

## Bird Color Mysteries Explained

By Geoffrey E. Hill. 2010. National Geographic Society, 1145 17th Street N.W., Washington, D.C. 20036-4688. 255 pages. \$27.50 USD Cloth.

When I have been leading a trip that involved a bus ride I have filled in some of the travel time with an introduction to bird colour. Such an understanding I believe enhances the experience of watching birds. My explanations tend to be basic and in non-scientific terms.

Professor Geoffrey Hill has written an in depth explanation of the colouration of birds. This book is intended for bird watchers and the author uses plain, rather than scientific, language. When a technical term is unavoidable, Professor Hill explains its meaning and use. This makes the text easy to read and understandable for anyone with a fair comprehension of English.

The author explains the way we humans perceive colours and the differences in this perception by birds. He shows how colour is measured scientifically and how we can interpret the resultant graphs for our response against a bird's. He discusses the nature of "colour" as hue, saturation and brightness and how this affects the way we see bird feathers.

Professor Hill goes through the different pigments used by birds. He give details on the origin of the melanins, carotins and more rare pigments. He puts into plain words the methods used by birds to build and combine these pigments to reach the colour they need. In doing so he reveals why some birds can have colour variations in normal populations. For example, the House Finch is typically orange-red, but can have orange or yellow morphs.

He next talks about feather structure and its influence on colour. The blue of Blue Jays and parrots are formed by light reflecting off the microscopic sub-structures of the feather components. The author explains why the hue varies with the angle of the light in some birds and in others remain consistent. By mixing reflected blue light and yellow pigment we see green feathers.

The next chapter is a little more complex because it deals with DNA, genes and inheritance. The author carefully shows how genetic inheritance controls the

colours of birds . If you are not used to the terms you may need to read this more slowly. Our knowledge is far from complete and the influence of environmental factors needs much more research. While food can contribute to bright colour in healthy birds [the pink in flamingos from the carotene in shrimp] it is less clear what happens when birds are stressed by disease etc.

The science behind the mechanics of colour in feathers has been relatively easy to resolve. The reason why birds are coloured and how they use their vibrant [or dowdy] plumage is much more difficult to define. The author sifts through research to answer whether aggression, sex, territory, camouflage or all of the above is the reason for colour use. This gets very confusing because, whereas as a particular combination of colour characteristics work as an attractant in one species it does not seem to apply to a different, but similar, plumaged bird. The results are therefore complicated and this is clearly an avenue for extended research.

Hill uses inserted boxes to amplify special points or key research. These are very helpful, but I always find this technique irritating. I never know whether to read past them and preserve the flow of the text, or to stop and read the box. In this case I used a combination of reading on and then going back to the previous box.

The author uses analogies with common place materials to explain the scientific phenomena evolved. These are so well done that the principles and results became very clear. This is one of the best and most enjoyable books I have read in a long while. Even a person who has never read scientific text before will understand most of this book on first reading. It is a book that needs to be read by every birder and by many who are naturalists. It will help the avid birders make correct identifications and will raise everybody's enjoyment of wildlife.

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## The Crossley ID Guide: Eastern Birds

By Richard Crossley. 2011. Princeton University Press, 41 William Street, Princeton, New Jersey 08540 USA. 544 pages. \$35.00 USD Cloth.

In 1934 Roger Tory Peterson [RTP] published his "Guide to the Birds." This was the first bird book where the illustrations were meant as a true field guide, rather than delightful pieces of art. Peterson's paintings, while beautiful, were simplified to make the key characteristics more obvious. He sold out this first printing of 2,000 copies in one week, and became a dynamo who

did more to promote wildlife than any other person.

In the years that followed others produced new guides that contained incremental improvements. RTP's work covered only the east of North America, so whole continent guides appeared. More illustrations of different plumages and then recognizable subspecies were added. An increasing list of rarities were