ciated in aqueous solution than is KOH, or

b. That the diffusion constant of KOH in the hypothetical non-aqueous medium bounding the protoplasm is 50,000,000 times that of KCl, or

c. That the two factors combined account for the 50,000,000-fold difference.

Such assumptions would be purely *ad hoc* and without experimental basis or parallel.

(4) Until 2 and 3 above are satisfactorily explained the molecular hypothesis must be regarded as untenable.

The detailed answer to Osterhout's criticism and a fuller explanation of the above points will be published in another journal.

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A CURIOUS COLOR PHENOMENON

WHILE experimenting with an intermittently flashing neon discharge tube, the writer observed a phenomenon which may thus far have escaped being reported, if not observed, by others. He has demonstrated it to a number of persons, all of whom agree upon the description of what they perceive. Whether the effect is subjective or objective is not definitely established, but it appears to be purely objective.

A neon tube about 4 meters long, made of 8 mm glass tubing, is bent in the shape of a grid, so that a rectangular area 25 x 35 cm is covered by the parallel portions of the tube, which are spaced about 2 cm between centers. The tube is supported in a frame-like box, backed by a reflector, and covered in front by a ground glass panel. The illumination from the tube is somewhat diffused, but the shape of the tube is distinguishable through the ground glass. The tube is flashed by the high voltage from the secondary of a transformer, giving about 10,000 volts maximum when a direct current through the primary circuit is interrupted. A mechanical device is employed to make and break the primary at any desired frequency up to twenty-five per second.

At the upper frequencies, the light appears nearly continuous, the color being that which has become so familiar through the neon advertising sign. As the frequency is gradually decreased, flickering becomes pronounced at about twenty flashes per second, without change in color. The duration of the flash is very short, but its time has not been determined. If the observer looks directly at the ground glass when the frequency reaches twelve or ten flashes per second, there appear around the edges of the screen bright fringes of color—blue, green, bright red and yellow—colors quite different from the normal color of the tube. The interplay of colors becomes more striking as the frequency is further decreased. They shift and dance about, and at a frequency of about seven they flash and flicker over the entire illuminated screen, with the regular neon color predominating as a background. The colors observed are vivid and unmistakable. At a frequency of three or four flashes per second the varying colors disappear and only the characteristic neon color remains.

If an electric fan is set in operation in front of the "neon screen," and the frequency of flashing adjusted so that there is apparently slow rotation of the fan, the edges of the blades are outlined with the "dancing" colors. The colors observed do not appear in the lines of the spectrum.

A neon tube bent in the form of a flat spiral, and without a ground glass diffusing screen, has been found to give similar effects.

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THE AUTO-TRACTION HYPOTHESIS OF CRUSTAL DYNAMICS AND MECHANICS

THE department of geology, University of Manitoba, has a paper in the press which presents a preliminary outline of an hypothesis of crustal dynamics and mechanics. It introduces the conception of a sheet-flow in the crust of the earth, similar to that in ice-sheets. It calls into play the translation of all available geological energy into the great forces that have effected the geological changes of the past and elucidates a mechanism that seems to throw new light on most of the major crustal phenomena.

The paper will be issued shortly in pamphlet form as a contribution from the department of geology, University of Manitoba, Winnipeg. Any one interested in the hypothesis may communicate with me at this address and a copy of the paper will be mailed as soon as it comes from the press.

J. S. DELURY

SCIENTIFIC BOOKS

Atlas Céleste. By E. DELPORTE. Cambridge University Press, London; Macmillan, New York, 1930.

LAST year Dr. Delporte, of the Royal Astronomical Observatory at Uccle, Belgium, set down new boundaries of the constellations as arcs of hour circles and parallels of declination. He did this work at the recommendation of the International Astronomical Union. Its successful completion was a remarkable example of international cooperation. This work