Bird Photography

For many years practiced bird photography
By guess, didn't analysis of problem
Lack of method universal
Photo technique not developed to present stages
But obstacles to production of bird photos of excellence no longer insurmountable

Benefited from experience in general photography
Criteria of good bird photography based on general photography
1) birds in sharp focus and not blurred by motion
2) must be identifiable
3) other parts of picture must be in focus
4) pictorial standards must be kept high

Bird photography divisible into two parts
1) technique
2) onnithological aspects

Until 1937 was satisfied with usual out of focus pictures
This was rule because of poor adaptation of photo technique to this purpose
improvments could be made by new approach
smaller appertures and slower speeds
high speed lenses wrong approach
Worked at 1/25 and 1/10 sec. and f/11 and f/16
photographed when birds were motionless
this was only a partial solution

The problem formulated
Variables for producing image through lens
1) intensity of light reaching film
2) time of action of light
3) spectral sensitivity of film
IxT eguals Exposure these factors can be manipulated
I can be increased by using larger appertures
drawbacks - little depth of field
I can be increased by artificial light
flash bulbs
advantages - 20 times shortening of exposure time relative to sun light for given stop
Film sensitivity can be increased only within narrow limits but many kinds of film on market
high speed film, Weston 80 - 100, available
By making use of these new materials the criteria off good bird pictures can be fulfilled

Advantages over old method
My appefatus: camera, lense, shutter, synchronizer, trigger for remote control, tripod
Flash method: #21 G.E. bulb 50,000 lumen-seconds 2.5 feet from object, Super XX film Weston 80
Exposure: 1/200 sec. f/45
Without flash: brightness of colored object in noon sun is about 200 candles/sq. ft.
Exposure: 1/10 sec. f/45, with bellows extended 1/5 sec. f/45
Therefore, 20-40 times shortening of exp. time for given stop

Other useful devices:
- large tripod
- scaffolding
- blind?

Ornithological aspects:
- finding nests
- when to photograph when found
  - eggs, young birds
  - dangers

Color printing by Wash-off- relief

There has been a great deal published on three color printing processes. Nearly every photographer who has mastered one of the color printing techniques has felt compelled to contribute a detailed account of his technique to on e of the popular photographic magazines. Most of this material is worthless. What new information may be presented is not of significant importance, while the greater part is merely a recapitulation of a method better presented by the manufacturer of the material used. Any process that contains as many variables and has as many steps as the manufacture of a three color print will be subject to innumerable variations, a description of which is neither desirable nor necessary for an understanding of the process. Every photographer will, whether consciously or not, introduce his own variations into every involved technique. Obviously it is not these slight differences in technique which it is important for a new worker to master, but rather it is the principles underlying the techniques which he should understand. The best description of the Wash-off- relief technique is given in Color Prints By The Wash-off-relief Process printed by the Eastman Kodak Co. For carbro printing the best account is Trichrome Printing by the Autotype Carbro Process published by The Autotype Company Ltd. These accounts do not contain unnecessary informatiion such as occurs in amateur descriptions.

A great deal has been written about the need for accuracy in color printing. It is true that much greater precision is required in color photography than is ordinarily practiced encountered in black and white photography. However, many recommendations are ridiculous and show no knowledge of the principles of mensuration and errors. For example, if the error in measuring

densities is to .02, exposure differences due to density differences of less than 0.04 need not be considered. Likewise great precision in making up the acid consentrations of the dye baths for the wash-off-relief process is a waste of time since the determination of the gamma of the original separation negative is an operation involving an uncertainty of ±0.2 units. The accuracy of the whole process in determined by the least accurate step. Furthermore, although temperature control for development processes is very important it is not so critical for the bleaching step since variations due to temperature differences are much less. Therefore, to maintain bleaching temperatures to within a degree is unnecessary labor. Lastly when quantitative data is given it should be complete so that the conditions can be reproduced. The acetic acid content of dye baths should be given as percent or molar concentrations and not as so many volumes of acid without specifying the concentration of the acid or the volume of the dye to which the acid is added.