

FROM HISTORICAL, TRADITIONAL AND MODERN SCALPEL: GUIDE TO THE ANATOMICAL DISSECTIONS

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Introduction

- **Medical education begins with the cadaveric dissections** that have been used as the core teaching tools in anatomy for centuries.
- Nearly all **medical students and clinicians remember** the details of **their first interaction with the human body and** different **instruments**.
- One of the most common tools **used in the anatomical dissections** is **scalpel**.
- The modern word **“scalpel”** is derived **from** the **Latin “scallpellus”** (“incisor” or “cutter”).
- It is clear that the basic idea of the scalpel has remained the same for thousands of years: it is a **sharp tool for cutting**.



Figure 1. The etymology of the term “surgical knife” dates back to Hippocrates.

Aims of the project

The aims were **to describe** the **origins** and **evolution of the scalpel** and **to summarize** this guiding **information** for the anatomical dissections.

Materials and methods

In the beginning of this study the **scalpel was represented** like an instrument **according to historical points of view**.

Data were collected **from scientific publications** and different **articles in English** in the **websites, databases** (PubMed, Scopus) and **medical history sources**.

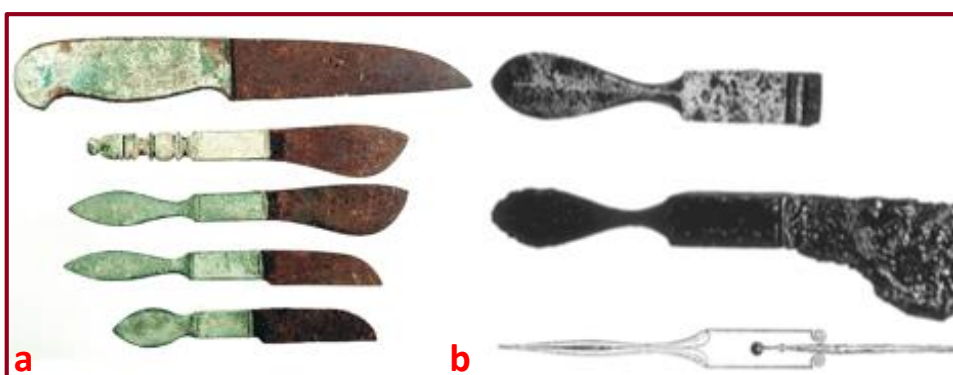


Figure 2. Example of a Roman scallpellus and similar instruments (a); Bronze knives found in the destruction of Pompeii (b).

<https://bulletin.facs.org/2018/02/the-history-of-the-scalpel-from-flint-to-zirconium-coated-steel/>

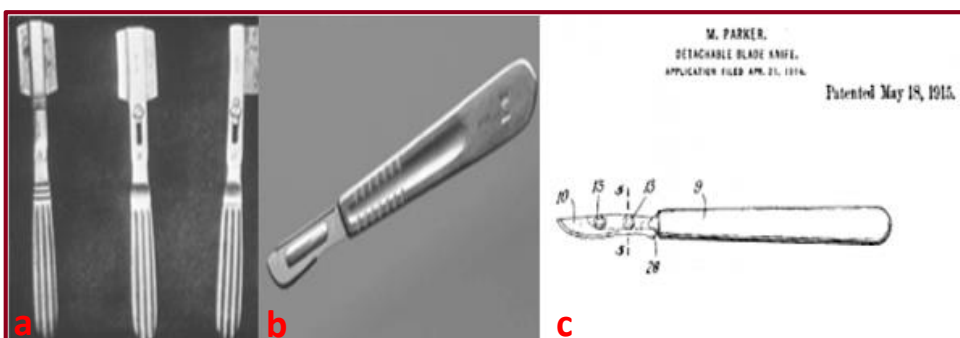


Figure 3. Dr. John B. Murphy's special razor-blade handles (a); Bard-Parker “Rib-Back” scalpel (b); Morgan Parker's original patent (c).

Ochsner, J. The surgical knife. *Bull Am Coll Surg*, 1999; 84, 27–37.
Kirkup, J. Bard-Parker scalpels. *J Med Biogr*, 2005; 13, 206.

Results

The evidence of **the use of blades** in medicine has been found **from the Mesolithic period** about 10000 years ago.

The first known **description** of a scalpel comes **from** the greek physician **Hippocrates** (Fig. 1). His used specific **term** was **“macairion”** (a smaller version of a type of sword).

The **Romans** named their version of the **tool** that it is very widely used **term “scalpel” today** (Fig. 2).

In the later period there were used the **scalpels with one straight edge** and **the other a sharp, cutting blade**. **In the 14th and 15th centuries** began the real **variation** and **specialization** of the anatomical and surgical tools.

For a few hundred years special **scalpels with ornaments** were very **popular** and these tools were **used by barbers**.

The more artistic versions started to fade out of popularity **in the late 19th century** with the requirements of **antiseptis and asepsis**.

In 1904 the **modern surgical scalpel with a disposable blade** was inspired **by King Gillette's** invention of the safety razor. **In 1910 John Benjamin Murphy** perfected the **specialized handle** (Fig. 3).

In 1912 the English metallurgist **Harry Brearley** invents **stainless steel** (Fig. 4).

In 1914 Morgan Parker, a 22-year-old engineer, made the **combination** and **joined the blade and the handle** that **provided stability** and still being **able to exchange blades** between uses. **In 1915** the reception of **the scalpel** encouraged him to take it **to production** (Fig. 3).

In 1919-1923 Sheffield cutlers start the **production of surgical scalpels** (Fig. 4).

In 1955 diamond scalpel was invented by the Venezuelan scientific **Humberto Fernandez Moran**: it possesses an **extremely sharp, hard diamond cutting edge**, used to make ultra fine cuts in biological tissue, mineral or silver (Fig. 4).



Figure 4. Production of surgical scalpels (a); diamond scalpel (b); 20th century scalpel: modern surgical scalpel – made of stainless steel, formed by 2 parts: the blade and the handle; it has 15+ different types of blade for surgery purpose (c).

Ochsner J. Surgical knife. *Texas Heart Institute journal*, 2009, 36(5), 441–443.

Today the scalpel is a **highly standardized medical instrument** (Fig. 4). It is **absolutely necessary for anatomical dissections** and **we follow to its` adaptations, changes** in the evolution of modern technologies.

Conclusions

From different materials knives and reusable handles, the **scalpel has become an important tool for medical education and practice**.

It is a general instrument with a long history and a special role for anatomical dissections.

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