ties of the town, but of individuals among the educated classes who are now but too content with their wells.

Efforts have been made to obtain a supply of hill-water for the poorest and most destitute districts, but they proved unsuccessful. The circumstances are worth noting, as illustrating one of those sanitary deadlocks for which we had fondly hoped that Mr. Stansfeld would find a remedy. It appears that the town commissioners have the power to compel owners of houses to pay at the rate of 2d. per week, or 8s 8d. per annum, but not more, for a supply of hill-water. The Water Company, on the other hand, *cannot* be compelled to supply at a less rate than 12s. per annum (5 George IV, chap. 132, p. 56). Houses, therefore, of the poorest class, may be left absolutely destitute of one of the essentials of life. A block of thirty houses for instance, with nothing but catchpools for wells, were almost destitute of water at the close of a long period of drought. The attention of the town commissioners was drawn to the facts, and they were willing to do all in their power. The Water Company offered to supply at 4½ per cent. on the rental, with 5s. per closet, amounting to less than 12s., the lowest at which they would be compelled to supply—it came to some £17 : 13 : 8 for the lot ; but, as the rate of 2d. per week per house, which the town authorities had power to levy, and which the tenants were willing to pay, amounted to £13 : 17 : 5 only, nothing could be done beyond an appeal *ad misericordiam* to the owners, and I fear the poor people are still dependent on such wells as they have.

It would appear, then, from the tables of the Registrar-General, and also from the testimony of the seven years which I have more minutely analysed, that the annual mortality in Cheltenham, with its 42,000 inhabitants, is excessively low. Hovering between 17 and 22, it shows an average of barely 20 deaths per 1000 living, without excluding the deaths occurring in a large workhouse and hospital. The town, also, enjoys a remarkable immunity from the chief zymotic diseases, and a mean age at death which compares favourably even with that of some of our healthier counties.

A minute examination, however, shows that the mortality from three at least of the zymotic class, small though it be, is not spread evenly over the town or even over the poorer parts ; that there are whole districts and well-defined centres marked out by the fatality of scarlatina, diarrhoea, and fever ; and good reason has been given for believing that the distinctive characteristics common to these districts are, speaking generally, a porous soil, well-water for drink, and in the worst cases an old brick sewer with undoubted contamination of the water.

Should a more extended and searching investigation, at the hands of our future health-officer, confirm the conclusions at which I have arrived, it is clear that by abolishing the older sewers (a matter, of course, requiring time), by giving a plentiful and wholesome supply of water to the whole town, especially to the poorer districts on the sand-bed, and by isolating the first cases of infectious disease, the sanitary authorities of the town have it in their power to secure for Cheltenham—not once in a decenniad only, but permanently and in reality—the proud position of being the healthiest among English watering-places.

ON THE MODERN ART OF TINTING OPACITIES OF THE CORNEA.*

By CHARLES BELL TAYLOR, M.D., F.R.C.S.E., Nottingham.

EXTENSIVE leucomata and dense opacities of the cornea have long been considered among the opprobria of surgery ; we could not remove them, they were always a source of embarrassment to the surgeon, and, especially in the case of women and young persons, a serious trouble to the patient, so much so that I am convinced that patients suffering from this cosmetic defect and applying for relief cared more for the removal of the deformity than for the restoration of the partially intercepted sight. Such being the case, we hail with gratitude, as a most important addition to modern ophthalmic surgery, M. Wecker's introduction and perfection of an ancient method of tinting away these unsightly defects.

The operation, which, as a rule, causes very little pain or irritation, is best performed with a number of the finest needles firmly bound with the points on a level around a handle such as a penholder, or a large needle which has been grooved for the purpose by Messrs. Weiss may be substituted with advantage in certain cases. The substance which M. Wecker recommends for tinting is Indian ink ; but I have also employed sepia, ultramarine, and other colours with advantage,

and when an immediate and deeply coloured effect has been desirable, a combination of lamp-black with Indian ink, and a solution of nitrate of silver. The patient may either recline or be seated in a chair, and it is well to separate the iris with a speculum and steady the globe with a pair of ordinary forceps, taking a firm grasp of the conjunctiva. The needles are then dipped in one or other of the solutions in question, which should be made as thick as possible, and the superficial layers of the cicatrix are rapidly punctured in an oblique direction, and layers of the solution applied just as in ordinary tattooing, until the white speck is changed from a most apparent deformity into a black surface scarcely visible ; a fresh layer of the substance is then applied over the tattooed cicatrix, the patient is directed to keep his eyes open, so as to let it dry on and remain as long as possible, and he may at once go about his usual avocations.

It is important not to close the eye, and to prevent, as far as possible, the washing away of the pigment by the tears ; this is best accomplished by enveloping the operator's fingers with a silk handkerchief, so as to mop up the secretion, and afterwards by the avoidance of winking on the part of the patient. M. Wecker is content with ten or fifteen punctures a time, and requires from his patients four or five sittings. I have, however, usually completed the operation at once, and made any little addition that might appear necessary some weeks later ; the slightest specks, such as are left after phlyctenular conjunctivitis and small ulcers of the cornea, are easily banished by one or two pricks of the needle ; and when the whole eye has been opaque, very unsightly, and sight completely abolished, I have very advantageously substituted extirpation of the globe, or the superimposition of an artificial eye, by tattooing a round central pupil so as to restore to a remarkable and most charming degree the natural appearance of the globe. Not only is deformity removed by this slight operation, but patients generally tell us their sight is improved, a fact due, no doubt, to the circumstance that a black speck is much less dazzling than a white one.

In cases of large cicatrices, I generally make an artificial pupil first, and tint the opacity afterwards ; and when this is carefully done, it is difficult to distinguish the black speck from the neighbouring artificial pupil. I have no doubt that this little operation will also be found of service in cases where considerable dazzling follows the removal of a portion of iris, either *per se*, or when the operation has constituted a part of the operation of extraction for cataract ; as by tattooing the cornea an invisible opacity may be occasioned which will constitute a permanent shade, and shut out the light to any required extent ; soft cicatrices are readily coloured, but old, hard, and incrustated ones are more difficult of treatment. In these cases, the nitrate of silver and lamp-black are of service ; no doubt, also, lead, sulphur, charcoal, gunpowder, and other ingredients will come to be employed in time. In some cases, the coloration is not very permanent, but it may always be repeated ; and even if the perfect blackness do not remain, a greyish semitransparent coloration takes its place, which looks very like cornea, and it is infinitely preferable to the original deformity.

It is well to commence the tattoo at the lowest surface to be operated on, in order that the operator's sight may not be obscured by an overflow of the liquid. I shall conclude by quoting a case in which this addition to our armamentarium enabled me to render a real service to a young lady who was suffering not only from loss of sight, but also from a most embarrassing deformity.

HIP AND SHOULDER DISLOCATIONS, AND THEIR REDUCTION WITHOUT TRACTION.

By RUSHTON PARKER, M.B. and B.S. Lond., M.R.C.S.,
Demonstrator of Physiology and Histology at the Liverpool School of Medicine ;
late House-Surgeon and Demonstrator of Anatomy at University
College, London ; etc.

IN the communication of my friend, Mr. Henry Arnott, published in the JOURNAL of 24th February, 1872, he quotes some sentences from Mr. Hutchinson's abridged comment on the work of Dr. Bigelow, and further states the undoubted fact that in some London medical schools, University College and Guy's being named, it is taught that in the easiest method by which dorsal dislocations of the hip can be reduced, flexion of the hip is required. Now, Mr. Hutchinson's remarks, as quoted by Mr. Arnott, do not necessarily ascribe to Dr. Bigelow any *priority* in his advocacy of the flexion method of reduction ; still less does Dr. Bigelow claim it for himself.

Mr. Hutchinson expresses the opinion, and I think with reason, that "the researches of Dr. Bigelow in respect to our subject" are "amongst the most valuable of recent additions to the science of surgery". Mr. Hutchinson's further assertion that "Amongst the special services which

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