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Another book of the same class, although by a single author, is 'Songs of Good Fighting,' by Eugene R. White (Lamson, Wolffe & Co.). Just as a Whitman literature already exists in the line of imitation, because it is so easy to follow a poet's whims and omit his inspiration, so this book may yet have a bibliographical interest through the rhetorical tricks it borrows from Kipling, as in the following (p. 41):

ON THE GREAT LAKES AND THE SEA.

AS SAID THE SEA:

Now, list to me, said the Cresting Sea, ye wastrel spawn of land,
Ere that ye claim, so confident, kin to the Master's hand;
For I am grey as Time is grey, for I am the Twin of Time.
I have seen the haze of the Elder Days, I have looked on the ancient rime,
I have battled with man, I have battled with cliff, I have battled with ships and dune,
At the Altar of Fate I pledged my hate that none may be immune.
Though I be grey with baffled deeds, yet red is the race I ran,
No rest I take my thirst to slake till the Earth be purged of man.

We catch another glimpse of Kipling in these verses from 'For the King, and Other Poems,' by Robert Cameron Rogers (Putnams) (p. 85):

THE STEERSMAN'S SONG.

The fore-shrouds bar the moonlit scud.
The port-rail laps the sea—
Aloft all taut, where the wind clouds skim,
Alow to the cutwater snug and trim,
And the man at the wheel sings low; sings he—
"Oh, sea-room and lee-room
And a gale to run afore,
From the Golden Gate to Sunda Strait,
But my heart lies snug ashore."

Her hull rolls high, her nose dips low,
The rollers flash alee—
Wallow and dip and the uptossed screw
Sends heart-beats quivering through and through—
And the man at the wheel sings low; sings he—
"Oh, sea-room and lee-room
And a gale to run afore—
Sou'east by South and a bone in her mouth,
But my heart lies snug ashore."

The book has, however, some good frontier poems, the best of which is "The Maverick" (p. 48)—this being, as is well known, the name given by frontiersmen to the stray, unbranded, unshod horses who make up the untamable "wild bunch" of the prairies.

The Kiplingese influence is to be found again in 'The Shadows of the Trees,' by Robert Burns Wilson (New York: R. H. Russell), and it is the more remarkable because the pervading tone of the book is that of the love of nature and of a gentle melancholy. The volume is, however, exceptional in merit because the illustrations adorn instead of impairing it, as is more usual. The Kipling strain occurs thus, for instance (p. 7):

A SONG OF NEW SEAS.

Give us new seas to sail—the cry is, give us new seas to sail!
New seas to sail, be they never so mad and we ship in the teeth of the gale;
For the old seas pull on our souls like death, their tides and their deeps we know,
The slope of the continents under the brine, and the black ooze beds below.

The currents that drift from pole to pole—what new hope can they bring?
And the breakers that beat on the thousand shores, what new song can they sing?
The thousand shores—the dreary stretch, what have they else to give
But the same dull death for those that die, and the same dull life to live!

The thousand shores—the gabbling millions, fronting the patient sun,
What will they do in their child's-play world but that they have always done?
These slaves of time with the farce of their flags, and their drivelling cant, accurst,
They will know no more when the last man lives than the first man knew at first.

A collection of more value than these is one called 'The Memory of Lincoln' (Boston: Small, Maynard & Co.), containing poems selected from a dozen different authors and skilfully edited, with an introduction, by M. A. De Wolf Howe. Another charming compilation—the best upon its own theme, indeed, that we have ever seen—is 'Mother-Song and Child-Song,' edited by Charlotte Brewster Jordan (Stokes). From "Philip My King" to "Little Orphant Annie," this includes the whole gamut of poetry for young children, and will be a messenger of delight to many households.

A History of Physics in its Elementary Branches. By Florian Cajori. Macmillan Co. 1899.

Prof. Cajori's 'History of Mathematics' has proved a useful book, notwithstanding the fault that was found with it for not being a kind of book it was never designed to be. Should a similar mistake be committed about the present work, however, it will be in a measure the author's own fault; for in a preface he quotes from the chemical leader William Ostwald some sentences which, in German verbose eloquence, express the idea that scientific teaching is not sufficiently historical, and thereupon hopes that this book may do something towards remedying that defect. This, being the main substance of the preface, seems to declare the purpose of the book. But what Ostwald wished to recommend, if anything more than the perusal of classical memoirs, was probably text-books on the plan of Mach's 'Die Mechanik in ihrer Entwickelung historisch-kritisch dargestellt' (a good translation is published by the Open Court Co.), which imparts a very clear notion of the fundamentals of the science in a quite admirable account of the historical evolution of its conceptions; adulterated, unfortunately, it is true, with some baseless metaphysics. Since 99 per cent. of those who study chemistry, as of those who study mechanics, pursue it simply with a view to making industrial applications of their skill, we have little doubt that, for their purposes, Ostwald is quite right in confessing that the unhistorical methods are "very successful," contrary to the contention that there is economy in the historical way of teaching. But, however that may be, in what manner Prof. Cajori can imagine that an anecdotal and "crisp" (we will not say newspapery) narrative of physical discovery can subserve the historical plan of inculcating profound ideas of physics, is not very clear.

All that can be expected in a volume which compresses the whole development of elatérics, thermotics, acoustics, optics, electricity, etc., into a hundred thousand words, is a sketch of the most exterior facts for those who come to it utterly ignorant, together with entertaining reminiscences and perhaps some stray, forgotten circumstances for those who have been over the ground before; and so much this volume certainly gives us. It is impossible to blame the author for not introducing us into the inner current of physical thought, except when he himself, by direct pretension to discuss the vexed question of the reason for the failure of ancient physics, renders it impossible not to notice this side of the work. All our studies of scientific methods during the last half century have gone to confirm Whewell's sagacious induction of 1837, that scientific discoveries cannot be made until appropriate ideas have first grown up. For example, the fact that Aristotle could assert that heavy bodies fall faster than light ones shows that his ideas were not in that state of preparation for the subject which would insure its occurring to him that, whether two bodies of equal weight falling side by side were welded together or not, could make no difference in their rate of falling, unless a strain upon the welding would necessarily be brought about; and so long as such ways of thinking would not be sure to occur to him, he was plainly incapable of devising any suitable experiments relating to the phenomenon, as well as of reasoning from them rightly had they been brought before his eyes. Very few have been the exact general propositions drawn from history, perhaps none before Whewell's date, so eminently instructive as this; for it shows us that science is not unmixed receptivity, but essentially involves a conceptual element that has to go through a period of growth and a process of ripening. There is a certain psychological naïveté, therefore, in Prof. Cajori's bringing forward in 1899 the objection (borrowed from the most anti-historical of all modern schools of philosophy) that Whewell does not explain why such quick-witted folks as the Greeks should have failed to catch appropriate concepts; as if concepts were things that bright minds could always pluck at will. Certainly, Whewell's law does not pretend to explain everything about its subject-matter. That is a character it shares with the theory of evolution through variations at birth, and indeed with all genuine scientific inductions. But it does render the sort of cavil noticed a mere *ignoratio elenchi*. It is true enough, as Prof. Cajori says, that the ancient Greeks were not good physicists because they did not care seriously for physics and had no turn for it. But the reason why they did not care for it and had no turn for it was that they had not yet grown up to it, nor developed the ideas appropriate to that study. In later times, they turned out extremely successful with such branches as by the growth of appropriate ideas they were prepared to study.

Prof. Cajori distributes his space justly both among the different branches of physics and among the different periods of history. The Greeks get 1-24 of his 300 pages, the Romans 1-150, the Arabs 1-75, the Middle Ages 1-37, the Renaissance 1-12, the seventeenth century 1-6, the eighteenth 1-8, and our own 5-9. The natural consequence is that the book gets better and better the further one reads. The very best chapter is the very last, on the evolution of physical laboratories. On the other hand, a person who could not off-hand furnish a more satisfactory account of Greek physics than is here to be found, could hardly be reckoned as ordinarily well informed on the subject. No doubt, Prof. Cajori could have done much better. But he has given such rough characterization as the space to which he restricted this period would permit, as long as it was assumed that the reader was pretty thoroughly unacquainted with the Greeks beforehand.

Whatever all the similar modern compendiums get right this book gets right, and where they are apt to slip, this book is pretty sure to come to grief along with them. Thus, Mach having raised some purely gratuitous objections to the statical reasoning of Archimedes, prompted thereto by his metaphysics, we find Cajori only willing to admit that Archimedes "endeavored to establish" the principle of the lever. Good logic and good sense go with Lagrange in the opinion that the demonstration is perfect, epochal, and superbly ingenious in the highest sense. At any rate, if Prof. Cajori would only attend to the meaning of the word "establish" in English and not of *festgestellt*, or *bestätigt*, or *begründen*, in German, we think he must admit that, whether the proof was indisputable or not, the principle was, as a matter of historical fact, *established* by Archimedes. In like manner, he meekly falls into the train of those German commentators who have blunderingly accused Galileo of fallacious reasoning in his refutation of the hypothesis that the velocity of a falling body is proportional to the space described from the state of rest. The most that ought to be admitted is that, in reproducing at eighty years of age his reasonings of sixty years before, he does not set them forth with quite sufficient fulness; but that the reasoning itself, once it is fully stated, is perfectly sound, is quite beyond dispute. He assumes, of course, that the time of the fall is not infinite, and on that basis asserts that, were the law as supposed, the time of falling the first four yards would be no longer than the time of falling the first two. His suppressed reasoning was no doubt something like this: Under the supposition, the time of falling the second half of the first four yards would equal the time of falling the second half of the first two yards, the time of falling the second quarter of the first four yards would equal the time of falling the second quarter of the first two yards; so with the second eighths, the second sixteenths, and so forth indefinitely. Hence, there is no fallacy in concluding that, if the total times are not infinite, they must be equal. The truth of this conclusion is an elementary corollary from an unquestioned formula (that the time is the space integral from zero of a constant divided by the space described from the state of rest); but this does not prevent congenital blunderers from flatly denying it. Prof. Cajori, by the way, tells us in a footnote where to find a German version of Galileo's 'Discorsi'; but an elegant and well-known translation into mere English is passed over in silence. Of nobody was it ever truer than of Galileo that the style is the man; and perhaps Prof. Cajori deems the German language and habits of composition fitter stuff for rendering the keen sixteenth-century Italian than English can be flied down to be.

It is for sundry reasons a good deal easier to write a satisfactory history of physics than a history of mathematics; and probably this will prove the most successful of all Prof. Cajori's histories. The chief difficulty of such an undertaking arises from the separateness of the several branches of physics, and the consequent danger of producing, not a history of physics in general, but a fagot of historiettes of its different branches under one binding. Towards the untying of this knot the present essay affords little clue. However it may be sweetened, a book like this is mainly a record of definite dry facts; and the principal question is, Is it accurate? Without undertaking to search out little flaws, we have found it to be in that respect all that could be expected.

Natalité et Démocratie. Par Arsène Dumont. Paris: Schleicher Frères. 1898.

This book illustrates in a striking way the methods which make so many French treatises at once instructive and futile. Nothing can exceed the industry of the author. He has been at infinite pains to study and classify the returns of marriages, deaths, and births, not only from France as a whole, but also from particular departments and even communes. He has supplemented these labors by personal observations on the condition of the inhabitants in selected regions, and his generalizations are, so far as the movements of population are concerned, correct and of much value. He demonstrates mathematically the existence and the strength of important tendencies, and shows what these tendencies signify for the French nation. He has thus laid a substantial foundation for a conclusive determination of the causes which prevent the increase of population in France, and for the means by which these causes can be counteracted. This superstructure, however, he is unable to erect, and he is thus obliged to confine himself to lamentations over the present deplorable conditions and to gloomy prognostications of the future.

Before considering his statistics, we shall briefly explain this failure of his to make any profitable use of them. Attention has been forcibly directed in this country of late to the distinction between the Government and the community. We have seen patriotism defined as enthusiastic support of whatever policy and whatever measures our rulers, or a majority of them, are pleased to adopt, without regard to their effect on the general welfare. We have seen criticism of this policy and these measures denounced as treason, and the critics accused of "un-Americanism." Happily, a very large number of our citizens have not been silenced by this clamor, and among them are included most of those qualified by experience, by learning, and by disinterested public service to form an intelligent opinion. They understand wherein true patriotism consists, and are not prevented by the outcry of ignorant and corrupt demagogues from proclaiming that it consists as often in opposing the policy of rulers as in supporting it.

In France, however, we must recognize the fact that this confusion of thought and emotion, this most pernicious of political fallacies, is almost universally prevalent. There are a few disciples of the school of Turgot left, a few descendants of the believers in the rights of man. But they are very few, and they are without influence. The welfare of the French people is assumed to be whatever the rulers of France declare it to be; and hardly any one sees, or dares to say if he sees, that the policy of the French Government is in many respects ruinous to the prosperity of the people. Hence that policy receives no intelligent criticism. The condition into which France has been brought is everywhere admitted to be alarming; but no one is able to suggest any practical reforms. Those who lift up their voices, indeed, point out that if human nature were other than it is, in such respects as it pleases their fancy to imagine, the present policy of France might be continued; but their brilliant generalities have no practical value.

M. Dumont, for example, tells his fellow-citizens that they are deficient in "solidarity"; if they only had solidarity enough they would beget large families of children in order that the vast colonial possessions of France might be peopled, the French army increased in numbers, the revenues of the Government enlarged by additional taxes. He entirely ignores the fact that the colonial acquisitions of France are a curse to the country, that it was folly to seize territories which there were no Frenchmen to colonize, and which can never be inhabited by people of the French race. He is blind to the plain truth that it is madness for France to crush her people with the burden of a vast standing army, which is a menace not only to her own tranquillity, but also to that of Europe. France has no enemies except those of her own creation. No other Power has anything to gain by attacking her, and were her army to be disbanded, the country would be safer from attack than it is now. To beget children that they may be exiled to the Sahara, to Tonkin, or to Madagascar, or slaughtered on European battle-fields in wars that can only increase the miseries of the French people, is not an impulse of "solidarity." Solidarity means, as M. Dumont explains, what we call public spirit; and it is no exhibition of public spirit to promote a national policy which will ruin the nation.

M. Dumont's researches prove that the decline in French "natality" is due to no physiological cause, but to voluntary abstention from procreation. There is no lack of marriages, but they produce few children. He indulges in many speculations concerning the motives for this abstention, but he neglects the most important. He does not see that Frenchmen are unwilling to bring children into the world when they know that their lot will be worse than that of their parents. They know that the French law of inheritance will tear the heritage to pieces, and confiscate a large part of it in the process. They know that their sons must receive the corrupting education of the barracks, and that the dowries of their daughters will be wasted by taxation. Many of them decline the responsibility of thrusting existence under such conditions on human beings, and most of them decide that they will have, in any event, but one or two children. As the policy of the French Government is resulting in a decrease of foreign commerce, and even the deposits in the savings banks are declining, we need not be surprised that the population is also diminishing.

It is true, as M. Dumont argues, that luxurious living is unfavorable to a high birth-rate. People who devote themselves to sensual gratification think the pleasures of paternity are not worth the prolonged trouble of the care of children. To a certain extent this tendency may affect a whole people. When its wealth is declining under the influence of misgovernment, its birth-rate may also decline. But to attribute a general decline to the increase of selfish indulgence—which is what M. Dumont understands by "individualism"—is preposterous. His own labored statistics refute him. He proves that in many communities where the very idea of "solidarity" is unknown, the birth-rate is high. Some of these cantons he describes as "plongés dans l'ignorance et la superstition"; one department is "absolument étrangère aux mœurs et aux idées françaises." There are many communities where poor people limit the number of their offspring; there are many where well-to-do people do not. There are none, however, where the size of families is shown to have any connection with "solidarity"; it may be doubted if a single Frenchman ever begot a child with the intention of increasing the population of the French colonies. The general result of M. Dumont's investigations is that civilization and progress