jection; on the contrary, a classification embodying the latest scientific conceptions is seldom fit for bibliographical work. In the Dutch Academy of Sciences ridicule was cast upon the decimal system because physiology was made a sub-division of medicine. Scientifically it is absurd; bibliographically it is the only wise course. The literature of the past century passes insensibly over into medicine, and a system disregarding this historical fact would be extremely faulty. All attempts at a strictly scientific classification must be personal and liable to change. Most zoologists place *Limulus* with the Arachnids; bibliographically this would be folly. Arachnidologists, collecting the spiders of the various countries of the world, have not yet, at least, become so impressed with this kinship that they seek the seas for *Limulus*; while the malacologists persistently add *Limulus* to their lists of captures. The bibliographical system should correspond with the customs of authors; it is not intended to teach taxonomy.

The assertion that the decimal system is inelastic scarcely needs comment. The system was first published in 1876, with 1,000 divisons, requiring 12 pages of print; to-day by simple expansion nearly 50,000 divisions, filling 400 pages, having been added. For certain sciences the expansion has been continued still further. Indeed, there are now far more divisions in our simple zoological tables than in the entire original work. In certain trials leading up to the establishment of the final system used by the Concilium Bibliographicum the attempt was made to proceed by successive sub-divisions down to families and sub-families. In this experiment as many as a thousand new divisions were introduced at a single point in the series; it is needless to say that no inconvenience was experienced.

It is a pity to see cautious men of science make assertions like this, which have not the slightest foundation in fact. They are so plainly based upon gross misconception that one might well pass them by in silence were it not that they are liable to have weight in deciding one of the most vital questions now before the scientific world.

Herbert Haviland Field.

NOTES ON INORGANIC CHEMISTRY.

The paper read by Collie and Tickel before the Chemical Society (London) on the quadrivalence of oxygen, as shown by the probable constitution of dimethylpyrone, 'an oxygen base' has been recently noticed in this column. In this paper the authors mention that in 1888 J. F. Heyes advocated a similar view to account for such peroxides as MnO_2 and BaO_2. In the last *Chemical News* C. T. Kingzett calls attention to the fact that in a paper before Section B at the Southampton meeting of the British Association, in 1882, he reviewed the modes of formation of ozone and hydrogen peroxid, arguing for the variable valence of oxygen, and adds: "I am not aware that anyone had previously represented oxygen as a tetrad." Being present at the Southampton meeting, I remember Mr. Kingzett's paper very well; indeed, I was so much impressed with it that I have since used the formulæ $O=O^{iv}=O$ and $H_2O^{iv}=O$ in my teaching. I recall, however, that after the session one of the members remarked to me: "Kingzett is right, but there is nothing new in it; I have been teaching that for a number of years." It has long seemed strange to me that the idea of the variability of oxygen's valence has had so few advocates, especially when its position in the periodic system is considered.

In a recent number of the *Archiv der Pharmacie* a new method of detecting arsenic in fabrics is given by O. Rössler. A small piece of the goods is burned in the upper part of a Bunsen flame in a fine platinum spiral, and the arsenious oxid formed collected on the outside of a porcelain dish filled with cold water. The deposit, which is hardly visible, is moistened with silver nitrate. On subsequent fuming with ammonia the yellow precipitate of silver arsenite becomes visible, and then disappears by solution in more ammonia. No data are given as to the delicacy of the reaction, but it must be vastly inferior to Reinsch's test, except for such compounds of arsenic as are wholly insoluble in hydrochloric acid. In the case of the sulfids of arsenic Rössler's test might have a considerable value, as the quantity of arsenic present in such a yellow pigment is not small.

It was only after much experimenting that Tyndall succeeded in obtaining absolutely optically-pure air, so clear that the path of even the most intense light is invisible. In experimenting upon water Lallemand was unable to obtain optically-pure water, and was led to question its existence. Professor Spring, of Liège, has, however, succeeded in thus purifying water and an extended account of his work is given in the *Bulletin* of the Royal Academy of Belgium. That the visibility of the path of a ray of light is due to suspended matter is shown by the fact that in the optically-pure water of Spring the path is wholly invisible. Such water cannot be obtained by distillation, nor by filtration, these processes having no tendency to purify water optically, but often rather the contrary. Optically-pure water can be obtained by the action of a weak high-tension current on water which contains suspended matter, or by sedimentation of colloidal precipitates, such as aluminum, ferric, etc., hydroxids, or by filtration of the water through colloidal precipitates. Crystalline precipitates, such as calcium oxalate, have little or no effect; nor can organic liquids be purified by colloidal precipitation. Spring believes that the illumination of the water is probably not caused by the dust itself, but by minute bubbles which adhere to the dust particles. These occasion different colors, in which red and orange predominate, and hence the blue color of natural waters cannot be due to a selective absorption on the part of the suspended matter. J. L. H.

THE BRITISH MUSEUM.

A RETURN dealing with the British Museum has been issued in the form of a Blue-book. We learn from a report in the London *Times* that it contains an account of the income and expenditure of the British Museum (Special Trust Funds) for the year ended March 31, 1899; a return of the number of persons admitted to visit the Museum and the British Museum (Natural History) in each year from 1893 to 1898, both years inclusive; together with a statement of the progress made in the arrangement and description of the collections and an account of objects added to them in the year 1898.

Part VI. of the return, which gives an account of the general progress at the Museum at Bloomsbury, states that the number of visitors to the Museum in the year 1898 is the highest on record since the year 1883, amounting to a total of 612,275, as against 586,437 in 1897. The visitors on Sunday afternoons numbered 41,858, as against 37,594 in 1897. The total number of visits of students to the reading room during the year was 190,886, a slight increase on that of the previous year, which was 188,628. The daily average was 627, as against 624 in 1897. The number of volumes, etc., supplied to readers in the year was 1,397,145, as against 1,419,159 in 1897. There has been a marked increase in the number of visits of students to the several other departments other than the reading room. The total amounted to 48,214, as against 40,976 in 1897. This increase is partly to be attributed to the extension of students' rooms. The new building commenced last year for the accommodation of the bookbinders has been completed, and the bookbinding staff has been transferred thither. The basement rooms of the Museum which have thus been vacated are being fitted for the storage of newspapers.

The part of the return relating to the British Museum (Natural History) states that the total number of visitors to the Natural History Museum in 1898 was 419,004, as compared with 422,607 in 1897. The slight falling-off shown in these figures has taken place in the week-day visitors, the Sunday attendance for the year (50,432) being a little in excess of that for 1897. The average daily attendance for all open days during the year was 1,151; for week-days only, 1,181; and for Sundays, when the Museum is open only in the afternoons, 970. The new whale room was opened to the public on Whit Monday, May 30, 1898, and has been much appreciated by visitors. A photographic studio has been erected at the back of the Museum. Renewed application has been made to the Lords Commissioners of the Treasury for funds for lighting the galleries and studies of the museum by electric light, and a sum of £2,000 has been provided for 1899–1900 for the introduction of the light into the work rooms and studies.