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General regularities of bent tectonics

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Most of movements of the Earth's crust are subjected to plate tectonics rules. One of them is that on the Earth's sphere (in "plan"), movements of plates can be approximated by the Euler fixed point theorem, which states that any motion of a rigid body on the surface of a sphere may be represented as a rotation about an appropriately chosen rotation pole, called an Euler pole. The theorem is widely used to describe the motions of lithospheric plates. But when it comes to a collision, neither arc, nor an orogen as its successor, behave as a rigid body. They are plastic and may be easily deformed in plan, and at places where they are bent (sometimes even into a horseshoe shape), every differential part of an arc or orogen can have its own Euler pole, and in this case positions of the neighbouring poles are changing incrementally. Therefore, this part of tectonics can be called a "bent tectonics". This kind of tectonics strongly depends on outlines of continental lithospheric blocks, because they are relatively rigid. When we restore outlines of cratons before they are owergrown by frozen foldbelts we always can see that the orogens are following these outlines, and therefore their position and shape is predetermined. Another complication is that an arc seldom collides with a continent in a single stage. The outline of an arc is never complementary to an outline of an opposite continental margin, with its promontories and recesses. Often the margin and the arc are not even roughly parallel, so their collision is oblique and an oceanic "triangle zone" is left.. A single arc or a ribbon continent can collide with two or more rigid continental masses. Such situations of a "narrow space tectonics", result finally in a horizontal deformation of the arc, its slab or ribbon continent in the first hand, because these are the weakest rts of the colliding ensemble. That is why collision is a diachronous, step-wise process, its chronology strongly depends on its geometry, and the orogens never demonstrate "stillean" regularity of tectonic epochs and stages in a global context.