oxime could be prepared. The thick, oily mass which was obtained had an odor very suggestive of camphor oxime and a few crystals had separated, but at the time of this writing the amount was insufficient for a melting point determination.

Examination for Camphor.—The remainder of Fraction No. 6 was treated with hydroxylamine hydrochloride but no oxime could be separated, indicating the absence of camphor.

Examination for Phenol.—Identification of Salicylic Acid. The aqueous alkaline liquid obtained by shaking the oil with 3% solution of potassium hydroxide was acidulated with dilute sulfuric acid, shaken out with ether and the ether allowed to evaporate. A thick, brownish red liquid was thus obtained from which, after standing some time, needle shaped crystals separated in very small amount. This substance gave an intensely violet color with aqueous ferric chloride solution. When treated with methyl alcohol and sulfuric acid it gave the odor of methyl salicylate.

Identification of Acetic Acid.—The aqueous alkaline liquid resulting from the saponification of the oil was acidified with dilute sulfuric acid and the mixture subjected to steam distillation. From the acid distillate a silver salt was prepared which, on ignition, yielded 65.7% metallic silver. Silver acetate contains 64.64% of silver.

Summary.

The chief constituent of this oil is α-pinene, a mixture of the *dextro* and *levo* forms. In addition, it contains salicylic acid and acetic acid, at least one alcohol, occurring both in the free state and combined as the acetate. The presence of borneol is quite probable.

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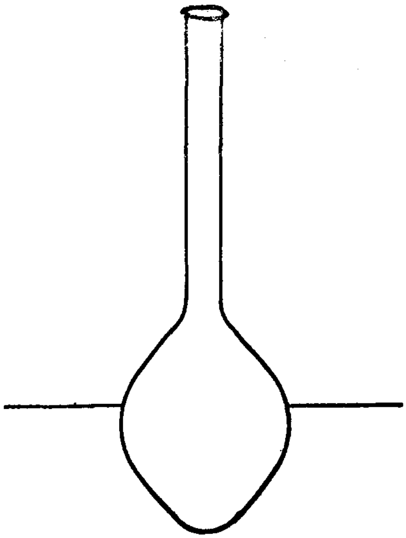
NOTES.

A Modified Kjeldahl Flask for Determining Soil Nitrogen.—Soil chemistry and soil bacteriology call for the determination of soil nitrogen. The nitrogen content of ordinary soil is small and the sample has to be correspondingly large. The fact that most directions call for the transfer of the solution between digestion and distillation shows that the ordinary Kjeldahl flask is not adapted to this determination. Some investigators do not make it a rule to transfer, but they sometimes are forced to, since with some types of soil, such violent bumping occurs that the flask breaks. The transfer is a nuisance, involving extra time and flasks, besides allowing a source of error.

The modified Kjeldahl flask represented in the accompanying sketch does away with the bumping, making the transfer unnecessary. This flask holds about 700 cc. It has the same proportions as the ordinary

Kjeldahl flask, except for its modified (more pointed) bottom. The pointed bottom prevents the solid portion of the contents from settling while being heated. The silica and sludge are thus kept in constant motion, rising straight up towards the surface of the liquid and sliding back along the sides of the flask. The hardest boiling on the surface of the liquid is at the center, and thus frothing is prevented by the bubbles being broken against the sides of the flask.



Over three hundred determinations have been made in this laboratory with this flask. Nitrogen has been determined in clays, loams, sands, peaty sands, and peats. Neither bumping nor troublesome frothing have occurred in any case. H. A. Noyes.

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Concerning the Quantitative Extraction of Diastases from Plant Tissues.—"H. F. E. H." in a review of our recent article[1] on this subject, which appears in a recent number of *The Analyst*,[2] states that "The authors have overlooked the fact first shown by J. L. Baker and H. F. E. Hulton[3] that the "Kjeldahl law of proportionality" does not strictly obtain up to a production of 40% of maltose in the case of flour. There is no reference to the work of Brown and Morris,[4] and Ford and Guthrie,[5] who showed that the diastatic activity of raw barley itself is greater than that of any extract made from it. The great influence that amphoteric substances have upon the quantitative production of maltose from starch, when flour, barley, etc., are employed, is ignored."

With reference to the first point, we recognize that Kjeldahl's "law of proportionality" is not an absolute law in the sense that the reaction velocity is absolutely unvarying up to the limits of unconverted starch to which it was originally applied. This was shown by Brown and Glendinning in the article to which we referred in our paper, much earlier than

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[1] This Journal, 36, 759–770 (1914).

[2] *Analyst*, **39**, 260 (1914).

[3] *J. Soc. Chem. Ind.*, **27**, 368 (1908).

[4] *J. Chem. Soc.*, **63**, 604 (1893).

[5] *J. Inst. Brewing*, **14**, 61 (1908).

by J. L. Baker and H. F. E. Hutton, whose work is mentioned by "H. F. E. H." But our own preliminary work bore out the statement of Brown and Glendinning that the curves of reaction velocity is sufficiently nearly rectilinear, up to the point of hydrolysis of 50% to 60% of the starch, "for all practical purposes of diastasimetry." We, therefore, did not hesitate to use the Kjeldahl "law of proportionality" as a basis for our study of the proposed method of extraction.

With regard to the supposed ignoring of the influence of substances in the material under examination upon the quantity of maltose produced from the starch in the sample, we may say that it was precisely in order to avoid this difficulty that we sought a method which would give an extract free from these disturbing substances. Our further investigations of the application of the proposed method to a study of the diastases of flour, which are now being prepared for publication, showed clearly that the accelerating effect of the extracts alone upon the conversion of starch to maltose is quite different from that of a dilute flour paste, exactly as indicated by the authorities cited by "H. F. E. H." Our investigations as to the causes of this phenomenon, while not yet complete, indicate that the difference is due to the presence in the flour paste of substances other than diastases which influence the rate of diastase action. This does not change in any way our conclusion that the diastases are quantitatively extracted at 0° by the proposed method. A discussion of this phenomenon belongs to the forthcoming paper, rather than to a description of the method of extraction, which was presented in our first paper. In the next paper, the work in question will not be "ignored."

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NEW BOOKS.

A Laboratory Outline of Elementary Chemistry. Alexander Smith. The Century Company, 1914.

This outline is intended to accompany the author's new Text-book of Elementary Chemistry published by the same company during the summer. His position as Examiner in Chemistry of the College Entrance Board puts him in close touch with the teaching of Elementary Chemistry and two paragraphs from the preface give an idea as to the plan of the work:

"The apparatus has been made as simple and small in amount as possible. The list of chemicals has also been restricted to the least expensive materials and the smallest number of items. The indispensable experiments which are less simple, have been left for classroom demonstrations.