

§. 15. Auflösung der Bedingungsgleichungen zwischen *Stettin* und dem *Gollenberge*.

Durch Substitution der beobachteten Werthe in den Gleichungen von 34 bis 42 (§. 12.), erhält man auf dieselbe Weise wie oben die zweite Abtheilung der Bedingungsgleichungen, wie folgt:

$$\begin{aligned}
 0 &= -0,69 + (39) + (36) \} \cdot \text{VII}^b \\
 0 &= \quad + (37) + (40) + (46) \} \cdot \text{VIII} \\
 0 &= \quad + (41) + (47) + (42) \} \cdot \text{IX} \\
 0 &= \quad + (44) + (48) + (49) \} \cdot \text{X} \\
 0 &= + 8,31 + (38) + (43) + ((40) - (41)) \} \cdot \text{XI} \\
 0 &= - 39,714 + 5,381(32) + 5,381(33) + 5,381(34) + 4,091(36) + 4,091(37) + 0,699(39) - 1,062(40) \\
 &\quad + 0,187(46) \} \cdot \text{XXI}^b \\
 0 &= - 177,877 - 4,495(32) + 5,381(33) + 5,381(34) - 0,568(36) + 4,091(37) - 4,659(38) + 1,111(42) \\
 &\quad + 1,111(43) - 4,186(46) + 4,186(47) \} \cdot \text{XXII} \\
 0 &= + 94,273 - 1,838(37) + 1,766(38) + 4,066(40) - 5,836(41) + 4,186(46) - 4,236(47) \} \cdot \text{XXIII} \\
 0 &= + 12,937 + 1,224(32) - 6,699(33) + 0,240(34) + 1,224(36) + 1,948(37) - 0,724(38) - 0,724(42) \\
 &\quad - 0,724(43) + 1,948(46) - 1,948(47) \} \cdot \text{XXIV} \\
 0 &= + 4,606 - 1,003(32) - 1,003(33) - 1,003(36) - 1,919(37) + 0,916(38) - 1,770(41) + 1,548(42) \\
 &\quad + 0,916(43) - 1,919(46) \} \cdot \text{XXV} \\
 0 &= + 1893,251 + 102,932(32) + 102,932(33) + 102,932(36) + 102,016(37) + 0,916(38) + 0,916(42) \\
 &\quad + 0,916(43) + 102,016(46) - 102,016(47) - 84,031(48) - 82,837(49) \} \cdot \text{XXVI} \\
 0 &= - 31,915 - 2,431(32) - 2,431(33) - 2,431(36) - 2,431(37) - 2,431(46) + 2,431(47) + 2,431(48) \\
 &\quad - 1,058(53) + 2,959(54) \} \cdot \text{XXVII} \\
 0 &= + 284,769 + 18,901(32) + 18,901(33) + 18,901(36) + 17,985(37) + 0,916(38) + 0,916(42) \\
 &\quad + 0,916(43) + 17,985(46) - 17,985(47) + 1,974(54) - 28,290(55) \} \cdot \text{XXVIII} \\
 0 &= + 18,179 - 13,601(32) - 13,601(33) - 13,601(36) - 13,601(37) - 13,601(46) + 13,601(47) \\
 &\quad + 13,601(48) + 13,601(49) + 13,601(50) - 1,602(52) - 1,082(53) - 1,082(54) \} \cdot \text{XXIX}
 \end{aligned}$$

$$0 = +9,291 + 2,530(32) + 2,530(33) + 2,530(36) + 2,530(37) + 2,530(46) - 2,530(47) - 2,530(48) - 2,530(49) - 2,530(50) - 1,170(51) - 3,756(52) - 2,530(53) - 2,530(54) \cdot \text{XXX}$$

*Relationen zwischen den Verbesserungen (32), (33) und den
Factoren VII^b, VIII*

| | VII ^b | VIII | IX | X | XI | XXI ^b | XXII | XXIII | XXIV | XXV | XXVI | XXVII | XXVIII | XXIX | XXX |
|------------------------|------------------|------|-----|-----|-----|------------------|---------|---------|---------|---------|-----------|---------|----------|----------|---------|
| 0 = (32) | - | - | - | - | - | + 5,381 | - 4,495 | - | + 1,224 | - 1,003 | + 102,932 | - 2,431 | + 18,901 | - 13,601 | + 2,530 |
| 0 = (33) | - | - | - | - | - | + 5,381 | + 5,381 | - | - 6,699 | - 1,003 | + 102,932 | - 2,431 | + 18,901 | - 13,601 | + 2,530 |
| 0 = (34) | - | - | - | - | - | + 5,381 | + 5,381 | - | + 0,240 | - | - | - | - | - | - |
| 0 = (36) | + 1 | - | - | - | - | + 4,091 | - 0,568 | - | + 1,224 | - 1,003 | + 102,932 | - 2,431 | + 18,901 | - 13,601 | + 2,530 |
| 0 = (37) | - | + 1 | - | - | - | + 4,091 | + 4,091 | - 1,838 | + 1,948 | - 1,919 | + 102,016 | - 2,431 | + 17,985 | - 13,601 | + 2,530 |
| 0 = (38) | - | - | - | - | + 1 | - | - 4,659 | + 1,766 | - 0,724 | + 0,916 | + 0,916 | - | + 0,916 | - | - |
| 0 = (39) | + 1 | - | - | - | - | + 0,699 | - | - | - | - | - | - | - | - | - |
| 0 = (40) | - | + 1 | - | - | + 1 | - 1,062 | - | + 4,066 | - | - | - | - | - | - | - |
| 0 = (41) | - | - | + 1 | - | - 1 | - | - | - 5,836 | - | - 1,770 | - | - | - | - | - |
| 0 = (42) | - | - | + 1 | - | - | - | + 1,111 | - | - 0,724 | + 1,548 | + 0,916 | - | + 0,916 | - | - |
| 0 = (43) | - | - | - | - | + 1 | - | + 1,111 | - | - 0,724 | + 0,916 | + 0,916 | - | + 0,916 | - | - |
| 0 = (44) | - | - | - | + 1 | - | - | - | - | - | - | - | - | - | - | - |
| 0 = (46) | - | + 1 | - | - | - | + 0,187 | - 4,186 | + 4,186 | + 1,948 | - 1,919 | + 102,016 | - 2,431 | + 17,985 | - 13,601 | + 2,530 |
| 0 = (47) | - | - | + 1 | - | - | - | + 4,186 | - 4,236 | - 1,948 | - | - 102,016 | + 2,431 | - 17,985 | + 13,601 | - 2,530 |
| 0 = (48) | - | - | - | + 1 | - | - | - | - | - | - | - 84,031 | + 2,431 | - | + 13,610 | - 2,530 |
| 0 = (49) | - | - | - | + 1 | - | - | - | - | - | - | - 82,837 | - | - | + 13,610 | - 2,530 |
| 0 = (50) | - | - | - | - | - | - | - | - | - | - | - | - | - | + 13,610 | - 2,530 |
| 0 = (51) | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - 1,170 |
| 0 = (52) | - | - | - | - | - | - | - | - | - | - | - | - | - | - 1,602 | - 3,756 |
| 0 = (53) | - | - | - | - | - | - | - | - | - | - | - | - 1,058 | - | - 1,082 | - 2,530 |
| 0 = (54) | - | - | - | - | - | - | - | - | - | - | - | + 2,959 | + 1,974 | - 1,082 | - 2,530 |
| 0 = $\frac{1}{4}$ (55) | - | - | - | - | - | - | - | - | - | - | - | - | - 28,290 | - | - |

Anmerkung. Da der Winkel in *Ziegenort* zwischen *Stolzenhagen Station* und *Stolzenhagen Thurm*, nur auf einer Einstellung von *Stolzenhagen Thurm* und vier Einstellungen von *Stolzenhagen Station* beruht, so ist der Verbesserung dieses Winkels das Gewicht von $\frac{1}{4}$ beigelegt worden, während die Gewichte der übrigen gleich 1 angenommen sind.

Gleichungen zwischen den Factoren.

| | X | VII ^b | VIII | IX | XI | XXI ^b | XXII | XXIII | XXIV | XXV | XXVI | XXVII | XXVIII | XXIX | XXX |
|--------------|-----------|------------------|-----------|-----------|----------|------------------|-----------|-----------|-----------|-----------|-------------|------------|-------------|-------------|------------|
| 0'' = | + 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | - 166,868 | + 2,431 | 0 | + 27,202 | - 5,060 |
| - 0,69 = | 0 | + 2 | 0 | 0 | 0 | + 4,790 | - 0,568 | 0 | + 1,224 | - 1,003 | + 102,932 | - 2,431 | + 18,901 | - 13,601 | + 2,530 |
| 0 = | 0 | 0 | + 3 | 0 | + 1 | + 3,216 | - 0,095 | + 6,414 | + 3,896 | - 3,838 | + 204,032 | - 4,862 | + 35,970 | - 27,202 | + 5,060 |
| 0 = | 0 | 0 | 0 | + 3 | - 1 | 0 | + 5,297 | - 10,072 | - 2,672 | - 0,222 | - 101,100 | + 2,431 | - 17,069 | + 13,601 | - 2,530 |
| + 8,31 = | 0 | 0 | + 1 | - 1 | + 4 | - 1,062 | - 3,548 | + 11,668 | - 1,448 | + 3,602 | + 1,832 | 0 | + 1,832 | 0 | 0 |
| - 39,714 = | 0 | + 4,790 | + 3,216 | 0 | - 1,062 | + 121,989 | + 47,351 | - 11,054 | - 14,830 | - 23,107 | + 1965,273 | - 46,507 | + 357,676 | - 260,201 | + 48,401 |
| - 177,877 = | 0 | - 0,568 | - 0,095 | + 5,297 | - 3,548 | + 47,351 | + 154,394 | - 51,002 | - 47,527 | - 1,667 | - 406,230 | + 9,634 | - 73,215 | + 53,900 | - 10,027 |
| + 94,273 = | 0 | 0 | + 6,414 | - 10,072 | + 11,668 | - 11,054 | - 51,002 | + 92,555 | + 11,547 | + 7,442 | + 673,292 | - 16,006 | + 120,031 | - 89,549 | + 16,658 |
| + 12,937 = | 0 | + 1,224 | + 3,896 | - 2,672 | - 1,448 | - 14,830 | - 47,527 | + 11,547 | + 60,888 | - 5,660 | + 156,629 | - 3,875 | + 22,768 | - 21,668 | + 4,030 |
| + 4,606 = | 0 | - 1,003 | - 3,838 | - 0,222 | + 3,602 | - 23,107 | - 1,667 | + 7,442 | - 5,660 | + 17,591 | - 698,165 | + 16,644 | - 122,804 | + 93,126 | - 17,324 |
| + 1893,251 = | - 166,868 | + 102,932 | + 204,032 | - 101,100 | + 1,832 | + 1965,273 | - 406,230 | + 673,292 | + 156,629 | - 698,165 | + 76932,478 | - 1698,966 | + 11343,345 | - 10632,066 | + 1977,730 |
| - 31,915 = | + 2,431 | - 2,431 | - 4,862 | + 2,431 | 0 | - 46,507 | + 9,634 | - 16,006 | - 3,875 | + 16,644 | - 1698,966 | + 51,245 | - 263,169 | + 229,391 | - 47,859 |
| + 284,769 = | 0 | + 18,901 | + 35,970 | - 17,069 | + 1,832 | + 357,676 | - 73,215 | + 120,031 | + 22,768 | - 122,804 | + 11343,345 | - 263,169 | + 5249,634 | - 1507,197 | + 274,972 |
| + 18,179 = | + 27,202 | - 13,601 | - 27,202 | + 13,601 | 0 | - 260,201 | + 53,900 | - 89,549 | - 21,668 | + 93,126 | - 10632,066 | + 229,391 | - 1507,197 | + 1669,791 | - 298,208 |
| + 9,291 = | - 5,060 | + 2,530 | + 5,060 | - 2,530 | 0 | + 48,401 | - 10,027 | + 16,658 | + 4,030 | - 17,324 | + 1977,730 | - 47,859 | + 274,972 | - 298,208 | + 85,888 |

Werthe der Factoren.

| | | | |
|--------------------|-----------|----------|-----------|
| VII ^b = | - 5,4571 | XXIV = | + 2,1733 |
| VIII = | - 33,2025 | XXV = | - 10,1659 |
| IX = | + 20,2101 | XXVI = | + 0,3249 |
| X = | + 3,8813 | XXVII = | + 1,0277 |
| XI = | + 14,1501 | XXVIII = | - 0,0039 |
| XXI ^b = | - 2,6455 | XXIX = | + 1,4715 |
| XXII = | + 1,3993 | XXX = | - 0,0090 |
| XXIII = | + 3,9810 | | |

Werthe der Verbesserungen.

| | |
|----------------|----------------|
| (32) = - 3,17 | (46) = - 11,39 |
| (33) = + 0,23 | (47) = + 5,57 |
| (34) = + 6,18 | (48) = + 0,89 |
| (36) = - 6,62 | (49) = + 3,00 |
| (37) = + 11,34 | (50) = - 20,04 |
| (38) = - 3,07 | (51) = - 0,01 |
| (39) = + 7,31 | (52) = + 2,32 |
| (40) = + 0,06 | (53) = + 2,66 |
| (41) = - 0,82 | (54) = - 1,46 |
| (42) = - 4,75 | (55) = - 0,44 |
| (43) = - 5,11 | |
| (44) = - 3,88 | |

§. 16. *Zusammenstellung der verbesserten Winkel.*

Die durch die Ausgleichung des Netzes verbesserten Winkel sind der *Raumersparnis* wegen (§. 11.) unter der Rubrik: *Verbesserte sphärische Winkel*, aufgeführt worden.