mination repeated, proving that the liquid was practically homogeneous. A determination of the density of the gas also gave results agreeing satisfactorily with the theory.

There seems, therefore, to be little question that the butane obtained by Professor Mabery was in reality normal butane, and that the boiling-point of isobutane is —11.5°. W. A. NOYES.

The following note has been received from Prof. Mabery to whom this note was submitted in manuscript:

"I have no reason to doubt the accuracy of Professor Noyes' observation on the boiling-point of isobutane. It is not incompatible with our results on the butane in petroleum. I have intended to refer to this subject more fully in a later paper, a resumé of the composition of American petroleum." C. F. MABERY.

UNIVERSITY OF ILLINOIS,
URBANA, ILL.

The Stereochemistry of Indigo.—The last paragraph of this paper (This Journal, December number, 1907, p. 1743,) in which the structures of the two diacetyl indigo whites are discussed on the spatial hypothesis, assumes that both compounds possess the ketone structure. If both rearrange to the tautomeric enol forms, it should be pointed out that there would still be two stereoisomers (*cis* and *trans*) which it would not be possible to resolve into optically active isomers. K. GEORGE FALK AND J. M. NELSON.

REVIEW.

RESEARCHES ON THE DENSITY OF GASES

CARRIED ON DURING 1904, 1905 AND 1906 IN THE PHYSICAL CHEMISTRY LABORATORY OF THE UNIVERSITY OF GENEVA.[1]

BY PHILIPPE A. GUYE.

Received October 1, 1907.

The present article contains a résumé of the results obtained during the course of three years' work on the exact density of gases. The work has been carried on in collaboration with Messrs. Jaquerod, Pintza, Davila, Gazarian and Baume, and until now has been the subject of only isolated publication (Jaquerod and Pintza, *Compt. rend.*, **139**, 129 (1904), (SO_2 and O_2); Guye and Pintza, *Ibid.*, **139**, 679 (1904); **141**, 51 (1905), (N_2O, CO_2 and NH_3); Guye and Davila, *Ibid.*, **141**, 826 (1905), (NO); Guye and Gazarian, *Ibid.*, **143**, 1233 (1906), (HCl); Baume, unpublished (1907), (SO_2)). These have contributed to the problem of the physicochemical determination of exact molecular weights, with a view to checking up the

[1] From *Archives des Sciences Physiques et Naturelles*, **24**, 32–62. Translated by Helen Isham.