



Patterns of Life

Warren Weaver and Complexity Theory

Voice Over:

Probability ace, Warren Weaver, loved *Alice in Wonderland*. And when he wasn't working on his system to judge the book's very best translation, he was causing quite a stir in the fields of molecular biology and artificial intelligence.

In 1948, he identified what he called complex systems. These are systems where individual parts act independently of each other, while still following a set of simple rules.

When all of these independent decisions are added together, some very sophisticated behaviour can emerge. And all without any planning.

Take ants: They may not be the biggest or the smartest but collectively these tiny fools can do what no single ant could ...from warding off predator... to building a bridge, ... to organising a daring picnic raid; with no need for a maverick leader calling the shots.

We can see complex systems at work all over the place: from the flocking patterns of swallows, to the way traffic flows through a city and the rise and fall of stock markets.

Some scientists even see consciousness as the result of a complex system, with billions of seething brain cells, self-organising to give the illusion of intelligence. No offence.