Optical Department

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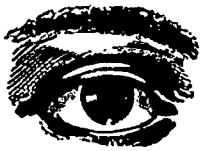

Correspondents should note that for an intelligent answer to be given to their inquiries, it is necessary in every case to give the following information relative to their patient: (1) Sex, (2) age, (3) occupation, (4) near point of distinct vision for small type with each eye alone, (5) how their eyes trouble them, *i.e*, their asthenopic symptoms, (6) vision of each eye alone without glasses, (7) best vision obtainable with glasses, naming correction

Example.—J. S., male; age 18; bookkeeper; can read small type to within five inches of each eye; complains of much headache through the day and evening; eyes feel sore and water a good deal, look red and inflamed, etc., etc.

R.E.V.$\frac{20}{30}$ with + 1.50 = $\frac{20}{20}$
Z.E.V.$\frac{20}{30}$ with + 1.50 = $\frac{20}{20}$

The above example is taken to illustrate about how we desire inquiries to be made.

H. A. Hamilton: A young lady, 20 years old a student —can read with either eye separately, Jæger No. 1, to within five inches of her eye.

R.V.$\frac{20}{40}$ all but one letter with + 0.75 cyl. axis 90 = $\frac{20}{20}$.

L.V.$\frac{20}{20}$ and some of $\frac{20}{15}$ with + 1.00 cyl. axis 90 = $\frac{20}{20}$.

But these cylinders do not make the lines on the astigmatic chart equally black and distinct. If I increase the cylinders a half a dioptre the clock face looks all alike but she can only read $\frac{20}{30}$. Which glasses should I give?

Answer—In all cases of astigmatism an effort should be made to cause all lines of the clock face to appear equally black, but if at the same time the vision by test at Snellen's test types can be improved by increasing or decreasing the cylinders, it should be done. In other words, the crucial test in all cases is the best possible vision obtainable at Snellen's test type at 20 feet distance. This is only a general rule which in some cases must be sacrificed. The anomaly above does not frequently occur, and when it does it is usually due to lenticular astigmatism.

T.A.C.: I have not taken an optical course, but read all I can from books and journals which come to our store, and am much interested, but I find so many words the meaning of which I do not know, and cannot find in the Dictionary, that I thought you could tell me what t do.

Answer—There is perhaps no department of science so difficult to master and understand as optics and scientific spectacle fitting when it is attempted as a home study without any further aid than books and journals. On the other hand, there is nothing easier to learn when piloted and taught by a competent teacher. Any one with average intelligence and an ordinary education can master optics in a short time, and I would advise our correspondent to put his house in order, and take a vacation at some reputable optical institute. In the mean time Gould's pocket Medical Dictionary may help him through with apparently difficult words.

L. T. S.: What is asthenopia, and what causes it?

Answer—Asthenopia is weak or painful vision caused by weakness of the ocular muscles, errors of refraction (*i.e*, hyperopia myopia astigmatism) strain or over use of eyes, over-sensitiveness of the retina, etc. Asthenopia is usually divided into (1) accommodative, (2) muscular, (3) retinal, nervous, or reflex. Asthenopia in any case signifies nothing whatever as to its cause—just as pain in any organ of the body may be due to many causes; in like manner pain or weakness in or about the eye may be due to any one or more of the above specified causes. Headache is a very constant companion of other symptoms of asthenopia, and over 60 per cent. of all headaches are due to eye strain of one form or another

Antipyrin as a Reagent for the Nitrites.

As is well-known, nitrous acid is the common reagent for antipyrin, the reaction consisting of a green colored compound — nitroso-phenyl-dimethyl-pyrazolon. It is now proposed by Schuyten (*Deutsch. Chem. Zeit.*) to invert the reaction, and use antipyrin as a test for nitrous acid and the nitrites, the proceeding being as follows: Prepare a solution of 1 part antipyrin in 100 parts of acetic acid of 10%, and to 5 ccm. of this add an equal volume of the liquid to be tested. The acetic acid decomposes the nitrites, with the formation of nitrous acid, which at once combines with the antipyrin to form the green compound, as above. This test is still quite easily recognized when the nitrites exist in the proportion of 1 part to 20,000 of the liquid under examination. Iron oxysalts, in fact all oxidizing bodies, sulphuric and nitric acids, interfere with the sharpness of the reaction, since many organic compounds, and the organic bodies in drinking water form a long series of metallic salts, iron oxysalts included, without preventing, however, the formation of nitroso-antipyrin. The reagent (antipyrin) may also be used in the quantitative determination of nitrites.—*Nat. Druggist.*

Preservation of Color in Specimens.

Curators of pathological museums have made numerous attempts to obtain a preservative fluid which will enable the original color to be retained by the specimens, but hitherto only indifferent success has rewarded their efforts. Especially has this been the case with the lungs and brains. In the *Berliner Klinische Wochenschrift*, an interesting paper is published by Dr. C. Kaiserling describing a process he has introduced, and with very encouraging results. The organ to be preserved is first placed in a solution of the following composition. Formalin, 750 c.cm.; distilled water, 1000 c.cm.; nitrate of potash, 10 grammes; acetate of potash, 30 grammes. The organ is disposed in such position as to preserve its form as far as possible, and the fluid should be large in proportion to the size of the specimen. This solution does not abstract any color, but remains quite clear, and can be used for a large number of specimens. An immersion of twenty four hours in the fluid is sufficient for any tissue, but double this period will not do any harm. The organ is then allowed to lie for twelve hours in 80 per cent. alcohol, and then for two hours in 95 per cent., and is subsequently preserved in equal parts of water and glycerine, with the addition of thirty parts of acetate of potash. Very delicate tissue, such as intestine, are best kept in equal quantities of glycerine and water, with the addition of the strongest grain alcohol in the proportion of one part of alcohol to ten of the mixture.

Preservation of Anatomical Specimens in their Natural Colors.

Jones recommends the following mixture for this purpose:

Solution of formaldehyde	2 to 10 parts.
Chloride of sodium	1 part.
Sulphate of magnesia	2 parts.
Sulphate of soda	2 parts.
Water	100 parts.

Organs are also bleached in this solution; but if, after hardening, the liquid is poured off and replaced by 95% alcohol, the natural color returns after thorough saturation of the preparation, at the latest in 24 hours. The liquid is again changed and in place of the alcohol a mixture of equal parts of glycerin and water is substituted and this brings the natural colors still more in evidence. This method is not only applicable to gross specimens, but it is equally valuable for such as it may be desired to preserve for microscopic examinations, yielding superior results and preserving the tissue elements perfectly.—*Therapie per Gegenwart.*

DETECTION OF APPLE PEEL AS AN ADULTERANT OF ORANGE PEEL.—Moller states (*D. Chem. Zeit.*, 1896, R. 28) that this adulterant, which it is difficult to detect by the microscopic appearance or by a study of the structure, may be detected with certainty by adding to the suspected drug strong crude nitric acid (containing about 55 per cent. of N_2O_5), when, if apple peeling is present, it will turn dark green. Orange and lemon peeling show only brownish spots.