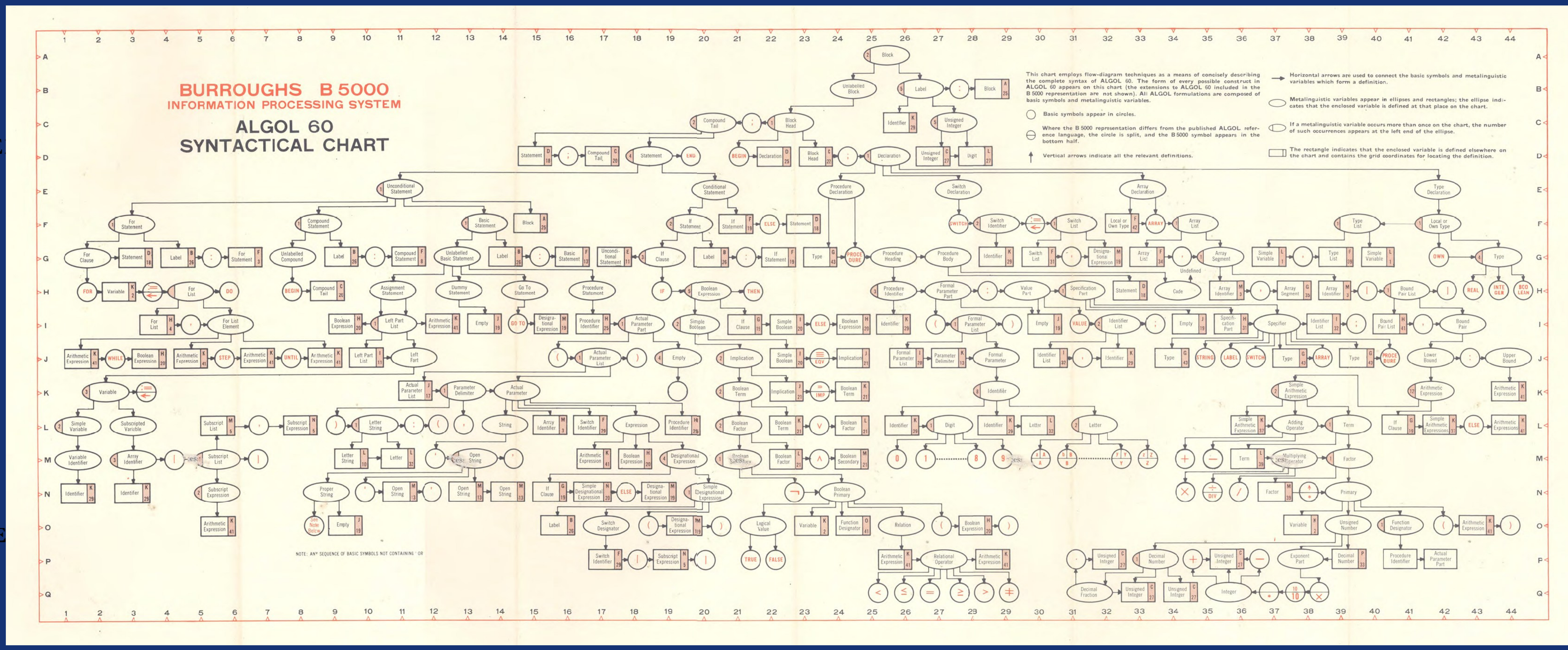
The Algol language

Published in 1960, Algol was "an object of stunning beauty" but it was difficult to implement and was never widely adopted in practice.

Its mathematical definition made it possible to reason about programs formally and Algol soon became the *de facto* language of academic computer science.



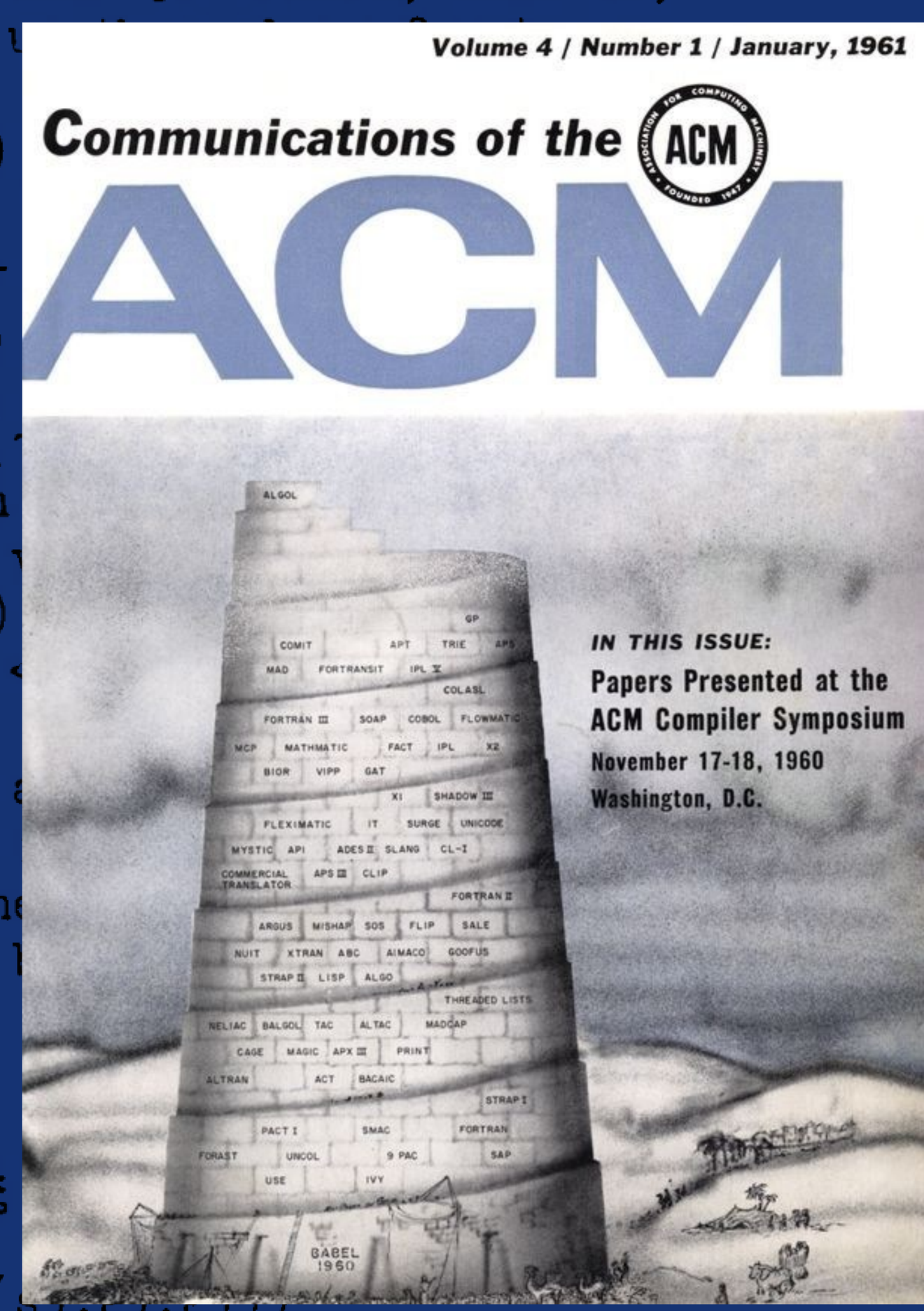
Mathematical culture

The mathematical culture sees programs as mathematical entities. They can be formally analyzed and proven correct with respect to a precise specification from a customer.

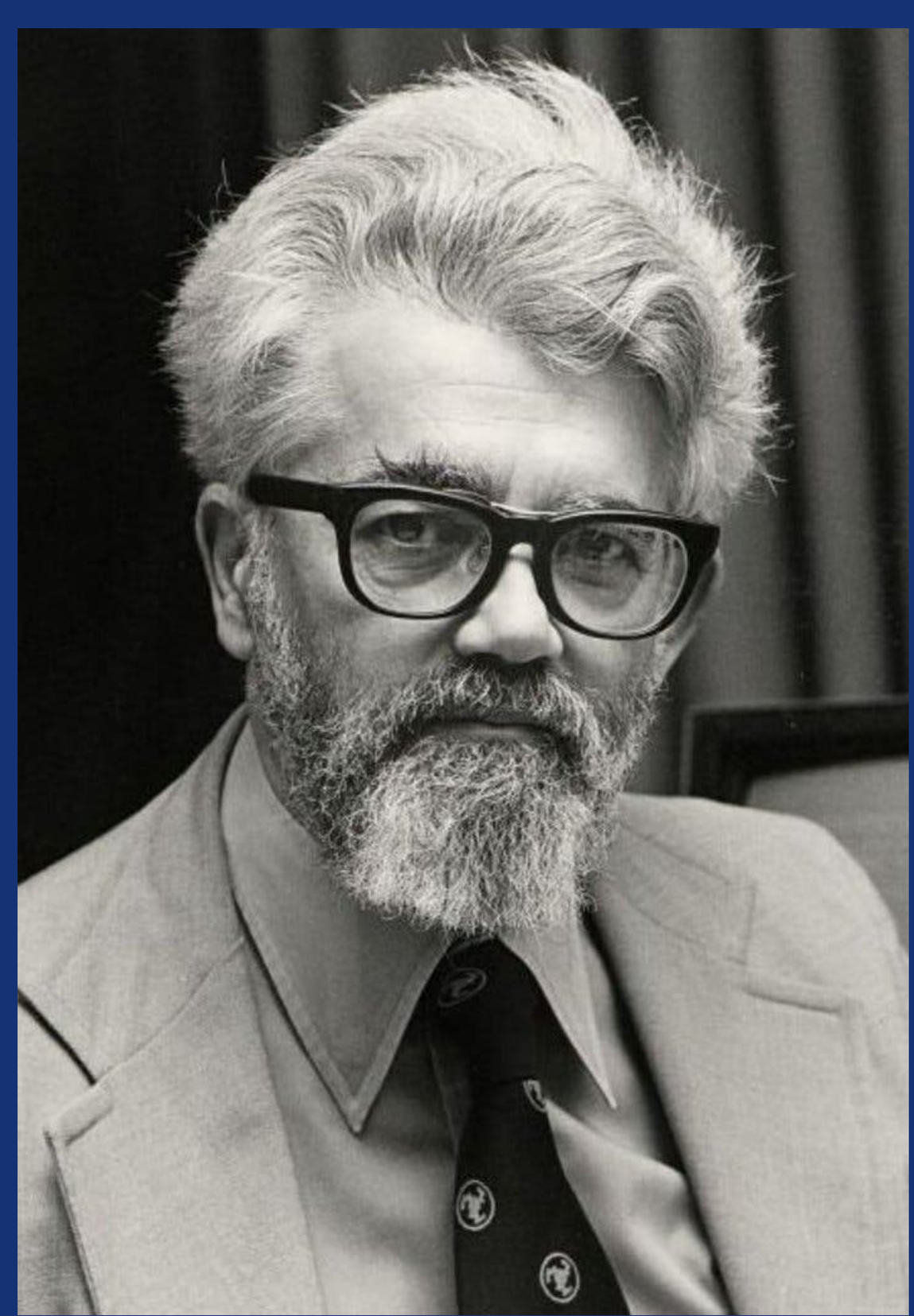
Proponents of the mathematical culture believe that mathematical methods provide the right mechanism for tackling the increasing complexity of software systems.

Academic computer science

At a time when some saw university departments for *computer science* as analogous to departments for railroad, automobile or television technologies, linking computer science to mathematics helped to establish it as a real, respectable intellectual activity.



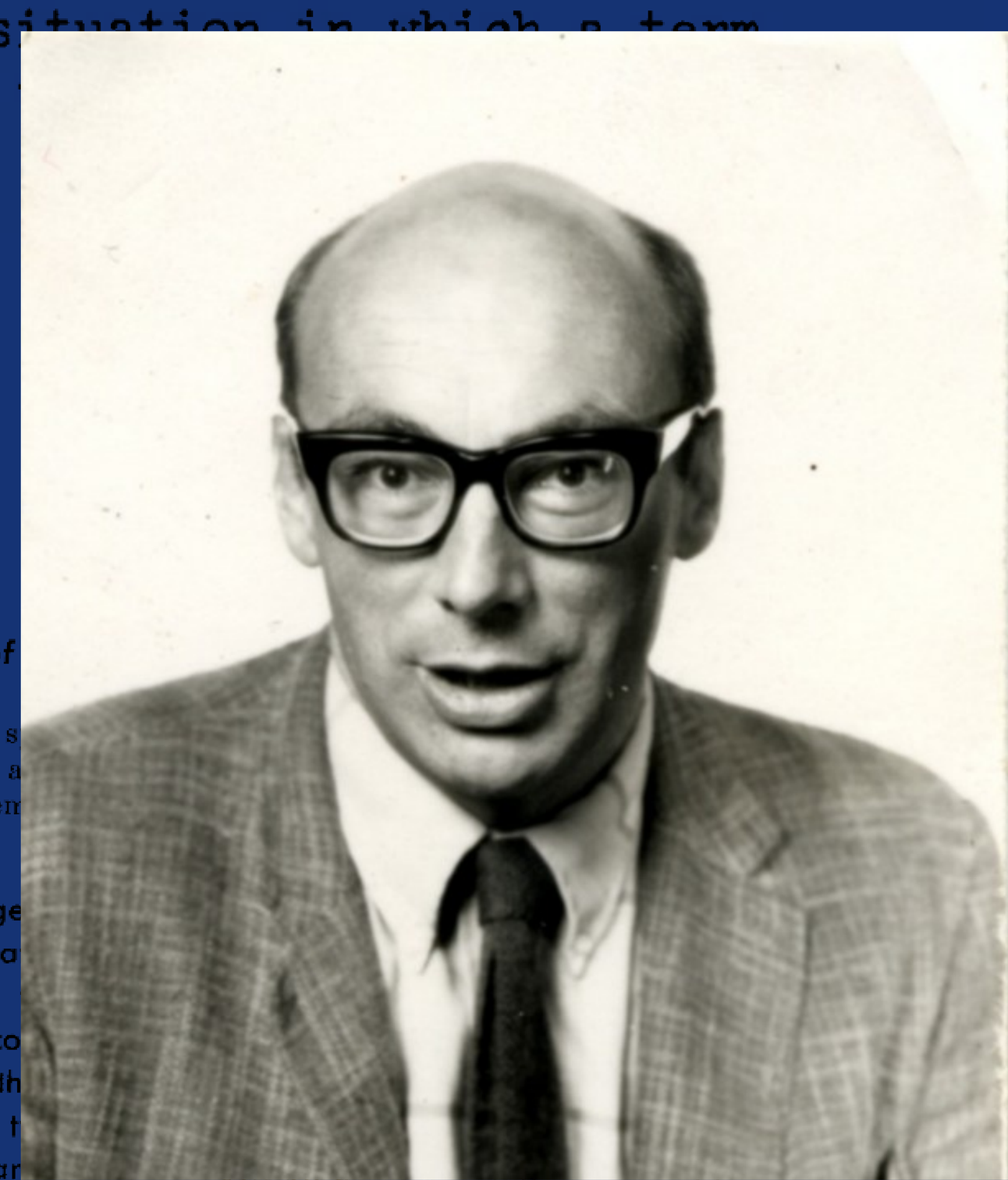
John McCarthy



One of the first to suggest that properties of programs can be deduced from basic assumptions.

In 1961, he outlined a mathematical theory of programs and defined questions we may want to ask—for example, are the given two programs equivalent?

Peter Landin



Pioneer of programming language theory and formal semantics.

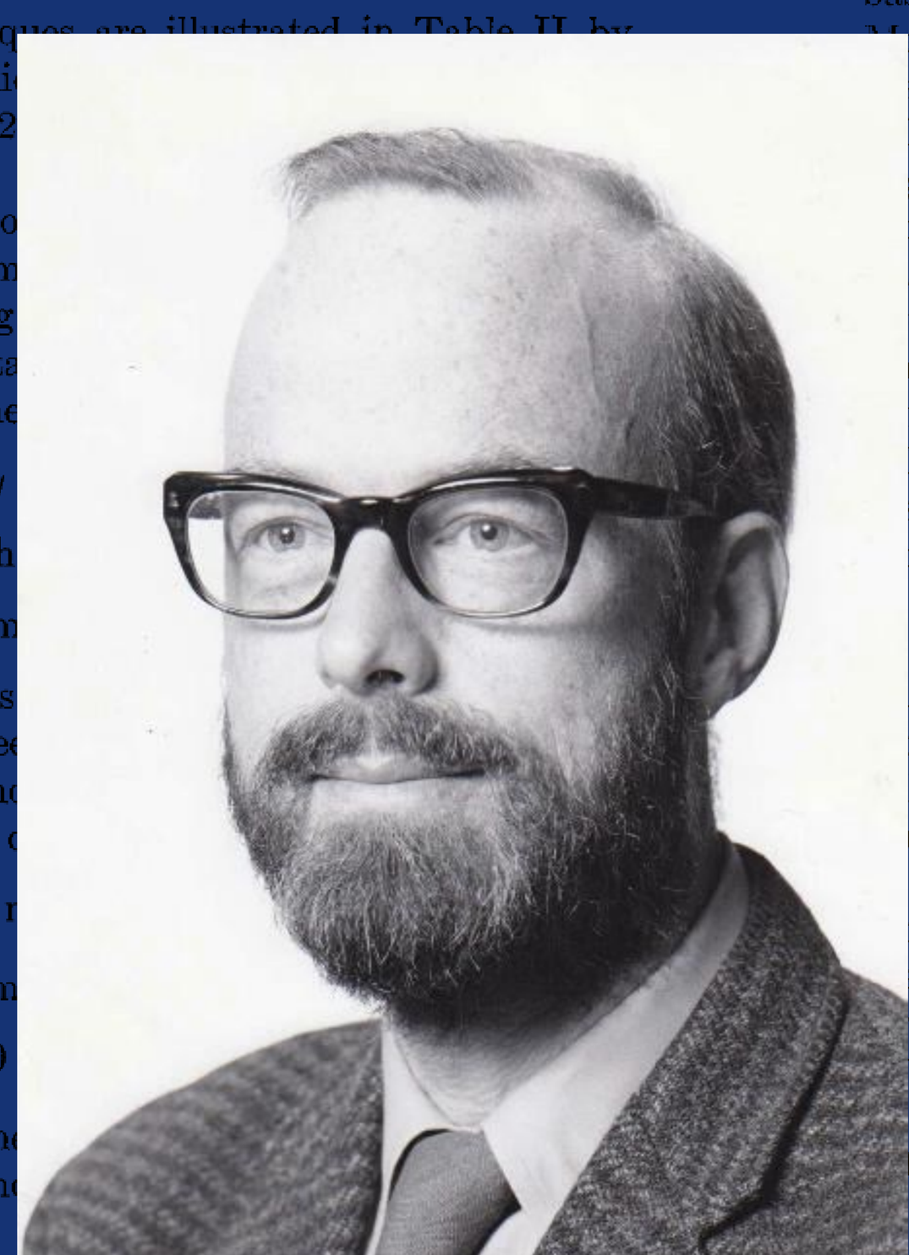
In 1965, he presented ISWIM, a hypothetical functional language based on the lambda calculus that served as a model of a wide range of existing programming languages.

Peter Naur

Introduced structured programming in Algol and created the BNF notation with Backus for language specification.

In 1966, he developed a way of proving program properties by abstractly capturing the program state using general snapshots.

C. A. R. Hoare



A lifelong advocate of applying mathematical methods to programming and inventor of the Quicksort algorithm.

In 1969, he introduced an axiomatic approach for proving program properties by annotating the program with pre-conditions and post-conditions.