ANDREINI'S TILINGS IN SCIENCE AND ART

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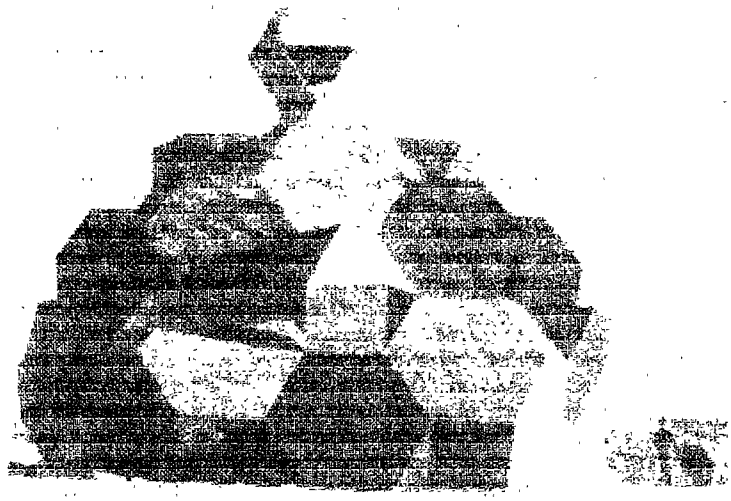

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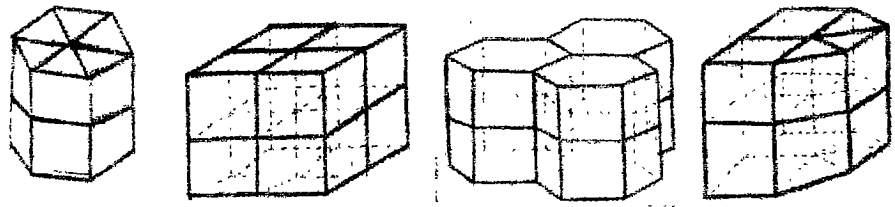
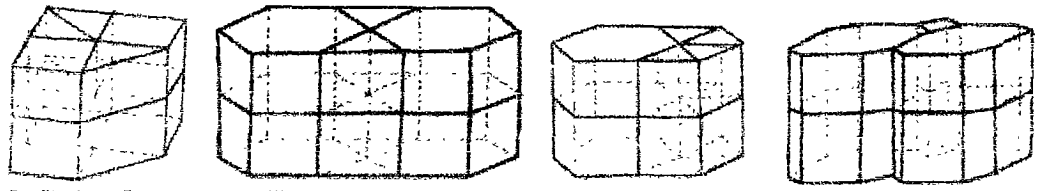
This is the tillings of euclidean threedimensional space by regular isohedra, vertices of which build regular system of points. There are 28 such different tilings, which contain only 13 different regular isogons (Andreini isogons): tetrahedron, cube, octahedron, truncated tetrahedron, truncated cube , truncated octahedron, cuboctahedron, rhombcuboctahedron, truncated cuboctahedron and 4 prisms: trigonal, hexagonal, octagonal and dodecagonal.

The11 of these tillings are three-dimensional continuation of well-known Kepler-Laves-Shubnikov nets (tilings of the plane by regular polygons). This result is of great importance for the crystallography: two-dimensional crystallography can be constructed by purely topological methods.

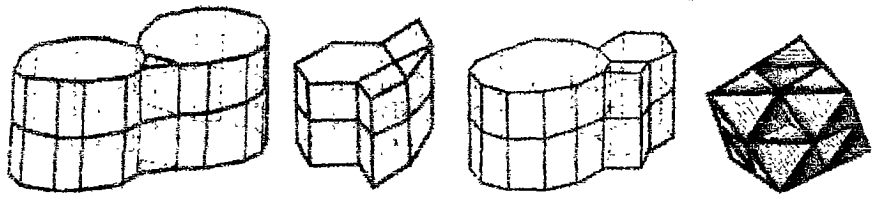
Each of the Andreini partitions may be present by there polyhedral stars. But two pares of tilings have the same polyhedral stars. These stars can be considered as the most probable nucleas for the crystallization. Wood models of these stars will be present on exibition.



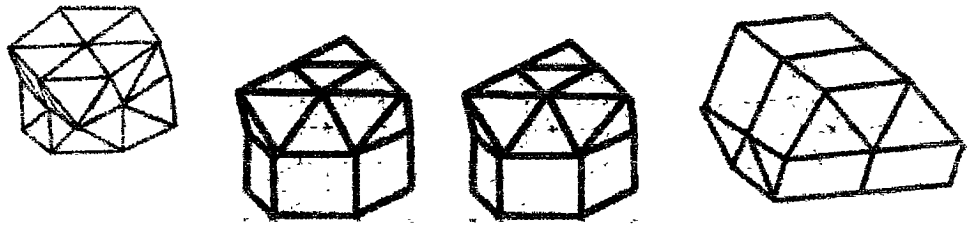
1. P6/mmm a 2. Pm3m a 3. P6/mmm c 4.Cmmm g



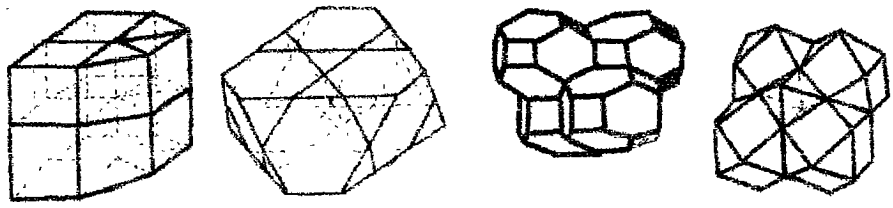
5. P4/mbm g 6. P6/mmm f 7. P6/m j 8. P4/mmm l



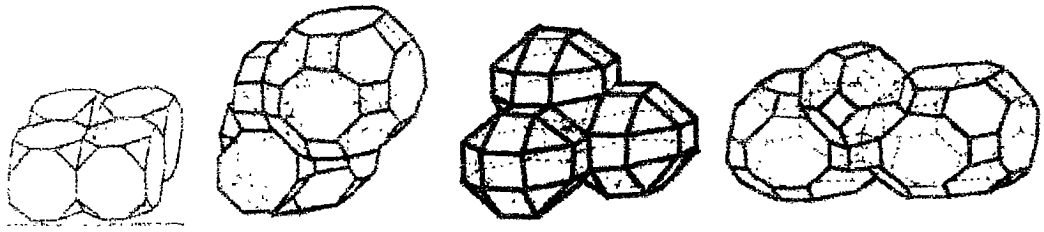
9. P6/mmm l 10. P6/mmm l 11. P6/mmm p 12. Fm3m a



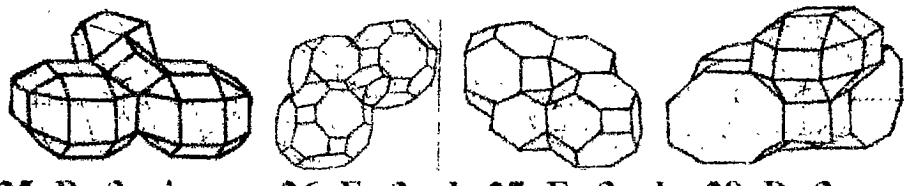
13. P6s/mmc c 14. P6s/mmc f 15. P3im c 16. P4r/amd a



17. I4r/amd e 18. Fd3m c 19. Im3m d 20. Pm3m c



21. Pm3m e 22. Im3m i 23. Fm3m f 24. Pm3m k



25. Pm3m i 26. Fm3m k 27. Fm3m h 28. Pm3m m

The wellknown Durer's polyhedron can be considere as part of one of Andreini tilings. It consists from two truncated tetrahedra which in there turn divided on octaheda and tetrahedra.

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