Note on the „*Pothenot'sche Aufgabe*“ or „*Three Point Problem*“. By *G. M. Searle*, Esq.

The following expressions for the rectangular coordinates of the unknown point for a particular set of axes may perhaps be useful; I have not found them in any works on the subject.

It is proposed to take one of the sides of the triangle formed by the three known points as the axis of x , and to place the origin at the centre of this side.

Using the notation of Dr. *Gerling*, the three known points will be denoted by A, B, C , the unknown point by D ; the angles α, β, γ subtended at D by BC, CA, AB respectively will be taken in the direction which makes them all $< 180^\circ$, if D is within the triangle. The axis of x will be + from B toward C , from C toward A , or from A toward B ; that of y + toward the third point of the triangle. We have then

$$CA^2 = DC^2 + DA^2 - 2DC \cdot DA \cos \beta; \text{ and taking } CA \text{ as the axis of } x, \text{ and putting } \frac{DA}{DC} = \frac{\sin C \sin(\alpha - A)}{\sin A \sin(\gamma - C)} = \tan \phi$$

$$\text{as in the text, and if convenient } \sin 2\phi \cos \beta = \cos 2\psi,$$

$$x = \frac{DC^2 - DA^2}{2CA} = \frac{AC}{2} \frac{\cos 2\phi}{1 - \sin 2\phi \cos \beta} = \frac{CA}{4 \sin^2 \psi} \cos 2\phi,$$

$$y = \frac{DC \cdot DA \sin \beta}{2CA} = \frac{CA}{2} \frac{\sin 2\phi \sin \beta}{1 - \sin 2\phi \cos \beta} = \frac{CA}{4 \sin^2 \psi} \sin 2\phi \sin \beta.$$

$$\text{Also } \frac{y}{x} = \tan 2\phi \sin \beta$$

$$\sqrt{y^2 + x^2} = \frac{CA}{2} \cot \psi.$$

Cambridge, U. S. A.

G. M. Searle.

Beobachtungen des *Brorsen'schen* Cometen auf der Sternwarte zu Bonn. Von Herrn Stud. *H. Oppenheim.*

	Mittl. Zt. Bonn.	$\Delta \alpha$	$\Delta \delta$	App. α Comet.	App. δ	Vergl.	Stern.
1868 Mai 18	11 ^h 34 ^m 30 ^s .3	-3 ^m 23 ^s 72	-4' 59'' 6	7 ^h 17 ^m 14 ^s 24	49° 3' 58'' 4	4	<i>a</i>
19	10 33 4,8	+1 4,95	-4 51,9	7 26 56,73	49 22 26,2	7	<i>b</i>
20	10 25 55,2	-1 16,59	-26 7,5	7 37 8,76	49 38 34,0	6	<i>c</i>

Mittlere Oerter der Vergleichsterne für 1868,0.

*	α	δ	Autorität.
<i>a</i>	7 ^h 20 ^m 38 ^s 65	49° 8' 58'' 8	Arg.—Oeltzen 7944.
<i>b</i>	7 25 52,47	49 27 18,3	= = 8042.
<i>c</i>	7 38 26,06	50 4 38,5	= = 8271.

Der Comet erschien ziemlich hell und war gut zu beobachten.

Die Beobachtungen sind am Ringmikrometer des 5füssigen Fraunhofer angestellt.

Von den Durchgängen sind am 18. Mai 2 nördlich und 2 südlich, den 19. Mai 4 nördlich und 3 südlich, den 20. Mai alle südlich.

Die Beobachtungen sind wegen Refraction und eigener Bewegung des Cometen, doch nicht wegen Parallaxe verbessert.

Am 21. Mai wurde der Comet noch gesehen, liess sich aber wegen Schwäche nicht mehr beobachten.

Observations of *Circe*, made at Alfred Observatory with the Filar-Micrometer and corrected for parallax.

1868	Berlin M. Time.	Comparison-Star.	Planet — Star.	$\Delta \alpha$	$\Delta \delta$	α	δ	$\Delta \alpha (c-o)$	$\Delta \delta (c-o)$
March 18	15 ^h 54 ^m 11 ^s	Weisse XI. 624		+12' 16'' 0	+1' 21'' 8	174° 21' 9'' 4	+0° 56' 21'' 4	+33'' 6	+8'' 6
19	18 1 12	= = =		-0 20,5	+9 58,5	174 8 34,9	+1 4 58,1	+28,8	+6,0
24	13 47 8	= = 553		+6 36,0	+0 22,2	173 14 35,5	+1 42 20,3	+32,7	+9,1
24	13 51 50	= = 571		-10 16,9	+1 26,0	173 14 33,6	+1 42 23,5	+33,0	+7,4
24	13 55 14	= = 592		-26 14,2	+1 26,0	173 14 27,8	+1 42 23,0	+28,7	+9,0
24	14 49 0	= = 553		+6 0,6	+0 46,8	173 14 1,3	+1 42 47,5	+31,0	+5,3
24	15 6 53	= = 571		-10 54,1	+1 49,1	173 13 57,7	+1 42 46,6	+31,0	+7,8
24	15 6 53	= = 592		-26 50,8	+1 49,0	173 13 52,4	+1 42 44,7	+25,7	+10,1

Positions of Comparison-Stars.

Authority.	α	δ
Weisse XI. 624	174° 8' 34'' 8	+0° 55' 5'' 8
= = 553	173 7 41,7	+1 42 4,5
= = 571	173 24 32,7	+1 41 1,7
= = 592	173 40 24,1	+1 40 59,9

Alfred Observatory, 1868 June 8.

William A. Rogers.