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## Correlating Science

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There is a definite need to include some things in high school science classes and a need to leave some out.

The opinions expressed in this paper are those of the author. They should be accepted or rejected after consideration; he does not pose as an authority on curriculum. Justification for these opinions are wide experience in teaching various areas of science, including:

He has taught a year-old baby to stay away from a hot stove;

He has taught grade students that a 3" copper tube on a 25 horse power air conditioning unit must be clean and quite hot in order to silver solder;

He has taught a teen-ager that a 2-cycle gasoline engine on a lawn mower must run rich to lubricate and cool;

And has taught B-29 flight engineers that four 3000 horse power engines must run conservately lean to save fuel in order to complete an 18-hour mission and get home after covering over 3000 miles without refueling or

running out of gasoline. (Many early B-29's landed at sea because early engineers were from planes where economy of fuel was not important);

He has taught five different subjects in a high school with few students (biology, boys' industrial arts, girls' crafts and shop, driver training, and eighth grade arithmetic); and has taught 5 classes of biology and general science in a high school with 1200 students in sophomore, junior, and senior classes.

It seems to "miss the boat" to teach high school biology students the difference between an earthworm's crop and gizzard, and not teach of the earthworm's value as a cultivator, enricher, and perforator of the soil in agricultural areas. (If the student takes biology in college, he should learn technicalities there. If he doesn't go to college, biology should be generally practical, not technically detailed.)

To teach that there are 12,000 miles of blood vessels in the human body and not teach that an ailing heart can save 20,000 heart beats in 24 hours by complete rest, is not practical.

In high school we should teach all of the students all of the science that we can and not eliminate the average and below average in preference to the excellent student; and yet we should not limit the efforts, abilities and ambitions of the best we have.

Surely, general science is not the favorite subject of many science teachers and certainly it is not first choice for the student who knows that he wants chemistry or physics or geology—but in high school how many students do know specifically and beyond doubt what they want? And of those who think they want chemistry, how many just don't know of the vastness and intrigue of electronics or mechanics or geology. Yes, although general science is just a smattering of this and a sample of that—isn't it far better to spend a year of high school in thorough introduction to the various fields of science than to have second-year college engineering students changing fields because they failed to understand the difference between electrical and mechanical engineering fields as thoroughly as they should?

As Elbert Hubbard has said, "We are usually down on what we are not up on," let us not have our students quibbling over favorite fields of science; for instance, one student prefers physics while he brags about not knowing or needing chemistry or geology. Let us preach the interlacing and inter dependency of one field or area of science with another. And I say preach seriously because I think we know that one field is not greater or more important than another and yet we need to stop occasionally and convince ourselves and others.

Someone, in referring to some of our science teaching as "Smorgasbord Science," i. e., a dish of this and a serving of that, with dessert of something else, has frowned upon it and even condemned it, but let us remember that high school is not an end of education whether the student goes to college or not. After finishing high school he is not an engineer or an educated person; he has only been prepared to learn or enter an area of learning or service.

For the few in high school ready to specialize, we have adequate courses in the larger schools—but for the many not ready to specialize, too often we are impatient, insisting that they decide on a field of study instead of listening carefully and helping sympathetically, and even remembering back to when we were 15 and didn't care if science class met if we could play a ball game instead.

If we will bear these things in mind, we can do more for those who need help most.