



Review: [Untitled]

Reviewed Work(s):

Adventures in Perception. by Hans Van Gelder
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broad, as the student is involved in significant applications of linear algebra, elementary properties of matrix-valued functions (including e^{At}), and the elementary theory of complex analytic functions.

Analysis in Euclidean Space is a text for those who wish to communicate to their students the essence, and not just the facts, of analysis.

DENNIS BERKEY, Boston University

FILMS

Adventures in Perception. Produced by Hans Van Gelder, Film Produktie, N.V., The Netherlands. Color and sound, 16mm, 22 minutes. U.S. Release 1973. Available, on free loan, from Royal Netherlands Embassy, 4200 Linnean Avenue, N.W., Washington, DC 20008. Also distributed by BFA Educational Media, 2211 Michigan Avenue, Santa Monica, CA 90404. Purchase \$280, rental \$22, # 1118.

The film *Maurits Escher: Painter of Fantasies* was reviewed in this MONTHLY (V. 83, No. 6, 1976, p. 495). We now have another film about Escher which has special interest for mathematical audiences. I have used both films in my mathematics classes, church groups, and an Escher mini-festival at Albion College. I believe *Adventures in Perception* makes more of an impact on its viewing audience in the way the art works are presented in the film.

Escher has said that if he were ever reincarnated he would want to make films and I believe that this would be the kind of film Escher would make. It has an amusing animation of the *Curl-up*, Escher's response to his own puzzlement as to why Nature never invented the wheel. The film displays many themes: forms, shapes, metamorphosis, convergence and divergence, and cycles, to name a few. There are some fifty works shown using close-ups, cropped shots and full views in an effective cinematic mixture.

Early in the film we see Escher in his studio carving out his woodcut, *Snakes*. The camera takes us to his table to look at many of his polyhedral models and to a view of his tessellated *Sphere with Angels and Devils* and other works. The ribbons of *Cube with Magic Ribbons* are traversed before one sees the entire print and realizes their impossibility. The orthogonality of *Other Worlds* is perceived as we move from panel to panel while the contradictions of *Relativity* are singled out and then offered in totality. We pass through *Day and Night* and experience this change with the moving camera. The impossible conjunction of *Concave and Convex* are seen only after we are presented with their separate reality. Much attention is given to the infinite and perspective as in the joke, *Still Life and Street*. Zoom shots are used to bring out the infinite in *Cubic Space Division*, *Depth*, *Castrovala*, *Circle Limits*, and *Smaller and Smaller*. We are jumping from frog to fish to bird and back in *Verbum* in a very clever treatment of these transformations.

Escher talks about his experiences and discusses his use of Penrose's triangles in the impossible construction of the *Waterfall*. A table is shown cluttered with the now familiar art work of Escher — work which is used on covers and as illustrations for scientists who find his work the only way to convey the joy of their discipline. The final segment is a long, slow scan of *Metamorphose* with only a small piece of the print in view at any given time. This is a marvelous way to display the essence of the print — change. The percussive jazz which accompanies this unfolding is very powerful as is the entire musical score.

I have used this film in my classroom just because it is so rich in images mathematicians and mathematics students love, not necessarily to study, but just to view and enjoy. All classes appreciate a break — what better way to pause and refresh than with this master portrayer of things mathematicians can only think about.

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