(2) any sewage matter; (3 any poisonous, noxious, or polluting liquid from any manufacturing process; and (4) any poisonous, noxious, or polluting solid or liquid matter from any mine.

Mr. Higgins justly remarks that "the successful working of the Act will much depend upon the meaning of the word '*polluting*' as therein used, by those with whom its interpretation rests." In order to understand the drift of this remark it is necessary to observe that the Act of 1876 virtually gives no standard of purity, though the Commission of 1868 recommended an extensive and somewhat stringent list of standards. We think that on the whole the Act is right in the omission, as a suggestion made by Mr. Crookes in his evidence before the House of Lords in 1873, namely, "that the river itself should be the standard of purity, and that no liquid should be allowed to be sent into a river if the liquid contains a greater percentage of impurity than the river itself," seems to be a very feasible standard and one easily and quickly referred to. Again, as Mr. Crookes pointed out, the standard would naturally improve, as nothing worse than the river at any given point would enter it, whence in the course of nature amelioration would ensue, while the process being gradual would give the manufacturer or township time to improve their waste or sewage, and one of the most disastrous sources of trouble the injury to the water-course from the casting into it of solid refuse would be at once prohibited; as would pollution by actually poisonous matter, such as arsenical and other liquids.

It appears to us that guided by *competent* chemical evidence there ought to be no difficulty in obtaining legal decisions as to the polluting or harmless character of any liquid that may be called in question, while as to solid matters, of any kind whatever, the mere fact of their entry into a stream ought to be an offence without reference to their character. On the whole we think the act, though perhaps partaking too much of the "permissive" character, which is so prominent a feature of modern legislation, to be one which, if conscientiously used with due consideration to the facts of each individual case ought to work great good. In the race for wealth we are perhaps too little apt to think of the future. The brooks and running streams like the land we live on are not ours to do as we like with, but like an entailed estate are only held in trust for the next heir, and like national or family honour should be handed down to posterity pure and unsullied.

Mr. Higgins has devoted great care to his treatise on the Act, and his chemical training has evidently stood him in good stead, the numerous references to cases bearing on the various points show a laborious study of the legal aspects of the case and will add greatly to the value of the work in the eyes of the legal profession, for whose information it is primarily intended.

R. J. FRISWELL

OUR BOOK SHELF

The Cradle of the Blue Nile; a Visit to the Court of King John of Ethiopia. By E. A. De Cosson, F.R.G.S. Two vols. With Map and Illustrations. (London: John Murray, 1877.)

ALTHOUGH Mr. De Cosson did not go over any new ground in his tour, and although he was unable even to carry out his original plan, we are sure that most readers will find much that is new and certainly interesting in his volumes. He went slowly southward from Massowah to Lake Tzana, north-west to the lower Bahr-el-Azrek, down the Nile to Berber, and across to Saakim. He won the favour of King John, of whom he speaks as an able, well-meaning ruler, and was thus able to see much of the life of the people, and learn much of the antiquities and the character of the country that otherwise he would have missed. To any one wishing to obtain an attractive account of the past history and present condition of Abyssinia, we strongly commend Mr. De Cosson's work.

The Tiber and its Tributaries, their Natural History and Classical Associations. By Strother A. Smith, M.A. Map and Illustrations. (London: Longmans and Co., 1877.)

THE idea of this work is, we think, a happy one, and its execution successful. The object is to gather under one head everything of interest relating to the Tiber. This has necessarily involved a great amount of research, and the result will be welcomed both by the student of history, the "scholar," and the geographer. Considerable space is devoted to the inundations of the Tiber, and also to its birds and its fishes. Two nicely-coloured plates are devoted to the muræna, the mullet, the lamprey, and the sturgeon. The Tay, at Perth, we should inform Mr. Smith, is no more an "estuary" than the Thames at London Bridge, unless the word is applied to all that part of a river reached by the tide.

A Short Account of the Principal Geometrical Methods of Approximating to the Value of π. For the Use of Colleges and Schools. By the Rev. G. Pirie, M.A. (Macmillan, 1877.)

Elements of Geometry Based on Euclid. Book I. For Elementary and Middle Class Schools. By E. Atkins, B.Sc. Collins's School Series. (Glasgow: Collins, 1877.)

Takimetry. Concrete Geometry in Three Lessons. Accessible, Inaccessible, Incalculable. Translated by D. W. Gwynne, M.D., from the French of E. Lagout. (Glasgow: Collins, 1877.)

THE little pamphlet first named does not attack the problem from the circle-squarer's point of view—the use of the word "approximating" sufficiently points this out—but gives an interesting account of what was done for the question between the times of Archimedes and Huyghens. A few elementary propositions lead up to what was attempted by Willebrord Snell ("Cyclometricus," 1621) and elegantly effected by Huyghens. Mr. Pirie's object is to correct what he deems a defect in our present works on Trigonometry, and to supply a few simple propositions "on the threshold of the subject." We can recommend the book as one suitable for being put into the hands of sixth form pupils. A few references are supplied to fuller sources of information upon the quadrature of the circle.

Mr. Atkins's book seems to differ but little from the ordinary forms of Euclid as now printed. One feature is the addition of short side-notes drawing attention to the objects of the successive steps of the construction and proof. There is a short collection of sixty exercises grouped under the propositions upon which they depend. Some of these appear to us wrongly placed, and a few incorrectly printed. The work is neatly got up and of a handy form.

If all that is said of takimetry by its admirers be true a revolution in mathematical instruction may be speedily expected. "With one hundred lessons of takimetric instruction any one can very well learn geometry, algebra, arithmetic, and mechanics." "The classical geometry of Euclid *disguises its object, its utility*, and thus, for a considerable time, yields a barren and discouraging result, whilst takimetry is able, on the other hand, to produce