



subserve some direct use in plant-economy, and are not, as Dr. Behr would affirm, acquired peculiarities directly injurious to the organism.

### A METHOD OF SIGNALLING DIAGRAMS.

AN ingenious system of adapting the alphabetical messages of the electric telegraph, or of the

heliograph, or any other signalling apparatus, to the reproduction at distant points of some kinds of drawings, has been recently contrived by Mr. Alexander Glen of England, and is described in the *London Illustrated news* of March 20. It seems likely to be of some utility in military operations, as it is especially suitable for the transmission of small maps or plans of a locality. The design to be transmitted is drawn on ruled paper, divided into little squares by vertical and horizontal lines. The operator at the transmitting-station can thus indicate by alphabetical letters to the receiver any point on the paper falling in the centre of any square; the person at the receiving-station will apply his pencil to that point, and will then be directed to the next point, drawing a line with the pencil, and so on to form a complete outline-drawing. Patches of shading, of the several darker or lighter tints shown in a separate diagram, may be put in by special directions.

#### BIBLIOGRAPHY OF INDIAN LANGUAGES.

MANY years since, the present director of the bureau of ethnology became interested in Indian tribes of the west, and began to study their languages. The study of the spoken language from the mouths of the speakers naturally led to the study of books containing accounts of languages no longer spoken, or spoken by people not personally visited. As books began to be studied, the desire and the need of examining more books relating to the subject were felt to be necessary for the solution of the problems involved. A card-catalogue was therefore begun, of the books, pamphlets, magazine and other articles, manuscripts, etc., which were needful for an exhaustive study of the relationships of the native tribes as based upon language. This catalogue grew and grew. How great it was or is destined to become, if absolutely completed and perfected, no one yet knows.

Every lover of systematic, complete, and accurate work owes a debt of thankfulness to the bureau of ethnology and the compiler of this formidable volume; and he owes this debt, not because the work is complete (for it is still incomplete), and not because it is free from inaccuracies (for there are inaccuracies, though these are neither important nor numerous), but he is grateful for this monument of systematic, thorough-going research, and for a persistent devotion to a lofty ideal of bibliographic work. Had a less lofty ideal of completeness or excellence been set

up, the book would have been beyond all criticism. The very excellence of the ideal affords ground, and the only ground, for the friendly criticism we beg to offer.

The titlepage of this printed but unpublished book is, and is intended to be, a standing invitation to criticism from all competent judges. We say printed but not published, since a manuscript note informs us, 'one hundred copies printed,' and the printed titlepage informs us that these one hundred volumes are 'distributed only to collaborators,' and also that they are 'proof-sheets.'

It is the fulness of the present catalogue, the time and labor spent upon it, the bibliographic spirit which pervades it, taken together with the titlepage, that bring into the strongest relief the perfect ideal in the author's mind, and at the same time his clear perception of the mode, and the only mode, for the attainment of this ideal. The author has set before him, and kept steadily in view, the purpose, first, of hunting up every scrap of published, printed, and even manuscript information in existence, relating to the subject; second, of recording a description of each work so full and so complete that it need never be recorded more fully or more completely; third, of telling where each work catalogued may be found; fourth, of giving a clear notion of what the document is, and what it contains relative to his subject, telling where, within the work cited, the linguistic material is to be found; and, lastly, of so putting the whole together that whoever has occasion to use this bibliography may learn all that he needs or cares to know about any book catalogued, and its contents, without actually seeing it at all.

The value of any work so broadly conceived and so fully executed as this, can hardly be overstated. With the great increase of knowledge in all directions, it is absolutely essential to progress that the fields to be investigated be first systematically mapped out, to the end that seeming new discoveries may be new, and not rediscoveries, and that energy be not, through ignorance, wasted in repeating work already well done. The sciences are now advanced to that state, that further satisfactory progress is only to be made by ascertaining what has already been done. To this end, and to so exhibit the work already accomplished in any line, is the work of the bibliographer. The general outline of the proposed plan of the bibliography is here shown, and the opinions of competent judges as to its merits and defects are respectfully solicited with a view to their use in the finished book or books, if books should be found necessary to contain the material which shall constitute the work.

*Proof-sheets of a bibliography of the languages of the North American Indians.* By JAMES CONSTANTINE PILLING. Washington, Government, 1885. 1175 p. 4°.