

Notes

on

Study of Biology

I do not believe that the educated
men of this country have in general
any just conception of the charac-
ter of biological study. Before
going to Europe in 1875, I had visited
~~almost~~ nearly all the American
colleges which are advanced in
their provisions for advanced
^{I did not meet a professor of Biology or}
education, - but ~~there~~ I saw
nothing to compare with the
laboratories or instruments for
physiological study to be seen
in London, Cambridge, Paris, Vienna,
Lipsie, Strassburg & Berlin; I
heard nothing to indicate that
in our ^{scientific} colleges or medical schools
there was any ~~just~~ adequate atten-
tion given to Biological study.

It is not strange therefore that the
word Biology conveys to the ordinary
mind a very ~~incomplete~~ vague
idea of what is taught, & an
~~utterly~~ ^{imperfect} ~~incorrect~~ notion of the
methods, the purposes, & the re-
sults of biological inquiry. To
one set of men, Biology suggests
Mesmerism, & Mind-Reading and
Clairvoyance; to another it
suggests a phase of theology
or philosophy hostile to religious
doctrines; to another it suggests
a comprehensive review of all
that is known of ~~living~~ ^{all} creatures
that live or have ~~been~~ lived; and
it covers too much, and too little,
& now the wrong idea, - & sometimes
the right conception.

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I have heard professors in medical
schools speak of biological
study as if it were something
to be added on to a medical
course as a post-graduate
study, like ^{embroidery} lessons on the lamp
~~and~~ in a fashionable seminary,
pleasant and perhaps moderately
useful accomplishments, but
by no means fundamental, &
I have heard a college president
declare with a satisfaction
which was heartily expressed by
the rubbing of his hands together,
"we don't believe in protoplasm."

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What then does the study of Biology
aim at? It aims at the discovery
of the laws of life as exhibited
in the lowest known organisms,
both animal & vegetable, and
in all the growth & change
& development to which
living beings are subjected. It
does not concern itself with
disease, or its treatment, except
incidentally. It reveals the normal
& regular aspects & movements
of ^{living beings} ~~nature~~. Their functions ~~of the~~
~~living beings~~ are found to depend
upon certain physical & chemical
agencies whose influences can often
be clearly traced. A good knowledge

is therefore required of physics
& chemistry before beginning the
study of Biology. Physics implies
mechanics & mathematics. It
is therefore obvious that there is
a natural sequence of study
if one would be a good physician,
he must ^{first} be a good physiologist,
if a good physiologist he must
first be a good physicist; if a
good physicist he must be ^{known} ~~a~~
^{something of mathematics} ~~mathematician~~. The study
of Biology is therefore complex
& difficult; but it leads to
that which is even more complex
& difficult the science of medicine
& the treatment of all abnormal
& deranged functions. Compared
with ~~the~~ ^{the} ~~medicine~~ ^{biology}, ~~biology~~ ^{over}

Compared with Medicine, Biology is simplicity; - Medicine

~~Medicine~~

Biology deals with Order; Medicine
with Disorder. So if Biology is difficult
how much more difficult is Medicine

When we hear Liebig saying that for want of a thorough physiological & chemical training, "otherwise sensible men defend the most nonsensical views"; & Huxley that at present "young men come to the medical schools without a conception of even the elements of physical science"; & lister that these men, ignorant of natural philosophy, "come to be teachers of physiology & they teach the most outrageous nonsense"; & Kerr Mitchell that "a doctor who has signalized himself by physiological & chemical studies has a double claim to respect

of ^{medicine} ~~med~~, or university teachers
who have experience in the train-
ing of youth for other callings
than that of the physician
should give the results of
their experience or observation,
for ~~there~~ there is as much of a
science of education as there is
of medicine. The ^{educational} principles under-
lying professional instruction
are the same, whether the profession
be medicine, theology or law,
or any one of the two professions
which modern society encourages,
so that a lay man, with all due
respect to the faculty may venture
to make suggestions.

Biology

Chamber

embraces all knowledge ~~of~~
regarding organised beings
as distinguished from the in-
organic world.

In a narrower sense it desig-
nates much the same as human
physiology

I would say that the usual basis of Latin Greek & Mathematics required for admission to college is a good basis, - for the average student it is the best basis; but it is not the only basis, nor the only good basis. There are many young men, destined to professional schools, who cannot take this course.

Quote Webster - Dana

It is considered a mistake to place the
biological course as an elementary
one instead of as a graduate or
post graduate.

Rev. J.

Sept 26. B. Med. & Surg. J.

B. A. not essential