

air barometer, the advantages of which over a mercurial barometer are compactness and portability, greater sensitiveness, greater simplicity in the calculations, and, lastly, greater cheapness.

All those who are interested in the measurement of heights by barometric methods should read these twenty-eight pages.

*Laboratory Directions in General Biology.* By Harriet Randolph, Ph.D., Demonstrator in Biology and Reader in Botany, Bryn Mawr College. (New York: H. Holt and Co., 1897.)

THIS booklet of 152 pages small octavo is a guide to a 142 hours' elementary laboratory course. The Fern and Earthworm are first dealt with, and then a series of animal and vegetable forms, in ascending order determined by convenience, the whole culminating in a small modicum of comparative embryology. Directions for manipulation are throughout rendered in italics. Of the making of books there is no end, but a pity 'tis that of the making of books such as this should be a beginning! The whole is but a set of rough laboratory notes of the time-table order, such as are everywhere used under prevailing custom and often destroyed when done with. They are of the kind justified only by the necessity for local adaptation of class work; but of this there is here no evidence, and we consequently regard their publication in book-form as superfluous.

*The Freezing-Point, Boiling-Point and Conductivity Methods.* By Harry C. Jones. Pp. vii + 64. (Easton, Pa.: Chemical Publishing Co., 1897.)

THIS little laboratory handbook is designed not merely as a guide to the manipulation of the methods of which it treats, but also to give the student an insight into the physical principles underlying them. The theoretical part is, however, in many places so compressed that, it is to be feared, the average student will hardly be able to follow it without some previous knowledge of the subject derived from other sources. The practical part is, on the other hand, very well done. It includes descriptions of Beckmann's and the author's apparatus for the determination of freezing-points of solutions, of the Beckmann boiling-point apparatus, as well as of the later forms devised by Hite and by the author, and of the Kohlrausch apparatus for the determination of the conductivity of solutions in the form described by Ostwald. The details of manipulation, on which the author's extensive practical experience of these methods entitles him to speak with some authority, should secure a hearty welcome for this book wherever laboratory instruction in physical chemistry is given.

*Philip's Artistic Fruit Studies.* By R. H. Wright. *Philip's Artistic Animal Studies.* By H. A. K. Dixon. (London: George Philip and Son, 1898.)

IN the lower standards of Elementary Schools the children are given various occupations, such as plaiting, crayon drawing, and macrami work, having for its object the training of the hand and eye. The collections of plant and animal studies now before us have been arranged for this purpose, and they will afford the young pupils for whom they are intended both pleasure and instruction. Each collection consists of a series of twelve original designs, simply coloured, and a series of twelve outline drawings for colouring with crayons or paints. From the fruit studies the children will learn a few details concerning common fruits; and the animal studies, containing coloured drawings of queen, male and neuter bees, the development of the frog, and similar subjects will be of value in interesting the pupils in natural history.

It would be an advantage to young pupils if the name of the object were in every case distinctly printed under both the outline and coloured drawings.

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### LETTER TO THE EDITOR.

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#### "The Story of Gloucester."

MAY I ask the courtesy of a few words in further consideration of this, not in reply to your contributor, but as a plea for a little consideration to a few thoughts entertained by thousands on the other side of this controversy?

Let all the advocates of vaccination reflect that there is in the small-pox a disorder that affects the skin. That this serious damage to the skin is the real reason of the danger of the disorder; and that this damage to the skin makes any classification by skin marks a very unscientific and a very imperfect manner of dividing the cases. It is more serious than that. It makes classification by skin marks of vaccination almost certain to be erroneous. No certainty of correctness can be had, except in the mildest of the cases. In all the confluent cases, classification of the small-pox cases by skin marks will be in error with certainty. Therefore, as there has always been a most positive refusal to refer to the register of vaccinations, we have not the slightest reason for accepting the classification of hospital small-pox as correct. We have however, no other classification. We therefore must, perforce, accept for argument that classification. But we always do it with reserve.

These remarks are those which occur to us always in looking at the modern (post-vaccination) unvaccinated fatalities. If you are making a set of fatalities, which are enormously heavier than ever were recorded before Jenner began his vaccinations, then you are entitled to ask if there is in the fatality, taken as a whole, any justification for these unvaccinated fatalities, such as are now shown.

	Per cent.
Thus, Von Swieten's fatalities 150 years ago were under ... ..	2
The accepted fatality in this country before vaccination was ... ..	16
The Royal Commissioners give Chester, 1774 ... ..	16.8
" " " Ware, 1722 ... ..	11.7
" " " Old Small-pox Hospital, 1746-63 ... ..	25.3

This last is the very highest I have ever been able to find. And it is fully accounted for by the statement made in the report of the hospital in explanation of it, that "most of them were adults, often admitted after great irregularities, and some when their cure was despaired of." The hospital was small, and there was not a general admission of patients. Only free admission was allowed for those who were to have the inoculated small-pox. We have then to set against those fatalities, which are exhibited, for the most part, as showing how serious a loss of life was risked by the non-inoculated, the fatality of our own hospitals since the enforcement of vaccination. Thus—

	Per cent. died.
Metropolitan Hospital, 1870-72 ... ..	18.6
Homerton Hospital, 1871-77 ... ..	19.43
Metropolitan Hospitals, 1876 ... ..	23
Same Hospitals for 1876-1880 ... ..	17.3
Dublin, 1876-1880 ... ..	21.7

In the recent years, as there has been a crowding of all the cases into hospitals, and a great deal of hospital extension—never known previously—we have a rather lower rate, as was to be expected; thus—

	Died per cent.
Fulham, 1879 ... ..	16.2
Metropolitan Hospitals, 1884 ... ..	15.8
Fulham, however, for 1885 was ... ..	24.3
And for Gloucester we have, 1895-96 ... ..	21.9

There is here nothing to boast of in the fatalities of our compulsory vaccination period. There is never so low a fatality as that recorded by Von Swieten, or by Isaac Massey at Christ's Hospital, where only one child in some hundreds died (1722), and there is no avoiding the conclusion, that I can see, that if on the whole there is no lessened fatality, there is some error in the division, which makes one set appear to be vastly better off than the other. I have tested that in this way in the Gloucester cases, by asking if there was a single class free from fatality?