MISCELLANEOUS.

THE DARWIN AND LINCOLN CENTENNIAL.

The fact that Lincoln's birthday, February 12th, is also the anniversary of Darwin's birth, has come to receive almost universal recognition at the annual celebration of the national holiday, and in Europe of course the day is associated with the great Evolutionist rather than with the Liberator. This year, however, the date is of especial interest as it marks the centenary of the birth of both great men. It is only fitting that advantage should be taken of this opportunity to commemorate in some worthy and conspicuous manner the great services they have rendered mankind. Great preparations have long been making for the celebration of the Lincoln centennial. These are most prominent among the schools but not limited to them, since throughout Illinois and in the larger cities of many other states a period of from four days to a week is being set aside to do honor to the memory of the martyr hero. Darwin's centennial will be celebrated more quietly but very generally in scientific circles, the largest public demonstration taking place in Cambridge, England, about the middle of June. Efforts will be made to have scientific work in biological and evolutionary lines assume a commemorative aspect in some permanent way. The Open Court Publishing Company will issue an English translation of Hugo de Vries's Mutationstheorie, the first volume of which at least will appear by the time of the Cambridge celebration. Nothing could serve more fittingly as a memorial to the immortal scientist than this record of the continuation of his work as it has been carried on by the man who, more than any other naturalist, has succeeded in furthering the end towards which Darwin himself labored.

The portrait here reproduced represents Darwin in the prime of his life, at the time when he was writing his first works and before he became widely known. The original photograph was a gift from Darwin to Mr. Victor J. Carus, the young Leipsic zoologist who was then engaged in translating the English scientist's earlier works into German. We know of no other copy of this photograph now in existence outside of the circle of Darwin's immediate family, and we are sure that the portrait will be of unusual interest to the readers of *The Open Court* since it gives a somewhat unfamiliar phase of a famous personality.



DARWIN IN HIS PRIME.

MR. LEUBUSCHER'S STATEMENT CONCERNING DE MEDICI.*

To the Editor of The Open Court:

I thank you for your friendly letter of the 16th inst. The duplicate of your article on Dr. De Medici came in a later mail.

Every mathematician that sneers at Dr. De Medici as a good draftsman and arithmetician; that declines to unbend his gentlemanly dignity sufficiently to construct the diagrams required by the Doctor's exposition; that shuts his eyes with muscular force to the demonstration by which surds are transformed into solvents so as to make them aliquot divisors; every such mathematician, I say, as well as those that believe that because a problem has been found insoluble by all known methods after thousands of years, it must, perforce, be insoluble forever, that no new method can possibly be found with which to tackle the problem (for all the world as the Ptolemaic astronomers claimed before the advent of Copernicus),—all of such "cathologic" mathematicians will find in your article the verdict of common sense.

But you must admit that the verdict of common sense is often found by science to be just the inverse to the truth. Take the common sense verdict of the relations of the sun and earth. Ignorant of, and therefore ignoring, the possibility of the diurnial motion of the body on which they stand, persons of sturdy common sense declare that "the sun do move." Now, from what I know of Dr. De Medici's system I feel confident that you will awaken at no distant day to find that Dr. De Medici had made the discovery of the law for the conversion of surd unit-measures into solvents through such a change of their forms or their magnitudes that they are rendered available as aliquot divisors. It is hardly a fair statement therefore of the facts of the case to say "that he would dispense with incommensurability, thereby squaring the circle in a short cut."

I regret that you condemn the work without a personal examination of at least pages 17-26 of Part 2 of Section B in connection with the page proofs of Section C. Such examination should not take more than a couple of hours of your time. You will there perceive that what you denominate in your article, "arithmetic," is really "geometry translated and expressed in numbers"; that "geometry thus translated into numbers becomes the science of ratios"; and that "when a sufficient number of exact and finite ratios are obtained and tabulated, these tables and their measures of proportion, become economic instruments in computation which can be applied to conventional mensuration and to all branches of physics."

The admission of the mathematicians that have made a cursory examination of Dr. De Medici's text-books, that they contain "many thoughtful-suggestions," is fatal to the assumption that he could not possibly have discovered the much-to-be-desired and long-sought-for key to commensuration, inasmuch as the Doctor claims that all of these "thoughtful suggestions" are logically involved in that basic discovery, the discovery, in short, that "different geometric forms have fixed and constant unit-measures fitted to the form, and that all of these natural geometric units are translatable into exact and fitting numbers."

* This communication is in direct reply to the references to Dr. Charles de Medici in the editorial article "The Tragedy of a Lonely Thinker," which appeared in *The Open Court* of December 1908. It reached us too late to be added to Mr. Leubuscher's article in the same number, in compliance with his request.

Any one following out the Doctor's directions will find his exposition luminous, and his style a marvel of simplicity and directness. He claims that "the current method ignores distinction between geometry and mensuration, and thus produces confusion in the mind. The New Geometry distinctly marks the difference. It limits geometry to what is done by compass and ruler within the circle, and to such translation of lines, curves and planes into numbers as finitely express the geometric units and proportions of the sines, chords, arcs and angles of the circle."

In a former letter I stated that I regarded Mr. Russell's treatment of Dr. De Medici's system (See "Minos and Niemand Again," in The Open Court for November) as inadequate, inappropriate, and inconclusive. It will not be long

before you will come to see this yourself.

I would have written the first few pages of my own article somewhat differently had I known that you would omit from the caption all reference to the Doctor as mathematician, inventor, chemist, and all-round genius. For, with the bare name of the man for a caption, I fear that the reader will wonder, for some pages, what I am driving at. I will ask a last favor of you: publish the foregoing letter as a footnote to my article. It will give the general reader an idea of the definite mathematical claims of Dr. De Medici, which he cannot otherwise get from any of our articles-Mr. Russell's, yours, or mine, as they stand.

If there is time, please make one correction in your own article. I have not come into possession of the Doctor's books, etc., but I am willing to act for the widow in the matter, and she expressed a desire that I should so act.

A. L. LEUBUSCHER.

Brooklyn, N. Y.

BOOK REVIEWS AND NOTES.

GREEK MYTHS AND THEIR ART. By Charles E. Mann, M.S. New York:

Prang Educational Company, 1907. Pp. 155.

This rendering of the Greek myths is intended as a supplementary reader prepared for use in the fourth, fifth and sixth grades of our schools. The author, recently deceased, was one of the most successful and experienced educators of the Middle West,-successful in the most practical sense in uplifting and ennobling the character of the individual child no less than providing the instruction that tends to intellectual culture. It is true, as is stated in the preface, that no kind of reading matter is so universally popular among children as that pertaining to Greek myths. "The meaning does not go over their heads. They enter into them and freely challenge the right and the wrong of what is done, and they make ready application to present-day affairs of the principles involved in the myth. The beauty and delicacy shown by the myths delight them, and nothing can be offered that will furnish better training for the imagination,-a faculty quite as necessary to the business man as to the poet. The golden age of childhood seems peculiarly the time to gain something like an organized knowledge of this subject. If neglected then, no amount of after effort in the use of the classical dictionary or other reference books will quite make good the loss." And an incalculable loss it would be, for ever since Greece's own Golden Age these tales have been the subject of incident and illustration of the best in literature and art.

The real educator is a born story-teller, and Mr. Mann was peculiarly gifted in this respect so that the stories are easily comprehensible to fourth grade children, while they bear no fewer elements of interest for high school pupils. These legends are grouped in a logical order and contain all the essential narratives. Although modern scholars first came to a knowledge of Greek myths through Latin writers, Mr. Mann has wisely chosen to retain the Greek names in his text and only those, as the incongruity of the more prevalent method is clearly evident. The Glossary, however, (which is at the same time an index) gives the Latin equivalent in every case and also a cross-reference from the Latin name to the main entry under the Greek form. The most conspicuous feature of this collection, and the characteristic which gives it most distinctive value as compared to other works on the same subject, is the unusual and very excellent choice of the illustrations. Besides the very best of the classical statues, such as the Venus of Melos and Apollo of Belvidere, which no study of Greek mythology or art could possibly omit, the best painters of modern art are represented whenever they have treated these beautiful stories in the classical spirit, Titian, Rubens, Albano, Velasquez, Gerard, Poynter and Thorwaldsen, and nothing could be more unexpected in such a book, and yet more beautifully fitting than Burne-Jones's "Eros and Psyche." The reproductions are well made and each is accompanied by interpretive and biographical material. Teachers in the grades can not do better than to sit at the feet of this master of children's hearts and learn of him the spirit in which to make the gods of Olympus live again.

LA PELAGRA. Par le Dr. A. Marie with an introduction by Prof. C. Lombroso. Paris: Giard et Brière, 1908. Pp. 250. Price 4 fr.

A successful experiment in which a social poison is well on the road to extinction as in the case of pellagra, is of paramount sociological interest. It is characteristic of our age that humanity, becoming more conscious of its duties, is possessed of a growing faith in itself. Moreover, we are beginning to perceive dimly the possibility of liberating ourselves from degenerative factors in our social life by preventive measures which are scientific in method and positive in results. Difference of opinion with regard to state intervention or individual initiation will not prevent the inevitable course of evolution. Success in the struggle against factors of degeneration depends largely on the clear demonstration of their fatal consequences. Alcoholism, the opium habit, and many other social poisons still remain to be overcome, but the example of pellagra and the history of its curse as well as the triumphs of science towards its overthrow can be of remarkable assistance in the modern crusade against these plagues. This is the reason that Dr. Marie has undertaken to sum up the history of the ravages of decayed maize in Italy and the successful efforts which have been made to combat them. The sociological work of Lombroso is closely united with this crusade and the medical corps of Italy have devoted a century to the struggle.

PORTRAITS OF DARWIN

IN SOUVENIR FORM, BEAUTIFULLY PRINTED ON FINE EXTRA HEAVY PROOFING PAPER, 91/2 x 121/2 INCHES

TEN CENTS A COPY

Every student of Biology should possess a copy of this portrait as a souvenir of the Darwin Centenary Celebration. A great man's portrait is a constant reminder and object lesson to every student of his work.

A special price of \$5.00 per 100 to teachers of Biology for class distribution when ordered in lots of 100 or more.

These prices are introductory.

Copies of the portrait may be purchased at these rates until April 1st, after which the price will be raised to twenty-five cents each.

THE OPEN COURT PUBLISHING CO. 378 WABASH AVENUE, CHICAGO

The Evolution of a Great Literature

Natural History of the Jewish and Christian Scriptures. By Newton Mann. One vol., 5x8 inches, 381 pp., \$1.50 net postage 15 cents extra.

Extract from letter of Rev. T. K. Cheyne, D. D.

"I do not know you personally, but you must have transmitted your spirit to me in your book. I give it no epithets of a eulogistic character, because I am sure you need no praise of men. I trust that it may find 'fit audience.' We want such books. The field is large; the aspects under which the subject may be presented various. You have not encumbered your exposition with super-abundant detail. I think you have shown much skill."

"In style it is clear and intelligible. Its fundamental postulate that 'the Hebrew literature was an evolution and not a miracle,' will commend the book to modern layman."—The Outlook.

"One of the most powerful books on the true view of the origin of the Bible has just been published, and is entitled 'The Evolution of a Great Literature.' The author writes with a frankness that is refreshing in these days of compromise and repression of honest conviction. Some will not agree with all his conclusions, but all can admire his candor and the vigor and clearness of his style."—The Springfield Republican.

THE OPEN COURT PUBLISHING CO.

P. O. Drawer F.

378-388 Wabash Ave., CHICAGO, ILL.

Foundations of Mathematics

A CONTRIBUTION TO THE PHILOSOPHY OF GEOMETRY

By DR. PAUL CARUS

140 pp., Cloth, Gilt Top. Price, 75 cents net; (3s. 6d. net).

This work is an important contribution to the philosophy of mathematics. Dr. Carus is not a mathematician by profession, but a philosopher, and he is convinced that the problem in hand is a philosophical rather than a mathematical one; that it is the old quarrel (discussed by Kant) of empiricism with transcendentalism, and hence its treatment may well be philosophical. The first chapter reviews the history of non-Euclidean geometry which may justly be considered a search for the philosophy of mathematics. Here is given the history of the parallel theorem, of the so-called metageometry, followed by an account of the various systems in detail, and their exponents, -of Gauss, Riemann, Lobatchevsky, Bolyai, their precursors and successors, giving a special tribute to Professor Hermann Grassman of Stettin. Philosophical Basis of Mathematics" deals with the problems of thought involved in mathematical science, empiricism and transcendentalism, the a priori, universality, and the fundamental considerations of space. The question of dimensions is discussed in "Mathematics and Metageometry." This chapter is of especial interest because it contains a practical suggestion by which to represent concretely the relation of the fourth dimension to the third, that is to say, what our space would be like if it were four-dimensional. In his Epilogue Dr. Carus brings out the analogy between mathematics and religion, the ultimate and unchangeable form of being and God.

The Open Court Publishing Co.

P. O. Drawer F.

378-388 Wabash Ave., CHICAGO, ILL.

ONE HUNDRED AND SEVENTY-FIVE **DOLLARS**

Is what it would cost you to subscribe for the thirty or forty English quarterlies, monthly reviews and magazines, and literary and political weekly journals, which are drawn upon regularly for the weekly numbers of

Che Living Age

But THE LIVING AGE sifts all this material for you, and gives you unchanged and unabridged, week by week, in an attractive form, all that is best worth reading in this long list of periodicals: essays; literary, art and musical criticism; travel and descriptive articles; poetry, fiction, and, best of all, the freshest discussions of international affairs and world politics by the most brilliant writers in England.

The fact that THE LIVING AGE has been published for more than 64 years without missing an issue and that it has no com-

petitor in its field indicates that it does this service well.

THE LIVING AGE, containing 64 pages weekly, and presenting, in a year, as much material as two of the four-dollar magazines, will cost you only SIX DOLLARS A YEAR. Or, if you want to become acquainted with it before subscribing for a year, your name will be entered for a THREE MONTHS' TRIAL SUBSCRIP-TION (13 numbers) for ONE DOLLAR. Specimen copy free on request.

New subscribers for 1909 will receive free the remaining numbers of 1908 from the date on which their subscriptions reach the publishers.

E LIVING AGE COMPA

6 BEACON STREET

BOSTON, MASS.

Open Court Mathematical Series

ESSAYS ON THE THEORY OF NUMBERS. I. CONTINUITY AND IRRATIONAL NUMBERS. II. THE NATURE AND MEANING OF NUMBERS, by Richard Dedekind. Authorized translation by Wooster Woodruff Beman, Professor of Mathematics in the University of Michigan. 1901. Pp. 115. Cloth 75c net. (3s. 6d. net.)

ELEMENTARY ILLUSTRATIONS OF THE DIFFERENTIAL AND INTE-GRAL CALCULUS, by Augustus DeMorgan. New edition. 1899. Pp. viii., 144. Cloth \$1.00 net. (4s. 6d. net.)

ON THE STUDY AND DIFFICULTIES OF MATHEMATICS, by Augustus DeMorgan. Second reprint edition. 1902, Pp. viii., 288. Cloth \$1.25 net. (4s. 6d. net.)

A BRIEF HISTORY OF MATHEMATICS. An authorized translation of Dr. Karl Fink's Geschichte Der Elementar-Mathematik, by Wooster Woodruff Beman, Professor of Mathematics in the University of Michigan, and David Eugene Smith, Professor of Mathematics in Teachers' College, Columbia University. Second revised edition. 1903. Pp. xii., 343. Cloth \$1.50 net. (5s. 6d. net.)

THE FOUNDATIONS OF GEOMETRY, by David Hilbert, Ph. D., Professor of Mathematics, University of Göttingen. Authorized translation by Prof. E. J. Townsend, Ph. D., University of Illinois. 1902. Pp. vii., 143. Cloth \$1.00 net. (4s. 6d. net.)

LECTURES ON ELEMENTARY MATHEMATICS, by Joseph Louis Lagrange. From the French by Thomas J. McCormack. Second edition. 1901. Pp. 172. Cloth \$1.00 net. (4s. 6d. net.)

EUCLID'S PARALLEL POSTULATE: ITS NATURE, VALIDITY AND PLACE IN GEOMETRICAL SYSTEMS. Thesis presented to the Philosophical Faculty of Yale University for the Degree of Doctor of Philosophy, by John William Withers, Ph. D., Principal of the Yeatman High School, St. Louis, Mo. 1905. Pp. vii., 192. Cloth, net \$1.25. (4s. 6d. net.)

MATHEMATICAL ESSAYS AND RECREATIONS, by Hermann Schubert, Professor of Mathematics in the Johanneum, Hamburg, Germany. From the German, by Thomas J. McCormack. Second edition. 1903. 37 cuts. Pp. 149. Cloth 75c net. (3s. 6d. net.)

SPACE AND GEOMETRY IN THE LIGHT OF PHYSIOLOGICAL, PSY-CHOLOGICAL AND PHYSICAL INQUIRY, by Dr. Ernst Mach, Emeritus Professor in the University of Vienna. From the German by Thomas J. McCormack, Principal of the La Salle-Peru Township High School. 1906. Cloth, gilt top. Pages 143. Price, \$1.00 net. (5s. net.)

GEOMETRIC EXERCISES IN PAPER FOLDING, by T. Sundara Row. Edited and revised by Wooster Woodruff Beman, Professor of Mathematics in the University of Michigan, and David Eugene Smith, Professor of Mathematics in Teachers' College of Columbia University. With 87 illustrations. 1901. Pp. xiv., 148. Cloth \$1.00 net. (4s. 6d. net.)

A SCRAPBOOK OF ELEMENTARY MATHEMATICS, NOTES, RECREATIONS, ESSAYS, by William F. White, Ph. D., State Normal School, New Paltz, New York. Frontispiece and 70 diagrams and other illustrations. 12 mo. 248 pp., cloth binding, gilt top, price \$1.00 net. (5s net.)

THE OPEN COURT PUBLISHING CO.

378-388 Wabash Avenue

CHICAGO, ILL.

PORTRAITS OF EMINENT MATHEMATICIANS

Three portfolios edited by DAVID EUGENE SMITH, Ph. D., Professor of Mathematics in Teachers' College, Columbia University, New York City.

In response to a widespread demand from those interested in mathematics and the history of education, Professor Smith has edited three portfolios of the portraits of some of the most eminent of the world's contributors to the mathematical sciences. Accompanying each portrait is a brief biographical sketch, with occasional notes of interest concerning the artists represented. The pictures are of a size that allows for framing (IIXI4), it being the hope that a new interest in mathematics may be aroused through the decoration of class-rooms by the portraits of those who helped to create the science.

PORTFOLIO No. 1. Twelve great mathematicians down to 1700 A.D.: Thales, Pythagoras, Euclid, Archimedes, Leonardo of Pisa, Cardan, Vieta, Napier, Descartes, Fermat, Newton, Leibniz.

PORTFOLIO No. 2. The most eminent founders and promoters of the infinitesimal calculus: Cavallieri, Johann and Jakob Bernoulli, Pascal, L'Hopital, Barrow, Laplace, Lagrange, Euler Gauss, Monge and Niccolo Tartaglia.

PORTFOLIO No. 3. Eight portraits selected from the two former, portfolios especially adapted for high schools and academies, including portraits of

THALES—with whom began the study of scientific geometry;

PYTHAGORAS—who proved the proposition of the square on the hypotenuse; EUCLID—whose Elements of Geometry form the basis of all modern text books; ARCHIMEDES—whose treatment of the circle, cone, cylinder and sphere

influences our work to-day; DESCARTES—to whom we are indebted for the graphic algebra in our high

schools;
NEWTON—who generalized the binomial theorem and invented the calculusNAPIER—who invented logarithms and contributed to trigonometry;
PASCAL—who discovered the "Mystic Hexagram" at the age of sixteen.

PRICES

Portfolio 1 or 2 (12 portraits) on Japanese vellum, size 11x14, \$5.00; both for \$8.50.
Portfolio 1 or 2 (12 portraits) on American plate paper, size 11x14, \$3.00; both for \$5.00.
Portfolio 3 (8 portraits) on Japanese vellum, size 11x14, \$3.50; single portraits, 50 cents.
Portfolio 3 (8 portraits) on American plate paper, size 11x14, \$2.00; single portraits, 35 c.

"The issue of this fine collection is equally creditable to the expert knowledge and discriminating taste of the editor, Professor David Eugene Smith, and to the liberality and artistic resources of The Open Court Publishing Co."

—F. N. Cole, Editor American Mathematical Bulletin, New York.

"The selection is well made, the reproduction is handsomely executed, and the brief account which accompanies each portrait is of interest. Prof. Smith has rendered a valuable service to all who have interest in mathematics, by editing this collection. Wherever mathematics is taught, these portraits should adorn the walls."—William F. Osgood, Cambridge, Mass.

The Open Court Publishing Co.

P. O. Drawer F. 378-388 Wabash Avenue CHICAGO, ILL.

PLANT BREEDING

Comments on the Experiments of

NILSSON AND BURBANK

вv

Hugo De Vries, Professor of Botany in the University of Amsterdam

A scientific book in simple language. Intensely interesting as well as instructive. Of special value to every botanist, horticulturist and farmer.

Pp. XV + 360. Illustrated with 114 beautiful half tone plates from nature. Printed on fine paper, in large type. Cloth, gilt top. Price, \$1.50 net. Mailed, \$1.70.

Supplied by your dealer; or direct, on receipt of your order with the mailing price.

"Naturally I have perused the contents of your book, Plant Breeding, with intense interest. Therefore I first of all beg you to accept my heartfelt thanks for the exceedingly appreciative and sympathetic representation of the work of our institution here, and indeed of my own part therein. Next I must congratulate you most cordially upon the excellent service you have performed in this standard work. It is simply marvelous! The clear, concise presentation, the consistent, sustained treatment of the whole history of selection in agricultural plants according to your modern theory which now, at last, makes everything clear, the masterful disposition of the rich and manifold material—all unite to make this book decidedly the best which has been accomplished along this line up to now."

Extract from a letter to Professor De Vries by Dr. Hjalmar Nilsson of the Swedish Agricultural Experiment Station at Svalof.

THE OPEN COURT PUBLISHING CO., 378 Wabash Ave., Chicago

THE OPEN COURT

MONTHLY

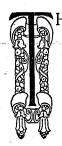
Yearly Subscription: \$1.00 Canada, \$1.25 U, P. U., \$1.35 THE MONIST

QUARTERLY

Yearly Subscription: \$2.00 Single Copies, 60c

U. P. U., \$2.25

Subscribers!



HE following reductions on longer term subscriptions for either "The Open Court" or "The Monist" are made as an inducement to you to become a permanent reader at the least expense and trouble for yourself and to save us the labor and expense of securing the renewals each year. Changes of address are welcome, as these periodicals are published solely in the interest of the reading public. It will be, therefore, no advantage for us to continue sending the same to an old address. Please notify us promptly of any change.

Subscribers to "The Open Court"

Who wish to remit for two or more years in advance to avoid sending a single dollar each year, will be allowed to deduct from the regular subscription price, when ordering, as follows: thus a

Remittance of \$1.75 pays for two years
2.55 pays for three years
3.20 pays for four years
3.75 pays for five years

This rate does not include postage to foreign countries in the U. P. U., which must be added at the rate of 35 cents per annum; nor to Canada, to which the postage is 25 cents per annum extra.

Subscribers to "The Monist"

Who wish to remit for two or more years in advance to avoid sending in two dollars each year, will be allowed to deduct from the regular subscription price, when ordering, as follows: thus a

Remittance of \$3.50 pays for two years
5.10 pays for three years
6.40 pays for four years
7.50 pays for five years

This rate does not include postage to foreign countries in the U. P. U., which must be added at the rate of 25 cents per annum.

The Open Court Publishing Co.

P. O. Drawer F.

378-388 Wabash Ave., CHICAGO, ILL.

SCRAPBOOK OF Elementary Mathematics

NOTES, RECREATIONS, ESSAYS

By WILLIAM F. WHITE, Ph. D., State Normal School, New Paltz, New York.

FRONTISPIECE AND bo DIAGRAMS AND OTHER ILLUSTRATIONS

12 mo. 248 pp, cloth binding, gilt top, price \$1.00 net. (5s. net.)

"IN THIS BOOK MATHEMATICS IS PRESENTED IN LITERARY FORM."

The following individual opinions are from letters written to the author and have reference to sections of the book as they appeared as magazine articles. Except where the plural is used, they referred only to the story "Alice in the Wonderland of Mathematics," the only article that had then appeared.

FROM THREE OF AMERICA'S FOREMOST MATHEMATICIANS

Gems

"These gems of yours from the Open Court, They delight me."

- George Bruce Halsted.

- David Eugene Smith.

Vital interest

"I read them and enjoyed doing so. I heartily congratulate you upon your success . . . I always take time to look into things that come from your pen. I know that I shall find something of vital interest in them.'

Knew where to stop

"I congratulate you most heartily. I do not see where it could be improved. You knew where to stop as well as where to begin."—James M. Taylor.

FROM OTHERS BEARING WELL-KNOWN NAMES

Charming essays

Dr. Ernst Mach, professor in the University of Vienna, recently called the greatest of living scientists, began his letter: " In einem Ihrer reizenden Aufsätze.'

Very ingenious

Prof. W. H. Crawshaw, author of The Making of English Literature: "Very ingenious and withal decidedly interesting."

Imagina= tion with technical studies

Prof. Albert Perry Brigham, author of A Text-book of Geology, Geographic Influences in American History, From Trail to Railway, etc.:
"'Alice in the Wonderland of Mathematics,'—a pretty illustration of the

value of joining the imagination with technical studies.

A facile pen

R. P. Williams, author of the books on chemistry and a departmental editor of School Science and Mathematics:

"You wield a facile pen . . . The Open Court reprints are very interesting and instructive."

More roses and fewer thistles

Washington Irving, nephew of "the first American man of letters": "In the study of mathematics, had I had such a guide as you, I am certain I should have found more roses and been stung by fewer thistles."

First math= ematics I ever enjoyed

Also one from a former college president, now a real estate dealer: "The first mathematics I have ever enjoyed, except figuring up interest money. It is splendid."

REVIEWS OF THE BOOK

the beauty of applied mathe= matics

A keen "The book is unique in its presentation of problems and theories and a num-insight into ber of short methods are explained. The book treats of arithmetic, algebra and geometry and the illustrations are for the most part drawn from the scientific, commercial and industrial activities of the day. Properly speaking it is not a text-book but a keen insight into the beauty of applied mathematics as a study." -The Colgate Madisonensis, Colgate University, Feb. 11, 1908.

amusing and breezy element

"Professor William F. White, Ph. D., of the mathematical department of the State Normal School at New Paltz, N. Y., has published, through the Open Court Publishing Company, a volume entitled A Scrapbook of Elementary Mathematics. The 'science of numbers' is usually regarded in the light of a dry and serious pursuit. But Mr. White infuses into it an amusing and breezy element which shows that even so prosaic a subject has its lighter side, and that, too, without sacrificing the mathematical rigor which necessarily pertains thereunto (\$1.)

-The Examiner, N. Y. Department of Literary Notes, March 12, 1908.

long=felt

"The book is interesting, valuable and suggestive. It is a book that really-fills a long-felt want. It is a book that should be in the library of every high school and on the desk of every teacher of mathematics." The Educator-Journal.

The following extracts from the table of contents will serve to indicate the nature and scope of the book:

The two systems of numeration of large

numbers. Multiplication at sight: a new trick with an old principle.

A few numerical curiosities.

Familiar tricks based on literal arithmetic.

Miscellaneous notes on number-

The theory of number. Fermat's last theorem.

Wilson's theorem.

Formulas for prime numbers.

A Chinese criterion for prime numbers. Are there more than one set of prime fac-

tors of a number?

Asymptotic laws.

Growth of the concept of number.

Some results of permutation problems. Tables.

Some long numbers.

How may a particular number arise?

Present trends in arithmetic.

Arithmetic in the Renaissance.

Do the axioms apply to equations?

Algebraic fallacies.

Visual representation of complex numbers. Illustrations of the law of signs in algebraic

multiplication.

Two negative conclusions reached in the

19th century.
The three parallel postulates illustrated.
Geometric puzzles—

Paradromic rings.

The three famous problems of antiquity. The instruments that are postulated.

Linkages and straight-line motion. Growth of the philosophy of the calculus.

The mathematical treatment of statistics.

Mathematical symbols. A few surprising facts in the history of mathematics.

Quotations on mathematics.

Bridges and isles, figure tracing, unicursal signatures, labyrinths.

Magic squares. The golden age of mathematics.

The movement to make mathematics teach-

ing more concrete.

The mathematical recitation as an exercise

in public speaking.

The nature of mathematical reasoning.

Alice in the Wonderland of Mathematics.

Bibliographic notes.

Bibliographic Index.

Copious general Index.

THE OPEN COURT PUBLISHING COMPANY

378-388 Wabash Avenue, Chicago

г	٠.	
	Int	•~

THE OPEN COURT PUBLISHING COMPANY

378-388 Wabash Avenue, Chicago, U. S. A.

Gentlemen: - Please send me a copy of the "SCRAPBOOK OF ELEMENTARY MATHEMATICS," for which I enclose \$1.00.

The Journal of Philosophy Psychology and Scientific Methods

There is no similar journal in the field of scientific philosophy. It is identified with no philosophical tradition and stands preeminently for the correlation of philosophy with the problems and experience of the present. The contents of recent numbers include:

•	Energy and Reality	Тони	E. Boodin
	Truth Value	A.	W. Moore
	Positivism in Italy	GUGLIELMO	SALVADORI
	Subattentive Consciousness and	Suggestion	
	Subattentive Consciousmess	HENRY RUTGERS	MARSHALL

Friedrich Paulsen.....FRANK THILLY The Chicago "Idea" and Idealism

EVANDER BRADLEY McGILVARY Infinity and the Generalization of the Concept of Number HAROLD CHAPMAN BROWN

The Evolution of Pragmatism.....A. C. Armstrong The Doctrine of Attitudes......CHARLES H. JUDD Hébert's "Le pragmatisme et ses diverses formes anglo-américaines"..... WILLIAM JAMES

\$3.00 PER ANNUM, 26 NUMBERS 15 CENTS PER COPY

Published on alternate Thursdays Sub-Station 84, New York City

THE PAPYRUS

Edited by MICHAEL MONAHAN

A Magazine for the Magazine - Weary

London Academy.—In fact, Mr. Monahan is the Papyrus.

Richard Le Gallienne.—I admire your literary articles immensily. They have a real touch, and are full of life and brilliancy.

James Huncker.—I envy you your magazine—it is a pulpit which you possess entirely and fill admirably. O delectable preacher!

Bliss Perry.—Just a line to say I think the latest PAPYRUS uncommonly good stuff. Good luck

Wm. Marion Reedy. (in St. Louis Mirror.)—Michael Monahan, of the Papyrus, writes the choicest, best flavored classical English I know of in contemporary American letters.

Chiongo News.—The Papyrus holds a unique place among the magazines and is always stimulating and interesting.

Leonard D. Abbott (Associate Editor Current Literature.)—I have read the PAPYRUS from the first number and have always read it eagerly. Putnam's Monthly.—There is sun, wind and rain in Michael Monahan's whimsical fancies.

'Troy, (N. Y.) Times.—One of the most unique and spontaneous figures in contemporary literature.

Kansas City Star. - Inimitable Michael Monahan, master of terse and vigorous English, flayer of shams and conventionalities.

Frederick W. White (in Denver Post) The new PAPYRUS is brighter and better than any similar magazine I know.

Subscription One Dollar a Year THE PAPYRUS

EAST ORANGE,
NEW JERSEY

RELIGIONS ANCIENT AND MODERN

The Series is intended to present to a large public the salient features of the GREAT RELIGIONS of the Human Race. The Volumes already published have met with the most gratifying appreciation.

Fcap. 8 vo. Cloth, 40 cents net per volume.

NOW PUBLISHED

Animism.

By EDWARD CLODD

Pantheism.

By Tames Allanson Picton

Celtic Religion.

By Prof. Anwyl

Mythology of Ancient

Britain and Ireland.

By Chas. Souire

Ancient Egypt.

By Prof. W. M. Flinders Petrie

Scandanivan Religion.

By W. A. CRAIGIE

Magic and Fetishism.

By DR. A. C. HADDON

Hinduism.

By Dr. L. D. BARNETT

Ancient China.

By Prof. GILES

Ancient Greece.

By Jane Harrison

Babylonia and Assyria.

By Theophilus G. Pinches

Islam.

By Syed Ameer Ali, M. A.

Religion of Ancient Rome.

By CYRIL BAILEY, M. A.

Judaism.

By ISRAEL ABRAHAMS

Shinto: The Ancient

Religion of Japan.

By W. G. ASTON, C. M. G., LL. D.

The Religion of Ancient

Mexico and Peru.

By Lewis Spence

Buddhism.

By Prof. T. W. Rhys Davids, LL.D.

IN PREPARATION

The Religion of Ancient Israel. By Prof. Jastrow.

Islam in India. By T. W. Arnold, Assistant Librarian at the India Office. Author of "The Preaching of Islam."

The Religion of Ancient Persia. By Dr. A. V. Williams Jackson, Professor of Iranian, at Columbia University.

Primitive or Nicene Christianity. By John Sutherland Black, Ll. d., Joint Editor of the "Encyclopædia Biblica."

Mediaeval Christianity.

The Psychology of Religion. By Dr. Leuba.

THE OPEN COURT PUBLISHING CO.

378-388 WABASH AVENUE

:: :: CHICAGO

The Philosophical Review

A BI-MONTHLY JOURNAL DEVOTED TO THE PHILOSOPHICAL SCIENCES: LOGIC, PSYCHOLOGY, ETHICS, METAPHYSICS, AESTHATICS, AND THE PHILOSOPHY OF RELIGION.

Volume XVIII, No. 1 (January, 1909,) contains:

I. ORIGINAL ARTICLES.

Change and the Changeless, - - Professor H. A. OVERSTREET
The Interpretation of the Apology, Professor THEODORE DE LAGUNA
Some Notes on the Evolution of Religion, Dr. IRVING KING
The Third International Congress of Philosophy,
Professor A. C. ARMSTRONG

II. REVIEWS OF BOOKS.

James Adam, The Religious Teachers of Greece, by Professor Paul Shorey. H. Driesch, The Science and Philosophy of the Organism, by Professor E. G. Spaulding. O. Ewald Kant's Kritischer Idealismus als Grundlage von Erkenntnis Theorie und Ethik, by Professor B. H. Bode. E. H. Bax, The Roots of Reality, by Professor A. O. Lovejoy.

- III. NOTICES OF NEW BOOKS.
- IV. SUMMARIES OF ARTICLES.
- v. NOTES.

Edward Caird, by Professor John Watson. Attention, by Professor W. B. Pillsbury and Chas. H. Judd. Current philosophical periodicals, etc.

Longmans, Green, and Co.

LANCASTER, PA.

91 and 93 Fifth Avenue, New York LONDON, BOMBAY, AND CALCUTTA

SINGLE NUMBERS 60C (3S. NET) PER ANNUM \$3.00 (14s.)

EACH NUMBER CONTAINING 200-220 PAGES. PUBLISHED QUARTERLY. PRICE PER PART, \$1.80 NET. ANNUAL SUBSCRIPTION, \$5.00 NET.

RIVISTA DI SCIENZA

International Review of Scientific Synthesis

The objects of the periodical are to deal with general questions relating to the sciences and their mutual relations and to co-ordinate the work done in the different fields of science and facilitate its synthesis.

The REVIEW publishes the articles in the language of their authors; but commencing with the coming year, 1909, the text of the Italian, English, and German articles will be accompanied by a supplement with the translation in French. Therefore the REVIEW will be completely accessible to all who in addition to their own language are acquainted with French only.

WRITE FOR SPECIMEN COPY AND PROSPECTUS.

WILLIAMS & NORGATE 14, Henrietta St., Covent Garden, London, England, W. C.

Evolutionary Edition of the New Testament

Translated by an evolutionist, with evolutionary notes by the best liberal scholars.

PART 1 NOW READY, 25 CENTS.

Address COMMON-SENSE BIBLE TEACHER, St. Paul, Minn.

O REVIVE BUDDHISM in India, to disseminate Pali Buddhist Literature, to publish scientific tracts in the Indian Vernaculars, to educate the illiterate millions of Indian people in scientific industrialism, to maintain teachers at Buddha-Gaya, Benares, Kusinara, Savatthi, Madras, Calcutta &c., to build Schools at these places, to send Buddhist Missionaries abroad, the Maha-Bodhi Society asks every good Buddhist to contribute his mite to the Maha-Bodhi Fund.

Donations may be sent to the Hong-Kong and Shanghai Bank, Calcutta, or Colombo, in favor of the General Secretary, Maha-Bodhi Society, or the Treasurer, 29, Baniapooker Road, Calcutta, India. Correspondence invited from American sympathizers of Buddhism.

THE ANAGÁRIKA, DHARMAPÁLA, Gen'l Secretary.

READERS ARE INVITED to send for the new illustrated catalogue of "The Work of The Open Court Publishing Company." A Dictionary Catalogue with biographical sketches, including accurate descriptions of the books published: Mathematics, Philosophy, Psychology, The History of Religions, Biology, etc., etc. An Index of Titles, Classified by Subjects; An Index of Names, Titles and Illustrations; also a list of Important Articles by Eminent Scholars. There are 50 full page half-tone illustrations and outline drawings, including many portraits of famous men. Free on request. Bound edition postpaid 25c. P. O. DRAWER F.

378 WABASH AVE., CHICAGO.

RECENT PUBLICATIONS

Religions Ancient and Modern.

Fcap. 8vo. Cloth, 40 cent net per volume. (See pages 186-187)
Recent Additions to this Valuable Collection.

The Religion of Ancient Mexico and Peru. By Lewis Spence.

Buddhism. By Professor T. W. Rhys Davids, LL. D.

Christianity of Today Series.

- God—An Inquiry Into the Nature of Man's Highest Ideal, and a Solution of the Problem from the Standpoint of Science. By Paul Carus. 239 pp. Boards. Price, \$1.00 net. (4s. 6d. net.)
- **Jesus and Modern Religion.** By Edwin A. Rumball. 160 pp. Boards. 75 cents net. (3s. 6d. net.)
- What We Know About Jesus. By Charles F. Dole, D. B. 89 pp. Boards. 75 cents net. (3s. 6d. net.)
- Paralipomena. Remains of Gospels and Sayings of Christ. By Bernhard Pick, Ph. D., D. D. 158 pp. Boards. 75 cents net. (3s. 6d. net.)
- Life and Ministry of Jesus. According to the Historical Method. Being a Course of Lectures by Rudolph Otto, lic. th. Translated from the third unaltered edition by H. J. Whitby. D. D. 85 pp. Boards. 50 cents net. (2s. 6d. net.)

IN PREPARATION

- The Foundations of Mathematics. By Dr. Paul Carus. 140 pages. Cloth. Gilt top. 75 cents net (3s. 6d net.)
- Spinoza's Short Treatise on God, Man and Human Welfare.

 Translated from the Dutch by Lydia Gillingham Robinson. 125 pages.
- The Bride of Christ. A study in Christian Legend Lore, by Dr. Paul Carus. 80 illustrations. Circa 110 pages. 75 cents net. (3s. 6d. net.)

The Open Court Publishing Co.

P. O. Drawer F. 378-388 Wabash Ave., CHICAGO, ILL.

RECENT PUBLICATIONS

The Scope and Content of the Science of Anthropology, by Juul Dieserud, A. M. 200 pp. Cloth. Gilt top. \$2.00 net. (8s. 6d. net.) (Supplied also in sheets, \$1.50.)

"The book is a handy manual of the present state of advancement of a growing science, and as an introductory study is to be highly recommended to both the student and the general reader."

Boston Evening Transcript.

Bel, The Christ of Ancient Times, by Dr. Hugo Radau. 60 pp. 75 cents net. (3s. 6d. net.)

> "It is a decided help that publishers should be found willing and able to place these facts before the general public."

Prof. James A. Craig, Ann Arbor, Mich.

The Philosopher's Martyrdom, "A Satire," by Paul Carus. Illustrated. Boards with cloth back. Price, \$1.00 net. (4s. 6d. net).

"The volume is daintily bound, and any amateur philosopher, or even the habitual novel reader, will find pleasure and profit in spending the hour necessary to read the story."

The Chicago Evening Post.

- Psychology of the Nervous System. Paul Carus. An extract from his larger work "The Soul of Man." Price, 30c. (1s. 6d.)
- Outlines of Mahayana Buddhism. Daisetz Teitaro Suzuki. 420 pp. \$2.50 net.*
- The Messianic Hope of the Samaritans. Tacob, Son of Aaron, High Priest of the Samaritans. Edited with an introduction by W. E. Barton. Price, 25c. (1s.)

"The book is handsomely illustrated and is very interesting indeed." Methodist Publishing Company.

Persona, by Max Mueller. 22 pp. Paper. Price, 25c.

The Open Court Publishing Co.

P. O. Drawer F.

378-388 Wabash Ave., CHICAGO, ILL.

Magic Squares and Cubes

By W. S. ANDREWS

With chapters by Paul Carus, L. S. Frierson and C. A. Browne, Jr., and Introduction by Paul Carus.

206 pp., cloth binding, gilt top.

PRICE \$1.50 Net (7s. 6d)

Mr. W. S. Andrews of Schenectady, N. Y., was one of Mr. Edison's trusted assistants in the early 80's of the last century when that great inventor was perfecting his system of electric lighting by incandescent lamps, and he is still taking an active part in the Electrical Engineering field.

During his leisure hours he has given considerable thought to the working out in his own original way the construction of magic squares and cubes of various styles and sizes. The development of these mathematical curios according to regular rules, and by the aid of geometrical diagrams is a novel feature in his work which has attracted the attention of others interested along the same lines, and such contributions on the subject as they have had to offer he has incorporated in this book, making it a most comprehensive presentation of the subject

The first two chapters consist of a general discussion of the general qualities and characteristics of odd and even magic squares and cubes, and notes on their construction. The third describes the squares of Benjamin Franklin and their characteristics while Dr. Carus adds a further analysis of these squares. The fourth chapter contains "Reflections on Magic Squares" by Dr. Carus in which he brings out the intrinsic harmony and symmetry which exists in the laws governing the construction of these apparently magical groups of numbers. Mr. Frierson's "Mathematical Study of Magic Squares" which forms the fifth chapter, states the laws in algebraic formulas. Mr. Browne contributes a chapter on "Magic Squares and Pythagorean Numbers" in which he shows the importance laid by the ancients on strange and mystical combinations of figures. The book closes with three chapters of generalizations in which Mr. Andrews discusses "Some Curious Magic Squares and Combinations." "Notes on Various Constructive Plans by which Magic Squares May be Classified," and "The Mathematical Value of Magic Squares."

The Open Court Publishing Co.

P. O. Drawer F.

378-388 Wabash Ave., Chicago, Ill.

PHILOSOPHICAL AND PSYCHOLOGICAL PORTRAIT SERIES.

The portraits are printed on large paper (11×14) , with tint and plate-mark, and many of them are reproduced from rare paintings, engravings, or original photographs. They are suitable for framing and hanging in public and private libraries, laboratories, seminaries, recitation and lecture rooms, and will be of interest to all concerned in education and general culture

PHILOSOPHICAL.

HEGEL SCHELLING **PYTHAGORAS** SCHLEIERMACHER SPINOZA SOCRATES SCHOPENHAUER PLATO LOCKE BERKELEY HERBART ARISTOTLE **FEUERBACH** HUME **EPICTETUS** MONTESQUIEU VOLTAIRE LOTZE THOMAS AQUINAS REID ST. AUGUSTINE DUGALD STEWART D'ALEMBERT AVERRHOES SIR W. HAMILTON CONDILLAC DUNS SCOTUS COUSIN DIDEROT GIORDANO BRUNO COMTE ROUSSEAU BACON ROSMINI LEIBNIZ HOBBES I. STUART MILL WOLFF DESCARTES KANT MALEBRANCHE HERBERT SPENCER FICHTE

PSYCHOLOGICAL.

ROMANES AUBERT **C**ABANIS PAUL JANET MAINE, DE BIRAN MACH STUMPF RIBOT BENEKÉ TAINE EXNER E. H. WEBER FOUILLEE STEINTHAL FECHNER BINET HELMHOLTZ BAIN G. STANLEY HALL SULLY WUNDT WARD HERING C. L. MORGAN

G. T. LADD C. L. MORGAN

The Psychological Series (25 portraits) on Imperial Japanese paper, \$5.00 (24s.).

The Psychological Series (25 portraits) on plate paper, \$3.75

The Philosophical Series (43 portraits) on plate paper, \$6.25

The Entire Series (68 portraits), on plate paper, \$7.50 (35s.).

The higher prices in parentheses refer to foreign countries.

Carriage prepaid. Single portraits, 25 cents.

For subscribers who may prefer not to frame the portraits, a neat portfolio will be provided at a cost of \$1.00 additional.

"I have received the first installment of portraits of philosophers, and am

very much pleased with them."

--Prof. David G. Ritchie, St. Andrews, Scotland.

"I congratulate you on the magnificent character of the portraits, and I feel proud to have such adornments for my lecture room."

—J. J. McNulty, Professor of Philosophy in the College of the City of New York.

THE OPEN COURT PUBLISHING CO.

P. O. Drawer F 378-388 Wabash Avenue, Chicago, Ill.

Zarathushtra, Philo, the Achaemenids, and Israel

Being a Treatise upon the Antiquity and Influence of the Avesta, for the most part delivered as University Lectures.

By Dr. Lawrence H. Mills, Professor of Zend Philology in the University of Oxford, Translator of the Thirty-first Volume of the Sacred Books of the East, Author of the Five Zarathushtrian Gathas, etc. Part I.—Zarathushtra and the Greeks. Part II.—Zarathushtra, the Achaemenids and Israel. Composed at the request of the Trustees of the Sir J. Jejeebhoy Translation Fund of Bombay. 8vo. Pp. xiii, 208; xiv, 252, two parts in one volume, cloth, gilt top, \$4.00 net.

Shortly before the death of Professor James Darmesteter, of Paris, the great authority on the "Zend-Avesta," he surprised the general public by changing his views concerning the antiquity of the Zoroastrian literature, maintaining that the "Gathas" were largely influenced by the writings of Philo, and were written about the beginning of the Christian era. This change of view on his part led the Parsees of India to engage Dr. Mills to write a book upon the great antiquity of the "Avesta." After several years of continuous devotion to the subject, the present volume is put forth as the result, and it amply meets all expectations. The antiquity of the Zoroastrian literature is successfully maintained, and in such a manner that ordinary readers

can appreciate the argument.

"The Avesta in no sense depends upon the Jewish Greeks. On the contrary, it was Philo who was in debt to it. He drank in his Iranian love from the pages of his exilic Bible, or from the Bible-books which were then as yet detached, and which not only recorded Iranian edicts by Persian Kings, but were themselves half made up of lewish-Persian history. Surely it is singular that so many of us who search the scriptures' should be unwilling to see the first facts which stare at us from its lines. The religion of those Persians, which saved our own from an absorption (in the Babylonian), is portrayed in full and brilliant colors in the Books of the Avesta, because the Avesta is only the expansion of the Religion of the sculptured edicts as modified. The very by-words, as we shall later see, are strikingly the same, and these inscriptions are those of the very men who wrote the Bible passages. This religion of the Restorers was beyond all question historically the first consistent form in which our own Eschatology appeared" (pt. i. pp. 206-207).

The conclusions come with great force in support of the genuineness and authenticity of the biblical references to Cyrus in the Old Testament. Students of the literature of the Captivity will find the volume invaluable. The facts now brought to

light are such as the literary critics cannot afford to neglect.

The Open Court Publishing Co. 378 Wabash Avenue, Chicago