

THE recently amalgamated firms of T. Cooke and Sons, Ltd., and Troughton and Simms, Ltd., 3 Broadway, Westminster, S.W.1, which went into voluntary liquidation several months ago, inform us that this state of affairs has now been satisfactorily terminated. They wish it to be known that their facilities for designing and manufacturing high-grade scientific instruments and apparatus in large quantities have been retained intact, so that they are able to deal with orders as hitherto.

MESSRS. Adam Hilger, Ltd., have recently issued a handsome catalogue of their various manufactures. It includes thirteen sections and is provided with a thumb index for ready reference as well as a general index at the end. The instruments described and illustrated in the sections come under the following headings:—Echelon diffraction gratings and Lummer-Gehrcke parallel plates (including echelon gratings having as many as 56 plates); spectrometers and goniometers; wave-length spectrometers, monochromators and specialised spectroscopes; spectrographs; accessories for spectrometers and spectrographs (including, among other things, heliostats, vacuum tubes, thermopiles and high purity electrodes of copper, iron, carbon and nickel); spectrophotometers, colorimeters, and apparatus for sensitometry (including the new Judd Lewis sector photometer); diffraction gratings; micrometers, etc.; polarimeters and refractometers; Michelson, Fabry and Perot, and Hilger interferometers; spectroscopic apparatus for high resolving power; optical work; and the Low-Hilger audiometer. The instruments are well described and appear to be constructed with the care and with the view of convenience in use for which this firm is well known. It is unfortunate that they cannot be produced at a lower price, however, as many to whom they would be of great value will find some of the charges prohibitive.

MESSRS. Gallenkamp and Co., Ltd., of 19 Sun Street, Finsbury Square, London, are to be congratulated on the new issue of their catalogue of apparatus for the examination of soil. Until now, the recent striking advances in the technique of agricultural science, especi-

ally in physics and physical chemistry, have not induced the scientific apparatus firms and instrument makers to introduce the new apparatus to general notice. This has been a real disadvantage to the research worker in soils. It has usually been possible to persuade a firm to make a copy of some particular apparatus, the construction of which was beyond the ordinary laboratory facilities, but this is a very expensive way, as all the special costs are chargeable to the one apparatus. On the other hand, when an apparatus is listed in a catalogue, not only does it bear a smaller share of the overhead charges, but the publicity usually results in increased sales, which act in the same direction. Messrs. Gallenkamp's catalogue is divided into five sections: soil sampling tools, physical properties of soil, soil solution, chemical analysis of soil, and soil meteorology. Each of these sections contains items that well show the recent advances in the technique of agricultural science. The newer forms of soil sampling tools are to be commended, and in the sections on physical properties of soil and soil solution, prominence is given to apparatus devised at the Rothamsted Experimental Station. The section on soil meteorology has been carefully thought out and should be of considerable use in the development of work that, coming on the border line between meteorology and soil physics, has been rather neglected.

MESSRS. Longmans and Co. have in preparation a new and cheaper edition of Thorburn's "British Birds." The work will be in four volumes, illustrated by 192 coloured plates reproduced from new drawings by the author. It is hoped to issue the first volume in March, the second in the autumn, and the remaining two volumes in 1926.

SOME 1900 books on geology, palæontology, and mineralogy from the libraries of the late Sir Jethro J. H. Teall, and Messrs. T. W. Reader and E. A. Walford, are offered for sale in Catalogue No. 123 by Messrs. Dulau and Co., Ltd., 34 Margaret Street, W.1, together with a number of other works on fossil plants, anthropology, archæology, and zoology. Copies of the catalogue can be obtained on application.

Our Astronomical Column.

PHOTOGRAPHY OF THE ASTRONOMICHE GESELLSCHAFT ZONES.—Prof. Schlesinger gave an interesting account at the meeting of the Royal Astronomical Society on Jan. 10 of the reobservation by photography, at Allegheny Observatory, of some of these zones. The novelty of the method lies in the size of the plates used, some of which are 5° in the side, others $12\frac{1}{2}^\circ$. The lens is a triple one, and the only form of distortion present is a tendency for bright stars to appear slightly displaced away from the centre as compared with faint ones; the amount near the edge is $0.06''$ per magnitude. As each star is present on at least two plates, with the shift generally in opposite directions, no systematic magnitude error is introduced.

Although the scale is only half that of the Astrographic plates, the excellence of the lens is such that the probable error of each star image is only $0.18''$.

Incidentally, the measures give the means of determining magnitude error in the Astr. Gesell.

Catalogues. For on plotting the differences of R.A., Allegheny *minus* A.G., for different magnitudes, the abscissa being Right Ascension, sine curves are obtained due to the solar motion. The zero line of these curves is found to alter with the magnitude; now as magnitude equation on the photographs is shown to be eliminated in the mean, the effect must be due to the equation in the A.G. Catalogues.

Prof. Schlesinger is on his way to South Africa to inaugurate the photographic work with the instrument which is being sent there from Yale Observatory. He hopes to return in time for the meeting of the Astronomical Union at Cambridge in July. It may be mentioned that the $12\frac{1}{2}^\circ \times 12\frac{1}{2}^\circ$ plates are a quarter of an inch thick and weigh 10 lb. It would only need some 270 of these plates to cover the entire celestial sphere, so that the taking of the plates is a much less serious matter than that involved in the Astrographic Catalogue. The chief labour lies in the measurement and reduction.