

of 1,000–1,300 'lines' per centimetre. The direction in which the rule had to be placed in order that all three images fell upon it was about 15° from the vertical and, roughly at least, perpendicular to the direction in which lay the major axis of the displaced pupil.

A sodium lamp gave first-order (uncoloured) images in positions agreeing well with the above. Second-order images were seen only when a 'Pointolite' arc-lamp was substituted for the filament lamp, the brightness of the spectrum causing Mr. Rowe to exclaim: "Oh! It's beautiful."

Dr. Tostevin, an eye-specialist, kindly made an examination of Mr. Rowe's eye with the aid of a slit-lamp. He states that the injury has resulted in adhesion of the cornea to the iris, and that the cells of the cornea where the scar exists have lost their nuclei and are elongated in a definite direction. There is no injury to the lens.

Should any reader of NATURE suggest a reason for more accurate or other observations, Mr. Rowe has intimated his willingness to submit to them.

KERR GRANT.

University of Adelaide.
Feb. 27.

Commemoration of the Cell Theory

THE hundredth anniversary of the discovery of the cell by Th. Schwann is being commemorated this year in many countries. There seems, however, to be a mistake about the date of this great discovery. Schwann's "Mikroskopische Untersuchungen" bears the date 1839; but the first two—and I think the most important—parts of the book had already appeared in 1838. The edition must have been very small, for I have seen only one copy of them during the last twenty years. Schwann placed the 1838 edition before the Paris Academy of Sciences. At all events we are, I think, late in our commemoration.

A few years ago, by the way, I made a similar blunder. I published in my "Faesimile Edition" a reprint of the first edition of Galvani's famous work which had appeared in 1792. But I discovered too late that this work had already been published as a paper a year earlier in the 'Commentarii' of the Academy of Bologna. My reprint was in reality only that of the first edition of the *separate* work.

W. JUNK.

The Hague,
March 4.

Points from Foregoing Letters

J. G. Daunt and K. Mendelssohn find that a 'transfer' of liquid helium II takes place along a solid surface when a temperature gradient is kept up. They also observe that a flow of liquid helium II through a powder plug is accompanied by a caloric effect. These results seem to support the idea that the transport phenomena in liquid helium II are mainly due to surface flow.

A new method for obtaining photographic records of refractive index gradients in a column of solution is described by Kjell J. I. Andersson. The refraction methods now used in ultracentrifugal practice are briefly discussed and the new procedure compared with an analogous method described by Philpot.

Several factors are presented by R. B. Dean, O. Gatty and E. Stenhagen which may invalidate the assumption that the thickness of multilayers of protein is a measure of the thickness of a surface layer of the protein on water. Conditions for avoiding these errors are set forth and the orientation of the layers of protein on the slide is also considered.

A. H. Nissan and L. V. W. Clark state that a reasonable basis of comparison for studying the viscosity of liquids has been found so that an homologous series, for example, the *n*-paraffins, yields a solitary curve for all its members, with the exception of the first few, independent of molecular weight. It is generally accepted that in $\eta = Ae^{B/T}$, *B* is invariant with temperature for unassociated liquids. Evidence is given that *B* is a function of temperature even in the case of *n*-paraffins. From an examination of a large number of liquids it is possible to classify them into three groups with regard to viscosity: normal, associated and metallic.

Assuming that, at the melting point the energy per unit area of a liquid surface is given by the total energy of the molecules in a surface layer of unit area, each molecule vibrating with a frequency equal to the Lindemann frequency, L. Sibaiya and M. Rama Rao arrive at a simple formula connecting

the surface tension of a liquid with the molecular mass and the Lindemann frequency. The values obtained in the case of forty-five substances investigated were found to be of the right order of magnitude.

The natural radio wave-length of an antenna is found by R. Nakhla to increase with the electrical conductivity of the surroundings up to a definite limit and then to become constant.

Ch. Weizmann, E. Bergmann and Y. Hirshberg point out that the enzymatic hydrolytic de-amination of amino-acids, recently discovered by Virtanen and Erkama, parallels the analogous photochemical process, which is more general. The behaviour of histidin is quoted as an example.

M. Stacey and Miss E. Schlüchterer find that certain drugs of the sulphonamide group have no chemical action *in vitro* on specific capsular polysaccharides from Types I and II pneumococcus. The tentative theory is advanced that sulphonamide drugs are active *in vitro* since they can render unavailable to the invading bacteria highly essential 'accessory growth factors' which are responsible for capsule formation; deprived of their protective mechanism, the organisms fall prey to the phagocytic action of the body and the infection is aborted.

John R. Loofbourow and Sister Cecelia Marie Dwyer have found evidence that living cells produce growth factors ('intercellular wound hormones') as a physiological response to injury in the fact that the production of such factors precedes the killing of yeast by lethal ultra-violet and occurs in suspensions of living cells aerated with carbon dioxide.

A preparation from various tissues of flowering plants showing the complete cytochrome spectrum has been obtained by R. Hill and Miss K. Bhagvat. The cytochrome is associated with cytochrome oxidase and succinic dehydrogenase showing the presence of a respiratory mechanism in the plant identical with that characteristic of animals.