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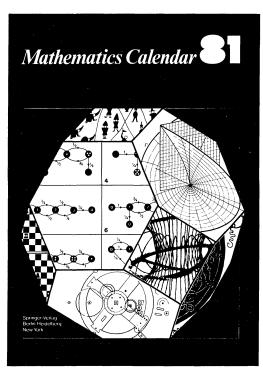
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#### January: The Dictator Theorem

A small set of apparently reasonable conditions on a voting system must necessarily lead to the institution of a dictator — Arrow's paradox, mathematically an ultrafilter theorem, is illustrated and resolved democratically by modifying the conditions.

#### February: Minimal Surfaces

Plateau's problem from its initial mathematical formulation to recent applications – with drawings and color photographs of soap films of minimal surface area.

#### March: Knots

Discusses a phenomenon of the 3-dimensional space we live in which fascinated Dürer and Gauss and still fascinates artists and mathematicians

#### **April: Computer Chess**

Have human chess champions a chance against computer programs? The match between David Levy and CHESS 4.8 provides some interesting insights.

#### May: Partitions of 3-Space

A recent application to crystallography of group-theoretical methods: a 38-faced Dirichlet domain.

#### June: Arrangement of nine groups of four

"symmetries—agreement—harmony": Max Bill gives an artist's impression of the influence of mathematical principles on the perception of art and architecture with a striking illustration based on Pythagoras' theorem.

#### July: Edgeworth and Averages

Most natural events were assumed to be "normal" until 1883, when F. Y. Edgeworth attacked the universal applicability of the Gaussian distribution in statistical analysis.

#### August: The Probabilistic Abacus

A game played with chips on graphs illustrates problems in discrete probability and the Ehrenfest model for diffusion.

## September: Self Inverse Fractals and Kleinian Groups

Approximations of typical minimal self inverse sets, obtained by a new recursive construction due to B. Mandelbrot, generate unexpectedly beautiful color computer graphics.

#### October: An Analogue Computer from 82 B.C.

Mysterious bronze objects found in 1900 on a shipwreck dating back to Roman times, discovered in the 1970's to be the oldest known analogue computer.

#### November: Strange Attractors

The "chaotic" time evolution observed in many natural systems can be related to the sensitive dependence on initial conditions that makes strange attractors strange. Computer graphics illustrate these intriguing objects.

### December: Radon Transforms and Tomography

The mathematics of computer tomography, a remarkable example of successful application of technology in medicine.



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