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Strain: Fact or Fiction?

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2017 marks the 50th anniversary of the publication of John Ramsay's well known textbook "Folding and Fracturing of Rocks" - ... and the 30th anniversary of the rejection of a rather less well known paper entitled "Strain: Fact or Fiction?" submitted by Renée Panozzo to the Journal of Structural Geology.

The gist of the paper was simple and straight forward: it was argued that not every fabric that can be observed in deformed rocks is necessarily a measure of the amount of strain the rock incurred. A distinction was made between a general "fabric", i.e. the traceable geometry of grain boundaries, for example, and a so-called "strain fabric", i.e. the model geometry that would result from homogeneously straining an initially isotropic fabric and that would exhibit at least orthorhombic symmetry. To verify if a given fabric was indeed a strain fabric it was therefore suggested to use the SURFOR method (published by Panozzo) and to carry out a so-called strain test, i.e. a check of symmetry, before interpreting the results of a fabric analysis in terms of strain.

The problem with the paper was that it was very obviously written out of frustration. The frustration came form having reviewed a number of manuscripts which tried to use the then novel SURFOR method for strain analysis without first checking if the the fabric was a indeed a "strain fabric" or not, and then blaming the SURFOR method for producing ambiguous results. As a result, the paper was not exactly well balanced and carefully thought out. It was considered "interesting but not scholarly" by one of the reviewers and down-right offensive by the second.

To tell the truth, however, the paper was not formally rejected. The editor Sue Treagus strongly encouraged Panozzo to revise the paper, ... and 30 years later, I will follow her advise and offer a revised paper as a tribute to John Ramsay. To quote from the original manuscript: "We should be a little more impressed that strain works so well, and less surprised if it does not."