

his shoulder. Then he turned round, came into the verandah, passed a few observations upon the want of sense of some persons he knew, and retired. The supposed animal turned out to be a piece of corrugated iron resting against a log.

Next morning we were aroused by a shout of "Tiger!" from the natives. The alarm at any time is an exciting one, and forgetting for the moment the occurrence of the previous evening, we went out—that is to say, three of us did; our sporting friend declining to listen to the alarm. But it proved to be well-founded. A small stream ran past the cook-house of the bungalow, and at this time was very low. From it a tiger had come, sprung over the fragile bamboo fence which surrounded it, and carried off a goat. The servants said they saw the robbery committed. Instantly the coolies began to assemble, some of them armed with axes. As is usual with natives on such occasions, they invited the animal to come out. "They wouldn't do anything to him, if he would only come; oh, no! they merely wanted to see him, as they had seen his father, his mother, and a few other members of his family. Yes, the Sahibs had guns, certainly; but they were only for the mosquitoes, so would tiger kindly come out?" and so on.

Clods were thrown in, and sundry growls heard; whereupon the owner of the new gun frantically rushed out, and entreated some one to inform him where the tiger was. Another assistant was armed with a Snider, and the manager with a smooth-bore. I stood without a gun on the bungalow side of the stream, beside the bamboo fence I have mentioned, and which, I should add, could easily have been broken by a child; consequently the protection and shelter offered me were not worth speaking of. (Remaining in such a place was a grave indiscretion on my part.) After shouting, yelling, clod-throwing, and frequently presenting arms, there was a rustle in the scrub-jungle, and we caught sight of the animal. Our universally mutilating friend at once let fly; but nothing seemed to come of it. We waited some time, and then the tiger sprang upon the bank, with his fore-feet within half a yard of the muzzle of the new

gun. It went off, and the brute was killed—shot in the chest. A mighty shout was raised. "Was there ever such a Sahib, who would come straight from his bed and kill a tiger? Would not the factory coolies tell it to their children fifty years hence? Ah! that they would."

The Sahib in question had taken the cartridge from the breech, and put in another, having a hazy notion that his gun had gone off; but some time passed before he realised that he actually had shot and killed a tiger. We gave him all the glory. Assistant No. 2 discovered after the event that he had been rushing about with a cork in the muzzle of his gun, and the manager had put snipe-cartridges into his smooth-bore.

Very courageous were the coolies when the animal's death had been fully proved. One valiant Bengali rushed in and landed "Stripes" an awful crack on the nose with an axe. The carcase was taken into the verandah, and we turned to the bungalow for coffee.

Afterwards, a coolie woman came up with a sickly child, and wished to be allowed to bathe her offspring on the dead animal. Permission was given, and the anxious parent placed her youngster on the dead body and poured several jars of water over them both. Naturally the child cried at the strange nature of its means of support; but evident satisfaction was visible in the mother's face, as she told us that the child would soon be well, having had the tiger's strength imparted to it. Men pulled out the creature's whiskers, and nibbled them for courage. One took out the tongue, cut it in small pieces, and distributed it amongst the coolies, to be smoked and dried by them, and worn in a band round the arm as a preventive from fever.

The animal was a cub, measuring only six feet. The occurrence made an exciting beginning to the day, but we gradually calmed down. It had been amusing, but certainly also had been very dangerous; and I do not think that any of us will again go out on foot after tigers, or with corks or snipe-cartridges in our guns.

S. B.

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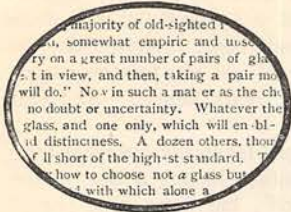
## HOW TO CHOOSE A PAIR OF SPECTACLES.

BY DR. LITTON FORBES.

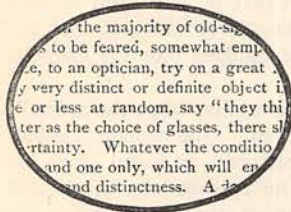


O many, perhaps to most persons, the notion of having sooner or later to wear spectacles is not an altogether agreeable one. The reason of this dislike may possibly be found to a certain extent in considerations of personal vanity, but much more, it is to be hoped, in a not altogether inexcusable ignorance of the full value of spectacles as a means both of increasing and preserving vision. Any one at all acquainted with the structure of the human eye knows that spectacles are usually an absolute necessity to all

persons with healthy eyes once they have reached the age of forty-five or fifty. Sometimes, indeed, persons optically old, that is, over fifty-five or sixty, have been heard to boast that "they can read and write just as well as ever, and have never worn glasses in their lives;" and the suppressed inference is that therefore their eyes must be extraordinarily good, and they themselves more than usually hale and hearty for their years. The truth is, however, that such persons are, and always have been, more or less short-sighted. If tested for distant vision

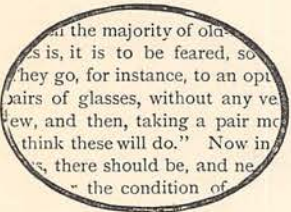


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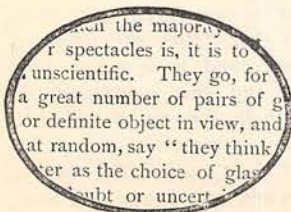


WITH CONCAVE NO. 30.

their sight would be found considerably below the average standard, and, in fact, what they gain in one respect they lose in another. It cannot, therefore, be too distinctly insisted upon that the use of glasses is not a sign of either failing strength or failing sight. As every individual increases in years his body undergoes certain changes. The hair, for instance, turns grey, the skin becomes more or less flaccid and wrinkled, the muscles waste, while in sympathy with these changes the eye,

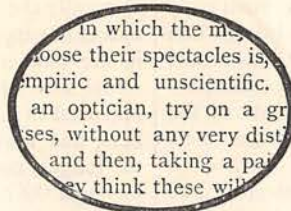


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WITH CONCAVE NO. 50.

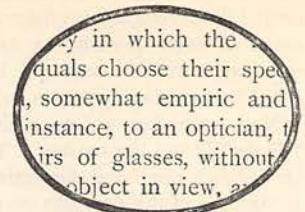
too, undergoes a gradual and imperceptible change. This change amounts, to put it in the simplest way, to a loss of elasticity. This loss of elasticity can, moreover, be proved to have been in progress, so to say, from the moment of birth, and it will continue up to the last year of the longest life. The practical result of this is that small objects after a certain age can no longer be perceived so clearly and comfortably, for that is after all a most important point, at short distances as they used to be. An infant can probably see distinctly anything held at two inches from its eyes, whereas a man of fifty could not look continuously at the same object if much nearer than eight or ten inches. It is to neutralise the effects of this perfectly healthy physiological change that spectacles are most frequently required. The condition of sight induced by the above change is known as "presbyopia" or "old sight." Fortunately, however, for mankind in general this condition can very readily be remedied, and vision, indeed, rendered



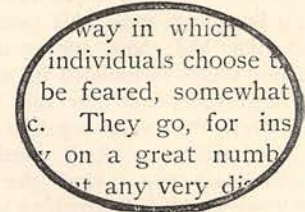
THE TYPE OF THE MAGAZINE UNMAGNIFIED AND UNDIMINISHED.

just as good as ever for all practical purposes by the use of proper glasses. In such cases spectacles are a source of the greatest comfort. They clear hazy outlines, they brighten colours, and they restore vision in a moment to what it has been ten or twelve years before. They are at once a necessity and a luxury beyond compare. Hence, no one who is not either inordinately vain, or somewhat lacking in knowledge, will defer their use a single day or hour after he feels he requires them.

The usual way in which the majority of old-sighted individuals choose their spectacles is, it is to be feared, somewhat empiric and unscientific. They go, for instance, to an optician, try on a great number of pairs of glasses without any very distinct or definite object in view, and then taking a pair more or less at random, say "they think these will do." Now in such a matter as the choice of glasses there should be, and need be, no doubt or uncertainty. Whatever the condition of a man's vision, there is one glass



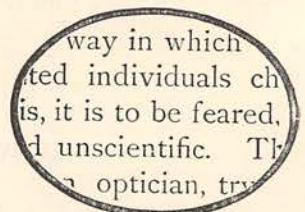
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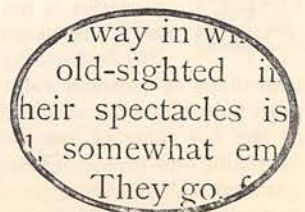
WITH CONVEX NO. 30.

and one only which will enable him to see with the maximum of comfort and distinctness. A dozen others, though they may improve his sight somewhat, will fall short of the highest standard. Therefore it becomes of extreme importance to know how to choose, not a glass, but the glass which a certain condition of vision requires, and with which alone a presbyopic person should be satisfied.

The essential parts, then, of a pair of spectacles are the lenses, the "bridge"



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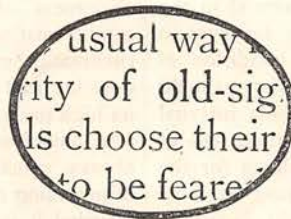
which connects them together, and the "side pieces" which hold them steadily and in a correct position before the eyes. Each of these parts will require a separate notice, as each is complementary to the others. The best lenses will be useless if, for instance, they are too far apart, or if the bridge does not fit properly, or if the sides do not grasp the temples with a sufficiently firm grip. The lenses, however, are really the most important parts of a pair of spectacles, and therefore merit the first notice. A word may be said as to the materials of which they are made. Many opticians are fond of recommending "pebbles" at a more or less high price, and directly or indirectly depreciating ordinary glass. Now, at one time, when the manufacture of glass was not so perfect as it is to-day, this material was apt to become stained and spotted from a variety of causes, and eventually even to lose its transparency. Such is no longer the case, and therefore it may be said that glass lenses are for all practical purposes quite as good as pebble, and very much cheaper. The chief advantage pebble possesses over glass is that it is somewhat harder, and therefore not so liable to become scratched in use, while at the same time it can be made somewhat thinner and lighter. It is important that the pebbles should have been cut from the original block of rock crystal in the right direction, or otherwise they will be infinitely worse than the cheapest modern glass. A good way to tell a pebble roughly from glass is to touch it with the tongue, when, being a better conductor of heat than glass, it will appear much colder. There is, however, another and a better way. All opticians keep a little instrument for testing their pebbles. Ask to be shown this, and in it place the lens to be tested. If a pebble at all, when held up to the light rings of colour will be visible, and if these rings be circular the pebble will have been properly cut, whereas if they are elliptical or irregular in shape the reverse will be the case. All this requires a little time and trouble, but the result where spectacles are to be worn daily for years will more than repay such preliminary pains.

More important than the material of the lenses are their optical properties, or, in other words, their "strength." The strength of a spectacle-glass is now in England generally measured in inches in terms of its focal length. Thus a glass No. 48 means that its focal length is forty-eight inches, the series extending from about sixty inches up to two. The longer the focal length the weaker the glass is, and *vice versa*. The length may be judged of roughly by holding up the glass to the light, and noticing at what distance off the bright spot or "focus" is formed against a wall or piece of white paper. Certain fanciful names have been given to some powers of spectacles, thus forty-eight's have been spoken of as "improvers," and thirty-six's as "clearers." But these

names are unscientific and misleading, for what might "improve" or "clear" one condition of sight, might have an exactly opposite effect on another. The only satisfactory way in which to choose your glasses is to learn the focal length your condition of sight requires. There are many ways in which this may be done, but here is a thoroughly practical and very easily applied one. Take some small type, such as that in which this page is printed,\* and with your back to the light find out what glasses will enable you to read it comfortably at the distance of eight inches. If your age be fifty you will require, approximately, glasses of about No. 40; if fifty-five, No. 30; if sixty, No. 20; if sixty-five, about No. 13. Or, again, you may at once select some type, no matter of what size provided you can read it without glasses continuously at twelve inches, or for a shorter time at eight inches, without feeling the least discomfort. Then with this by you see what glasses you would require to make any smaller type appear of the same size. For instance, if you found that Great Primer was about the smallest you could read with comfort continuously, and if you wished nevertheless to read Minion and see it of the same size, you would require, at least, No. 7. If you wished to see it as Pica, No. 9 would be sufficient, and so on. To an ordinary eye without presbyopia, Brilliant type would appear as Pearl when looked at through No. 24 spectacles, or as Minion when seen through No. 11. The above will serve as illustrations of this method, but each individual must apply the test for himself, inasmuch as it is the condition of his eye rather than the

magnifying power of the glass which will determine the strength of the spectacles to be used. A good practical rule is to choose the strongest pair with which vision at eight inches is comfortable. Before, however, forming an opinion the glasses must be worn and read with for, at least, ten minutes continuously. If they will bear this test they will certainly do for twelve inches, which is the ordinary reading distance. If too strong they will, after they have been worn a few minutes, "strain the eye," that is, cause an unpleasant feeling of weight and tension in and around the eyeball. If too weak they will not show the type with sufficient clearness; they will not, in fact, "improve the sight" so much as a stronger pair. The great point to attain in spectacle-glasses is the happy mean of a maximum of improvement with a minimum of strain on the eye. There is no better test of this having been attained or not than an individual's own sensation after, say, a quarter of an hour's steady reading.

While the vast majority of persons, however, require



WITH CONVEX NO. 5.

\* Supposing the reader to be testing his requirements by looking at a page of this Magazine, the other specimens, larger and smaller, are given for the purpose of showing the effect of the various lenses when placed over the Magazine type.

glasses because their sight is becoming "long" or "old," a considerable number also require them because they are "short-sighted." In this condition glasses are necessary for distinct vision at a distance only. Such persons say, and rightly, that they can see perfectly well the smallest objects when close to their eyes. They are, therefore, not a little surprised to learn that, even for reading and writing, glasses in their case are almost always necessary. If, therefore, the reader should be short-sighted, the chances are that he will require spectacles both for distant and for near objects. In the first case he will require them in order to enable him to see things clearly, in the second in order to see them *at a sufficient distance off*. This distinction is a very important one, and one which is moreover too frequently lost sight of. If a short-sighted person can see clearly at about ten or twelve inches distance from his eye he will scarcely require glasses for close work, otherwise he should certainly wear them in order to prevent his short-sightedness becoming worse. The best practical rule to give to such persons in the choice of glasses is to choose the weakest possible with which they can see. There is an almost irresistible temptation to select always much stronger ones than are really required, because they make objects apparently sharper and clearer than the weaker glasses. Strong spectacles are, however, a source of considerable danger in the condition of short-sightedness. The risk is lest they should strain and irritate the eye and so produce internal changes, which eventually may result in total loss of sight. No absolute rules can be laid down for the choice of spectacles for short sight, as has been done for "long" or "old" sight. Short sight bears no relation to an individual's age, and may, moreover,

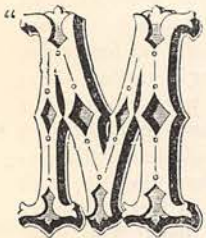
"progress" from year to year. It cannot, therefore, be corrected so satisfactorily or safely by an individual himself as presbyopia can. Little more, therefore, need be said about it than to recommend the weakest possible glasses for use at a distance, and for reading or other fine work, glasses such as will insure comfortable vision of the smallest objects at not less than twelve inches. One pair of spectacles will in some cases fulfil both these indications, while in others two pairs will be required.

Both short-sighted and long-sighted persons may test whether the lenses they are about to use are optically correct or not by simply placing two of the same numbers, but of opposite properties—that is, either convex or concave—together, and observing whether they completely neutralise each other. Thus No. 10 convex should neutralise No. 10 concave, so that in looking through both placed one on the top of the other the effect should be simply that of looking through an ordinary piece of glass.

Of scarcely less importance than the lenses is the frame which holds them. Spectacle-frames are made of many different materials, but for most persons the choice may be said to lie practically between two, viz., steel and gold. The former has the advantage of cheapness and strength, but the disadvantage of rapidly rusting if exposed to sea-air, or when worn by rheumatic persons. The latter is very durable and does not rust or corrode. The chief objection to it is its high price, against which, however, may be set the fact that when worn out or broken the material will be always valuable, and will partly cover the expense of providing new ones. When, therefore, gold can be afforded it is certainly the best material of which to make spectacle-frames.

## MILK AS A CURATIVE AGENT

BY A FAMILY DOCTOR.



MILK as a Medicine" was the title first thought of for this paper, and it must be confessed the words sound better than those I have chosen; they have, at all events, the magic power of alliteration to recommend them. But, on the other hand, there are many to whom the very word "medicine"

brings disagreeable associations, though it ought to be remembered that a medicine is not necessarily a drug, albeit a drug ought always to be a medicine. A medicine—if I may be allowed to quote from the first dictionary I can lay my hands upon, without the trouble of getting out of my chair—is "any substance which has the property of curing or mitigating disease." In this sense milk is assuredly a medicine, just as many of our vegetables are which, whether through innate taste, or depending upon our knowledge of their properties, we partake of as health preservatives.

Regarded as a food for the young, milk contains all the elements necessary for existence; the child and the invalid are in many things very much on a par, and milk almost alone, when judiciously administered and in cases where it can be well borne, oftentimes enables a delicate patient to tide over an evil time, and to support his system until stronger food, suitable for the requirements of health, can be easily assimilated.

The milk most commonly used medicinally is that of the cow, although the milk of several other animals is pressed, and rightly too, into the service of the invalid. Let us see what pure milk contains. Of course the proportions of the several ingredients that enter into its composition vary somewhat in different specimens of even pure milk, but the following table of Regnault gives as close an approximation to a perfect analysis as we require for our present purpose. He takes the milk of the cow, the ass, and the goat, and analyses them as follows:—