angles to the axis. If you focus light on to a screen by a compound cylindric lens, say, a +4D spherical combined with (sign ⊃) a +4D cylinder, you will find two distances at which you will get bright lines sharply defined. If the axis be horizontal you will find at 10 in. certain bright vertical lines; this is the focal distance of the spherical power only. At 5 inches you will find certain bright horizontal lines; this is the focal distance of the combined cylinder and spherical powers (the stronger the lens, the shorter the focal distance). When the lens is held anywhere between the two focal distances, there will be found on the screen round and oval shadows which are called circles of diffusion. The distance between the two focal points is called the interval of Sturm. The number of an unknown cylinder is, however, to be found properly only by neutralizing.

If you look through a cylindric lens at the analyzing card, you will find that the square card appears oblong. A convex cylinder will make the card appear larger in the direction of the meridian of greatest refraction, while a concave cylinder will make it appear smaller. In Fig. 26 *A* is the card, *B* is as it appears through a convex cylinder, *C* is as it appears through a concave cylinder, both cylinders being held axis vertical. If the lenses be placed one over the other, axes corresponding, the card is seen square again if the two lenses be of the same number.

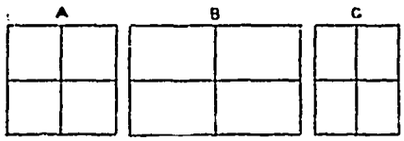

FIG. 26.

To distinguish between a lens that has only spherical power and one that has cylindrical power, look through it at the analyzing card, and turn the lens around its centre. If the lens be spherical, the lines remain unmoved; if the lens be cylindric, the lines become twisted, as in Fig. 27.

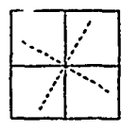

FIG. 27.

There are two positions of the lens where the cross-bars are seen in their proper positions perfectly straight, one is when the axis is parallel to the vertical bar, and the other when parallel to the horizontal bar. When the bars are in their natural position, you can find the axis of a simple cylinder by moving the lens downwards and also sideways. In one direction there will be no movement of the figure, as the lens, being moved in the direction of its axis, acts as plain glass, and so by this test you can locate the axis of the cylinder. If the lens be a compound cylinder, then there will be movement in both directions; but where it is less marked indicates the direction of the axis, and where it is greater shows the meridian of greatest power. If the former, there is movement caused by the spherical only; in the latter that of the combined cylinder and spherical.

As with spherical so with cylindrical lenses. The movement of an object seen through a lens when it is moved is with the lens, if it be concave, and against the lens, if it be convex.

As the number of an unknown cylinder can only be found by neutralizing, the first thing to do is to locate the axis. This having been done move the power lens contrary to the axis, and note if it be convex or concave. Then proceed to find the cylinder of opposite refraction, that placed over the unknown lens will completely neutralize the movement in the meridian of greatest refraction. The lenses during the working out of this must be kept exactly parallel to one of the bars, the vertical one for preference, and care must be taken that the axis of the neutralizing lens be placed and held with the greatest exactitude just over the axis of the other lens. To do this with ease it is, perhaps, better to mark with ink the axis of the unknown lens; those with which the neutralizing is done will have the axis marked if they be from a test case.

Neutralizing compound cylindric lenses is sufficiently difficult. First locate the axis of the cylinder and mark it with ink, and holding the lens axis vertical move it vertically; note the direction of the movement, and find that spherical lens of opposite refraction that will cause no movement of the horizontal bar when the two lenses together are moved vertically. This spherical lens, neutralizing the movement of the spherical of the unknown lens, denotes the power of the latter. Now, holding the two lenses—the compound cyclinder and the neutralizing spherical—together, with the ink-marked axis still vertical, move them horizontally and note the direction of the movement of the vertical bar, and find that cylinder of opposite refraction that will neutralize the horizontal movement; the axis of the neutralizing cylinder must be put on exactly over the axis of the unknown lens which you will have marked with ink.

To simplify the above note that when the lens is moved vertically you must regard the direction taken by the horizontal bar, and *vice versa*. It requires considerable practice to neutralize properly and quickly strong compound lenses. The best way to learn this work is to practise with lenses of known refraction, such as are in a test case, taking note of the movement of the bars seen through various simple and compound cylinders, and how these movements are nullified by lenses of opposite refraction.

A combination of a + cylinder and a − cylinder with the axis of the one at right angles to that of the other (they cannot, in practice, under any circumstances, be otherwise than at right angles) is called a cross cylinder. Such a lens is, however, little used to day, as it is much more difficult and costly to make, and also because it is not so good for optical purposes as when reduced to a mixed cylinder. I apply the term mixed cylinder to a combination of spherical and cylindrical, in which the cylindrical is of opposite refraction to the spherical, and also of a higher number, its refraction being + in the one direction, and − in the other. The movement of the bars on moving a cross or mixed cylinder is with the lens in the one direction, and against the lens in the opposite direction.

For the reduction and transposing of cylindrical lenses, see chapter on that subject.

Books for Druggists.

Any of the following books will be mailed on receipt of the price named:

British Pharmacopœia	$2 00
British Pharmacopœia Addendum	35
U S. Dispensatory (in cloth)	7 50
U S. Dispensatory (in leather)	8 25
U.S. Dispensatory (in leather) with index	8 50
National Dispensatory	8 50
National Formulary	1 00
Attfield's Chemistry	3 25
Gray's Botany, first lessons	1 40
Mauch's Materia Medica	3 50
Martindale's Extra Pharmacopœia	2 00
Pereira's Prescriptions	1 80
Parrish's Pharmacy	5 25
Squire's Companion	3 25
Remington's Pharmacy	6 00
Practical Dispensing	50
Minor Ailments	1 50
Heebner's Practical Synopsis of B.P.	1 00
Heebner's Manual of Pharmacy, etc.	2 00
Manual of Formulæ	1 50
Diseases of Cats and Dogs	75
Practical Dentistry	50
Harrop's Monograph on Fluid Extracts	2 00
Harrop's Monograph on Flavoring Extracts	2 00
Quiz Compend on Pharmacy, Stewart	1 00
Caspan's Treatise on Pharmacy	4 50
Coblent's Handbook of Pharmacy	3 50
Druggists' Price Books	2 00
Standard Dictionary, Funk & Wagnalls, single volume	$12 to 18 00
Standard Dictionary, in two volumes, according to binding	$18 to 22 00
Art of Compounding, by Scoville	2 50
Bartley's Medical Chemistry	3 00
How to d Business (McLean)	75
Sayre's Organic Materia Medica and Pharmacognosy	4 50
Practical Perfumery	50

CANADIAN DRUGGIST, Toronto.

Glycosolvol is, according to the *Pharmaceutische Centralhalle*, a new remedy for diabetes mellitus which has been introduced recently, but so far no information is forthcoming as to its composition.