temperature range ($\triangle t$) gives, as a rule, a measure of the purity of the liquid, though in the early fractionations of a complex mixture this cannot always be relied on. Thus, in the 4th fractionation, the fraction coming over between 65° and 66° had the highest value of $\frac{\triangle w}{\triangle t}$, whereas in the 16th fractionation the corresponding fraction (65° to 66.85°) had the lowest value. In the first case a mixture of normal and iso-hexane was separating rapidly from the pentanes and heptanes in the petroleum ether; in the second considerable progress had been made in the separation of normal from iso hexane (B. P^s 69°0 and about 61° respectively).

After the 16th fractionation it was decided to proceed at first with the separation of normal hexane only, and after the 31st preliminary fractionation it was considered that the separation had proceeded far enough for the final series of fractionations to be undertaken (*loc. cit.*).

The normal hexane obtained by the final fractionation of the fractions boiling at and above 69.1°, when distilled from phosphorus pentoxide, boiled at 69.1° or 0.1° higher than the hexane from propyliodide; its specific gravity at 0° was 0.68478 or 1.15 per cent. higher.

The hexane was, therefore, shaken repeatedly with a mixture of concentrated nitric and sulphuric acid, when considerable heat was evolved and some m-dinitrobenzene was formed. The impurity, which could not be separated by fractional distillation, was, therefore, benzene with, possibly, some hexanaphthene.

The other fractions were separately treated with the mixed acids and after further fractionation a product was obtained boiling at 69.05° and with the specific gravity 0.67813 at 0° or only 0.17 per cent. higher than that of pure hexane.

The boiling points, specific gravities and critical constants of the two specimens of normal hexane are given below:

	Normal Hexane from Propyl Iodide.	Normal Hexane from Petroleum Ether.
Boiling point.....	69.0°	69.05°
Specific gravity at 0°.....	0.67696	0.67813
Critical temperature.....	234.8°	235.15°
Critical pressure.....	22510 mm.	22560 mm.
Critical volume of a gram...	4.268 cb. cms.	

SOME RECENT MEXICAN PUBLICATIONS.

MEXICAN men of science are doing much active scientific work, as is shown by the extent and value of the following publications:

1. *Biblioteca Botánico-Mexicana. Catalogo Bibliografico, Biografico y Critico de Autores y Escritos Referentes a Vegetales de Mexico y sus Aplicaciones, desde la Conquesta Hasta el Presente. Escrito por el* DR. NICOLAS LEÓN, Mexico, 1895.

This work of 375 pages is comparable to Sereno Watson's Bibliography of American Botany, issued a number of years since. The number of separate entries in the main alphabetically arranged list is 805, making, with those of the appendix (82), a total number of titles quoted of 887. The work aims at being a complete list of the floras and books, as well as papers and separates, dealing with the plants of Mexico published since the Conquest. A fair number of American authors are cited, and their botanical work reviewed briefly or at some length; among such may be mentioned Audubon, Bailey, Chapman, Eaton, Eggers, Engelmann, Gray, Parry, Pursh, Riley, Rose, Rothrock, Torrey and Trelease. Short biographical sketches of the botanists who explored Mexico, as far as known, are added, as also an account of their work while in the field and the extent and importance of their collections. Botanists of the United States, Canada and Europe not familiar with this comprehensive work would do well to procure a copy from the author or from the printer in the city of Mexico; Oficina Tip. de la Secretaria de Fomento.

2. *Informe que rinde á la Secretaria de Fomento. El Director del Instituto Médico Nacional* DR. FERNANDO ALTAMIRANO. *Sobre algunas excursiones á las Montañas del Ajusco y Serrania de las Cruces.* Mexico, 1895.

This pamphlet of some 64 pages gives an account of a new amphibian *Amblystoma Altamirani*, A. Dugés, with a colored lithographic plate of the same, as well as an account of an

insect *Lachnus Strobus*, Fitch. The botanical portion deals with a description of the region of Ajusco and of Las Cruces explored, with an enumeration of the plants collected, as also meteorological tables showing the climate of Guadalupe, Ajusco, City of Mexico, and Hacienda de Eslava for July, 1895. A description of the plants new to the valley of Mexico forms a portion of the pamphlet, the following plants being noted, *Halenia candida* Ramirez and *Passiflora eslavensis* Ramirez. The pamphlet closes with a discussion of hydrology of the region, in which chemical analyses are shown of the potable waters, which might be introduced into use.

3. One of the most interesting publications recently issued by the National Medical Institute, under the auspices of the Secretary of Agriculture and the direction of Fernando Altamirano, is one dealing with the gradual disappearance of Lake Texcoco, which is being hastened by the drainage operations now being carried forward to completion. The publication entitled *Estudios referentes a la Desecación del Lago de Texcoco Año de 1895, Primera Parte*, is one of 126 pages, dealing first with the meteorology of the region and the rate of evaporation from the lake. The second portion deals with the fauna of Lake Texcoco, by Prof. Herrera, a most interesting study to the biologist; a discussion of the influence of malaria on the hygiene of the capital follows, with a description of the geography and climatology of the lake, presented by Dr. Domingo Orvañanos. Accompanying the report are a series of graphic tables illustrative of the evaporation and meteorology of the lake.

4. *Anales del Instituto Medico Nacional. Tomo I. Num. 8*, Mexico, 1896.

This number is devoted to Materia Medica, or a pharmaceutical description of certain Mexican plants, such as: *Aristolochia fragrantissima*, Ruiz., *A. fœtida*, H. B. K., *A. odoratissima*, L., *A. anquicida*, L., *Mikania Houstonis*, Wild., *M. scandens*, Wild., *Dorstenia contrayerba*, L., *Pluchea, odorata*, Cav., *Erynguim aquaticum*, L., *Poinsettia pulcherrima*, Graham, and a chemical study of *Jatropha spatulata*.

John W. Harshberger.
University of Pennsylvania.

NEW BOOKS.

Life Histories of North American Birds. Charles Bendire. Washington, Government Printing Office. 1895. Pp. ix + 518.

A History of Elementary Mathematics. Florian Cajori. New York and London, The Macmillan Company. 1896. Pp. viii + 304. $1.50.

An Outline of Psychology. Edward Bradford Titchener. London and New York, The Macmillan Company. 1896. Pp. xiv + 352. $1.50.

The Crowd, A Study of the Popular Mind. Gustave le Bon. New York, The Macmillan Company. 1896. Pp. xxiv + 230. $1.50.

Education of the Central Nervous System. Reuben Post Halleck. New York and London, The Macmillan Company. Pp. ix + 258. $1.00.

Elements of Solid Geometry and Mensuration. Henry Dallas Thompson. New York and London, The Macmillan Company. 1896. Pp. vii + 199. $1.25.

Röntgen Rays and Phenomenon of the Anode and Cathode. Edward P. Thompson and William A. Anthony. New York, D. Van Nostrand Company. 1896. Pp. xix + 190.

Report of the Sixth Meeting of the Australasian Association for the Advancement of Science, held at Brisbane, January, 1895. Edited by John Shirley. Published by the Association, Sydney, N. S. W. Pp. xxxiv+875.

Peru: Beobachtungen und Studien über das Land und seine Bewohner. E. W. Middendorf. Berlin, Robert Oppenheim. 1893, 1894, 1895. Vol. I., xxvii+638; Vol. II., xii+424; Vol. III., xv+603. M. 48.

Handbuch der Praktischen Gewerbehygiene mit besonderer Berücksichtigung der Unfallverhütung. Herausgegeben von Dr. H. Albrecht. Mit 756 Figuren. Berlin, Robert Oppenheim. 1896. Pp. xi+1053. M. 27.

Bulletin of the U. S. National Museum, No. 47: The Fishes of North and Central America. David Starr Jordan and Barton Warren Evermann. Part I. Washington, Government Printing Office. 1896. Pp. lx+1240.