Krzysztof UŁAMEK
Technical University of Lodz
Drawing and Painting Unit, Institute of Architecture and Urban Planning
Al. Politechniki 6, 90-924 Lodz
tel.: 0048 42 6313543, ulamek@p.lodz.pl

POINTS MAPPING IN THE CENTRAL-REFLEXIVE PROJECTION ON CONICAL SURFACE

The paper presents building geometrical model which would allow mapping of any point P existing in projec.tion space S^3 in the mirror created on the conical surface γ_2 . Such a point R on surface γ_2 should be found which would allow the ray leaving point P, after being reflected in point R, run through the projection centre E (through the eye). Finding a reflection point by approximate method appears to be possible on the grounds of descriptive geometry after analysing interdependences existing between elements of this geometrical situation.

Here they are:

1. R belongs to surface γ_2,
2. straight line perpendicular to γ_2 in point R (normal straight line n) is perpendicular to straight line l, which forms the cone by the rotation on axis s,
3. straight line n has got a common point with straight line s,
4. straight line n has got a common point with straight line k formed from points E and P (let point X be the crossing of these lines); this point lies between points P and E,
5. angles XRP and XRE are equal and are found on the same plane.

Finding the sought point consists of three stages. In the first stage we look for the set of points which complies with the conditions mentioned earlier in 1, 2, 3 and 4. In this way we get a set of points which can be presented as a spatial curve in the figure. In the second stage of the construction we look for the set of points which complies with the conditions mentioned in 2, 3, 4 and 5. Due to that we receive the second spatial curve. In the third stage we find R as the common point of both these curves.

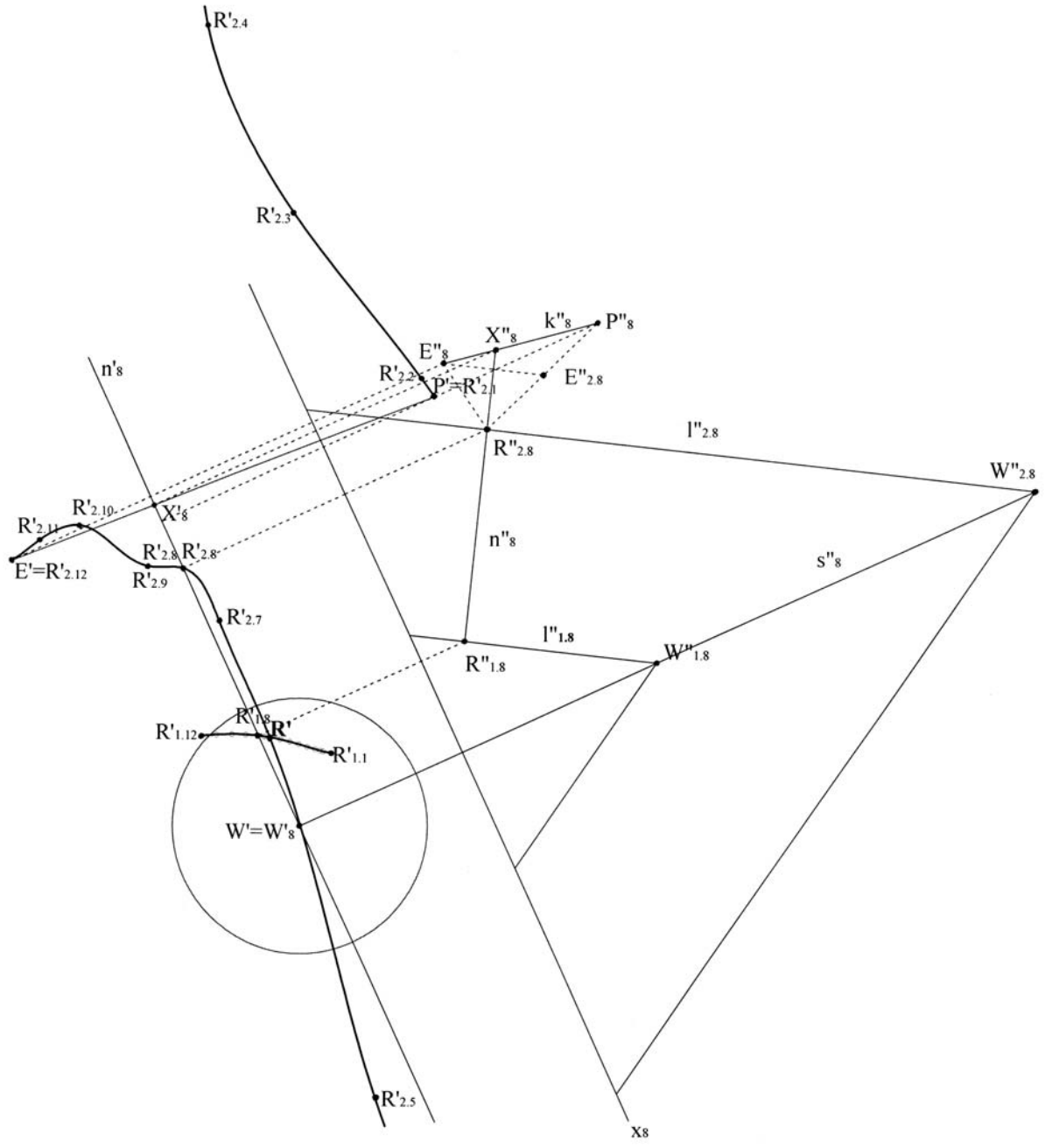

Fig.1. Denoting of approximate reflexion point on the conical surface by appointing consecutive points of two spatial curves (convex mirror case).