The Study of the Natural Sciences.

It is a strange, but undeniable fact, that the great majority of men walk on this rich and beautiful earth of ours, and live their more or less long lives, without making any considerable use of the wonderful and all but divine gifts with which Almighty God endowed them. Indeed, we may say of them,—in a physical sense—"they have eyes and see not; they have ears and hear not; they have understanding and do not comprehend." They seem to be—and are in fact—both deaf and blind with regard to the objects of nature. Although all the created things on, under, and above the earth were made for their use and improvement, yet they disregard the merciful dispensations of Divine Providence, and are content to live almost as so many blank forms whereon nothing is written, nothing is recorded, and which can receive no impression whatever. They are satisfied with the scantiest possible stock of information. Life, under a thousand forms, swarms all around them; who notices it? who is fully aware of the fact? Innumerable beauties appertaining to the inorganic world lie scattered, in the utmost profusion and diversity, in their daily path; who deigns to cast the most careless look at them? who takes the trouble of giving the most transient thought to them? All those objects are for them, (at least as far as they care about or know them) as if they were not. As to the telescopic worlds, and microscopic objects, they have not even the remotest idea of their existence, and still less, of course, do they know their nature and their uses. If they do not see the most obvious things, much less can they perceive what cannot be reached with the unassisted eye. Is there one in a thousand, for instance, who understands the most elementary truths regarding the approximate number, distances and dimensions, the motions, the laws of the heavenly bodies constituting the planetary system? Is there one in a thousand who is acquainted with the first and simplest notions of Geology, i.e., of the features and formation of the earth on which he lives? Is there one in a thousand who, in the course of a long life, takes the pains of gathering a stone for the purpose of ascertaining its form or its constituent parts? Is there one in a thousand who considers, with any degree of attention, the habits of the commonest insects? To most men, indeed, the earth is flat, and not round at all; it rests firmly and unmovingly on probably some mighty rock, which rock rests...well, on what? they have not thought yet!...As to its extent, it measures just what they see of it with the eye, from the top of a high mountain, that is, a radius of about fifty miles! Space is, of course, limited by the blue ceiling above, on which are stuck those little twinkling stars some of them fully as large as a nickel three-cent piece, and some no larger, sure, than a pin's head! The sun moves, of course, rises and sets every day; and should it fall upon the earth, it could no more be noticed by the bulk of men "and the rest of mankind," than a foot-ball would if let fall from the air! As to the moon, it may be a cheese or a slice more or less large (just as they may happen to look at it) of cheese, which forms, apparently at least, the only sustenance of the "man" who inhabits it! Beyond that blue vault there is nothing.... As to their blissful ignorance of systematic nomenclature, all hard minerals are "stones," all liquid minerals, "water," with regard to gas, they know no other than that which escapes from the mouth of a...
frothy speaker; all flowering plants are "flowers"; and all animals, from the caterpillar to the elephant, are "beasts." And here allow me, young gentlemen, to place the fact of the stupendous and almost universal ignorance of "Physical Geography" and cognate sciences before you in a more direct and tangible manner. What, I would ask you, what did you know of the earth and of the heavenly bodies before you first studied Geography, Geology and Astronomy? what of the Mineral Kingdom, before you studied Mineralogy? what of the Vegetable Kingdom, of the laws of physics, of the composition of substances and the changes which they undergo, before you pursued the studies of Botany, Chemistry and Physics? what of the laws of dependence which bind together the variable quantities, and are themselves subject to change; what of the changes in some variable quantity, altering continually the value of another quantity dependent upon it; what of the method of finding out, from the differential of an algebraic expression, the expression itself, before you knew anything about Calculus, of Variations, Differential and Integral Calculus? You must admit that your notions about those different branches of the sciences (in which you are, in some of them at least, no longer tyros, but proficient scholars) were, at no very remote period of time, very few, and these perhaps erroneous and therefore useless. Now, take away your intellectual culture, your natural, and more than ordinary talents, and the special studies you made in those matters under the direction, and with the aid of zealous masters, and you will have pretty accurately the actual state and mental culture of the $\frac{999}{1000}$ portion of mankind. We may truly say that those men act hardly more intelligently than a piece of mechanism,—a watch, for instance, which once set in motion will perform its part without knowing the why and the wherefore. Or better still, a brute which is incapable of intellectual improvement or of direct observation. Their minds seem afflicted with a chronic disease, with a fatal paralysis which effectually prevents them from further advancement in scientific investigation, or even from inquiring into the commonest acts or phenomena of nature. Hardly noticing effects when they do occur, how could they trace them to their causes? Constantly inattentive to effects, profoundly ignorant of causes, they grope in intellectual darkness a thousand times thicker and more dismal than the physical one which covered Egypt in the time of Moses. Their dull and in-
for fattening men and...the grunting race! A sensitive lady will call the odor of the pink "nice"; that of the skunk-cabbage, "horrid."

The hunter delights in capturing the beaver, for he knows the value of its fur, but absolutely abominates the approach of that peculiarly scented animal which naturalists call Mephitis chinga but which vulgar people mis-name skunk. The song of the nightingale is a "joy forever;" the buzz of the mosquito is an eternal nuisance. How often have I not had to answer the following very clever questions: "Anyhow, what are the bed-bugs good for? and the snakes? and that other animal? and this weed?" etc., etc. Well, all these, and possibly few more things, do people generally know, but beyond that, it is the region "marshy and swampy," where no light of intellectual fire ever penetrates,—a true lucus a non lucendo!

But where is the remedy? The close habit of observation and the power of comparing, behold young gentlemen, the two great masters in the study of nature; behold the great, the inexhaustible mines of ever renewed pleasure and delights, and also the source of invaluable and abundant information. Let nature no longer be a sealed-book, an arcanum for such large proportions of the rational creatures of God—the kings and lords of the inferior creations both animate and inanimate. Let us roam freely and frequently over the three great kingdoms of created beings: the Animal, the Vegetal and Mineral kingdoms, let us carefully study all the objects with which we daily meet, and, with firm determination without pride, perfect confidence, without rashness, let us ask of them the object of their existence and their uses, and let us study their habits. Let us try to rob them of their secrets, and turn them to man's advantage. Let us direct our investigations far and near. Such inquiries are not at all sacrilegious or impious; they are on the contrary, perfectly conformable to the designs of Divine Providence, and recommended in several places of Holy Writ. Never rest satisfied with a scanty knowledge. In the Natural sciences, as in Philosophy, little learning leads away from God; much knowledge draws near to God. In other words, much science makes man truly humble and religious; little learning renders him proud and impious. Nor should we disdain to stoop to the lowest forms of creation; for there is nothing mean or low in nature, and it is an incontestable truth that the most beautiful objects or beings frequently assume the smallest, and, apparently, the humblest forms. Those who would suppose that the most admirable and interesting objects in nature assume large and bulky shape, are quite mistaken. This error of theirs arises, no doubt, from either a deceptive view they take of form, or from the incomplete, and therefore unsatisfactory, apprehensions they have of the different parts constituting such beings. In a large animal, in a tall flower, in a big rock, they plainly and readily see all their various organs or constituent parts, their uses and the relations of those parts to each other in the same individual—whether animal, plant or rock. And the whole ensemble renders such a bulky individual very evidently wonderful and striking. But a small insect, a diminutive flower, a little stone (it may be a real gem) is to those mole-eyed men, quite uninteresting, because its structure is not so evident; its beauty may even be partly hidden, and therefore cannot, at least in the first or superficial inspection, be as pleasing to the eye that is not trained by culture and assisted by the intellect, as a huge mass where all the parts are apparent. Indeed, we may safely assert, supported as we are by the observations of acute physiologists, that the lower (i.e. smaller) beings in creation display, in general, more wonders, more beauties and even more perfections than the higher forms. Furthermore, we venture to say—what might seem a paradox—that nature is never more complete, never more wonderful than when she appears least so, that is to say in the smallest organized beings.

Death of Rev. Father Patrick Dillon.

It is with feelings of deep regret that we chronicle the death of a dear friend, Rev. Father Patrick Dillon, who died last Sunday the 15th inst., after a short illness of a few days duration.

The following were the resolutions adopted by the Faculty of Notre Dame on receipt of the sad news announcing the lamented death of Rev. Father Patrick Dillon. They contain the eulogy of the dear departed as well as the expression of regret of all those who knew him:

Resolved. That it is with profound sorrow that we have heard of the death of the Rev. Father Patrick Dillon, so long our beloved President, our generous, warm-hearted friend. In him the Church has lost an ardent, talented priest; his flock, a faithful, kindly guide; his relations, a good son and brother; and we, a friend, yes more
than a friend, a wise and tender father. What he was to others, what he would still have been, how much good he has done, how much he was yet prepared to do, all this we feel. We condole with those who mourn his untimely departure, and we sorrow with ourselves, in memory of all that he has been to us. Coming to Notre Dame as a young man of genius, animated with the most generous impulses, he rose rapidly in the estimation of his superiors, till, in a few years, he was promoted to the responsible position of President and superior.

Under his supervision, the institution advanced with rapid strides and the number of students was greatly increased. Promoted to the assistant-generalship of his own order, he resided in France for two years, from which country he had but lately returned, to take charge of Saint Patrick's church, in the city of Chicago.

In the prime of his manhood, scarcely entered on his new field of labor, while sowing the good seed which promised so well, he has suddenly been cut down before the harvest.

To us, it seems hard that he should die so young, with such an opportunity for doing good; but, in the eyes of God, no one dies too young who dies while doing his duty. For him there is no grief,—he has made a happy exchange of the perishable for the imperishable; we feel assured that his reward is very great in the bosom of his Lord, whom he served so well.

Often, at the festivals of Notre Dame, have we wished him a long life of happiness; that we can wish no more; but, instead, we can promise that his memory shall ever remain treasured in our hearts; and we can wish and pray, as we do, that his memory shall ever remain treasured in the estimation of his superiors, till, in a few years, he was promoted to the responsible position of President and superior.

The ninth regular meeting of this Association took place on Sunday evening, November 15th. Previous to transacting the appointed business of the evening, Masters A. Hemstegar, H. Lyons and Von Weller were in attendance to give an explanation of the Drama which is to be forthcoming early next month. Readers for the ensuing week were next appointed, and the meeting then adjourned.

The members of this Association take the present opportunity of expressing the respect and gratitude felt by them for Prof's Lyons and Von Weller, and especially to Rev. A. Lemonnier, and tender their sincere thanks to them for the interest they have taken in the proceedings of this Society.

M. Mahoney, Cor. Secretary.
of the gossiping disposition so deplorably universal, and so destructive to the peace of societies and families. Indeed a passion for light reading and a love for slander and detraction generally accompany each other.

Show me a lover of scientific works, and those published for the purpose of ennobling the mind and the heart, one who has a care for some reading above the current news of the day and the last new story, and I will show you one whose conscience will not permit him to be entertained by the tongue of the slanderer and the detractor. Show me a confirmed novel-reader, and I will show you one who avoids the society of the learned and the thoughtful, and who seeks that of the trifling and the vicious.

"We have, it is true, much pretty writing which has even won for the authors great celebrity, but which, if dissected, proves that if there was a purpose on the part of the writer, that it was not designed to strengthen the moral powers. Take one stanza of "Driftings," by a popular poet: The most confirmed Turk could not pen a more sensual passage.

"Over the rail my hand I trail, Within the shadow of the sail; A joy intense, the cooling sense, Glides down my drowsy indolence."

Indeed, the spirit of the whole pretty poem is unworthy of a man born in a Christian country.

To sum up the charge against popular literature, it inculcates the indulgence of sensuality, and deifies evil passions; hence selfishness, willfulness, disobedience and irreverence, with all the countless vices that follow in their train, are more prevalent than ever before.

It is the happy prerogative of youth to decide his own future, by forming his own habits. Happy those who have escaped the passion for light reading, for it is from the ranks of this class of vigorous-minded, whole-souled, whole-hearted young men, that we must look for the great men of the future.

An Eastern editor gracefully styles an opponent a "swill-headed chunk," and the other gives the retort courteous in "pandemoniac paste-pot cutthroat."

"His that will folle good advice iz a greater man than he that giveth it."

"It iz human tew err, but develish to brag on it.—Josh Billings.

THE SCHOLASTIC YEAR.

THE STUDY OF PHILOSOPHY AS AN ELEMENT IN EDUCATION.

By Fantilullo.

Part I.—Education in General.

No. III.—Physical Education.

The term physical, (from the Greek phusis or physsis—nature, essence, or that which constitutes any object what it is,) literally means natural, and hence, were we to attend only to the etymology of the terms, physical Education would mean natural Education, or the development of all that which constitutes man the being that he is. In this sense it would include the culture of the mind as well as that of the body, since the mind is an essential part of man's being. But by physical Education is commonly understood the development of the body and its powers, in contradistinction to that of the mind, or the mental and moral faculties in man. Thus understood the term physical refers exclusively to the body, or the material part of our nature. In this acceptance we propose to consider physical Education here, and, therefore, define it: The development of the faculties or powers of the body, with a view to giving strength, health and vigor to its organs and apparatuses, in the performance of their various functions. The better to understand the nature of this department of Education, its subordinate departments and individual branches, we will here state briefly, the chief constituent parts of the human body and the office of each.

The human structure is composed of fluids and solids. The object of the latter is to give firmness and strength to the frame, and that of the former is to give fulness and flexibility to the body, and also to furnish from the solid matter, which they hold in solution, the material which the solids are formed or kept in repair. The principal solids are the bones, muscles and tissues. The bones are the frame-work of the human structure, and give it solidity and power of resistance, retaining all the parts of the body in their proper place, and affording a firm surface for the attachment of the muscles. The muscles are the levers of the human frame, and by their qualities of contraction and relaxation impart strength and vigor to the motions of the body, and also serve to give symmetry to the form. As this portion of man's structure is so intimately connected with all his pleasures and employ-
ments, and exercises so great an influence upon his general health, too great care cannot be bestowed upon its proper development. But of this hereafter. The tissues are those solids which combine to form the different organs of the body, and are so arranged as to form instruments designed for action. The fluids receive various names, according to their nature and the office which they perform in the economy of life. They are the blood, the saliva the gastric juice, the bile, etc. Their office is to distribute nourishment to the various parts of the system; to serve as a medium for conveying the waste or decayed particles of matter out of the system, or to assist the functional operations of the different organs of which we are about to speak.

The organs, as we have said, are composed of tissues so arranged as to form instruments designed for action, and the action of an organ is called its function. The organs of the human body are divided into many classes, according to the nature of the functions which they are designed to perform. The principal are the Digestive, the Circulatory, the Secretory, the Respiratory, the Vocal, and the Organs of Sense. The office of the digestive organs is to prepare, by the aid of the saliva and the gastric juice, the food which we take, in such a manner as to fit it for the purpose for which it is designed; viz: the nourishment of the body. They separate the nutrient portions of the food from those that are useless in this respect, retaining the former to be converted, first into blood and subsequently into the solids of the body, and rejecting the latter to be conveyed out of the system. The nutriment extracted from the food by the action of the digestive organs is converted, in the final process of digestion, into blood, which contains the principal ingredients of which the human body is formed and by which it is kept in repair and its growth promoted. The office of the circulatory organs is to distribute the blood through all parts of the system however minute. The office of the secretory organs is to separate from the blood, as it passes through the system, those substances which are suitable for the nourishment of the various parts of the body. Respiration is the process by which air is taken into the lungs and expelled from them, and the organs by which this process is conducted are called the respiratory organs. Their office is three-fold. First, to supply the system with oxygen, which is essential to the generation of animal heat; secondly, to aid in the formation and purifying of the blood. This is effected by the oxygen of the air inhaled, which burns up the impurities of the crude blood; thirdly, to relieve the organs of the body, of the carbonic acid gas and hydrogen generated in the purifying process. The office of the vocal organs is to produce the different varieties of sound which are heard in speaking and singing. This they do by modifying the air in its egress from the lungs, thus producing the various intonations of what is called voice. We will not dwell here upon the vocal organs, as we intend to speak of them more at length in the second part of this series when we come to treat professedly of special Education. The office of the organs of sense is to receive the sensations produced by external objects acting upon the senses, and transmit them by means of nerves appropriate to each of the five senses, to the brain, which forms the common center of the nervous apparatus, where the mind takes cognizance of them through the perceptive faculties. This leads us to say a passing word about the nervous system. It may be called the telegraphic apparatus of the human organization; for, like the wires, which connect many different places, and serve as a medium by which news is transmitted from one to another with lightening rapidity, the nerves of the human body communicate with all its part and advertise the mind through the brain, of the condition of each part of the body, thus enabling us to determine when any part requires special attention. But as the healthy condition of the nervous system, as also, that of many other special arrangements of the human mechanism which we have omitted, depends upon the healthy action of the six classes of organs which we have noticed, especially the first four of them, and on the proper development of the bones and muscles; and as the limits which we have prescribed for these papers will not allow any lengthy enquiry into the entire anatomy of man, we will direct our remarks chiefly to these principal divisions of our physical structure, as they form the chief objects of physical Education, although we will see, incidentally, how important it is, in the pursuit of Education, that the nervous system should be in a sound and healthy condition.

From this general notion of the principal organs and apparatuses of the human body, we see, that physical Education may be divided into two departments, which we will call the precautionary and the disciplinary. The former relates especially to the care with which we should
guard against placing any obstacles to the free and natural action of the different organs, and is divided into several special branches, according to the nature of the obstacles to be avoided. Thus, an improper quantity or quality of food, the use of stimulants in undue quantities and at improper times, improper habits of life, by which the system or any of its functions is overtasked or excited to an undue degree of activity, etc., are among the obstacles to a natural performance of the bodily functions, and the object of the precautionary department of physical Education is to enable us to understand and avoid them. Our best guide in this part of our physical Education, is nature herself; for she always indicates what is right and wrong in these particulars, and if we attend to her admonitions we will be secure; if we do not we will surely suffer for our disobedience; for nature, though kind, is a stern avenger of her violated laws. The latter, or disciplinary department, relates especially to the active exercise necessary to give a healthy development and strength to the bones, muscles and those organs which are capable of being influenced beneficially by such exercise. This department also is divided into many individual branches, according to the nature of the part requiring special development; such as the discipline of the muscles generally, of the eye, of the fingers, of the vocal organs, etc. As the discipline of the muscles is not so generally understood as those subjects which belong to the precautionary department, and as this discipline is essential, not only to the strength but also to the general health of the body and its various organs, we feel justified in again going outside the strict limits of our plan, to point out those species of exercise which are best adapted for the development of the principal muscles, and the effect which such exercise has upon particular important organs and the system generally.

[TO BE CONTINUED.]

We are happy to announce the arrival at Notre Dame of Rev. Father Ferdinando Pietro Battista, S. S. C, who comes from Rome to take charge of the Classes of Dogmatic and Moral Theology at the Novitiate of St. Alysius.

We tender a cordial welcome to Father Pietro Battista.

A domesticated fox kept by a gentleman near Naples, on being left alone, seized on a baby lying in a cradle, and devoured it.

**Honorable Mention.**

**SECOND GREEK.**
Wm. Walker, Wm. McClain.

**THIRD GREEK.**
James McClain, M. Mahony.

**FOURTH GREEK.**
Translation:—J. Garrity, W. Waldo, J. Staley.
Theme:—W. Waldo, G. Atkinson, R. McCarty.

**FIFTH GREEK.**

**FIRST LATIN.**
W. McClain, James Cunnea, James O'Reilly.

**SECOND LATIN.**

**THIRD LATIN.**

**FOURTH LATIN.**
J. E. Garrity, Wm. Hoynes.

**FIFTH LATIN.**

**SIXTH LATIN.**

**SEVENTH LATIN.**
### Table of Honor, Sr.

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