

of one of which is counteracted by the contraction of the other, and thus, no matter to what extreme of heat or cold it is subjected, a perfect equilibrium is maintained. This standard would work precisely in the same fashion; if gold got scarcer and silver more plentiful, as now appears likely to be the case, this coinage would still remain at par, for the depreciation of its silver half would be offset by the appreciation of its gold half. No matter how these metals might fluctuate, the loss of the one would be offset by the gain on the other. and, as a consequence, it could at all times be taken as a certain and unwavering standard of value. If such a coinage could be made universal it would be a boon to commerce such as the world has never before seen. While each nation would probably desire to retain their usual well known designating names for their own coins, they might easily, if some understanding were arrived at, have their values based upon the decimal system, similar to the French or American. Each coin ought also to be worth its face value as bullion when the standard is fixed, and the standard once defined, say taking them at their present values. twenty parts of gold to one part of silver, it should remain unalterable, so that, take it where you might, it would pass current at its par value, without deduction or exchange in any shape or form. While the minting of such a coin would entail a loss upon each Government, which should be charged to "expenditure" instead of being deducted from the coinage itself, this apparent loss would be a real gain to every person handling it.

While the adoption of such a standard of value could not fail to benefit materially every nation using it, it would affect the United States more favorably than any other. The United States being at the present time the greatest producer of silver in the world, it follows that any change by which her languishing silver mining industries can be stimulated, as they certainly would be by the creation of a universal market for this product, must bring about a new era of prosperity, fully equal to the palmiest days of the California gold fever. We think if the United States were to adopt this or some such coinage as a standard of value, and make it take the place of the present gold coinage as legal tender for duties, taxes, and payment of debts of all kinds, that its adoption by other countries would only be a question of time. Great Britain is moving in this direction now, and though like all large bodies, public opinion in that country moves slowly, it is bound to get there in time. Once the commercial world is fairly alive to the growing scarcity of gold and its consequent appreciation, it will set about for a remedy and not rest contented until a suitable one is found. We may be mistaken, but in our opinion some such plan as we have outlined above is certain to be adopted in the near future.

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**ISOCRONISM OF BALANCE SPRINGS**—A balance spring, of whatever form, to be isochronous must satisfy the following conditions. Its centre of gravity must always be on the axis of the balance, and it must expand and contract in the vibrations concentrically with that axis. When these conditions are secured in a properly made spring it will possess the quality of isochronism—that is, its force will increase in proportion to the tension, and it will not exert any lateral pressure on the pivots. M. Phillips, in his memoir, demonstrates these conditions, and proves theoretically that the terminal curves deduced with the view of satisfying the one condition, verify at the same time the other.

## CORRESPONDENCE.

### SPECTACLES, AND HOW TO SELL THEM.

WRITTEN SPECIALLY FOR THE TRADER.

PAPER NO. II.

In our last we simply showed the dealer what to buy in spectacles, in this article we propose telling him what the glass or lense is made of. The material of which lenses are made is either glass or Brazilian pebbles.

If glass is elected, it must be transparent and colorless, sufficiently hard to bear a good polish, and not liable to lose that polish by damp or exposure. All these qualities are possessed by what is called crown glass, specially made for that purpose, whereas the ordinary plate glass often used for that purpose especially where cheapness is a consideration, fails to possess many essential qualities, and is consequently condemned by the conscientious optician. Nearly all glass used by American manufacturers is plate glass, owing to a duty of forty-five per cent., which makes the crown glass too high in price. The duty on the glass coming into Canada is only twenty per cent., thus the dealer buying from a Canadian manufacturer can get the crown glass at the same price he pays for the plate glass of the American manufacturer. The American manufacturer makes the best and lightest frames, but they all use a cheap lense, especially for goods sent to Canada, as there is another duty of twenty-five per cent. coming into this country. The dealer will, therefore, see that he gets the best value, although the article may seem to cost more from the Canadian manufacturer. The main objection to glass of any kind for this purpose is that it is so easily scratched.

Deep scratches or indentations are not here referred to, but to the innumerable fine scratches scarcely visible, except under the microscope, which are produced more or less each time of wiping. After a few months such a lens becomes unfit for use, straining the sight and paining the wearer, although to the naked eye the polish appears as perfect as when new. To remove this serious objection, lenses are employed made from rock crystal, and commonly termed pebbles, and this material being in hardness only exceeded by the diamond, is not liable to be scratched in use, and, moreover, it takes a higher polish, hence the strain to the eye is reduced to a minimum, and one cause of irritation removed.

Pebbles are mostly imported from Brazil, and are found native in both mosses and crystals. They are cut into slices of the requisite thickness by diamond powder, no other material being found to answer this purpose.

Unfortunately, even in this article, "cheapness without consideration of quality" acts prejudicially; for the direction in which the section of crystal is cut affects the quality of the resulting lens. One direction yields us a clear, transparent section, which admits the passage of every description of light, without undue refraction or interference, whereas a section in the opposite direction shows color under polarized, and sometimes even under ordinary light, and from its interference is totally unfitted for spectacle lenses.

We often see special advertisements of pebble spectacles, but they prove a dear investment to the unfortunate dealer who buys them. They generally claim to be the best, but are generally the cheap ones at high prices. Testimonials as to the