Rudolf Virchow
Myron Schultz

This is a photograph of Rudolf Virchow (1821–1902). Virchow was one of the 19th century’s foremost lead
ners in medicine and pathology. He was also a public health activist, social reformer, politician, and anthropologist.
Virchow was the only child of a farmer and city trea-
surer in Ahrensfelde, Germany. He had a strong interest in
natural science. In 1839, he received a scholarship from the
Prussian Military Academy, where he was given the
opportunity to study medicine as preparation for a career
as an army physician. He studied medicine in Berlin and
then taught there for the rest of his life, with interludes in
Siemens and Wittenberg. In 1847, he and a colleague, Bernhard
Reinhardt, founded the Archiv für Pathologische Anatome
and Pathologie (now known as "Virchow’s Archives"),
which still survives as a leading journal of pathology. He
demonstrated to his students the use of microscopy and "stain
microscopically." Virchow had a major impact on medi-
cal education in Germany. He became an able teacher and
famous scientist in Germany, including Edwin
Klebs, Ernst Haken, and Adolf Kussmaul. He also taught
William Welch and William Odl, 2 of the 4 famous phy-
sicians who founded Johns Hopkins Hospital.
Virchow’s greatest accomplishment was his obser-
vation that a whole organism does not get sick; only certain
cells or groups of cells. In 1855, at the age of 14, he pub-
hlished his now famous aphorism: "omnis cellula e cellula" ("every cell
comes from another cell"). With this approach Virchow
launched the "cellular pathology." He stood that all
disease involves changes in normal cells, that is, all
pathology ultimately is cellular pathology. This insight
led to a major progress in the practice of medicine. It meant
that disease entities could be: had "much more sharply.
Diseases could be characterized not merely by a group
of clinical symptoms but by typical cellular changes.
Patho-
lologic anatomy, in addition to its great scientific merit, had
tremendous practical consequences. If the physician was
able to "read out what anatomic changes had occurred in a
patient
could make a much more accurate diagnosis of the
problem disease he could treat the past. This allowed
physicians to give more precise treatment and prognosis.
In many of his late papers Virchow stated that the practice
of medicine in Germany should shift away from being a
largely theoretical activity. He advocated for the study
microscopic pathological anatomy, for research to be per-
formed by physicians, the importance of making systemic
clinical observations, and the performance of animal
experimentations.
Virchow’s many discoveries include ruling cells in
bone and connective tissue and describing substances such as
myelin. He was the 70th person to recognize leukemia.
He was also the first person to explain the mechanism of
pulmonary thrombosis. He documented that blood clots
in the pulmonary artery can originate from venous thrombi.
While Virchow, in Germany, was developing the new
science of pathology, in France, in 1847, Pasteur
was developing the new science of bacteriology.
Virchow published the "cell theory." He believed that a
diseased tissue was caused by a breakdown of order
within cells and not from an invasion of a foreign organism.
We know today that Virchow and Pasteur were both correct in
their theories on the causality of disease.
Virchow wrote the first book on venereal disease.
He had noted, that the link between diseases of
humans and animals and coined the term “zoonosis” to
indicate the infectious diseases links between animal and human
health. In addition to his groundbreaking work in cellular pathol-
yogy he created the "cellular proposition. Virchow’s
concept of "One Medicine," was not uniformly appreciated during his lifetime.
In 1849, Virchow served on a commission to inves-
tigate an epidemic of typhus, for which he wrote a
pronun-
cent report that criticized the social conditions that fostered
the spread of the disease. He had already established a
name in Germany's leading social reformer, and this report
consolidated that reputation. He has since been labeled as a
"social reformer" who was "the first" to be called "social medicine" as
his primary specialty of pathology.
Virchow was an outspoken advocate for public health.
His writings and teachings are full of observations and rec-
ommendations about ways to improve people’s health by
improving their economic and social conditions. He entered
politics in 1847, joining the German National
Assembly (1862–1863) while also directing the Pathological Institute in Berlin.
He helped to shape the healthcare reforms introduced in Ger-
day over the administration of Otto von Bismarck.
His prolific writings, while mainly on topics of pathology,
include many essays and addresses on social medicine and
public health.
Among Virchow’s many interests was helminthology.
He described the life cycle of the roundworm Trichinella
sporozites in mice and in zoonotic parasites. He was opposed
to the Bismarckian campaign to wipe out Trichinella in a
duel. Virchow, being enlisted as the culprit in the case,
chose 2 pork sausages a cooked sausage for himself and an
uncooked one, which with Trichinella, for Bismarck,
Bismarck, the Iron Chancellor, declined the proposition.
Virchow also contributed substantially to the "cell
theory of anthropology, paleontology, and archeology.
It should be noted that even men of great accomplishments,
like Virchow, are fallible. Virchow believed that the Neanderthal
man was a member of the modern species Homo sapiens,
whose deformations were造成的 riches in childhood and
either left in a life, with the "unknowable skull" due to
powerful blows to the head. Subsequent discoveries and
research showed that the Neanderthal are, indeed, ancient.

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Suggested Reading
1. Findlay RL. The living Virchow: Doctor, anatomist, antiphe-
2. Findlay RL. The Virchow controversy: Science, war, and
3. Williams R Clive. Rudolf Virchow: selected works about
acupuncture and alternative medicine. Science (Land-
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4. Lurie HD. Transient Diseases. In: and Miller, A. The Exposed
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