cut the crop open at upper part, and with the handle of a tea-spoon remove the contents, oil the finger, and feel that the outlet to the stomach is free, then sew the parts up, the crop and the skin being sewn separately. Horsehair is better than silk, which does well, however. The bird will soon want to feed ravenously; give bread and milk, not too wet, and keep the bird quiet for a few days, on short commons of soft food.

Crop Soft or Swelled.—Contents feel like liquid, and the crop sways about as the bird walks; this does not affect health or spirits. Puncture the crop and let the fluid out, feed very slightly, with soft food, and hardly any water. The worst months for these diseases are August and September or October. When wheat newly thrashed is given to poultry they eat greedily, and as new wheat swells in the crop, the whole mass hardens, and closes up the outlet into stomach, bringing on a disease which must prove fatal unless properly treated. Exhibition birds kept for a week in a pen eighteen inches square and overfed on whole maize, often return with the crop overcharged; soft food only should be given if this is the case, and a tea-spoonful

of gin, brandy, or port wine, to stimulate digestion.

Cross Breed.—A cross-bred fowl is, accurately speaking, the produce of one pure-bred bird mated with another pure-bred bird of an entirely different breed. The barn-door fowl, as seen in most farmyards, cannot accurately be called a cross-bred fowl, but is a mongrel of low degree. It is the first cross of two pure and first-class breeds which is valuable for egg produce or table purposes, as the case may be.

Crosses for Table.—(See BREEDS CROSSED FOR FOOD.)

Crowding.—One of the commonest of evils, and fatal to success. Most amateurs go in for several breeds of poultry; this, unless a park or farm is available, is very unwise. The birds may be kept in comparative comfort during the winter months, but in the breeding season, when the chickens begin to come, and in August, when pullets have to be separated from cockerels, and these again in October kept separate from adult hens—when these also have to be parted from their mates, and exhibition birds require each their roomy and separate pen, it is impossible to rear many breeds successfully, each having its perfect exhibition specimens; for this, space is a matter of necessity.

Cuckoo Bantams.—Miniature Scotch Greys in every point.

Custard.—Recommended for chickens by some authorities, but not preferable to hard-boiled eggs chopped and mixed with bread-crumbs, and milk given as drink. It is, however, a good medium wherewith to stir in oatmeal, or barley-meal, or Spratt's Food; and it is greedily devoured.

Damaged Grain.—The use of refuse or injured grain for poultry food is bad economy. Sound food should always be purchased. Much of the grain advertised is injured by salt water, and in other ways. Intending purchasers should apply for samples. (See GRAIN.)

Damp in poultry-houses is especially injurious to health. Care should be taken to stop all leakage, and to ensure dry sleeping-places. Birds will bear being out on a grass-run on the wettest of days better than being housed in a damp place. Carelessness in this respect is the source of colds, inflammation of the stomach, and liver disease, and is apt to develop scrofulous deposits should the strain be weakly in any way. (See DRY RUNS.)

Damping Eggs.—Should the sitting hen's nest be in a dry place, this is necessary for success. About the twelfth day, when the hen is off feeding, and just ready to return, pour hot water round the nest, moistening the surrounding straw, without wetting the eggs. In hot and dry weather it is well during the last week to sprinkle the eggs

from a fine rose water-pot, with water at 105°, but on no account neglect to replace the hen at once after this is done, or the eggs will be chilled. (See SITTING HENS; ARTIFICIAL INCUBATION.)

Danvers White.—Cross between Buff Cochin and White Dorking: an American breed, superseded by White Leghorns.

Dark Brahma.—(See BRAHMAS.)

Dead Poultry.—(See CROSSES FOR TABLE; FATTENING POULTRY; CAPONISING.)

Deaf-ears, or ear-lobes, are the folds of skin which hang from the true ear; the colour varies in different breeds, from white to red, blue to cream.

December.—If the weather is dry and the run small, this is a good month in which thoroughly to renew and cleanse your poultry-yard. Pen up your birds in their covered runs, place unslacked lime in heaps over the ground, and water it, digging it in as it crumbles; it is a great purifier. Do not let choice birds out too early in the day, when the grass is wet, but wait till eleven or twelve. Birds which are not yet showing signs of moulting should be removed to a dry place, rather warm; this will hasten the process, which commences on their being again turned out; but care must be taken to avoid chill. (See MOULTING; FOOD DURING MOULT.) Look well to birds penned up for shows, and in hard

weather secure large-combed birds from frost, especially when just returned from exhibition, as they are then unusually tender. (See VASELINE.) Pullets should be in full laying. Give tonics occasionally in the drinking-water. (See TONIC.) All notes for November apply here. Add more animal food to diet. Be energetic in procuring green food, if you have no grass-runs. Mate your breeding pens, and for early eggs leave them in peace. Show other birds. Study the matching of the birds well, don't put them together haphazard. Next year's success is being founded now. Care and thought are well repaid. Early laying stock should be kept warm, and should get meat, and egg-producing stimulants. Feed brood cocks extra well. Set about hatching. Now the incubator is invaluable and ready at any moment, whereas broody hens are worth their weight in silver. Pullets hatched early, which have laid early, should now sit, but hens sit best. If you have none, study advertisements of poultry papers and the *Bazaar*, where they can always be heard of. But home-bred sitters are always preferable. See that every needless bird is sold.

Deformities (see HEREDITARY EVILS).—*Squirrel Tail*.—This is a common fault, and difficult to breed out. The tail projects in front of a line drawn perpendicularly to the end of the back, sloping, in a marked way, towards the neck.

Slipped Wing, or Tucked Wing.—

An accident to which some breeds are peculiarly liable when making their adult plumage. The primary feathers, instead of being tucked in when the wing is closed, protrude, appear twisted outwards and in disorder, the inside of the feather coming outside. Where this is the case, a cockerel has little chance in any good competition; it is incurable, and, moreover, hereditary. When the flight feathers only hang down, as if too weak to be compactly tucked up, but not otherwise disordered, cure is possible when taken in time. As soon as displacement is seen, tuck the wing up every night at roosting-time, and when the bird is more advanced the wing should be bound near the shoulder as tight as possible. From the outside centre of this ligature a cord must be passed round the shoulder, and fastened to the inside centre to prevent its slipping off. Stout whipcord may be used, or tape, and every care taken to have each feather in exact position before tying up. From six weeks to two months will be required to effect the cure, and even expert hands have some difficulty in putting on the bandage satisfactorily. Night is the best time to operate, for the sake of quietness.

Vulture Hock.—This is caused by the feathers projecting considerably beyond the hock joint in a stiff, awkward manner. Asiatic breeds are particularly subject to it, and if a bird has this deformity strongly marked, it would be useless for breeding or for exhibition purposes.

Wry Tail.—A sign of hereditary weakness; occasionally comes from a bird being kept in a small pen, carrying its tail habitually on one side as it walks round. If a habit only, it may be cured by snipping out a portion of skin on the side from which the tail inclines, and the scar in contracting draws the tail back to its proper position.

Crooked Breast-bone.—Generally from hereditary weak constitution; sometimes caused by young birds perching too soon. This should be avoided, as also having perches so high that the birds in alighting come down heavily on the floor. It is unwise to use a bird with this fault for breeding purposes.

Diarrhœa.—Caused usually by cold and wet weather; in chickens, often due to improper diet. First try boiled rice mixed with powdered chalk. If the case is severe, which it should not be in a well-ordered yard, try any of the following:—Two to three drops of chlorodyne in water occasionally, half a tea-spoonful of brandy twice daily in water. A pill containing five grains of chalk, five grains of rhubarb, three grains of cayenne, half a grain of opium. For food, rice boiled in milk, *only* if the case is bad. Barley is the first grain used on recovery for hens, pearl barley for chickens. *Bone-dust* is an excellent preventive; young chickens should always have it. (See BONE-DUST.) Ample green food should ever be at hand.

Diphtheria.—*Its treatment:*

Most contagious; the appearance is that of severe cold with fever, and in the throat white spots are seen filling the glottis; the windpipe is inflamed and there is cough. Apply to the throat with a paint-brush 1 drachm of carbolic acid, 3 drachms of sulphurous acid, $\frac{1}{2}$ ounce of glycerine, $\frac{1}{2}$ ounce of tincture of perchloride of iron, three times daily. Internally, brandy is useful; iron and quinine tonic (*see* TONICS); feed very carefully. Unless the bird is very valuable, it will be better to kill at once, on account of the great danger of infection.

Dirt and Droppings.—These left on the ground or under the roosting-places, are most prejudicial to health. They should be collected daily, and not swept or raked about in clearing them away, so as to become mixed up with the soil, but carefully shovelled up separately. It is advisable to have a large covered box or tub, into which you can throw the droppings, without other rubbish. This manure, if kept dry, is equal to guano, invaluable for garden and farm land. The produce of vegetables and strawberries, when it is judiciously used, is trebled. If earth or ashes are sprinkled over the manure, there will be no unpleasant smell. Fifty hens are said to produce in the roosting place about ten cwt. per annum. It is best to use it at home when possible, as gardeners object to pay for the rubbish which is mixed with it. In large towns

leather-dressers will give a low price for it.

Disease.—Fowls are subject to as many diseases as human beings. They can, however, be kept in perfect health even in confined runs with care, whereas in some cases, after an enormous outlay in houses and extensive paddocks, failure and sickness are the result. Almost all poultry diseases come from mismanagement, neglect, or ignorance of the simple laws of health, which are the same for birds as for men. Overcrowding, want of ventilation, and of cleanliness, of pure water, of good food and sufficient exercise are some of the evils to which poultry kept for table purposes and profit succumb. It is, perhaps, unfortunate that the diseases brought on by neglect and ignorance are not always fatal, as the produce of birds kept under such adverse circumstances lack constitutional vigour, and strains are produced containing the seeds of hereditary disease such as consumption, leg-weakness, crooked breasts and backs, rheumatism and general debility. To breed from such for table or for the show pen is equally useless.

As soon as a bird is ailing, isolate it until you can decide whether the attack is contagious. (See list of **CONTAGIOUS DISEASES.**) Many diseases are so, and whatever the attack may be, a sick bird is best alone. Every establishment where even 100 chickens are raised in a season should have its hospital, and the coops for infectious cases should be entirely away from others.

They should be 3 to 4 feet square, facing south, whitewashed, and placed so that no draught can reach them. It must be borne in mind that prevention of disease is comparatively easy, but that curing sick birds is uncertain and troublesome, and should only be attempted on such specimens as are peculiarly valuable for breeding or exhibition.

The various well-defined diseases will be described under their various headings. (*See ASIATICS, DISEASES OF; APOPLEXY; BRAIN AND NERVES; BRAHMA, DISEASES OF, see ASIATICS; BRONCHITIS; CANKERED BEAK; CANKERED COMB; CATARRH; CHICKENS, DISEASES OF, UNDER MOTHER; CHOLERA; CRAMP; CONSUMPTION; CROPP-BOUND; CROP SOFT OR DISTENDED; CROUP; DEBILITY; DIARRHŒA; DORKINGS, DISEASES OF; DYSENTERY; EGG-BOUND; FEATHER-EATING; FRACTURES; FROSTBITE; GAPES; GOUT; INFLAMMATION OF THE STOMACH; LEG-WEAKNESS; LIVER COMPLAINT; LUNGS, PARALYSIS; PIP; POLISH, DISEASES OF; ROUP; SHELL-LESS EGGS; SPANISH.*) Other diseases which are less accurately defined—varying slightly under various conditions, which may, however, be dangerous if not promptly relieved—are given below. They are apt to puzzle the amateur and novice, as they are generally unnoticed in works on the subject.

Swelling of the Eyes.—If this occurs without other ailment, search for any cause of local irritation, and if this fails, apply a solution of nitrate of silver,

three grains to one ounce of water, with a capsule internally, of copaiba five drops, from time to time.

Swelled Foot with Discharge.—Foment and let it discharge well, dress with Wright's Liquor Carbonis diluted with fifteen parts water as long as matter forms, and then soothe with zinc ointment.

Inflamed Legs, and Loss of Leg-feather.—Caused by improper food; apply vaseline or zinc ointment, and give no maize. Diet on Spratt's Food, the best meal, plenty of green food, and a small tea-spoonful of Epsom salts occasionally.

Dark Comb and Dulness is often a sign of disordered liver, the bird will remain inactive, and not have much appetite. Give a tea-spoonful of castor oil, and a grain of calomel on the following day, later on a small tea-spoonful of Epsom salts, in water or in the food. Feed on Spratt's and soft foods only.

Drooping Wings and Depression of the tail in a cockerel. This, even if there is good appetite, generally shows need of a few days' rest, apart from the hens. Give him extra good food, with meat, green food in plenty, and twice a day a small tea-spoonful of hypophosphate of soda in his food or made into a bolus.

Inflammation of the Mucous Membrane, known by blood in the evacuations; it is aggravated diarrhoea, produced by careless feeding, damp, dirt, and want of ventilation. First give a tea-spoonful of castor oil, next morn-

ing in a spoonful of gruel, 3 grs. of grey-powder, 2 or 3 grs. rhubarb, and two to four drops of laudanum twice daily, or if preferred after the oil, 3 or 4 grs. of Dover's powder.

Moping Chickens, with crops full, dull looks, and diarrhoea-like evacuations. These symptoms show that a chill has been taken, and that a certain amount of inflammation exists which may at any time increase. This may occur in spite of care in diet and housing; cold and damp or draught will bring it on. Isolate such chicks at once and treat as for diarrhoea. (See DIARRHOEA.) When the evil is continuous, wasting away sets in, and in spite of a voracious appetite the chicks will sit about, their heads drawn into their breasts, dull and inactive. Give extra warmth, lots of green food, and four grains of compound rhubarb pill.

Hen Out of Condition, in spite of good food and appetite. Keep her as warm and snug as may be, tempt with delicate food, meat and bread and beer. Hempseed occasionally. Linseed boiled to jelly and mixed with good oatmeal. It comes from the laying powers having been over-taxed.

Hen Weak.—After protracted sitting a hen becomes light, thin and pale, lies about, pecks at grit and green-stuff, but rejects food. This shows neglect and over-sitting. Slip a raw egg daily down her throat, with half a tea-spoonful of quininé wine, give generous diet as for want of condition, and no grain.

Laying of small Yolkless Eggs.

—This is caused by over-doing the soft food meals. Give meat for a time and sound grain, no Indian corn.

Comb Cut or Injured.—Wash thoroughly with Condy's Fluid and dress with zinc ointment daily; apply a cobweb if bleeding is profuse, or colloid styptic.

Torn Wattles.—In some breeds these are very large and get torn in fighting. Do not fear cutting away any loose or torn pieces of flesh. Stop bleeding with styptic colloid, a cobweb, or a little tincture of iron, and dress with zinc ointment. Isolate the bird, as the hens may be tempted to peck the injured place. (See **WATTLES.**)

Cold in the Eye.—This need not be roup. If it is a mere cold keep the invalid in a warm place, and bathe the eye with green tea.

Scales on Feet and legs, followed by lameness. Get Foster's Ointment, and follow his directions on the pot.

Rattling Noise in the Throat, without symptoms of cold or indisposition. Ten drops of dilute nitric acid and one tea-spoonful of glycerine to 2 ozs. of water. Let this be prepared for the bird to drink in place of clear water.

Excessive Fat.—(See **APOPLEXY.**)

Feathers appearing Worm-eaten.—Happily a rare complaint. Hamburgs are most subject to it; caused by damp and want of proper dusting baths. To be cured by attention to these two points in particular and better management all round.

Severe Cold, not amounting

to roup.—Neglect not an hour. Wash the face with warm water, in which one-hundredth part of carbolic acid is dissolved, give one drop of tincture of aconite, night and morning, and middle-day one tea-spoonful of quinine and iron mixture. (See **TONICS.**)

Should a hen be seen moping about, with tail depressed, in a penguin-like position, it is a sure sign of disorder in the laying organs. Most probably she will be found too fat; give tea-spoonful of castor-oil, followed by quinine and iron tonic daily (see **TONICS**), and less food; no Indian corn.

Scurfy Heads, due to parasites, will cause loss of feathers if allowed to continue. Apply sulphur ointment, with a tea-spoonful of petroleum to the ounce. Zinc ointment is also good, if a slight case.

Sickness, Vomiting.—The crop will be found distended. Starve the hen for twelve to eighteen hours, and feed sparingly, giving twice daily for a while boluses of powdered charcoal and dripping. If this does not cure at once, see **INFLAMMATION OF THE STOMACH; LIVER DISEASE; DEBILITY.**

Disinfectants.—For houses and sheds one of the best is smoke from a wood fire.

Sulphur.—Close every opening and chink where air can escape, place a pound or two of brimstone, in small pieces, into an iron pan, and let it gently burn, leaving the house shut up for the day if possible. Hang up

your exhibition hampers, nests, baskets, or boxes, and all chicken coops, shelters, &c., from the ceiling; do not spare the sulphur nor open too soon. No vermin will stand this, and it is one of the best of disinfectants.

Powdered Sulphur.—Valuable if kept handy in a large dredger; and when all chickens' coops, nests, and appliances in use are cleaned for the day, go round, say twice a week, and dredge in the sulphur everywhere. Do not fear getting it upon the chickens or mother hens; both will be the better for it, if made even as yellow as canary-birds. Large expenditure on this and other disinfectants, such as M'Dougall's powder or cupralum powder, will repay the poultry-keeper.

Carbolic Acid.—This in the height of summer is excellent. Thoroughly turn out the poultry-houses; brush and cleanse them, together with all empty nests, hampers, boxes, coops, and appliances. Water everything with carbolic acid in boiling water from a coarse rose; every crevice must be saturated. Place all movables to dry in the noon-day sun. Leave the poultry-house doors and windows open. Do not attempt this except on a settled sunny day, bearing in mind that damp is fatal.

Douglas's Mixture, Terebene, and Condy's Fluid are all used with boiling water, and should be at hand once daily to wash all pans for food and water, it

being important to keep these clean.

Hardiman's Beetle and Insect Powder or Persian Powder.—These are the best possible disinfectants and purifiers to use if the plague of lice appears in your stock. Take a dredger, a narrow long one, with fine holes; fill it with half and half insect powder and sulphur. Get the chickens into a dark roosting-house and shut them in, this makes them easier to catch and prevents buffeting about, which destroys good looks. Have a table close by in the light. One by one place the chickens on their backs and dredge well in between the legs, under the wings, and about the tail and head; put them in another roosting-house as finished. The lice will crawl out on the surface and drop off; be sure in an hour or so to restore the birds to their run, which meantime will have been thoroughly disinfected and cleansed, and treat the roosting-house to disinfection as advised above.

Disqualification.—In the several breeds of poultry there are special points which are a *sine quâ non* for the show pen; the want of them means *disqualification* in that particular breed. (See DISQUALIFICATION, under various breeds of poultry.) Besides these, certain defects will disqualify, whatever the breed may be. (See CROOKED BREAST; WRY TAIL; TRIMMING; SICKLE FEATHERS, LOSS OF; FALSE SICKLES; WANT OF CONDITION; PAINTING FEATHERS; DYED LEGS;

PLUCKED VULTURE HOCK; PIN OR WIRE SUPPORTS TO THE COMB; VARNISHED LEGS.)

Domestic Fowl.—The date of its origin seems still a moot point; but that the *Gallus Bankiva*, or wild jungle fowl, is the one sole progenitor seems settled by Darwin; it is a bird resembling the Game and Game Bantam in appearance, midway between them in size, of lower carriage, and with tail borne rather horizontally. This fowl breeds with the domestic poultry of India, is alike in voice, and capable of domestication.

Dominiques.—An American breed. Good layers, hardy, good for table. Resemble Cuckoo Dorking, but have bright yellow legs, and four toes only. Face, wattle, and deaf-ear, red; beak, yellow; plumage, cuckoo colour, *i.e.*, bluish ground crossed with bars of darker blue-grey; hackles and saddle in the cock same colour; shape and carriage that of a Dorking. Cocks weigh 7 lbs. to 8 lbs.; hens, 6 lbs.

Disqualification.—Legs other than yellow, or feathered, combs other than rose, red feathers in hackle or saddle, white in breast or back.

Dorking.—Probably a direct descendant of the Roman fowl described by Columella, which had the fifth toe. There are four varieties: dark-coloured, silver-grey, white, and cuckoo. Very superior fowls as sitters and for table, *not* the best layers. Require a dry soil, extensive range. Easily knocked up by

showing. Early-hatched chickens difficult to rear; April is early enough, and May is even better.

General Characteristics.—Cock: shape, square; carriage, quiet and stately; breast, well forward; beak, short; head, large, but neat; comb, single or rose. If single, large, erect, and straight, evenly serrated, free from side-growths; if rose, square in front, free from hollows in the middle, and ending in a sharp peak behind, inclining slightly upwards. Wattles large and pendant; deaf-ears, moderate, hanging about one-third of depth of wattles; neck, short, taper, with full hackle; body, large and deep when viewed sideways, forming a square; the breast-bone deep; back broad; tail full, neat, not “squirrel,” sickles broad and well arched; thighs, large and full; legs, white or pinky-white, straight, strong, short, free from feathers, and also from any red, inflamed appearance; toes, large and well spread, extra fifth toe well developed, distinctly separated from the others, and pointing rather upwards. Size of full-grown exhibition bird, 10 lbs. to 14 lbs. Hen: shape, plump and deep; carriage, staid; comb, if rose, as in the cock; if single, falling over pendent to one side of face. Body, legs, and feet, like the cock; tail, large and expanded, feathers broad. Comb, deaf-ears, and wattles red in both sexes of all varieties. Size, 8 lbs. to 10 lbs.

Disqualification.—Absence of fifth toe, legs any colour but pinky-white.

VARIETIES.

Dark Dorkings.—Cock: hackle, white or straw, more or less striped with black; saddle, like hackles; back, various shades of white, black and white, or grey with red; wing-coverts, black glossed with green; secondaries, white on outer, black on inner web; breast, either black or mottled with white; tail, the same. Hen: hackle as in the cock; breast, salmon-red, each feather tipped with dark grey, verging on black; rest of body nearly black, with shaft of feather showing cream-white; tail, nearly black, with outer feathers slightly pencilled. Single comb preferred in cock and hen. Birds in pen must match; not doing so would disqualify, as also would the want of the fifth toe, or legs otherwise than white.

Silver-grey.—Inferior in size to the dark coloured. Cock: white hackle and saddle; back and shoulder-coverts, silvery-white; wing-bow, silvery-white; wing-coverts, metallic green; secondaries, clear white on outer, black on inner web and at the end of the feathers; breasts and thigh, glossy black; tail, rich black. Hen: head, silvery-grey; hackle, silvery-white, striped black; breast, salmon-red to fawn shading to ash-grey, with no tinge of red; tail, dark grey, inside feathers black. Comb, rose in both sexes. Birds in pen must match, have five toes and white legs, or they will be disqualified. The cock's breast and tail, also, must have no speck of white.

White.—Plumage, snowy-white, free from any touch of straw colour; combs, rose. Cocks, 8 lbs. to 10 lbs.; hens, 6½ lbs. to 8 lbs. Any speck of colour in plumage will disqualify, as also will absence of any of those points which are considered absolutely imperative in the other varieties.

Cuckoo.—Comb, rose or single; plumage, blue-grey, pencilled with bars of darker grey. Black, red, or white feathers disqualify.

Dorking Diseases.

—Bumble foot and consumption catarrh.

Drainage.—Where the ground is wet this is very important; damp is fatal to poultry. A proper fall should be arranged in the ground, and a small expenditure on drain-pipes and the making of dry wells will be amply repaid by freedom from disease. Drainage from roofs may be very useful if collected in a water-tub with a tap for washing out feeding tins and water fountains. If the roofing be made of any material to which tar is applied, care must be taken never to use the water for drinking purposes; it is most unwholesome for poultry. (*See WATER.*)

Drink.—The feeding of poultry, though too often done in a careless and senseless manner, is, perhaps, not so grossly neglected as their water supply. Many poultry fanciers seem to think there is no occasion for a regular, still less for a clean,

supply. When water-tins are refilled the remaining sediment of dirt is too often left to taint the fresh supply. Birds are left for long hours without water, then supplied in excess and allowed to gorge themselves, much to their hurt. Properly, water should be supplied fresh twice in twenty-four hours; it should be fresh spring water, not rain (*see WATER*); and the vessels should be emptied and rinsed well out in a bucket. A green slime often coats vessels in which water is continually standing; this should be scrubbed off daily. The attendant should go round with a bucket of hot water in which all fountains should be scrubbed, and care must be taken to stand water out of the sun, as the heat renders it unwholesome. On return from a show, give but a very little water on first returning to the home pen; if taken in large quantities it is apt to turn the comb to a dull blue colour. A regular and pure supply of water is more important than is generally supposed. If ducks are kept means must be taken to prevent their polluting the fountains by washing in them, and if standing in a crowded pen it is a good plan to place the water vessel on a stand, or to have tins supplied with two hooks by which they can be hung up on the wire partitions of the pens, out of the reach of the dust and droppings which will otherwise be scratched into them. Snow water is injurious, and rain also if out of tubs drained off a tarred roof. Water in which potato parings have been boiled is in-

jurious, and should not be used for mixing meals. A good water-vessel for hot weather is an earthenware saucer with a slate over it, in which a hole has been cut to allow the bird's head to go in. A flower-pot with a cork in the drain-hole, filled with water and then reversed in a saucer, is an excellent water vessel, keeping the water cool by refrigeration. Tonics in water are a great help in the raising of prize poultry. Fattening ducklings must have very little water to drink. (*See DUCKS.*) Adult fowls should have it at discretion. Whether chickens should have a constant supply is a moot point. Some declare that they *never* give any, and that the chicks are extra healthy, others allow it to be always at hand. Chickens running with their mothers in a state of nature drink when they come to a puddle, apparently without much attention to rule or theory; but those hatched in artificial rearers are certainly somewhat too much addicted to drinking, and as long as water is supplied they will go on imbibing. The best plan with these is to give milk once a day (in the forenoon), a reasonable allowance, and to remove it when all have had some. Water midday, and water with tonic at night, removing these also when the thirst is quenched.

Dropping Eggs.— This is caused by a too stimulating diet, also by want of mortar, oyster-shell, or grit for shell formation, also by the hens being too fat.

Feed less, give no meat for a time, vary the diet with rice, potatoes, sharps, dari, and wheat. Give a dose or two of castor oil, and iron tonic in the water. Should this not cure the evil, give one gr. calomel, one-twelfth gr. of tartar emetic.

Dry Runs.—However good the roosting-house may be, and however extensive the grass-runs, a place should be provided where the poultry can congregate during wind and rain and be perfectly dry and sheltered. This dry run should face south and be protected from east winds. (*See RUNS, COVERED.*)

Dubbing.—This operation consists in the removal with a sharp knife of the comb, ear-lobes, and wattles in game birds. In the days of cock-fighting this was done to save the combs of the fighting birds from injury, and to remove what afforded a good hold for the enemy. Now it is merely a fancy point for the show pen. Cocks should be dubbed when getting their adult plumage and when their combs are well formed. Game and Game Bantams are the only breeds on which this cruel operation is now practised. (*See GAME AND BANTAMS.*)

Ducks.—The farmyard duck is probably the lineal descendant of the mallard, or wild duck. Ducks sit twenty-eight days. For a breeding pen, keep only two ducks to one drake, or five ducks to two drakes. A stream or pond is essential to successful breeding; it need not be large. The favourite breeds

are (*see*) **AYLESBURY**; **CAYUGAS**; **EAST INDIAN**; **MANDARIN**; **ROUENS**; and **PEKINS**. Rearing and fattening ducklings is very remunerative. In March they sell for table at 21s. to 25s. the couple, and up to the beginning of May, after which they go down in price. (*See PRICES OF POULTRY.*) Eggs are costly for hatching, but can be had at 12s. a dozen in November and December. At seven or eight weeks ducklings should weigh 4 lbs. to 5 lbs. Do not allow ducklings while fattening access to water, except for drinking. Food should be hard-boiled eggs chopped fine, with boiled rice, Spratt's Food, and bullock's liver several times daily for a fortnight. When older, give barley, oat, and pea-meal, also pollards, mixed hot with chandlers' greaves and the water in which they have been boiled. Any meat is good, and free range where the young birds can hunt for worms and grubs is next to indispensable. For show-birds, allow access to water after the third week. Always put sand and grit into the water which ducklings drink; it aids digestion and keeps their bills of a fine colour. It is also necessary to keep ducklings on dry beds; a wooden or brick floor which can be washed is the best sleeping-place, on which put a good bed of straw cut to short lengths.

Duclair Ducks.—A new French breed, fast coming into favour in England, said to fatten quicker and attain a larger size than the Rouen.

Dumpies, or American

Creepers.—Out of fashion, but especially good as layers and mothers; peculiar in the shortness of the leg; combs are erect, tail ample; buff is the ground colour, with a white tinge about the wings. These birds have no beauty to recommend them.

Dusting.—Poultry are in the habit of cleansing themselves in dry dust, mortar, rubbish, or ashes by scratching the dust up into their feathers. This keeps them in health, and prevents vermin. Provide a dust bath for the purpose, a good large box with sides about a foot high filled with dust, dry screened mortar refuse, road scrapings, fine gravel or sand, or let the whole sheltered run be covered deep in the above, in which case no special bath is necessary. Hens are wretched if this absolute necessity for their comfort is not studied. The dust bath, however, has its dangers in the case of hens with newly hatched broods. (See BROODY HENS DUSTING.)

Dutch, or "Everyday Layers."—(See HAMBURGS.)

Dyeing Legs.—(See PAINTING FEATHERS, &c.)

Dysentery follows upon neglected diarrhoea, of which it is but an aggravated form. The evacuations are coloured with blood. Prevention is easy, cure difficult. Give 5 drops laudanum with three drops of M'Dougall's fluid carbolate in water every three hours. Food should be rice well boiled in milk, no grain, and the bird must be kept in a snug and dry place.

Ear-lobe, sometimes called "deaf-ear," a more or less pendent ornament to the face, just below the real ear, varying from pure kid-like white to red and blue.

Early Birds, Advantages of Rearing.—The poultry-keeper should be thoroughly convinced of the absolute need for early hatching, to ensure success in the poultry-yard. If profit is looked for, the bulk of the laying—or the prize stock—*must* be hatched by the 15th April. It is supposed that a pullet will lay at five or six months of age. This is true of early hatched specimens; but birds hatched in May will not lay, as a rule, in October or November, when eggs are dearest, but will often keep the owner in disappointed expectation over Christmas, and even up to February. Food meanwhile is being consumed by full-grown birds through November, December, and January without the return of a penny, and this causes the balance to be on the wrong side. In February and March broody hens are scarce and dear, in May they abound, and all the ordinary poultry-keepers hatch then, whereas half the number produced in March would repay the extra labour and care. For those who intend exhibition and the culture of perfect prize stock, energy in early hatching is a necessity. The later the chicks come after the end of March, the less *size* will they attain. May birds are often stunted in growth, and are too late for shows. They are also worthless for breeding stock, as their eggs will be too late. The

eggs of a pullet hatched in February may be trusted to produce vigorous chickens the following February. She will have laid one batch of eggs about August, and will be in full lay during February. When mated with an adult cock her eggs will be as valuable as those of the adult hen. If table birds are in view the case is the same, or even stronger. By using an incubator, and having chicks out in December and January, a long price should be obtained for real spring chickens in March and April, when they are dearest. The exhibitor who can produce prize-takers for the early shows of August and September has a double advantage, in getting some of his prizes early, and being able to keep those birds peacefully at home afterwards in November and December, preparatory to the hatching time, a matter of the highest importance, for it is futile to attempt to hatch from birds travelling about from place to place; and yet not to make use of your prize-winners to breed from must be fatal to the improvement of stock. The difficulties of rearing early stock are greatly reduced by the use of incubators, which render one independent of the sitting hen, which would cost in December almost her weight in silver. Incubators should be filled and started into working order on the 1st of December, at any rate, and the first eggs put in so as to hatch out the 1st of the new year. The next difficulty at that season will be to secure fertile eggs. (*See Eggs.*) This done, and the

chickens to hand, the first object will be, if with hens, to lodge them in perfectly dry sheds—or poultry-houses—and shelter from east winds. The food should be given often, and *warm*, and should never be neglected; punctual feeding every two hours will be imperative in cold weather, and a late meal at 10. p.m.; warm milk, meat, and tonics will be an assistance. Do not coop up the hen in a room; fresh air, however cold, is better. With the incubator, chicks, the best place, if available, is a large and late vinery, where from January to April the vines are at rest, and frost merely kept out. Temperature about 50°, windows open, and the door too on fine days, so that the elder chicks may wander out if they choose. Here the rearing mothers may stand. For a few days new broods should be kept round their mother within the bounds of a park—or wire enclosure—till they learn to seek their own rearer for warmth, then the enclosure may be raised on bricks, and the little ones have free range. They should always be fed in the enclosure, and this should just be raised off the ground enough to let the little ones in to extra delicate food while the elders feed outside.

The soil of the vinery may be raked and dug over daily, and a heap of sand and mortar siftings kept supplied. Green food should be given daily. Brought up in this way, whatever the weather, the chickens will be vigorous. No cases of diarrhoea or roup ever occur, and cramp will be a rare ailment. The vinery should not

be over-heated, and with even a low degree of artificial heat air must be given freely. In this way, without trouble, every ray of sunshine is secured, and damp utterly excluded. Any one rearing early chickens would be amply repaid the expense of erecting a glass house for the purpose. It should have hot water pipes and ample ventilating arrangements, with large windows. The sale of winter-hatched broods, even for table purposes, would soon pay a high percentage on the outlay.

Early Opening of Houses.

—This has much to do with health, and if birds who rise with the sun are stived up in close, ill-ventilated roosting-places till 7 and 8 a.m., no success will attend the mismanaging owner. The roosting-house should open into a covered run which the birds can enter at their own free will, to find a little food and to amuse themselves till the attendant comes his rounds, which he must do in summer at 6 a.m.

Early Roosting.—Chickens of some breeds even two and three weeks old are very fond of roosting. Care should be taken to remove anything high, for the danger is great to the breast-bone if they come down from a height when very young. But it is well to provide roosting-places, such as reversed boxes, covered with sand or straw, or broad perches very near the ground, as the exercise and amusement of hopping up and down is good, and if placed in the sun, the chicks will delight to congregate upon them

and preen themselves after meals. For night roosts perches are not desirable; shelves sanded and covered with chopped straw are best. (*See CROOKED BREASTS.*) Under any circumstances, perches should be broad, so that fowls can conveniently stand up and walk along their length, without any difficulty in balancing themselves, and not too high.

Earth Deodoriser.—A supply of sifted earth and sand should be at hand (where the birds cannot taint it) for the purpose of deodorising and re-earthing the floors of all artificial mothers and sleeping shelves. Nothing destroys offensive smell better than earth, and if freely used, with occasional dredgings of sulphur, bad air and vermin will be avoided. The earth should be sifted or screened. If small chicks sleep on lumpy beds of earth, the delicate and fragile breast-bone may be injured by the pressure of even one night's lodging on an improperly made bed.

East Indian Ducks.—(*See BLACK EAST INDIAN.*)

Economy in food may be secured by buying the best uninjured grain, and seeing that not more than one woman's handful of grain is given to each fowl for a meal; this is enough, and none will remain on the ground. In building houses it is an economy to remember that at timber yards wood is sold cheaper in short lengths than in long, and that if the length for partitions, &c., be fixed on at first a

saving is effected by ordering all to be sawn to lengths at the timber yard; by this labour and material are economised. The price of boarding also varies as much as does the silk for a lady's dress. Accurate measurements should be made, so as to avoid cutting up to waste.

Eggs.—*Addled* are those which, being unfertile, get jarred or chilled, and are then sat upon to the end of the incubation period, and become decomposed. They exude an offensive moisture, and if broken, explode with noise and smell. Remove such eggs as soon as detected, as their presence in the incubator or nest is fatal to success in hatching.

Barren or Unfertile Eggs may be taken out of the nest a week or five days after they have been sat upon. They should be examined with an ovoscope by the aid of a candle or lamp; those which are barren will be found perfectly devoid of veining, and the yolk will be seen to sway about from side to side with the least movement of the hand; such eggs are fit for cooking, and perfectly wholesome.

Blood-stained Eggs.—The first laid by a pullet or hen after moulting may be slightly so, and it need not give any cause for alarm.

Broken Eggs in the Nest.—Plunge those remaining unbroken into warm water at 105°, and wash them clean while the straw of the nest is replaced and all made sweet. If any of the eggs are only cracked, at once apply

sticking-plaster or gold-beater's skin, and patch the crack up firmly to exclude all air. The chicks will hatch out in most cases quite well.

Chilled in Hatching.—The time at which the chill becomes fatal seems to vary according to circumstances, weather, position, period of incubation, and so on. Twenty minutes' exposure in cold weather, and in a draughty place, will addle a sitting, and yet chicks have come out when the hen has been absent an hour or two and even more, and the eggs have been quite cold. Eggs are more liable to chill after two or three days' incubation than towards the close. If a hen leaves her nest, and the eggs are found chilled, place them at once in water at 105° while you secure and settle or replace the hen, and then let her sit on to the end of her time; the ovoscope will here be useful, as it will enable you to see if life still exists, and if not time may be saved by resetting the hen.

Colour of Ducks' Eggs.—Varies from pure white to cream-colour and to bright green. Pekin and Aylesbury ducks are no exception to this rule; it does not affect the produce in any way, nor can it be accounted for.

Colour of Hens' Eggs.—Asiatic breeds lay eggs from deep chocolate through every shade of coffee colour, while the Spanish, Hamburg, and Italian breeds are known for the pure white of the eggshell. A cross, however remote, with Asiatics will cause even the last-

named breeds to lay an egg slightly tinted.

Egg-bound.—The best cure for this is a table-spoonful of warm treacle, into which chopped groundsel is mixed, giving it warm.

Fertility of Eggs depends on the number of hens to each cock, on the space allowed for the run, if any, and on the age of the male birds; all efforts to ensure it are negatived by improper and over feeding. The eggs of very large exhibition birds, bred for size and feather, are very often unfertile, and eggs from pens where the birds are constantly travelling to shows are, as a rule, less fertile than others. Leghorns seem to suffer less from this than some other breeds. Changing cocks about in the midst of the breeding season will make the eggs unfertile, though it may be only to exchange them from one home pen to another.

Foretelling Sex of Chick.—No rule can be laid down about this, and the shape of the egg has nothing to do with it. Early broods bring most *cocks*, late broods the pullets. This is generally the case, but no rule is reliable.

To Hatch Early.—An incubator is a great advantage for this purpose: in November and December, January and February, sitting hens are hardly to be got, and the incubator can be worked independently of weather. Chills must be guarded against, and are specially dangerous early, the fertility of the eggs being

less vigorous than it is later on, and a batch of eggs may be easily addled. Brahma hens kept in a warm place are the most likely to sit early. Nests should be made in a sheltered warm situation, as excessive cold will cause a hen to leave her nest; and if she is comfortably housed and her food given warm (baked grain dry) in severe weather she will be more likely to keep steady. While the hen is off feeding pour boiling water round the nest daily during the third week. In severe frost a handful of dry hay cast over the eggs while the hen feeds keeps them from too severe a chill.

Increasing Egg-production.—Mark those hens in your flock remarkable for the size or the number of their eggs, and hatch their eggs in preference for laying stock. Choose breeds which do not sit. Do not over-feed or fatten, and keep laying hens in an active hungry state; do not, however, run into extremes and under-feed them; they must have plenty and yet always be ready for food. Do not keep old hens, two years is the *outside* limit. Birds hatched, say, in March, 1880, should, on an egg-farm, be killed for table on the first signs of moult in autumn, 1881; they are then quite young and fetch a good price, and will *not* be so valuable in 1882. Laying hens should not have too much fattening soft food; sound grain in variety is the best diet, and plenty of green food, oyster-shell, and mortar rubbish.

Preserving Eggs for Sitting.—

If the eggs are from prize stock, each egg should be marked with the date or number of the prize pen; the mark should be placed on the small end of the egg, otherwise the chick in pecking out is apt to obliterate all traces of it. The eggs should be collected in a basket containing bran or hay chaff, and afterwards placed in a box (with a lid), in bran, *small end up*; they should be entirely covered up in the bran. Perfectly new-laid eggs *must* be used for incubator work; under hens staler eggs will hatch. I have known eggs hatch when placed under the hen at fourteen days old, and this after the railway journey from Aylesbury to St. Petersburg; but new-laid eggs are always to be preferred.

Moistening Eggs.—In hot dry summer weather watering the hatching nest with water at 105° from a fine rose water-pot while the hen eats her daily meal is a good practice; in cold weather pour boiling water round the nest. In an incubator do *not* water the eggs, but get the moisture required from wet earth trays.

Packing Eggs.—The greatest care should be used if the eggs are for hatching. Hampers of a fair size should be selected, lined well with moss or soft broken hay. Every egg should be gently enveloped in soft newspaper with a wisp of hay outside each egg (moss is better if to be had); the eggs should then be bedded, *small end up*, in the moss-lined basket as firmly

as may be, with plenty of moss or hay between each egg to prevent shaking; and a good wad of moss must be put on the top of all; the basket-lid must then be sewed on with a packing needle and twine, and very distinct directions should be added to "Deliver at Once; Eggs for Hatching; Not to be Shaken." Eggs should on no account be wrapped in paper and then put in sawdust, cork chips, or bran; all these materials shake away from the eggs during a railway journey, and the jars then received ruin all hope of a good hatch. Another mistake is *nailing* down the lid of the box (in which eggs are packed); the blows of a hammer are fatal. The size of the little hampers and baskets sent is often too small, they are very natty to look at, but a larger hamper would allow of *more* packing medium, and the extra weight would be willingly paid for by those who expend pounds on prize eggs and find them too often ruined by bad packing.

Preserving Eggs for Winter Use.

—To ensure success, whatever the keeping medium, place the eggs into it as fast as collected from the nest. If they lie about here and there, exposed to air and sun and movement even for a day, the result will not be satisfactory. The ways to preserve eggs for winter are various:—

No. 1. Dissolve quicklime in water, and add a little cream of tartar, put in as laid, and see that the water quite covers the eggs.

No. 2. Rub the eggs with

lard, or butter, or oil, and immerse in bran.

No. 3. Bury the eggs in powdered unslaked lime.

No. 4. Bed in salt.

No. 5. The French method: Varnish the eggs with varnish of linseed-oil and beeswax.

No. 6. Smear the eggs over with linseed-oil, and place them in dry sand.

No. 7. Rub in butter, and store the eggs in boxes well closed down, pasting paper over the cracks so as to exclude air; keep in a cold place.

Round and Long Eggs.—Round eggs are said to produce pullets; long eggs, cockerels—a fallacy, and proved to be incorrect.

To secure Eggs all year round.—Keep an incubator going; and if your runs are on a small scale, hatch out, say, twelve chickens every month, beginning in December and continue till May. These should provide pullets enough to keep the egg-basket full all the year round for a small family.

Selecting Eggs for Sitting.—Very round and very pointed eggs should be rejected, also very small and extra large ones. Double eggs never hatch well, they produce deformities. Medium-sized eggs are more vigorously fertile than others. Eggs that are rough-shelled or brittle are bad, and crooked, misshapen eggs bespeak a delicate, consumptive strain of fowls. Never place dirty eggs in a nest: wash in tepid water with a sponge till clean. Ducks' eggs, particularly, should always be cleansed. In

an incubator, where so much depends upon the purity of the air, this is doubly important. Water for washing should be 105° F.

Soft Eggs.—Hens often lay soft eggs, devoid of shell. This arises from several causes, the most common being the want of material to form shell where birds have only earth or grass or a paved yard. Another cause is over-feeding with rich, soft, stimulating diet. Reduce the quality and quantity; give more dry dari and wheat grain, less of soft food, and add powdered oyster-shells, mortar-gravel, grit, or the cleaning and chippings of lime from boilers. Nests dirty and insufficient in number will cause hens to drop their eggs prematurely; the egg gets broken, and then not unfrequently the juicy morsel is eaten up, and a taste for egg-eating is formed. If proper management does not soon avert or cure the evil, try physic:

No. 1. Diet on rice and potatoes sparingly given, and a pill of one grain of calomel, with one-twelfth of grain of tartar emetic.

No. 2. Dose well with castor oil; put old nails or old keys in the water-tin, or two lumps (size of filberts) of sulphate of iron to the gallon of water.

Test of Fresh Eggs.—The fresher the eggs, the smaller the air-chamber. This can be seen at the broad end of the egg if it be held up against a strong light in a dark room. Stale eggs have a mottled, greyish

look about them; and a new-laid egg will always give a feeling of warmth if the tongue is pressed to the large end.

Small Yolkless Eggs.—This, again, is a sign of over-feeding—and most likely an exclusive diet of Indian corn, with little exercise and no green food.

Egg-eaters.—Such hens must be sharply looked after. Where only a few fowls are kept near the house, the evil has been overcome by taking the eggs as soon as laid, but this is impossible in large runs; and unless very valuable for prize breeding, the offender should be killed at once: it is a fault easily taught to other hens. A good plan for finding out the culprit is to put some eggs about the yard, or run, and to let the hens out; the offender will rush at the egg and commence breaking it, and in a moment will swallow it down. Next, place some stone eggs about, and one real egg, *blown*, and filled with mustard and cayenne pepper; the offender will peck away at the stone eggs, and at last seize on the hot one. This lesson is sometimes, but not always, successful. Nests adapted to save the eggs of egg-eating hens are advertised in the poultry-journals, and are useful should it be necessary to keep birds which have contracted this very objectionable habit.

Number and Weight of Eggs.—Andalusians, Minorcas, and Leghorns vie with each other and with the Hamburgs as layers, and contest the right to the title of everlasting layers. Their egg-

production is enormous, and the size of the eggs of the two first-named breeds is very large in proportion to the size of the hens.

Light Brahma and Partridge Cochin lay 7 eggs to lb., about 130 per ann.; Cochins—Buff, White, and Black, 8 to lb., about 125 per ann.; Houdans, 8 to lb., about 150 per ann.; Dark Brahma, 8 to lb., about 120 per ann.; La Flèche, 7 to lb., about 130 per ann.; Black Spanish, 7 to lb., about 140 per ann.; Leghorns, 9 to lb., about 160 per ann.; Hamburgs, 10 to lb., about 160 per ann.; Polish, 9 to lb., about 125 per ann.; Bantams, 16 to lb., about 90 per ann.; Andalusians, 6 to lb., about 180 to 200 per ann.; Minorcas, 8 to lb., about 180 per ann.

The Andalusian egg has an advantage over others in that over-boiling does not render the albumen, or white, tough; and it may be remarked that though the egg is large, the hen is *small*, and by no means a greedy feeder. The Andalusian and Minorca, therefore, seem well adapted for farm purposes.

Egyptian Geese.—Grey and black upper bodies, with buff or yellow underneath; eye orange, bill purple, and legs yellow. Very ornamental, and will breed in confinement, but they are pugnacious and quarrelsome. They lay about six eggs during the breeding season when in confinement.

Elephantiasis.—An accumulation of scurf and scales on the legs of Asiatics, and especially

White Cochins. Exposure to cold brings it on, and standing about in wet grounds. If neglected, scale collects upon scale nearly an inch thick. The affection is sometimes hereditary. A good scrubbing when it is first seen with hot water and soap, and a subsequent rubbing with sulphur ointment will prevent its accumulating; sulphur taken internally is also good; cocoonut-oil and tumeric ointment rubbed into the legs is also excellent.

Embden Geese.—Pure white; flesh-coloured bills, and deep orange feet; of erect carriage, very low down behind, almost touching the ground. Prize young birds weigh up to 27 lbs., and old Birmingham prize ganders have reached 32½ lbs. 20 lbs. is a fair average weight. The eggs are white; four can be put to hatch under a large Cochin or Brahma or a Turkey hen, sprinkled with warm water daily, as they dry up very easily, the shell being rough and thick. Incubation takes thirty days. Goslings are reared like ducklings, but green food is an absolute necessity, and chives or green onion-tops are excellent. When fledged, goslings will find their own keep in a large orchard or field, and a few weeks' feeding on meals and wheat or oats will, if shut up at the beginning of November, get them ready for the Christmas table. Large ponds are not necessary; even a good large tub will suffice. The breast down of the Embden goose is very valuable.

Enemies to the Poultry-

yard.—*Foxes* must be locked out of roosting-places, or they will kill all the birds, however numerous, and bury what they cannot at once consume. Wire fencing, however high, will not exclude them; it is best to padlock the doors, and if perforated zinc is nailed over windows and ventilating openings all will be secure. Valuable fowls should always have a wired-in covered run, into which they should have free access whenever they feel disposed, and where they can remain till the attendant unlocks the door to the grass-runs.

Rats must be exterminated at any cost; they carry eggs away bodily, kill chickens, and have been known to lame ducks by biting their feet. Oil of rhodium is an infallible bait for rats; drop it on poisoned bread and butter (being careful to exclude every bird and animal first), place the pieces about on the ground not less than two yards from a hole. Get poison that will kill almost instantaneously before the rat can reach the hole, such as Battle's vermin-killer. Be sure to count the pieces of poisoned bread, and collect very carefully. Rat-holes should be filled in with broken glass, and hot tar should be poured in wherever there is any trace of their visits. Traps should be kept baited, and a terrier dog or a good cat should be kept on the premises.

Cats.—Strange cats are dangerous to young chickens only. These must, however, be carefully penned up at night in covered wire runs attached to the hen-

coops. A large box-trap baited with fried meat or toasted herring will gradually help to reduce the evil if persevered with. If *every* cat is not killed many may be, and the rest get such a fright as will prevent their haunting that particular run again.

Hawks and *Carrion Crows* are dangerous to chicks; pen near the dwelling-house when very small.

Lice.—Hot lime whitewashing thrice yearly of all poultry-houses and appliances, while the floors, dust-heap, dusting-boxes, nest-places, and every corner are well watered through a coarse rose waterpot with hot lime, in which carbolic acid (a wine-glassful to the gallon) has been dissolved, will effectually destroy and keep the places free from these pests. Should they attack the chicks themselves, powder them till yellow as canary-birds with sulphur, in which M'Dougall's disinfecting powder has been mixed, or use Persian insect powder from a fine dredger; the effect is instantaneous, and sickly chicks will make rapid strides towards vigorous health in a day or two.

Mice do no bodily injury, but disturb the sleep of poultry at night and worry sitting hens. They eat up valuable food.

Traps of all sorts should be kept set, and an occasional bout of poisoning when pens are empty is most effectual. A cat which can be trusted amongst chickens is of the highest value.

Entry for Shows must be made on the proper forms sent with the schedules.

Epsom Salts.—A small quantity given occasionally, mixed into the soft food, encourages laying, but care must be taken not to give much, as it will produce scouring; one table-spoonful to 25 birds is enough.

Eruptions.—Scurfy heads, or scurfy scabs on the ear-lobes. This state of things indicates want of green food, and that the birds are kept in ill-managed dirty yards. Castor oil two or three times at intervals of two to three days, and powdered sulphur in the food. Turmeric and cocoanut-oil ointment may be rubbed on the scurfy parts, and all will soon be well.

Excessive Feeding.—One of the most common causes of disease and loss in the poultry-yard. No food should ever be left on the ground; any so left shows that the birds are getting more than is good for them. A good plan for the inexperienced poultry-feeder to go by is this: At the morning meal, which is of soft food, place it in pans or tins, several, according to the number of the fowls, so that all may have a fair chance of feeding without overcrowding; leave the birds for twenty minutes, after which return and remove any remnants left, leaving none behind. The birds will have eaten as much as they require, and over that mark there is danger of bringing on internal disorders of the liver and stomach, loss of feathers, laying of soft eggs, unfertile eggs, and every poultry ailment under the sun.

Exhibiting. — (See PRIZE BIRDS.)

Face.—The face of a bird is the bare skin round the eye; in the Spanish breeds it should be pure opaque, white in colour; and in all others brilliant coral red, splashes or specks of white on the red being a drawback, and for showing a disqualification.

Failures in Poultry-keeping.—Chiefly due to a mistaken idea that poultry can be made profitable and a source of wealth or income without any outlay, everything being expected from whilst nothing is done for the birds. Some of the most common causes of failure seem to be from want of cleanliness, over-feeding, and that on injudiciously arranged diet, from trying to keep too large a stock of fowls for the space available, and, perhaps, too many varieties. Want of dry shelter is a common cause of disease. It is not enough for the roosting-house to be dry; there must be a space where air and light can enter freely, where the birds will resort on wet days to dust and preen themselves. If poultry is kept for sale of eggs and chickens, &c., a railway near at hand is indispensable; and the soil should be dry and sandy rather than clay, with plenty of shelter in the way of orchards or shrubberies. Want of knowledge as to trussing and preparing poultry for market is one cause of the low prices paid to amateurs for their produce,

and another drawback is that so many start poultry-work with old barn-door birds, of very inferior type, and poor both as layers and fatteners.

False Sickles.—These have been known to have been artificially fixed on to a cock's tail, and the bird so fraudulently decorated has actually won prizes until the deceit was discovered, and the exhibitor's practices very rightly made public.

Fancy Points.—It is a usual remark that fanciers "breeding for feather" or for "fancy points" are really doing harm, inasmuch as the breeds deteriorate in their hands for all economic purposes; and yet it is very certain that the improvement in useful farm poultry of late years is due to the fancier, for it is from his runs that birds kept for commercial purposes only are crossed and resuscitated. Birds kept for table purposes, and as egg-producers, are seldom of pure breed; the first cross is sought for, and it is out of the hundreds raised by the breeders of pure strains that the crosses are obtained, and the race improved for economic purposes. Had the fancier no high standard of feather, &c., to breed to, and that difficult of attainment, there would be no object in his hatching and feeding with such scrupulous care the hundreds of pure birds he now produces yearly. To enable him to pick out three or four, or even one, ideal bird, true to fancy

points and fit to win at large shows, some hundreds must be hatched and fed extra well from the first, and it is those that fail of perfection which give the useful first cross for economic purposes.

Farm Poultry.—The present system of keeping farm poultry cannot answer, but great strides are being made towards an improved state of things, and the subject is being thoroughly ventilated. There is no doubt that on a farm there are special advantages for poultry-keeping on a large scale. Barns and extensive sheds for sheltering carts, &c., &c., are at hand, which, without building especially for the fowls, can be adapted to supply admirable poultry accommodation. The ricks of hay and wheat, &c., if properly raised from the ground to avoid harbouring rats and damp, also give shelter; and even if the farm is small it should be capable of supplying the greater part of the corn and meal used, for birds, with ample range and the gleanings of the rick-yard at command, forage largely on their own account. System and attention are wanted, and common sense, which the women of the farm, to whose management the poultry are left, as a rule, do not possess. Old birds are kept year after year, from which supply of eggs must be small, and, as a rule, the hens are fattened and the chickens under-fed. No pains are taken to hatch early, and thus eggs are not to be had during those months when

they gain the highest price. Feeding is irregular, and the food given is seldom varied, whereas we know that variety is specially good for poultry. The farmer's wife seems unable to name any other grains but Indian corn and cullen wheat; whereas she should grow, besides these, a small patch of barley, buckwheat, and sunflowers, also oats for grinding to meal. Fresh water is never supplied, the birds usually drinking from the drainings of the manure-house and the poultry roosting-house is cleaned out, perhaps, twice a year; the manure is supposed "to keep the fowls warm." The number of birds, too, as compared with the acres at command of grass, mangold, turnip, and other fields, is absurdly small; and whereas the fancier with love for poultry will within the space of seventy feet by fifty produce and rear over 200 birds for table, egg, and show purposes, the farm poultry on some seventy acres will not count over 100 head, if so much. The farmer will carefully breed from his best stock, the best milkers, and the best fatteners, in cattle and pigs, the sheep producing most lambs, all are carefully perpetuated, but no trouble is taken about the progeny of the best laying hen. Mongrels are started with, and bred in-and-in year after year; the race deteriorates in egg-production and in size; whereas a pure breed, or at least a first cross, should be started with, and these birds should be mated with a pure-bred cock of another breed

—fresh blood should be introduced from time to time. With all his blind neglect and ignorant mismanagement going on, it is no wonder that farm poultry pay shillings only where they should bring pounds. Many farmers consider that poultry injure the crops. It must be said that some thirty or forty head roaming over a mangold field do forage and trample on the leaves pretty freely; but the question is whether the amount of good they do in killing insects of all kinds, especially slugs and wire-worms, does not compensate for the leaves they consume and destroy. It is the opinion of many high authorities that the good they do in this way exceeds the evil.

Farmyard Duck. — Here, again, the farmer as a rule is content with the veriest mongrels — small ducks, shallow in breast and of narrow shape, bearing no resemblance to the grand Rouen or Aylesbury, from which in times gone by they possibly have sprung. It is the rarest thing to find pure a Rouen, Aylesbury, or Pekin on any farm, and it is a great mistake; for the young of these well-known breeds will fatten up for table to 5 lbs. or 6 lbs. weight, without their feathers, in six or seven weeks with good management; whereas the farm duck can seldom be induced to lay on more than 3 lbs., and this at a larger cost of food, for the mongrel ducklings from a farm or elsewhere are of the greediest, and possess a most insatiable appetite. For egg-production,

too, the mongrel duck is useless. The eggs are small; and in November and December, when the early-hatched Aylesbury is hard at work, the complaint at the farm is that the ducks “don’t lay.” The laying farm ducks are supposed to require no food, and if it were not for slugs and worms and grazing would pick up a scanty living.

Fattening Ducks.—To fatten quickly, ducks should be fed on hard-boiled egg, like chickens, and with bread soaked in milk. After that time the quality of the food is not of moment, but an excellent diet is made by varying the following kinds of food:— Oatmeal mixed with skimmed milk; rice boiled and thinned with ditto, barley-meal stirred into liquor made by boiling down ox-liver, or meat-scrap from the butcher. Spratt’s Food is excellent, and pollards also for change. Many recommend chandlers’ greaves, but it is a coarse kind of food, and I prefer utilising the grease and dripping and fat which can be saved in a large housekeeping. A sheep’s head, price 6d., boiled down, and mixed with sharps or other meals, is excellent food. But with the best of food by all means give free range, as nothing will supply the stamina and vigour or press the young birds on so well as a free range and early roaming after slugs and worms, which abound at daybreak. In the daytime, between 11 a.m. and 4 p.m., ducklings should be penned up, after a good feed,

in a cool house, with brick or asphalte floor, covered with straw bed. Here they will appreciate a rest during the heat of the day, and be ready to forage again in the cool of the evening. Water should always be at hand for drinking purposes, but not for swimming in. Gravel with lime and chalk in it should be kept at hand, and a few handfuls cast into the drinking-trough; it aids digestion. Should there be no field or garden for the ducklings to roam in, care must be taken to give plenty of mown grass, lettuce, turnip-tops, or cabbage. And it would pay well to get small boys to collect worms for food; ducklings get on much faster when they can get this animal food. Cleanliness must be strictly attended to, and the beds and night-quarters must be dry and sweet.

Fattening Fowls.—This subject is described in great detail in many books and papers. The following hints may be useful to the novice in poultry-work. When a bird is to be put up for fattening it must be starved for some hours till very hungry. It must be fed during the whole fattening period very regularly at stated times; no food should be left after a meal; the coop must be very clean, and kept out of the sun, in a darkish place; the bird must not be allowed to see other birds running about, as this will make it uneasy, and retard the fattening process; the water must be kept pure and fresh.

No. 1. Fattening from the

shell: Give the little chicks chopped hard-boiled eggs and bread-crumbs, then Spratt's Food, for the first fortnight; after which add cooked meat chopped fine, and mixed with oatmeal and treacle. Corn steeped in milk is good later on.

No. 2. Take the birds when they have done growing, say, at four months, put them singly into fattening pens with barred floors, through which the droppings can fall, and feed them with any of the following foods:—Oatmeal and chopped suet; boiled potatoes; rice boiled in milk and treacle; or Sussex fashion, soft food of oatmeal mixed with milk or pot-liquor, pig's-fat, malt and sugar; suet is added the last week, and the birds are kept in faggot sheds, airy, but not cold.

Ordinary Fattening of Chicks.

—For the amateur, the penning up and cramming system is not an absolute necessity. When the birds are from three to four months old, isolate them from all other stock in healthy quarters, with a moderate, but wholesome, run. Feed them every three hours with all the above foods in turn, and any other kinds of food you can concoct likely to tempt the appetite. Let them eat as much as they will, and be careful to remove what is left. Let the tins be kept sweet and clean. Give ample green food, fresh air and sunshine, with means of seeking shelter from its rays as well. Birds so treated will make healthy, firm flesh, and fatten quickly, but will not be laden

with the soft fat which is laid on in the unhealthy air of the fattening pen. (See CRAMMING.)

Fattening à la Bresse.—The birds are kept on dry gravel, and fattened on buckwheat and maize meals ground fine as flour, and made into light porridge with milk.

Chicks should be ready without special feeding at four months old to kill, at from 3 lbs. to 4 lbs. weight.

Fattening Geese.—No amount of good food will fatten birds originally of a mongrel type. The quickest and best to lay on sound flesh are the produce of Embden geese crossed by a Toulouse gander. Do not proceed to fatten suddenly. After giving free range of stubble and grass fields, confine gradually, and at last wholly, in a partially dark place. Wheat and barley grain, and barley-meal with brewers' grains, fatten well. Goslings may be put up to fatten at five or six weeks; seven weeks should bring them to perfection. Maize is also good, and turnip and mangold-tops are greatly relished. Ponds are not required, but large troughs of water should stand about in the shade.

Fattening Turkeys.—Farmers' wives consider this a dangerous matter to deal with. The birds are said to be very delicate, and to require a peculiarly dry climate for success. Why this should be the case is a puzzle, seeing that the great turkey-producing counties of England—Norfolk and Cambridge—are

not remarkable for an extra *dry* climate. An April brood is the best. Fifteen is a good number, and they will fatten well on meal-food mixed warm, with milk, potatoes, barley, and wheat. Turnips chopped are good, and plenty of rubble and brick-dust should be at command. The larger the Turkey, the higher its value per pound. Turkeys must have shelter from rain: wet is their greatest foe.

Feathers are very valuable; and where over a hundred head of poultry are kept, should be looked after as a source of income.

Feather-eating.—A horrid practice, one might almost call it a disease, to which fowls brought up in confinement are liable. Malays and Houdans seem peculiarly apt to contract this habit, which dirt and crowding encourages. Idleness is one cause; poultry are often kept in a pen where they have no means of scratching about or amusing themselves. The earth should be forked up, thrown into heaps, and straw scattered over it; this will give occupation and tend to arrest the evil. Want of fresh water is another source of the disease; the water should be replenished often, and kept in the shade. Cabbages tied up whole and tightly to the walls of pens will amuse and serve to pass the time, and a piece of meat hung just within reach will be useful. Should any birds be so injured as to have the stumps of feathers bleeding these must be pulled out by the roots, and the

tender places anointed with a salve of vaseline mixed with carbolic acid, 10 grs. to the ounce. This will be healing, and at the same time unpalatable to the offending birds. Lettuce in large quantities should be given. Linseed made into a mash with pollards, boiled to a jelly, is excellent for the deranged system. If the case is desperate give daily $\frac{1}{8}$ to $\frac{1}{4}$ gr. of acetate of morphia. The offending bird should be removed from the run.

Feathers, Loss of.—Probably proceeds from deficient or unclean dusting arrangements. Fowls must have dust baths, and one pound of black sulphur now and then mixed with the rubble or sand is excellent for keeping feathers in good order. A few grains of carbonate of potass in water twice daily, and the application of petroleum ointment will produce a cure. Proper food is necessary for the preservation of plumage. Food without husk, such as dari, Indian corn, soaked bread, if given exclusively, will bring on loss of feather; barley, buckwheat, barley-meal, and pollards should be added. If the skin is bare and shows no growth of feather, rub in oil and turpentine in proportion of three to one till the feathers break through.

Feathering of the Legs and Feet.—Perfection in this is no mystery, as amateurs imagine; it is merely a matter of extreme care. A bird to be shown with perfect foot-feathering must not once get into damp or mud, must

not walk on stubble or rough earth; if not kept on a lawn, it must have soft straw to walk on in the pen.

Feeding.—*Hours for Feeding, and Food for Adult Birds.*—6 a.m. give warm soft food, as much as will be picked up greedily; let the birds follow the feeder out of the pens, asking for more; leave none on the ground. Food: Scraps from the house chopped up and mixed dry with pollards; barley or oatmeal mixed with hot water or pot liquor; Spratt's Food boiled up and allowed to cool, not mixed too wet, but in a crumbling mass. Potatoes, mangolds, turnips, all are good boiled down and mixed with pollards. Midday, give a little grain, just to amuse and occupy, thrown amongst the straw. (See CORN.) In the evening, the meal should be timed so as to take place just before roosting-time. It is most important not to send the birds to bed empty. Grain should be given, about a woman's handful to each bird, or even less if it is not picked up clean. To produce eggs give a cubic inch of bullock's liver, sheep's pluck, or meat to each fowl; ground red chillies also promote laying if mixed with the food. Notice that birds always refuse food which has fallen on or near manure; therefore avoid crowding, and see that you have a thoroughly clean spot on which to spread the food. The adult fowl, whether kept for breeding or laying purposes, must not be fattened.

Feeding Chickens.—The first food must be hard-boiled egg

chopped fine, with two parts bread-crumbs, some dry, some soaked in milk: second day, add meat cut fine in shreds; after this give Spratt's Food and various meals mixed with warm milk, or added to rice previously boiled in milk or water, with fat in it, or with sugar. Variety is most advantageous; milk given warm at 10 p.m. and 6 a.m., is an immense advantage. For early chicks the first grain should be grits ground, then the same whole, with a little hemp; after that, wheat, buckwheat, and barley; all may be given early if coarsely ground. Leave food over night, but never by day. Rice pudding warm, bits of meat and suet cut fine, are a great help to early chicks. All food is best thrown into and mixed in boiling water. Sugar now and then is greatly relished in rice food; remember to add bone-dust to all food. One peck mixed into a hundred-weight of oatmeal, or 1 oz. to pint, is about enough. This keeps off diarrhoea and promotes the growth of large solid frames, on which *fat* can be easily added when *growth* is accomplished. Raw bones chopped up or pounded do not attain these objects, they tend to hasten maturity and develop feather, therefore let the early exhibitor give it to his prize cockerels and pullets, to bring them on rapidly. Egg chopped, with canary-seed and shreds of lettuce leaves, is a nice mixture; bread and milk (boiled) and (*rarely*) bread and beer. Hemp, canary-seed, and meat crumbs are also good feed. Custards are not better than chopped egg, with milk

as a drink; oatmeal is superior to barley-meal or pollards. First and second week feed every two hours, then for a month every three hours; at two months four times a day is enough. The hours for feeding are from 6 a.m. to 10 p.m.—at intervals of two hours; then three; and lastly four—at 6, 11, 3, and 7 p.m. *Care should be taken not to omit a meal (on favourite food) at 10 p.m., up to two months. Not to give grain without grinding it to about the size of large pins' heads. Not to give barley-meal that has stood mixed up some time, as it is very apt to give diarrhoea. Not to let water be drunk which has stood long in the sun; not to give Indian meal or corn; not to miss, even a day, giving green food, chopped grass, lettuce, spinach, endive (avoid cabbage if possible). Wheat, oats, or barley, sown in pans or boxes placed in a stokehole, or some warm place, soon spring up, and the chicks greedily clean off the green shoots the moment it is put in reach; chopped chives are excellent. If there is great scarcity of green food it is a good plan to throw down daily a few handfuls of the sweepings of a hay loft; the seeds are very wholesome and are greatly relished by young chickens. Water should be kept fresh and clean, and a tonic should occasionally be added. Parrish's Food, one tablespoonful to the pint; or tincture of iron, one teaspoonful to the pint; or of sulphate of iron a piece the size of a filbert in the shell, and 10 drops of sulphuric acid to the gallon of water.*

Feeding for Exhibition.—Birds for show should be brought up as directed above, and then about three weeks before exhibition special diet should be given, fresh meat *ou-se* daily, a piece about the size of a walnut; plenty of green food, and twice a week linseed, boiled in water to a *jelly*. This mixed with Spratt and pollard is much liked, and will lay on flesh, and produce gloss on feathers. Bread-and-milk is excellent for birds that are going to or returning from a show; a few handfuls of hemp at odd times, and best wheat, will get the birds into grand order.

Felt.—Tarred is useful for covering roofs and buildings made of wood; it effectually keeps out wet, and if tarred and sanded over now and then lasts a considerable time.

Fencing Wire.—When putting up houses the lowest piece of wire should be of smaller mesh than the upper, so as to confine small chicks if necessary and to exclude rats. Care should be taken *not* to nail the upper part of wire fencing to strips of wood; though neater to the eye, it is better avoided, as the wooden strip, however light, gives the birds a foot rest, and they will attempt to fly on to it, which they will not do if it is merely strained wire at top. Asiatics will be kept in by a two-foot wire, other breeds require it from five to seven feet high.

Fifth Toe.—This bespeaks Dorking origin or cross, and London dealers give a better

price for birds with the fifth toe for table use. In the Houdan the fifth toe is now almost invariably perpetuated.

Fighting.—Extreme care should be taken to prevent this amongst prize birds, as five minutes' sparring may upset all chance of a cup or prize by injury to comb or feathers. Nail up tiffany to all partitions eighteen to twenty-four inches high; this prevents all danger. In cold weather a severe fight may be serious. If the birds are ailing after it, put nitric acid in the water sufficient to taste it, and give a capsule of cod-liver oil with quinine thrice daily. Slip a raw egg down the bird's throat now and then till vigour is restored.

Fleas.—A not infrequent but most unnecessary and disgraceful pest of the poultry yard. Whitewash three to four times a year, keep the places daily well cleaned, and such a visitation will seldom occur. :

To Destroy them, in an empty pen, paste up all cracks and holes, and burn a pound or two of broken sulphur in an iron vessel supported over water: let the fumes remain to do their work in the hen house all day, water the floor with carbolic acid solution, a wineglassful to a gallon, or pour turpentine in bad places.

Fleas get about the nests and building, rather than in the birds.

Flesh.—A decided aid to egg production, and during the winter months especially necess-

sary, as there is no insect life. Scraps from the butcher at three-pence a pound without bone can be procured, these parboiled, and chopped fine, with pollards mixed in with the stock, makes an excellent meat dish. An exclusively meat diet on horseflesh, or the tainted carcasses of animals unfit for human food, cannot improve the flavour of the eggs, and must be prejudicial to the health of birds. The French use horseflesh and a meat diet very largely. It would be an interesting experiment to try the effect of such feeding in England on a poultry farm where eggs are the chief object in view; this might easily be done by any one living near hunting kennels. (*See ANIMAL FOOD.*)

Floors.—Boards are not good, especially if chickens are to be brought up upon them, as they produce cramp. Concrete or brick is better, but nothing is so good as deep well-pulverised dry soil, which is also less expensive.

Food after Exhibition.—When the show birds return from their journey place them in their own pen and give soft food only, warm—Spratt or bread-and-milk, with very little water, as the birds (being possibly feverish from long confinement) are apt to drink without measure and to a dangerous extent. Should the crop be overcharged with whole Indian corn or fresh wheat, a teaspoonful of gin will perhaps save an illness.

Food during Moulting.—Same as for ordinary adult

laying stock, only a little more generous, and given warm; meat, ale, milk, and a little pepper (red chillies are cheapest and best), may be added.

Food for Chickens.—(*See CHICKENS; FEEDING CHICKS.*)

Fountains.—One of the cheapest and best home-made fountains is an ordinary flower-pot, reversed into a glazed saucer; fit a cork into the hole of the pot, fill it with water, and reverse it. For adult fowls tins which will hook on to the wire are excellent, as the water keeps clean in them. (*See WATER.*)

Foxes. (*See ENEMIES TO POULTRY.*)

French Breeds. (*See CREVECŒUR; HOUDAN; LA FLECHE; LA BRESSE; BREDAS; LE MANS; COURTES PATTES; DUCLAIR DUCK.*)

Fresh Blood.—If birds are bred in and in to any great extent many evils will ensue—loss of size, fewer eggs will be laid, and a general want of stamina will be observable. It is well, therefore, occasionally to purchase a cock from one of the best yards, and if it is for prize purposes, ascertain the pedigree, and if possible see the pen from which he was hatched. It is the easiest thing in the world to introduce a glaring defect into your flock, and one of the most difficult to breed a fault out. Where birds are kept in separate runs and pens the produce for the following year or two will not be so nearly related as to

require invigorating by fresh blood; in fact, any large breeder of a well-known strain will be very shy of introducing new stock for any purpose. By a wise system of crossing and separation, thoroughly unrelated birds should be kept ready to hand for the mating season. (See BUYING FOWLS.)

Fright.—Sudden fright or much hunting about is the frequent cause of soft eggs. With prize birds it must be avoided, as beating about may cause irreparable mischief.

Frizzled Fowls.—Their name describes their curled and crumpled-like plumage, which is in colour white, brown, or black. Small-boned birds, giving delicate meat. Some strains sit well, others are not good sitters. They lay early in the autumn, and are hardy. The chickens require long nursing, and fledge slowly.

Frost-bite.—Spanish, Andalusians, Minorcas, Leghorns, and all large-combed breeds, are specially subject to this. To prevent it, rub oil or vaseline over the comb with a sponge; but any fairly-kept birds should not be subject to this danger. Rub, if frozen, with snow or cold water, and apply zinc ointment or vaseline.

Galæna. (See GUINEA FOWLS.)

Game Fowls.—Qualities: most delicate table fowls, requiring no fattening, reaching 6 to 8 lb. weight when taken

off the run. The hens of good laying strains average 200 eggs per annum. They require extensive range, and are very quarrelsome; as mothers they are excellent. The chickens are easy to rear if dry shelter can be given; but eggs and custard must not be sparingly given at first, with chives and green food. Damp is very fatal. At seventeen weeks the dubbing operation is carried out—that is, the comb, wattles, and ear-lobes are removed. Birds recover from this, and are fit to exhibit in six weeks. No special feeding is necessary for show unless out of condition, when bread-and-milk boiled, and sound grain, will do wonders. Their use for cock-fighting is quite a thing of the past. Characteristics: a long, thin, keen head; smooth, fine face; if undubbed, upright combs; deaf-ears, wattles, and lobes very thin, fine, and red; neck long and arched; short hackle; body slight; broad shoulder, tapering to tail; breast full, firm; saddle narrow; tail a nice length, not spread; sickles, shortish but firm, hard, sound, compact, as all plumage should be; 4 to 8 lbs. weight; slim, elastic, vigorous, alert, courageous carriage. The varieties are Duckwings, Black, Black-breasted Red, Brown-breasted Red, Indian, Wheaten.

Game Bantams.—Produced by crossing Game with Bantams, and breeding in and in. All Game varieties have their facsimiles in miniature in the Bantam breeds; there are also Piles

or White-breasted Reds, as well as White, Black, and Wheaten Game Bantams. They are chiefly ornamental; though good layers, the eggs are too small to be valuable. Nothing can be prettier than a thorough-bred Bantam with a brood of its own progeny. They are faithful mothers, and highly courageous.

Gapes.—Caused by pale reddish worms lodged in the windpipe, from two to twelve in number, and about half an inch long; each worm has a parasite worm attached to it. They kill the chick by at last crowding the windpipe till breathing is impossible. Dirt and damp is, as usual, the cause of this, as of most diseases. If cleanliness and carbolic-acid disinfection is freely carried out gapes will be unknown. If cases occur, at once put fluid carbolate, camphor, or lime, in the water. If there are many cases, place the chicks in a cold pit (garden frame) and fumigate with vapour of carbolic acid till they are nearly suffocated by its fumes. Care must be taken to liberate the chicks at the right moment, or death will ensue, but if well done this is an effectual cure.

No. 2. Introduce an oiled feather into the windpipe, turn it twice and draw it out, when the worms will sometimes come with it.

No. 3. Give 1 gr. calomel, or 2 to 3 grs. of Plummer's pill; make the food hot with sulphur and ginger, and wash the mouth out with chloride of lime.

Geese. (*See* EMBDEN; EGYPTIAN; CHINESE; DANUBIAN; TOULOUSE.)

Giddiness.—Produced usually by over-feeding; reduce diet, and give aperient.

Gondooks.—An extinct breed of peculiar penguin-like poultry; tailless, and of very active lively carriage, five-toed, crested, bearded, with strikingly lustrous black plumage.

Gout.—Swelled, hot, and inflamed feet betoken gout. Rub the legs with oil, keep in warm quarters, and give aperient medicine, and then half a grain of extract of colchicum twice a day.

Grain. (*See* CORN.)

Grains.—Not a very favourite diet, but good for a change.

Grass.—If free range in grass fields is an impossibility, arrangements should be made with some country children to bring in supplies for a few pence weekly, as it is very necessary for health and egg-production, not to mention that on its abundance depends the metallic lustre or gloss and firmness of feather which bespeak robust health and successful poultry management.

Grass Run.—It is a good plan to combine hay-making with poultry-keeping. For six weeks before cutting the birds must be removed to another field, or put up in other quarters. This gives time for the run to rest and be purified, and the birds so kept will be in more robust health

than if kept from year's end to year's end on the same ground, where only a limited space of grass is available, and several pens open upon it. Each pen of birds must be let out in succession for a few hours' run, but at some period of the year the grass must have perfect rest. Grass runs are a luxury—not an essential—but the less grass the more care and work will be required to produce prize stock.

Gravel.—A lime gravel is the best, and it should be screened to remove any large pebbles which prevent the birds from dusting with comfort. Every load of gravel should be mixed with fine sand, or with fine mortar screenings.

Greaves can be procured of grocers and candle-makers—a coarse and unsavoury diet, recommended for fattening ducklings, but it should not be given, at any rate, during the last fourteen days, as it gives a coarse flavour to the fat. In winter it may be given boiled to adult birds if better animal food is not to be had. But it is coarse, ill-flavoured food.

Green Food.—The best is grass, cut fresh daily; 2nd, lettuce; 3rd, spinach; 4th, cabbage, chopped in a chopper, or tied up to the wall or to a post for the birds to peck at. Swedes, mangolds, prickly comfrey, and every kind of green refuse from the kitchen garden, are invaluable, and a daily supply *must be found*. If on a free run of turf, poultry will be seen to graze, like a flock of sheep. Hay refuse—out

of a hay-loft, full of seeds—gives much amusement in winter time, and is a good substitute when green stuff is low. Chickens should have grass, lettuce, and hay seeds, in preference to other green stuff.

Grey Dorking. (See SILVER-GREY.)

Ground, Cleanliness of.—Fowls will never touch food, if they can help it, which lies near any droppings or on an unclean place. Special care should be taken, therefore, to cleanse the ground of all pens and runs daily. The smaller the runs the greater must be the cleanliness and the labour spent on it.

Guinea Fowls are usually grey, having white spots on the grey ground; they are also pure white (more rare). If hatched on the land, they will remain and roost with the poultry or in neighbouring trees; but adult birds should never be bought, as they will inevitably fly away. The hens lay 100 eggs per annum, are very spiteful to the other poultry, and noisy early in the morning. They sit about August, and therefore it is wise to raise the chicks by artificial incubation, or by setting the eggs under a hen. Good chicken diet will suit the young ones, but more meat is necessary. The hens like concealed nests, which should be provided, or they will lay away. They are quarrelsome, and it is only when an extensive range is available that keeping the Galena is found to answer.

Hackle.—The flowing

feathers on the neck. Those on the saddle of the cock are also called hackles, but are distinguished as "saddle" hackles.

Hamburgs.—The varieties are Black, Gold-pencilled and spangled, Silver-pencilled and spangled, and Redcaps. The latter are like poorly-spangled Hamburgs, but they are very hardy and good layers, almost gone out, and seldom seen. All Hamburgs require free range, and are subject, if ill-kept in confinement, to colds and roup. They are said to lay 200 eggs per annum. They forage to a great extent for themselves, and are non-sitters. Chicks are easily reared under favourable circumstances, but sometimes suffer from leg-weakness. They want grass, frequent feeding, shelter from wet, and a run where they can be free from old birds. They require very careful breeding, and the competition in showing is enormous.

Their general characteristics: General look, smart, lively; graceful; double rose comb, tapering to a spike pointing backwards, full of points, even; deaf-ear, flat and white; wattles, neat; neck, long, arched; full hackles; large wings, neatly tucked up; breast, full and forward; tail, very full; curved sickles; about 5 lbs. in weight. In all varieties rose comb and leaden legs, no feathers.

In the Black variety the plumage of lustrous metallic black, with greensheen, the more lustrous the better. In size the largest of all varieties.

Gold-spangled: Ground-colour of red gold-bay, each feather heavily spangled with rich round marks of black. In the gold-pencilled the colour is a gold orange, with less heavy markings of black.

The Silver-pencilled and Silver-spangled have the same variety of the heavy and light black markings, but both on pure silver white. (See PENCILLED FEATHERS.)

Single combs or lopping ones, red lobes, any but leaden legs, and irregularity of pencilling or spangling would disqualify. (See BLACK HAMBURGS.)

Hampers. (See BASKETS FOR EXHIBITION.)

Handling Fowls.—If you catch a bird leaving its wings free, a desperate struggle will ensue, likely to injure exhibition plumage, or to distract the broody hen from her vocation. Approach the bird from behind, place both hands firmly and quickly right over the wing-joints, then slip the right hand down and secure the legs firmly. All fluttering will thus be avoided, and the bird, held by the legs, with the left hand under the breast, will not offer resistance. All catching and handling of birds should be done at night, or after first making the pen dark, if this is feasible.

Hard Feather means the *close, firm* appearance of a well-kept Game bird. To produce, feed on more grain than meal, and give plenty of run and green food.

Hardiman's Beetle Powder. (*See* LICE.)

Hardiness.—Hamburgs and Dorkings are supposed to be delicate, and perhaps are rather more so than others; but with due care and shelter most breeds will do well. Prevent overcrowding, damp lodging, and the necessity of standing about in mud and rain without shelter, and no breed need be considered too delicate. Leghorns and Andalusians seem very robust and fear nothing, except frost so severe as to nip their large combs.

Harm to Crops.—Mechi, who speaks with some authority on farming, considers that poultry do no harm to growing crops on farm-land; that, at any rate, the damage to roots and seeds is trifling in proportion to the good they effect in destroying insect life, and the wire-worm especially.

Hatching.—The best time is March. If very good sheltered runs, or well-ventilated slightly-heated greenhouses are available, January and February are equally good, but it is then more difficult to get fertile eggs. Birds hatched in the three first months of the year are of more value, and pay better in every way, than those hatched later. (*See* SITTING HEN; ARTIFICIAL INCUBATION.)

Hay.—Must not be used for poultry, as it generates vermin more readily than straw. (*See* GREEN FOOD.)

Heat.—More dangerous in roosting-places than cold; if

artificial heat is given, it must be with thorough ventilation, or consumption will ensue, roup, and loss of stamina. Heating of artificial mothers is much overdone, and too little ventilation given. The heat should not rise above 75° when all are asleep, or suffocation will cause losses; for the first three days, however, chicks must be kept very warm, and will repay particular care in this respect. If birds are kept in confined pens facing south, some shelter from the sun must be rigged up, tiffany or mats hung up for the midday hours; and the pen should be syringed with water; the fowls dust at once in the cool sprinkled earth.

Heather.—A good material for nests of all kinds. It is soft, springy, and keeps away vermin. It far surpasses straw or hay, and is only equalled by the bracken fern.

Hemp.—A great treat to all poultry, but if used too freely causes loss of feathers. A useful addition if the bird is out of condition, and where feeding up is required preparatory to showing.

Henny Game.—A variety known in Cornwall and Devonshire, its peculiarity being that the cock's plumage resembles the hen's. They are invincible fighters. They reach 9 lbs. in weight, and are in colour black, red, and grey, with pink legs and white skins; excellent as table-fowls.

Hens. (*See* AGE TO LAY; EGG-EATERS; SITTING HEN,

TREATMENT OF AND SETTING;
NESTS; NUMBER TO COCK.)

Hereditary Diseases and Evils.—Consumption (*which see*) is the disease most carefully to be guarded against. A consumptive strain will be a constant source of care and disappointment. Squirrel tail (*which see*) is sure to be reproduced in many of the young birds. Wry tail (*which see*) is also hereditary. Crooked breasts (*which see*). Thumb marks on combs (*which see*), and any peculiarity in the spikes of the comb. White face where red is the proper colour, is dangerously hereditary (*see* WHITE FACE). Ear-lobes splashed or marked with red where pure white is a point (*see* LOBES). Vulture hock (*which see*). All these defects will be reproduced. Birds with malformations or anything missing, such as being short of one toe, or having any peculiarities, should not be used for breeding.

Hoarseness.—Birds occasionally, during a wet or hard winter, become hoarse: the throat is evidently rough. Warm weather will remove this. Glycerine and nitric acid in the drinking water will be beneficial.

Hoppers.—Useful for soft food *if* your runs and pens are not in good order. It is fatal to throw food on ground soiled by manure; birds avoid it, waste ensues, the ground becomes sour and polluted, and a hotbed for evils of many kinds. If hoppers are used, they should be scraped quite clean daily (a whitewasher's

ceiling-scraper is a good tool), and should be scalded out every other day.

Horseflesh. (*See* ANIMAL FOOD.)

Hospital.—Every poultry-yard in which, say, even 100 birds are reared yearly should be provided with a place specially devoted for penning sick birds, where an invalid can be at once isolated and properly doctored if need be. This place must be open to the sun, screened from east wind, dust dry, freely ventilated, yet free from draught, and warm. The hospital should be whitewashed with hot lime frequently, and perfect cleanliness maintained.

Houdans.—*General Characteristics:* Birds of French breed, of upright carriage, in shape like a Polish Dorking; large, weighing 9 lbs. to 10 lbs.; combs large, like a butterfly with wings spread, a serrated bunch of coral; lobes almost hidden by full muffling beard, and a large, full crest; five toes, and foot like a Dorking, with a flowing, ample tail. Hens weigh 6 lbs.; legs are whitish-pink, and plumage speckled evenly black and white. Cock's tail, black; crest, more white than black. Excellent for market and table purposes, small bones, and fine white flesh; ready for table at four months, when well-fed birds will weigh 4 lbs. to 5 lbs. The hens do not sit, and lay large white eggs. The uneven marking makes them very difficult to rear for feather. Houdan chicks are very preco-

cious and active. The appearance of first-rate Houdan chicks is mottled; sides, white; also head, back, and back part of wings, black; five toes, and crest light. The cocks are very vigorous, and unfertile eggs rare. They bear confinement well, provided they do not contract the vice of feather-eating, to which the breed is addicted.

Hydro - Incubator. (See ARTIFICIAL INCUBATION.)

Hydro-Mother. (See ARTIFICIAL REARING OF CHICKENS.)

Imported Poultry and Eggs.—The fact that two millions is paid yearly out of this country for eggs, and some six millions more for poultry for table, must prove a great incentive to energetic poultry keeping, and is surely a proof that poultry can be kept with profit if the subject is treated with the seriousness which it deserves.

In-breeding means mating the birds of one pen together, and these again with the cockerels and pullets produced by their eggs. This must be avoided, or the fertility of the eggs will be unsatisfactory, the produce will diminish in size, and the health of the strain will suffer. To avoid it a cockerel or two should be bought yearly from other yards, or some pens must be kept so thoroughly apart that relationships will not be too close. (See BUYING NEW STOCK.)

Incubators (See ARTIFICIAL INCUBATION.)

Indian Ducks. (See BLACK EAST INDIAN.)

Indian Corn.—A favourite grain with all poultry, but not good food unless the birds are on a wide range, being too fattening.

Indian Game.—Game with a cross of the Malay. Cornwall and Devonshire are noted for producing the best. They are larger than pure Game or Malay, and much more elegant

Indigestion shows itself by the birds going about moping, and disliking plain food. Give 5 or 6 grs. of rhubarb and once or twice a grain of calomel; feed on cooked soft food, and let the bird walk about free, in a garden if possible, where it will pick up what is wholesome for itself.

Inflammation of the Bowels. (See DIARRHOEA.)

Inflammation of the Lungs.—A sudden chill is the usual cause of this dangerous malady, and it is especially necessary to guard against it with artificially-reared chicks very early in the season. Going out early in cold March winds, after having nestled very warm (it may be too warm) under a hot-water mother is most productive of this well-nigh incurable illness. A healthy strain will not be subject to this disease unless unduly exposed.

Insect Food.—Wood-lice, worms, ants' nests, and maggots,

are excellent food for young chickens. Ants' nests can be procured by country children; and for a supply of maggots, place some mealworms in an open shed in a box with part of an old mealbag; put in a dead bird now and then, and a regular supply can be kept up. (See ANIMAL FOOD; FEEDING.)

Brewers' Grains thrown in a heap and a dead bird or rat buried in them will also produce a supply of maggots.

Iron. (See TONICS.)

Jalap.—One tablespoonful to twenty-five birds in the food promotes laying.

January, Work for.—Exhibition work should now entirely cease, unless the establishment is so large that the show cocks are not required for breeding, or that the eggs from their pens are not wanted before the end of March. All pens should have been settled and mated a month ago. If wet or extra cold give stimulants, but avoid these when the weather is fine. Meat supply should be given daily. The early exhibitor must be busy. Hens hatching should be set in a quiet warm place; a deep bed of finely-sifted soil, quite wet and a foot in depth, should be laid down and the nest scooped out in it, and if the place is a dry and artificially warmed one, it should be lined with chopped straw. (See SITTING HEN: HER MANAGEMENT.) If very frosty put a very deep bed of straw, and mix fine ashes with the earth.

Hens will fidget and sit badly if they feel the cold. A handful of warm soft food is much relished by the sitters in cold weather, and helps to keep their blood warm. Chickens arriving early must be fed at 9 or 10 p.m., as darkness soon comes on, and not being able to feed till late, say 8 a.m. in the morning, the time of fasting is too long. Chopped eggs, and crumbs of bread and meat, make the best meal at night, with a little milk. An unheated vinery is the best place at this season, with doors open by day to let the broods out in fine weather. Birds not wanted for laying stock should now be sold or eaten, to free the pens and to rest the ground, preparatory to the advent of chickens. As regards breeding cocks, the more gallant they are to the hens the more necessary is it to feed them alone, otherwise they grow thin and low, and clear eggs will be the result. Keep all houses and nests very clean, for if cold or wet, the hens will congregate in them for warmth.

Japanese Bantams.—White bodies, with flowing black tails; very short yellow legs.

Jersey Blues. (See BUCKS COUNTY; ANDALUSIANS.)

Journeys, if long, are best accomplished by night. The darkness conduces to sleep and quiet, and an extra day of confinement and loss of food is not incurred. Twenty-four hours before the bird starts it is well to write a line to advise the

recipient of the fact, as delay is thus prevented.

July, Work for.—Notes for June may be carried out. The first shows now commence. Do not exhibit at small shows birds which may be fit for greater things; you will only stunt their growth and injure them; some exceptionally early birds, now in fine feather, may be exhibited. Vigorous weeding of the stock must commence, numbers will be ready for fattening, even if exhibition stock alone is kept. A bird with a marked defect should at once go to the condemned run, and be killed for table as wanted, or fattened, if crammed birds are appreciated. Eggs for winter should now be stored. Cleanliness must be insisted upon in every particular, for if neglected diarrhoea and vermin of all sorts will run riot. In a well-ordered poultry establishment such worries should be of the rarest occurrence. Begin to sell adult stock if not required for breeding, and kill off adult hens, if for soup and food, before any sign of moult comes on. Put all your exhibition baskets into a well-closed house or shed, and burn sulphur in a pan, leaving it for the day; this will kill any insects. Wash the baskets dry, and re-line ready for shows.

June, Work for.—Warm weather, with occasional wet, starts diarrhoea with chickens. Mix chalk with the food now and again as a preventive, and give *boiled*, instead of merely warmed, milk, first al-

lowing it to cool; do not let it stand about, or it will turn sour in a short time and become most prejudicial; give it as a first drink in the morning, and remove the pans when all are satisfied. (*See* DIARRHOEA.) Hatching prize and breeding stock will now have to be discontinued, the birds will not attain full size if hatched so late. Bantam and duck hatching may occupy the broody hens, who will be the better for being allowed to hatch a brood now, as they will moult the earlier, and so be sooner ready to lay. See that the sleeping places are well ventilated; the cooler birds sleep in hot weather the more healthy they are. Lime-wash all the houses, roosts, nests, and coops frequently, but choose dry weather for the operation. Water supply must be carefully looked to; neglect of this, dirty tins, sun-baked water, &c., are very injurious. Cleanse all receptacles once with hot water, and re-fill thrice daily.

Jungle Fowls.—The wild fowl of India, *Gallus Bankiva*: there are several species, but this is the most dispersed; it is like the Black-red Game. It is capable of being bred in domestication, and its flesh is excellent and very gamy. In size it comes between the Hamburgh and Bantams.

Keeping Birds in Condition. (*See* CONDITION.)

Keeping Eggs.—(*See* STORAGE.)

Killing.—Kill all hens over

two years; kill table chickens at four to six months. If breeding for prizes only, kill all "wasters" (*see* WASTERS); whatever the age, banish to the fattening pen the moment a serious fault is detected. They take the room and the delicate food of prize stock which requires every advantage.

Killing for Table.—This is done in various ways, but whatever be the manner let the birds fast for at least fourteen hours before death. One of the most humane methods is to tie up the legs and bind the cord twice or thrice round the wings, and then with a very sharp axe to chop off the head on a wooden block. Draw the skin at once over the stump after the bird has been hung up by the heels to bleed thoroughly. Another way is to cut the jugular vein, and bleed well.

Labels should be in large print, and never omit to write on them the hour at which the birds are despatched; it is a check on railway delay. Labels are always supplied properly numbered, &c., by the secretaries of shows. Some send the labels as a receipt for the entry fee; others, about three days before the day of despatch to the show, till which day there is no need to trouble about their non-arrival. (*See* BASKETS FOR EXHIBITION.)

La Bresse.—A writer in the poultry journals calls these after the French opinion, "volailles de luxe" and "bijoux." Created by long selection,

very fertile and prolific; they are five-toed, and resemble Dorkings, but are smaller; they are one of the best table fowls reared in France.

Laced Bantams. (*See* SEBRIGHT.)

Laced Feathers.—Have a narrow border round the edge different in colour or shade from the ground colour.

La Fleche.—Large, tall, erect birds, glossy green-black plumage, red face, white ears, and the less comb the better, but remarkable for its distinct points. They are fair layers, and very superior table fowls, though their legs are grey. For a damp climate—the breed is delicate—chickens should be reared with plenty of bone-dust and Parrish's Food.

Lameness. — Examine the feet, and if no cause can be discovered, then consider whether there are too few hens to each cock. This will produce a lame or feeble way of walking, and should at once be prevented by the addition of more hens to the pen.

Lancashire Mooneys. (*See* SILVER-SPANGLED HAMBURGH.)

Langshans. — A breed of poultry over which much controversy is now going on, and one daily growing more fashionable. To the eye of the ordinary fancier they much resemble Black Cochins. Splendid glossy black metallic-hued birds of Asiatic type, not *very* heavily feathered on legs, large, good layers and

mothers; first-rate for table and highly ornamental. (See Papers in *Live Stock Journal* for 1879 and 1880.)

Layers, Best.—Andalusians, Minorcas, Hamburgs, Leghorns.

Laying Early, To Secure.

—Hatch early, and do not move pullets about to various runs when they are maturing. Do not depend on old hens; but on March pullets, kept in warm quarters, fed on meat and plenty of green food, besides grain; occasional treats of bread soaked in ale, hot, and a few pounded chillies mixed in the food, and given hot at daybreak, will hasten the filling of the winter egg-basket.

Laying Stock, Age of.

(See AGE OF HENS AND PULLETS TO LAY.)

Laying Mixtures.—There are many mixtures and condiments advertised in the poultry journals daily which have the effect of stimulating the hen's laying powers if desired, but few will be needed, and many are prejudicial; and if the above diet is kept to, the birds must lay; if they do not, either suspect and look out for rats, or egg-eating hens in the flock, or a need for padlocks to the laying-pens. A very effective egg-producing mixture is 1 oz. of Glauber salts given in a meal of potatoes three or four days running, 1 oz. to ten fowls; but this must only be tried on common laying stock. It is effective, but dangerous, and must be used rarely and with caution.

Laying, To Prevent.—

Birds for show have at times to be kept back. They are in show form just when they begin to lay, and never look so well after. If you are early and wish to delay the laying and to prolong the period of growth, move the pullets about from one run to another.

Leghorns.—Brown and White varieties. They originally came from Leghorn, and were taken to America, where they seem to have been made a speciality, and from whence the best specimens have lately been procured. They are non-sitters, and most prolific layers. The eggs are, however, small. They are a vigorous and hardy race, range extensively for their food, and are very shy. The chickens are no trouble whatever; whether hatched by mothers or incubators, they are hardy, active, and robust from the first. The cockerels are precocious and strong, and must be early separated. In both varieties the cocks have large, upright combs, firmly set on the head, evenly serrated; they should be as smooth as possible, no creases or thumb-marks. The ear-lobes should be of a pure cream-like white, with no splash of red or tinge of yellow. The legs must be bright yellow, and delicate in shape.

In the White variety the plumage must be snow-white, without any yellow tinge; the neck arched; ample hackle; tail, full and upright. In the Brown the cock's hackles should be golden-bay, striped with black; and the

back red, each feather with a stripe of brighter bay; breast, full, forward, and black; wings, large, of a dark red, striped goldenish-bay, with a bar across of green-black lustrous hue; sickles, very long, of green, black, and glossy; carriage, important and upstanding.

Hens have falling combs; lobes, feet, &c., as in the cock; the breast, a light salmon-brown; neck-feathers, yellow, striped with black; back, soft brown, pencilled lightly; tail, black, pencilled at the edge with brown; legs, slender and yellow; appearance, well tucked up, neat, quick, and on the alert.

Leg-weakness. — Chickens brought up on boarded floors, without a free run or exercise, are subject to this; or if kept in heated places, or on too stimulating diet. To prevent it, from a week old give free range, with beds at night of dry, sandy earth to sleep upon. Feed with bone-dust mixed in meal, and give chemical food in the drinking water (*see* TONICS; DRINK), or thirty drops twice daily of the syrup of hypophosphite of soda.

Le Mans. — A French variety. A sort of inferior Crève, with less top-knot, and a look of the Polish breed. By no means one of the best French breeds.

Lice. (*See* VERMIN; PARASITES.)

Light-coloured Yolks. — These show an insufficiency of iron and sulphur in the food, also absence of green food.

Lime. — An absolute necessity

for the formation of the egg-shell, and for the proper action of the digestive organs. No fowls should be left without it. Any builder will supply old mortar and rubble for the cost of carting. This must be screened, and placed in dry covered runs.

Limit to Numbers. — It is pretty well ascertained that fowls do not succeed if kept in too large flocks, however extensive the range may be. If kept in separate flocks of fifty or less, they pay and answer better.

List of Foods. — *Grains:* Barley, buckwheat, dari, hemp, linseed, millet, maize, oats, Scotch groats, wheat.

Meals. — Barley-meal, Indian corn meal, linseed, oatmeal, sharps or pollards.

Aids in Feeding. — Bone-dust, Spratt's Food, rice, oyster-shell (prepared), greaves, crissel, Thorley's Spice, ground barleycorns, salt, meat, house-scrap, bones, liver, fat, fish, hay-seeds, sunflower-seeds, red chillies, &c.; green food of all sorts.

If feeding is carried out with judgment, and changes are rung upon the foods named above, the poultry will be kept in health, and will produce chicks with good vigorous constitutions.

Liver Disease. — Indigestion is often disregarded until it develops into disease of the liver. The birds mope about, show an irregular appetite, and a bilious yellow hue appears in place of the coral-red which a thoroughly healthy bird should show in face comb, and wattles. Doses of

aperient medicine, preceded by a grain or two grains of calomel, will at times effect a cure if the case is not of long standing.

Lobes, or Deaf-ears, are the folds of skin, either pure white or red, cream colour or blue, according to breed, which hang from the true ear, large in some races, as the Spanish, small in others, as in Dorkings. Whiteness is best preserved by keeping the birds out of strong sunshine. Fighting may produce an unsightly scar of the lobe if cocks get together. Oxide of zinc in powder dusted over the lobe will preserve it from the effects of hard weather, and zinc ointment (benzoated) will be found useful in softening and preserving the texture in show-birds. Should red ticks or spots appear, give less exposure. If brown spots appear on lobes originally pure white, they may be from too rich feeding. Reduce the diet, and doctor the lobes with glycerine and carbolic acid (5 grains to the ounce), or with sulphurous acid in water, 2½ drachms to the ounce.

Loss of Appetite.—When this occurs suddenly, give half a teaspoonful of Epsom salts; this will often start laying.

Maize. (See INDIAN CORN).

Malays.—Of East Indian origin. Tall, thin, and gaunt; very upstanding, with tapering tail; scanty in hackle; prominent breast; bony and savage appearance; thick curved neck, carried straight up; long bare legs, very scaly; head,

broad and long; expression, cruel; beak and claws, strong, like those of a wild bird; plumage, hard, firm, and lustrous. The varieties are White, Black, and Piled, some also like Red Game. Hens very like their mates; the tail, however, carried more upright. Weight, 6 lbs. to 8 lbs., or even 9 lbs. They make savage mothers, but are good sitters. Eggs, well flavoured. When crossed with Dorkings, they make good table-fowls, meaty in breast and wing.

Management of Chickens.
(See CHICKENS, GENERAL TREATMENT OF.)

Mandarin Ducks, or Chinese Teal.—Small compact ducks of exquisite colouring and gorgeous plumage; heads, crested, of brilliant green, purple, and chestnut. The ruff of brownish-red lies on the breast and sides of rich red purple, clear white stripes run across the shoulders. The wings have peculiar shields or fans, erect and projecting, of a chestnut tint, with green edges. Bill, crimson; legs, pink; eyes, red or black. After May the drake drops his gorgeous plumage and becomes like the duck, of a mottled greenish brown, with the lower part of the body grey. They are very quarrelsome, and difficult to show, more ornamental than useful. They can be bred in confinement; but boxes for laying must be placed almost in the water. They are best hatched in an incubator.

Mangolds.—Poultry are fond of the green leaves, and a root

chopped fine or left on the ground to peck at is relished in winter when green food is scarce.

Manure.—Poultry manure should always be saved; it is most valuable if kept dry. A water-tight tub with a cover should stand at the door of each block of poultry-houses, into which the droppings can be thrown as free from sand and extraneous matter as possible. A little earth or ashes sprinkled over it will effectually deodorise, and do no harm.

March, Work for.—Hatching must now be in full swing, as it is important to get the bulk of all valuable stock out before the 31st. Stock for table may be hatched throughout the year. Allow chicks all the freedom possible; do not shut up in small places, or cramp will result; the more they run the better. Eschew board floors. Give plenty of milk. Chicks are much helped by warm food. It is of more importance to give food warm, sweet, fresh, and very frequently, than to pamper the appetite with condiments and luxuries. Stock pens should be let out in the grass runs whenever the weather is not really bad. Stimulants should be dropped by degrees if they have been resorted to; but the clever poultry-keeper's account for these will be small. Preserve eggs from frost if for hatching. Put false eggs into the nests to encourage laying and sitting. Birds must be put under restraint in wet and severe cold; our climate will not allow of free range in winter. The

birds will *not* really range, but will stand about and get chilled and wet; hence much of the failure in English poultry-farms. Supply large covered runs, open to air and sun-gleams, but dry.

Marking Chickens.—It is possible with the hot point of a needle to perforate the wing membrane with one, two, three, or more holes, marking the various hatches or strains. Coloured cotton round the leg answers, but must be changed as the size of the leg increases, or it will lame the chick by growing into the flesh.

Mating.—If early chickens are wanted, mating should be arranged by the end of November. Pullets and hens over their moult will begin laying about a month after mating. Any great faults in the hen must be counteracted by the influence of the cock, or the fault will be exaggerated in the progeny. All birds with marked defects must be excluded, and only the best bred from. When once mated the pens should not be disturbed, as any change may be the cause of unfertile eggs.

May, Work for.—Hatch on still for late shows, and for supplying successional pullets. Do not spare the sulphur dredger, and water the nests with hot water frequently if the weather is dry. Elder broods should all be sorted, cockerels to one run, pullets to another; and more air should be given at night, while rain and wet grass by

day are not so likely to hurt the chicks as the weather grows warmer. Plumage of last year's show birds will now grow brittle; guard birds intended for show from storms, mud, and strong sunshine. Dust heaps and baths should be cleansed, thoroughly renewed, and well mixed with sulphur powder. Unlimited green food should, as usual, be given to old and young stock. The food for Turkey chicks should be frequent and plentiful. Potatoes, barley, wheat, oatmeal, turnips, Spratt, milk, oatmeal, rice boiled; soft food mixed with crissel and plenty of lime and brick-dust will fatten and keep them in health. They are very susceptible to damp during the first week, and should be protected from showers.

Meals.—Number in the day for adult birds three. At day-break in winter, at 6 a.m. in summer; at midday; and at 5 p.m. For Chickens *see* CHICKENS, GENERAL TREATMENT OF.

Meat. (*See* FLESH; ANIMAL FOOD.)

Meat Producers.—For delicacy only, Game is the first. For delicacy and size, Dorking, La Fleche, Crèveœur, Houdan, Langshan, Malay, and Brahma-Dorking with their crosses.

Mice. (*See* ENEMIES TO POULTRY.)

Milk for Chickens.—Boiled milk given warm is decidedly good for chickens, and prevents diarrhoea. It is indispensable for

prize-bred chickens, and should be given at least every night and morning. Nothing is worse than allowing milk to stand about and get sour. All milk pans should be scrubbed twice daily with hot water. The Americans give milk to laying hens, and hold that it increases egg production.

Minorcas, Black and White, supposed to come originally from Minorca. Possibly the ancestors of the Black Spanish, from which they differ only in having the very red face instead of the white one, and being of a more robust build. Magnificent specimens are bred from the Blue Andalusian, which they resemble in all points save colour, as also do the White Minorcas. This would be accounted for on the supposition that the Andalusian arose originally from a cross of the Black and White Spanish. (*See* ANDALUSIANS.) They are splendid layers, and do not sit. The eggs from adult birds are *very large*, and pure white; plumage, a lustrous green, black, or purple-black. The comb of the cock is very large (apt to get coarse) and upright; should be firm, stiff, smooth, free from thumb-marks and side sprigs; the ear-lobes should be perfectly smooth, like kid, opaque, white, and large; the face coral red. The hen must have white ear-lobes, red face, and a very large falling comb, evenly serrated, and no side sprigs; eyes, dark; legs, lead-colour; splendid fowls for farm purposes, very hardy, and maturing early.

Moisture to Eggs. (*See* ARTIFICIAL HATCHING; INCU-

BATOR; SITTING HEN, MANAGEMENT OF.)

Mongrels. (See BARNDOR.)

Mooneys. (See SILVER-SPANGLED HAMBURGH.)

Mothers. (See ARTIFICIAL REARING.)

Moulting.—This takes place usually through the months of October, November, and December, according to the age of the fowl. February, March and April chicks obtain their adult plumage in October and November. They drop a few chicken feathers, but do not moult outright till the following August; old birds moult later and later each year, according to their age.

To *Hasten Moulting*, pen up cocks apart from hens in a warm place, with deep sand and mortar sittings. Keep them very warm at night; the older the bird the warmer it should be kept. The process of moulting takes about two months, but at times much less. Food should be given warm, very little at a time, and not stimulating when first penned up; then generous diet, with a touch of red chillies in it; and in the gallon of drinking water put sulphate of iron the size of two filberts, and ten drops of sulphuric acid. Non-sitting hens can be hurried on by taking away all stimulating food and placing them in a fresh house. As soon as moult begins feed well. Should birds moult too slowly, and look ailing, give two or three one-grain doses of calomel, a dose of jalap, soft food,

and meat. If the weather is cold, a pill now and again of two or three grains of cayenne is useful. The Spanish tribes moult late and hard; birds with shabby feathers in July cannot be ready in time for September exhibition. If required early they must be preserved from injury, for moult cannot be hurried on so early in the season. Meat green food, a little pepper, and ale, with warm housing at night, will bring all birds comfortably through the moulting season. If the shaft of the new feathers seems to stick on for a long time, not splitting open freely, more stimulating diet should be allowed: meat, linseed, and hemp.

Muscovy Ducks.—White is the commonest colour; they are also parti-coloured, and black, and brown; they require little or no water, and are very quarrelsome. The red tubercles and skin at base of the bill are peculiar. Ducklings must be eaten young, or they are rank and tough. The eggs are not large. They prefer roosting in the poultry-house to going on the water at night and never lay away.

Nankin Bantams are difficult to breed as small as they should be; they are very tame and friendly, lay large eggs, and are splendid mothers. In appearance they resemble Cochin (Buff) have single or rose combs, and can be kept very well in confinement, being of contented minds.

Negro Fowls. (See SILKIES.)

Nest Eggs.—Should be of china or painted wood. It is a very slovenly and bad plan to put addled eggs about as nest eggs; if broken they will pollute the nest and hen's feathers also, and render her otherwise than sweet and wholesome for the next valuable eggs she may be required to incubate. (*See SITTING HENS.*)

Nests for Laying.—Hens like to be secluded when they lay and sit: nests affording shelter from the vulgar gaze will therefore be preferred. The nest should not be so formed that the hen must jump into it; this shakes the eggs at times so violently as to break them. A box with the bottom and one side taken out will form a snug nest, if put next a wall and kept well supplied with fresh straw chopped in short lengths. If rats abound raise the nests from the floor. The wire basket nests sold in various sizes suited to the different breeds are excellent. These are hung on the walls of the house, but if put high a board must be fixed to the wall hard by the basket, so that the hen can get quietly into the nest without jumping in. For nest-making, use, if you can procure it, dried bracken fern or dried heather, both excellent; dried moss is the next best, all these three being insect proof; after these come oat or wheat straw. On no account use barley straw or hay, as both are apt to produce vermin. Change the straw or whatever be the material often—hens appreciate cleanliness—but

do not change the position of the nest, as it gives offence to laying hens, and they may punish you by laying no eggs for a day or two.

Nests for Hatching. (*See SITTING HEN.*)

New Breeds.—Duclair Ducks and Courtes Pattes Fowls are amongst the greatest novelties. Andalusians, Plymouth Rocks, and Langshans, seem gaining in reputation daily. Pekin Ducks have come into vogue during the last three years.

Night Accommodation for Chicks must be dry, warm, ventilated, secure from rats, very clean, and supplied with broad, low perches or shelves, not touching a wall, covered with straw.

Norfolk Turkey Rearing.—Norfolk and Cambridge are the greatest Turkey raising counties. Turkeys are supposed to require a remarkably dry climate, whether they find this in the flats of Cambridgeshire or whether it is the special care given to their rearing in these counties, is a question. The Norfolk Turkey is black, with a spot or two of white; the Cambridge is bronze-grey. An April Turkey should weigh 18 lbs., and hen 10 to 11 lbs. by Christmas. April hatch is best. Second lot of hatching comes in June or July. A cock and three or four hens will be sufficient for a small farm.

November, Work for.—The busiest showing month. Do not over-show. Calculate care-

fully when birds are to go and return, and always give a week at least between two shows. Applications come in for stock birds, settle what your breeding stock is to be, and avoid selling the best birds, as failure of produce for next year will be the result, and your success as a breeder will wane. Study the preparation of birds for show, and carry out all directions to the letter; do not imagine that little things are unnecessary. It is not easy to gain prizes in the present high competition. Birds for the "Palace" or "Birmingham" should not have been hacked about at small shows. Feed generously; do not pamper with condiments unless your stock is in any trouble, but let the birds live a healthy life, as free as may be, without injury to feathers. Show birds must be penned, however, to make them tame, or they will be distracted in the show-pen, and will not show off to advantage. Give cockerels a hen or wastrel pullet three days before the show, and just before starting, say four hours, give the show pullet, that you may be assured that the two will not fight on the way; it is not *likely*, but they might do so. Sacrifice birds at low price rather than over-stock your accommodation. This applies to show and farm birds.

Number of Hens to Cock.

—Five to one cock if the eggs are being sold for prize stock at prize stock price; but if for ordinary farm purposes, eight, or even ten on a free range.

Number of Ducks to Drake.—If there are twelve ducks three drakes would be advisable, and so on in proportion; but the eggs are more fertile if a drake and four or five ducks are kept in separate flocks, for in a large flock the drakes are apt to be quarrelsome and interfering.

Number of Meals for Chickens. (See CHICKENS.)

Number of Meals for Hens. (See FEEDING ADULT BIRDS; *Hours for FEEDING.*)

Oatmeal.—Scotch is the best; though expensive it pays for prize poultry; the birds get on wonderfully when fed upon it as a staple article of diet, either mixed dry with rice boiled in milk till it crumbles into a friable mass, or boiled stiff and crumbled with dry raw sharps.

Oats.—Too much husk to be a favourite grain with poultry, but very good in change with other corn. (See CORN.)

October, Work for.—Shows are coming on apace. Write for schedules, &c., in good time; make careful notes of days, and hours, and prices of birds to be sent; prepare birds as directed. Give iron tonic in water *all round*, for show birds and moulting pens as well, and late chickens. Young birds should sleep on straw beds or straw-littered shelves. Don't let your man shake this up and leave the droppings under the straw for nights together. A good shake up and a thorough daily

sweeping is worth the few minutes required to do it. Watch for roup, diarrhoea, severe moult. Be ready for returning show birds. Get ducks' eggs in for hatching if you can; the ducklings are very valuable fat in January, February, and March.

Old Chicks.—The first brood of the season is sure to get especial and individual attention in the way of constant feeding, delicate diet, replenished hot-water mothers, and various delicate attentions. Care should be taken as the numbers increase that the interest does not flag, and that younger chicks are not left on short commons in the way of food, tit-bits, warmth, and all the care without which they will not be a success.

Old Fowls for Table.—Nothing is more trying than a tough old hen for dinner. The poultry papers give invaluable receipts for rendering old members of the poultry yard as tender as the young ones. For this very long and gentle stewing is necessary. An old hen stuffed with watercress, seasoned with mustard, salt, and pepper, is excellent.

For an old stager of four years the following is advised. Kill her, pick, and wrap while warm in vine leaves, then bury her, and let her lie for twenty-four hours in sweet earth. Lastly, boil very gently in good stock, and the result is tenderness as of a chicken.

Onions.—Almost all green food is valuable for poultry, and

should be collected carefully and thrown to the birds fresh daily, but onion-tops and onions must be carefully excluded, as hens are fond of them, and the eggs will taste very strong and unpleasant after they have eaten them.

Orchard.—Orchards are far preferable to open fields for poultry farm purposes; the shelter of leaves in summer is very beneficial. Cankerworms and caterpillars falling from the trees are consumed, windfalls are made use of instead of harbouring vermin, which again creep up and destroy good fruit.

Over-Fattening.—Care must be taken not to keep the birds penned up for cramming a day after the process is complete, for after a certain time disease and emaciation will set in.

Packing Eggs for Hatching.—Sudden or sharp jerks and jars are to be warded off by the packing medium. For thirteen eggs, get a hamper, inside measure about 12 by 6 inches. Sew a strong piece of sacking to the edges of the bottom of the basket, leaving the sacking loose, so that it can be filled up with moss or chaff, and thus make a soft spring-like pad. Wrap each egg in paper, then pass round it a wisp of hay. Proceed to bed the eggs in, small end uppermost, with hay between, and as you pack fill up all spaces with chaff; lastly put a layer of hay at the top, and sew the hamper up. There should be a stout handle to carry the basket by, and the address should be clearly written, with — "Eggs for hatching."

"Not to be shaken." "Immediate."

Painting Feathers, Legs, &c.—An elaborate species of deception practised by some dishonest exhibitors. Leghorns' legs have been found to be painted or dyed of a bright yellow colour.

Paralysis may be complete, or only of the legs. In either case it is impossible to cure thoroughly, and the bird will always have a lame or awkward gait. Unless a peculiarly valuable prize bird, it will be best to kill it. Daily faradization might be useful, and might be carried out on a valuable bird, with the aid of gentle doses of strychnia when the case is partially recovering.

Parasites.—(See VERMIN.) Parasites should not exist, and their presence in any number shows great want of cleanliness. If whitewash, dust baths, sulphur, and Persian powder, &c. (see ENEMIES TO POULTRY), fail, apply petroleum ointment under the wings, about head and inner part of thighs, but this is a very severe measure. Syringe the house with hot water, in which carbolic acid is dissolved, a wine-glassful to the gallon.

Alder branches, if laid on the roosting places over-night, attract the parasites by their scent; they congregate in the branches, and can be lifted away and burnt early at daybreak. A tobacco leaf in the nest will drive off insects, and keep laying nests free of these pests. A few insects may collect under the

wings and under the thighs of birds, especially those which are a little out of condition and chickens reared by broody hens, which are collected haphazard from neighbouring farms, but they ought quickly to be got rid of by the clever poultry keeper, and should be the exception, not the rule. There is nothing better than Persian powder mixed with sulphur, used out of a dredger, for powdering chickens; a dash of it over the head and neck, another between the legs and under each wing, will clean the chick in a day. It is very necessary to pen the chicks in a bare pen devoid of straw for an hour or two after the operation, and then when let out boiling water should be poured over the ground where the insects have fallen; this prevents their recovery and cleanses the place.

Parrish's Chemical Food.
(See TONICS.)

Parsnips, boiled, are good for poultry-food, and assist laying.

Partridge Cochins. (See COCHINS; PARTRIDGES.)

Pea Comb.—Such as is seen in both varieties of Brahma; the comb is in three ridges, the centre one rising above the outside ones, all distinct, and all firm and compact, rising from the front and arching back.

Pekin Ducks.—The largest ducks known. Chief characteristics: brilliant orange bills and feet; white plumage, with

the under parts of canary hue; boat-shaped bodies, and a strikingly erect, penguin-like carriage. They do not seem to reach such heavy weights as the Aylesbury or Rouen, though larger to look at. The first prize pair at Birmingham, 1879, scaled under 14 lbs., while Aylesbury and Rouen reached a weight of over 22 lbs. in 1878. They fatten quickly, and are a contented and quiet breed. It is possible to keep them in confinement, and to get plenty of eggs with a fair percentage of ducklings, even though the parents have no more water than is supplied by a rain tank sunk in the ground four feet by six. This can be done, but free range with ponds or a brook is, of course, better still for breeding stock. Pekins are not fanciful as to food, take willingly all that is given them, and the ducklings fatten quickly to a large size.

Pekin Bantams.—A minute Buff Cochin in appearance, but shorter in the leg. Somewhat delicate, contented in confinement, and very tame; but should be let out occasionally for grubs and worms; so small that they cannot do much harm in the garden.

Pen for Breeding Stock.—Should have a grass run attached besides the covered run, where the birds may be left in peace to go in and out as they like. The less they are fussed the more fertile will be the eggs. For sale of prize eggs at high prices put four hens to the cock; for farm work, or for

house supply of eggs and chickens, eight to one cock. If only for egg production, not hatching, any number to one cock.

Pencilled Feathers.—Have no moon, no border, but dark bars in parallel lines across lighter ground.

Pencilled Hamburgs.—(See HAMBURGHES, GOLD AND SILVER.)

Perch.—Allow six inches for each fowl. The best is a larch pole sawn in half, with the knots cut off smooth, the bark left on. A medium-sized larch will be about the right size. The perch should not be placed high when there is no space for the birds to fly down with a gradual swoop, as is natural to them when roosting in the open; three feet from the ground in confined places is high enough, the perch should be far enough from the back wall to keep the tail plumage clear; carelessness in this causes much mischief. Broad, low perches should be erected in sunny spots about the run; fowls delight in perching to preen themselves after meals.

Persian Powder. (See DISINFECTANTS; LICE; VERMIN; PARASITES.)

Pip.—A name given to a dry scaly substance on the tongue of sick birds; it comes when the breathing is obstructed through the nostril, and if the bird's health is restored the pip will vanish. The mouth may be cleaned with Condy or chlorinated soda.

Plucking should be done while the bird is yet warm. An excellent plan in small establishments, where there is small accommodation for feathers, is to have newspaper bags made—*e.g.*, a *Times* stitched round three sides—and when a fowl is plucked let the feathers be put into it. These can be at once baked in the oven, which will destroy any live stock, and the store of feathers may be put by, in a compact, cleanly way, for sale when the season is over; a collection of dirty feathers in any other way is very objectionable. Pekin and Aylesbury Ducks' feathers are very valuable, as also is goose down, which fetches the highest price.

Plumage.—The thing to be aimed at is a close, firm plumage, with a brilliant gloss upon it; grass runs will give this. To attain it in confinement exceeding care, extreme cleanliness, and clever management in feeding, are necessary. Hemp and sunflower seeds are excellent for imparting a glossy appearance; too much must not be given, or feathers will drop off.

Plymouth Rocks (*see CLUB FOR*).—Very large birds, of noble and erect carriage; somewhat Cochin-like, with a touch of Dorking; in colour a pretty blue-grey, with spangles of black; no red, brown, or any tint should mar the colouring. The legs strong and bright yellow, with four toes; ear-lobe red, and comb medium, upright, and firm. The hen's comb same

as the cock, also the plumage; the thighs are full and fluffy, they are good layers, and the chickens are fast growing, being soon ready, and excellent for table. They are pretty fair only as sitters. Useful hardy fowls, not in any way delicate.

Polish Fowls.—Chief varieties are: the Black, with pure white crests and no beard; the Gold and Silver Spangled, with crest and full muff. Besides these there are Buff, White, and Blue Polish, but these are very rare. The Polish fowl is fairly hardy, but it must be kept where covered runs will give protection in rain to the crests, which are much injured by exposure to wet. They will bear complete confinement *better* than free range without proper shelter from wet; they are thus well adapted for town poultry pens. They are good layers, size of egg medium. They do not sit. They should weigh from 5 to 6 lbs., and their meat is good for table.

Poultry Clubs. (*See CLUBS.*)

Precocious Chickens.—None are more so than the Andalusian, Minorca, and Leghorn. Cockerels of these breeds will crow at two months, and call the other chickens to feed, giving up to them delicate morsels like gallant old birds. It is well in such cases to separate the cockerels from the pullets.

Preserved Eggs. (*See EGGS; PRESERVING EGGS.*)

Prevent Hen Sitting.—Put the hen into a new run of poultry; the change of cock and companions may have good results, and the loss of the favourite nest at the same time completes the cure. Dipping hens in water and putting them into solitary confinement on short commons is cruel and unnecessary.

Price for Board and Lodging for Adult Birds.—Three-halfpence a week will amply pay for food; but as separate house-room must be given, a trifle extra is expected. This does not answer so well as sending the chickens out. The adult birds miss home comforts, and the risk of crosses with farm mongrels is great.

Price for Ducks' Board and Lodging.—If ducks are kept in a small place, without ponds or running water, but merely a tank, it is highly advisable when the breeding season is over to send them to recruit at a farm, to roam the fields and have plenty of water. If sent in August, and brought back to warm quarters in December, early eggs may be expected. Farmers willingly allow them food and room at 1½d. each—this for large Pekins, &c.—the risk from foxes and accident being borne by the owners.

Prices of Eggs also vary according to the strain and time of year—from prize-bred runs. 2d., and even 3d., a-piece during the winter months can be easily procured for new-laid eggs in any town, and 1s. a dozen

for well-preserved eggs during the winter. From 1s. each to 25s. and 30s. the sitting is the usual sum for prize stock eggs.

Prices of Poultry.—Ducklings should be hatched so as to be fattened ready for sale in London, in January, February, and March, when they command the highest price, 20s. or 25s. a couple for White Aylesbury or Pekin; spring chickens also should be ready from January to March. Real spring chickens may be killed very young, a Brahma crossed with Black Minorca or Andalusian makes a grand-sized table fowl, and these chicks at six weeks old should make the most delicate spring chickens possible. Chickens weighing from 5 lbs. to 7 lbs. the pair, *real* spring chickens, should fetch 8s. to 10s., or 12s. in the first months of the year. In America chickens for table mean young birds not above six weeks old; they average 1s. each in price. In France dead poultry is sold by weight, and the heavier the bird the greater the price per pound. Old hens should be taken up and fattened just as they are laying their last eggs, *before* the moulting season, and if killed off not later than their second year will fetch a good price fat at Leadenhall market. The prices of prize-bred poultry vary according to the purity and perfection of the strains from which they come; £50, £60, to £100, having been given for one pen; £15, £20, to £30, for a cockerel, first prize winner and of known excellence, being a usual price.

Price to Pay for Rearing Chicks.—If a large stock is required from which to choose exhibition birds and the accommodation is limited, it is a good plan to give the small farmers in the neighbourhood, or cottagers who have any suitable sheds, some of the chickens to rear. Keep them a month at home; or if reared by hens till the hen leaves them, choose the best to keep, and send off all refuse or doubtful birds. The price for rearing them is 1d. per head per week for small birds up to three months, after that 1½d. each. The food is rough, and not so ample as at home, but the fresh air of the country, grass, and freedom, does much to replace home luxuries.

Prize Birds, their Treatment.—Hatched in the three first months of the year, they must be well fed and well housed, never chilled, and yet allowed perfect freedom on grass runs whenever fine and dry. Soft food should have bone-dust mixed with it (*see BONE DUST*), and the meals should be ample and frequent (*see FEEDING CHICKS*), but never so large as to remain uneaten and to get sour; meat and green food should be given in plenty; at from three to four months the cockerels should be separated from the pullets; no crowding, no want of cleanliness should be allowed, and no roughing it in bad weather, or the feathers will be soiled. These must be kept spotlessly fresh, and care must be taken that no rough wire, or ill-made doors, or awk-

ward perches, injure the plumage, on which prizes to a great extent depend. Three weeks before the show, pen the birds, cock and pullet separately, giving each a friendly companion of their own sex; feed on bread-and-milk, wheat, and twice or three times a week give linseed; boil it till it is in a jelly and mix in oatmeal till it is friable; this will gloss the plumage. Also give barley-meal and sharps, buckwheat, a little hemp, oatmeal-and-milk, with a little meat. Let the pens be deep in fresh straw; see that the dust-baths are very clean. Two days before the show give night and morning a meal of rice boiled in milk, stiff, and plenty of wheat; a little meat chopped into the rice is much enjoyed. Rice is to prevent any chance of diarrhoea in the show pens, which would entail extra soiling of the plumage. Green food is to be given in plenty, preferably grass and lettuce and spinach. Forty-eight hours before showing wash the birds if need be. (*See WASHING.*) Feed as above till an hour before starting. Lastly, wash the comb, face, &c., with soap and water, dry it, and rub it over with a little vinegar; give each bird a teaspoonful of port wine; they will then sleep instead of fretting in the railway van. Inside the hamper at the side tie the top of a cottage loaf soaked with port wine, and a lettuce, to peck at; this will bring them in good spirits and condition to the show pen. Do not omit, three days before the show, to give the cockerel or cock a hen in his pen, but not one which is to be ex-

hibited. He will then not take much notice when the show pullet is introduced into the exhibition hamper, and this should be done about three hours before the train leaves to insure that no fighting occurs. (*See BASKETS FOR EXHIBITION ; FEEDING ON RETURN FROM SHOW.*)

Prize Poultry.—Does it pay? There is no doubt that keeping poultry for exhibition and the sale of thorough-bred stock is remunerative if you can combine it with the sale of eggs and table poultry. Prizes bring in no grist to the mill, the expenses of exhibiting being great, while the enormous charges of the railway companies consume the profits of even first-class prizes.

Prizes are generally given in money, or at times a silver cup for the first prize or in addition to it; they are paid as a rule within a month or two of the show. If not received within that time, it is as well to write and inquire.

Produce Hatched, Good Average, out of first-class prize eggs: chicks seven out of twelve travelled prize stock eggs; twelve first-class birds fit to show out of two hundred chicks, Spanish; eight first-class birds fit to show out of two hundred chicks of other breeds. Another great breeder says he has nineteen walks of Dorkings, cock and four hens in each; by the 1st April he has 172 chicks, by 1st May 400. If he gets fifty prize birds fit to show, and many of these to win, and 150

fair birds besides, he considers it a very lucky year. If properly managed, an egg farm could be very well kept up at the same time that breeding for exhibition is carried out. Exhibiting is expensive work, but it is necessary, that the prize stock may become known; when this is accomplished it may be discontinued as an unnecessary expense. To pick out six or ten birds fit to show and win entails the hatching of say two hundred birds annually. Those falling short of the show standard can be drafted into the laying or fattening pens at once.

Pullets.—The pullet is so called for twelve months, or until the year in which she was hatched is closed. Pullets hatched in April, 1880, for instance, would go through all the shows of that season, from July to the following February or March, as a pullet, and so with the cockerels. Pullets should not be mated till they are five months old, and then with an adult cock rather than with a cockerel. That their eggs do not hatch is an error; they do so as well as those of old birds, but the produce is not quite so vigorous unless the pullet was hatched quite early, in February or March. (*See AGE OF PULLETS TO LAY.*)

Pullets not Laying.—If over six months old they are either over-fed, which can be ascertained by feeling their condition and weighing; or possibly underfed: if pullets are much exhibited and the runs often changed this will prevent egg

production. Should the birds be thin give meat and a little stimulant, as red chillies or condiment, buckwheat, sunflower seeds; if fat, reduce diet and give an aperient. Constant exhibiting is very fatal to laying.

Purchasing Poultry and Eggs. (*See* BUYING.)

Purity to be Preserved.—Unless the accommodation is very ample, it is a great mistake, when going in for prize poultry, to try several breeds at one time. Amateurs are fond of doing this. The danger of mixing the breeds is too great, and should not be lightly run when eggs are sold at prize prices.

Quantity of Food.—It is impossible to feed fowls or chickens by measure. Never leave food to be trodden about, let all be eaten up clean. (*See* FEEDING; HOURS FOR FOOD.)

Railway, Sending Fowls by. (*See* TRAVELLING.)

Rats. (*See* ENEMIES TO THE POULTRY-YARD.)

Rearing, Artificial. (*See* ARTIFICIAL.)

Rearing for Show. (*See* PRIZE BIRDS, THEIR MANAGEMENT.)

Rearing Ducks for Market. (*See* DUCKS.)

Red Caps. (*See* HAMBURGHES.)

Red Chillies. (*See* CONDIMENTS, THEIR USE AND ABUSE.)

Repletion.—Some birds will over-eat themselves, and mope

about after meals in a dejected manner. This may be the forerunner of more severe disease from over-feeding. (*See* LIVER DISEASE.)

Rheumatism shows itself in the same way as in human beings: stiffness of joints, contraction of the toes, and a painful gait. Warm quarters; a hot bath for the legs, which should be bandaged with flannel, and rubbing the legs with chloroform or soap liniment, are useful; give half a grain of opium five times in the week; and good generous diet. No one would take all this trouble, save in the case of a very valuable exhibition bird.

Rice.—An excellent food for chickens. To be had at 11s. the cwt.; it must never be given raw, but boiled well until soft, and in skimmed milk if possible; if not, dripping or fat should be added, or coarse sugar for a change, and then dry oatmeal or sharps should be mixed in till it is a crumbling mass. It may be given in turn with oatmeal and Spratt's Food.

Roofs.—The best material is corrugated iron, for then the rain-water from the roof can be collected and stored. A wooden roof covered with tarred felt is good also, but not so lasting, and the water which runs off must not be given to the poultry to drink, neither can it be used for watering flowers, as it is highly injurious. Slate or tile roofs are equally good. Thatch should be avoided as it harbours rats and

mice, and unless very thick will not keep the wet out, especially if deep snow melts on it.

Roosting.—Chickens should not be allowed to roost till from four to five months old, and then on broad perches, two to three feet *only* from the ground. Exhibition birds are better roosted on shelves covered with sand and littered with straw, but then they must be kept very clean, and the straw must be frequently changed. On no account place perches one above the other so that the droppings fall on birds lodged lower down. Cleanliness is the great key to success, and the roosting-places should be scraped out daily and re-sanded. The greater the number of fowls, the greater must be the care.

Rouen Ducks.—In plumage exactly like the Mallard or Wild Duck. For exhibition the drakes must have the breasts rich red-brown, of darkish hue, the drake's bill yellow with a greenish tinge, not lead nor bright yellow, the bill to come straight down from the head, long, broad; the legs, rich orange, and the head rich glossy green, and round the throat is a ring of pure white, but this must not go right round; the back is greenish black; tail, darker; wings, grey and brown, and a bar across of brilliant blue, edged with black-and-white, clean cut; the flights are grey and brown; the fluff and under parts must be toned down to light grey, *no* white must be seen. The duck's bill, orange colour, must be nearly covered, but not to the

tip, with an irregular splash of dark colour, blackish; the ground colour dark, chocolate brown, with pencilling of still darker tint.

Birds for breeding are good weight at seven pounds. In the show pen they have exceeded 24 lbs., and were once shown over 32 lbs., but such fattening destroys breeding power, and the birds are useless. The eggs are not so large as the Aylesbury; they are of both colours, green and white, and very plentiful; the flesh is as good as the Aylesbury, and they fatten equally well.

Roup.—This dreadful disease begins with a slight cold, followed by inflammatory symptoms. It affects the cavity of the nose. The discharge commences by being watery and clear, afterwards becoming thick and offensive; the face, eyes, and throat swell; lastly, fever, thirst, and loss of appetite, come on.

No. 1. At once isolate the bird when as yet nothing but a slight cold has appeared. Wash the head with warm milk; feed with soft food. Powder the roosting places with quicklime just before they go to bed, and give daily 1 gr. sulphate of copper in oatmeal; give warm ale and plenty of green food.

No. 2. Foment the swelled parts, squeeze out the matter; give teaspoonful castor-oil, and feed on oatmeal with pepper; plenty of green food.

No. 3. Drop solution of atropine into the eyes when running. Give a pinch of Epsom salts daily, soft food, and a capsule

of cod-liver oil with quinine. Squeeze the inflamed glands, and dress with one part Wright's Liquor Carbonis to fifteen parts water.

No. 4. First give a dose of castor-oil, and at the same time wash the face, nose, &c., with pretty strong vinegar-and-water twice daily. When the oil has acted, give Walton's Roup Pills regularly; and when the nostrils are quite clean, fill them up well with Ferrier's Snuff.

No. 5. Keep warm and dry; give meat-scraps daily; apply alum and cayenne, a little in mouth and nostrils, as snuff, to cause sneezing and clear away mucus; bathe the nostrils with Condy or carbonate of soda, and give daily a pill of meal with 2 grs. myrrh, 5 grs. carbonate iron, 2 grs. cayenne.

Should any bird get a severe roup cold, it is advisable, unless a very valuable bird, to kill it at once, and so stop the spread of an infectious and troublesome illness, which *may* clear out your stock.

Rumpless Fowls.—Small tailless birds, about the size of a Hamburgh, generally black, bearded and crested, five-toed, with black legs, and the saddle feathers hanging and curling downwards. The spine is deficient in the final vertebræ, the carriage is penguin-like. The produce, if crossed, is also rumpless.

Runs.—For perfection poultry should have grass, earth, and gravel on their runs. The covered run should be on the original soil, but well and deeply

covered two spades deep in a mixture of gravel, sand, old mortar, and road drift, all screened. In this the fowls will delight to dust, and vermin will not irritate them or their owner. Grass range is of the utmost value, and they should be let out as soon as the dew is a little cleared off. Earth and manure heaps are invaluable for scratching in, and to supply animal food in the way of worms, &c. But the birds will not thrive, however extensive the grass range, if they are not provided with a light, open run, roofed in, and free from drip and damp, wherein they can freely dust themselves and keep in shelter during rain. Birds will not often shelter, however wet the weather, if they have to do so in a dark, damp, and dirty, airless house. If they do, it is to mope about in idle discomfort, which brings on evil habits and illness of all kinds. (*See* ROOFING; ASPECT; GRASS RUN.)

Yard Run.—If a bricked or paved yard is the only place available in which to give the poultry a run, great results must not be expected, but eggs and healthy birds may be secured with attention to the necessaries of poultry health. A load or two of screened rubble, gravel, &c., must be at hand under shelter for the fowls to dust and bathe in. Access to a manure and garden refuse heap is highly advantageous, giving occupation in way of scratching and hunting for the animal food which it engenders, such as worms and insects of all kinds. Green food must be thrown to the birds daily,

and the manure must be as regularly cleaned off. In the absence of these precautions, fowls can scarcely be kept in health in a paved yard.

Earth Runs.—If the space is only moderate, earth runs are superior to any. A small grass run soon gets used up and becomes foul. Beyond sweeping it nothing can be done, and the grass soon loses its freshness, whereas an earth run can be raked and swept daily, and dug over three times a week. Twice a year it should be *double-dug*—that is, the soil should be taken out, two feet deep, in a trench at one end, and carried to the opposite end. The trench should then be filled up as the digging proceeds. Thus fresh soil is brought to the top, and thorough cleansing is secured.

Covered Runs.—An absolute necessity for perfect health and exhibition condition. Each should have a large trap-door to the free range, and a well-made roof, impervious to rain and drip, and the dusting material should here lie deep, fine, and clean. (See DRY RUNS.)

Russian Fowls.—No special breed of poultry having any special characteristics worthy of mention exists in Russia; the so-called Russian fowls said to be kept in Scotland have reached these shores *viâ* America. They are in colour and shape like the Crève, the cock more Brahma-like in carriage, and heavily muffed and crested; layers of very numerous but small eggs.

Saddle.—The part of the back nearest the tail, whence the saddle hackles fall.

Sale of Eggs.—For eating or prize stock. (See SELLING; PRICES.)

Sand.—Useful to mix with all dusting materials; it should be kept dust-dry to mix with earth and to form bedding for the artificial mothers.

Scotch Grey.—(See DOMINIQUE.) They differ only in comb and feet from the Dominique, the Greys having pink legs and single combs, while the Dominiques have yellow legs and rose combs. Very excellent layers and useful fowls all round.

Sebright Bantams.—The Gold and Silver Laced Bantams go by this name; remarkable for their minute size and accurate pencilling or lacing, which is very difficult to keep up to show form. The birds are not very prolific. When the Gold and Silver are crossed good results are produced, the progeny being good layers of fertile eggs, and beautiful birds can be picked out true in colour.

Secondaries are the *quill* feathers, those only which show when the bird is motionless.

Self Help in Building.—When building poultry-houses, on which most people grudge any large expenditure, one can often dispense with the aid of a carpenter or builder. Carefully plan and measure your intended buildings, get the wood sawn to proper lengths at some dealer's

or sawmills—any handy man with some little help should then be able, if interested in his work, to put the houses up. Care should be taken to let the boards overlap, and to char or tar all posts let into the ground.

Sawdust.—A bad packing medium for eggs, the jar of the railway journey shakes it away from the eggs, be they packed ever so firmly. Good for pigeon lofts if used deep and in quantity, but not for poultry.

Selecting Exhibition Birds.—A very large number of birds must be hatched from which to make a selection. Any with glaring disqualifications must be drafted out early in the season. A little later another lot must be cleared out of those with faults, but not sufficient to disqualify, leaving, say, twenty birds out of 200 hatched. To these give every possible advantage in the way of space and food. Some will answer expectations, and some will fail. Amateurs are often too sanguine, and imagine all are going to be prize-winners, whereas it takes no little care and experience to attain to the much-coveted honour. Birds have a different look when penned up and when free in the fields. Choice should be made when the birds are in their pens or runs, and great care must be used to match the pullets with the cocks, a well-matched pair being considered most desirable in the show-pen. When choice is once made, the birds should not be sent about to small shows, but should be reserved for

one of the more important exhibitions.

Selling Eggs and Poultry (*see PRICES*).—*The Live Stock Journal* is a good advertising medium for the sale of eggs, and it is seldom that a notice put in at reasonable prices fails in getting a reply.

Separating Cockerels and Pullets.—This must be done at three, four, or five months, according to the breed, some being far more precocious than others.

September, Work for (*see AUGUST, NOTES FOR*).—Cases of moult will be more frequent. Showing will begin vigorously. See that while the occupants of pens are away the houses are whitewashed and fresh gravelled for the winter—this must be done the moment the birds leave by train, so that time for thorough drying is allowed; a duplex stove lamp put in for half a day will at small expense help materially to dry a roosting-place; take care that grease is mixed with the lime, or the wash will come off and spoil the feathers.

Wet weather and the first cold nights may produce colds and sneezing. Be on the alert; seize the invalid at once, however slight the attack, and remove to hospital; treat for cold during two days, if not cured, treat for roup, and beware of new cases; redouble efforts for cleanliness, for warmth, and plenty of run with fresh air. Change pullets about in various runs or pens to prevent laying if for show; do not move those for egg production on any account,

they should already be where they are to lodge during the autumn, and in determining the number of fowls to be kept this necessary separation must be borne in mind. If the birds are for exhibition purposes, at least eight, ten, to twelve pens, will be required for separating cockerels and pullets meant for show.

Setting Eggs. (*See SITTING HENS, THEIR MANAGEMENT.*)

Sevastopol Geese.—Pure white, with frizzled or waved feathers, which wave about in the breeze and trail along the ground. Their weight is about 10 lbs.

Sex of Eggs.—That this can be foretold is an old woman's tale; it is certain, however, that the first batches of eggs in the early season chiefly produce cockerels, and that five or six pullets mated with adult cocks produce pullets in greater numbers than cockerels, while from a vigorous cockerel mated with about three or four adult hens, cocks will be in the greatest proportion. There is no way of discovering the sex of an egg before hatching.

Shaft of Feathers. (*See MOULTING.*)

Sharps (*see LIST OF FOODS; FEEDING*).—Called also gurgeons and pollards. Useful for mixing in dry with house scraps, boiled rice, Spratt, and every kind of cooked food, making it friable and crumbling.

Sheds are invaluable as shelter from rain and mid-day sun.

If such erections exist already on a farm, the roosting poultry houses should be built on to them; the expense of covered runs can thus be avoided. (*See COVERED RUNS.*)

Shelf under Perch.—When birds are kept for laying purposes, this is highly advisable. The collection of droppings on the boards placed to catch them reduces the trouble of daily cleaning, as with an iron scraper it is the work of five minutes to scrape off the droppings of fifty or a hundred fowls. It is a good plan also for prize birds, as far as cleanliness goes, to have a board under the perch to catch the droppings, but this shelf must be carefully adjusted as to its height from the perch and from the ground; it should be at such a distance from the perch that the birds may walk under the latter without injury to the sickle feathers; some hens squat on the board, instead of taking to the perch, and even in one night this may prove fatal to show plumage.

Shelter Hurdles, thatched with straw, and placed on four posts, eighteen inches from the ground, afford admirable shelter from the extreme glare of the mid-day sun, and also places which they can retire to in winter from the damp ground, and preen themselves in the short hours of sunshine.

Sickle Feathers.—The two curved arching top feathers in the cock's tail. If a cock has moulted these out, or had an

accident and broken or lost one or both, it will not disqualify him at a show, but, unless very greatly superior to the rest of the competitors it will handicap him severely in competition for the prize. Still, he has a chance if his merit is otherwise great.

Silky Fowls.—Small birds covered with glossy silk-like hair, no feathers, their skin and legs blue, and the face and double comb of livid purple hue, bluish ear-lobes touched with white, and a neat, round, compact crest. Their colour, white, and the purer the better. They are excellent sitters and mothers; nothing can exceed the loving care of these little hens: they will lead about a brood of Brahmas so long that the chicks will be almost as large as the Silky mother, round whom they will still continue to collect at night. Silkies begin to lay at seven months, and produce numerous but small eggs; they should be kept as sitters, for after laying twelve or fifteen eggs they invariably sit, whatever the weather.

Silver-grey Dorking. (*See under DORKING.*)

Sitting Hens, their Management.—During January, February, and March, it is most difficult to get broody or sitting hens, yet this is the best and only time to hatch the bulk of exhibition stock, as well as the pullets which are to fill the egg-baskets in August, September, October, and November, when eggs are highest in price. For good sitters seek out in

preference Brahmas (especially the Light), Cochins, Dorkings crossed with Brahma, and Silkies. Moderate-sized hens have an advantage in not being so heavy. Hens are to be preferred to pullets. Eggs are most fertile in March, April, and May. In January and February they are the most valuable, it being necessary to hatch for early shows. Let the hen sit, if possible, where she has chosen her nest (this should be a movable one, either box or hamper—*see NESTS FOR LAYING*), and give a few china eggs to experimentalise upon. While she is off feeding, clean out the nest, place in it moist sifted earth to a depth of three inches, and on this make the nest of chopped straw (about six inches long). Let the hen return to her nest of her own free will; then in an hour or so, when she is firmly settled, gently carry her, covered up in the nest, to the sitting pen, coop, or wherever you mean her to sit, and if in a few hours' time she is still quiet, give her the eggs she is to incubate; after this do not disturb her, even for feeding, during the next thirty-six hours at least. The nest should be placed in a pen or coop by itself, where no hens or chickens can enter; give food (barley), and water, and a barrow-load of dusting material, and leave the hen alone to come off and feed when she likes. This is the best method; but when some thirty or forty hens are to be set it is difficult, in most cases impossible, to provide separate

pens, and it will be found that if many hens are set in one place, to come off at their discretion for food, great confusion and fighting will be the result. Two hens will get into one nest, leaving others empty, to the fatal injury of the eggs. Where a sitting - house is employed it is well to have the nests in rows round the walls, in which the hens should be shut up, each in her box, and taken out together every twenty-four or thirty-six hours to feed, after which they should be replaced and shut in. The best nest for this purpose is a box with the lid on hinges, and one side taken out; this open side should be placed over the earth and straw nest, the lid should be perforated with holes for air, as also the upper *side* of box to give free ventilation; in this way a large number of sitters can be housed in a small space. If the sitting-house has an outer pen or run where the hens are fed, so much the better, as it will then not disturb the sitters so much. Great regularity in the time of feeding is requisite, and extreme gentleness and quiet. Fresh water, plenty of barley and wheat, green food, and dusting dry material are necessary. If the latter be mixed with sulphur to keep the sitters free from vermin, so much the better; it will ensure *quiet* sitting, for a hen tormented with vermin will be restless. If you suspect she is so worried, put about half a pound of powdered sulphur all over the nest before you put the eggs

in; no vermin will stand it, and the effect is marvellous. If hens have to be procured from strange yards, the removal and setting should be carried out at night, and the hen should keep her nest twenty-four hours before the eggs are given; with these precautions it is quite possible to get good sitters from a long distance, even five and six hours' journey by railway. The number of eggs to be put under a hen varies according to the size of the hen and of the eggs, also according to the season; during January and February not more than eight or nine should go under a large hen, and after that from thirteen to fifteen. While the hens are feeding it is well to pour hot water round the nests after the first week, to cause a moist heat when the hen returns to her labour of love. After the fifth day the eggs can be examined with an egg tester, and unfertile eggs replaced, these must be extra new laid, so as to hatch out within two days of the others; three or four days before hatching is due eggs may be floated in a bucket of water at 105° Fahr. All eggs which do not bob about or rock to and fro with a pulsating motion may be discarded. Eggs will sometimes remain in the water three or four minutes before the movement is noticed, or they may move or pipe at once; they often chip in the water, and must instantly be lifted out. In this way more room is given to the hatching chicks, and the risks of a broken addled egg

or crushed chick in the nest from over-crowding are avoided. If the weather is frosty a handful of hay put over eggs when the hen feeds is useful to keep in the heat, and the hen may remain off safely for fifteen minutes. In very dry weather, besides pouring water round the nest, a little may be sprinkled on the eggs, but the hen must be at once replaced, or mischief will arise from a chill. If a hen forsakes her nest, and eggs are found cold, place them at once in water at 105° Fahr., and leave them in till you provide, as quickly as may be, another nest and a hen willing to become a foster-mother. Eggs neglected and chilled should never be despaired of; it is a fact that eggs left over twelve hours, and stone cold to the touch, when treated as advised, have hatched eleven out of thirteen, and all the chicks strong and healthy. As the chicks hatch out it is well to place them in a drying box till all are out, by which all risk of the hens squeezing them will be avoided. The same person should always attend to the "sitters," and extreme regularity, gentleness, and regularity in management, has much to do with success in hatching.

Size of Eggs. (*See* EGGS, NUMBER LAID TO POUND.)

Slipped Wing.—This chiefly occurs with fast-growing cockerels and ducklings. The primary feathers, which are naturally

tucked up out of sight, stick or trail out; the bird has no power to tuck them up. Should the same feathers stick out and appear twisted, so that the inside of the quill is outside, it is probably an hereditary evil. In the first instance it frequently occurs from a number of cocks being kept together, giving rise to some ill treatment, constant racing about, and nervous flapping of the wings; these being soft and delicate as yet, the birds fail to fold them in closely, and a habit is acquired of letting them hang down out of place. Tucking them up into place when the bird is asleep at night is sometimes effectual; but the best way is to sew a band round the wing-feathers near the shoulder, and attach this to another which is passed round the joint of the wing to prevent it slipping off. It is a work of patience and difficulty.

Snow.—Poultry will eat quantities of snow. They should be shut up if seen pecking it, and melted snow-water is not good for their drink. When shut up at these times, a few handfuls of hay-seeds, the sweeping of the hay-lofts, afford excellent amusement for them. (*See* GREEN FOOD.)

Soft Eggs. (*See under* EGGS.)

Soft Food (*see* FEEDING).—All scraps from house, meals of all kinds, Spratt's, and other foods requiring boiling or scalding, mixing with water, are correctly so called. "Hard food" means

all uncooked grains and corn of all kinds.

Sooty Feet.—Otherwise called lead-colour: grey, dusky, or dark, like Andalusians or Spanish.

Spangled Feathers have a moon on the tip, but no border.

Spangled Hamburgs. (See HAMBURGHES, SPANGLED.)

Spanish, White and Black.—These birds must not be kept for table, they do not lay on flesh at all; and lately, from such severe breeding for "face" and other show points, their laying qualities are much reduced, 130 eggs per annum being considered a good average number. They are looked upon as aristocratic birds, and favourites in the show pen. They are delicate, require very fine breeding, and crossing from alien yards is prejudicial and highly dangerous, so that much study and care is required to keep up the proper standard. The pullets lay at about six months. They are non-sitters, and bear confinement well, but damp is fatal to success. The plumage is brilliant glossy green-black; legs and feet, dark; comb, large and upright, firm on head, and coral-red, as also wattles, save inside and across throat, which must be white, and this should creep up and cover the whole face and cheek and pendulous large deaf-ears: all must be white, smooth, soft, cream, like kid, free from feather, wrinkle, speck, or scab, and the more of it the better; arched,

fine tail, avoiding squirrel; the carriage must be grand and important, though the bird is slender and thin, and weighs barely over 6 lbs. The hens differ only in the comb, which must fall over, quite hiding one side. The White Spanish are like the Black, but the plumage must be of pure white, not of yellow hue.

Spring Chickens.—Hatch them in November, December, and January, and have them ready for table February, March, and April. (See PRICES OF POULTRY.)

Spurs.—The fighting weapon on the lower part of the cock's leg.

Squirrel Tail.—When the tail rises up very upright from the back, and inclines to bend towards it instead of taking a graceful sweep from it.

Stains on Feathers.—To remove these use turpentine or benzoline, but the best plan is care and cleanliness to prevent accidents. Cleaned-up birds never equal well-kept birds on a grass run.

Storing Eggs. (See EGGS: LAYING BY FOR SETTING; PRESERVING.)

Strain, To commence.—The best plan is to purchase a pen of the breed you desire—say a cock and two hens—from some well-known breeder, paying a good price, and trusting to his sending birds properly mated for the purpose you require, whether for showing, or for raising

thorough-bred stock from which to select future exhibition birds. Having done this about October or January, procure in March a sitting of the very best eggs of the same breed from the next best breeder, unless the first can be depended on to send you some not related to the birds already purchased from his runs. Hatch these, or as many sittings of these as you conveniently can, and select the best of the chicks for stock, mating in the following December your bought cock with the best hatched pullets, and your best hatched cockerel with your bought hens and two pullets to make up the pen. Another plan would be to go to some of the principal shows and buy birds there if you are a good judge of the breed. This may answer, but there is some risk, as you cannot know the antecedents of the prize-birds, and may be introducing fatal faults into your strain to start with.

Straw.—Never mind the untidy appearance, and let it lie about in dry covered runs. (*See FEATHER-EATING; LAYING HENS' NESTS.*)

Styptics.—Tincture of iron, tannin, styptic colloid, gallic acid, turpentine.

Sulky Cocks.—Towards autumn cocks sometimes become very cross to their hens, and a trial to the whole harem. Isolate them at once, they require rest and quiet; feed well and house warmly till over moult (*see MOULT*). In December mate the pen up for the season, and the

most irritable bird will have become good temper itself.

Sulphur. (*See DISINFECTANTS; SITTING HENS.*)

Sultans.—Very ornamental birds, of fair size, with broad, deep bodies, not long in the leg, with plenty of leg feather, and strongly hocked, well muffed and crested, pure white, five-toed, very hardy, bearing cold and confinement well. The comb is small, two small spikes; full large flowing tail; weight about 5 lbs. Good layers, small eaters, non-sitters.

Sunflower seeds are useful to give gloss to the feathers.

Sussex Art of Fattening. (*See FATTENING SUSSEX FASHION.*)

Tail Coverts.—Arched or curved feathers at the side of the tail towards the bottom part, same colour as the true tail.

Tail Feathers (True).—Stiff feathers pointing upwards, always straight, or nearly so.

Terebene. (*See DISINFECTANT.*)

Thumb-mark.—On a coarse comb, near the beak, will be seen a mark like the impression of a thumb—a great disfigurement.

Time for Artificial Incubation. (*See ARTIFICIAL INCUBATION.*) Its advantage is that it can be carried on whenever fertile eggs can be procured.

Time for Hatching Ducklings. (*See DUCKS.*)

Times for Feeding Chickens.—Never leave food,

but the more frequent the meals the better. (*See FEEDING.*)

Tonics.—Parrish's Chemical Food. For chickens fifteen drops 3 times a day, or if given in drinking water, two teaspoonfuls to a pint.

Douglas's Mixture: directions on the bottle.

Walton's Tonic Paste: directions on the bottle; an excellent corrective and tonic.

Quinine and iron tonic (citrate of quinine and iron): four grains to an adult fowl daily.

Sulphuric acid ten drops, and sulphate of iron a piece the size of a filbert, in a quart of water for drinking.

Tincture of iron, one teaspoonful in the quart of water.

Nitric acid acts on the liver, and is a tonic. Of the dilute acid four drops, in a teaspoonful of water three times a day, or ten drops of strong acid in quart of water for drinking.

Tools and Appliances.—

Dustpan and brush, and white-washers' ceiling and wall scraper, for scraping and sweeping the droppings off the boards under the perches. A tub or box with lid and two handles, into which the droppings should be collected for manuring garden ground; especially valuable for strawberries.

A bass broom, spade, fork and rake, a saucepan, a brush, and a bucket for washing hoppers and water-tins.

An egg-tester to fit the eggs in when examining them with lamp or candle.

A gas-stove; one at 12s. is large enough to boil four quarts of water in a few minutes, and will cook the food with ease for some 400 chickens. A meat chopper is very necessary. Taylor's American chopper is strong, price £4, and converts every morsel of refuse from the house into suitable food for the smallest chickens.

Toulouse Geese.—More compact than Embden geese, but not so tall. Grey in colour, shading from dark to light or white; feet, orange; and bills rich light brown. They have reached in weight 60 lbs. the pair. For breeding, two geese should go with one Toulouse gander. They lay in February, and produce thirteen to fifteen eggs each. After the goose has sat a day or two, thirteen eggs should be given. She will incubate twenty-eight to thirty days. The gosling wants warmth; hard-boiled eggs, crumbs, and chives chopped up, are good food. Put the goose under a coop at first, or she will run the goslings about too much. Six weeks before Christmas fatten in a warm, darkish place on barley-meal and barley in water, and wheat. The Embden goose sits better than the Toulouse.

Travelled Eggs. (*See PACKING EGGS.*)

Travelling.—Birds travel best by night. If a long journey, feed at dusk—meat and corn—give water, and start them off as soon after as train will suit, giving a teaspoonful of port wine to each

bird on starting, and tie into basket bread and lettuce.

Treatment before Showing. (See PRIZE BIRDS, THEIR TREATMENT.)

Treatment after Exhibition.—On the arrival of birds from an exhibition, feed them on soft and (if cold weather), warm food, with a very little water, containing a tonic. See that they are housed *very* warm. If they are shortly due at another show, give bread-and-milk for one meal daily, and rice-and-milk, with meat, and, if possible, a grass run. If the crop is loaded with Indian corn, feed very sparingly even on soft food at first; and if it feels *hard*, give a teaspoonful of gin on arrival; it will aid digestion.

Trimming.—Anything done to a bird previous to sending it off for exhibition beyond the simple and legitimate means necessary to make it look its best, such as washing, drying, &c. (see under EXHIBITION BIRDS: PREPARING FOR THE SHOW). Any plucking, cutting, clipping or dyeing feathers, painting or varnishing legs, propping up of combs with pins or wires, grafting on false sickles on broken quills, would come under trimming, and cannot be too widely and severely condemned.

Trussing.—There is great art in trussing, and amateurs often fail to sell at profitable prices owing to the slovenly way in which their birds are prepared for market. When killed, fowls should be plucked

at once, and placed on one of the boards for shaping dead poultry for table used in France. It may improve the appearance of a lean, ill-fed chicken to break the breast bone and hide it away, but there it still is, destroying the breast slices and a constant trial to those who have to carve the bird at table. If properly fed and plucked, and pressed on the trussing board, this operation is quite unnecessary.

Turkeys.—Three kinds are reared in England—the Norfolk Turkey, the Cambridge, and the splendid large Bronze Turkey of America (see *ditto*). Turkeys should be kept as chicken rearers where a large number of chickens are required; the hens are wonderful sitters, and never get tired of the occupation, so that the chicks, as hatched, may be taken away, and fresh eggs added for incubation time after time, the Turkey hen will still sit on contentedly and well. Turkey chicks are delicate if improperly housed in damp ill-ventilated places, but will do well if great care is taken to keep them dry, and hunt them into shelter in wet weather. Chopped egg, chives, and Spratt's Food, should be given during the first week very frequently; feed them quite as often as chickens; when a week old give cracked groats, split wheat, corn. In the soft food put 10 per cent. of bone-dust. Plenty of fresh water and milk should be given; beware of the

milk getting sour. The chicks for the principal stock should be hatched out in April; those to be eaten as poults, in June or July. The great art of rearing successfully consists in getting them on without attacks of diarrhoea. Chalk mixed with the food is good occasionally, but extreme care as to wet weather is the great thing. The cock bird should be kept out of the way when the hens are sitting, as he will try his best to destroy the eggs.

Unfertile Eggs.—Clear eggs, which after three or four days' incubation show no appearance of fertility, no veins, or sign of embryo. The yolk will be seen to float and oscillate with every movement of the hand. Such eggs must be turned out of the nest or incubator at the sixth day, and are perfectly good for the most delicate cooking purposes.

Ventilation.—A neglected but most important subject. Poultry-houses are, as a rule, either draughty, or they are unventilated; if the first, the birds are always uncomfortable, and a late egg supply, owing to cold housing, will be the result; if the latter, serious disease will follow, such as diphtheria, or the birds will be dull, without appetite, the wings will droop, upright combs will go blue at the tips, and fall over limp and flabby. Besides the door entrance, every roosting-house should have a window, which can be left open on hot

nights, a wire of small mesh should be placed over it to keep out enemies; in the winter a piece of perforated zinc is preferable, as it prevents the wind rushing in, and yet gives enough air. If a window is not practicable, a hole under the eaves will answer, covered with zinc wire; the higher up ventilating openings are made the better. Foul air rises, and openings must be made, or the fowls will suffer. Ventilating holes should be drilled in all artificial mothers, dryers, and shelters; foul air generates very quickly where chickens congregate.

Vermin.—(See ENEMIES TO THE POULTRY YARD.)

Vertigo.—An ailment which betokens over-feeding to an enormous extent, and a threatening of apoplexy; a bird so afflicted will stagger about in a circle as if giddy. Dash cold water on the head at once, and give castor-oil, jalap 15 grains, and two grains of calomel. Feed very little, reduce the system; the bird is sure to be a very fat one.

Voitellier. (See ARTIFICIAL INCUBATION.)

Vulture Hock.—So called when, from the hock, feathers project, stiff and hard, pointing backwards.

Want of Condition.—A bird shown badly—*i.e.*, dirty, wanting in gloss, with ruffled plumage—would be passed over, unless his points were quite super-excellent, and over-showing will destroy the good looks of the finest specimens.

Warmth.—Comfortable housing is all the warmth required by adult birds. Artificial heat is dangerous, as it is difficult to control. Heated houses are a fertile source of consumption and many other evils. A cock and a few hens might, however, be forced for the supply of early eggs, which certainly come the sooner for extra warmth. In artificial mothers the heat should not be kept above 70° when all the chicks are collected under them asleep. (See VENTILATION.)

Warm Weather is beneficial for all birds, but glaring sun without shelter retards their progress. Thatched hurdles laid on four posts should be placed about to shelter them from the rays of the sun at midsummer.

Washing Exhibition Birds.—Get two tubs, fill the smaller one with a good lather of soap water (for one bird half a pound of white curd soap is sufficient); stand the bird in the lather and wash it, using a softish hair-brush, and with it your hand; thoroughly brush and cleanse the feathers everywhere, leaving no spot untouched, and do not be afraid of wetting thoroughly, use no half measures; take care not to bend or brush the feathers the wrong way. This done, having prepared warm water in the larger and deeper tub, dip the bird in and out freely and thoroughly, rinse every vestige of soap lather out; lastly take a can of merely chilled water (may be *very slightly* tinted with blue for white birds), and pour this over the bird, drain and

dry as far as you can in a Turkish towel, place the bird in an exhibition hamper, from which the lining has been half removed, and set it at a comfortable distance from the fire. The hamper should have half or three parts of the lining left round it to keep off draughts. As the bird dries and fluffs out, gradually draw away from the fire; leave the birds the night in a warm kitchen, and next morning place them in their own preparing pen, which, meantime, has been laid deep in fresh straw; let them rest here for twenty-four hours, or twelve, at any rate, before the journey, otherwise a risk of cold is incurred. After the bath, when still wet, give a teaspoonful of port wine, and later a meal of bread and meat scraps, which are gratefully devoured as a rule; by-and-by a handful of groats as a treat cast in the straw will tempt them to scratch for it. A moist warm atmosphere must be kept up in the drying basket, or the feathers will not web properly; place water within reach, and add to it a little tonic.

If the birds are not drying properly, try and turn them about so that the heat will strike all sides equally. Hard-feathered birds, such as Andalusians, Minorcas, Brown Leghorns, Malays, Dominiques, Game, Black Spanish, do not require so much washing. White birds and Asiatics demand the greater care.

Wasters.—By this is meant those birds which, although pure bred, and hatched from prize stock for exhibition purposes, fail in some important point. They

should at once be banished to the fattening-pen, or be killed for chicken-pies.

Water Supply. (See DRINK.)

Wattles.—The hanging red flesh appendages just below the beak, more developed in the cock, but to be seen in the hen also.

Weakness after Sitting.—When it exists shows neglect and want of food ; the hen lies about, pecks at grit and green stuff, but rejects food. Slip a raw egg down the throat, give half a teaspoonful of quinine wine and oatmeal food warm. If she will not pick it up, make a bolus of it, dip it in milk, and cram her daily.

Weasels. (See ENEMIES TO POULTRY.)

Weight of Ducks.—Fattened Aylesbury, Pekin, and Rouen should be 5 lbs. to 7 lbs. at ten weeks old for table. The same breeds bred for stock need not be over 6 lbs. or 7 lbs. ; this is the average weight. Pekins for show must be over 14 lbs. the pair to win. Aylesbury and Rouen have been exhibited over 22 lbs. and 23 lbs. the pair respectively.

Weight of Poultry (see under SPECIAL BREEDS).—A prize hen or cock is usually judged irrespective of weight, but it sometimes tells, and must not be neglected. With perfect breeding and care, weight should come naturally.

Wheat. (See CORN.)

Wheezing and Cough.—When the birds are not otherwise ill, do not be anxious, but put a teaspoonful of glycerine and a few drops of nitric acid in the water.

Whistling Ducks, or tree ducks from their fondness of perching on trees, occasionally shown at poultry exhibitions. The red-billed whistler, plumage beautiful in shadings and contrasts of brown, drab, white, and black ; feet and legs pink. In the white-faced whistling duck the head is white, while drab, black, chestnut, brown, are beautiful placed in contrast ; the pencilling being black on brown, shading to light drab, legs and feet lead colour ; purely ornamental ducks.

White-Booted Bantams are the smallest of the Bantam breed, extra tame and contented, very pretty, good layers and sitters, with white legs and beaks, much feather, and large hocks, single and rose comb—singles are the best.

White Bantams.—Exactly like the black in all but colour.

White Cochins. (See COCHINS.)

White Comb.—Anoint the head with carbolic ointment twice a week, give occasional doses of Epsom salts, a pinch to an adult bird, 35 grs. a dose, and very nourishing food ; or in place of salts give Plummer's pill.

White Dorking. (See DORKING.)

White Ducks. (See AYLESBURY AND PEKIN.)

White Face.—Birds having correctly coral-red faces, if imperfect, have, more or less, white specks or blotches creeping over the part that should be red.

White Leghorn. (*See* LEG-HORN.)

Wing Bow is the shoulder-part of the wing nearest the body.

Wing Covert. — Those feathers which cover the roots of the secondary feather.

Winter Eggs. — Secure pullets hatched in February and March, keep them in a warm place, feed with plenty of animal food, green stuff, and sound grain, not too much soft food, and do not change their runs or exhibit and you will have a large number laying in the three winter months.

Winter Eggs, To Preserve. (*See* PRESERVING EGGS.)

Wire Supports to Comb. —When a cock's comb is given to lopping, or hangs over, unprincipled exhibitors have been found to stick needles or wires through the flesh to keep it up. Such wicked cruelty would of course disqualify. A wire support can be made to be worn outside the comb, and this is quite allowable with a view to making it grow

straight; it may be of some help, though a really good breeding or exhibition bird should be quite independent of such artificial aids.

Works on Poultry. (*See* BOOKS.)

Worm-eaten Feathers.—Hamburgs are subject to this disgusting disease, if badly kept, but it comes only from unpardonable neglect, damp, dirt, and deficient arrangements for dusting. Treat as for "Lice," saturate the quills with oil, cleanse the birds and their home in every possible manner, if not too far gone for recovery.

Wry Tail.—A deformity which is constitutional in nine cases out of ten, but occasionally a fine bird may contract the habit of carrying his tail askew, from being confined in a small pen, but this can easily be distinguished from the hereditary and constitutional weakness; such birds should not be bred from, and would be disqualified at any show. A cure is sometimes effected by cutting the muscle or tendon on the side to which the tail inclines.

Yew Hedge.—The yew is very injurious when eaten by poultry, and in making hedges it should be avoided.

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