

MISCELLANEOUS.

A CLASSICAL WORK ON ELEMENTARY MATHEMATICS.¹

The instances in which mathematical inquirers of really first rank have written on the elements of the science are rare. Of formal text-books, we have from such men very few. One of the most notable exceptions was the German *Algebra* of Euler, which remained a standard elementary text-book to the present century, and has even yet lost none of its charms of simplicity and clearness. Later, during the French Revolution, lectures were delivered on elementary mathematics by the two greatest of the mathematicians then living, Laplace and Lagrange, and are to be found in the collected works of these authors. The present book is a translation of the lectures of Lagrange, delivered in the year 1795 at the *Ecole Normale*,—an institution which was the direct offspring of the French Revolution, and which gave the first impulse to modern, practical ideals of education.

The originality, elegance and symmetrical character of the lectures of Lagrange were pointed out by De Morgan, but have been especially lauded by E. Dühring, who places them in the front rank of elementary expositions. Coming as they do from one of the greatest mathematicians of modern times, and with all the excellences which such a source implies, unique in their character as a reading book in mathematics, and interwoven with historical and philosophical remarks of great value, they cannot fail to have a beneficial and stimulating influence. The book should find a wide circle of readers among students who have not had the advantages of a regular mathematical training, and especially by teachers who desire to introduce into their work something of the spirit and originality which marks the achievements of the great investigators.

The work is divided into five lectures, the first two of which treat of arithmetic, including continued fractions and logarithms, the theory of remainders, etc. The third lecture deals with the history of algebra and with the resolution of equations, particularly equations of the third and fourth degree; the expositions of this lecture cannot, for simplicity and insight, be equalled by any of the current text-books. The fourth lecture treats of the resolution of numerical equations, and is remarkable for the elegant development which it gives of the geometrical method of solving equations. This method is very rarely discussed in elementary text-books, but it is an educational and instructional help of the highest practical and

¹*Lectures on Elementary Mathematics.* By Joseph Louis Lagrange. Translated from the French by Thomas J. McCormack. With a photogravure portrait of the author. Pages, 172. Cloth, \$1.00. Chicago: The Open Court Pub. Co.

theoretical value. In the same connexion, constructions and instruments for solving equations are described. The fifth and last lecture treats of the employment of curves generally in the solution of problems. We have here a species of application of geometry and algebra, and a lucid presentation of the artifices for resolving in practice questions which offer great theoretical difficulties. The curve of errors, approximations, and interpolations, are discussed under this heading. The nature of the work renders it a species of supplement to the ordinary text-books, and those who desire to recommence their mathematical studies can accomplish their aim in no more pleasant and profitable manner than by acquaintance with this classical little book.

A fine photogravure portrait of Lagrange, reproduced from a steel engraving, constitutes the frontispiece; a biographical sketch of the author, an index, the marginal analyses of the text, have been added. (Chicago: The Open Court Publishing Co. \$1.00.)

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NAEGELI'S THEORY OF ORGANIC EVOLUTION.

Although Naegeli's theory of organic evolution has played a highly important part in the development of biological science, there exists in English, so far as we know, no translation of his works. Especially in America is the slight influence of Naegeli upon biological thought unexplainable, for his theories appeal much more strongly to American students than do those of Weismann. The translation therefore, of Naegeli's *Summary* of his own work, by Mr. V. A. Clark and Prof. F. A. Waugh, of the University of Vermont, which now appears in the Religion of Science Library,¹ will undoubtedly be well received. We have now in the Religion of Science Library abridgements of the works of Weismann, Eimer, and Naegeli from the pens of these authors themselves, from which an exact general view of three of the most prominent of modern biological hypotheses can be obtained.

The dominant and characteristic feature of Naegeli's mechanico-physiological theory is the conception of an automatic, perfecting principle (*autonome Vervollkommnung*): This, briefly stated, is as follows:

1. That the formative and creative part of the reproductive plasm, called the idioplasm, from its being divisible and from its being transferred from generation to generation, in higher as well as in lower organisms, has a continuous or immortal existence, comparable to the trunk of a trailing vine which creeps on its way through all time, the twigs and buds of which alone drop from the parent stem and perish. We may add that this conception in its generalised form has profound philosophical and moral implications. The potential and essential capacities of the race are preserved; the non-essential perish.

2. During this continuous and immortal movement of life, the idioplasm goes through a development of its own, just as an individual organism goes, during its individual life, through a determinate cycle of development, the result being a constantly increasing complexity of structure and differentiation of function.

3. The development in question is automatic, and results from internal *perfecting* forces or movements.

¹ *A Mechanico-Physiological Theory of Organic Evolution. Summary.* By Carl Naegeli. Chicago: The Open Court Pub. Co. Pp. 53. Price, paper, 15 cents.

4. As a consequence of this complexity, the entire organism itself becomes in time more and more differentiated, and so the progression of the idioplasm controls the phylogeny of the race, and marks out its course of evolution.

5. The organic world is not made up of branches of a single original idioplasm, but each race or group may have its own specific idioplasm, which may have taken its origin *independently* of the other idioplasms, *wherever the necessary conditions combined*. It will be apparent from this that Naegeli was virtually an advocate of spontaneous generation, or abiogenesis.

The automatic perfecting principle of Naegeli has been the mark of much animadversion; it has been criticised as mystical and reactionary; but as a hypothesis it is founded on considerations which have their analogies even in the so-called exact sciences. Be that as it may, the doctrines of Naegeli, on the whole, deserve careful consideration at the hands of all who are concerned with the history and advancement of biological thought.

μκρκ.

A CHINESE SCHOLAR ON THE ORIENTAL QUESTION.

To the Editor of The Open Court:

I thank you for sending me your translation of Lao-Tze's *Tao-Teh-King*. I have read the introductory portion with great interest and must heartily congratulate you upon the accuracy and lucidity of your rendering of a rather obscure work, even to Chinese scholars. In my opinion it is a marvel of literary assiduity and application on a par with Stanislas Julien's *Life of Hiueu Tsang*, and I am sure it will be as greatly appreciated by scholars. I see you have rendered the title into English as "Canon on Reason and Virtue." In the introduction I believe you have correctly defined the metaphysical significance of the word *Tao*. It is, as you said, Kant's "purely formal." I am, however, of opinion that so far as Lao-Tze was able to express his meaning, he intended to apply it to the word *Truth* as understood by modern philosophers more than to any other. The English word *Reason*, I am afraid, does not express all the definitions embraced in *Tao*. *Tao* is something *beyond* Reason or Rationality. It is the underlying fact of the whole cosmos, whether demonstrable to human knowledge or not. In common with the missionaries I see you would regard 眞 (*chen*) as equivalent to Truth. But from the construction of the character itself and its derivation from *muh*, "the eye" (see *Williams's Syllabic Dictionary*, p. 15) the Chinese regard it as akin to "demonstrable or ascertained fact." *Tao*, at least in the definition of the Sung philosophers, is something more absolute (see Meadow's *Chinese and their Rebellions*, pp. 353-356), hence its subsequent association with *li*, in order to, in my opinion, render it comprehensible by human methods. *Teh* would thereby be synonymous with *tao li*, and in terms of your own special advocacy of the "Religion of Truth" should mean "the manifestation of Truth in human conduct," i. e., "Virtue." I see you have made use of Drs. Williams's and Eitel's dictionaries, but a better standard would, I think, be Giles's *Chinese-English Dictionary* (1892), where you would find (p. 1066) *Tao* defined as "a road, a path, a way." Hence the road *par excellence*, the right way, the true path, the *Truth*, religion, etc. *Tao li* is right principle, doctrine, reason, argument. *Teh* is that which one does naturally, spontaneously, moral excellence, virtue. Dr. Giles is also author of a small monograph on *The Remains of Lao-Tze* (published also in *China Review*, Vol. XIV., pp

231-280), which in spite of its negative criticism of the genuineness of the *Tao-Teh-King* is still of great value as a translation.

The Cho State in which Lao-Tze was archivist was the representative of the suzerain power in China, although in Lao-Tze's time it had dwindled down to almost a nonentity. Still it had preserved many of the records of ancient times and was looked to by the surrounding states as the nominal source of their authority and power. Hence Confucius's reputed visit to Lao-Tze. Your estimate of the influence of Confucius is, I regret to see, somewhat unfair to the Great Sage of China. His reputation doubtless suffers in Western estimation when compared to the original genius of his rival. Still I do not think he should be made responsible for the degeneracy (if any) of the race which he so manfully and perseveringly attempted to reform and educate, and which, it must be admitted, that but for him would long before now have disappeared from the ken of history.

As regards myself, I beg that you will kindly note that I have now been appointed sub-editor and translator to a new Chinese daily paper, the *Thien Nan Shin Pao*, to which all future communications to myself should, please, be made. The journal is intended to awaken the literary classes of China to a true appreciation of their position in the struggle now going on between Oriental and Occidental civilisation, and appreciating and relying on the vitality of our own race, we have every confidence that they will enthusiastically respond and work their own deliverance. I have no doubt that Occidentals, like Lord Salisbury, believe that they are a *dying* race. In a recent issue of the local *Straits-Chinese Magazine* I have given in English my own opinion as to the probable outcome of the present struggle in view of China's past history, and as soon as the articles are completely issued I shall make bold to forward you a copy. Meanwhile I am sure you will generously give us your sympathetic support, and we shall be only too pleased to be privileged to translate and publish whatever views or advices you may wish to tender on the subject. The editors are a Chinese Provincial Graduate of Fukien, Mr. Khoo Seok Wan, and Dr. Lim Boon Keng, M. B. C. M. of Edinburgh, Chinese member of the Legislative Council of this colony.

SINGAPORE, June 6, 1898.

TAN TEK SOON.

NOTES AND BOOK REVIEWS.

The Anglo-Saxon alliance is not a diplomatic treaty; nor should it be. It is the recognition of a deep-seated sympathy between two powerful nations, kin in blood, the same in language, similar in institutions, and cherishing peaceful ideals of civilisation. It is not in opposition to other nations, but simply indicates that the United States and Great Britain have become conscious of a solidarity of interests and would regard a war that unfortunately might break out between them as a civil war, deplorable under all conditions. The Anglo-Saxon alliance finally tends toward the establishment of a parliament of the world.

The article in the present *Open Court* on "Chinese Fiction," by Dr. Candlin, is a unique contribution to literary criticism, and, we trust, will be cordially welcomed by our readers, to whom a favorable insight into the Chinese genius and character, not otherwise obtainable, will be afforded. Dr. Candlin, who is a Christian missionary, is now in Tong-shan, in the far North of China, which is at pres-