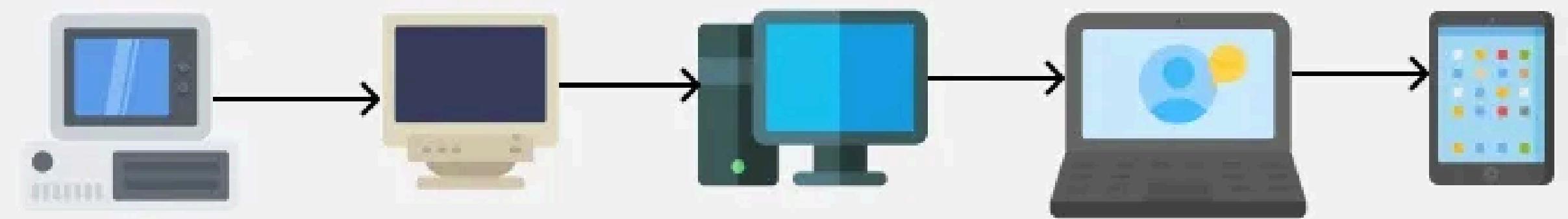


evolution of computers

Evolution of Computers



First Generation

- 1940-1956
- Vacuum Tubes

Second Generation

- 1956-1963
- Transistors

Third Generation

- 1964-1971
- Integrated Circuits

Fourth Generation

- 1971 - Present
- Microprocessors

Future Generation

- Present and Beyond
- Artificial Intelligence

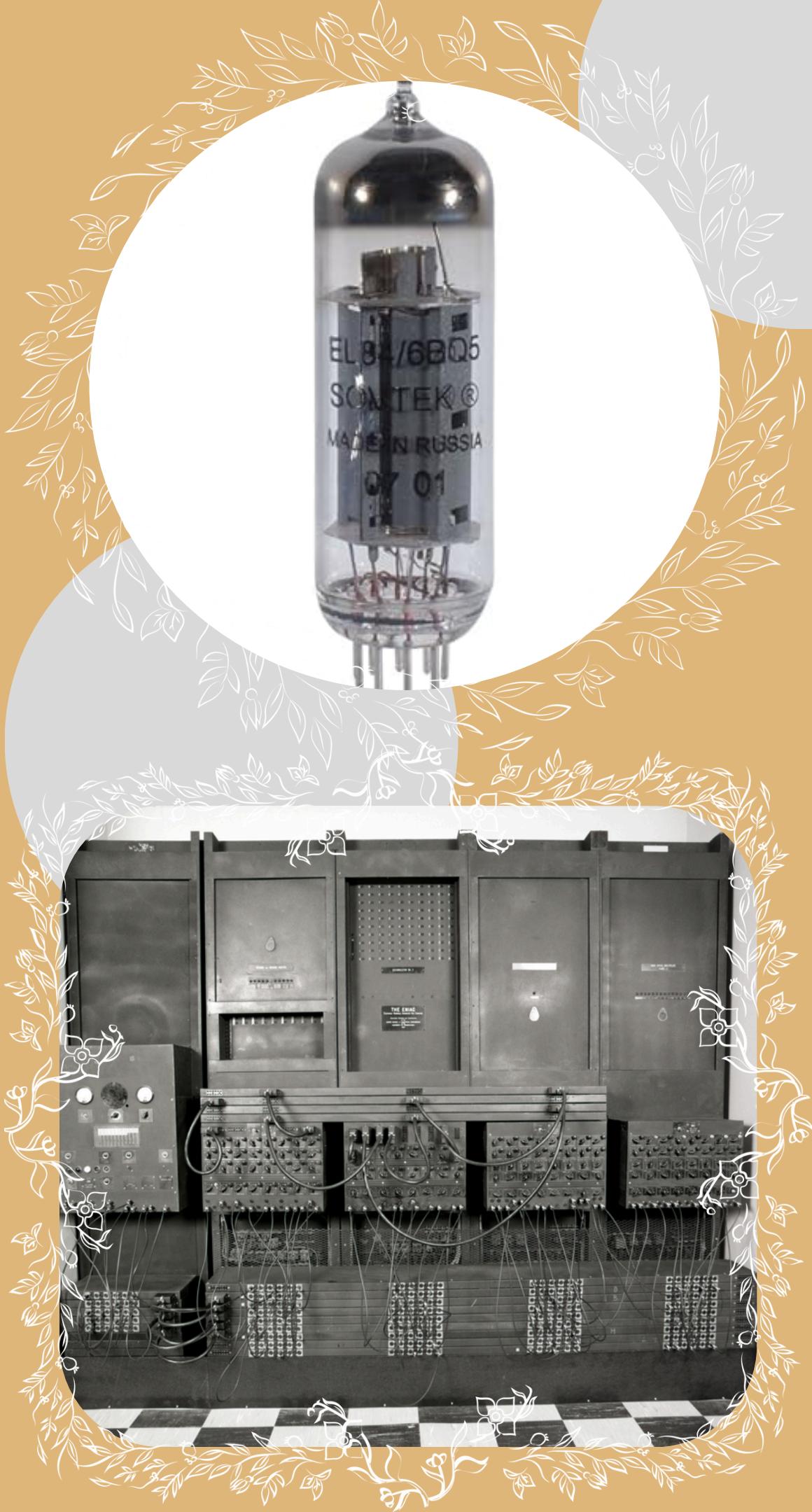
First generation

The first generation of computers relied on **vacuum tubes**, which were used for both circuitry and memory storage. These early machines were massive and primarily used for **scientific and military applications**.

Examples:

- **ENIAC (Electronic Numerical Integrator and Computer)**: One of the earliest general-purpose electronic computers.
- **UNIVAC (Universal Automatic Computer)**: The first commercially successful computer.

(1940-1956)



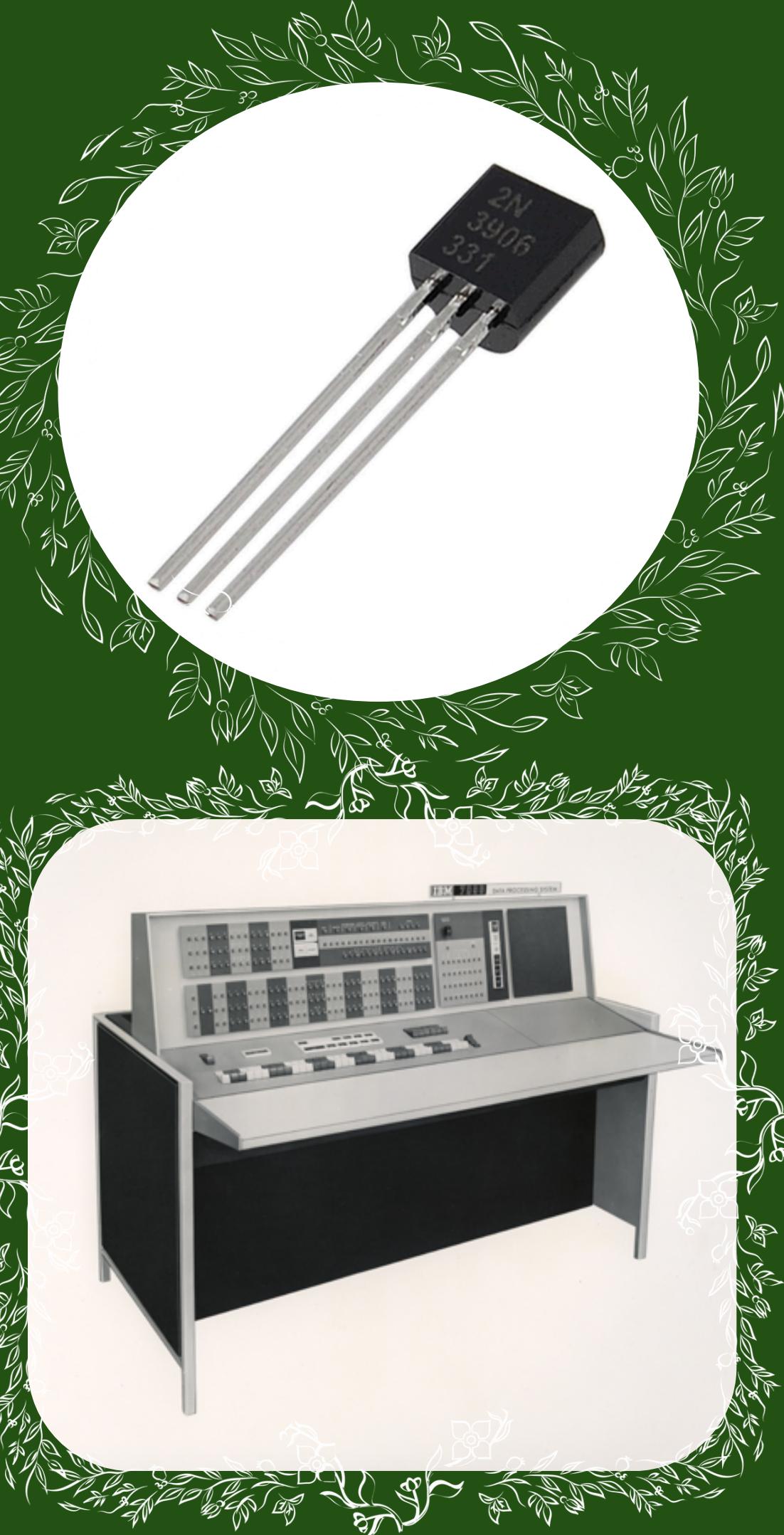
Second generation

The second generation saw the replacement of vacuum tubes with transistors, which were smaller, more reliable, and consumed less power. Transistors made computers more compact, efficient, and affordable.

Examples:

- IBM 7090: A highly successful transistorized computer used in scientific and business applications.
- CDC 1604: One of the first computers to use transistors, used for scientific calculations.

(1956-1963)



Third generation

The third generation of computers introduced integrated circuits (ICs), where multiple transistors were integrated onto a single chip. This reduced the size of computers further, while increasing processing power and efficiency.

Examples:

- IBM System/360: A family of computers that demonstrated the versatility of integrated circuits in various industries.
- PDP-8: One of the first commercially successful minicomputers, marking a shift towards more affordable computing.

(1964-1971)



Forth generation

The fourth generation introduced the **microprocessor**, which combined all the components of a computer's central processing unit (CPU) onto a single chip. This innovation drastically reduced the size and cost of computers, leading to the rise of personal computers.

Examples:

- Intel 4004: The first commercially available microprocessor, enabling the creation of personal computers.
- Apple Macintosh: A popular personal computer that brought GUIs to a wider audience.

(1971-Present)



Fifth generation

The fifth generation of computers is characterized by advancements in artificial intelligence (AI), machine learning, and quantum computing. These technologies enable computers to learn, reason, and process data in ways similar to human cognition.

Examples:

- IBM Watson: An AI system that can analyze large datasets and answer questions posed in natural language.
- Quantum Computers: Still in the experimental phase, these have the potential to revolutionize fields such as cryptography and drug discovery.

(Present and Beyond)

