Now, we cannot but think that in our seats of learning all over the continent, this study of the Indian languages and dialects has been shamefully neglected. The number of Indian scholars which they have produced, taken collectively, is wofully small. We have never heard of a Professor of the native languages or of any one of them. And yet, philologically, they possess a peculiar importance. They hold the key to the secret of the peopling of a great continent. They may point to Phœnicia, to Carthage, to Spain, or they may point across the Pacific on the other hand, to Japan or Cathay, or they may lead us by Behring's Straits—to the ancient home where kindred lips spoke cognate words centuries before Columbus. The diversity which exists among the Indian languages makes the study more interesting, and greatly enlarges the scope of its usefulness. Some of them, spoken three hundred years ago, are now spoken no more; but in such cases, much has been preserved in the writings of early travellers and missionaries to compensate for the loss.—*Montreal Gazette.*

## 2. PHONETIC SPELLING.

In a recent address before the American Philological Association in Hartford, on Tuesday, Prof. Francis A. March favored phonetic spelling. "It is no use," he said, "to try to characterize with fitting epithets and adequate terms of objurgation the monstrous spelling of the English language. The time lost by it is a large part of the whole school time of the mass of men, and with a large majority of those who are said to read, and who can read if you give them time, it is a fatal bar through life to that easy and intelligent reading which every voter, every human being ought to have at command. Count the hours which each man wastes in learning to read at school, the hours that he wastes through life from the hindrance to easy reading, the hours wasted at school in learning to spell, the hours spent through life in keeping up and perfecting this knowledge of spelling, in consulting dictionaries—a work that never ends—the hours that we spend in writing silent letters; and multiply this time by the number of persons who speak English, and we shall have a total of millions of years wasted by each generation. The cost of printing the silent letters of the English language is to be counted by millions of dollars for each generation. Who has not heard the groans of Germans or Frenchmen trying to learn how our words sound, or read the petitions of the Japanese?"

## 3. PHYSIOLOGY IN THE SCHOOLS.

[The author. in sending us this article has the following in a private note which we think it well to print herewith. "It is no wonder that the public press is continually complaining that our young men are crowding into the professions and clerkships, trying to make their living with their brains, while our manufactories and other industries suffer for the want of hands—good laborers. As the mental faculties are the only ones they have been taught to use, it is no wonder they shrink from manual employment when their physical powers never have been properly trained or developed, and when physical labor is a sort of 'motor nerve,' excruciating instead of a comparatively easy and pleasant muscular exertion."—ED.]

The assertion of Herbert Spencer, that reason by extinguishing other superstitions finally becomes itself the object of superstition; that in minds freed by its help from unwarrantable belief, it becomes that to which an unwarrantable amount of belief is given, seems to derive some force from the present phase of education in our country. Eloquence exhausts itself upon the glorious attributes of the human intellect. The mind in our present plan of education would seem to be the only part of the human being worthy of development, of culture, or of being understood. And all that is or can be said of the sublime attributes of the mind, is undoubtedly true, still it is not the part of a rational nature to contemn the casket which contains this great treasure even though this casket were in itself worthless. It would yet be of the highest value for the offices it performs; much more when it is itself a piece of rare workmanship curiously and wonderfully wrought.

Of the great importance of the offices it performs and the relations it bears to that divine attribute, the mind, any one must be convinced by reflecting for a moment upon the single fact, that a glass of liquor taken into the stomach is capable of throwing the mind into a chaos of disorder and darkness.

Though the spirit is the noblest part of man, still, its existence and continuance here on earth for God's own wise and good reasons, is only possible through the medium of the physical organism and in subjection to physical and material laws, the operation of which it is eminently fitting and proper that we should seek to know and understand as far as our finite powers will permit.

I conceive the proper object of our common schools to be, not merely the attainment of a certain degree of proficiency in "mental gymnastics," but the training and preparation of our children for their career in life as individuals in the pursuit of their true and substantial happiness; and as citizens and members of society, their duties toward each other and to the State.

Now, taking into consideration that the majority of our pupils must in life gain a livelihood by physical labor, would it not be well to teach them physiology as well as the science of grammer, or of quantity? Would it not be as important for them to acquire a knowledge of some of the principal facts relating to food and sleep, and physical exertion and rest, as to acquire a knowledge of the facts of physical geography or the processes of algebraic demonstration.

Is it more important to know the rules of speech or the laws of numbers than to know the laws of digestion, respiration, nervous and muscular action? laws to which we are directly subject every moment of our lives, the ignorance, neglect and violation of which is so plainly evident in the American physique, and which causes apprehensions for its future?

It would not be as much of a wonder, if physiology were made one of the regular and universal branches to be taught in our common schools, as it is that it is not. At any rate, it is a matter of wonder that a practical knowledge of even the principal facts of physiology should be so rare among our people. It would certainly be better to tell a class of pupils that a fit of sleeplessness is often caused by bathing, or severe and protracted mental or physical exertion after a hearty supper, as it arrests the digestion, and why it arrests it, and how indigestion acts on sleep, rather than to be taught in after life by the local paper that to cure a fit of sleeplessness we must run up and down stairs several times.

Physiology is surely of as much importancce to our common school pupils as any of the other empirical branches of study. Especially since the capacity and opportunities of so many of our pupils is limited, it is expedient that those branches of study should be selected which will be of the most direct use and benefit in after life.

This subject—the relative importance of the various branches taught in our common schools—is a matter for grave consideration, and a candid discussion of it would lead to a great improvement in our educational results.—*Laborer, in Pennsylvania School Journal.*

# II. Mathematical Department.

## EXAMINATION FOR FIRST CLASS CERTIFICATES, JULY, 1874.

*Solution of Questions in Algebra and Natural Philosophy.*

### ALGEBRA.

1 (*a*) Put $y = v\,x$. Substitute in the given equations; eliminate $x$, &c.

(*b*) The given equation may be treated as a quadratic, in which $\sqrt{(2x^2-3x-1)}$ is the unknown quantity. For, putting this expression equal to $y$, the equation becomes

$$y = 3y^2 - 2.$$

Hence $y$ may be found, and therefore $x$.

(*c*) Take the cube of both sides, and simplify. Then

$$(x^2-a^2)^{\frac{1}{3}} = -a^{\frac{2}{3}}$$
$$\therefore\ x^2-a^2 = -a^2$$

Therefore $x$ is equal to zero. [It may be useful for a student to substitute zero for $x$ in the given equation, and to consider whether this value of $x$ does, in point of fact, satisfy the equation.]

2. Apply the ordinary rule.

3. Suppose that, before the accident, the watch is gaining $x$ seconds in the hour. Then when it indicates 6 o'clock P.M., the true time is $\frac{6\times x3600}{3600+x}$. Similarly, the additional time taken before it indicates midnight is $\frac{6\times 3600}{3600-x}$. Therefore the number of hours which elapse from the time when the watch indicates noon till the time when it indicates midnight is $\frac{12\times 3600^2}{3600^2-x^2}$.

Therefore, by the question,

$$12\left\{\frac{3600^2}{3600-x^2}\right\} = 12 + \frac{12}{3600^2-1}.\quad\therefore\ x=1.$$

4. Eliminate $x$, from the given equations.

5. Let the roots be $p$ and $q$. Then

$$p+q = -m.$$
$$p^2+q^2 = m^2-8.$$
$$p^3+q^3 = 12m-m^3.$$