*indicate a technique which he considers better*? Is it corrosive acetic or Bouin's fluid, or is it Carnoy ?

Was the Moore and Walker paper on mammalian spermatogenesis ("Liverpool Cancer Report," 1906) done with a better technique than we have to-day ? I think not ! The cells described and drawn by these workers are merely wrecked skeletons of their former selves ! The proteid structures are twisted and distorted, and there is scarcely any lipoid left in the cells.

Now it would be regrettable if anyone, zoologist or non-zoologist, were to entertain the idea that Prof. Walker has any support from cytologists. His views, so far as modern cytology goes, are unique. They will remain unique as time goes on, for modern cytological technique is logical and takes into account our biochemical knowledge of the solubilities of lipoids and other subtle cell bodies. We can explain every step in what we do. We get results which agree with the intra-vital appearance of the cell, and it is unlikely that further gross improvements in cytological technique will be made. J. BRONTË GATENBY.

Trinity College, Dublin, Feb. 28.

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CERTAIN of Prof. Walker's assumptions (NATURE, Feb. 25, p. 279) are opposed to direct observation. Thus his idea that the archoplasmic vesicles and Golgi bodies are one and the same thing is quite untenable in the light of recent work (see J. Hirschler, *C.R. Soc. Biol.*, **98**, No. 2, 145-6 ; 1928).

Prof. Walker has ignored one significant feature, that in many cells, for example, gland cells, the Golgi apparatus occupies a definite position between the nucleus and the lumen. When the gland is stimulated to activity the Golgi apparatus enlarges, while still retaining its relative position with regard to the nucleus. That is to say, we have within the cytoplasm a specific area capable of precise experimental modification. On the basis of Prof. Walker's own views, one would have to assume that the lipins of the cell are collected in this specialised area. It is this part of the cytoplasm that is called the Golgi apparatus. R. J. LUDFORD.

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### James Gregory, John Collins, and some early Scientific Instruments.

DR. R. T. GUNTHER has described (*Archæologia*, vol. 76, p. 273) scientific instruments belonging to the University of St. Andrews which were exhibited in the Lewis Evans Collection at the Oxford meeting of the British Association. The St. Andrews instruments include the two-foot astrolabe by Humphrey Cole, dated 1575, "the finest extant Elizabethan scientific instrument" ; an armillary sphere, also by Cole, 1582 ; an old Dutch or Flemish circumferentor ; and a sea-astrolabe, or mariner's astrolabe, with one quadrant divided diagonally, inscribed "Elias Allen Fecit 1616."

Ever since Dr. Gunther directed attention to the value of these instruments, I have been puzzled to account for the way in which they came into the possession of the University. Facts have recently emerged which go far to establish the theory that they were purchased by James Gregory, the inventor of the Gregorian telescope, in 1673. A Commission from the University authorities "to Mr. James Gregorie, Professor of Mathematics," dated June 10, 1673, empowers him to select and buy "such instruments and utensils as he with advice of other skilful persons shall judge most necessary and usefull for the above-mentioned design" [providing ane observatory]. An interesting sidelight on this episode is afforded by an extract from the Burgh Records of Aberdeen for Oct. 15, 1673, from which it appears that "seeing the said professor was ane town's man heir . . . the councell . . . appoynts ane collectione to be at the Kirk dores . . . the nixt or subsequent Lord's day for the forsaid effect [for the Observatorie at Saint Andrews]."

In a letter to Collins, dated Feb. 15, 1669, Gregory had asked for a divided quadrant and a brazen sector, and in letters written in 1672 and 1673 he speaks of visiting Collins in connexion with the purchase of mathematical instruments. In a letter from Newton to Collins, Sept. 17, 1673, the former writes : "I understand that Mr. Gregory is at London, and intends to make Cambridge in his way into Scotland" (Rigaud, "Corr. of Scientific Men," vol. 2). On April 30, 1674, Gregory writes to Rev. Colin Campbell : "It wer tedious to write down particularlie all the instruments I have brought home, yea a larger letter would not contein all ther names and sizes, for I have of all sort : our largest quadrant is of oak, covered with brasse, 4 foot in radius and actually divided in minutes, of which we can judge $\frac{1}{3}$ or $\frac{1}{4}$ : we have two semisextans, all of brasse, 6 foot in radius, diagonally divided, in which we can judge $\frac{1}{6}$ or $\frac{1}{7}$ of a minut : our largest telescope is 24 foot long ; which magnifys one dimension of the object 100 times" ("Archæologia Scotica," vol. 3, p. 275, 1831). Gregory says : "the instruments ar keeped in the bibliotheck," but of those mentioned there is now no trace, although Gregory's clock is still in the University Library and through the building passes a meridian line which he constructed.

The observatory at St. Andrews never materialised, and in 1674 Gregory received a call to the College of Edinburgh, which he accepted. He died suddenly before he had been a year in his new home.

The suggestion that the Cole astrolabe was purchased by Gregory during his visit to Collins is supported by the fact that the instrument of 1575 is accompanied by a tablet inscribed "John Marke fecit lat. 56° 25′." Dr. Gunther remarks that John Marke flourished about 1668 at the sign of the Golden Ball, near Somerset House, where he sold Collins's quadrants of paper gummed on plates of copper and varnished (*Phil. Trans.*, 1668). The latitude of St. Andrews is actually 56° 20′, but it is doubtful whether Gregory had instruments for an accurate determination before his visit to London. Even after his return he writes, "the latitude here is 56° 22′."

I take this opportunity of correcting a mistake in my article in NATURE of Feb. 18, p. 238, to which my attention has been directed by a correspondent. Relying upon A. G. Stewart's "Academic Gregories" (p. 28), Collins was referred to as a secretary to the Royal Society. He was elected a fellow of the Society on Oct. 24, 1667, but was never secretary.

H. S. ALLEN.

The University, St. Andrews.

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PROF. STANLEY ALLEN has put forward a very satisfactory working hypothesis to account for the presence of these early English instruments at St. Andrews. The additional plate supplied by John Marke proves that the Cole astrolabe was in the hands of this eminent maker in London about the time when Prof. Gregory was collecting scientific instruments there. May I add that the finest picture of Cole's great astrolabe was published in colour in the *Illustrated London News* for Aug. 14, 1926.

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