The reasons underlying these disagreements would appear to be plain. The vapour pressure–temperature measurements utilised by Jouniaux are evidently inaccurate, for, although the Kirchhoff-Dupré-Rankine equation is known to apply, with possible errors of about 3 per cent (Juliusburger [13]), to many organic substances, it becomes apparent by taking other sets of vapour pressure–temperature values from the records referred to by Jouniaux that widely different figures for m, n, and z result. The following two examples illustrate this :

		m	n	z
(1)	$T_1 = 273°$, $p_1 = 0{\cdot}06$ mm. $T_2 = 313°$, $p_2 = 0{\cdot}60$ mm. $T_3 = 353°$, $p_3 = 9{\cdot}15$ mm.	− 3026	64·85	− 355·62
(2)	$T_1 = 351°$, $p_1 = 6{\cdot}4$ mm. $T_2 = 404{\cdot}1$, $p_2 = 75{\cdot}37$ mm. $T_3 = 430$, $p_3 = 181{\cdot}5$ mm.	− 11,950	− 14·31	119·78

(1) From paper of Allen (loc. cit.).
(2) From paper of Vanstone (loc. cit.).

It is therefore obvious that these measurements are not nearly sufficiently reliable to bear the mathematical treatment that Jouniaux attempted to give them. In addition, the value he used for the density of liquid camphor was determined many years ago (Kuhara [6]) and relates not to the melting point (178°) but to 205°. The density for solid camphor at the melting point is quoted as 0·980 without references ; Beilstein gives D_0^0 1·000 ; D_5^5 0·9998 ; D_9^9 0·992.

In conclusion, it is evident that neither as a verification of his own work nor as a means of discrimination between two values of K_{camphor} so widely different as 400 and 498 are such applications of thermodynamic formulæ of much practical use.

R. J. W. LE FÈVRE.
CATHERINE G. TIDEMAN
The Ralph Forster Laboratories of
Organic Chemistry,
University College, London.

[1] R. J. W. Le Fèvre, NATURE, **126**, 760 ; 1930.
[2] *Bull. Soc. Chim.* [4], **11**, 546, 722, 993 ; 1912.
[3] *Compt. rend.*, **154**, 1593 ; 1912.
[4] Caille, *Compt. rend.*, **148**, 1461 ; 1909.
[5] Le Fèvre and Webb, *Jour. Chem. Soc.*, May 1931.
[6] *Am. Ch. J.*, **11**, 244 ; 1889.
[7] *Phil. Trans.*, **175**, 45 ; 1884.
[8] *Jour. Chem. Soc.*, **77**, 413 ; 1910.
[9] *Jour. Chem. Soc.*, **97**, 429 ; 1910.
[10] *Annalen der Physik*, **104**, 612 ; 1858.
[11] Dupré, " Théorie mécanique de la chaleur ", p. 96.
[12] Rankine, *Phil. Mag.* [4], **31**, 200 ; 1866.
[13] *Annalen der Physik*, **3**, 318 ; 1900.

Prof. Otto Wallach.

As a former student of Prof. Otto Wallach, I would suggest that the obituary notice in NATURE of April 18 scarcely does justice to the immense services which this distinguished investigator rendered to organic chemistry.

Prior to 1880 the utmost confusion existed with regard to the nature of most of the substances contained in essential oils, considerable doubt existed as to the homogeneity of these ' compounds ', and very few determinations of structure or synthesis had been carried out. Wallach's pioneer work, commenced in 1884, quickly produced important results, and in a few years the original chaos gave place to an orderly and greatly simplified arrangement. The distinguishing characteristics of pinene, camphene, limonene, terpinolene, terpinene, and phellandrene were clearly established, and gradually a light was thrown on the inter-relations of most terpene derivatives.

Although other workers, notably Armstrong, von Baeyer, Perkin, Semmler, Tiemann, Tilden, and Wagner have made many noteworthy contributions to this branch of chemistry, its present condition must be regarded as largely due to Wallach. It is interesting, however, that in the first few pages of his book, " Terpene und Campher ", he refers to the valuable work of many of these chemists, including that of Armstrong.

It is gratifying to remember that in 1909 Wallach was awarded the honorary doctorate of science of the University of Manchester. At that time W. H. Perkin, junr., was himself directing a flourishing school of terpene research there, and it is probably not inaccurate to regard Wallach's doctorate as a personal compliment paid by one distinguished chemist to another. Some years later an important communication on stereochemistry was published simultaneously in *Liebig's Annalen* and the *Journal of the Chemical Society* under the joint names of Perkin, Pope, and Wallach. A survey of Wallach's work may, however, be left to the memorial lecture shortly to be delivered before the Chemical Society, and to the exhaustive review of the man and his work which will doubtless be published in the *Berichte* by his German colleagues.

Wallach's students will recall the rather short, spare figure of the Herr Geheimrath, his thin grey hair and beard, his keen eyes and intent look as he passed down the centre of the laboratory to his private room, holding with almost painful care some specimen just obtained from one of his students. They will remember his optimistic " Geht sehr gut ", even when they themselves were by no means satisfied with the progress of the ' Arbeit ', or—when a viscous oil persistently refused to solidify—" Immer noch nicht fest ? Ruhig bis morgen stehen lassen."

The Geheimrath was always pleased when English students came to work with him, he greatly valued his honorary fellowship of the Chemical Society, and he was frankly pleased at his re-election about two years ago. Throughout his tenure of the chair of chemistry in Göttingen, Wallach lived in the old house adjoining the laboratory in Hospitalstrasse with the name ' Friedrich Wöhler ' in letters of gold over the door. He did not understand how a professor could wish to live further from his work than this. There in the large room upstairs was kept his fine collection of water-colours in which he greatly delighted. In 1924 it was my privilege to call upon Wallach, then in the eighth year of his retirement (he retained a room in the laboratory by the courtesy of Prof. Windaus, and long after his eightieth birthday he continued to work there). That was the first visit he had received from an English chemist since 1914, and he did not attempt to disguise the pleasure it gave him, and I am happy to think that several letters have passed between us in the last years of his life.

Wallach was almost the last of the line of great German chemists—Hofmann, Kekule, Victor Meyer, von Baeyer, Fischer, Wislicenus, Hantzsch—who through rigorous discipline and with infinite patience and diligence built up the structure of modern organic chemistry, and his passing marks the close of a romantic chapter of chemical history.

Many chemists in Great Britain who worked with one or other of these giants will remember them with gratitude and admiration. They will recall what they owe to their fellow students, to the many admirable features of German university life, and to the knowledge gained and the friendships formed in the mountains and forests of the Harz or Thüringen or South Germany.

" Nie kehrst du wieder gold'ne Zeit, so frei und ungebunden."

FREDERICK CHALLENGER.
The University, Leeds,
June 1.