Titan Halos

by

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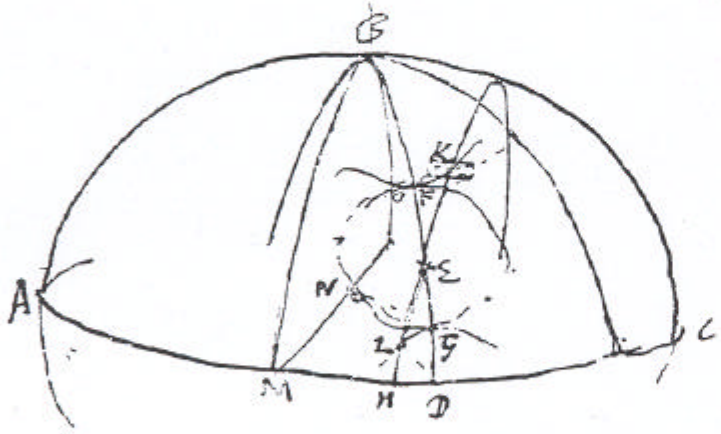
or:

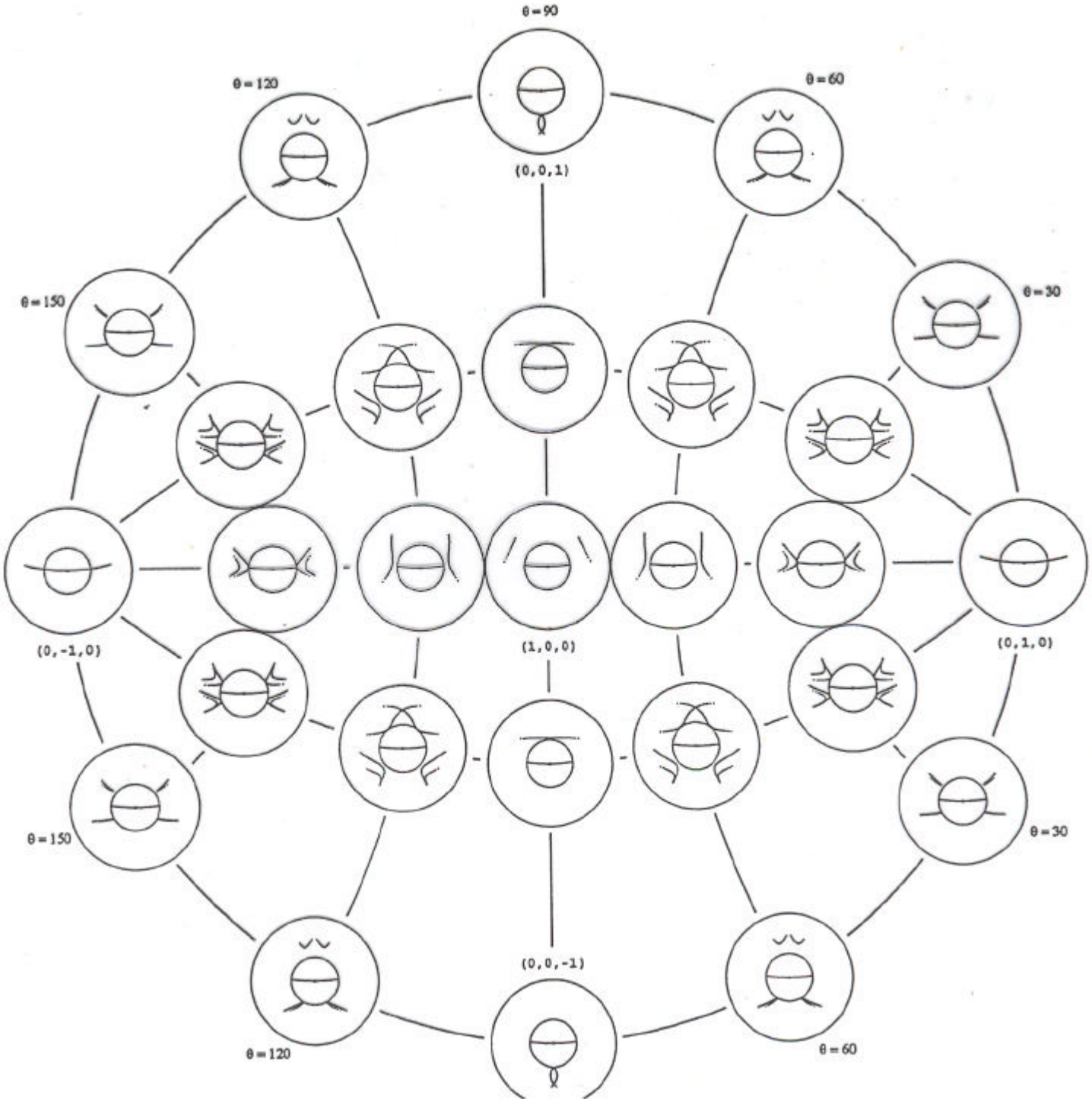
Titan halos and Huygens

§ 40. De bogen die volgens ons onder aen de binnenſte corona moeten komen, ſouden in 2 obſervatien van Hevelius te weten die van de 30 Mart. 1660 en in die van de 7 ſonnen konnen geſien geweeſt hebben en ſijn oock eenighſins altydt in dit laetſte geſien, want hij ſeght dat in I een veſtigium van een parelium wierdt geſien. Doch door defect van materie, dewelcke raro ſoo veer ſich extendeert heeft dit maer een flaeuwe ſchijn geweeſt.

[Fig. 27.] [1])



§ 41. Porro figuras arcuum prædictas inveniendi ratio eſt hujuſmodi. In ſphæra aliqua ABC [Fig. 27] deſcribatur polo B circulus maximus ADC qui horizontem referat. deinde verticalis per ſolem tranſiens BD, poſito nempe ſolem eſſe in E, ita ut arcus DE ſit tot partium quot erat in obſervatione altitudo ſolis. Si igitur arcum inverſum qui minorem coronam tangit invenire velimus, ſoo neemt de bogen EF, EG in de verticalis BED ieder van $22\frac{1}{2}$ gr. [2]) ſoo zijn de puncten F en G het opperſte en onderſte deel der corona, ende te gelyck de middelſte puncten der inverſe bogen die wij ſoecken. On nu d'andere puncten daer van te vinden die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θ = 120
θ = 60
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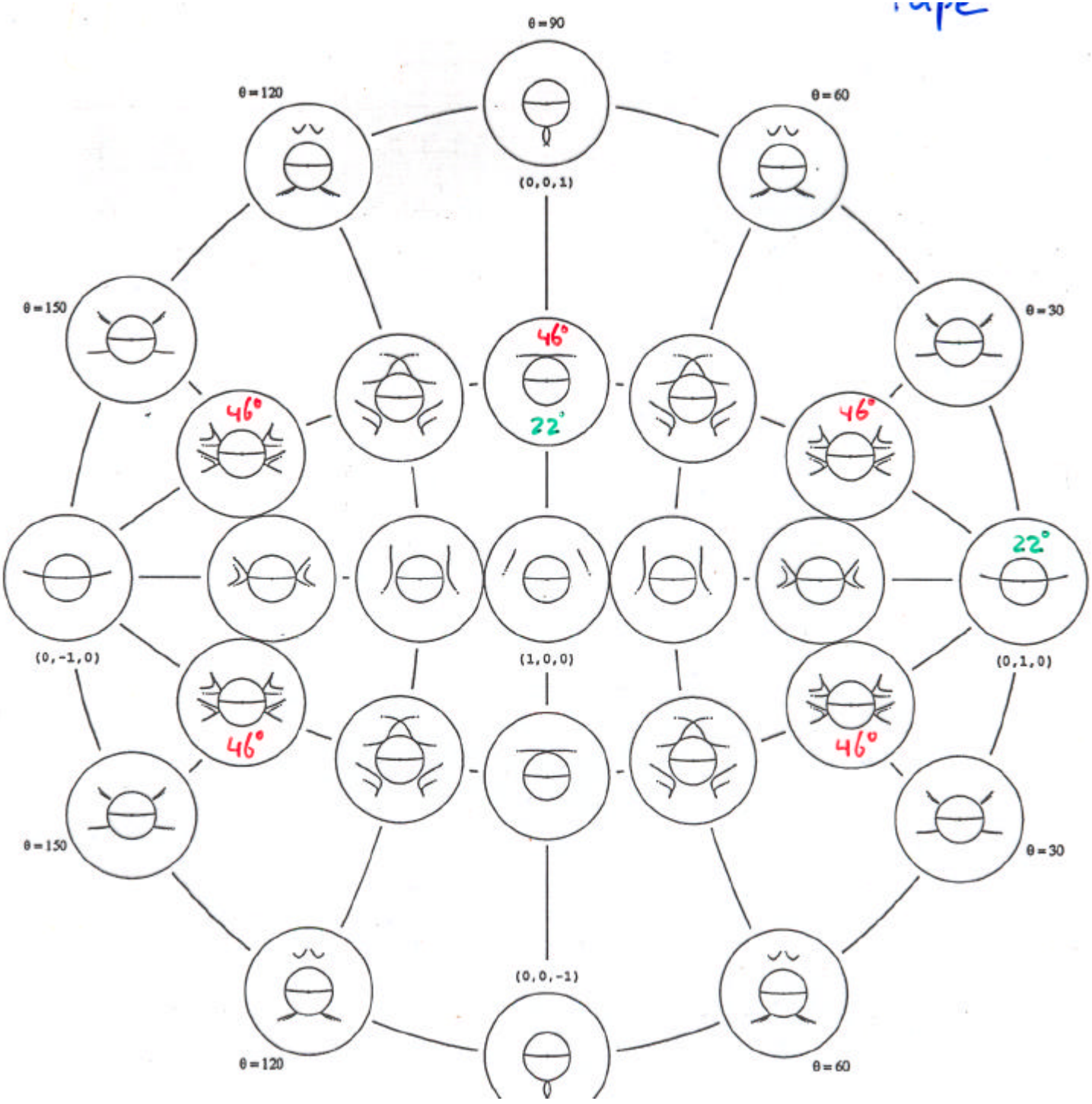
θ = 150
θ = 30
(0,-1,0)
(1,0,0)
(0,1,0)
θ = 150
θ = 30
(0,0,-1)
θ = 120
θ = 60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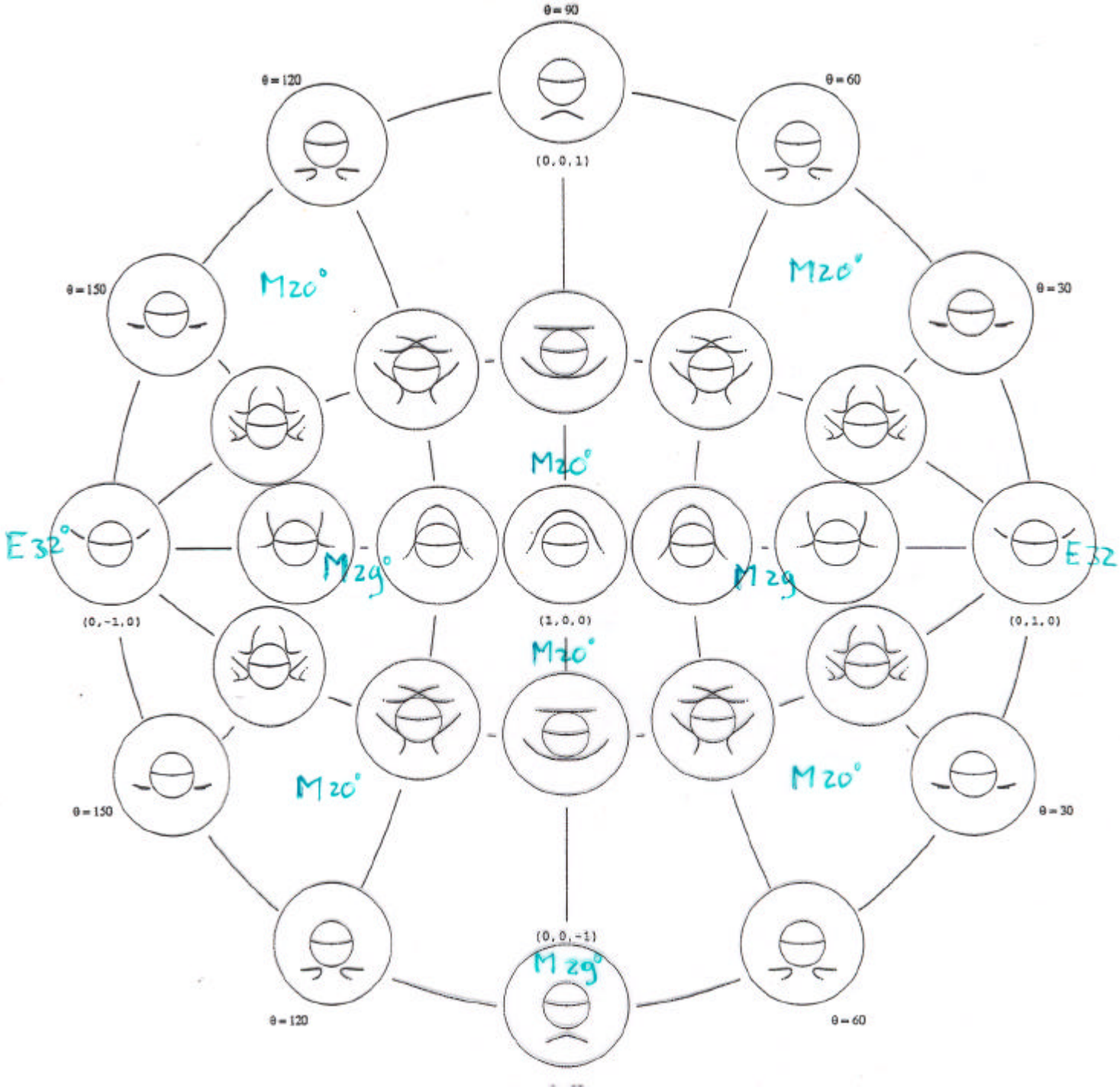
θ=120
θ=60
(0,0,1)
θ=150
θ=30
46°
22°
46°
46°
22°
(0,-1,0)
(1,0,0)
(0,1,0)
46°
46°
θ=150
θ=30
(0,0,-1)
θ=120
θ=60

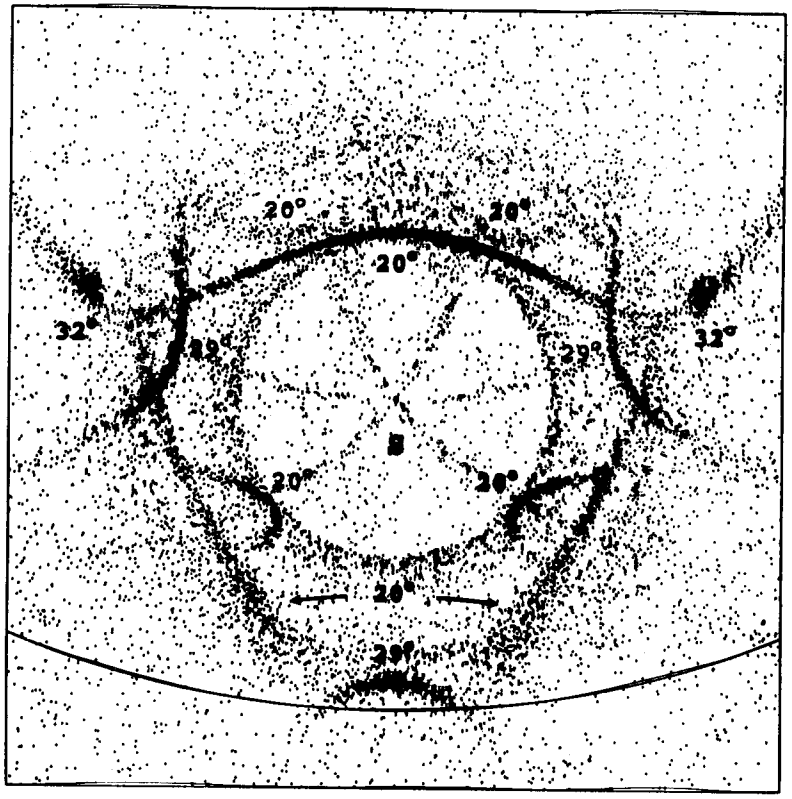

01 20 40

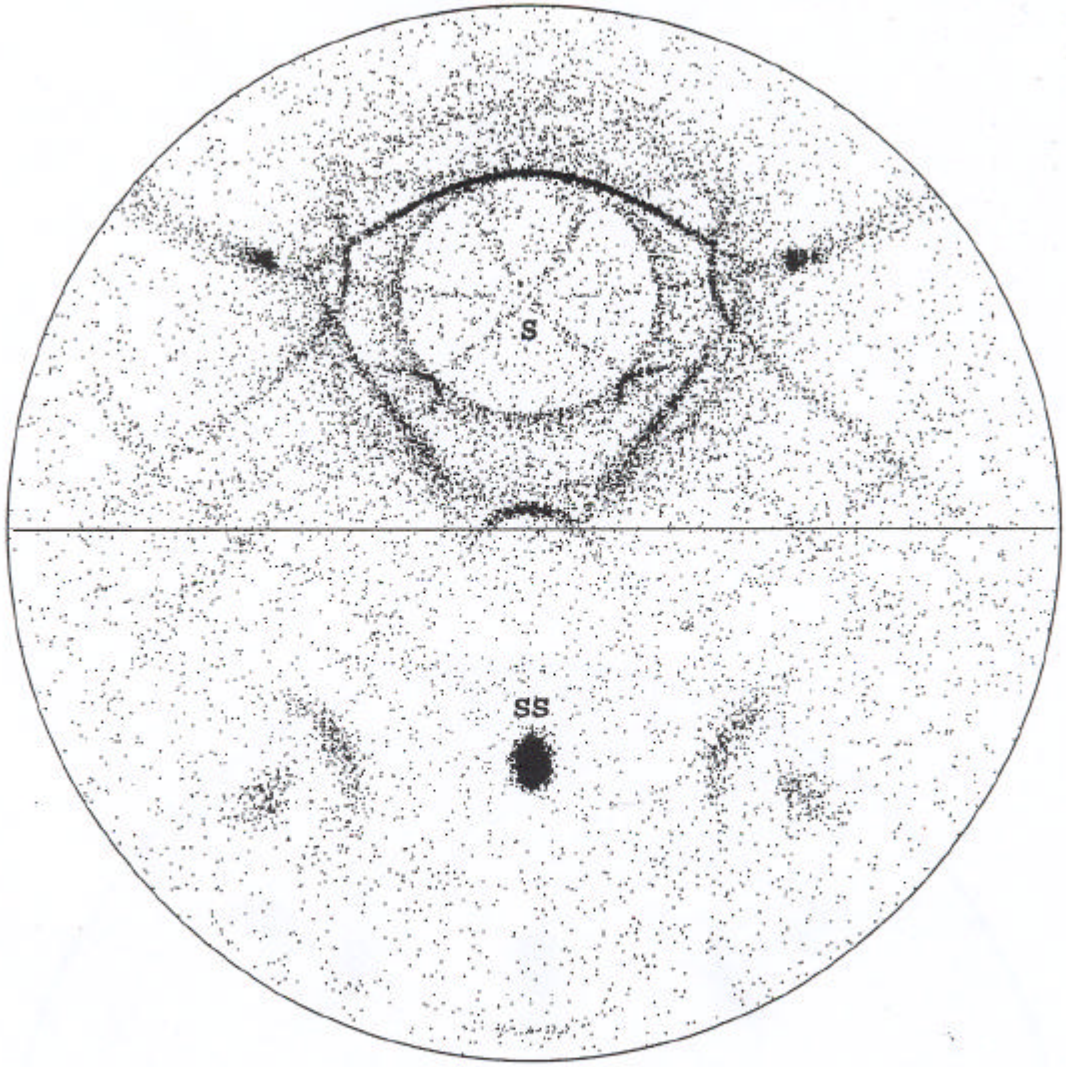

11 22 97

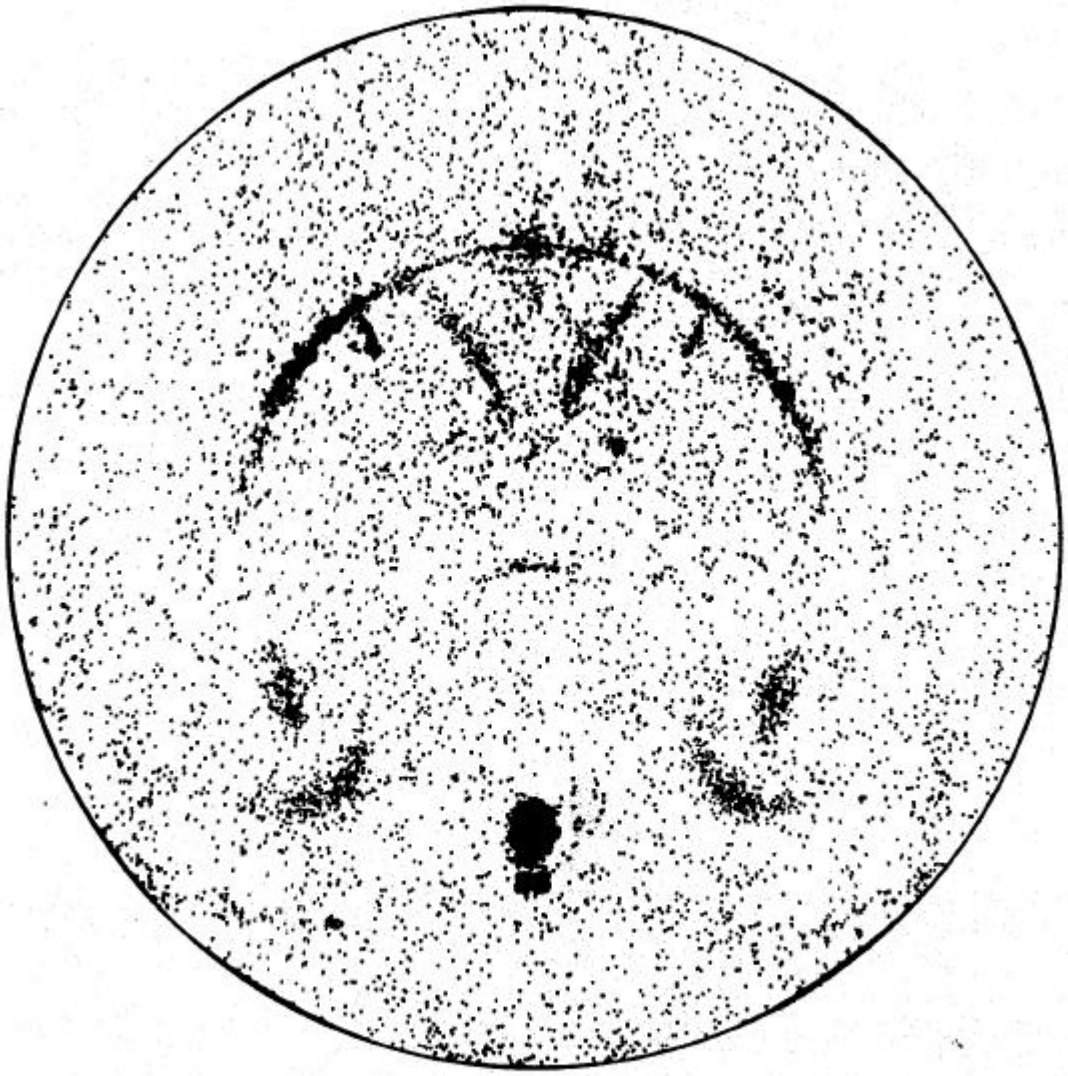
POTENTIAL TITAN HALOS

	crystal class	refr. index	habit	halo angles
methane	**cubic**	**1.32**	**cubes**	**48°**
			octahedrons	**29°**
			square pyramids	**20°, 29°**
			cubeoctahedrons	***All*** **[20°, 29°, 48°]**
ethane	**hexagonal**	**1.44**	**like ice**	**32°**


θ = 90
(0, 0, 1)
θ = 120
θ = 60
θ = 150
θ = 30
M20°
M20°
M20°
E32°
M29°
M29
E32
(0, -1, 0)
(1, 0, 0)
(0, 1, 0)
M20°
M20°
M20°
θ = 150
θ = 30
(0, 0, -1)
M29°
θ = 120
θ = 60


20°
20°
20°
32°
29°
29°
32°
20°
20°
20°
29°


S
SS



Huygens:
discovery of

Titan **Halos**
(1655) **(1663)**

Huygens Probe:
discovery of

Titan halos?! (2005)

Outcomes 14 January:

1. Titan Halos!

- Go for crystal shapes

2. Titan Halos?

- No transparent crystals exist

- They are there, but Titan weather did not cooperate

Bad luck – next time better!