

calcium oxide and carbon dioxide. The peak temperature for this sample is 972° C. The aragonite (U.S.N.M.-R2554) is from Chile, exact locality unknown, and its thermal curve is shown in Fig. 1B. This curve shows a small peak at 447° C which represents the dimorphic transformation of aragonite to calcite. This transformation of a metastable material is irreversible, and hence does not take place at a reproducible temperature. Subsequently, the calcite, paramorphous after aragonite, undergoes decomposition at 897° C. The temperature of the dissociation of calcite is not a definite temperature in a nonequilibrium process. The presence of the low temperature peak, in this sample of aragonite at 447° C, representing the transformation of aragonite to calcite, serves to differentiate these two minerals. However, this peak requires a sensitive, continuous recording apparatus and can easily be overlooked.

References

1. ALEXANDER, L. T., HENDRICKS, S. B., and NELSON, R. A. *Soil Sci.*, 1939, **43**, 273, Part II.
2. FAUST, G. T. *Econ. Geol.*, 1944, **39**, 142.
3. ———. *Amer. Mineralogist*, 1948, **33**, 337.
4. FAUST, G. T. and CALLAGHAN, E. *Geol. Soc. Amer. Bull.*, 1948, **59**, 11.
5. HENDRICKS, S. B. and ALEXANDER, L. T. *Soil Sci.*, 1939, **43**, 257, Part I.
6. WELLS, R. C. *J. Wash. Acad. Sci.*, 1915, **5**, 618.

Comments and Communications

The Preparation of Graphs for Publication

In the preparation of graphs of many sorts, it is exceedingly convenient to use graph paper. Graphs so prepared are satisfactory for study but not for publication, because of the background of fine lines. If blue-lined paper has been used, these lines can be eliminated by photography; but this requires some experience and skill and, for some of us, is apt to mean more than one attempt. Moreover, blue-lined paper is not always available.

Recently I noticed that the lines on graph paper show through the paper well enough for the fixing of points on the back. The graph paper is placed upside down on a white surface, and the portion of the sheet to be used is outlined and certain reference points are indicated before the data points are marked. The finished graph, in ink on the plain white back of the paper, may be submitted directly or conveniently photographed.

This method may be helpful to many investigators where professional draftsmen are not available.

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Use of Omental Spread in Biological and Pathological Studies

The advantages of using the omentum of a small animal for making spread preparations instead of attempting to section the tissue have been pointed out by Cross (*Science*, 1949, **109**, 314). However, the technique described, of first taking up the desired portion of omentum on a bit of cigarette paper and then transferring it to a slide, is needlessly complicated. Instead, a piece of omentum may be removed and placed directly on a slide (Woodruff, C. E. *Amer. J. Path.*, 1934, **10**, 739). Then, making use of the property of this thin membrane of fixing itself

to glass, one corner of the omentum may be teased out and allowed to dry on the slide. From this anchoring corner the balance of the membrane may be teased out to form a thin layer most of which will be only one cell thick. Certain stains such as the Ziehl-Neelson may be used on the omental spread without further fixation. Other stains may require the use of formalin or some other fixative prior to staining. The stained preparation is readily mounted in balsam and affords a three-dimensional picture of developing disease processes which one cannot obtain by the use of conventional histological sections.

Very satisfactory omental spreads may be obtained from mice and guinea pigs. The omenta of rabbits and dogs are of less value for this purpose, since the tissue fails to become fixed to the slide in a satisfactory manner.

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Calibration of Warburg Manometers

The paper by Loomis (*Science*, 1949, **109**, 491) concerning the calibration of Warburg manometers omits mention of the convenient method of Schales (*Arch. Biochem.*, 1944, **3**, 475), which also involves the principle of filling the manometers from below by means of a mercury reservoir. Schales' method possesses the further advantage of not requiring any spatial manipulation of the manometers in order to adjust the level of the mercury.

The disadvantage of Schales' method, in our experience, has been the difficulty of placing just the right amount of mercury in the flask in order that the fluid will rise to the point of junction of the side arm and the manometer when the flask is slipped on the ground joint. We have avoided this difficulty by placing a minimum amount of mercury in the flask (usually to the lower edge of the ground surface), and adding further amounts through the gas outlet tube with a capillary