Then to determine the side b (with A and B), B becomes the *middle* part, and A and b the *extremes disjunct* or *opposites*. Hence:

$$R \cos B = \sin A \cos b. \quad \text{And, consequently,}$$

$$\cos b = \frac{R \cos B}{\sin A.}.$$

With the two sides a and b, thus obtained, the axes x and $\breve{x}$ are readily calculated. As $\bar{x}$ = unity, $x = \cot a$, or $\log x = \log \cot a) - \log R$. An inspection of the figure will show this. Finally, axis $\breve{x} = (\tan b) \times x$; or $\log \breve{x} = (\log \tan b + \log x) - \log R$.

This understood, let us proceed, by way of example, to calculate the axial ratios of the three octahedrons in our crystal of sulphur, fig. 12.

1. *The Lower Form.*

In this form (lettered P), A (see figure 13) $= 53° \, 19'$; and $B = 42° \, 29'$. Then:

$$
\begin{array}{lrl}
(\text{Log} \cos 53° \, 19') + 10 & = & 19.7762593 \\
\text{Log} \sin 42° \, 29' \quad . & = & 9.8295454 \\
\hline
& & 9.9467139 = \log \cos a = \log \cos 27°48'.
\end{array}
$$

(seconds being neglected.

The log cot of this latter value $(27°48') = 10.2779915$. Deducting 10 (or $\log R$) from this, and seeking for the corresponding number, we obtain, for axis x, the value 1.897.

Secondly:

$$
\begin{array}{lrl}
(\text{Log} \cos 42°29') + 10 & = & 19.8677466 \\
\text{Log} \sin 53°19 & = & 9.9041470 \\
\hline
& & 9.9635996 = \log \cos b = \log \cos 23°8'.
\end{array}
$$

The log tan of this angle $(23°8') = 9.6306556$. Adding the logarithmic value of x to this, and deducting 10 (or $\log R$) from the sum, we obtain $(9.6306556 + 0.2779915) - 10 = \bar{1}.9086571 = \log. \breve{x} = \log. 0.8103$.

2. *The Middle Form.*

In this form, A becomes $63°30'$; and B, $56°35'$. Calculating from