TEXAS OBSERVERS' BULLETIN NO. 17

January, 1933.
$1.00 a year.

2506 Rogers Ave.,
Ft. Worth, Tex.

PHOTOGRAPHING PELTIER'S COMETS

Mr. L. C. Peltier, of Delphos, Ohio, the second vice-president of the A. A. V. S. O. and the premier observer of that organization, has just consented to an arrangement designed to give us a more prompt opportunity to photograph any comets he may discover in the future. There is a very definite likelihood that there will be such future discoveries, for Peltier already has to his credit the finding of Comets 1925 k, 1930 a, and 1932 h. (This last one was originally given the provisional designation of 1931 k, and is so referred to in our Bulletins 13 and 14. There has been some confusion this year in the designation of newly found comets.) In fact, Peltier has on more than one occasion made independent discoveries of known comets which it so happened he did not have information about, as in the cases of 1930 b, Beyer, and 1931 e, Wolff.

We have regularly attempted to photograph all comets within reach of our equipment, but have often lost favorable opportunities by the delay in getting authentic information. Even tho we subscribe to the Harvard College Observatory Announcement Cards, the news they bring is generally at least a week old before it reaches here. (For more information about these cards, see Bulletin 9.) Mr. Peltier now agrees to write or wire us immediately of any find he may make, and we in turn will attempt to photograph is at once and supply him with a print of any picture obtained. Any news thus reaching us will also be passed on thru the medium of this publication.

Incidentally, it is of interest to note that there were 10 comet returns or discoveries in 1932 (up to the date of this writing), which almost equalled the all time record of 11 in 1925.

ATMOSPHERIC IONIZATION AND THE AUG. 31, 1932 SOLAR ECLIPSE

Ass is well known, a layer of ionized air, termed the Kennelly-Heaviside layer, exists some 50 to 100 miles above the surface of the earth. This belt of ionized gas surrounding the earth makes possible long distance radio communication, and is also usually held responsible for "fading" in radio reception. Signals from the transmitting antenna reach this layer and are reflected back to earth. A multiple reflection of radio waves from the earth to the Kennelly-Heaviside layer results in radio transmission over distances which would otherwise be unattainable because of the curvature of the earth's surface. Changes in the intensity of radio signals are caused by variations in the height and density of this layer.

The cause of the atmospheric ionization has not yet been definitely determined, altho two theories have been proposed to explain it. According to the older hypothesis, atmospheric ionization is caused by ultra-violet irradiation from the sun, but a more recent theory ascribes the cause of the ionization to impact of the air with molecules with electrons emitted from the sun.

A solar eclipse furnishes a convenient set of circumstances under which to verify one of these theories. During an eclipse of the sun, the shadow cylinder thrown by the moon has a backward slope of about 1°. Since electrons travel comparatively slowly, they would require about four minutes to traverse the distance between the moon and the earth. During these four minutes the shadow of the moon would travel approximately 4,500 miles before electrons would cease appearing at the earth's atmosphere. The moon travels about 35 miles per minute slower than the earth, and, hence, the electronic cylinder--that is, the cylinder in which no electrons would be present--would strike the earth about two hours before the optical eclipse cone. In other words, if atmospheric ionization is the result of electronic bombardment, a change in atmospheric ionization might be expected two hours before the beginning of the eclipse.

rolling land ~~stone~~ red stone —

Guthrie article 45°

12 mi

mean 35 begin

Enid (9) Kingfisher

4 mi W + 8 mi E of Shawnee

2 mi S of Lovell

began 14° alt 4½° E of N 9½ = 5° E of N

behind house 5° alt 10° E of N - 9½ = ½ E of N

W?

Mrs Gene ——

P Cassiopeia 7½° alt 0° = 9½° E

behind tree 4½° alt NW = 2½° E

app marked W on Transit

4°10'

Polaris 8° - 8½° E

3 reports

Doughnut ring

Crescent — further order 1 specimen

Black stone 2½ - 3 oz Covered 4 sec.

5 mi NW of where [engel?] found Lovell to 4 mi

A of Cresson Blk - no iron found yesterday

end SE of Lovell — cloud E of Crescent