

profound significance for the academic life of the nation and of such great potentiality for intellectual interests—an institution founded purely and simply for the benefit of one of the learned professions, and unhampered by fund-eating buildings, or the clamor of students, or the demands of the public, or the contentions of rivals—might well serve as an exemplar by determining its measures in the larger spirit of academic welfare? In benighted Germany professors are actually summoned to councils of state; in enlightened America they are not granted a single representative on the council of an institution founded exclusively for their own interests. . . .

We have said more of the Carnegie Foundation and less of the value of pensions for the learned professions than was our intention. But the concrete ever engages the attention; and it is often the more urgent and useful measure to set right the faulty steering in the short tack of the moment on the skiff upon which we are embarked, than to chart the future course of the great ship of state that must eventually carry our ventures. Human highways, moreover, are not like the broad open sea; they get clogged with tradition, and littered with the débris of precedent, and the retracing of steps is often peculiarly troublesome. But the two phases of the theme are of one nature. It is an underlying distrust of the man of learning, the hesitant recognition of his value for the intellectual resources of the nation, that makes public interests dilatory in providing such honorable recognition as the pension stands for, and as well leads to weak and floundering consideration and operation of the measures adopted. Born of the same feeble confidence is the emphasis placed upon administrative restrictions and the exaltation of near-sighted business prudence. All this makes for an exaggerated intolerance of the minor disadvantages or even abuses inherent in every good movement, and for a tragic disregard of the great lost opportunities. We believe in higher education, in the value of the learned professions; we should like a goodly share of the great contributions to science

and invention, to art and literature, to noble thoughts and human endeavors, to emanate from Americans; but we are chary or stupid in providing the free and effective play of forces, the favoring environment which gives these blossoms their nurture. We see no reason why roses should not be grown like cabbages, and orchids like peas—and we want the roses thornless. We insist that the business methods that make the one crop flourish must be efficacious for the other. Foreign example is unconvincing, too heavily laden with conditions condemned by a triumphant democracy as out-of-date. And so our statesmanship in politics carries the flavor of the market-place and the outlook and insight of the “boss”; and the guidance of cultural interests, reflecting a kindred narrowness of perspective, fails or imperfectly succeeds by reason of the absence of just that superadded but indispensable touch of intellectual integrity and spiritual vision, that at that level divides the worthy from the unworthy results. Such is the law of the upper ranges of human quality and human standards. Defections wholly pardonable and not over-serious in their consequences for the ordinary interests of life, become fatal for the extraordinary ones. When we shall have learned this lesson and rendered to each of the learned classes the tribute that is its due, and shall entrust their interests to those imbued with the spirit thereof, we shall institute more liberal provisions for their welfare and administer more liberally those that favoring circumstances permit us to establish. Meanwhile the learned classes may accept the imposed or self-imposed burden of appreciatively though critically proclaiming the merit of good measures, while maintaining the struggle and the hope for the advent and survival of the best.—*The Dial*.

SCIENTIFIC BOOKS

Leonhardi Euleri, Opera Omnia. Sub auspiciis Societatis Scientiarum Naturalium Helveticae edenda curaverunt FERDINAND RUDIO, ADOLF KRAZER, PAUL STÄCKEL.

Series Prima, Opera Mathematica, Volumen Primum. Leipzig und Berlin, B. G. Teubner. 1911. Pp. xcv + 651.

Leonhard Euler (1707-1783) has been the most prolific mathematical writer of all past times. The great extent of his writings delayed the appearance of his complete works until the day when big scientific projects can be carried through by international cooperation. The mathematical world had never before witnessed such extensive international collaboration in a financial way, as when the means for publishing the forty-five large volumes of Euler's complete work were secured. While Euler's native country, Switzerland, did the most in proportion to her means, by contributing more than one hundred thousand francs towards the expense of this publication, many other countries, especially Germany, Russia and France, aided very liberally.

In our own country, the American Mathematical Society contributed five thousand francs and our libraries, doubtless, contributed much more in the form of subscriptions. The great academies of Paris, Berlin and St. Petersburg, of which Euler was a member, each subscribed for forty copies of the complete works, and thus aided the project not only financially, but still more by their great scientific influence. The last of these three academies contributed also five thousand francs in money. The total amount of subscriptions and money collected before the publication began amounted to over four hundred and fifty thousand francs.

The volume before us is in German, with the exception of a paper by J. L. Lagrange entitled, "Additions à l'analyse indéterminée," which appeared for the first time in the French translation of Euler's algebra in 1774. In addition to an extensive eulogy on Euler by Nikolaus Fuss, and a few introductory notes in reference to the publication of Euler's complete works, the present volume is devoted to a very elementary introduction to algebra under the title "Vollständige Anleitung zur Algebra mit den Zusätzen von Joseph Louis Lagrange, herausgegeben von Heinrich Weber."

This algebra was prepared for publication

after Euler had become totally blind. Euler desired to prepare a work which could be understood by every one and which would be complete in every particular. He dictated it to a servant who had been a tailor and knew nothing about mathematics beyond the calculations involved in elementary arithmetic. It is said that this tailor understood it completely, and, by the time the more difficult subjects were reached, he could work out the details with ease.

The work was soon translated into Russian and into French, and it exercised a greater influence on the development of algebra during the eighteenth century than other work. It was translated into English in 1797 and a very large number of editions in various languages have appeared. While the greater part of it is devoted to very elementary questions in algebra, it proceeds gradually to such matters as the general solution of the cubic and the biquadratic equations, and especially to indeterminate analysis. In the latter part it is proved that the sum of the cubes of two rational numbers can not be the cube of such a number. This is a special case of the noted Fermat's theorem, for the complete proof of which a prize of twenty-five thousand dollars is now offered through the Königl. Gessellschaft der Wissenschaften in Göttingen.

The complete works of Euler are to appear in three series. The first of these is devoted to pure mathematics and will probably consist of 18 volumes. The second series, composed of 16 volumes, is devoted to mechanics and astronomy; while the third series, composed of 11 volumes, is devoted to physics, works of various contents and letters. The different memoirs will be republished in the same language in which they first appeared.

G. A. MILLER

Applied Electrochemistry. By M. DE KAY THOMPSON, Ph.D., Assistant Professor of Electrochemistry in the Massachusetts Institute of Technology. New York, The Macmillan Company. 1911.

The subject of applied electrochemistry has now become so large and important that a