child up to a moderate standard of excellence, there is necessarily a great deal of repetition and drill, which involves a terrible waste of time for the more intelligent children. These children are, however, the very ones who ought to go to college, and the result is that it is seldom for their interest to remain in the regular classes of a public school. There is another reason.

"Again, all the colleges require for admission a knowledge of Greek, which it takes a boy of average intelligence a full year's study to acquire. Now it is plainly not the interest of the great mass of boys and girls who go to the Free Greek schools, to study Greek all, and they do not study it. The teaching of Greek must, therefore, be maintained in a high-school at a con-
siderable expense for the benefit of only two, three, or four per cent. of the pupils. As a part of the time of the most expensive teacher in the school is thus lost to the many schools given to the very few, immediate and certain sacrifice school-committees are less and less willing to make for the sake of a remote and contingent good. The difficulty is of course less felt wherever, as in Boston, a separate high-school is provided for each sex; and it may be hoped that the day is not far distant when, with the spread of physiological and pedagogical information, the practice of providing separate high-schools for boys and for girls may, in the interests of both sexes, become universal.

It is of great importance, as Mr. Elliot very justly says, "that the way be kept wide open from the primary school to the professional school (i.e., to the college) for the poor as well as the rich," and he suggests that the desired connection between the secondary schools and the colleges might, in part, be secured by changes in the requisites for admission to college on the one hand, and in the system of the existing high-schools on the other.

"If the colleges would accept, at the option of the candidate, a year's work in French or German for the year's work in Greek which they now require, and the high-schools would make Latin a substantial part of their course, and if, in all pupils, the desired function of the two classes of institutions would be fulfilled, the sole interest of the high-schools is there much to be said in favor of such a change in their requisitions for admission, and in the interest of the high-schools there is much to be said in favor of making Latin an important part of their prescribed course of study."

This recommendation has, we believe, created a good deal of discussion in Cambridge among the friends of the college, who understand it to mean that Greek as a required study, either before admission or after admission, is to be thrown overboard, and who object to it that it is rather a proposal in the direction of lowering the standard of the college than of elevating that of the schools.

"The controversy which has long raged both in England and this country over the vivisection of animals by physiologists, and which, in this State, has recently threatened to produce prohibitory legislation, has led to the publication of an interesting little brochure on the subject by Dr. J. C. Dalton, Professor of Physiology in the New York College of Surgeons and Physicisms, setting forth the character, necessity, and results of experimentation on animals (P. W. Christien). As an illustration of the needfulness of some discussion of the subject as he offers, he quotes a writer on the other side in the Evening Post, who maintains that, even if vivisection is as useful as is claimed for it, its evil is the secret of vivisection; it has no right to the knowledge thus acquired," and demands legislation "to put a stop to these wicked contributions to human knowledge which mankind would be all the better off for never knowing." The gentleman who said this is evidently not a person to be argued with; but there is a large number of persons who, while holding liberal views as to the claims of science, labor under great misapprehension as to the character and utility of vivisection. Nobody who eats meat can well deny the lawfulness of making the lower animals subservient to the preservation of human life, and when we show the carnivorous, as Dr. Dalton does, that no more pain is inflicted in vivisection animals for scientific, than in killing them for gastronomic purposes, and that vivisection has made, and is making, contributions of great value to the medical art, we do not need to argue, as far as our friends are concerned, whether there be any attainable knowledge which man has no moral right to acquire.

"In the first place, all experimentation on living subjects is performed by physiologists after the use of ether. There are often cases in which the object to be achieved is to ascertain whether living Greeks can be used. In these cases the pain inflicted is slight and brief, for it does not need to be either sharp or prolonged in order to attain the operator's ends. It cannot be said, in fact, that scientific men ever torture animals, in any proper sense of the term. In the second place, the phenomena of life, which are the main objects of interest to the medical man, can only be observed in living animals, especially in that most important field, the relation of the nerve system to the vital functions. Some of Dr. Dalton's examples of the contributions which vivisection has made to medical science in this field are highly interesting. Through some of the experiments now going on, for instance, it seems probable that we are on the eve of the discovery of the cause, and therefore, perhaps, of the cure, of that terrible disease diabetes. Then the circulation of the blood was discovered in this way; so was the function of the lungs in saturating the blood; so the possibility and value in certain cases of artificial respiration; so the possibility and value of the pelvis of blood; and of many other facts. In the experiments, also, in which the nerves are stimulated to cause disease, through contact with the peristomium (a fibrous covering in which it is ensnared), was ascertained in the same manner. The proper mode of treating venoms, and the origin of parasitic diseases, are also among the contributions to human (and, let us add, also to brute) happiness made by dogs, mice, rabbits, pigeons, pigs, and other animals; and anybody who objects to experiments on them ought to be prepared manifestly to have himself and his family treated in cases of accidents or diseases, as if no vivisection had ever been performed. To protest and denounce a thing, while profiting by it, is not only illegal but base.

"Miss Putnam is not satisfied with Dr. Ruffner's report, and writes to us:"

"These are the distinct points at issue: "The School Report (1871) shows, from a very thorough and complete comparison, that the expenditures per scholar in the average grammar school in this county is $685.55. From the last data at my command, the sum expended for colored schools in the four years has been about $8,995, one-seventieth of the whole, when an equal suffering would have been seven sixteenths, or nearly one half. There are in the school about five hundred colored men who pay their taxation-taxes of one dollar each per year, and the representation, paid their tax, and send no school. There was 728 white school population in Wiscoo, who had expended for its benefit, in those three years, from the school fund, $1,776.49. The statistics in regard to Wiscoo are all from the 'Virginia School Reports,' and should be conclusive evidence. The information I explicitly call for, and respectfully ask Mr. Ruffner to obtain from official record, is the amount of money expended and to schools paid for colored schools in Northumberland County, since the introduction of public schools in the State. With this knowledge, and the statistics furnished by the annual State Reports, it can be easily determined how much of each school's fund has been expended for the specific fund for the colored children in this county, so far as the public money is concerned. I beg your readers will notice Mr. Ruffner to say the colored children have 'one-third of the benefits,' having one-third of the inhabitants enrolled in the schools in the State; and not that they have one-third of the school fund expended for their benefit! The School Report for 1874 gives 19 white schools and 6 colored schools in Northumberland County, showing unfairness, notwithstanding the 3 new schools in Wiscoo."

"It seems to us that Miss Putnam here makes up her charge by lumping together four years, during two of which the Virginia authorities admit that no provision was made for colored children. What they say is, that they are increasing their school accommodations, and that the law does not require it to be complete before 1876. The controversy, therefore, seems to us a barren one; but, barren or fruitful, it ends as far as we are concerned. We wish, however, that Dr. Ruffner would procure for Miss Putnam a slight of the County Treasurer's books, though we must decline publishing the result of her investigations.

"A correspondent asks for information on books relating to the development or evolution theory, especially for the book "which is not too partisan or too technical, but gives the facts and reasoning with reference to it on both sides." From a literature which has in the past fifteen years grown into an extensive department of bibliography, we ought to be able, if this were possible in any subjects of discussion, to select the book which best suits the case.\V:one should be careful, of course, not to take as one which surpasses in these qualities the foundation and first of the series, namely, Darwin's 'Origin of Species,' which, in especially the last edition, 1872, all the scientific objections that have been urged against the theory, as it is held by Darwinians, are more clearly put and fairly considered than in any treatise we could name. In no work on a subject of which the scientific evidence is essentially technical, is the fault of technicality less obtrusive; and in late editions this is still further remedied by a glossary of scientific terms. But before we can clearly characterize other
books on this subject, it is necessary to make a grand division of the
department into books that are strictly (like Darwin's), or predominantly,
scientific and intuitive; and those that treat their subject as a part, or as
the foundation even (like Mr. Spencer's series), of general speculative
philosophy, and in connection with theology and religion. Darwin's books have
been improperly characterized as speculative. This is true of them only in
the sense in which incompletely verified scientific hypotheses are called
speculative; in the sense in which we use the word 'suggestion' or 'vague
idea,' or very nearly, verified; or (by a fairer instance) Newton's optics,
which, in a main point, is not verified, but reversed. It is to the subjects
of Darwin's books, and not to his opinions or treatment, that the term
speculative is applicable, if at all; and so far as it is applicable as a re-
proach, it applies equally, or even more, to the opinions of his opponents.
His mode of treatment is strictly scientific, Newtonian, or 'positive';
nowhere dealing with disputed axioms, or with deductions from axioms laid
down as a priori valid and as if they were not disputed; nowhere consid-
ering scientific theses as either favorable or unfavorable to general philo-
osophical or religious conclusions, except, of course, where religious teaching,
in having prejudged these questions on other than scientific grounds,
is presumed to have exceeded the 'obiter dicta' its proper jurisdiction.
With the great majority, however, of writers on this subject the names of
Darwin and Spencer are closely associated; though to more than one
writer and many a scientific student of the subjects, no
two names are more widely separated by essential differences of method,
Mr. Spencer has lately put forward the claim that his method is justified by
Newton's precepts and practice. But, according to the judgment of
the more immediate followers of Newton, the leading physicists of to-day, this
claim is not substantiated.

—The dispute is, however, quite aside from the reality of the distinction
which, for bibliographical purposes, we here lay down. One of the requis-
itions of the modern system of the Academy of Science, is that no book
by any author of the properly speculative division. We venture to assert that in no department of specula-
tive philosophy, either expository or historical, do treatises exist which fairly
present the facts and arguments on both sides. This virtue is possible only within the limits which scientific, Newtonian or "positive" method imposes; and within his own proper department of national science every expert authority is a positivist, whether on other subjects he denies, or ignores, only the disputed axioms. The essential characteristics of
proper speculative as distinguished from scientific method is, that the
former seeks to expel doubt by the forcible force of the dilemma that un-
less one accepts as having universal validity certain axioms, which it is true
are only illustrated, not verified by inductive evidences, one is not entitled
to hold any beliefs at all with any certainty. Choice axioms are therefore
presented, illustrated, and a universology is deduced from them. True sci-
entific virtue, on the other hand, is to use all inferences, and to make
no fixed choice of the classic of these aggressive axioms, and to be
contented with the beliefs which are only the most probable,
or most authentic on strictly inductive grounds. Now in the proper scienti-
fic theory of "evolution"—unhappily so-called, as confounding it with a
different mode of treatment, when any of the successive preceding names,
"descent with modification," "derivation," "development," or "transmuta-
tion"—would on this score have been better, notwithstanding a temporary
dispute in the name—the scientific evidence is in great measure tech-
tical, and a considerable part of what has accumulated in the past
fifteen years is buried from the general reader in monographs of scientific
publications. Essays and discourses in exposition of Darwinism or natural
selection are far too numerous; the majority being better calculated to
make the author shudder than to illuminate what is best got from a care-
ful reading of his original treatise. Among brief and good essays we may
mention Mr. Grote's book on the "Origin of Species" and "Man's Place in Nature"; Mr. Wallace's collection of essays with the title of "Natural Selection" (though some of these are too speculative to come under the head of natural science); and Mr. Mivart's
'Genesis of Species,' which though learned in biological science, is in many parts too speculative or un-Newtonian to be mentioned under this head. We may add a little book called the 'Philosophy of Evolution,' by B. T. Lowrie, published in 1874; and Van Voorst, Mr. F. S. F. Huxley's "Man's Place in the Animal Kingdom," which, though dealing with subjects in a first-rate manner, and yet the least he feels to give an impression of first-rate power. He is, in a word, in thought and expression the least bit vulgar. He is fond of rhetoric, which is perfectly legitimate; but his taste has odd lapses. He writes literary history in the picturesque manner; but it is amusing to have a writer of his apparent sincerity reminding us of Mr. Hepworth Dixon. When Chatterton, in the
author's biography of the young poet, writes to Horace Walpole, we are
told to deal with subjects in a first-rate manner; and yet the last, he fails to
satisfy the effects of the warm air in his library of a March evening. Wal-
pole was completely taken in." Dryden made an attack on Elkanah Settle,
the bad poet. "Settle," says Professor Masson, "replied with some spirit.

PROFESSOR MASSON'S ESSAYS.*

We always read Professor Masson with interest, but never without a cer-
tain feeling of disappointment. He is clear, shrewd, and vigorous, and
his style (when it is not Mr. Carlyle's) is quite his own. He attempts to
deal with subjects in a first-rate manner; and yet in the least, he feels to
give an impression of first-rate power. He is, in a word, in thought and expression the least bit vulgar. He is fond of rhetoric, which is perfectly legitimate; but his taste has odd lapses. He writes literary history in the picturesque manner; but it is amusing to have a writer of his apparent sincerity reminding us of Mr. Hepworth Dixon. When Chatterton, in the
author's biography of the young poet, writes to Horace Walpole, we are
told to deal with subjects in a first-rate manner; and yet the last, he fails to
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pole was completely taken in." Dryden made an attack on Elkanah Settle,
the bad poet. "Settle," says Professor Masson, "replied with some spirit.

* These Davis: Luther's, Melton's, and Gough's. With Other Essays, By
David Masson, M.A., LL.D., etc. London and New York: Macmillan & Co. 1874, 2

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