locus of X_p will be a single hyperplane (Figure 10).

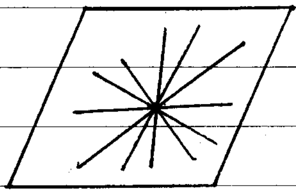

Figure 10.

As above, since $F \cap \sigma(p)$ is nonsmooth quadratic curve in the 2-plane $\sigma(p)$, $F \cap \sigma(p)$ is of form $X_0^2 + X_1^2 = 0$ or X_0^2 in $\mathbb{P}^2$. Since $F \cap \sigma(p)$ is nonsmooth at points more than one, it is of type X_0^2, i.e., double line. $\Rightarrow$ $F \cap \sigma(p) = \sigma(p, h)$.
$\Rightarrow$ Thus X_p is a single hyperplane h.

Dually, for every hyperplane $h \subset \mathbb{P}^3$ the set $X_h = X \cap \sigma(h)$ of lines of X lying in h is a conic curve; again, there are three possible cases:

1'. F meets $\sigma(h)$ transversely, so that $X_h \subset \sigma(h)$ is a smooth conic curve. The lines of X lying in h are thus the set of tangent lines to a smooth conic curve in h (Figure 11).

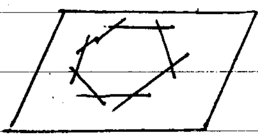

Figure 11