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SIGHT SEXING BARRED ROCK BABY CHICKS



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SIGHT SEXING BARRED ROCK BABY CHICKS

In purebred Barred Plymouth Rocks it is well known that the partly grown and adult males can be readily distinguished from the females by the type of barring on the feather. On the males both the white and black bars are narrower than on the females and the white is, relative to the black, wider than in the females. Thus males appear finer barred and appreciably lighter on the whole than females. Exceptions to this rule will be found in certain cases. For instance males from a Dark mating of Exhibition Barred Rocks will be practically as dark as females from a Light mating but the rule holds true for the great mass of bred-to-lay stock.

It has also been well known that the cockerel baby chicks tend to be lighter in down colour than the pullets, but, until recently, it was not possible to sex Barred Rock chicks by down colour with sufficient accuracy to be practicable. About the year 1936, however, an accurate method of distinguishing sex in this breed of chick was introduced to the Bray Hatchery at Hamilton, Ontario, by Clyde Hunt, a young sexer in the employ of Gholson's Hatchery, Macleansboro, Illinois. From the Bray Hatchery the method has spread until at the present time in Canada, "sight sexing", as it is called is widely practised on Barred Rock chicks by commercial chick sexers. The purpose of this bulletin is to explain by description and illustration just how this is done. The sexes are distinguished by pattern of the white head spot, leg colour and by shade of black colour in the down. Since the differences in many cases, at least to the beginner, are difficult to distinguish, it can be appreciated how hard it is to explain sight sexing by means of a bulletin. However, the keen student should be able to sex chicks quite accurately from a close study of this publication. Wherever difficulty is experienced it is recommended that a few lessons be taken from an expert.

The subject will be dealt with under four main headings, namely, The Head Spot, Leg Colour, Shade of Black Down and the Practice of Sight Sexing.

THE HEAD SPOT

Barred Rock chicks are basically black with superimposed splashes of white. These white splashes are in reality areas from which the black pigment has been restricted. The white splashes are caused by an inherited "barring" factor or gene, the same factor which causes white bars on the adult feather. These white areas are regionally distributed; that is to say the white occurs in certain definite areas like the ventral side or belly, throat, wing tips and top of head. In purebred Barred Rocks the male chick always carries two doses of the white bar factor, the female only one, and this tends to make the male chicks lighter in down colour than the female. However the males are not sufficiently lighter than the females to allow them to be sexed on this basis. It is the shape of the white head spot which is the chief distinguishing point between the sexes.

The male head spot

In males this spot tends to be spread or scattered and generally takes the basic shape of a circle enclosing a central dark area (Fig. 1 (a), (b), (e), (f)). This white circle is the basic pattern in all males but its expression is subject to very considerable variation and it is the numerous variations from this basic pattern which one must learn to recognize. For purposes of illustration the various types of head spot have been divided into four classes. Actually these classes are not separate and distinct but blend into one another forming a range of continuous variation. Figure 1 shows 16 chicks whose heads have been pushed through holes in a cardboard box. Chicks (a), (b), (c) and (d), in the top row are examples of class I. Chicks (a) and (b) show the circular head spot but (c) and (d) show a diffuse type of spot in which the basic circle

is very much obscured. All chicks in this row, however, are very light in shade of down colour, a fact which does not show well in photographs. These are types which would be classed as males because of their extremely light colour over the whole body. Most of such chicks will show the circular head spot as

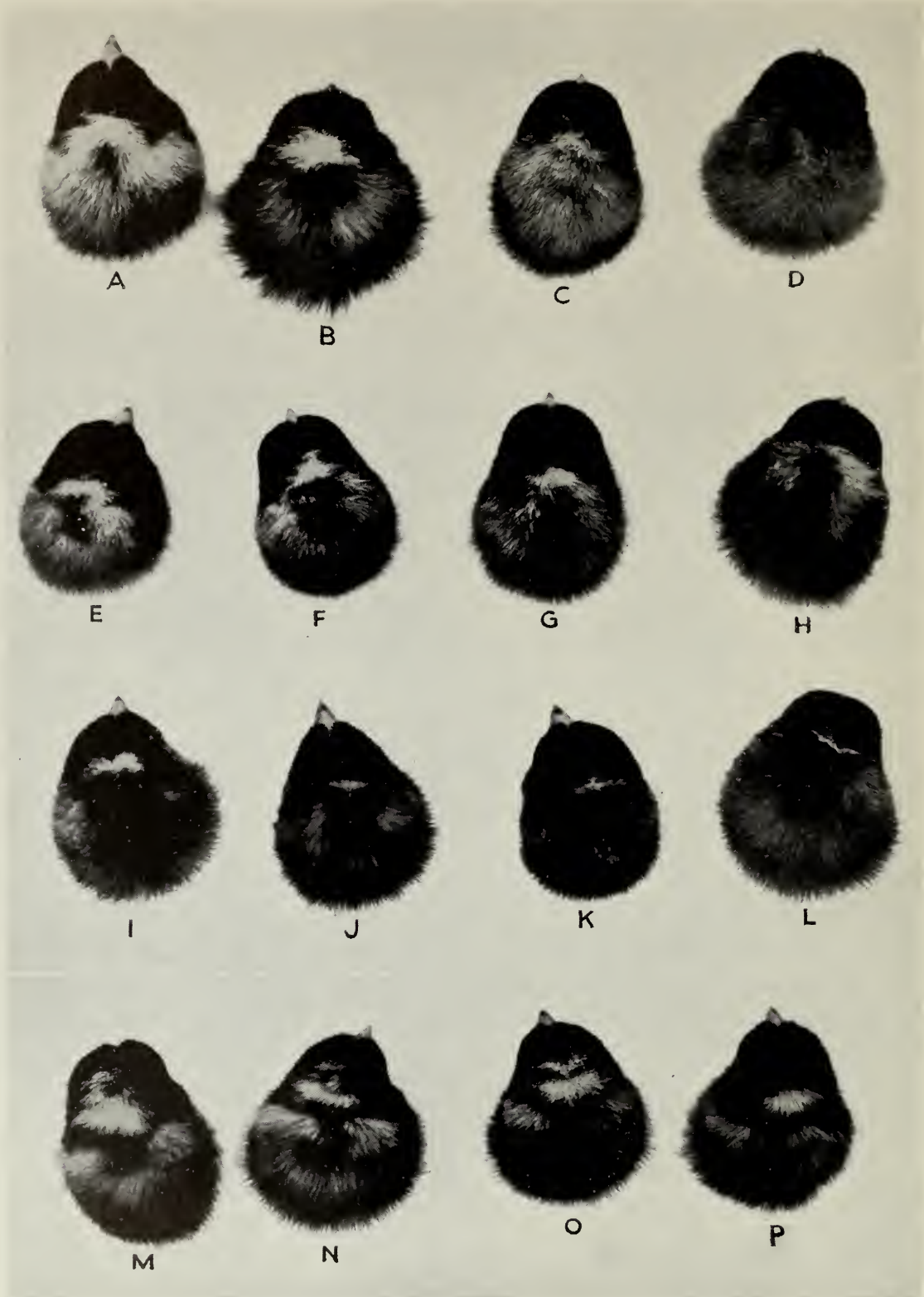


FIG. 1.—Different types of male head spots. For explanation read text.

do (a) and (b) but in some the black centre will be practically as light as the circle itself. Extremely light chicks such as these even without circles should be classed as males.

Class I chicks form a relatively small class and will not present difficulty to most people because even before head spot patterns were discovered these

chicks were recognized as being usually males. Chicks (e), (f), (g) and (h), in the second row of fig. 1 comprise class II. They are easily distinguished by their head spot circles which are very plain. Working from left to right in this row the circles become more uneven and broken. The males of class III shown in the third row have circles which are fainter and with complete breaks. Nevertheless, the basic circular pattern is plainly visible. The males in classes II and III form a more or less continuous series from (e), with the complete circle, through to (j) and (k) which have faint and broken circles and to (l) which has a faint diffused circle.

In all these male head spots except some of those in class I, chick (d) for example, the fore part of the circle consists of a spot or perhaps it could be better described as a more or less elongated splash of white which is sharper and more dense or clumped than the remainder of the circle. This white spot shows most plainly in the males of class III but it exists in all the others although sometimes as in chick (h) it is somewhat off centre and fairly continuous with other parts of the circle. This clumped white fore spot is, next to the basic circular pattern, the most universal identification of a male.

Class IV males are shown in the bottom row and are chicks in which the basic circle is cross hatched with black. The circle is nevertheless basic as is also the clumped fore white. The latter itself may be cross hatched as in chicks (n) and (o).

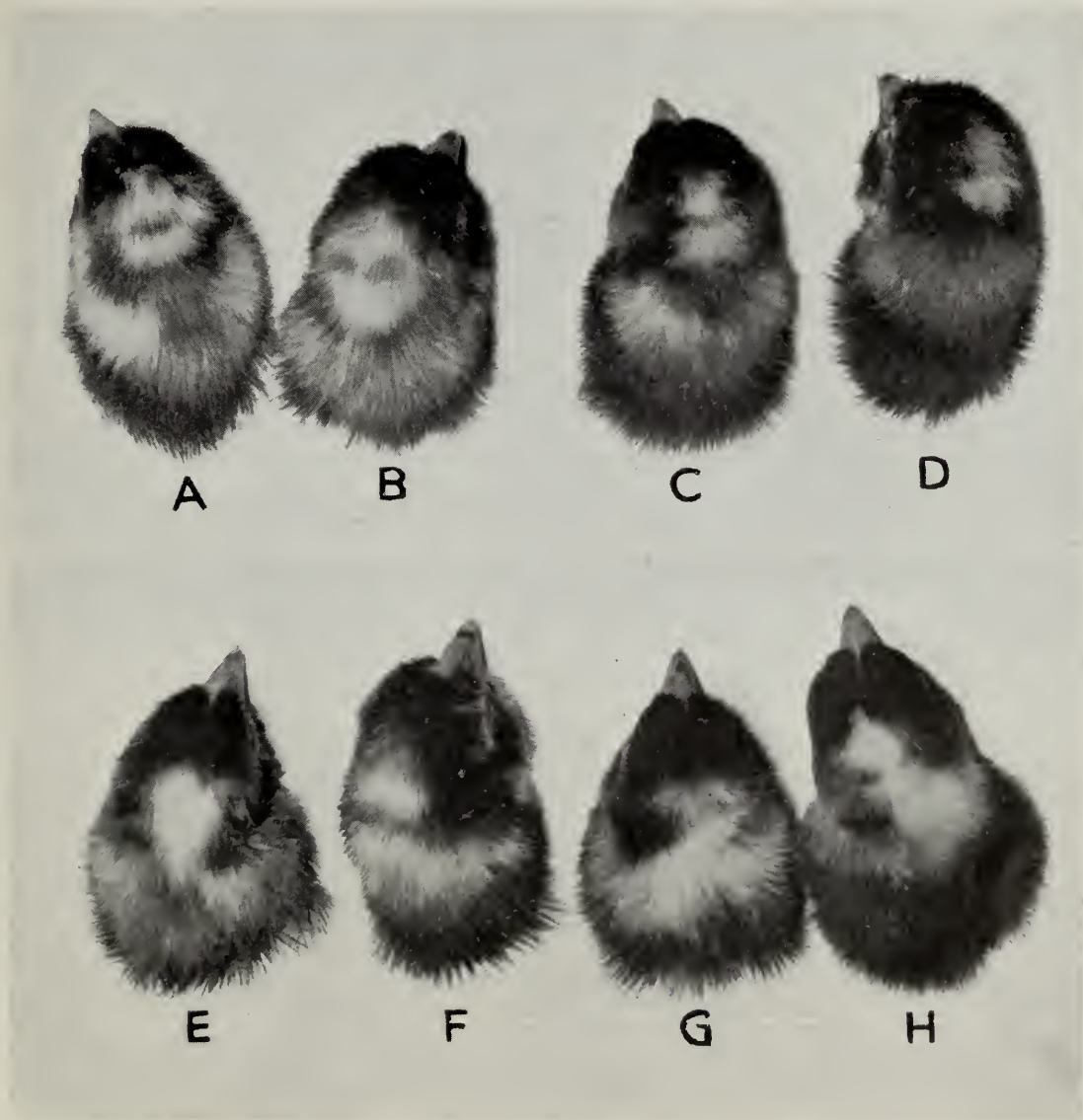


FIG. 2.—Types of male head spots. Upper row shows rear part of spot in shape of "half-moon." Lower row shows more unusual types. See Text.

While these four classes of males cover fairly well the range of variation found in male chicks, the shape of the head spot found in a group of chicks depends very largely on the strain to which they belong. For example, baby chicks from one flock may all show a very distinct circular head spot, from another flock the head spot may be mostly cross hatched while from still another all types may be found. It is inevitable that some male chicks will possess head spots which do not fit distinctly into any of the classes described above. Examples of this are shown in fig. 2. Chicks (a), (b), (c) and (d) in this figure all show the fore white, while the rear part of the spot takes the form of a very distinct arc or half-moon. The black centre is also in the form of an arc. These chicks most closely resemble class IV or the cross hatched chicks. Chicks (e), (f), (g) and (h) in fig. 2 are distinctly atypical. With the possible exception of chick (e) they do not fit clearly into any one of the first four classes. Chick (e) shows a large spot of fore white behind which there is a distinct central dark area circled by white. This chick probably fits somewhere near classes I and II. Chick (h) or the last one in fig. 2 shows a heavy fore spot which extends back and to the right, cutting into the central dark area and displacing it to the left. The arc of white exists and forms the rear border of the displaced central black area. Chicks (f) and (g) have a very irregular head spot the chief feature of which is a rear arc of white running well towards the ears on both sides of the head. This tendency for the latter part of the white spot to run down either one or both sides of the head is characteristic of male chicks and together with the central black spot and the fore white forms the third most characteristic part of the male head spot. A re-examination of figs. 1 and 2 shows this side or ear extension to exist to a greater or lesser degree in most of the males illustrated.

To sum up, the male head spot is an irregular patch of white on the head, the chief features of which are (1) a central dark area more or less completely surrounded by white, (2) a sharper generally yellowish fore spot of white, (3) a tendency for the rear part of the spot to extend down over the side of the head towards the ears.

The female

In contrast to males, females have no basic circle and no clumped fore white. With them the head spot is generally an almost solid or continuous white spot which may be well spread as in chick (f) of fig. 3 or rather restricted as in chick (d) of the same figure. The female spot also tends to be a soft or bluish white colour in contrast to the harsher yellowish white of the male. This last method of differentiation cannot be relied on to any great extent since many females have yellowish spots.

In fig. 3 chicks (a), (b), (c) and (d) are typical females and no one should have any difficulty in distinguishing them from the males in fig. 1. However chicks (e), (f), (g) and (h) of fig. 3 are more unusual types of females which nevertheless must be properly distinguished. Female (e) has a small rather dense head spot. It might be mistaken for a male if one took the white spot to be the fore white of a male. However the rest of the circle is entirely missing; it does not even exist as a broken line. There are traces of white running over the sides of the head towards the ears, a fact which indicates a male but the nature of the spot itself clearly indicates a female. Chick (f) has a large typically female spot and need be confused with a male only because of the white extending towards the left ear. Chick (g) has a

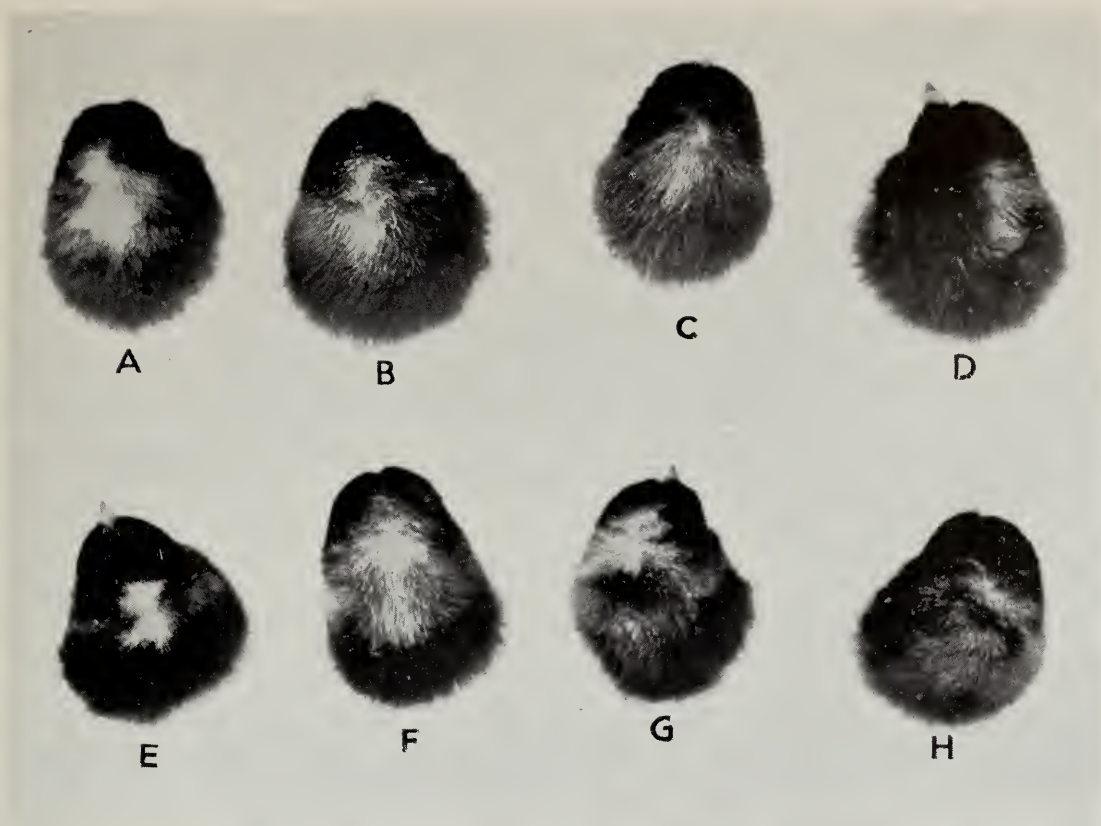


FIG. 3.—Types of female head spots. Upper row typical. Lower row more unusual. See text.

central black spot surrounded by white and for this reason looks like a male. However, she lacks the fore clump of white although this appears to exist in the picture. This lack is sufficient in itself to make her a questionable male and to require her to be checked for leg colour and forehead black, two factors to be explained later. Chick (h) likewise has a central black area surrounded by white but would hardly be classified as a male because of the lack of the fore clump and because of the very soft shade of the white.

Practical exercises on sexing by head spot

Beginning on page 11 will be found a series of photographs which further illustrate the type of head spot found in each sex. These illustrations are presented in the form of exercises which aim to familiarize the student with the head spot method of sexing in as practical a manner as is possible in illustrated material. Before reading the remainder of this bulletin and while the foregoing description of the head spot is still fresh in mind, turn to these illustrations and attempt to identify the sex of each chick or group of chicks as the case may be. Then turn to the answers which will be found on page 18. Everyone should get figures 7, 8 and 9 correct. Those who make any mistakes in these probably will never become expert sight sexers. In figures 10, 11, 12, 13 and 14 there are a total of 75 chicks. Since sexing by photographs is much more difficult than working with live chicks a greater margin of error will be allowed. In these 75 chicks anyone with from 1 to 5 errors is a seasoned expert; from 5 to 10 errors is excellent; 10 to 15 errors is good; 15 to 20 errors may make a good sexer with practice; over 20 errors had better forget about it.

LEG COLOUR

The female

Under this heading the female leg will be described first. This is usually black and white or perhaps it should be described as dark and light. The dark colour is on the upper part of the shank next the body and extends downward, stopping anywhere from part way down the shank to part way out on the toes. In fig. 4 the first row of legs (a) illustrates those of typical females. Moving from left to right in this row the black colour can be seen to extend progressively farther down the leg until in the last pair it extends part way out on the toes. The distinguishing feature of these typical female legs is the fact that the black colour has a clear cut and definite margin. That is to say it ceases suddenly rather than merging gradually into the white or flesh colour of the remaining shank and toes. In row (b) of fig. 4 appears a series of female legs showing a mottled colour; the black colour is spotted rather than solid but here again the spots have clear cut margins and stand out sharply. Mottled legs are fairly common in female chicks. In row (c) is shown a series of female legs in which there is, from left to right, progressively more black as in the case of row (a). However the legs in row (c) do not show the same clear cut differentiation between the dark and light areas. This is because

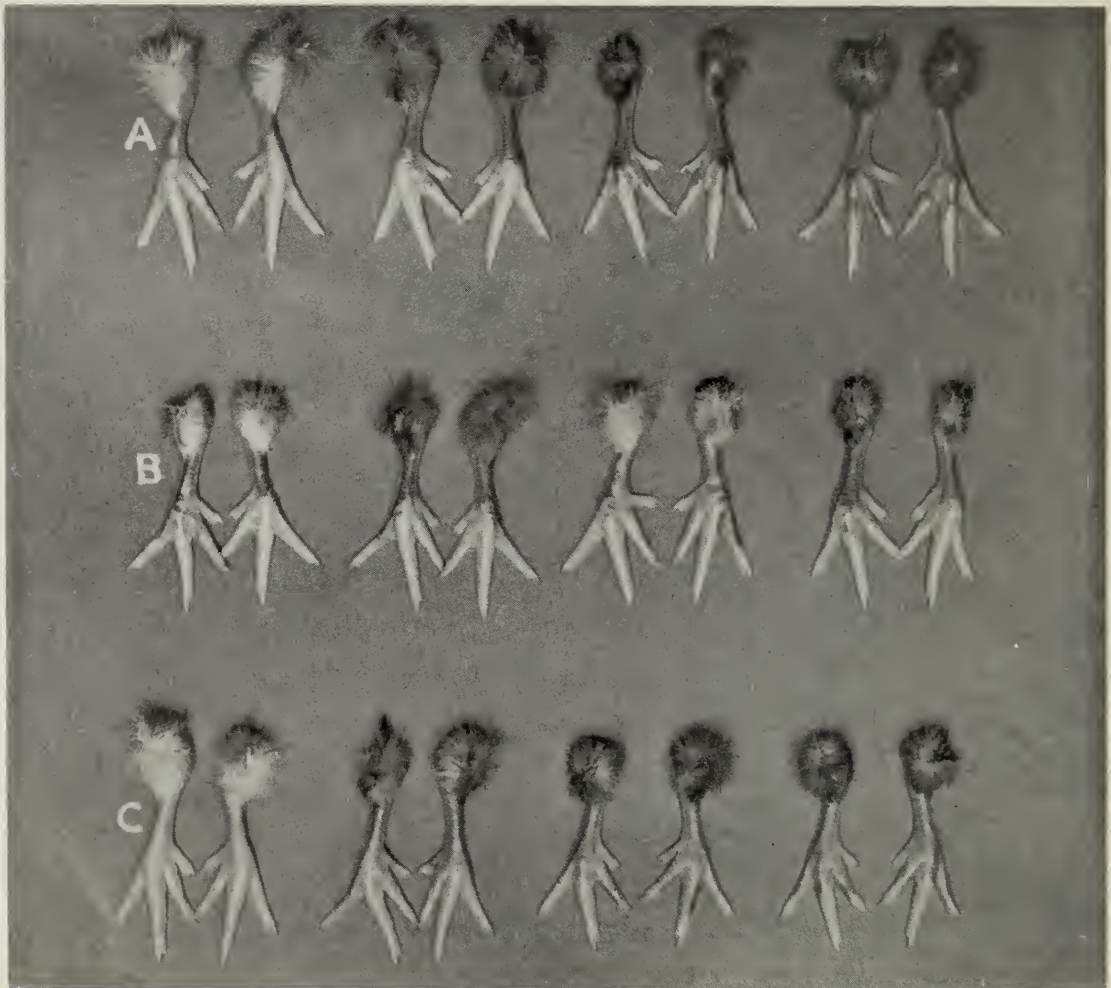


FIG. 4.—Range of colour patterns found in female shanks and toes.

the black pigment in the dark areas is located farther under the surface thus making the dark area appear greyish rather than black. These legs are not typical female legs as in the case of the upper two rows but they are nevertheless fairly common. One cannot tell the sex of such chicks very accurately by leg colour as many males have similar appearing legs.

From what has been said above it can be seen that only those chicks having the upper part of the shank and possibly the upper part of the toes black with the remaining parts of the shank and toes light, and in which there is a very sharp contrast between the light and dark areas, fig. 4, (a) and (b), can be classified as females. Perhaps two-thirds of the females in most flocks will be of this type. Leg colour of the remaining one-third will be like row (c) in fig. 4, and these cannot be distinguished from males by leg colour alone.

The male

The typical leg colour for males is shown in row (a) fig. 5. These legs are an even colour throughout the length of both shank and toes. From left to right they progress from a pure flesh or slightly yellow colour to a fairly dark slate; the two middle pairs being intergrades between the two extremes. The proportion of light legs, that is those on the left as against the darker legs to the right, depends on the breeding of the chicks. Some strains will have quite a high proportion of dark or slate legs but in most flocks the lighter colours will predominate. In the bottom row (b) of this figure are shown four pairs of male legs which resemble the female legs shown in row (c) of fig. 4. These legs have more or less lighter toes and sometimes the light colour extends part way up the shank. However the dark area is greyish or slate rather than black because the black pigment is not on the surface but deeper. These male legs are difficult and often impossible to distinguish from the female legs shown in row (c) of fig. 4. The proportion of these occurring in any given group of chicks will depend on the strain but usually quite a number of such chicks will be found.

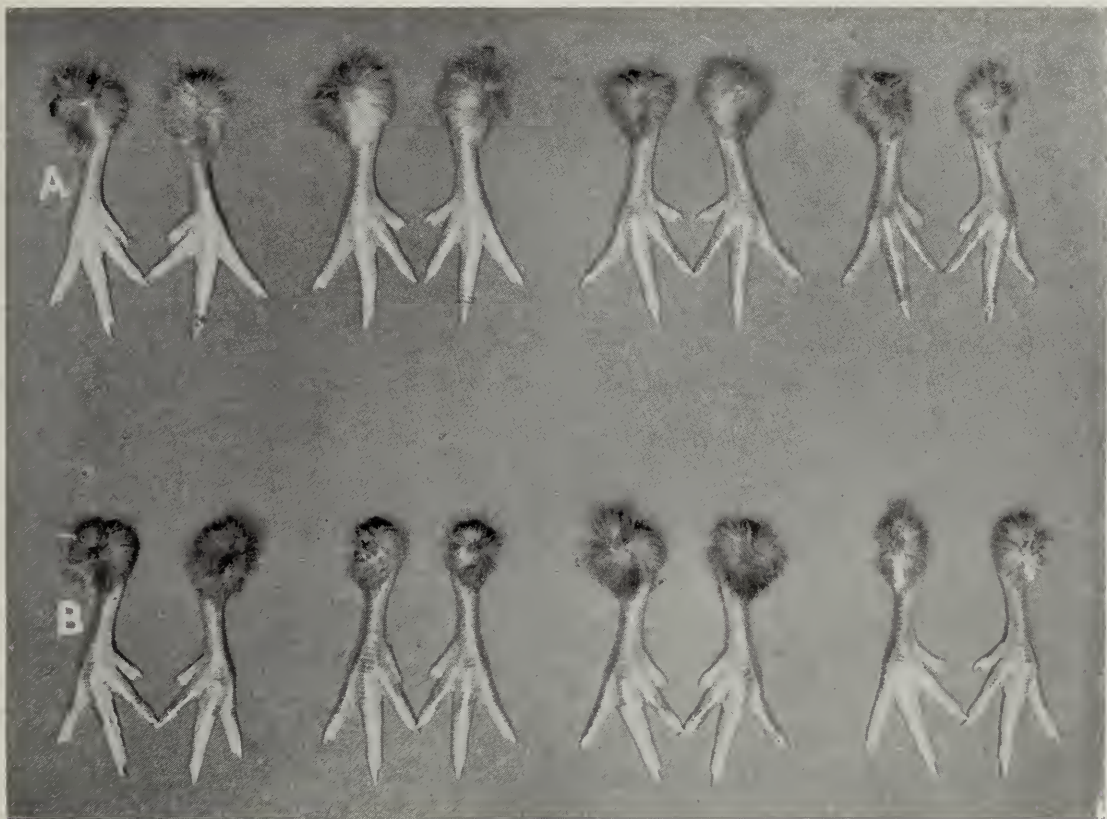


FIG. 5.—Range of colour pattern found in male shanks and toes.

From what has been said above with respect to male leg colour it can be seen that only those males which have fairly light and quite evenly coloured shanks and toes can be regarded with much certainty as males when leg colour alone is the criterion used. Those males with shanks and toes similar to row (b) in fig. 5 cannot be distinguished from females by leg colour alone.

SHADE OF BLACK DOWN COLOUR

The difference between the sexes with respect to the Head Spot and Leg Colour have been described above. The remaining characteristic which serves in some measure to distinguish the sexes is the shade or intensity of the black down colour. The best place to examine this is on the forehead of the chick directly between the eyes, in front of the head spot. In female chicks this is usually jet black whereas in males it tends to be brownish or greyish. The difference is rather minute and can best be seen by selecting a definite male and a definite female and comparing their foreheads by holding them closely together. If the chicks are held one in either hand facing each other the forehead of the male can be seen usually to be definitely brownish or greyish black while the female will be a shade or two darker.

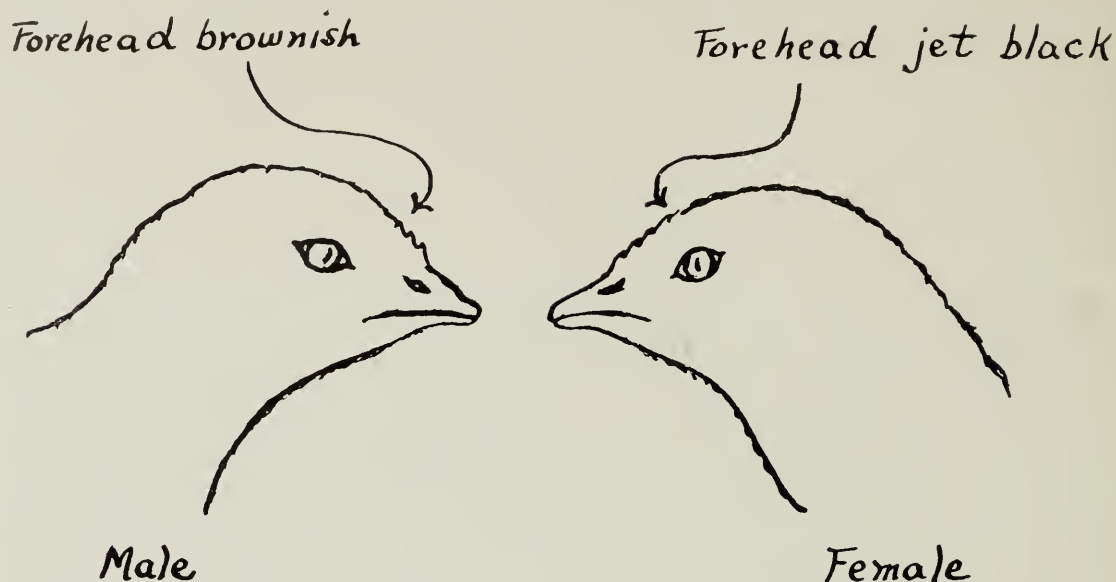


FIG. 6.—Hold chicks in this position to compare colour of down on forehead.

The difference cannot be relied on with certainty and like leg colour should only be used when the sex cannot be definitely distinguished by means of the head spot.

THE PRACTICE OF SIGHT SEXING

In actual practice the following procedure has been found to give the greatest speed commensurate with accuracy. Starting with a mixed lot of newly hatched chicks:—

1. Pick out by head spot alone all obvious males.
2. Pick out by head spot alone all obvious females.
3. Continue to pick out females which have typical female legs.
4. Pick out males with light even coloured legs.
5. Decide sex of remaining birds individually by means of a combination of head spot, leg colour and shade of black down.

With practice well over 80 per cent of the chicks can be sexed in the first two operations. After the first four operations have been performed there should not be more than 5 to 10 per cent of doubtfuls left. There may be a very few doubtfuls even after the fifth operation. These will have to remain doubtful or they may be sexed by the vent or Japanese method, if one is able to do this.

Experience has shown a slightly greater tendency to place males in with females than vice versa. For this reason it has been the practice to call most doubtful chicks males. As the result of two seasons' work at the Central Experimental Farm on approximately 5,000 chicks 99.3 per cent of the males and 95.8 per cent of the females were correctly sexed at hatching time by the methods described in this bulletin.



FIG. 7.—These chicks are all of one sex. Are they males or females?



FIG. 8.—These chicks are also of one sex. Males or females?

Turn to page 18 for answer.

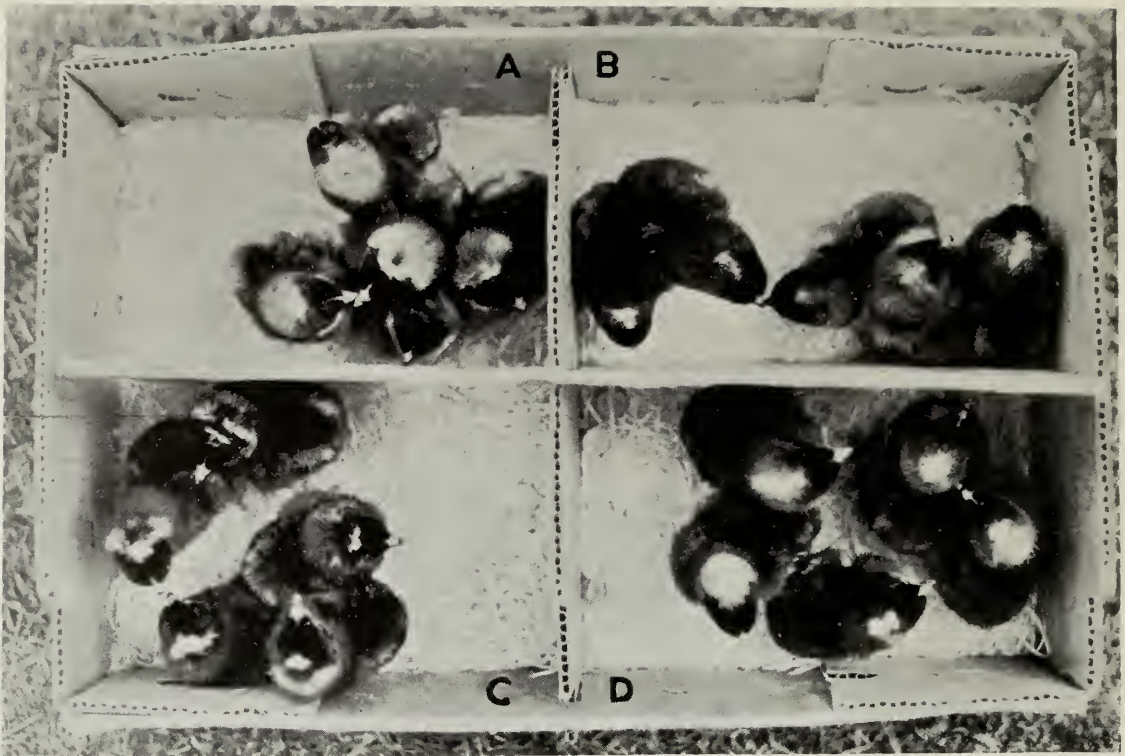


FIG. 9.—There are four groups of chicks in this picture identified as a, b, c and d. Each group is composed of 5 chicks and all five in each group are the same sex. Two groups are males and two are females. Can you identify the sex of each of the four groups?

Turn to page 18 for answer.

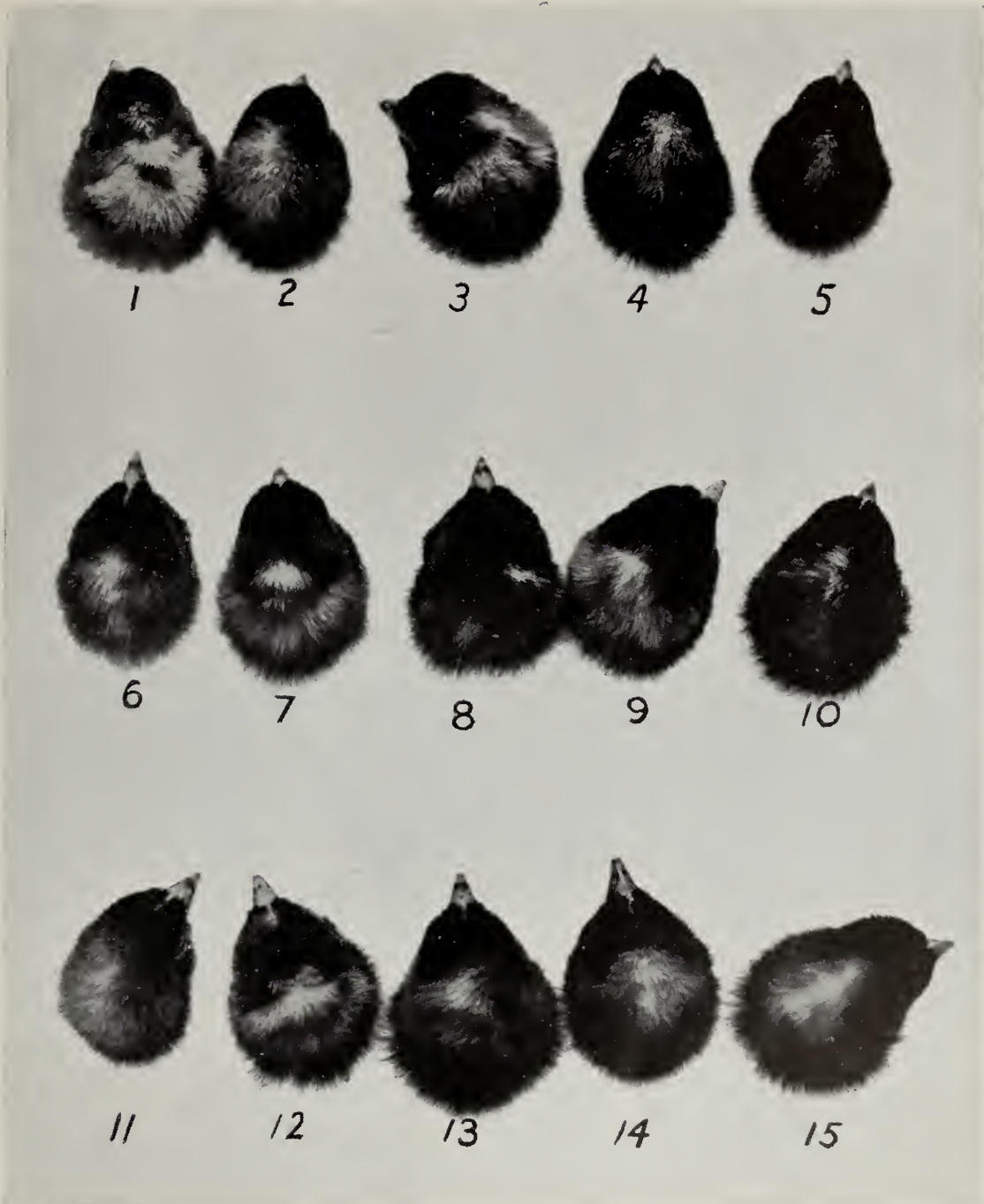


FIG. 10.—Take paper and pencil and jot down what you believe to be the sex of each individual chick. When you have finished all 15 chicks turn to page 18 for correct answer. Experts will have no more than 3 errors.

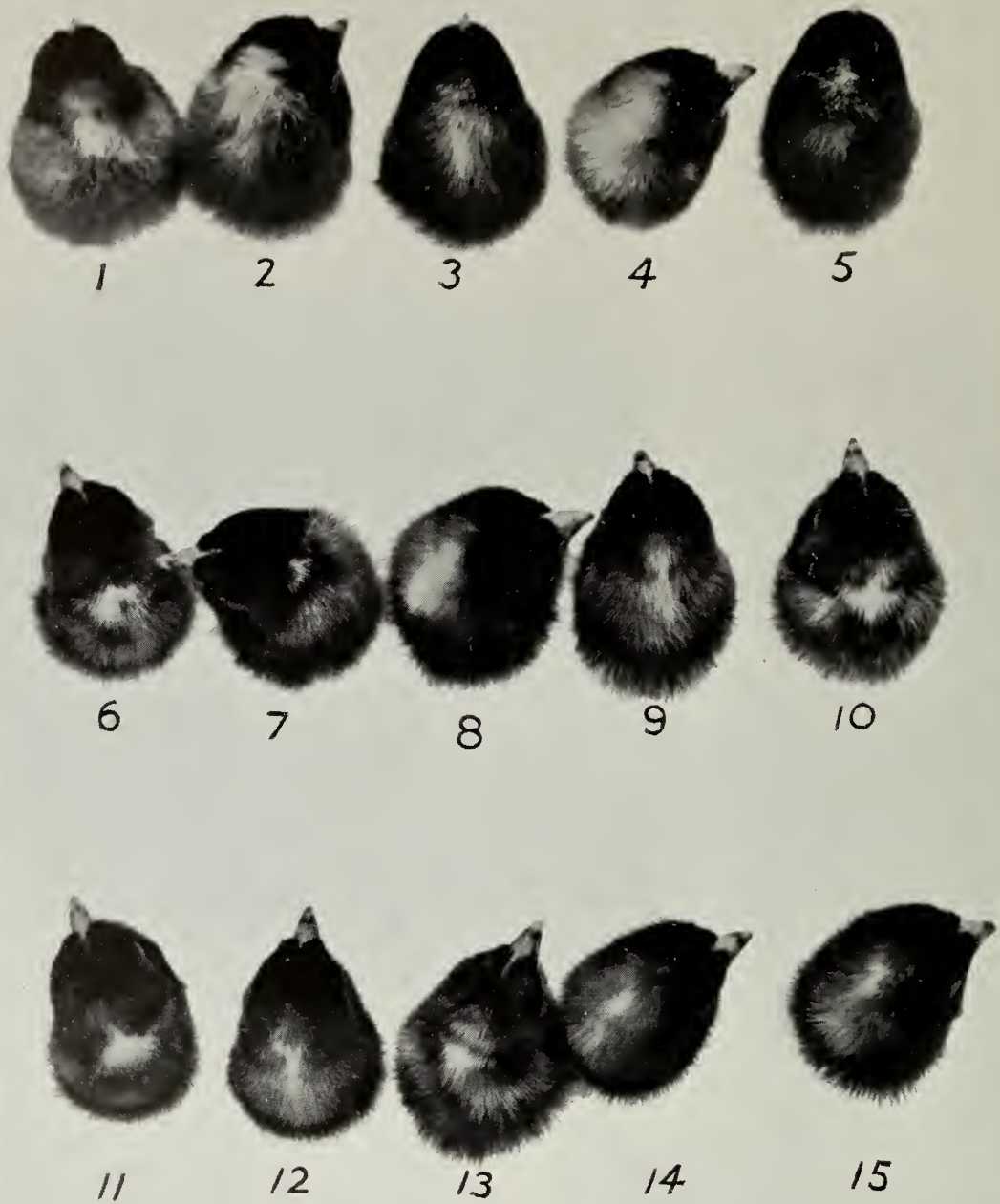


FIG. 11.—Do same as for fig. 10. Experts will have no more than 2 errors.

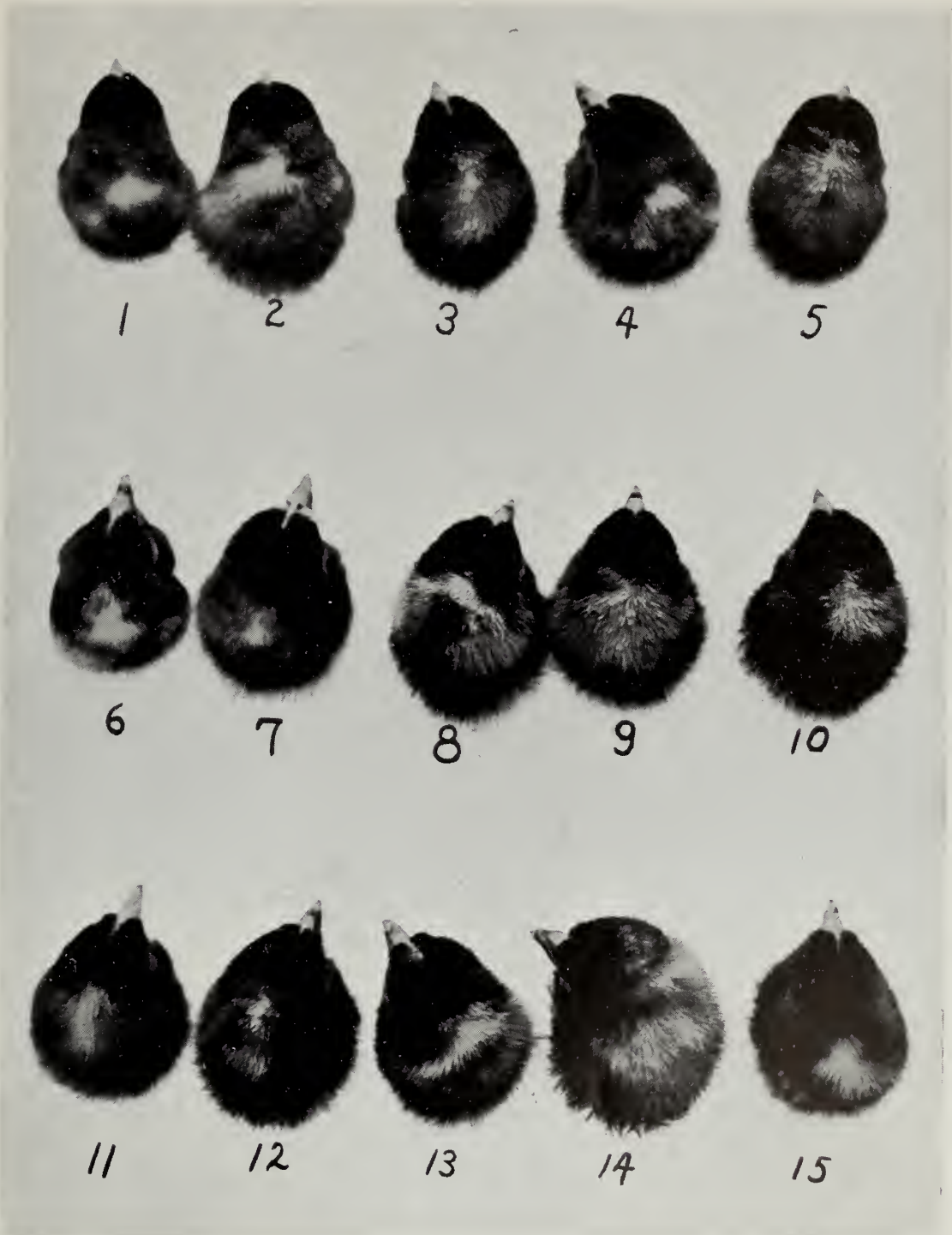


FIG. 12.—Follow same procedure. Experts will have no more than 1 mistake.

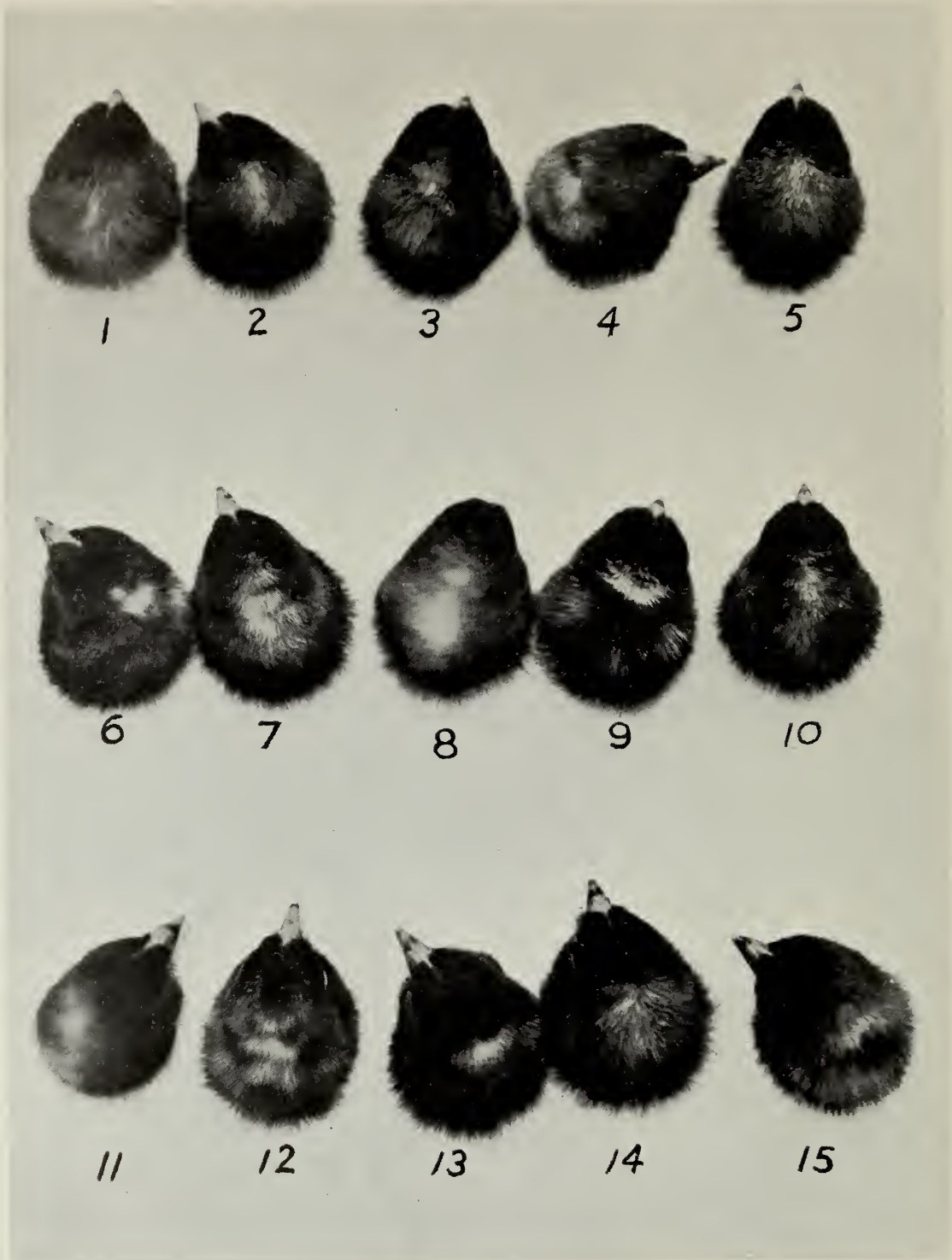


FIG. 13.—Do likewise. Experts may have 2 errors.

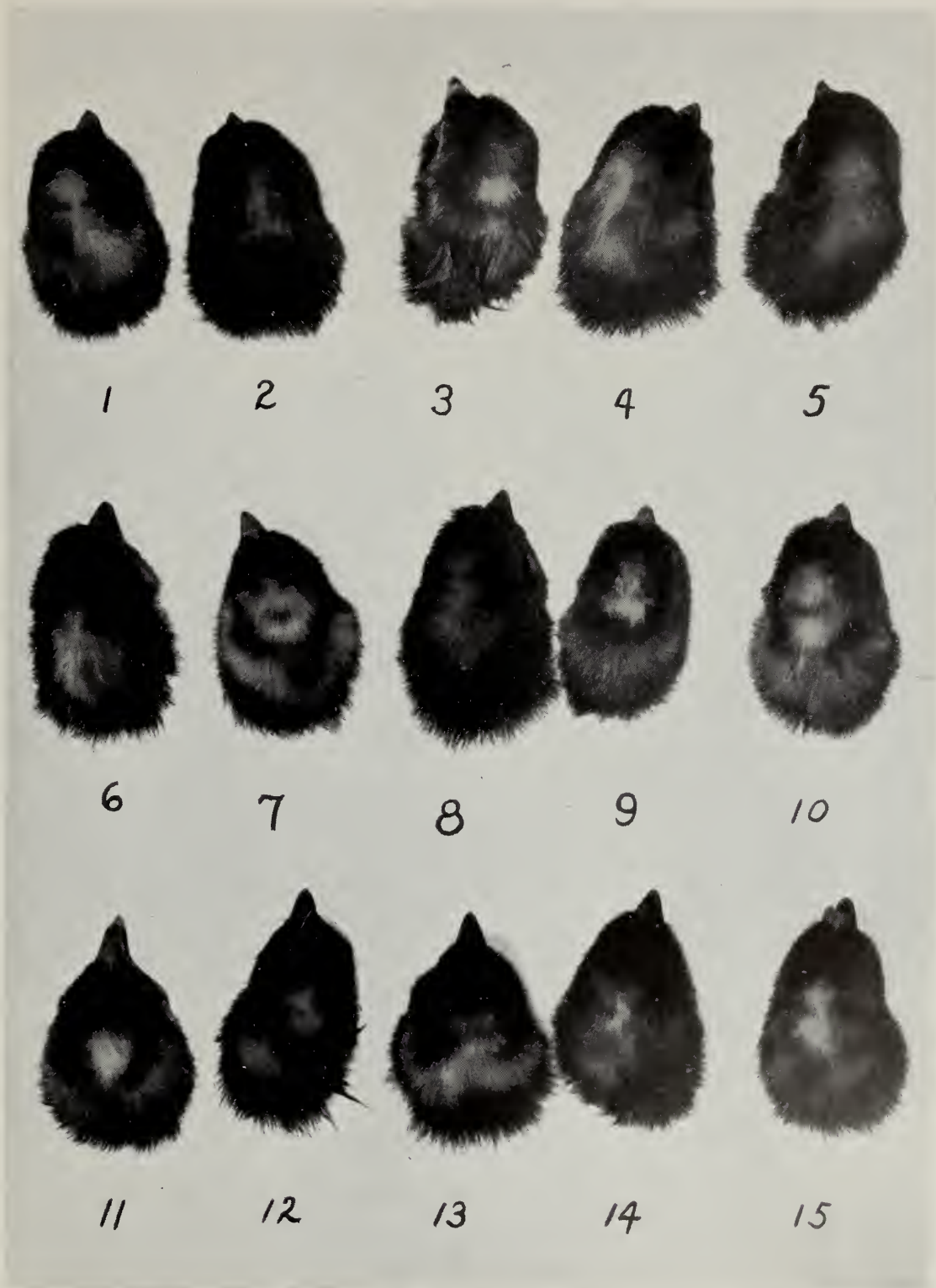


FIG. 14.—Experts should have all of these correct.

Identification of Chicks shown in Figures 7 to 14

Fig. 7.		females		
Fig. 8.		males		
Fig. 9.....	(a) males		(b) females	
"	(c) males		(d) females	
Fig. 10.....	1. male	6. female	11. female	
"	2. female	7. male	12. male	
"	3. male	8. male	13. female	
"	4. female	9. male	14. female	
"	5. female	10. female	15. female	
Fig. 11.....	1. male	6. male	11. male	
"	2. female	7. male	12. female	
"	3. female	8. female	13. male	
"	4. female	9. female	14. female	
"	5. female	10. male	15. female	
Fig. 12.....	1. male	6. male	11. female	
"	2. male	7. female	12. female	
"	3. female	8. male	13. male	
"	4. male	9. female	14. male	
"	5. female	10. female	15. male	
Fig. 13.....	1. female	6. male	11. female	
"	2. female	7. female	12. male	
"	3. female	8. female	13. male	
"	4. male	9. male	14. female	
"	5. female	10. female	15. male	
Fig. 14.....	1. male	6. female	11. male	
"	2. female	7. male	12. male	
"	3. male	8. female	13. male	
"	4. female	9. male	14. female	
"	5. female	10. male	15. male	

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