

OUR BOOK SHELF.

Beiträge zur Physik der freien Atmosphäre. Edited, with the cooperation of a number of distinguished meteorologists, by R. Assmann (Berlin) and H. Hergesell (Strassburg). Vol. i. Part i. (Strassburg: Trübner, 1904.)

ON receiving the first number of a new periodical, the question of the need and room for such a publication first rises to one's thoughts. It must be admitted that it is not easy to see the necessity for a magazine so highly specialised as the one before us. That the investigation of the upper atmosphere is a separate branch of study in itself is very questionable; and there are already the *Meteorologische Zeitschrift*, the *Veröffentlichungen der internationalen Kommission für wissenschaftliche Luftschifffahrt*, and the *Illustrierte Aëronautische Mitteilungen*, all suitable for the discussion of such investigations.

The subject-matter of this first number of the *Beiträge* is exceedingly interesting, and of no little importance. It contains three articles, each by a high authority on the subject dealt with.

The first, by Prof. Hergesell, is devoted to proving that kites can be raised to great heights quite independently of the weather conditions where a large expanse of water and a high-speed motor-boat are at the disposal of the observer, this being the same result as that arrived at by Rotch and by Dines. The more immediate object of the present article is to urge the possibility and necessity of founding an observatory on Lake Constance specially devoted to the investigation of the upper atmosphere.

In the second article Prof. Assmann describes "a year's simultaneous kite ascents in Berlin and Hamburg," with special reference to the existence of a warm current of air flowing almost constantly between 500 metres and 1000 metres above the surface. That such a current should exist is very interesting, and further observations as to its extent, strength, and permanency are very much to be desired.

The remaining article treats of the methods employed by Dr. A. de Quervain in determining the paths traversed by balloons sent up with registering instruments only. The methods described can only be employed so long as the balloon remains within the range of vision of a telescope; they are really trigonometrical. The first is the simple method of two theodolites at the ends of a base line, and the second similar, with the exception that only one theodolite is used, the heights of the balloon at the moments of observing with the theodolite being obtained later from the curve drawn by the barograph carried with the balloon.

Articles for future numbers, which are to be published as may be found convenient, are promised by Prof. Sprung, Prof. Wiechert, Dr. J. Maurer, and Dr. A. de Quervain.

G. C. S.

The Inventor's Guide to Patent Law and the New Practice. By James Roberts, M.A., LL.B. Pp. viii+109. (London: John Murray, 1905.) Price 2s. 6d. net.

THIS is a well written handbook on British patent law and practice in which the inventor will find information of use to him. The new practice referred to in the title is the search by officials of the Patent Office for anticipations within the fifty years prior to an application, and the possible enforced statement as to these which the patentee may have imposed upon his own specification.

While the information derived from a search by officials of the Patent Office may be of the greatest use to a patentee, there is considerable doubt as to

the advantage either to the patentee or to the community of allowing what may in reality be a specification of a valuable invention to be marred by an official statement as to certain prior specifications. There is a fear that an official with insufficient experience of practice either in works or in the Chancery Court may attach too great importance to what are known as paper anticipations, and by insisting on referring to them prevent a patent which otherwise might have been the basis of a successful manufacturing process, and be good enough to stand attack in the courts, from being even looked at by any manufacturer. However this may be, it is impossible to cast any doubt upon the Patent Office without paying a tribute to the great courtesy with which the humblest stranger who goes there is met, and the help that he is sure to receive short of professional advice. The library, too, and its arrangement is an admirable feature.

References to large standard works on patent law are very numerous, and will be of great service to the reader who desires more detailed information on difficult points than can possibly be given in a moderate compass.

B.

A Manual of Mining. By M. C. Ihlseng and E. B. Wilson. Fourth edition. Pp. xvi+723. (New York: John Wiley and Sons; London: Chapman and Hall, Ltd., 1905.) Price 21s. net.

BASED on the course of lectures delivered at the School of Mines of Colorado, Prof. Ihlseng's book, which is regarded in America as the best text-book on the subject, has been enlarged under the joint authorship of Mr. Wilson to include coal mining, which received scant attention in previous editions. Excepting that ore dressing and coal washing are not touched upon, it now covers much the same ground as Sir C. Le Neve Foster's "Elements of Mining and Quarrying." The arrangement is, however, altogether different. The book is divided into two parts, mining engineering and practical mining. The former deals with prospecting, preparatory work, methods of mining, power generation, hoisting machinery, electric generation and water power, hoisting machinery and underground conveyances, underground haulage systems, wire rope transmission, the compression of air, pumping, mine gases, ventilation, distribution of air, the illumination of mines, and accidents in mines.

The second part deals with shafts, sinking in running ground, timbering, driving drifts, tunnels and gangways, drilling and boring machines for explorations, miners' tools, channelers, drills and coal-cutters, and blasting. It is difficult to see the object of this division into mining engineering and practical mining. In this country it is not usual to draw a sharp distinction between theory and practice in engineering work. Moreover, the order of the chapters in each section does not appear to be so logical as that followed in English and Continental text-books. Thus on p. 30 the steam shovel is described, but it is not until p. 621 that we come to a description of the ordinary pick and shovel. On p. 47 the blasting of coal is dealt with, but it is not until p. 685 that the operation is described and the theory of blasting explained. The book contains much useful information, but the lack of method in the arrangement cannot fail to militate against its use as a text-book. The illustrations, many of which are excellent, are largely borrowed from makers' catalogues, and are not nearly so useful for educational purposes as rough sketches specially drawn would be.

The frequent misprints in figures in the index and in the references should have been carefully guarded against in a book intended for students. Several