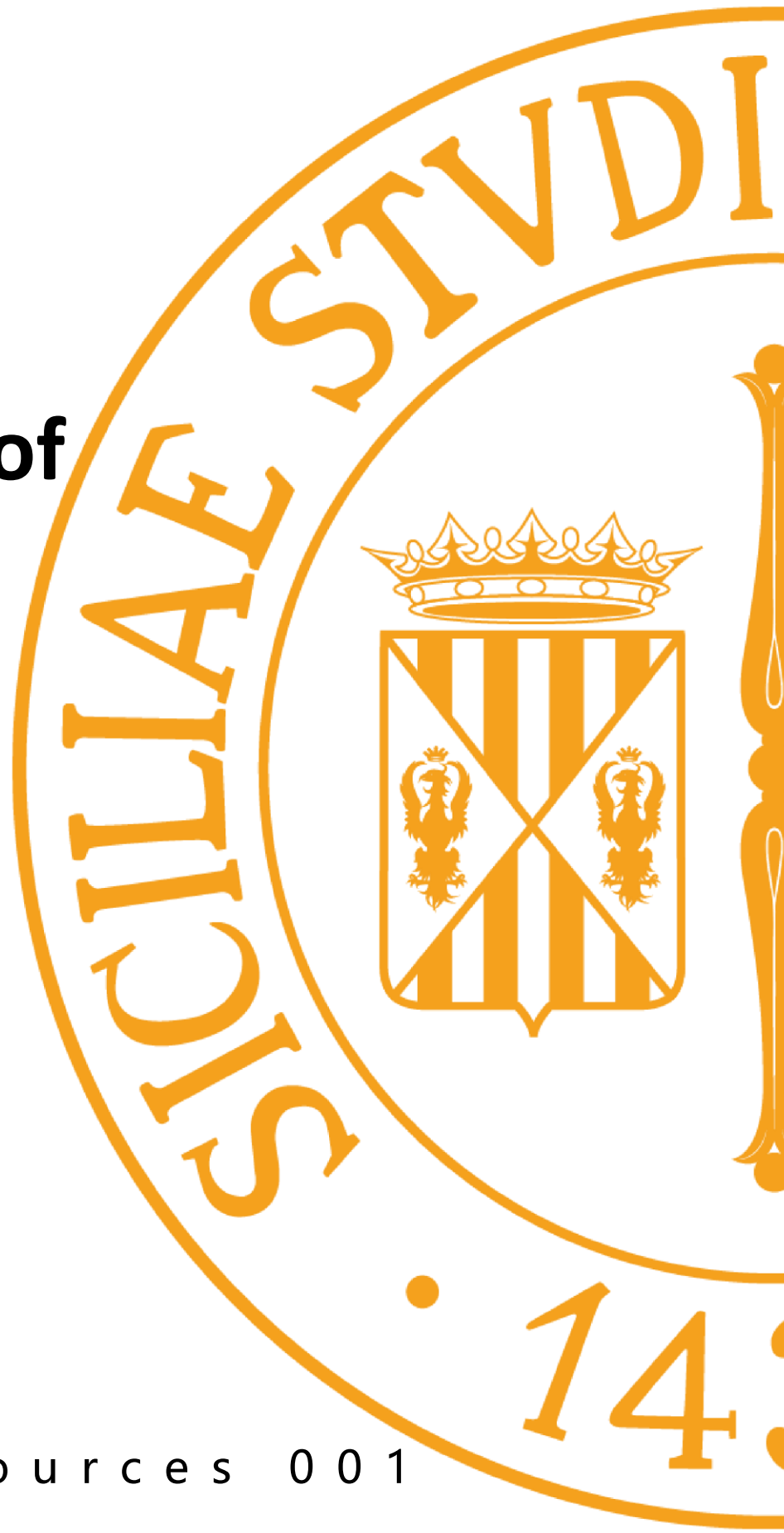


The Scientific Bureau of the University of Catania

**A very, very
short history of
scientific
publication**



A very, very short history of scientific publishing

You are all involved, in some way, in research, and thus, scientific publication.
Research is the aim; publication is the goal.
But where did it all begin?

The Distant Past

The oldest extant medical writing is a Sumerian medical clay tablet from 2097-1989 B.C. in Mesopotamia referring to medical prescriptions.



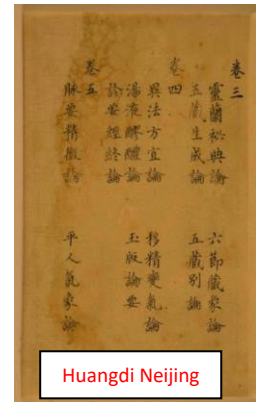
Sumerian medical clay tablet

Next, we have The Kahun Gynaecological Papyrus from Egypt dated to 1800 B.C. regarding women's health.



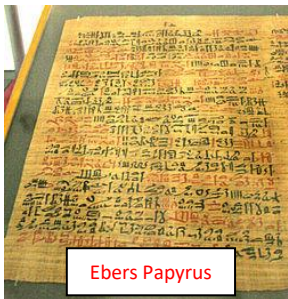
Kahun Gynaecological Papyrus

Now to China, the Huangdi Neijing, meaning the Inner Canon of the Yellow Emperor, is an ancient Chinese medical text. The work is made up of two texts—eighty-one chapters each, in a question-and-answer format. It is dated to about 221 B.C.



Huangdi Neijing

The Ebers Papyrus is an Egyptian medical papyrus of herbal remedies dating to about 1550 B.C.



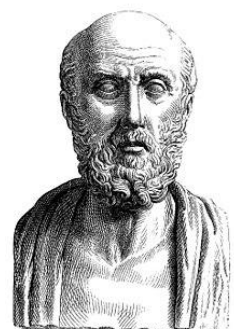
Ebers Papyrus

Greek Medicine is the traditional, indigenous holistic healing system of developed countries. It was first codified and systematized by the Greek philosopher-physician Hippocrates in the 4th century B.C. and then developed and expanded by other physicians, such as Galen, Dioscorides and Avicenna.

The Hippocratic Oath is an oath of ethics historically taken by physicians. It is one of the most widely known of Greek medical texts. In its original form, it requires a new physician to swear, by a number of healing gods, to uphold specific ethical standards.

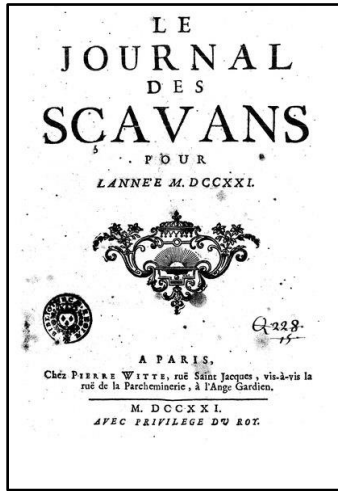


Hippocratic Oath



Hippocrates

Getting Nearer

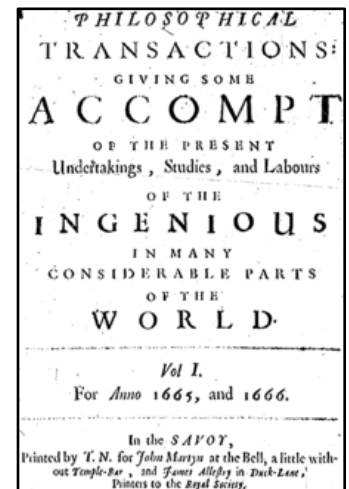


The Journal des sçavans, established by Denis de Sallo, was the earliest academic journal published in Europe. Its content included obituaries of famous men, church history, and legal reports. The first issue appeared on Monday, 5 January 1665, and ceased publication in 1792, during the French Revolution. This was shortly before the first appearance of the Philosophical Transactions of the Royal Society, on 6 March 1665.

Philosophical Transactions of the Royal Society is a scientific journal published by the Royal Society. In its earliest days, it was a private venture of the Royal Society's secretary. It became an official society publication in 1752. It was established in 1665, making it the first journal in the world exclusively devoted to science, and therefore also the world's longest-running scientific journal. The use of the word philosophical in the title refers to natural philosophy, which was the equivalent of what would now be generally called science. In 1787, Caroline Herschel became the first woman published in the journal and the only one in the 18th century.

Famous and notable contributors

Over the centuries, many important scientific discoveries have been published in the Philosophical Transactions. Famous contributing authors include: Isaac Newton, Anton van Leeuwenhoek, Benjamin Franklin, Caroline Herschel, Charles Darwin, Michael Faraday, James Clerk Maxwell, Dorothy Hodgkin, Alan Turing, Stephen Hawking.



There are thousands of scientific journals in publication, and many more have been published at various points in the past (see list of scientific journals). Most journals are highly specialized, although some of the oldest journals such as Nature publish articles and scientific papers across a wide range of scientific fields.

The first issue of Nature was published on 4 November 1869. Many earlier publishing adventures in science had failed dismally, but Nature's eventual success grew out of the social and scientific conditions under which it was founded. Nature, above all, has been a survivor.

Peer review

Peer review is a central concept for most academic publishing; other scholars in a field must find a work sufficiently high in quality for it to merit publication. A secondary benefit of the process is an indirect guard against plagiarism since reviewers are usually familiar with the sources consulted by the author(s). The origins of routine peer review dates to 1752 when the Royal Society of London took over official responsibility for Philosophical Transactions.

Perhaps the most widely recognized failing of peer review is its inability to ensure the identification of high-quality work. The list of important scientific papers that were initially rejected by peer-reviewed journals goes back at least as far as the editor of Philosophical Transaction's 1796 rejection of Edward Jenner's report of the first vaccination against smallpox.

Citations

Academic authors cite sources they have used, in order to support their assertions and arguments and to help readers find more information on the subject. It also gives credit to authors whose work they use and helps avoid plagiarism.

Publishing

Scientific, technical, and medical (STM) literature is a large industry which generated \$23.5 billion in revenue; \$9.4 billion of that was specifically from the publication of English-language scholarly journals. Most scientific research is initially published in scientific journals and considered to be a primary source.

Open access journals

The open access journal model involves a publication charge being paid by the author. Prestige journals typically charge several thousand dollars. Oxford University Press, with over 300 journals, has fees ranging from £1000-£2500. Wiley Blackwell has 700 journals available, and they charge different amounts for each journal. Springer, with over 2600 journals, charges € 2200 (excluding VAT). Open access has been criticized on quality grounds, as the desire to maximize publishing fees could cause some journals to relax the standard of peer review.

Growth

In recent decades there has been a growth in academic publishing in developing countries as they become more advanced in science and technology.

By 2004, it was noted that the output of scientific papers originating from the European Union had a larger share of the world's total from 36.6 to 39.3 percent and from 32.8 to 37.5 per cent of the "top one per cent of highly cited scientific papers". However, the United States' output dropped from 52.3 to 49.4 per cent of the world's total, and its portion of the top one percent dropped from 65.6 to 62.8 per cent.

Global scientific output doubles every nine years

It's a common complaint among academics: today's researchers are publishing too much, too fast. But just how fast is the mass of scientific output actually growing?

It is impossible to know for sure, but the real rate is closer to 8-9% each year, they argue. That equates to a doubling of global scientific output roughly every nine years.

Today's "salami slicing", in which scientists may pursue additional publications for career advancement, only adds to this effect. "The behaviour of scientists to publish more, to split up papers, to publish first a short paper followed by a more detailed one, and so on, would imply an 'extra' growth which is not necessarily the 'real' growth of science,".

Is the staggeringly profitable business of scientific publishing bad for science?

It is an industry like no other, with profit margins to rival Google. In 2011, Reed-Elsevier had annual revenues exceeding £6bn. Other large publishers are Taylor & Francis, Springer, and Wiley. RELX, the parent company of Elsevier, had revenues of US \$9.8 billion in 2019. ... RELX reports its profit margins at 31.3% for 2018.

Apple had revenues in 2018 of between \$60 billion and \$62 billion, with a profit margin between 38 percent and 38.5 percent.

Impact Factor

Rank	Journal Title	Impact Factor
1	CA-A CANCER JOURNAL FOR CLINICIANS	187.040
2	NEW ENGLAND JOURNAL OF MEDICINE	72.406
3	NATURE REVIEWS DRUG DISCOVERY	57.000
4	CHEMICAL REVIEWS	47.928
5	LANCET	47.831
6	NATURE REVIEWS MOLECULAR CELL BIOLOGY	46.602
7	JAMA-JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION	44.405
8	NATURE BIOTECHNOLOGY	41.667
9	NATURE REVIEWS GENETICS	40.282
10	NATURE	40.137

An Impact Factor of 1.0 means that, on average, the articles published one or two year ago have been cited once. An Impact Factor of 2.5 means that, on average, the articles published one or two year ago have been cited two and a half times.

Journal Impact Factor

Cites in 2008 to items published in:

2007 =263
2006 =374
Sum: 637

Number of items published in:

2007 =55
2006 =49
Sum: 104

Calculation=
$$\frac{\text{Cites to recent items}}{\text{Number of recent items}} = \frac{637}{104} = 6.125$$