Circumstances make it unlikely that further quantities of the acid will be obtained from the apple in this Laboratory in the near future; the object of this communication is to stimulate the search for methyl proline in other plant material.

A. C. HULME

(the late) W. ARTHINGTON

Ditton Laboratory,
Food Investigation Organization,
Department of Scientific and Industrial Research,
East Malling, Kent.
Jan. 2.

¹Hulme, A. C., and Arthington, W., *Nature*, **170**, 659 (1952).

²Grassman, W., and v. Arnim, K., *Liebigs Ann.*, **519**, 192 (1935).

A Histochemical Property of the Argentaffin (Kulschitsky) Cells

BAKER¹ introduced in 1946 a carefully standardized technique, developed from the Smith-Dietrich test, for the detection of lipines. In a later communication² he claimed that this modification (the acid-haematein test), controlled by his pyridine-extraction test, allows histochemical recognition of phospholipines. This was confirmed by Cain³ while working in Baker's laboratory.

Casselmann⁴ applied this technique to certain synthetic enantiomeric α -phosphatidic acids, α -phospholipines, and related compounds, and to highly purified, natural lipine fractions, as well as to an additional 123 other substances: only phospholipines and certain phosphatidic acids gave positive results. His findings, while confirming Baker's claim, also suggested that "the entire phospholipine molecule may not be essential because some phosphatidic acids also give true positive reactions" (that is, positive in the acid-haematein test and negative in the pyridine-extraction test).

In his earlier communication, Baker observed that the Paneth cell granules in mouse intestine gave a positive though "rather weak" reaction which was negative in pyridine-extracted tissue.

In the intestine of two species (man and guinea pig) I have found that the argentaffin cells give a positive reaction with the acid-haematein test and a negative one in the pyridine-extraction test. As is well known, these cells in man are packed with infra-nuclear granules, which reduce solutions of ammoniacal silver nitrate with resulting deposition of silver on them⁵. The accompanying illustration shows such cells in a human appendix stained by Baker's acid-haematein method. (They are unstained in the pyridine-extraction test.)

This test has also been applied to human post-mortem material fixed 1½ hr. after death, with equally successful results. The argentaffin cells in guinea pig intestine likewise give clear-cut positive results.

Sections of gelatin-embedded, formalin-fixed tissue from a surgically removed argentaffin (carcinoid) tumour of the ileum in an elderly male were immersed in cold 5 per cent potassium dichromate-1 per cent calcium chloride solution for eighteen hours, followed by further treatment with this mixture at 60° C. for twenty-five hours, and then treated as directed in Baker's test. Many of the tumour cells grouped in acini about a central lumen, and especially such acini just beneath the stretched, overlying intestinal mucosa showed the characteristic fine infra-nuclear granules reacting positively.

Appendix from a woman aged twenty showing two argentaffin cells stained by Baker's acid-haematein method. ($\times 1,000$)

Sections of this tumour stained by Gomori's⁶ hexamine-silver nitrate method showed that these granules in morphologically similar cells gave the characteristic argentaffin reaction. Although in this latter case the test was not performed strictly according to Baker's specifications, in that sections were cut from gelatin blocks of tissue fixed for several weeks instead of six hours in formal-calcium before chroming, it affords strong presumptive evidence that the characteristic alkaline silver-reducing granules very often seen in the cells of argentaffin tumours also contain a phospholipine.

A. C. CHRISTIE

Department of Pathology,
Royal Cancer Hospital,
Fulham Road,
London, S.W.3.
Dec. 17.

¹Baker, J. R., *Quart. J. Micro. Sci.*, **87**, 446 (1946).

²Baker, J. R., *Quart. J. Micro. Sci.*, **88**, 463 (1947).

³Cain, A. J., *Quart. J. Micro. Sci.*, **88**, 467 (1947).

⁴Casselmann, W. G. B., *Quart. J. Micro. Sci.*, **93**, 381 (1952).

⁵Gosset, A., and Masson, P., *Presse Méd.*, **22**, 237 (1914).

⁶Gomori, G., *Arch. Path.*, **48**, 45 (1948).

Photoelectric Spectrophotometry of Planetary Nebulae

THE electron temperature of a planetary nebula can be determined from the relative intensities of the N_1 and N_2 lines of [OIII] at $\lambda\lambda 5,007, 4,959$, and the 'auroral' type transition at $\lambda 4,363$, provided the target areas for collisional excitation are known¹.

The N_1 and N_2 radiations are usually very much stronger than $\lambda 4,363$. The photographic measurement of the intensity of $\lambda 4,363$ with respect to $H\gamma$ and $H\beta$ is not difficult; but photographic photometry is not