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with independently adjustable channels

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New (4th) Edition—Millard, King and Showers' Human Anatomy and Physiology

This long popular and highly regarded text, formerly by Millard and King alone, has been completely revised for the New (4th) Edition. To improve the context and assure accurate information on the latest concepts in anatomy and physiology, changes have been made in fully half of the pages. The authors present the facts in an easy-to-understand style for greatest student interest and comprehension. In addition they make use of 310 clear, well-labeled illustrations, bringing to life the basic points of structure and function described in the text. Your students will find further study aids in the improved summaries and the new discussion questions at the end of each chapter.

In answer to the requests of many of the teachers using this book as a text, the order of presentation has been changed to a more usable, more easily taught arrangement. While the same units have been retained, the order is now: Unit I, The Body as an Integrated Whole; Unit II, Integration and Control of the Body by the Nervous System; Unit III, the Erect and Moving Body; Unit IV, Maintaining the Metabolism of the Body; and Unit V, Reproduction of the Human Being.

Here are a few of the major changes for this New (4th) Edition:

- The discussions on structure and function of the cell have been rewritten.
- The section covering initiation and propagation of nerve impulses has been revised to emphasize nervous control exerted in integrating body functions.
- Material on the endocrine system has been revised and expanded.
- Sections on metabolisms of carbohydrates, fats and proteins have been rewritten and the significance of water balance in the body emphasized.

There are many new discussions in this edition on the following topics: Forces Influencing Movement of Ions, The Refractory Period, Transitional Epithelium, Structure of Bone, Properties and Classification of Muscular Tissue, Factors in the Regulation of Respiration, Oxygen Debt, Coagulation of the Blood, Blood Typing and Rh Factor, Functions of the Liver, Digestive Enzymes, etc.

By Nellie D. Millard, R.N., M.A., Science Instructor, University of Illinois, Cook County School of Nursing, Chicago; Barry Griffith King, Ph.D., Assistant Professor of Physiology, Ohio State University; Lecturer in Physiology, University of Maryland and Mary Jane C. Showers, R.N., M.S., Formerly Director of Educational Program, Instructor in Biological Sciences, The Christ Hospital School of Nursing, Cincinnati, Ohio. About 600 pages, 5½" x 8", with about 310 illustrations.

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filters to match your color film to your photomicrographic light source ... bloody business at Fall River ... copy negatives on a film with a peculiar H & D curve

What the brain discounts

Color perception is something personal and indescribable that goes on inside your head. A ripe tomato, a lump of carnotite, or the eyes of a flaxen-haired girl look just as mealy and respectively red, yellow, or blue whether seen by candlelight or under a cold north sky. Between the flame and the sky there is a vast difference in the constitution of the light that these things reflect into the eye of the beholder, yet his brain discounts the physical difference and sets all to rights.

Now just because you happen to find yourself past the middle of the sixth decade of the twentieth century, you expect to feel these and all other possible color-feelings through the agency of varying amounts of three factory-standardized dyes on a piece of film. And, marvel to tell, you can come pretty close.

It's just that in the manufacture of a reversal-type color film, a commitment must be made as to light source. If the light source used differs from the one assumed, the physical parameters (they're the only kind available) must be manipulated to meet the psychophysical necessities. The manipulation can be done with dyed gelatin filters placed somewhere along the line. Here, for example, are our recommendations for some light sources common in photomicrography:

<table>
<thead>
<tr>
<th>Light source</th>
<th><em>Correction filters for</em></th>
</tr>
</thead>
<tbody>
<tr>
<td>Kodak Ektachrome Film, Type B</td>
<td>Kodak Ektachrome Film, Type F</td>
</tr>
<tr>
<td>6-v ribbon or sail filament</td>
<td>82A</td>
</tr>
<tr>
<td>300 to 750-w sail filament</td>
<td>match</td>
</tr>
<tr>
<td>tungsten arc</td>
<td>82</td>
</tr>
<tr>
<td>carbon arc (4.5 amp)</td>
<td>81D and 28</td>
</tr>
</tbody>
</table>

As for the choice to make in 35mm, look at it this way: If you seek comfort in knowing that your color film is capable of the highest resolving power and acuteness that the market currently affords, pick the new Kodachrome Professional Film, Type A. Pick Kodak Ektachrome Film, Type F, if you want the results at once.

Still another choice might have to be made when the only all-night drug store in the neighborhood has no other 35mm color material than Kodachrome Film, Type F. This gives just as good definition as the Kodachrome Professional, but, like Type F Ektachrome, is balanced for the amateur's flash bulbs and therefore requires the same correction with photomicrographic light sources. The filtering cuts the speed down somewhat lower than that of the other two 35mm choices.

"82," "82A," "82C," "81C," and "81D" are all Kodak Light Balancing Filters; "2B" is a Kodak Wratten Filter, which absorbs ultraviolet. The Kodak dealer can fix you up. If you want the filters in 35-mm very thin glass mounts for insertion in the filter receptacle below the substage diaphragm, he'll probably have to write in to us. He won't mind at all, particularly if you have accustomed him to minister to your needs.

Truly blood

John D. MacPhail likes p,p'-Benzyldiindenbis(N, N-dimethylaniline) (Eastman 3620) better than the classic benzidine for the identification of bloodstains because he finds it more specific. Doing business as Forensic Science Service (144 Third Street, Fall River, Mass.), Mr. MacPhail knows how to keep legal evidence intact. He moistens a filter paper with 0.1N saline and merely presses it against an edge of an old stain suspected as blood. Then he touches the paper (not the stain) with one glass rod dipped in a 1:240 solution of Eastman 3620 in 40% acetic acid. A second time he touches it with another glass rod dipped in an 11:30 solution of sodium perborate in 40% acetic acid. If the paper turns blue-green after the second touch, Mr. MacPhail knows the spot is truly blood. Perhaps something in the bloodstain releases from the sodium perborate the oxygen to oxidize our compound to its far better known form, malachite green, a common dyestuff named for its color resemblance to the brilliant copper mineral malachite.

The first supply of our leuco-malachite green that Mr. MacPhail laid in worked fine down to the last grain; presto, twenty years of human violence had gone by and it was time to reorder. (The price is $2.20 for 5 g.) The second lot we supplied worried Mr. MacPhail. It was green enough in the stock solution to invite sarcastic questions from lawyers. We suggested that he add a little sodium bisulfit to re-dress the redox balance leucowards. Now Mr. MacPhail reports he is all set again.

Yes, and if you want the balance the other way we can supply Malachite Green Oxalate (Eastman 1264). Among 3500-odd organics, the chance of finding what you want is encouraging. All from Distillation Products Industries, Rochester, N. Y. (Division of Eastman Kodak Company).

Are YOUR highlights washed out?

<table>
<thead>
<tr>
<th>KODAK GRAVURE COPY FILM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exposure: 20 sec, Tungsten</td>
</tr>
</tbody>
</table>

Just as some fortunate people are able to turn the pages of a Brahms score and hear the lovely music in the mind, so also a few (perhaps not quite so fortunate) can look at this curve and say, "Yup, a good long straight-line portion and then, as you go to your higherdensities, your contrast starts going higher and higher. That's funny. An H & D curve is supposed to have a shoulder. Where contrast falls off when you get past the straight-line part. This shoulder is inside out. Kodak Gravure Copy Film, eh? Ought to be good for making copy negatives from pictures where the highlights are washed out. You could get some of the old lost zip back. Why did they have to wait till now to come out with it?"

Because we didn't know how to make it properly till now, that's why. If you're so anxious, why don't you call up a Kodak dealer right now and order some?

Price quoted is subject to change without notice.

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