

# The Open Court

A MONTHLY MAGAZINE

Devoted to the Science of Religion, the Religion of Science, and the  
Extension of the Religious Parliament Idea

Editor: DR. PAUL CARUS.  
Assistant Editor: T. J. McCORMACK.

Associates: { E. C. HEGELER.  
MARY CARUS.

---

---

VOL. XVII. (NO. 5)

MAY, 1903.

NO. 564

---

---

## CONTENTS:

<i>Frontispiece.</i> RALPH WALDO EMERSON.	
<i>The Ministry of Emerson.</i> With Portrait. DR. MONCURE D. CONWAY . . . . .	257
<i>The Mysteries of Isis and Osiris.</i> HENRY RIDGELY EVANS . . . . .	265
<i>Hammurabi.</i> Babylonian King (2250 B. C.) His Newly Discovered Code of Laws. With Illustrations. EDITOR . . . . .	274
<i>John Wesley Powell.</i> A Biography. V. The Investigator. (Continued.) G. K. GILBERT . . . . .	281
<i>The Evolution of Ornament.</i> With Illustrations. EDITOR . . . . .	291
<i>On the Determination of High Temperatures (Pyrometry).</i> DR. ERNST MACH, University of Vienna . . . . .	297
<i>The Battle of Shimonoseki.</i> With Illustration. Editor . . . . .	303
<i>Frederic W. H. Myers on the Survival of Personality</i> . . . . .	308
<i>The Water of Life.</i> DR. W. THORNTON PARKER . . . . .	309
<i>The Fire-Walk Ceremony in Tahiti</i> . . . . .	310
<i>Religious Intolerance in China</i> . . . . .	311
<i>Book Reviews</i> . . . . .	312
<i>Notes</i> . . . . .	320

---

---

CHICAGO

The Open Court Publishing Company

LONDON: Kegan Paul, Trench, Trübner & Co., Ltd.

Per copy, 10 cents (sixpence). Yearly, \$1.00 (in the U. P. U., 5s. 6d.).

Copyright, 1903, by The Open Court Publishing Co.

Entered at the Chicago Post Office as Second-Class Matter.



Digitized by the Internet Archive  
in 2009 with funding from  
CARLI: Consortium of Academic and Research Libraries in Illinois

# The Open Court

A MONTHLY MAGAZINE

Devoted to the Science of Religion, the Religion of Science, and the  
Extension of the Religious Parliament Idea

Editor: DR. PAUL CARUS.  
Assistant Editor: T. J. McCORMACK.

Associates: } E. C. HEGELER.  
                  } MARY CARUS.

---

---

VOL. XVII. (NO. 5)

MAY, 1903.

NO. 564

---

---

## CONTENTS:

<i>Frontispiece.</i> RALPH WALDO EMERSON.	
<i>The Ministry of Emerson.</i> With Portrait. DR. MONCURE D. CONWAY . . .	257
<i>The Mysteries of Isis and Osiris.</i> HENRY RIDGELY EVANS . . . . .	265
<i>Hammurabi.</i> Babylonian King (2250 B. C.) His Newly Discovered Code of Laws. With Illustrations. EDITOR . . . . .	274
<i>John Wesley Powell.</i> A Biography. V. The Investigator. (Continued.) G. K. GILBERT . . . . .	281
<i>The Evolution of Ornament.</i> With Illustrations. EDITOR . . . . .	291
<i>On the Determination of High Temperatures (Pyrometry).</i> DR. ERNST MACH, University of Vienna . . . . .	297
<i>The Battle of Shimonoseki.</i> With Illustration. Editor . . . . .	303
<i>Frederic W. H. Myers on the Survival of Personality</i> . . . . .	308
<i>The Water of Life.</i> DR. W. THORNTON PARKER . . . . .	309
<i>The Fire-Walk Ceremony in Tahiti</i> . . . . .	310
<i>Religious Intolerance in China</i> . . . . .	311
<i>Book Reviews</i> . . . . .	312
<i>Notes</i> . . . . .	320

---

---

CHICAGO

The Open Court Publishing Company

LONDON: Kegan Paul, Trench, Trübner & Co., Ltd.

Per copy, 10 cents (sixpence). Yearly, \$1.00 (in the U. P. U., 5s. 6d.).

# The Book of the Hour in Germany

## BABEL AND BIBLE.

A Lecture on the Significance of Assyriological Research for Religion. Twice Delivered Before the German Emperor. By **Dr. Friedrich Delitzsch**, Professor of Assyriology in the University of Berlin. Translated from the German by **Thomas J. McCormack**. Profusely illustrated from the best sources on Assyriology. Fifty-nine half-tone and photo-zinc engravings depicting every phase of Assyro-Babylonian life and art. Pp. 66. Price, boards, 50 cents net (2s. 6d. net).

"A very useful service has been done by the publication of a translation of Dr. Delitzsch's "Babel and Bible"; it brings together in brief and well-considered shape, by a man thoroughly familiar with the subject, the broad general outlines of the results of the explorations of the past half-century. . . . Taken as a whole, this little thin volume, with its rapid survey, its illustrations, and its grasp of the entire subject gives exactly what many have wanted on Babylonian discoveries."—*The Philadelphia Press*.

"He writes with great calmness and moderation. From the beginning to the end of his lecture he displays a noble attitude of humility which lends an irresistible charm to his exhaustive scholarship. . . . There is no danger that any established conclusion of modern learning will be refused admittance to the halls of Catholic scholarship."—*Catholic World*.

"For one who is anxious to know just what Assyriology has done in elucidating the meaning of the Old Testament and in establishing its chronology, no better reference work could be suggested than this timely little book of Professor Delitzsch's."—*Hartford Seminary Record*.

"The little book is to be heartily recommended as a popular exposé of the present status of Semitic research in reference to its bearing upon the Bible."—*New York Times*.

"It is a fascinating story, simply and vividly told,—the story of a philosopher to an emperor, of a teacher to his students."—*Unity*.

"This little book will be read with interest. . . . Succeeds in conveying some clear notions of the high Babylonian civilisation that held sway in Western Asia during the third and second millenniums B. C.—surely one of the most wonderful phenomena of history, which has been literally unearthed during the present generation, having been wholly unknown and unsuspected before the excavations of our own day."—*Tablet*.

"The work is pleasant reading and gives a very complete *résumé* of the results of Assyrian research in relation to Biblical studies. . . . It should be of use to students and teachers."—*London Globe*.

"This lecture created a profound sensation when delivered before the German Emperor. It gives in popular language, with fifty-nine illustrations, the best succinct account we know of the results of recent studies in Assyriology."—*Methodist Magazine and Review*.

"Has stirred up much excitement among the people who have hitherto paid little attention to the mass of information which the recently discovered remains of ancient Assyria have contributed to our knowledge of the history and of the ideas of the Bible."—*Biblical World*.

THE OPEN COURT PUBLISHING CO., CHICAGO, 324 Dearborn St.

LONDON: Kegan Paul, Trench, Trübner & Co., Ltd.





RALPH WALDO EMERSON.

Born May 25th, 1803. Died April 27th, 1882.

Courtesy of W. L. Haskell, Chicago.

*Frontispiece to The Open Court.*

# THE OPEN COURT

A MONTHLY MAGAZINE

Devoted to the Science of Religion, the Religion of Science, and  
the Extension of the Religious Parliament Idea.

---

VOL. XVII. (NO. 5.)

MAY, 1903.

NO. 564

---

Copyright by The Open Court Publishing Co., 1903.

---

## THE MINISTRY OF EMERSON.

BY MONCURE D. CONWAY.

A THOUSAND years ago the admirable Faizi, the Persian forerunner of Emerson, described himself as "a freethinker who belongs to a thousand sects." His avatar in Concord may be described as a freethinker to whom the thousand sects belonged. When Dean Stanley returned from America he said that he went to many churches of different denominations, but whoever might be the preacher the sermon was always by Emerson. But something of the same kind was going on in England and Scotland, and even in the Dean's own Abbey. I remember walking through Westminster Abbey with Phillips Brooks, when we came upon a large placard hung on a pillar on which were printed Emerson's lines:

"O'er England's abbeys bends the sky,  
As on its friends with kindred eye;  
For, out of Thought's interior sphere  
These wonders rose to upper air;  
And Nature gladly gave them place,  
Adopted them into her race,  
And granted them an equal date  
With Andes and with Ararat."

In Ceylon I formed instant friendship with a learned Buddhist by the discovery of a fraternal tie in our love of Emerson, in whom he found the best interpreter of his religion. And in London I found men of widely different position, ideas, and aims,—Lord Mayor Waterlow, the historian Froude, Charles Bradlaugh,—whose lives had been influenced by Emerson.

The universal love and veneration for Emerson in the different religious organisations in America is phenomenal. His freethought

utterances are fundamentally the same as those of much abused "Tom Paine," and more sweeping than those of persecuted Theodore Parker. Emerson has the distinction of being the first repudiator of sacraments, supernaturalism, biblical authority, and of Christianity itself in every form, who suffered no kind of martyrdom. That might be partly explained by the fact that his method and his style of writing did not appeal to the masses and could not disturb their faith. They who sought him were mostly those already unsettled, and pastors were not thrown into the panics, from which persecutions proceed, by a scholar who came not in their fold and had no marks of the wolf. But that does not explain why they should love him; why a Methodist Conference in Boston should adjourn for a pilgrimage to his house in Concord; why he should be honored in schools and colleges with the sympathy of orthodox ministers and laymen. It is plain to me that since the revolutionary discovery of Darwin, supplanting the biblical legend of a divine Creation with the revelation of a predatory universe, and connecting man with the lower animals, the poetic idea of evolution which Emerson adopted twenty-five years before Darwin was heard from, and in various essays developed into a natural religion, has become the alternative of what is dreaded as "materialism," and the refuge of Theism. Christendom has been compelled to accept the scientific fact of Evolution, which disproves the doctrine of successive creations, but for the dynamic creator thus lost there is given by Emerson's vision a divine life flowing through Nature, organising it in purposed variations, developing it in harmony with the progression of man. Emerson preached and sang this theme with every variety of scientific illustration for nearly fifty years. His essays on nature constitute a Vedas of the scientific age, in which instead of man's ancient worship of sun, cloud, star, these glorious objects unite in celebration of Man. As ancient faith covered the starry sky with sacred forms so that none could see the planets in themselves but always Orion, Arcturus, and the rest, the earth newly revealed by Lamarck and St. Hilaire was by Emerson overlaid with sublime pictures of Nature's progression to find spiritualisation in her divine child,—Man. The present generation cannot realise this historically, but we whom Emerson inspired to go forth with these new revelations and prophecies,—and a considerable number we were,—witnessed the steady advance of a new cosmogony in the churches, of course expressed by every preacher in the phrases of his theology. My belief is that it is now impossible for an educated Christian minister to see the same theologic sky as

that which existed before Emerson discovered new galaxies and spiritualised the old ones; and that even if he has never read Emerson.

Emerson resigned his pulpit in Boston in September, 1832, because his Unitarian congregation considered it essential that the symbols of a great man's blood, shed eighteen centuries before, should be partaken at their altar. The Persian Faizi, to remember him again, said: "My own blood is the basis of the wine of my enthusiasm." Emerson in his final sermon said: "It is my desire, in the office of a Christian minister, to do nothing which I cannot do with my whole heart." But there was no pulpit for a man who wished to feed men with "real presence" blood from his own heart. Bereft of his young wife and his congregation in that same year—his thirtieth—his health broken, Emerson travelled a few months in Europe, and that winter—1833—1834—gave the first discourse of his unchurched ministry. The subject was "The Relation of Man to the Globe." In 1833 Edward Emerson sent me extracts from this discourse which I read before the Royal Institution of Great Britain, and which amazed the scientific men. This for example: "Man is made, the creature who seems a refinement on the form of all who went before him, and more perfect in the image of his Maker by the gift of moral nature; but his limbs are only a more exquisite organisation,—say, rather, the finish of the rudimental forms that have been already sweeping the sea and creeping in the mud: the brother of his hand is even now cleaving the Arctic sea in the fin of the whale, and innumerable ages since was pawing the marsh in the flipper of the saurus."

As there is a Pre-Darwinian and a Post-Darwinian epoch in science, there is a corresponding Pre-Emersonian and Post-Emersonian epoch in American religion. For Emerson, having found in man the meaning and purpose of the Globe, recognised that this sum of every creature's best physically was but a sheath of the distinctive and rational Man. Like the protozoa fighting and devouring each other in the drop of water, men kill and devour each other in their big globe. "Civilisation is a chick in the egg." Saurian passions survive Saurian forms in the masses of men. Here and there a Jesus, Plato, Shakespeare, appears as a "pattern on the mount" of the normal Man. Emerson said, "I distrust masses, and wish to bring individuals out of them." By the development of variants the masses might be gradually sufficiently controlled to render favorable the conditions for the creation of Man. Emerson then went about among us diffusing all the ethical sunshine and

soft rains, and carrying the gentlest pruning knife, as if in a flower garden, and rejoicing over every bud that peeped out. He never said anything to us about the service of God: it was man that needed service. Nor did he talk about Christianity or immortality. "Give me insight in to-day, and you may have the antique and future worlds."

Whenever I hear in Handel's *Messiah* the gracious theme, "He shall feed his flock like a shepherd and gently carry them that are with young," there arises the face of that man whose far-reaching words found us in our several solitudes and led us away from our homes and creeds. I suppose that most of these received from him letters such as the following, sent me by my dear friend Maria Harrison of Cincinnati. It is dated at Concord in the October of 1838, just at the time when he was being almost raised to the dignity of a martyr on account of his famous address to the graduates in Divinity College of July 15,—the Address which evoked Theodore Parker, and which Dr. Furness described as the Fifth Gospel.

"I hasten to say that I read these expressions of an earnest character—of your faith, of your hope—with extreme interest; and if I can contribute any aid by sympathy or suggestion to the solution of those great problems that occupy you, I shall be very glad. But I think it must be done by degrees. I am not sufficiently master of the little truth I see to know how to state it in forms so general as shall put every mind in possession of my point of view. We generalise and rectify our expressions by continual efforts from day to day, from month to month, to reconcile our own light with that of our companions. So shall two inquirers have the best mutual action on each other. But I should never attempt a direct answer to such questions as yours. I have no language that could shortly present my state of mind in regard to each of them with any fidelity; for my state of mind in each is in no way final and detached, but tentative, progressive, and strictly connected with the whole circle of my thoughts. It seems to me that to understand any man's thoughts respecting the Supreme Being we need an insight into the general habit and tendency of his speculations, for every man's idea of God is the last or most comprehensive generalisation at which he has arrived. But besides the extreme difficulty of stating our results on such questions in a few propositions, I think, my dear sir, that a certain religious feeling deters us from the attempt. I do not gladly utter any deep conviction of the soul in any company where I think it will be contested—no, nor unless I think it will be welcome. Truth has already ceased to be itself if polemically said; and if the soul would utter oracles, as every soul should, it must live for itself—keep itself right-minded, observe with such awe its own topics of the hour, unless they be its own. I believe that most of the speculations and difficulties that infest us we must thank ourselves for—that each mind, if true to itself, will, by living for the right and not importing into itself the doubts of other men, dissolve all difficulties, as the sun at midsummer burns up the clouds.

"Hence I think the aid we can give each other is only incidental, lateral, and sympathetic. If we are true and benevolent, we reinforce each other by every act

and word; your heroism stimulates mine, and your light kindles mine. The end of all this is, that I thank you heartily for the confidence of your letter, and beg you to use your earliest leisure to come and see me. It is very possible that I shall not be able to give you one definition; but I will show you with joy what I strive after and what I worship, as far as I can. Meantime I shall be very glad to hear from you by letter.—Your friend and servant,  
R. W. EMERSON.

I asked Emerson about his sermons at the Second Church in Boston. He said he had used many of them in his essays, though these were less ethical. He considered the chief fault of ministers to be a lack of veracity. Where creeds or churches are involved it seems difficult for their loyal supporters to be loyal also to truth. By this Emerson meant speaking the truth, and I have always understood the fact to be that as a physician might use stratagem to save a patient, or a lawyer to gain his case, so the clergyman was liable to use it to save souls from hell or from heresy. Emerson was equally aware of the radical's liability to libel his truth by stating it brutally. "Everything good is artistic," he said. There is a possible statement of the most unwelcome truth which would render it irresistible by any mind. Many times did I admire the art with which he would sweeten a denial by a fine affirmation. "Was not Christ sinless?" asked a pious lady. Emerson said, "The knowledge of good and evil through experience is an essential condition of intelligence, and that wisdom can hardly be denied Jesus." He had dislike of the spirit of proselytism. "I must not try to make a man another me." The great aim of the teacher was to make that man more fully himself.

Once I had the happiness to hear a sermon from Emerson, or rather one or two of his old sermons rolled together. After Theodore Parker went silent his congregation listened from Sunday to Sunday to various preachers, and one day in March 1863 I there heard Emerson. I sat on the platform in the Music Hall by the side of Mrs. Julia Ward Howe, where we were in a position to observe every expression of his countenance. While the anthem was being sung I saw that he was in radiant spirits, no doubt because the President's Proclamation of Emancipation had filled all of us with a great dawn of hope after our long gloom. But Emerson's sermon had nothing in it about the state of the country.

He began by calling attention to the tendency to simplification. The inventor knows that a machine is new and improvable when it has a great many parts. The chemists already find the infinite variety of things contained in sixty-six elements, and physicists promise that this number shall be reduced to twenty, ten, five.

Faraday declares his belief that all things will in the end be reduced to one element with two polarities. Religious progress has similarly been in the direction of simplification. Every great religion has in its ultimate development told its whole secret, concentrated its force, in some simple maxims. In our youth we talk of the various virtues, the many dangers and trials of life; as we get older we find ourselves returning to the proverbs of the nursery. In religion one old book serves many lands, ages, and varieties of character; nay, one or two golden rules out of the book are enough. The many teachers and scriptures are at last but various routes by which we always come to the simple law of obedience to the light in the soul. "Seek nothing outside of thyself," says one; "Believe nothing against thy own spirit," echoes another part of the world. Jesus said, "Be lowly; hunger and thirst after justice; of your own minds judge what is right." Swedenborg teaches that Heaven and Hell are the loves of the soul. George Fox removes the bushel from the light within. The substance of all morals is that a man should adhere to the path which the inner light has marked before him. The great waste in the world comes of the misapplication of energy. The great tragedies of the soul are strung on those threads not spun out of our own hearts. One records of Michael Angelo that he found him working on his statue with a lamp stuck in his cap, and it might almost symbolise the holier light of patient devotion to his heart. No matter what your work is, let it be yours; no matter if you are tinker or preacher, blacksmith or President, let what you are doing be organic, let it be in your bones, and you open the door by which the affluence of Heaven and Earth shall stream into you. You shall have the hidden joy: and shall carry success with you. Look to yourself rather than to materials; nothing is unmanageable in a good hand; no place slippery to a good foot; all things are clear to a good head. The sin of Dogmatism, of creeds and catechisms, is that they destroy mental character. The youth says that he believes when he is only browbeaten; he says he thinks so and so, when that so and so are the denial of any right to think. Simplicity and grandeur are thus lost; and with them the sentiment of obligation to a principle of life and honor. In the legends of the Round Table it is told, that a witch wishing to make her child supremely wise, prepared certain herbs and put them in a pot to boil, intending to bathe the child's eyes with the decoction. She set a shepherd boy to watch the pot whilst she went away. Whilst he stirred it a raven dropped a twig into the pot, which spattered three drops of

the liquid into the shepherd's eyes. Immediately all the future became as if passing before his eyes; and seeing that when the witch returned she meant to kill him, he left the pot and fled to the woods. Now if three drops of that all-revealing decoction should suddenly get into the eyes of every human being crowding along the streets some day, how many of them would still go on with the affair they are pursuing? Probably they would nearly all come to a dead stand. But there would, let us hope, be here and there a happy child of the Most High, who had taken hold of her



or his life's thread by sacred appointment. These would move on without even a pause: the unveiled future would show the futility of many schemes, the idleness of many labors; but all genuine aims would only be exalted, and shown in their eternal and necessary relations.

Finally, humility was, the speaker declared, the one element to which all virtues are reducible. "It was revealed unto me," said the old Quaker, "that what other men trample on must be thy food." It is the spirit that accepts our trust, and is thus the creator of character and the guide to power.

In closing this discourse the speaker recited at length the story of the proposed humiliation, and the victory through humility, of Fra Cristophero (in Manzoni's *I Promessi Sposi*), the nobleman who slew another in a brawl, in penitence for which he became a friar. When the slain man's brother demanded this Fra Cristophero's humiliation before the proud family—not that he cared much for his brother, a worthless fellow, but to make a page in the family history—the friar was eager so to atone for his deed. There was no attempt at effect in Emerson's descriptions—no gestures—yet the subtlest actor could not more have moved the vast audience. On his face was seen that face of the friar in which every eye read perfect sincerity and courage. We saw the friar, frank and fearless, kneeling to confess his wrong, and pleading no justification, ask pardon of those he had deprived of a brother. We saw his victory through humiliation, the servants kissing the hem of his coarse garment, the proud lord hastening to raise him, to disown anger, to offer him fine food which he could not taste, begging only a little bread and salt as a token of forgiveness; and finally, when Fra Cristophero had departed, through the company, kneeling for the blessing of him who had knelt, we heard the bewildered nobleman saying, "That devil of a monk, if he had knelt there longer, I believe I should have asked his pardon for killing my own brother." A smile beamed on the face of the speaker, and played on the faces before him at these last words; but by the time Emerson gathered up his pages and sat down, his listeners were in tears. For some moments the assembly of five thousand sat in a stillness that was sacred.

O my friend and father, even amid the vanishing away of some fair visions and hopes raised in my youth by thee, I realise that life had been worth living if only because of my never-ending happiness in knowing thee, and receiving inspiration and joy from teachings that left me no envy of those who gathered around any haloed prophet in the Past!

# THE MYSTERIES OF ISIS AND OSIRIS.

BY HENRY RIDGELY EVANS.

## I.

EGYPT!—cradle of mystery! For centuries the giant Sphinx of Gizeh, half buried in the shifting sand of the desert, kept guard over the treasures of the ancient land of Mizraim. Fast locked were the secrets of hierophant and sage, for no mortal was able to unravel the meaning of the hieroglyphics painted upon the walls of the ruined temples. Illuminated papyri were found in the coffins of mummies, but no one could decipher the strange text. It was indeed a “dead-letter” to the modern savant. Finally the hour and the man came. An ingenious Frenchman named Champollion solved the mystery of the sacred script of Egypt, through the medium of the Rosetta stone. But this is a “twice-told tale” to the archæologist, and needs no repetition here. Translations of mural inscriptions and papyrus scrolls followed each other in rapid succession. A flood of light was thrown upon the history, religion, and literature of ancient Egypt. “The key to the hieroglyphics,” says Miss Edwards, “is the master-key that opens every door. Each year that now passes over our heads sees some old problem solved. Each day brings some long-buried truth to light.”

The fact was developed that the inhabitants of the Nile Valley were intensely religious, slaves, in fact, to the peculiar cults of the country. A ceremonial worship of the most extravagant nature occupied the attention of king, priests, and people. At Memphis, Thebes, Karnak, Abydos, and Philæ ponderous temples to the gods and goddesses reared their heads to the blue sky. The shattered remains of these mighty monuments are the admiration of the modern traveller. We view them with a feeling akin to awe, remembering the words of an Egyptian king, who thus expressed himself regarding one of these stupendous structures: “Built for eternity, time shrinks before it.” Though immemorial years have touched

the temples of the gods with comparative lightness, the ruthless hand of man has shivered the heads of colossi, and overturned pylon and pillar. Memphis, the mighty city—the home of the great Temple of Ptah—was pulled to pieces centuries ago. Says Miss Edwards: “And this is all that remains of Memphis, eldest of cities—a few huge rubbish-heaps, a dozen or so of broken statues, and a name!”

When night, with its blue-black canopy, studded with brilliant stars, has fallen upon the world of the Orient, these ancient ruins seem to breathe forth mystery as the earth exhales moisture. The silvery moon, sacred disk of Isis, floods the faces of the colossi, images of the gods, and intensifies their grotesque shadows. In this solemn hour of repose and silence, a weird phantasmagoria presents itself to our entranced sight. We behold the ruins restored as if by magic; pylon and pillar, obelisk and avenue of sphinxes, all are intact as of old. Within the sacred enclosure—the *sanctum sanctorum*—we can hear the chant of the hierophants.

The candidate for the Mysteries presents himself at the bronze doors that lie dark and fast-sealed between the twin towers of the tall propylon. Carved above the portal is the winged disk, emblem of the sun and of eternal life. “Seek and ye shall find! knock and it shall be opened unto you!”

Suddenly the bronze doors swing back with a noise like thunder; the trembling neophyte enters into the gloomy building. Behind him close the doors with a hollow clang. We would enter, but, alas, there is no admission to the profane. The moon passes behind a cloud, there gradually comes a faint light in the east; the dawn is breaking—the young god Horus is making ready to sail the heavens in his mystic boat. The desert dream is at an end; the huge temple lies once more in fragments, the shadow-haunted home of owl and bat. Upon the bank of the sacred lake, where in the olden days the funeral barge of Osiris floated, a solitary crane stands, brooding upon the desolate scene. The utter loneliness of the place depresses the heart. We realise to its fullest extent the vanity of earthly hopes. Where are priests and initiates, and the myriad souls that lived, loved, and died so many centuries ago? Are they still wandering through the shadowy realms of Amenti, or have they found the blissful “Pools of Peace” in the kingdom of the divine Osiris? Ah, who can tell! But this one fact we know: they have vanished like dreams.

In the private museum of Herr Graf, of Vienna, is a remarkable collection of memorial portraits which were found attached

to mummies. They are of the Ptolemaic period. One of these pictures is that of a young man—a Grecian, upon whose left breast is a golden clasp, supposed by Egyptologists to be the badge of initiation into the Mysteries of Isis. This may or may not be true, but it is interesting to think that it is so. About his head is a laurel wreath, such as Apuleius describes as having been worn by initiates. Through what ordeals did this young Grecian pass; what mysterious visions greeted his sight? What were the Mysteries of Isis?

Like the poor *fellah* in Elihu Vedder's wierd painting, shall we propound the question to the Sphinx, then pressing our ear against the mouth of the stone monster wait patiently for an answer to the riddle? Alas, the Sphinx is dumb! Let us rather delve into the wisdom of ancient and modern times—that which remains to us, inscribed upon scrolls of parchment and papyri—for a solution to the vexed problem.

## II.

J. R. S. Sterrett<sup>1</sup> describes the Mysteries of the ancient world as “the secret worship of various gods, to which one might be admitted only after having passed certain purifying initiatory trials or degrees that varied in number in different mysteries. In addition to what was universally known about any god, there were also certain facts and tenets of such a character that they might be divulged to the initiated alone. . . . A clue to the general character of mysteries is given by Plato (*Rep.* 2, 378), who tells us that whatever is vicious, immoral, or disgraceful in the stories about the gods ought either to be buried in silence or else be told only in Mysteries, from which the mob must be excluded by making the sacrifice of a huge and unprocurable victim the condition of initiation.”

The Mysteries of Isis and Osiris, then, must have been sacred rites designed to teach certain occult, or esoteric, doctrines. Before proceeding further to discuss the Mysteries it will be necessary to treat briefly of the essentials of belief among the early dwellers in the Nile Valley.

Like all primitive peoples, the Egyptians began as polytheists. Gradually they rose to more metaphysical conceptions of the nature of the gods and the universe; but says Maspero,<sup>2</sup> “the lofty thoughts remained the property of a small number of priests and instructed people; they did not penetrate the mass of the popula-

<sup>1</sup> *Johnson's Universal Encyclopædia*, Vol. VI., p. 47.

<sup>2</sup> *Hist. de l'Orient*, 4th ed., pp. 279-288.

tion." The common people forever remained in brutal ignorance, blindly worshipping the forces of nature as actual gods, and animals as incarnations of these divinities. Their animal worship probably originated in totemism.

The solar cult was a most prominent one in the land of Mizraim. J. Norman Lockyer, the English astronomer, gives it as his opinion that the Egyptians were absolutely dominated by the worship of the Sun and the accompanying Dawn. He says (*Dawn of Astronomy*, p. 23): "The ancient Egyptians, whether they were separated from, or more or less allied in their origin to, the early inhabitants of India, had exactly the same view of Nature-worship, and we find in their hymns and the lists of their gods that the Dawn and the Sunrise were the great revelations of nature and the things which were most important to man; and therefore everything connected with the Sunrise and the Dawn was worshipped.

Renouf, one of the latest writers on these subjects, says: "I fear Egyptologists will soon be accused, like other persons, of seeing the dawn everywhere," and he quotes with approbation this passage from Max Müller relating to the Veda: "I look upon the sunrise and sunset, on the daily return of day and night, on the battle between light and darkness, on the whole solar drama in all its details, that is acted every day, every month, every year, in heaven and in earth, as the principal subject."

As in India the Nature-worship portrayed in the Vedas was succeeded by the metaphysical conceptions of Deity and the human soul expounded in the Upanishads, so in Egypt the primitive worship was succeeded by more refined and subtle religious ideas. As has been already stated, the more exalted doctrines were in the possession of the privileged few,—the priests and philosophers, who obtained their knowledge in the Mysteries. There was an evolution of religion in Egypt as in other countries, but as Andrew Lang expresses it, "the peculiarity of Egypt, in religion and myth as in every other institution, is the retention of the very rudest and most barbarous things side by side with the last refinements of civilisation. . . . The soil of Egypt, when excavated, constantly shows that the Egyptians, who in the remote age of the pyramid-builders were already acquainted with bronze and even with iron, did not therefore relinquish the use of flint-knives and arrow-heads when such implements became cheaper than tools of metal, or when they were associated with religion. Precisely in the same way did the Egyptians, who, in the remotest known times, had imposing religious ideas, decline to relinquish the totems and beast-

gods and absurd or blasphemous myths which (like flint axes and arrow-heads) are everywhere characteristic of savages. . . . Thus the confusion of Egyptian religion is what was inevitable in a land where new and old did not succeed and supersede each other, but coexisted on good terms. Had religion not been thus confused, it would have been a solitary exception among the institutions of the country. The fact is, that the Egyptian mind, when turned to divine matters, was constantly working on, and working over, the primeval stuff of all mythologies and of all religions. First, there is the belief in a moral guardian and father of men; this is expressed in the sacred hymns. Next, there is the belief in 'a strange and powerful race, supposed to have been busy on earth before the making, or the evolution, or the emergence of man;' this is expressed in the mythological legends. The Egyptians inherited a number of legends of extra-natural heroes, not unlike the savage Qat, Cagn, Yehl, Pund-jil, Ioskeha, and Quahteht, the Maori Tutenganahan and the South Sea Tangaroa. Some of these were elemental forces, personified in human or bestial guise, some were merely idealised medicine-men. Their 'wanderings, rapes, and manslaughters, and mutilations,' as Plutarch says, remained permanently in legend. When these beings, in the advance of thought, had obtained divine attributes, and when the conception of abstract divinity had become pure and lofty, the old legends became so many stumbling-blocks to the faithful. They were explained away as allegories (every student having his own allegorical system), or the extra-natural beings were taken (as by Plutarch) to be 'demons, not gods.' " <sup>1</sup>

Rawlinson, speaking of the exoteric and esoteric phases of the Egyptian religion, says: " It appears to be certain that the Egyptian religion, like most other religions in the ancient world, had two phases or aspects: one, that in which it was presented to the general public or vast mass of the population; the other, that which it bore in the minds of the intelligent, the learned, the initiated. To the former it was a polytheism of a multitudinous and in many respects of a gross character; to the latter it was a system of combining strict monotheism with a metaphysical and speculative philosophy on the two great subjects of the nature of God and the destiny of man, which sought to exhaust those deep and unfathomable mysteries. Those who take the lowest view of the Egyptian religion admit that 'the idea of a single self-existent deity' was in-

<sup>1</sup> *Myth, Ritual, and Religion*, Vol. II., pp. 108, 109, 110.

<sup>2</sup> *History of Ancient Egypt*, Vol. I., p. 323.

volved in the conceptions which it set forth, and to be found not unfrequently in the hymns and prayers of the Ritual. It is impossible that this should have been so, unless there were a class of persons who saw behind the popular mythology, understood its symbolical or metaphysical character, and were able in this way to reconcile their conformity to the established worship with the great truths of natural religion which, it is clear, they knew and which they must have cherished in their heart of hearts.

“The primary doctrine of the esoteric religion undoubtedly was the real essential Unity of the Divine Nature. The sacred texts taught that there was a single Being, ‘the sole producer of all things both in heaven and earth, himself not produced of any,’—‘the only true living God, self-originated,’—‘who exists from the beginning,’—‘who has made all things, but has not himself been made.’ This Being seems never to have been represented by any material, even symbolical, form. It is thought that He had no name, or if He had that it must have been unlawful either to pronounce or write it. He was a pure spirit, perfect in every respect,—all wise, almighty, supremely good.

“The gods of the popular mythology were understood, in the esoteric religion, to be either personified attributes of the Deity, or parts of the nature which He had created, considered as informed or inspired by Him. Num or Kneph represented the creative mind, Phthah the creative hand, or act of creating; Maut represented matter, Ra the sun, Khons the moon, Seb the earth, Khem the generative power in Nature, Nut the upper hemisphere of heaven, Athor the lower world or under hemisphere; Thoth personified the Divine wisdom; Ammon, perhaps, the Divine mysteriousness or incomprehensibility; Osiris (according to some) the Divine goodness. It is difficult in many cases to fix on the exact quality, act, or part of nature intended; but the principle admits of no doubt. No educated Egyptian priest certainly, probably no educated layman, conceived of the popular gods as really separate and distinct beings. All knew that there was but one God, and understood that when worship was offered to Khem, or Kneph, or Phthah, or Maut, or Thoth, or Ammon, the One God was worshipped under some one of His forms, or in some one of His aspects. It does not appear that in more than a very few cases did the Egyptian religion, as conceived of by the initiated, deify created beings, or constitute a class of secondary gods who owed their existence to the supreme god. Ra was not a Sun-Deity with a distinct and separate existence, but the supreme God acting in the

sun, making His light to shine on the earth, warming, cheering, and blessing it; and as Ra might be worshipped with all the highest titles of honor, as indeed might any god, except the very few which are more properly called *genii*, and which correspond to the angels of the Christian system. Such is Anubis, the conductor of souls in the lower world, and such probably are the four 'genii of the dead,' Amset, Tuamutef, Hapi (Apis), and Kebhisnauf, who performs so conspicuous a part in the ceremonial of Amenti.

"It is difficult to decide what were the esoteric views of the Egyptians with regard to Evil. Several deities, as Set, or Sutech, Nubi, or (as Wilkinson reads the name) Omboo, and Apepi or Apophis, the great serpent, seem to be personifications of evil; and the strongest antagonism is represented as existing between these and the favorite divinities of the Egyptians, as Ammon, Khem, Phthah, Ra, Osiris; but whether, as among the Persians, two original Principles, one of Good, and the other of Evil, were intended, or whether Evil was viewed as 'a necessary part of the universal system, inherent in all things equally with good, and so as one aspect of the Divine nature,' is to some extent doubtful. It is hard to believe that, if the pantheistic notion, by which Sin and Evil generally are to be considered to be equally of the essence of God with goodness, had been the real belief of the Egyptian priesthood, their protests in favor of virtue and against vice of all kinds could have been so strong and earnest as they are. It is also difficult to imagine that the priests would have allowed the general obliteration of the monumental emblems of Set, which is noticed by Egyptologists, if they had viewed him as really an aspect of the Supreme Being. Perhaps the Egyptian priests at no time thought out the problem of the origin and nature of evil, but were content with indistinct and hazy notions upon the subject. Perhaps their views varied at different times, inclining during the earlier ages to the pantheistic doctrine, in the later to the Persian tenet of Two Principles.

"The continuance of the soul after death, its judgment in another world, and its sentence according to its deserts, either to happiness or suffering, were undoubted parts both of the popular and of the more recondite religion. It was the universal belief that, immediately after death, the soul descended to the lower world and was conducted to the Hall of Truth (or 'of the Two Truths'), where it was judged in the presence of Osiris and the forty-two *dæmones*, the 'Lords of Truth' and judges of the dead."

The eminent scholar M. Emmanuel de Rougé held the same

views as Rawlinson on the belief of the unity of Deity among the ancient Egyptians. He says:

“But how reconcile the Unity of God with Egyptian polytheism? History and geography will perhaps elucidate the matter. The Egyptian religion comprehends a quantity of local worships. The Egypt which Menes brought together entire under his scepter was divided into nomes, each having a capital town; each of these regions has its principal god designed by a special name; but it is always the same doctrine which reappears under different names. One idea predominates, that of a single and primeval God; everywhere and always it is One Substance, self-existent, and an unapproachable God.”

M. de Rougé then says that from, or rather before, the commencement of the historical period, the pure monotheistic religion underwent the phase of Sabeism; the Sun, instead of being regarded as the symbol of life, was taken as the manifestation of God Himself. Polytheism developed itself and progressed without interruption until the time of the Ptolemies—the Greek rulers of the country.

Says de Rougé: “It is, therefore, more than five thousand years since, in the Valley of the Nile, the hymns began to the Unity of God and the immortality of the soul, and we find Egypt in the last ages arrived at the most unbridled polytheism.” Add to this the grossest forms of phallic worship, and you have a picture of degradation seldom equalled in the religious history of mankind.

Says P. Le Page Renouf (*Hibbert Lectures*, 1879) “the magnificent predicates of the one and only God, however recognised by Egyptian orthodoxy, never in fact led to actual monotheism. They stopped short in pantheism—namely, in the doctrine that ‘all individual things are nothing but modifications, affections, of the One and All, the eternal and infinite God-world; that there is but one universal force in Nature, in different forms, in itself eternal and unchangeable.’

“This doctrine is perhaps most clearly expressed in a hymn upon the walls of the temple in the oasis of El Kargeh:

“‘The gods salute his royal majesty as their Lord, who revealeth himself in all that is, and hath names in everything from ‘mountain to stream. That which persisteth in all things is Amon. ‘This lordly god was from the very beginning. He is Ptah, the ‘greatest of the gods.... Thy secret is in the depths of the secret ‘waters and unknown. Thou hast come on the road, thou hast ‘given light in the path, thou hast overcome all difficulties in thy

‘mysterious form. Each God has assumed thy aspect; without shape is their type compared to thy form. To thee, all things give praise when thou returnest to the nether world at even. Thou raisest up Osiris by the radiance of thy beams. To thee, those give praise who lie in their tombs. . . . and the damned rise up in their abodes. . . . Thou art the King, thine is the kingdom of heaven, and the earth is at thy will. The gods are in thine hand, and men are at thy feet. What god is like to thee? Thou hast made the double world, as Ptah. Thou hast placed thy throne in the life of the double world, as Amon. Thy soul is the pillar and the ark of the two heavens. Thy form emanated at first whilst thou shinest as Amon, Ra, and Ptah. Shu, Tefnut, Nut, and Chonsu are thy form, dwelling in thy shrine under the types of the ithyphallic god, raising his tall plumes, king of the gods. . . . Thou art Mentu Ra. Thou art Sekar; thy transformations are into the Nile. Thou art Youth and Age. Thou givest life to the earth by thy stream. Thou art heaven, thou art earth, thou art fire, thou art water, thou art air, and whatever is in the midst of them.’

“I believe, therefore, that, after clearly approaching the point at which polytheism might have turned into monotheism, the religious thought of Egypt turned aside into a wrong track. And this was followed by a decided and hopeless course of retrogression. Those elements of the Egyptian religion which the Greeks and the Jewish and Christian writers looked upon with such disgust, had existed from the first, but in a very subordinate position; they now became nearly predominant. . . . If pantheism strongly contributed to the development of this animal worship, and to all the superstition therewith connected, it also led to a simple materialism. . . . Man had formerly been led to associate the earth and sun and sky with the notion of infinite power behind these phenomena; he now retraced his steps and recognised in the universe but the mere phenomena.”

Tiele (*Manuel de l'histoire des religions*, p. 46) controverts the above opinion, as follows: “It is certainly erroneous to consider Egyptian religion as a polytheistic corruption of a prehistoric monotheism. It is more correct to say that, while polytheistic in principle, the religion developed in two absolutely opposite directions. On one side, the constant introduction of new gods, local or foreign; on the other, a groping after a monotheism never absolutely reached. The learned explained the crowd of gods as so many incarnations of the one hidden uncreated deity.” [TO BE CONTINUED.]

## HAMMURABI.<sup>1</sup>

BY THE EDITOR.

**H**AMMURABI was the sixth king of the first Babylonian dynasty, and lived about 2250 B. C. He is mentioned in the Old Testament as Amraphel (Gen. xiv.), where Abraham is said to be his contemporary. No doubt he was one of the greatest monarchs that ever ruled Hither Asia, and history says that he was not only strong in war, but also wise in peace. The name is not Babylonian, but indicates a West Semitic dialect. Professor Hommel claims for him Arabian descent.

The French explorer, M. J. DeMorgan, discovered in December, 1901, a diorite stele in one of the mounds of Susa which contains the laws of the Babylonian empire proclaimed by Hammurabi. This important monument was originally placed in the Temple of the Sun, Ebabbara (which literally translated means "the white house") at Sippar; and must have been carried away by some Elamitic conqueror to Susa, where it was set up as a trophy and then buried in a great conflagration when the city was sacked by Assyrian soldiers.

Hammurabi's stele is not the only copy of its kind. Fragments of another were found in a rubbish-heap in the same city of Susa; and Asurbanipal, the Assyrian king, who lived sixteen centuries after Hammurabi, had a copy of the codex Hammurabi made for his royal library. Moreover, we notice that the institutions which according to our monument we must suppose to have existed, continued down to later days, and have influenced the development, not only of Babylon, but of all neighboring countries, including Palestine.

<sup>1</sup>"Die Gesetze Hammurabis," übersetzt von Dr. Hugo Winckler in *Der alte Orient*, IV., 4. *Moses und Hammurabi*, von Dr. Johannes Jeremias, Pfarrer in Gottleuba, Sachsen. Hinrichs's Verlag, 1903. *Records of the Past*, Vol. 11., Part 3. The Laws of Hammurabi, with seven illustrations.

The codex has been translated into French and German, and from the German (which is the better and more accurate translation) into English,<sup>1</sup> and the picture that is unrolled before our eyes shows us the development of a grand civilisation, much higher than later centuries would warrant us to assume. But we know now that in the second millennium before Christ a reaction set in which destroyed not a little of the civilisation attained in the third millennium. We see here before our eyes not dry statutes only, but a vivid picture of definite conditions, presupposing definite institutions, and giving us an insight into the details of all kinds of social



A VOTIVE TABLET.

Dedicated to the Goddess Asratum (Ashera) and showing the picture of Hammurabi, King of the Westland.<sup>2</sup>

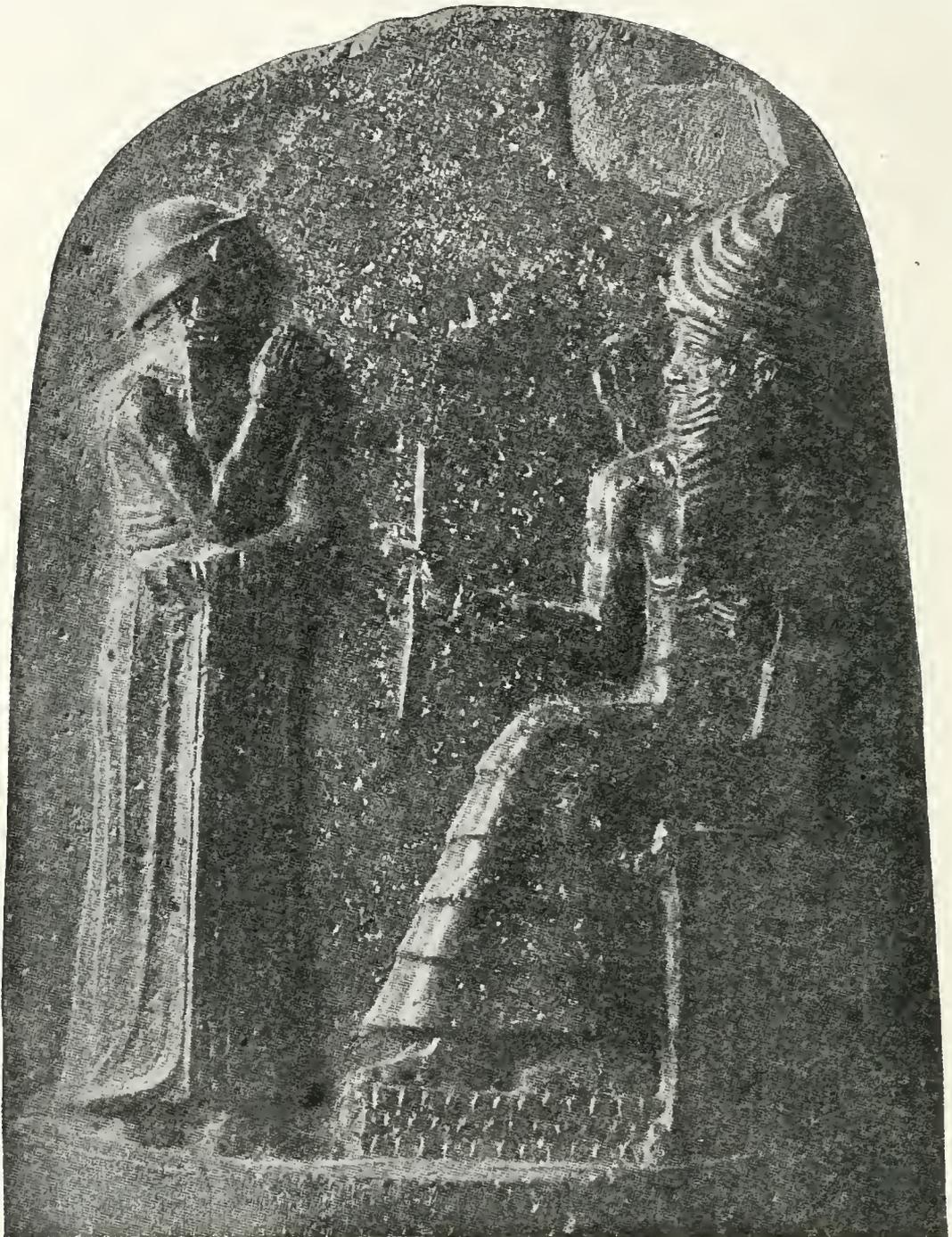
and commercial conditions, including marriage, inheritance, and the regulation of the rights of children; and the spirit which pervades the whole work is both just and human.

One highly significant feature of the codex Hammurabi is its relation to the Mosaic law. The Old Testament distinguishes be-

<sup>1</sup> The German translation, which is by Dr. Hugo Winckler, was reviewed by us, soon after its appearance, in *The Monist* for January, 1903. The English translation reads very well but seems to stand in need of a revision.

<sup>2</sup> Mar(tu) = Ammurrû.

tween the book of the covenant (Exodus xxiv. 7) and the law (Exodus xx., xxii.—xxiii., xxxiii. 4); and all critics agree in this, that the law is the oldest and historically the most important part of

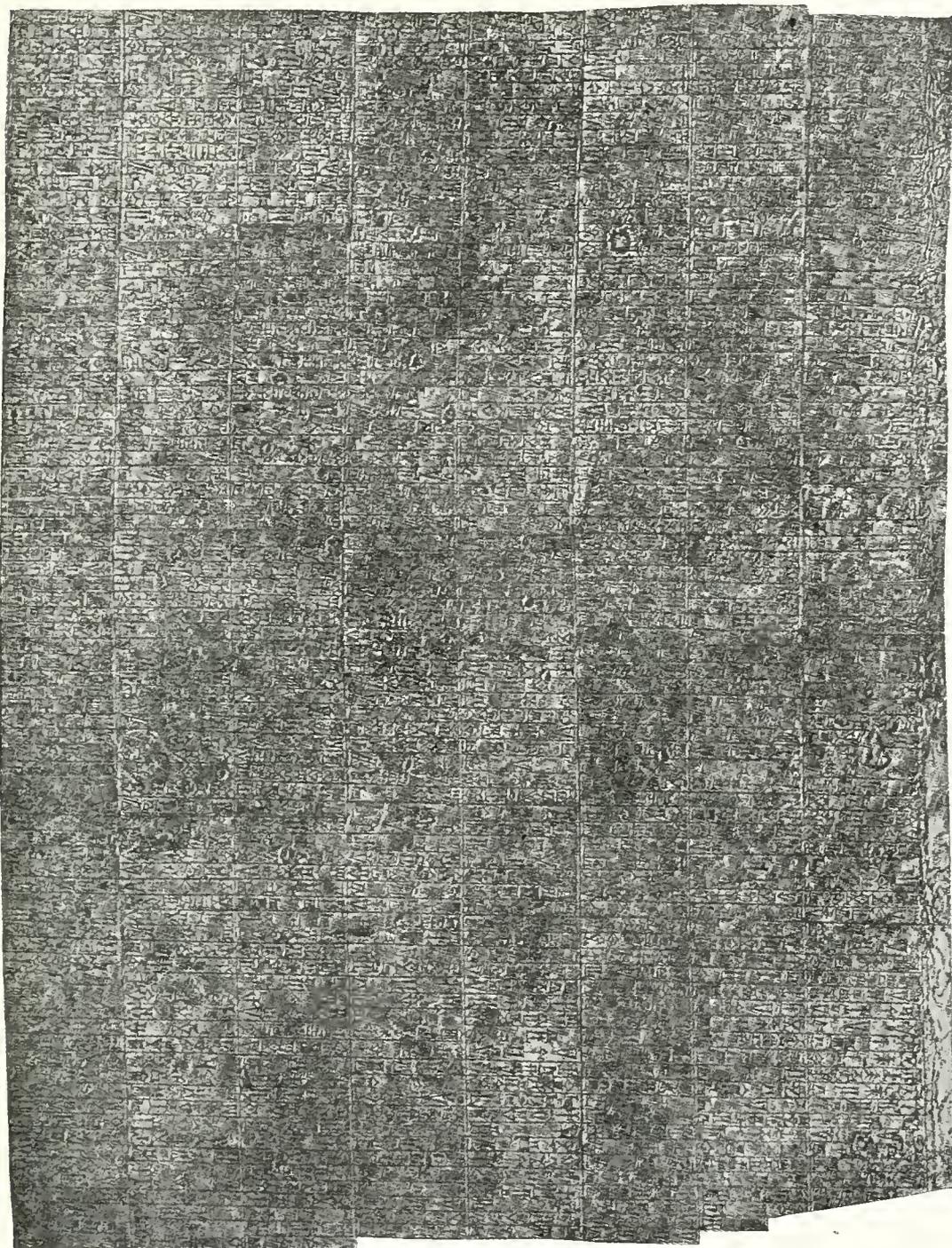


HAMMURABI RECEIVING THE LAWS FROM GOD.<sup>1</sup>

the Old Testament. The new school (Kuenen, Wellhausen, Smend) believe it belongs to the eighth century; but according to Professor Sellin it has to be relegated to the pre-Solomonic period. The

<sup>1</sup> The inscription is underneath.

main consideration for Old Testament critics in fixing the date consisted in the fact that it presupposes a state of civilisation in which the people of Israel had outgrown their nomadic habits, for among

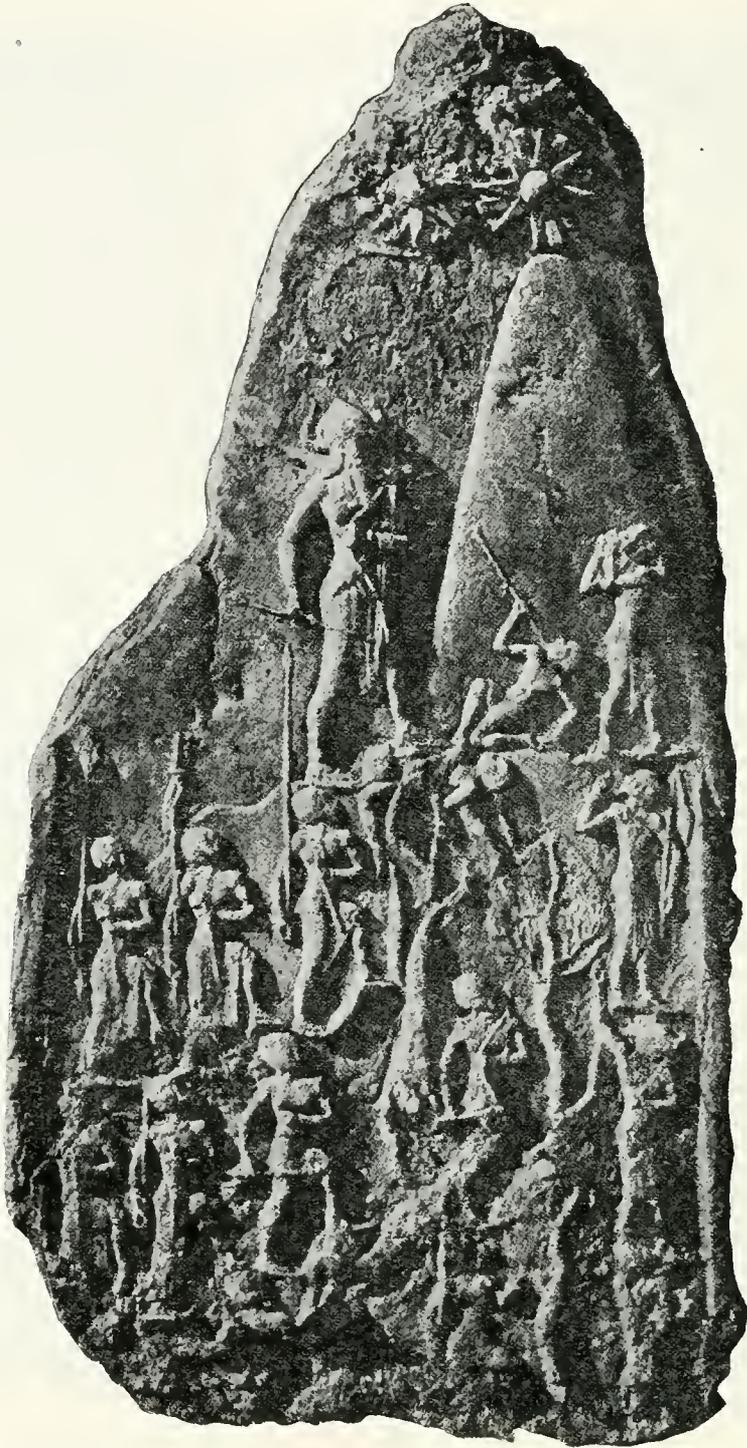


CODEX HAMMURABI.

Part of the inscription on the Hammurabi monument.

its statutes there are many that would have no sense except for a servile nation.

Dr. Johannes Jeremias has devoted a special pamphlet to a comparison of Moses and Hammurabi, and he quotes several pages of no less than twenty-six instances in which the Mosaic law shows



STELE OF VICTORY OF NARAM-SIN (BATTLE OF THE HEIGHTS).

a close agreement with the codex Hammurabi. The laws concerning the institution of slavery are very similar, and the liberation of slaves takes place according to similar rites and under similar con-

ditions. Frequently we find that Hammurabi is more humane, and accordingly belongs to a more advanced period of civilisation than Moses. In other instances Moses takes a higher ground.

Moses says (chap. xxi. 15): "He that smiteth his father or his mother shall be surely put to death." Hammurabi says (No. 195): "Who smiteth his father loses the offending limb." "Any one who inflicts a bodily injury must bear the damage and pay the physician." (Exodus xxi. 18, 19.) Hammurabi in No. 206 adds that bodily injury, even if not intentional, involves damage and payment of the physician. The distinction between accidental and incidental injuries are common to both the law of Moses and the codex Hammurabi; they are very significant for a comparison of the two. The punishment for an injury inflicted upon a woman with child is according to Moses left to the judgment of the husband of the injured. The same crime, according to Hammurabi, is punishable by a fine of ten shekels of silver.

Should any one be killed by a bull, the owner of the animal shall not be punished, but the bull is to be slain, according to both Moses and Hammurabi. According to Moses (Ex. xxi. 29) a case of death through carelessness is punishable by the death of the guilty person; but the condemned can redeem himself by paying a penalty. Hammurabi (251) omits to mention capital punishment, and fixes the penalty at one half mine of silver.<sup>1</sup> Slaying a burglar in self-defence is allowed by Moses (chapter xxii. 1), and Hammurabi (22). We need not go further into details; they are too numerous and too remarkable to be attributed to chance. The similarities between the laws of Israel and the codex Hammurabi presuppose a definite and real relation between the legal institutions of the two nations; and Dr. Jeremias comes to the conclusion that the two codices must have been derived from a common source. He believes, he has found it in the old Arabic law, which contains traces indicating that both could have been derived from the same Arabian traditions, and thus Arabia, the home of the Kenite Jethro, the father-in-law of Moses, would have to be considered as the original home of both the Mosaic law and the codex Hammurabi.

The theory of the Arabic origin of Babylonian laws (except in a very remote sense<sup>2</sup>) is unquestionably excluded, for the Arabians are nomads and the laws of the sessile Semites both in Palestine and Israel must have been worked out by an agricultural people.

<sup>1</sup> Not two mines, as the English translation has it.

<sup>2</sup> Arabia is the original home of all Semites, and traces of the desert life, the Nomad spirit, the trading instinct, etc., cling to the Semites even to-day.

Dr. Jeremias glories in the fact that the codex Moses is an historical reality and that thus the Old Testament traditions have again been verified and found trustworthy beyond all expectation; but he cannot deny that great glory is reflected upon Hammurabi, whose age must have been a time of prosperity, of peace, of a dispensation of justice, and of remarkable religious toleration. He concludes the seventh chapter of his booklet with this sentence:

“With satisfaction and joy I confess that through the discovery and the character of the codex Hammurabi my conviction of the divinity of the Thora is deepened.”

Both codices, that of Moses and that of Hammurabi, claim a supernatural origin. The Babylonian stele pictures Hammurabi as standing in the presence of Samas, the supreme god, the protector of law and order; and Yahveh had engraved the decalogue on the stone tablet with his own finger. Dr. Jeremias expresses his view on the question of divine revelation as follows:

“The revelation of the codex Hammurabi rests in the last instance upon an illusion; there is missing the evidence of its reality and the ring of a deep-felt conviction. Among its legal institutions there is not one which might not have risen in the minds of priestly law students; and according to a natural process of evolution through an observation of legal habits. The law of the Sinai, however, reveals a spirit which passes all understanding, and this appears in its very initial words, ‘I am Yahveh, thy God’; for the God of Israel had proven himself omnipotent.”

We do not begrudge Moses full recognition of the merits of his legislation, but it seems to us that the law of Moses and the Codex Hammurabi are about on the same level. The former may range as high as, perhaps even a little higher than, the latter. But we must confess that the enthusiasm and zeal of Dr. Jeremias in his attempt at proving the former a divine revelation at the cost of the latter can only evoke a smile. On page 39, footnote 3, he exclaims:

“How grand, in the description of the fall and in Gen. iv. 7, is the idea of the origin of sin from desire! No man ever devised it. It is inconceivable.”

What a poor and narrow conception of God is involved in this antiquated notion of a special revelation! How much grander is the broader view of the superpersonal God who spoke not through Moses alone, but also through Hammurabi, and Plato, and Buddha, and Lao-Tze; who is omnipresent and whose chosen people are all those who choose Him; all those who seek the truth, and find it, and follow it.

## JOHN WESLEY POWELL.

### V. THE INVESTIGATOR.

BY G. K. GILBERT.

[CONTINUED.]

THE second series of essays devoted to the subject of human evolution is based upon the five classes into which human activities are divided and upon the subdivision of these classes. The series is incomplete, but so far as it goes it traverses the ground of the essays of the preceding series, by treating of the evolution of individual activities from their lowest to their highest stages. The essays will be enumerated under their appropriate classes without reference to their order of publication, and it will be convenient to group with them certain papers falling outside the evolutionary series but admitting of the same classification by activities.

Within the province of æsthetic arts are two papers. "Esthetics or the Science of Activities Designed to Give Pleasure" (*American Anthropologist*, 1899) develops a classification of the æsthetic arts and briefly outlines the evolution of each. "Evolution of Music from Dance to Symphony" (*A. A. A. S.*, 1889) traces the development of musical art from its origin with dancing by the successive addition of melody, harmony, and symphony.

In like manner an essay entitled "Technology, or the Science of Industries" (*American Anthropologist*, 1899) classifies the industrial arts, or those activities which conduce to welfare; but the lines of evolution in this field are only briefly indicated.

Under the head of institutions are to be classed four papers,— "Kinship and the Tribe," "Kinship and the Clan," "Tribal Marriage Law," and "Sociology or the Science of Institutions."

Tribal society is organised on a basis of kinship, but the system of kinship differs from that of civilisation. In a tribe the line

between generations is sharply drawn. Within a generation each man is brother to each other man, and this without reference to degrees of consanguinity. Such distinctions as we make by the word cousin are ignored. The generations stand in lineal order, and each male of one generation is accounted the son of each male of the preceding generation and the father of each male of the following generation. In this fundamental respect tribal kinship differs so widely from the kinship system of our community that it is not easy for us to conceive it; and in other respects it is equally strange. The three essays referred to describe tribal kinship, distinguish its two chief varieties, and explain the kinship system of the clans constituting a tribe, as well as the strange marriage systems which result from and serve to perpetuate the systems of kinship. (*Third Ann. Report Bureau of Ethnology*, 1883.)

Here also should be mentioned an address on the "Outlines of Sociology" (*Anthrop. Soc.*, 1882), in which the State is defined, its evolution is described, and its regulative functions are classified.

Three works fall under the head of language. The first is an "Introduction to the Study of Indian Languages" (1880), and is essentially a code of instructions for the collection of linguistic material. A code of instructions to observers is primarily an enumeration of the particulars as to which information is desired, or as to which it is expected that information can be obtained. These particulars are the categories of existing generalisations on the subject, together with those bearing on existing hypothesis. The full code of instructions for new observation thus embodies the results of all earlier observation, generalisation, and explanation. The language of a people, being invented for the communication of their thoughts, embodies in its vocabulary their arts, their institutions, and their philosophy; and an Indian language cannot be profitably studied unless the other activities of the tribe either are understood or are simultaneously studied. And so Powell's *Introduction* includes under its modest title a succinct compend of the generalisations of North American ethnology.

The second work under this head is an essay on the "Evolution of Language" (*First Annual Report Bureau of Ethnology*, 1881). Linguistic progress includes very little addition of new material, but consists chiefly of internal change. The processes of change are classed as Combination, or the union of two or more words for a new purpose, Vocal Mutation, Intonation, and Placement or the association of sense relations with the relative positions of words in a sentence. It is shown that the primitive languages differ from

the advanced in their imperfect discrimination of parts of speech, in their elaborate inflection, and in their lack of general terms. Progress is through the differentiation of the parts of speech and the substitution of general terms and separable qualifiers for inflected words. "Judged by these criteria, the English stands alone in the highest rank; but as a written language, in the way in which its alphabet is used, the English has but just emerged from a barbaric condition."

The remaining work is an essay on "Philology," which is considered as "the science of activities designed for expression" (*American Anthropologist*, 1900). The activities are classified as emotional, oral, gestural, written, and logistic languages, logistic language including notations, like the algebraic and musical, in which ideas are expressed directly by signs, without the necessary implication of words. The science of oral language is developed at some length.

Four addresses and essays were devoted to philosophies, or the systems of explanation of the phenomena of nature: the "Philosophy of the North American Indians" was read to the American Geographical Society in 1876, and "Mythologic Philosophy" to a section of the American Association for the Advancement of Science in 1879. The "Lessons of Folklore" and "Sophiology or the Science of Activities Designed to give Instruction" appeared in the *American Anthropologist* in 1900 and 1901. The first is chiefly descriptive. The second compares mythic explanations with scientific, discusses the successive stages of mythologic philosophy, and indicates the dependence on it of ancientism, spiritism, thaumaturgics, and religion. The third deals with the evolution of philosophies, by pointing out various survivals of primitive explanations in various classical and modern systems of philosophy. The fourth outlines the evolution of philosophies as an introduction to classification of the ways in which opinions are propagated. Perhaps a fifth paper should be added to this group, an essay on "The Evolution of Religion," contributed to *The Monist* in 1898. The following extracts are selected from the first and second essays:

"To fully present to you the condition of savagery, as illustrated in their philosophy, three obstacles appear. After all the years I have spent among the Indians in their mountain villages, I am not certain that I have sufficiently divorced myself from the thoughts and ways of civilisation to properly appreciate their childish beliefs. The second obstacle subsists in your own knowledge of the methods and powers of nature, and the ways of civilised so-

ciety; and when I attempt to tell you what an Indian thinks, I fear you will never fully forget what you know, and thus you will be led to give too deep a meaning to a savage explanation; or, on the other hand, contrasting an Indian concept with your own, the manifest absurdity will sound to you as an idle tale too simple to deserve mention, or too false to deserve credence. The third difficulty lies in the attempt to put savage thoughts into civilised language; our words are so full of meaning, carry with them so many great thoughts and collateral ideas. In English I say 'wind,' and you think of atmosphere in revolution with the earth, heated at the tropics and cooled at the poles, and set into great currents that are diverted from their courses in passing back and forth from tropical to polar regions; you think of ten thousand complicating conditions by which local currents are produced, and the word suggests all the lore of the Weather Bureau,—that great triumph of American science. But I say *neir* to a savage, and he thinks of a great monster, a breathing beast beyond the mountains of the west."<sup>1</sup>

"There are two grand stages of philosophy,—the mythologic and the scientific. In the first, all phenomena are explained by analogies derived from subjective human experiences; in the latter, phenomena are explained as orderly successions of events.

"In sublime egotism man first interprets the cosmos as an extension of himself; he classifies the phenomena of the outer world by their analogies with subjective phenomena; his measure of distance is his own pace, his measure of time his own sleep, for he says, 'It is a thousand paces to the great rock,' or 'It is a hundred sleeps to the great feast.' Noises are voices, powers are hands, movements are made afoot. By subjective examination discovering in himself will and design, and by inductive reason discovering will and design in his fellow men and in animals, he extends the induction to all the cosmos, and there discovers in all things will and design. All phenomena are supposed to be the acts of some one and that some one having will and purpose. In mythologic philosophy the phenomena of the outer physical world are supposed to be the acts of living, willing, designing personages. The simple are compared with and explained by the complex. In scientific philosophy, phenomena are supposed to be children of antecedent phenomena, and so far as science goes with its explanation they are thus interpreted. Man with the subjective phenomena gathered about him is studied from an objective point of view and the phenomena of subjective life are relegated to the categories

<sup>1</sup> *American Geog. Soc. Journal*, Vol. VIII., p. 253.

established in the classification of the phenomena of the outer world; thus the complex is studied by resolving it into its simple constituents.”<sup>1</sup>

“In Shoshoni, the rainbow is a beautiful serpent that abrades the firmament of ice to give us snow and rain. In Norse, the rainbow is the bridge Bifrost spanning the space between heaven and earth. In the Iliad, the rainbow is the goddess Iris, the messenger of the King of Olympus. In Hebrew, the rainbow is the witness to a covenant. In science, the rainbow is an analysis of white light into its constituent colors by the refraction of raindrops.”<sup>2</sup>

Powell's own philosophy, to the formulation of which he devoted several years, is published in *Truth and Error*, a volume which contains also a treatise on psychology. Had his full plan been carried out, *Truth and Error* would have been followed by two other books, the second bearing the title *Good and Evil*. The writing of the second book was completed—the last effective work of his life—and its chapters were printed as independent essays in the *American Anthropologist*. One of them, “The Categories,” pertains to the field of general philosophy; the others have already been mentioned as treatises on human activities.

His only writing devoted largely to intellectual methods is an address to the Biological Society of Washington at its Darwin Memorial Meeting in 1882. Three groups of philosophies are here recognised, the mythologic, the metaphysic, and the scientific. It is shown that the method of metaphysics is formal logic, while the method of science consists of induction and hypothesis.

“Now the machine called logic, the tool of the metaphysician, is curiously constructed. Its chief hypothesis is that man was primitively endowed with fundamental principles as a basis of reasoning, and that these principles can be formulated. These fundamental principles are supposed to be universal, and to be everywhere accepted by mankind as self-evident propositions of the highest order, and of the broadest generalisation. These fundamental propositions were called *major* propositions. The machine, in formal logic, was a verbal juxtaposition of propositions with the major propositions at the head, followed by the minor propositions, and from this truth was supposed to flow.

“This formal logic of the Aristotelian epoch has lived from that period to the period of science. Logic is the instrument of metaphysics, and metaphysic philosophy, in its multifarious forms,

<sup>1</sup>*American Association Adv. Sci., Proc.*, Vol. XXVIII., pp. 253-254.

<sup>2</sup>*American Association Adv. Sci., Proc.*, Vol. XXVIII., p. 259.

is the product of logic. But during all that time—2,000 years—no truth has been discovered, no error has been detected, by the use of the logical machine. Its fundamental assumption is false.

“It has been discovered that man is not endowed with a body of major propositions. It is found that in the course of the evolution of mind minor propositions are discovered first, and major propositions are reached only by the combination of minor propositions; that always in the search for truth the minor proposition comes first, and that no major proposition can ever be accepted until the minor propositions included therein have been demonstrated.

“The error in the metaphysic philosophy was the assumption that the great truths were already known by mankind, and that by the proper use of the logical machine all minor truths could be discovered, and all errors eliminated from philosophy. As metaphysic methods of reasoning were wrong, metaphysic philosophies were false; the body of metaphysic philosophy is a phantasmagoria.”<sup>1</sup>

Two important essays cannot be included under any of the above classes, as they discuss the material of all. They treat of the methods to be pursued in anthropologic research and the methods to be avoided, of the fruitful lines of inquiry and the barren, of the dangers from the use of superficial observations and of the dangers from faulty principles of interpretation. They are to a certain extent the codification of the counsel by which he has guided the work of his associates in the Bureau of Ethnology, and they are contained in the *Annual Reports* of the Bureau. One is on “Limitations to the Use of Certain Anthropologic Data,” the other on “Activital Similarities.”

“Here again [in sociology] North America presents a wide and interesting field to the investigator, for it has within its extent many distinct governments, and these governments, so far as investigations have been carried, are found to belong to a type more primitive than any of the feudalities from which the civilised nations of the earth sprang, as shown by concurrently recorded history.

“Yet in this history many facts have been discovered suggesting that feudalities themselves had an origin in something more primitive. In the study of the tribes of the world a multitude of sociologic institutions and customs have been discovered, and in reviewing the history of feudalities it is seen that many of their important elements are survivals from tribal society.

<sup>1</sup> *Biolog. Soc. Wash., Proc.*, Vol. 1., p. 63.

“So important are these discoveries that all human history has to be rewritten, the whole philosophy of history reconstructed. Government does not begin in the ascendancy of chieftains through prowess in war, but in the slow specialisation of executive functions from communal associations based on kinship. Deliberative assemblies do not start in councils gathered by chieftains, but councils precede chieftaincies. Law does not begin in contract, but is the development of custom. Land tenure does not begin in grants from the monarch or the feudal lord, but a system of tenure in common by gentes or tribes is developed into a system of tenure in severalty. Evolution in society has not been from militancy to industrialism, but from organisation based on kinship to organisation based on property, and alongside of the specialisations of the industries of peace the arts of war have been specialised.

“So, one by one, the theories of metaphysical writers on sociology are overthrown, and the facts of history are taking their place, and the philosophy of history is being erected out of materials accumulating by objective studies of mankind.”<sup>1</sup>

The present chapter on Powell's scientific work and the following chapter on his administrative work were written about twelve years ago, at a time when he was at the head of the Geological Survey as well as the Bureau of Ethnology. In preparing them for publication at the present time, the writer has so far revised them that they cover the whole period of his literary and executive activity. But the following account of his literary style and literary habits, written at the zenith of his activity, is permitted to stand without change of tense or other qualification.

Powell's literary style is influenced in a curious and interesting manner by his philosophy. Science does not invent, but discovers; and that which has been discovered needs only to be published in order to become a part of the world's knowledge. It differs in this respect from metaphysics, which postulates its principles and then by the methods of formal logic undertakes to prove its results. In metaphysics demonstration is proving; in science demonstration is merely pointing out. So that all that is absolutely necessary to the presentation of a scientific result is its statement; if the result is worthy of acceptance, it will ultimately be received, for it will be found to accord invariably with the results of new observation. The absolute generality of a conclusion can be established only by comparing it with all the phenomena, and as this is impossible, such comparison as is made serves only to illustrate. The citation

<sup>1</sup> *First Annual Report Bureau of Ethnology*, 1881, p. 83.

of particular instances usually assists the comprehension of a general idea, and illustration is thus a useful adjunct to statement. Powell's philosophical writings thus consist of the statement of results, with a small amount of illustration, and in many instances without illustration. They are for the most part highly concise, and as they often lead the ordinary reader into novel realms of thought, much study is sometimes necessary to their full comprehension. On the other hand, some of his generalisations are so simple as compared to the theories or postulates which they supplant, and are so readily grasped, that they are accepted as axioms and not recognised as the results of laborious research and profound thought.

His style has been further influenced by the loss of his right hand, and by a remarkable power of controlling his attention. The loss of his hand in early manhood led him to depend to an exceptional degree on amanuenses. All of his scientific writings have been dictated to shorthand writers, and escaping thus the delay and the divided attention involved in the personal use of the pen, he has been able to select words with unusual care.

His power to control his attention is exemplified in the daily transaction of business at his official desk. The dictation of a letter or of an essay will be interrupted by a question from a subordinate or by a visitor, and as soon as the temporary business has been transacted the dictation is resumed at the point of leaving off without apparent effort. Through this remarkable power he is able to direct his attention to any selected subject of thought and there concentrate it for an indefinite period. The intellectual labor necessary to the arrangement of a subject for composition is performed without the aid of notes, and the entire subject is elaborated and stored in the mind before its record is begun. This elaboration extends to the division of the subject into distinct propositions and the arrangement of these propositions in a logical order. It does not ordinarily extend to the framing of sentences, but the ideas to be expressed have passed out of the haze of suggestion into the clear light of full perception before dictation is attempted. Thus in a second way it results that close attention is given to the selection of words and phrases and the framing of sentences. With many writers the employment of a shorthand amanuensis leads to a diffuse style, characterised by long and involved sentences, but in Powell's case such employment is coincident with a concise style and the prevalence of short sentences,—a difference which I conceive to be due to the fact that his subject is thought out in advance.

During the period of mental elaboration, while the subject is undergoing classification and arrangement, it is often rehearsed to friends in the guise of a topic of conversation; and while it is thus fully at command, it is apt to be drawn on as material for post-prandial speeches and other occasional and extempore remarks and especially for discussions in scientific societies. In such ways he tests in advance the reception of the results of his cogitation before committing them even to the private record of the written page. It has occasionally happened that the thoughts thus set afloat have received publication in the writings of others before they appeared in his own. Probably the appropriation has usually been unconscious, but whether so or not the matter is of little moment, for a mind fertile as Powell's need not be a stickler for priority of thought, and the world need not care from what source flow the ideas that constitute its progress.

During dictation his mental activity is correlated with a certain amount of muscular action, as is the case with many authors. Sometimes he sits in a pivoted chair, swinging it one way and another, and accompanying emphatic passages by gesture. More frequently he paces the floor, with a cigar, lighted or unlighted, in mouth or hand, raising his voice and gesturing with hand and body as though addressing an audience.

Despite the thoroughness of his mental preparation, the manuscript of a scientific article is rarely complete at first writing, but is in that stage criticised in all respects, from its verbiage to its general logic. It is brought under view from time to time for several days, and if possible for several weeks, and is again submitted to friends conversant with the subject for the purpose of eliciting discussion and criticism.

As a speaker Powell is deliberate and effective. When no manuscript has been prepared, he frames his sentences clearly and completely, and in the style characteristic of his essays. His voice is of moderate strength, but sufficient for the ordinary lyceum audience. Warmed to his subject, his gestures are frequent and withal spontaneous and unconscious. When he speaks in Washington, where he is well known, the audience room is always filled, and he is equally popular on various lecture circuits of the country. In the early years of his governmental work, when he expended his entire appropriation in exploration and drew no salary, he supported himself by lecturing, arranging for a tour whenever his finances demanded it.

As a debater he is peculiarly ready, not with repartee but with

ideas. Indeed the term "debate" ill applies to the discussions in which he ordinarily participates, for these are at the meetings of scientific societies, where the general object is the discovery of truth and not rhetorical victory. His remarks are especially characterised by the originality of their point of view, which usually rises above the special subject and presents some phase of his comprehensive philosophy.

He often attempts to illustrate what he says by marking with crayon on a blackboard, just as in conversation he frequently marks with pen or pencil on a sheet of paper, but such attempts serve only the purpose of gesture, correlating a certain amount of muscular activity with the mental activity of the moment. The lines he draws rarely bear any relation to the subject.

His hours of labor and hours of recreation and rest have little relation to official hours of business, and he pays small heed to the mandates of the sun. His executive duties indeed require his presence in certain places at certain times, but his scientific work has no fixed time. It recurs to his mind after each interruption, and holds his attention until the next. Recreation in the earlier years of his governmental work was given no regular place, although his life was far from devoid of it. It consisted chiefly of the conversation of friends and family, but included also games. He was fond of whist, euchre, and cribbage, being an expert at the last, and billiards was a favorite entertainment until a disease of the eye impaired his skill. He also drove much, being fond of horses and an expert reinsman, despite the loss of his right hand. These various recreations filled only hours of comparative leisure, and were relinquished for days and even weeks whenever his energies were specially demanded by a crisis of affairs or the formulation of a scientific subject. Of late years considerations of health have dictated regular exercise, and he has adopted the practice of spending some hours each day in the saddle. Multiplying responsibilities clamor for the remainder of his time, and other recreations are relinquished, unless indeed the social duties incident to his official position be regarded as recreations.

Comparatively few hours are demanded for sleep, and few are given. The hour of retiring is apt to be late, and it is a life-long habit not to linger in bed awake, but to rise on waking whatever the hour. On the other hand, the artificial termination of sleep is not tolerated when it can be avoided.

## THE EVOLUTION OF ORNAMENT.

BY THE EDITOR.

CROSSES are now worn as ornaments, which is the third stage in an interesting process of evolution. The savage, who is afraid of evil spirits, defends himself by amulets which he hangs before his mouth, nose, and ears, to prevent their entering through these openings of the head, and also on his feet, arms, and breast. Thus we find men and women decked with rings, necklaces, and pendants of all kinds. Ear-lobes, lips, and nose are pierced for the purpose of having the protecting charms attached. Feathers are stuck into the hair, and the head is mounted with horns or the jaws of wild animals. This is the first stage, which we characterise as a belief in magic.



NOSE-RING.

As worn by an Egyptian woman of the present age. (After Lane.  
From Riehm. *Hdw. d. B. A.*, p. 1073.)

This primitive and superstitious state of things gradually changes through a diminution of the trust placed in the efficacy of magic power. The practice of wearing talismans, however, continues partly through habit, partly through love of the traditional totems which now become emblems, a kind of coats of arms. Though they are no longer believed to be endowed with supernatural power, they still serve the purpose of indicating the clan of the wearer, his affiliation with a society as well as the degree he has attained in it. This is the second or emblematic stage, which

is a period in which the right to use a special coat of arms with a crown of five or seven balls is a question of grave importance and may lead to protracted law suits.

The third stage begins when the societies and the degrees of rank lose first their special privileges, then their rank, and finally even their historical interest. But society continues to use the old emblems. People have grown accustomed to them and regard them as beautiful. Society now toys with them, and the ancient

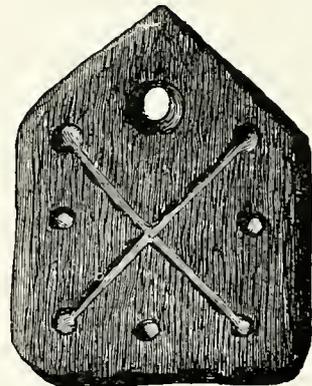


VIRA BHADRA.

From Moor's *Hindu Pantheon*,  
pl. xxiii, p. 105.<sup>1</sup>



A VASE COVERED  
WITH CROSSES,  
FOUND IN LAY-  
BACH.<sup>2</sup>



A DOTTED CROSS STANDING  
ON EDGE. Neolithic orna-  
ment of the cave-dwellers  
of Franconia. (Museum  
of Munich. After Johan-  
nes Ranke.)

emblems are now worn as mere ornaments. This is the third and ornamental stage.

In time the ornamental stage may give way to a fourth period which will be the neglect of ornament. People will then become

<sup>1</sup> Vira Bhadra, a son and an Avatar of Siva mentioned by Moor as a popular hero of extensive celebrity among the Hindus, carries a Latin cross on his helmet in the place where modern soldiers wear the coat of arms of their country. The illustration of Vira Bhadra "was drawn from a brass cast nine inches high in very bold relief, the principal figure projecting considerably."

<sup>2</sup> After Mortillet, *Musée préhistorique*. From Zmigrodzki, No. 161.

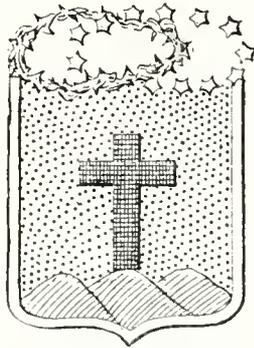
aware of the fact that the wearing of ornaments is a survival of savagery, and they will continue wearing them only when it serves a purpose. The tendency will be toward simplicity and the avoidance of the gaudy and showy. This fourth stage, which is a period of neglect, sets in with a change of taste when the last trace of the notion that a certain piece of ornament is desirable has been lost.

The fourth period is occasionally followed by the archaistic stage, which arises from a love of antiquities and consists in a return to ancient forms because they are ancient.

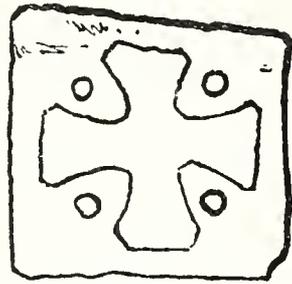
These five stages, however, must not be conceived as being historically distinct periods; for, first, different strata of society belonging to different phases in the evolution of culture live peacefully and contemporaneously together; and, secondly, the different ornaments do not pass through their stages simultaneously. The lip-rings were abandoned first; nose-rings are mentioned in the



THE CROSS AS A NECK-ORNAMENT.<sup>1</sup>



JESUS CHRIST'S BRAZILIAN COAT-OF-ARMS.<sup>1</sup>



AN ANCIENT PAGAN STONE.<sup>2</sup>

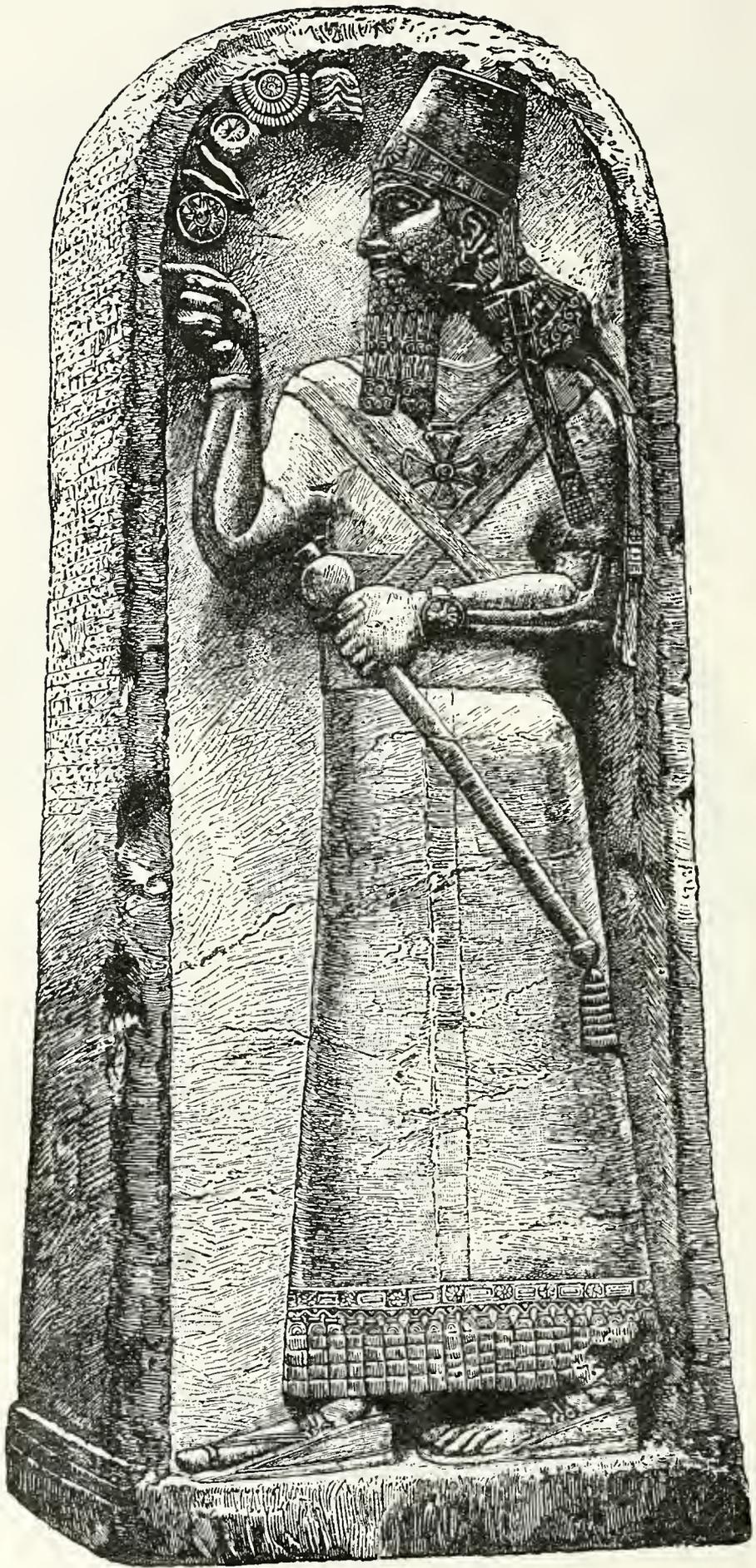
Bible as befitting a beautiful face and are worn in some parts of Syria and Egypt even to-day. Finger-rings are in use at present, although it is now deemed a mark of bad taste if there is a display of many and showy rings that make the hand look like a jeweler's shop. The wedding-ring honorably maintains its place in the second stage as an emblem of faithfulness, while the rings of the upper arm have become a matter of the past, except for masquerades.

When Eliezer met Rebekah at the well, he put a "ring upon her nose," which the translator, being unable to understand that

<sup>1</sup> After Schieman's *Tiryns*, 36. From Zmigrodzki, *loc. cit.*, No. 101.

<sup>2</sup> Preserved in the church of Inowroclaw near Posen. Zmigrodzki, *loc. cit.*, No. 144.

The cross preserved in the church of Inowroclaw is, according to the statement of its priest made to Dr. Zmigrodzki (*Gesch. der Swastika*, p. 183), of pagan origin. The church is very old and was presumably built in the eleventh century on the site and from the materials of a pagan temple. It contains in the Presbytery on the left side of the main altar six granite blocks with several sculptures, one being a dog and a pig upside down, which is an evidence of their being inserted at random. Besides the dotted cross here reproduced, there are three more crosses on these ancient stones.



SAMSI RAMAN III., WITH A CROSS ON HIS BREAST.<sup>1</sup> (See footnote, opposite page.)

the Hebrew patriarchs differed so much in taste from ourselves, changes to earring. Even men have worn nose-rings, as appears from Job xlii. 2, where we read that every one of Job's friends gave him money and one nose-ring.<sup>2</sup>

Herr Ohnefalsch-Richter has pointed out that the goddess Aphrodite-Astarte at Cyprus (as represented in a statue) wore a nose-ring (*Bulletin of the Société d'Anthrop.* Paris, Dec. 1888; cf. Reinach, *Chronique de l'Orient*, 3<sup>me</sup> série, t. IV., 1886).

Nose-rings are still worn to-day by some of the lower classes of the Orient, especially Egypt. According to Lane (III., p. 214) the ring is generally worn in the right nostril, as shown in the illustration; it is from 1 to 1½ (sometimes even 3) inches in diameter and is ornamented with three or four balls or other pendants. Ardieux (III., 252) mentions it as a joke common among the Arabians that the men try to kiss their women through the nose-ring.

With many of us of the present generation, the cross is now in its third, sometimes even in its fourth, stage. Some people have purposely begun to discard it, while to others it is a mere ornament, which is used without any reason whatever. Would not the cross in its Christian significance as referring to the martyr-death of Christ be glaringly out of place on the bosom of a belle at a ball? Yet how often is the cross used under similar circumstances, and no one sees any incongruity in it.

Coats of arms have lost their significance in America; yet they are not infrequently used, indicating a revival of the sense for tradition which had been almost lost in the New World.

There is no objection whatever to Americans' continuing the use of coats of arms, but I would suggest that those interested in American heraldry should come to an agreement to replace the crowned helmets of European coats of arms by some befitting American symbol, say, for instance, a ribbon of thirteen stars, which might be white for Northern families, red for Southern families, and blue for the wide West. Should a more elaborate design be desired for special purposes, we suggest an Indian head, such

<sup>1</sup> British Museum. From Lenormant, Vol. IV., p. 206. The same cross is represented on the breast of other kings and it occurs otherwise on monuments, together with the sun and the moon, in a style similar to that in which Ahura Mazda is pictured above Persian kings, which indicates that it must have been the emblem of deity, perhaps a monotheistic conception of God.

<sup>2</sup> The word  (*nedzem*), literally the "piercer," denotes nose-ring or earring in contrast to arm and finger-ring. Its significance as "nose-ring" becomes obvious through the passages Gen. xxiv. 47, Is. iii. 21, Prov. xi. 22, where the nose is specially mentioned in the original, while in Gen. xxxv. 4 it means "earring." In Job xlii. 2 the meaning "nose-ring" is preferable, because it is expressly stated that Job received *one* piercing-ring, not two. In Judges viii. 24-25 the meaning is doubtful.

as appears on our pennies, encircled by thirteen stars or some other unmistakable emblem of the New World.

The thwart or figure of intersecting lines has twice passed through the five stages of this development: first as the pagan symbol of life and bliss and then as the Christian cross. The cross was used for exorcism in the beginning of the Middle Ages; it then became the coat of arms of the crusaders as an emblem, and it is now worn for ornament.

The cross is a favorite design in family coats of arms among all the nations of the world. The Union Jack of Great Britain is a combination of three crosses, those of St. George, St. Andrew, and St. Patrick; while simple crosses of various colors appear in the flags of Switzerland, Denmark, Sweden, Norway, Italy, Greece, Samoa, etc., not to mention the emblematic crosses of lake-dwellers, and cave-dwellers, and other primitive peoples.

Further, the cross is the form of more than half of the decorations in the world with which kings and emperors feed the ambition of their faithful servants. But very few of these crosses are Latin crosses, or can be interpreted as crosses; they are obviously mere thwarts, and the most ancient of them may date back to pagan times when a thwart—a figure of two intersecting lines—still had its original pagan significance.

At any rate, Assyrian kings wore a cross (or rather a thwart) as a decoration upon their breast which closely resembles modern decorations.

As a curiosum we reproduce here the coat of arms which was officially awarded to Jesus Christ on his being admitted to the nobility of the Empire of Brazil. It shows a black cross mounted upon three green hills in a golden field, and is covered with a double crown of thorns and stars.

# ON THE DETERMINATION OF HIGH TEMPERATURES.<sup>1</sup>

BY DR. ERNST MACH.

REFERENCE must here be made in connection with our discussions of the concept of temperature to the so-called *pyrometric* methods, or expedients for determining high temperatures. Newton<sup>2</sup> is the first to have devised a method of this kind, and we shall simply state his idea, without at present making any critical comment.

Newton observed, by the aid of a linseed-oil thermometer, that the loss of temperature of a hot body exposed to a uniformly cold current of air was for the same interval of time proportional to the temperature-difference of the body and the air, and *assumed* that this relation held universally for all temperatures, however high. Imagine two bodies,  $A$  and  $A'$ , alike in all respects, save that the difference between the temperature of the air and that of  $A'$  is twice the corresponding difference for the air and  $A$ . Allowing these bodies to cool during the same element of time  $t$ ,  $A'$  will lose twice as much as  $A$ , and the excess of its temperature above that of the air will at the end of time  $t$  be again twice that of  $A$ . The same reasoning holds true for the succeeding element  $t_2$ , and so for the rest. Hence, in the process of cooling during any interval of time  $t$ ,  $A'$  will lose twice as much as  $A$ . The generalisation is obvious.

Now let a body  $A$  at a very high temperature cool, and call the *equal* intervals into which the total time of cooling is divided,  $t_1, t_2, \dots, t_{n-1}, t_n$ . Suppose the excess of temperature of the body at the beginning of the last interval  $t_n$  is  $2u$ , but at the end of it it is  $u$ , then on the preceding assumption it follows that at the beginning

<sup>1</sup> Translated from Mach's *Principien der Wärmelehre* by Thomas J. McCormack.

<sup>2</sup> *Newtoni Opuscula*, Lausanne and Geneva, 1744, Vol. II., p. 419. *Scala graduum caloris et frigoris*, *Phil. Trans.*, 1701, XXII., p. 824.

of the equal intervals  $t_{n-1}$ ,  $t_{n-2}$ ,  $t_{n-3}$ , . . . it would show respectively the excesses of temperature,  $4u = 2^2u$ ,  $8u = 2^3u$ ,  $16u = 2^4u$ . Newton ascertained the time  $t_n$  and the value of  $u$  by means of a linseed-oil thermometer, and was thus able to assign the temperature at every other prior period of the cooling.

The body  $A$  was a red-hot mass of iron exposed to a current of air. On it particles of different metals and their alloys were placed and the *time* noted at which they congealed, the idea being to determine the *temperatures of congelation*. From the melting-point of tin downwards the process of cooling could be followed with a linseed-oil thermometer. Newton made the temperature-numbers of this thermometer *proportional* to the voluminal increment of the linseed-oil above the melting-point of ice.

According to Newton, the temperature of boiling water is not quite three times (2.83) that of the human blood ( $37^\circ$  C.), whence  $104^\circ$  C. would follow for the temperature of boiling. For the melting-point of tin ( $5.83 \times 37$ ) he obtained  $215^\circ$  C. (new researches give  $230^\circ$ ); for the temperature of lead ( $8 \times 37$ ) he got  $296^\circ$  (new determinations give  $326^\circ$ ), and for the temperature of red-heat ( $16.25 \times 37$ )  $600^\circ$  C.

At the conclusion of his paper Newton remarks that, owing to the uniformity of the air-current, the same number of air-particles is heated in equal intervals of time, by an amount proportional to the heat of the iron, and that therefore the losses of heat suffered by the iron must be proportional to its heat. But since these losses are in point of fact also proportional to the indications of the linseed-oil thermometer, therefore we are justified in assuming that the heat of a body is proportional to the increase of volume of the linseed-oil thermometer.<sup>1</sup> From this reasoning, in which by the way no distinction is yet made between the concepts "temperature" and "quantity of heat," it would appear that Newton, here as elsewhere, is guided in his enunciations partly by instinct and partly by observation, making the suggestions of the one correct those of the other. It appeared to him *antecedently* obvious that the "losses of the heat" should be proportional to the "heat," and likewise that the "expansion" should be proportional to the "heat." Observation tallied with these views, and so the conceptions were retained.

<sup>1</sup>The original of the passage in question reads: "Locavi autem ferrum, non in aere tranquillo, sed in vento uniformiter spirante, ut aer a ferro calefactus semper abriperetur a vento, et aer frigidus in locum ejus uniformi cum motu succederet. Sic enim aeris partes aequalibus temporibus calefactae sunt, et calorem conceperunt calori proportionalem. Calores autem sic inventi eandem habuerunt rationem inter se, cum caloribus per thermometrum inventis; et propterea rarefactiones olei ipsius caloribus proportionales esse recte assumpsimus."

Critically viewed, matters stand as follows. The temperature-numbers repose on an *arbitrary* convention. They may be taken proportional to the voluminal increments or they may not. But after a decision regarding them has been reached, *observation* alone can decide whether the losses are proportional to the temperatures. On the other hand, the temperature-numbers could be so *chosen* that the losses would be proportional to the temperatures even on the assumption of some different law of cooling from that actually obtaining.

There is thus no necessary connection between Newton's propositions. Nothing whatever follows from his observations regarding the correctness or incorrectness of his scale of temperature. Dulong and Petit have in fact shown, as we shall see later, that the harmony between Newton's assertions is immediately ruptured if the observations on cooling are made with a thermometer within wide limits of temperature and with greater care than Newton bestowed upon them. Newton's two assumptions contain, so to speak, two different scales of temperature.

But nothing would prevent our employing Newton's pyrometric principle as a *definition of a scale of temperature*, by considering on some principle of co-ordination the times counted backwards as *inventorial numbers* of the corresponding thermal states of the cooling body. Whether this definition is or is not independent of the nature of the bodies and what is the relation of this scale to any other now in common use, could be ascertained only by special experiments and only to the extent to which the two scales under comparison were actually and simultaneously accessible (without extrapolation) to experiment.

Another pyrometric method, early devised by Amontons<sup>1</sup> in imperfect form, was employed by Biot. Biot<sup>2</sup> showed by experiment and from considerations of theory that in a metal bar one end of which has been exposed sufficiently long to a constant source of heat, the excesses of the temperature of the bar over that of the air decrease in geometrical progression as we move away in arithmetical progression from the heated end,—as far at least as the process can be followed with a thermometer. Ascertaining the ratio of the progression at the colder end and assuming that the law holds *without limit* for all temperatures, however high, we can infer the temperatures of the places which by reason of their great heat are inaccessible to direct thermometric examination. Amontons had assumed that the temperatures increased from the cold to the

<sup>1</sup> *Histoire de l'Académie*, 1703, p. 6.

<sup>2</sup> *Journal de Mines*, 1804, Vol. XVII., p. 203.

hot end by the law of a straight line. But since the ratio of the above-mentioned progression depends on the dimensions and the material of the bar, it will be seen that the temperature-numbers obtained by Amonton's principle would depart very considerably from those obtained by Biot's. Examining Biot's case within wide ranges of temperature and with greater exactness, as Forbes has recently done, it appears that even within the limits accessible to a thermometer the ratio of the geometrical progression depends on the temperature. Thus Biot's pyrometric principle also, if it is to be consistently maintained, involves a new definition of temperature, and what was said regarding Newton's principle holds true substantially regarding Biot's. As for the rest, the relation between the two methods is simple. In Newton's method the temperatures to be determined *succeed one another*, in Biot's they occur *side by side*. The temperature-numbers employed as inventorial numbers are obtained in the first instance as *measures of time* and in the second as *measures of length*. Newton's idea may have suggested Biot's. Even Lambert<sup>1</sup> sought to correct Amonton's principle after the manner of Biot.<sup>2</sup>

Black also devised a pyrometric method, based on his researches in calorimetry. If a body of mass  $m$  be cooled in a quantity of water  $M$  from the temperature  $u_1$  to the temperature  $u$ , then, as thermometric observation shows, the water  $M$  will be heated by an amount proportional to the product  $ms(u_1 - u)$ , where  $s$  is a constant peculiar to the cooling body (*viz.*, its specific heat). If  $M$  be the mass of the water and  $u_2$  its initial temperature, the equation will obtain

$$ms(u_1 - u) = M(u - u_2),$$

from which follows for the initial temperature  $u_1$  of the cooled body

$$u_1 = u + \frac{M(u - u_2)}{ms}$$

If  $m$  and  $s$  be small and  $M$  large,  $u$  and  $u_2$  will remain within reach of the ordinary thermometric scale, even when the body to be cooled has been heated to a degree far beyond it. Assuming with Black the unlimited validity of the principle, the initial temperature  $u_1$  can still be ascertained from the above equation. For example, we can cool in a large mass of water a piece of iron of known weight and specific heat which has been taken from a fur-

<sup>1</sup> *Pyrometrie*, pp. 184-187.

<sup>2</sup> Black, *Lectures on Chemistry*, German translation by Crell, 1804, Vol. 1., pp. 108, 277.

nance, and ascertain in this way the temperature of the furnace. Inasmuch as the careful inquiries of Dulong and Petit have demonstrated that  $s$  depends on the temperature even within the limits of the ordinary scale, and since any investigation of  $s$  outside the limits of this scale is impossible, it will be seen that Black's pyrometric principle also involves a new definition of temperature. Substantially the same remarks may be made with respect to this method as were advanced regarding the methods discussed above.

A pyrometric method can be constructed on the basis of any physical property which varies with the thermal state. Pyrometers have been devised that rest on variations of volume or pressure, and others have been conceived which indicate the thermal state by melting, boiling, dissociation, and alterations of tenacity. The spectral photometer, the polaristrobometer, have also been put to pyrometric use. Acoustic pyrometers are based on the changes in the pitch and the wave-length of a note with the temperature. Finally, change of magnetic moment has been thought of in connection with temperature, and attempts have been made to put to pyrometric use the dependence of electric resistance on the temperature, as well as the alteration of thermoelectromotive force with the temperature. The writings of Weinhold,<sup>1</sup> Bolz,<sup>2</sup> Holborn and Wien,<sup>3</sup> as well as the more recent work of Barus,<sup>4</sup> contain explicit information on all these points, including a rich bibliography.<sup>5</sup>

After the foregoing there will be no doubt that each individual pyrometric method simply furnishes an index of a thermal state by means of which that state can again be recognised and reproduced. For many practical purposes this is in itself very valuable and is often quite sufficient. The number which is the result of any pyrometric observation has therefore no other significance than that of an *inventorial number*. If from three observations we obtain three numbers,  $a < b < c$ , all the information that these numbers furnish is that the thermal state to which  $b$  belongs lies between the two states to which  $a$  and  $c$  belong. It is antecedently unreasonable to expect any agreement between the numbers obtained by the *different* pyrometric methods, for the reason that in general every pyro-

<sup>1</sup>A. Weinhold, *Pyrometrische Versuche*, Poggendorff's *Annalen*, Vol. 149, 1873, p. 186.

<sup>2</sup>C. H. Bolz, *Die Pyrometer*, Berlin, Springer, 1888.

<sup>3</sup>L. Holborn and W. Wien, *Ueber die Messung hoher Temperaturen*, Wiedemann's *Annalen*, Vol. 47, 1892, p. 107.

<sup>4</sup>C. Barus, *Die physikalische Behandlung und die Messung hoher Temperaturen*, Leipzig, J. A. Barth, 1892.

<sup>5</sup>For the bibliography of thermometry see also H. Griesbach, *Physikalisch-chemische Propädeutik*, Leipzig, Engelmann, 1900, Chapter 27, pp. 1-88.—*Tr.*

metric method involves a *special* definition of temperature. The reduction of pyrometric numbers to the Celsius scale can only be performed to the extent within which this method can be employed simultaneously with the air-thermometer. Reductions of this kind have been attempted by Weinhold, Holborn and Wien, to mention only the most important.<sup>1</sup> Sir William Siemens<sup>2</sup> speaks of the calculations of the temperature of the sun which were made by Secchi, Zöllner, and others, and which amounted respectively to 10,000,000° C. and 27,100° C. Apart from the objections which may be raised against the premises of this calculation and the methods of computation, it is to be remarked that indications in *degrees Celsius* far outside the possible limits of employing the air-thermometer have absolutely no meaning whatever.

<sup>1</sup> See the works cited above.

<sup>2</sup> *On the Conservation of Solar Energy*, German translation, Berlin, Springer, 1885, p. 144.

## THE BATTLE OF SHIMONOSEKI.

BY THE EDITOR.

JAPAN, or Nippon as the natives call it, is a most interesting country, and the study of its history is instructive mainly on account of the many similarities which it offers to the history of Europe. Here as well as there, mankind passed through a period of feudalism, and Buddhism played almost exactly the same part in the East as did Christianity in the West; it brought the blessings of a higher civilisation, a noble morality, and the cultivation of the arts, but introduced at the same time (although in a considerably milder form than in Europe) among the priesthood the craving for power and the insolence of a successful hierarchy.

Among the many details that elicit our interest there is the struggle between the Genji<sup>1</sup> and the Heike, which is a parallel to the War of the Roses in England. Both clans of warriors claim descent from the Mikado family. The coat-of-arms of the former bears three gentian flowers above three bamboo leaves in a white field, and the latter carry a butterfly in their crest, and the color of their banner is red.

There was a third family of nobles of no less consequence, called the Fujiwara, but they abstained from partaking in actual warfare and selected as a field for their activity the more peaceful and safer callings of politics, statecraft, the dispensation of law, the patronage of literature, the arts, and religion, and their coat-of-arms is the blue Wistaria blossom, their emblematic color being blue.

The names Genji and Heike are Chinese forms of the Japanese words Minamoto and Taira, and it has become customary in Japan to call the several members of these families by their Japanese

<sup>1</sup> Pronounce *Gen-zhe* and *Hā-i-kā*, the *i* after the *ā* being almost inaudible. According to the rules of transcribing Japanese words, all vowels must upon the whole be given the continental or Italian pronunciation, while the consonants retain their English significance.

names, the white ones "Minamoto" and the red ones "Taira," while the entire clans are designated as the Genji and the Heike.

The rivalry between the two warrior clans was naturally great, and each party strove for the control of the throne. At last Kiyomori, the leader of the Taira family, succeeded in 1156 in taking possession of the palace. The red flag was victorious. Kiyomori became the Warwick of Japan. He assumed the highest office in the government, had his daughter married to the Mikado, made and unmade emperors, banished his adversaries, and finally, when intoxicated with power, decided to exterminate the entire Minamoto clan.

Yoshitomo, the leader of the Genji, the white flag clan, was killed, and his spouse Tokiwa, a most beautiful woman, fled with her children. Kiyomori then seized Tokiwa's mother, and the dutiful daughter returned to release her. She prevailed upon Kiyomori to spare her mother and children, and so the sons of Yoshitomo escaped, and two of them, Yoritomo and Yoshitsune, grew up finally to become the most famous generals of this celebrated contest.

The story of Yoritomo is a favorite subject of Japanese romancers. The boy was banished to Idzu, a remote and almost inaccessible peninsula (now famous for its hot springs), to be educated for the priesthood in a Buddhist monastery, but the spirit of the boy was unmanageable, and the monks called him a "young bull." They allowed him to leave in a merchant vessel, and he entered the service of a Fujiwara nobleman. Two Taira officers trained him in the art of war, and he cultivated the virtues of valor, endurance, self-control, and courtesy. He married Masago, the daughter of Tokimasa, a man of the Hojo family, who promised his assistance when the time of vengeance for the Taira clan had come.

In the meantime Kiyomori's tyranny transcended all bounds, and one of the princes of the Mikado's household plotted to overthrow him. He requested the Taira retainers to remove the insolent prime minister, but they refused. So the prince appealed to the scattered members of the Genji, and the white flag was raised once more. Yoritomo and Yoshitsune became their leaders. Although defeated in the beginning of the war, their cause grew stronger in time, and they made Kamakura their headquarters. When they prepared for a decisive battle, Kiyomori, the tyrannical leader of the red flag, lay dying in Kyoto. We read that Kiyomori's only regret on his dying bed was, that he had not seen the head of Yoritomo cut off. "After I am dead," he commanded, "do not

propitiate Buddha on my behalf, do not chant the sacred liturgies. Only do this,—cut off the head of Yoritomo and hang it on my tomb.”

Kiyomori's blood-thirsty wish was never fulfilled, for the two Minamoto brothers, Yorimoto and Yoshitsune, led the white flag to victory. They conquered Kioto, expelled the Taira dynasty with its supporters, and took possession of the imperial palace. A new Mikado was installed who held the scepter subject to Genji influence.

In the straits of Shimonoseki<sup>1</sup> the fleet of the Minamoto clan attacked the fleet of the Taira, who tried to escape with their families under the protection of war-junks. The naval battle was bitter and to the finish, and here the Taira, viz., the Heike as a clan, were annihilated.

The little boy-Mikado Antoku, a grandson of Kiyomori, had been entrusted to the care of his grandmother, Kiyomori's widow, who was a Buddhist nun. When during the engagement the cause of the Taira became hopeless, this ambitious matron seized the royal insignia, and with the boy-emperor in her arms, leaped into the sea, so as not to be taken alive. The boy's mother Taigo followed, vainly trying to save the child, and all three were drowned.

The insignia of royal power in Japan are the mirror, the spheric crystal gem, and the sword, and they are claimed to be of divine workmanship. Their loss might have been considered ominous by the people, and they had therefore to be restored at any price. So the Minamoto leaders declared that they had recovered them from the depth of the sea, and a later Mikado, the great Taiko, who ruled three centuries after the battle in the Shimonoseki Straits, had a monument erected on a ledge of rocks in the channel of the rushing waters, to commemorate the place where the unhappy child-Mikado met his sad fate.

We conclude our tale with a quotation from Mr. William Elliot Griffis's book *Japan in History, Folk-lore, and Art*, which refers to a *lusus naturæ*, the Heike gani (i. e., the crab of the Heike clan), a peculiar freak of nature which exhibits plainly on its back the face of an angry man portrayed after the fashion of Japanese art. Mr. Griffis says:

“Many are the legends which tell how the unquiet ghosts of the Taira raise storms, and appear to mariners at night. On one occasion, as Yoshitsune in full armor was crossing the straits, the waves were lashed to fury by a tempest which threatened to foun-

<sup>1</sup> Pronounce *She-mo-no-sey-ke*.



THE HEIKE GANI, OR GHOST CRAB. An incident in the feudal history of Japan adorned by a legend.

der the ship. The sails flapped wildly, and the ship refused to obey her rudder. Out on the tops of the curling spray stood myriads of pale-faced and angry shades of the dead. Ghastly with wounds, they threatened dire calamity to the victor who had sent their souls into the nether world. Yoshitsune, undaunted, stood on deck, and with his sword struck vainly at the ghosts that would not down, cutting nothing but the air. Only when Benkéi, the gigantic priest-warrior, threw down his sword, and pulling out his beads began to exorcise the spirits by appropriate Buddhist prayers, did the storm cease and the shades disappear.

“Even in our own day the fishermen tell stories of ghosts which rise out of the sea at night and beg for a dipper. These ghosts are the Taira men slain in battle, and condemned by the King of the World Under the Sea to cleanse the ocean of its stain of blood. The boatmen always give them a dipper which has no bottom, else they would swamp the boat by filling it with sea-water. The restless souls, long ago condemned to bail out the sea and cleanse it of its stain of blood, still keep hopelessly at work.

“The fishermen, however, say that the Taira ghosts in these late days, only occasionally appear. For centuries after the battle they used to rise up in hosts. A great temple to sacred Amida, the Boundlessly Compassionate Buddha, was erected long ago at Shimonoseki to appease the wrath of the spirits. Since then they have been quiet. Evidently their ghosts have taken the shape of shellfish, as Buddhist doctrine teaches.

“A peculiar kind of crab is found in the Straits. On their backs may be traced the figure of an angry man. These are called Heike-gani, or Heike crabs, and the fisher folk say they were not known to exist here until after the Taira were slaughtered in the great battle.”

We reproduce here a picture of the Heike crab from a specimen which Prof. Ernest W. Clement, President of the Duncan Academy, Tokyo, Japan, exhibited at Chicago before a meeting of the International Folk-lore Association and which was kindly lent the writer for the purpose of having it photographed.

## MISCELLANEOUS.

### FREDERIC W. H. MYERS ON THE SURVIVAL OF PERSONALITY.<sup>1</sup>

We are just in receipt of a two-volume work, consisting altogether of over 1300 pages, in which the late Dr. Myers treats of human personality and its survival of bodily death. He was one of the most active supporters of the Society for Psychical Research of England, and with the assistance of Prof. Henry Sidgwick and Mr. Edmund Gurney, he published his inquiries into the nature of the soul in the *Proceedings* of the Society for Psychical Research and also in the voluminous publication *Phantasms of the Living*. The present work is based, as Dr. Myers himself states in the introduction, upon the following consideration: "Man has never yet applied the method of science to the problem of his own survival of death. There has been much belief in survival,—both definite belief and vague belief,—but nevertheless no attempt to test that belief by observation and experiment. In fact, the very importance of the belief has barred methodical inquiry; men have adopted it as a *faith*, and have then been reluctant to analyse it. The Christian Church has absorbed the question into theology, and has treated theology as based on tradition and intuition, not on fresh experiment."

Dr. Myers attempts to supply this lack, but in spite of the enormous amount of material collected, he himself confesses that "it is an exposition rather than a proof." Here we have incorporated the most significant instances from the *Proceedings*, the journal of the Society for Psychical Research, and *Phantasms of the Living*, and readers who wish to have the material in this condensed shape will save themselves much labor by limiting their inquiry to the present two volumes.

The work is full of new terms, many of which are well known to psychologists, but a few additional ones are introduced by the Psychical Researchers themselves, and are obviously based on the assumption that their interpretation of facts is correct.

Dr. Myers has done well to place a Glossary at the beginning of his book; and among the new words which may be of interest to our readers are such as the following: *clairvoyance*; *clairaudience*; *cosmopathic*; *cryptomnesia* (subliminal memory); *crystal-gazing* and *shell-hearing* (viz., visions and auditions artificially produced); *discarnate* (as opposed to *incarnate*); *falsidical* or false, and *veridical* or true; *hallucination*; *hyperpromethia* (supernormal power of foresight); *panesthesia*; *pannesia*, *promnesia* (the experience of a scene *déjà vu*); *retro-cognition* (the supernormal knowledge of the past); *telekinesis* (the supernormal

<sup>1</sup>*Human Personality and Its Survival of Bodily Death*. New York, London, and Bombay: Longmans, Green & Co. 1903. Two Volumes. Pages, xlvi, 700 and xx, 660. Price, \$12.00 net.

movements of objects, not due to any known force); *telepathy* (communication at a distance), *telæsthesia* (perception of objects at a distance); *telergy* (a direct influence of a spirit on the brain of the percipient). Among the most original words we notice *psychorrhagy*, which means the breaking off of a part of the soul by the power of which a phantasm is produced perceptible by one or more persons in some part of space. This psychorrhagy necessitates another term, viz., "the phantasmogenetic centre," which is "a point in space so modified by the presence of a spirit that it becomes perceptible to persons materially present near it."

We intend to give the book a more careful perusal, for it is a stupendous work and deserves a careful examination. If we can arrive at a definite opinion as to the merits of these researches, we shall publish a more detailed article on the subject. After a superficial inspection and finding much material already known to us through the *Proceedings* and *The Phantasms of the Living*, we can only say with Faust :

"*Die Botschaft hör' ich wohl, allein mir fehlt der Glaube.*"

[Indeed I hear your message, but faith in it I lack.] P. C.

---

### THE WATER OF LIFE.

*To the Editor of The Open Court:*

Among the many martyrs of the Catholic Church in ancient days in Japan was one whose Christian name was Paul, but whose Japanese name I have forgotten; but this Japanese Paul's saying has been treasured through these centuries by his mother, the Holy Catholic Church, as being extremely beautiful as well as divinely pious. It is this: "Eternal praise be to the ever-adorable Sacraments of the Altar." He did not mean a pagan altar; he referred to the Holy Altar of the Catholic Church, and this little statue of Chinese porcelain of "I will give thee (the) Water of Life" mentioned by Dr. Carus in the February number of *The Open Court*, may be intended to represent our Blessed Lord and the woman of Samaria. That the figures are Chinese is not to be wondered at. We see the saints pictured in the clothing of many lands, according to the nationality of sculptor or artist. Thousands and tens of thousands of Chinese died martyr deaths,—in every century since the earliest visits of St. Thomas to India the faithful Chinese have yielded up their lives in defence of their belief in the "Adorable Sacrament" and in the "Water of Life."

It is not uncommon for men of education when visiting Europe, perhaps some town where Christianity has been wiped out of existence and where no record or monument of the Christian martyrs exists to attract their attention, to exclaim upon finding some Christian symbol modified by heathen control, to attribute the present unbelief to some period before Christianity, or to claim that these emblems explain where Christianity found its ideal. It depends very much upon how the observer believes and if he has read the history of Catholic Missions in China and Japan. The Protestant yields reluctantly to the praise of the Catholic Missions, and if he recognises Christian effort at all of an early date, gives the glory to the Nestorians.

The cause of Christ has induced the missionaries of the Catholic Church to dye deeply the soil of every land under the sun.

There is no place where one can lay the finger on the map and say; here no Catholic missionary has shed his life-blood in the sacred cause of the Gospel. And the blood of these martyrs is the seed of the Church, and the seed is hidden and

not always readily discerned, but God knows where it is all planted and the time of the harvest He knows as well.

The times are growing late, the Prince of Peace may be at the gate. To them whom He has called has He the Water of Life throughout the world everywhere. We must wait and believe and not lose heart.

"Behold, I am with you always even unto the consummation of all things."

In this manner I would explain to our gifted editor, whose pen is far mightier than mine in the wisdom of learning, the simple story of the martyrs of China and the shrouded faith in the Water of Life.

W. THORNTON PARKER, M. D.

NORTHAMPTON, MASS.

Passion Sunday, 1903.

[The porcelain group to which Dr. Parker refers represents a sage seated by the wayside addressing a smaller person carrying a water bottle, and the sage is supposed to say, "I will give thee Water of Life." The idea of an elixir of life is an old and indigenous notion in China, which may date back to a prehistorical notion which in ancient Babylon gained currency as the water of life. But of course the moot group may have been made under the influence of Christian thought. Dr. Parker's theory is not positively impossible, but all things considered it seems very improbable. P. C.]

---

### THE FIRE-WALK CEREMONY IN TAHITI.

Mr. Andrew Lang described a fire-walk ceremony which he had witnessed in Tahiti, and Dr. Hocken wrote a like account of the Fiji fire ceremony. Both were so interesting that they found their way into the *Proceedings of the Society for Psychical Research* in February, 1900, and also in Mr. Fraser's well-known book *The Golden Bough*. Thus it has aroused uncommon interest, and being verified by good authority it is apt to produce in the unsophisticated reader the idea that there are many things in heaven and earth undreamt of in our philosophy. Mr. S. P. Langley happened to be in Tahiti, and was glad to have an opportunity to witness the fire-dance under the guidance of the self-same priest, Papa-Ita, who had performed it in Mr. Andrew Lang's presence. Mr. Langley describes the ceremony in a pamphlet issued from the Government Printing Office at Washington, the contents being taken from the Smithsonian Report for 1901; he also publishes instantaneous photographs taken of the dance. He personally met the priest, Papa-Ita, "the finest-looking native that I had seen, tall, dignified in bearing, with unusually intelligent features." The *mise en scène*, says Mr. Langley, was certainly noteworthy. Everything was so arranged as to heighten the expectation of the spectators as to the heat of the fiery stones over which the priest was to walk. The poles of the men who stirred the fire and turned the stones over it were three times longer than necessary, but it seemed as if the latent heat of the fire extended three times farther than it actually did. Papa-Ita claimed that he could walk over the hot stones because he was protected by a goddess and by virtue of spells. He himself and other natives walked over the hot stones with naked feet, but we must consider that "native feet are not like European ones, and Mr. Richardson, the chief engineer of the ship, mentioned that he had himself seen elsewhere natives standing unconcerned with naked feet on the cover of pipes conveying steam at about 300° F., where no European foot could even lightly rest for a minute." Omitting further details, we quote the result as Mr. Langley gives it :

"I witnessed substantially the scenes described by the gentlemen cited, and I have reason to believe that I saw a very favorable specimen of a fire-walk. It was a sight well worth seeing. It was a most clever and interesting piece of savage magic, but from the evidence I have just given I am obliged to say (almost regretfully) that it was not a miracle."

P. C.

## RELIGIOUS INTOLERANCE IN CHINA.

Prof. J. J. M. De Groot<sup>1</sup> discusses the subject of religious liberty in China in a most elaborate style, publishing the documents of Chinese legislation in the original, together with an English translation; and the obvious conclusion is that Confucianism, the official State religion of China, in spite of its lack of definitely religious features, is as intolerant as any other extremely dogmatic faith. The heterodox systems have no standing before the law; the main documents being three articles on the eradication of sects and heresy which are contained in the sixteenth chapter of the Civil and Penal Code, *Ta Ts'ing luh li* of the Ts'ing Dynasty. They read as follows:

### ARTICLE I.

"Religious leaders or instructors, and priests, who, pretending thereby to call down heretical gods, write charms or pronounce them over water, or carry round palanquins (with idols), or invoke saints, calling themselves orthodox leaders, chief patrons, or female leaders; further, all societies calling themselves at random White Lotus communities of the Buddha Maitreya, or the *Ming-tsun* religion, or the school of the White Cloud, etc.; together with all that answers to practices of *tso tao* or *i twan*; finally, they who in secret places have prints and images, and offer incense to them, or hold meetings which take place at night and break up by day, whereby the people are stirred up and misled under the pretext of cultivating virtue—shall be sentenced, the principal perpetrators to strangulation, and the accomplices each to a hundred blows with the long stick, and after that, the latter shall be banished for ever to the distance of three thousand miles."

### ARTICLE II.

"If any one in the army or among the people dress or ornament the image of a god, and receive that god with the clang of cymbals and the beating of drums, and hold sacrificial meetings in his honor, one hundred blows with the long stick shall be administered, but only to the principals."

### ARTICLE III.

"If village-chiefs, when privy to such things (as detailed in art. I. and II.), do not inform the authorities, they shall receive each forty blows with the short bamboo lath. Services of prayer and thanksgiving (for the harvest) in honor of the common local gods of the Ground, performed in spring and autumn respectively, do not fall under these restrictions.

This severe law was not framed especially against Christianity, but against Buddhism and Taoism, and the Buddhist and Taoist clergy are specially named in many applications of this same law. In the face of this condition, which is illustrated in many instances referred to by Professor De Groot, who is no mean authority on the subject, our author says that "The Confucian instinct for perse-

<sup>1</sup>*Is There Religious Liberty in China?* Separate reprint from the "Mittheilungen des Seminars für orientalische Sprachen zu Berlin," V., Abteilung I., ostasiatische Studien. Berlin: Reichsdruckerei. 1902. Pages, 49.

cution, embodied in the Law on Heresy, is, as will always be—as long as China is her own—like the sword of Damocles; the protection granted to the Christians by the Powers is not much more than a hair which prevents the sword from falling.” Accordingly, adds Professor De Groot, “Chinese Christianity cannot exist and thrive without the protection of the foreign powers, and if this protection were withdrawn, wreck and ruin would be its lot. . . . There is, indeed, another reason for Chinese persecution of the Christians than a concocted register of sins of missionaries.”

---

### BOOK REVIEWS.

IN OUR MIDST. *The Letters of Callicrates to Dione, Queen of the Xanthians, Concerning England and the English, Anno Domini 1902. Illustrated. London: Review of Reviews Annual, 1903. Pages, 122. Price, 1 shilling.*

This pamphlet is a satire on the present state of affairs in Great Britain. The plot of the story consists of the experiences of an English missionary, Tressidder by name, who found in the interior of Africa a Greek tribe called the Xanthians. Having left England many years ago, he preaches Christianity and the message of good will of the Prince of Peace, but finds some opposition, for according to the law of the country a man who introduces innovations shall be immolated to the gods. Having, however, cured the queen of the Xanthians of a dangerous disease, his request to be allowed to preach the Gospel is listened to, and the principal councillor of the queen, Callicrates, is sent to England in order to investigate the conditions of the new religion. Callicrates is in love with the queen and has fair prospects of winning her heart. He leaves the country, arrives in England, and the bulk of the pamphlet before us consists in the letters which he wrote to Dione, the queen of the Xanthians. Letter I. is “First Impressions of England”; letter II., “A Human Sacrifice.” This chapter alludes to Christianity of former days, and incorporates an old English print representing the burning of Latimer and Ridley. Letter III. is “The Common Sense of the English”; letter IV., “The Curse of Cybele”; letter V., “The Rule of the Prince of Peace,” with a statement of how the first letters were received in Xanthia; letter VI., “The Religion of the English”; letter VII., “The Twisters of the Tail of the Jumping Cat”; letter VIII., “The Art of the English People”; letter IX., “Music and the Drama in England”; letter X., “The Culture of Temperance”; letter XI., “Wherein the English Most Excel”; letter XII., “The Homeless English”; letter XIII., “The Abasement of Womanhood”; letter XIV., “Some Light in the Darkness.”

Callicrates returns to his own country, and the result of his inquiry is summed up as follows:

“He had come expecting to find a land in which the Golden Rule was the law of life, where every man did to his brother what he wished his brother to do to him. He had found a land of cut-throat competition, of social caste, and one where internecine feuds raged even within the pale of the Church. He expected to find a sober nation—he found a people sodden with strong drink. He had been told that in England he would find religion pure and undefiled, and divine worship in primitive simplicity—he had found Churches like idolatrous Temples, and a proud priesthood arrogating to themselves sacerdotal privileges. He had hoped to find an ideal Commonwealth, a social Utopia—he had discovered a minority wallowing in luxury, and a majority dehumanised by the conditions of their existence. He had looked to find Woman exalted by her abasement, glorified by humiliation

—he found her everywhere excluded from all that was best worth having, a pariah in Church and in State, an alien in the commonwealth, mocked with the homage of the lips, but sternly forbidden by the law to share in the Government of the Realm. Above all, he had hoped to discover a land where the benign rule of the Prince of Peace had given prosperity to the humblest home, and he had found the whole land given up to the worship of the God of War, sacrificing on his blood-stained altars the choicest of their youth, and spending in preparation for battle the resources which might have rebuilt their slums and remade man in the image of God."

The story ends in the condemnation of the English missionary, but Tressidder suddenly proposes a scheme which saves his life and renders him useful even from the standpoint of the pagan Xanthians. He exclaims :

"Let me go back to my own land to cry in the ears of my countrymen, 'Repent, repent, for the Day of Judgment is at hand.' As I came a missionary to your people, so now I will go back as a missionary to my own nation, to recall them to the faith as it was delivered to their fathers, and to summon them to submit to the Prince of Peace. I go as a sheep in the midst of wolves, going willingly to my death. But how, or where, or when it shall befall me who can say ?

"And the Council saw his face as if it had been the face of an angel. So they let him go, and he departed on his new mission.

"After they had bidden him a sad farewell, Dione said to Callicrates, 'What will happen to the Teacher when he reaches England ?'

"And Callicrates replied : 'If he preaches Christ's Gospel they may kill him as they killed Kensit, or if he pleads for the Prince of Peace they will call him a pro-Boer and kick him to death in the market-place.'"

An appendix to the book consists of a statement of the Robert Browning Settlement, of which Mr. Charles Booth, in opening the Browning Club in June, 1902, said : "For loftiness of ideal, for the successful promotion of the union of Churches in the service of the poor, and for width of practical sympathy with the lives of the people, the Browning Settlement holds the palm among all such institutions." The Browning Settlement is to the author of this pamphlet the light in the darkness that promises a reformation of the evil conditions described in these letters.

The illustrations are partly representations of Xanthian art and manners, being mainly reproductions of well-known classical sculptures, for the Xanthians are supposed to be the lineal descendants of a tribe of ancient Greece. There are also pictures representing English life in the present day,—London street scenes, the great council by which London is governed, scenes on the Thames, railroad scenes, Westminster Abbey, the return of the troops from Africa, St. Paul's Cathedral, newspaper venders in the streets, typical English posters, flower sellers, groups of the homeless seeking shelter, old women sorting the refuse of the dust heaps, a drunken brawl before a public house, etc., etc.

The work is cleverly done, and is obviously either written or inspired by W. T. Stead. Most likely he will receive very little thanks in England for the labor he expends on the realisation of his ideals. The price of the book, considering the excellency of the paper and the clearness of the numerous illustrations, is very reasonable.

---

LE SENTIMENT RELIGIEUX EN FRANCE. Par *Lucien Arréat*. Paris : Félix Alcan, éditeur. 1903. Pages, vi, 156. Price, 2 fr. 50.

The substance of the present work was presented by M. Arréat in a long ar-

ticle published in the January *Monist*, entitled "Religion in France." While not originally written as a contribution to the religious controversy and struggle now going forward in France, this book has nevertheless a timeliness which few will regret; and no one desirous of studying the true state of religious affairs in France can afford to pass it by. It has been M. Arréat's object "to exhibit the religious state of France, to seek for the causes of the revival of interest in religious things now manifested there, to point out their importance and meaning, to sketch from data acquired from *questionnaires* the psychology of the French Catholic of today, to examine the relative value of the doctrines which seek to govern souls, and to discover the direction in which the religious movement is now tending."

M. Arréat has taken an entirely critical and objective attitude in his investigations. He explains the causes which have rendered the French nation distinctly Catholic, and which make it impossible for a Protestant reformation ever to hope of succeeding there, even if such success were desirable. The French faith is largely a matter of national heredity and temperament; the masses of the French peasantry are only mechanically pious and devout; and it is his belief that the present measures of the French government in secularising the schools will only result in a revivification of a sentiment which had lost much of its vitality. Whatever reaction there has hitherto been in France toward orthodox religion has been among the middle and higher classes, which are also the strongholds of free thought. France, M. Arréat says, has ceased to be passionately Catholic. Many persons have remained loyal to the old faith, and the brutal methods of the government have driven many wavering and indifferent souls back into the fold. But when a Frenchman abandons Catholicism he adopts skepticism outright, and rarely tarries in the transitional stage of Protestantism, which to him is as intellectually objectionable as his old faith.

This work is written in M. Arréat's usual pleasing and dispassionate style, and will hold high rank as a contribution to the psychology and history of religion.  $\mu$ .

---

PRZEGLAD ARCHEOLOGJI DO HISTORJI PIERWOTNEJ RELIGJI. Skreslil *Michał Zmigrodzki*, Dr. Phil. Kraków: Księgarnia Spółki Wydawniczej Polskiej. 1902. Pages, 188.

Dr. Zmigrodzki exhibited at the Chicago World's Fair a chart of the swastikas discovered in various parts of the inhabited globe and belonging to different ages, and donated his copy to the International Folklore Association, who still keep it at the Walker Museum, in one of the buildings of the Chicago University. He further produced a new and more complete copy, which he exhibited at the Paris Exposition in 1900; and the present volume is practically a repetition of the same, containing a series of plates with altogether 607 smaller illustrations of swastikas and crosses.

Dr. Zmigrodzki is an indefatigable investigator of the significance and distribution of the swastika, and the present work gives a summary of the results he has obtained. Happily, the Polish text is accompanied with a French translation, a facsimile copy of his original manuscript, through which his labors become accessible to those not initiated into the intricacies of his native tongue.

The main point of universal interest is the author's belief that underlying all religions, past as well as present, there is a deeper stratum which in its original shape is the same among all nations, and upon the whole even now remains the same still. And it has been the ideal of all reformers to purify this core of the true faith from all kinds of additions which hide its pristine glory. This primitive

religion he believes to be a pure monotheism, and he claims that anthropologists should make it a *point de départ* in their investigations of the history of religion (he purposely does not say religions).

Dr. Zmigrodzki adds in a private letter accompanying the book and facsimile manuscript translation that, according to his conviction, the aim of the Religious Parliament Extension is, or should be, to set forth this primitive faith of transcendent purity. To work it out scientifically, however, would take many years, not of a single life only, but of whole generations.

P. C.

---

A FRENCH AND ENGLISH DICTIONARY. With Indication of Pronunciation, Etymologies, and Dates of Earliest Appearance of French Words in the Language. By *Hjalmar Edgren, Ph. D.*, Professor of Romance Languages in the University of Nebraska, and *Percy B. Burnet, A. M.*, of the High Schools of Chicago, formerly Adjunct Professor in the University of Nebraska. New York: Henry Holt and Company. 1902. Pages, xv, 1252.

The compilers of the present work have aimed to present "(1) a scholarly and yet thoroughly practical French-English dictionary, founded upon the highest modern authorities, and embodying a measurably complete list of modern and obsolescent French words with their pronunciation, derivation, and earliest occurrence in the language, as well as their meanings and less obvious uses; and (2) an English-French dictionary serving the purposes of French composition and speaking, and containing a sufficient amount of modern and archaic words with their pronunciation, and etymologically arranged, to serve the French student of English."

The feature of the Dictionary on which its compilers lay the greatest stress is the attention paid to etymology, and it may be said that they have been quite successful in condensing within brief compass the results of the most recent philological research. The study of derivations is illuminative, and advanced students will be grateful for the material here presented. The authors have also employed a system of notation by which the century of the earliest appearance of a word is indicated. Thus, *abat*<sup>15</sup> means that this word first appeared in literature between the years 1500 and 1600; *abime*<sup>0</sup>, that the word comes from the earliest days of the French language, viz, is of direct popular Latin origin..

The main authorities on which the authors have relied are the new Hatzfeld-Darmesteter-Thomas Dictionary now in course of publication in France and the older Dictionary of Littré; they have, however, consulted other lexical works, including the great French-German Dictionary of Sachs-Villatte. Although making no claim to completeness, they believe that they have given a larger vocabulary than ordinary school dictionaries of the same size. They have noted irregular forms of inflection, paid considerable attention to French idioms, and also given a system indicating the pronunciation.

As to the arrangement, they have adopted a mechanical system for saving space, grouping kindred words together alphabetically and not giving them special headings according to their importance. For example, to find *commencer* we have to look under the heading of *commençant*, for the reason that the last-named word is the alphabetical antecedent of the first. Similarly, for *commercer* we have to look under *commerçable*. This at the outset will prove perplexing to users of the dictionary, especially beginners, accustomed to seek the infinitive first; but the inconvenience of the arrangement will, for more advanced students, doubtless disappear with time.

The system of indicating the pronunciation is far from perfect; in fact, no system approaching in any way the completeness of that given in Sachs Villatte for German and French has ever yet been attempted in English. The mention of this last-named work needs emphasis. The Sachs-Villatte *Dictionary* is a German-French dictionary in two large volumes. It is the greatest international work of French lexicography yet completed. Its analysis of idioms and the attention it pays to synonyms is very exhaustive, and it is rarely that one cannot find in its columns what one is looking for. There is still wanting in English a dictionary of this sort, which will give all the most important shades of meaning of French words, and exhaustively render all the most important French idioms. The publication of a work in English similar to the *Dictionary* of Sachs-Villatte would be an infinitely greater service to scholars than that which we derive from the multiplication of school-dictionaries of substantially the same scope and type.

The greatest drawback of our French-English dictionaries lies in their treatment of homonyms; and we cannot say that the present work is exceptional in this regard. One looks in vain in most English dictionaries for an adequate rendering of *documents*, for example, which may mean "data," "facts," "materials," etc., but which is usually rendered only by the English word "document." In how many dictionaries is the peculiar shade of meaning of the French word *classique* given, according to which a "classical" work may sometimes mean merely a "standard" text-book? Again, the word *académique* in French may mean "wooden" or "stilted" as well as "academic" in our English sense. To *domicile* a draft in French is "to determine its place of payment," yet the renderings "domiciliate," "make reside," etc., give no clue to this. These examples might be multiplied indefinitely; yet it is precisely these words that give the translator, the journalist, and the practical user of French the greatest trouble. Nevertheless they could be incorporated in the dictionaries without greatly extending their limits, and they certainly would increase greatly their usefulness.

Considering the restrictions that a single volume for both a French-English and an English-French vocabulary imposes, the compilers of the work under review have produced a very creditable dictionary, distinctively superior in many respects to its rivals. But we believe that with a different *format* and thinner paper space could have been gained for the many important things that have been omitted.

T. J. McC.

---

PEUT-ON REFAIRE L'UNITÉ MORALE DE LA FRANCE? Par *Henri Berr*. Paris: Librairie Armand Colin. 1901. Pages, 146. Price, 2 francs.

Though published two years ago, M. Henri Berr's earnest and patriotic little book *Can the Moral Unity of France be Restored?* is, in view of the present religious crisis in France, a very timely one. While thoroughly appreciating the intellectual and material greatness of the other nations of Europe, the author still believes in the spiritual mission of his country. It was the religious spirit of Fichte's appeal, he claims, that made Germany a unified nation; yet how far is Germany, in its now rampant materialism and egotism, fallen from Fichte's ideal! M. Berr's ideal of patriotism is not the possession of great armies or the making of great industrial and imperial conquests, but the proclamation of the truth and service to humanity,—the establishment of a new faith, grounded on science, and the union of the peoples under its banner. This, he contends, is France's intrinsic destiny, and it is justified by her history; materially she will be outstripped by the other nations; her salvation lies in setting the world a spiritual example. The

book is eloquently but soberly written, and is the expression of a sound historical and scientific culture.

μ.

THE LIGHT OF CHINA. An Accurate Metrical Rendering, Translated Directly from the Chinese Text, and Critically Compared with the Standard Translations, the Ancient and Modern Chinese Commentaries, and all Accessible Authorities. With Preface, Analytical Index, and Full List of Important Words, and Their Radical Significations. By *I. W. Heysinger, M. A., M. D.* Philadelphia: Research Publishing Co. Pages, 165. Price, 1.50.

The author has reduced the entire *Lao Tze* to verse, and a fair sample of the contents of the book may be had in the introductory words of the *Tao Teh King*, which are translated as follows:

“The way that can be overtrod is not the Eternal Way,  
The name that can be named is not the Everlasting Name  
Which Nameless brought forth Heaven and Earth, which Named,  
if name we may,  
The Mother of all the myriad things of time and space became.”

The author adorns his metrical translation by a prologue and an epilogue, both in verses of the same character. The epilogue concludes with the following words:

“Now read your Bible, sluggard,—read again,  
Gather new meanings from its warp and woof;  
Learn the God-gospel of unselfish man,  
—And if you cannot, close its poisoned page,  
It is not food for you, nor you for gods.”

DAS CHRISTENTUM ALS MYSTISCHE THATSACHE. Von *Dr. Rudolf Steiner*. Berlin: Verlag von C. H. Schwetschke und Sohn. 1902. Pages, vi, 141.

The author regards Christianity as a continuation of the pagan Mysteries, and believes that Christianity is the continuation of the religious conception of Greek mysticism. But the Mysteries changed their form; then a few only were admitted to esoteric knowledge, but now all could come and partake of truth. “Christianity brought the mystery of existence out of the temples’ darkness into the broad light of day. But,” adds our author, “it locked up at the same time the pagan revelation of the temple into the interior recesses of the substance of its faith.”

HEREDITY AND SOCIAL PROGRESS. By *Simon N. Patten*. New York: The Macmillan Co. 1903. Pp., vii, 214. Price, \$1.25.

The questions proposed for discussion in this volume are the following: How is the social surplus of an epoch transformed into permanent conditions and mental traits? Does progress start from a deficit, or from a surplus? Does genius come by additions, or by differentiation? Does education improve natural or acquired character? Does reform come by strengthening the strong, or by helping the weak? The answers, in brief, are as follows: A social surplus increases energy, and acquired characters are developed; these are not inherited but become fixed and primary by the movement of the organism into a new environment,—“Whatever natural character men have, the race acquired in some previous environment.” Progress, therefore, starts from a surplus, and not from a deficit as many suppose. As to genius, it comes not by addition but by differentiation. Education should be

directed toward the improvement of acquired characters,—“ Education cannot improve on natural characters;” and, finally, reform comes not by strengthening the strong, but by helping the weak, by giving that protection to the weak in men “ by which differentiation becomes possible.” The book is chiefly devoted to biological problems, and the absence of concrete illustrations and application of principles makes it somewhat dry, if not obscure, to the lay reader. I. W. H.

---

GESCHICHTE DER NEUEREN DEUTSCHEN PSYCHOLOGIE. Von *Max Dessoir*. Zweite, völlig umgearbeitete Auflage. Zweiter Halbband. Berlin: Verlag von Carl Duncker. 1902. Pages, xv, 270. Price, 6 Marks.

Prof. Max Dessoir published last year the second edition of the second part of the first volume of his well known *History of Modern German Psychology*. The first edition appeared in 1894. The work has been much enlarged, special stress being laid on the psychology of the first and latter parts of the eighteenth century. It has not only been Professor Dessoir's aim to narrate the purely technical story of German psychology, but he has also tried to portray the cultural background to that story, and so throw into relief the social, secular, and ethical factors that went to determine the development of this important phase of German thought.

---

THE PROOFS OF LIFE AFTER DEATH. A Twentieth Century Symposium. By *Robert J. Thompson*. Chicago: Robert J. Thompson, 1604 Wellington Ave. 1902. Pages, 365.

Robert J. Thompson sent out a circular to various men well known either for their scientific reputation or prominent for some other reason, in order to obtain their views concerning life after death; he now publishes their replies, all of them tending to prove a continuous personal identity after death; the “psychical researchers” prevail and take a considerable part of the entire space. Among them the views of Professor Hyslop may be taken as typical. One of the most interesting parts of the book is the Supplement, in which Elmer Gates, professor of psychology and psychurgy, Washington, D. C., presents his own peculiar views. Since Professor Gates has been before the public with his claims to presenting a new evidence of life after death, it will be interesting to our readers to hear what he has to say. He believes that spiritualist testimony is not reliable; there is a higher authority for truth than testimony, viz., experimental quantitative demonstration. He grants that the basis of his own belief in immortality is emotional, but he is anxious to have his faith founded on fact and evidence. The most important phase of his evidence consists in a process which he calls “consciousing,” viz., the active process of consciousness by which it becomes conscious of its own nature and states. Consciousness cannot doubt that it is conscious, and so the fact is absolutely reliable that consciousness exists. “When we introspectively study the intellectual content of that wondrous subjective domain, we find not only those particular kinds of inductive data to which I have just referred, consisting of experiences of consciousness with itself, but we find also another kind of data relating to the constitutive conditions of objective existence.” The former he calls *a posteriori*, the latter *a priori*. But more interesting than the process of “consciousing,” which in the opinion of many will be practically a restatement of the old method of introspection, is Professor Gates's idea of proving the objectivity of spirit, which he hopes to detect with the assistance of electrical experiments. We had best let him explain his views on the subject in his own words:

"To give a concrete instance of what I would consider to be adequate proof of another kind of existence I will give an hypothetical case. Suppose there were a form of wave-energy somewhat similar to Roentgen Rays, but differing from them as they differ from sound. Let us suppose this new kind of radiant force to be invisible, but that it can be made visible by projecting it upon a wall coated with a substance whose color is altered by the action of the rays. Suppose, further, that all known inorganic and inanimate substances are transparent to that force, so that they can be held in the path of the rays, between their source and the wall, without cutting off part of the rays, and thus causing the color of the wall to be changed over a corresponding area—producing an effect like a shadow. Suppose, also, that it were discovered that a living thing is opaque to these rays and that it casts a shadow as long as it is alive, but becomes transparent at the moment of actual death. If on killing the animal, hermetically sealed in a glass tube, it were found, after a certain lapse of time, to become suddenly transparent, and if at the same instant a shadow precisely the same shape as the animal were seen to pass out through the wall of glass and move upward in front of the wall, then the presumption would be that some organism, not atomic, perhaps etheric, and capable of passing through glass, had left the atomic body of the animal. If that escaping organism could be caught and made to give evidence that it still possesses mind, then we would have an inductive laboratory proof of the existence of a "spiritual" organism and of the continuity of life beyond death,—but this would not demonstrate endless existence. If such an experiment can ever be made, then biology and psychology will have been extended across the border without an intervening chasm, and the continuity of personal identity beyond death will be scientifically demonstrated. It might be argued that the visible animal organism is composed of atomic solids and liquids and gases; and may there not be etheric solids and liquids and gases, the particles of which are infinitesimally smaller than atoms, and might there not be an etheric body composed thereof? Such proof could be made a co-ordinate part of the growing body of scientific knowledge." P. C.

---

*Le Personnalisme* is the title of the latest work of the indefatigable M. Renouvier, the dean of French philosophy. Personalism is a new and more expressive name that M. Renouvier has given to his system of philosophy, hitherto known as Neo-Criticism by reason of its resemblance to the system of Kant, although it is at diametrical variance with Kantianism in placing personality (will and consciousness) at the center of human cognition, in rejecting things-in-themselves and the Kantian contradiction of liberty in the moral world and determinism in the physical. M. Renouvier's system is a monadology, which recognises in consciousness the foundation of existence and in personality the first causal principle of the world. He postulates the metaphysical thesis of a first beginning of phenomena and of an initial personal creative act, thus making his formal philosophy the complement of positive theism, and by his acceptance of the idea of preëstablished harmony and of a modified optimism, also the lineal heir of the philosophies of Leibnitz and Descartes. (*Le Personnalisme. Suivi d'une étude sur la perception externe et sur la force.* Par Charles Renouvier. Paris: Félix Alcan, éditeur. 1903. Pages, viii, 534. Price, 10 francs.)

---

The March and April issues of *The Bibelot* are respectively: "Stéphane Mallarmé," by Arthur Symonds, and "Lyrics," by the same author. (Portland, Me.: Thomas B. Mosher. Price, each number, 5 cents.)

We are in receipt of an offprint from Studies in Honor of Basil Lanneau Gildersleeve, entitled *The Symbolic Gods*, by Maurice Bloomfield. In this pamphlet Professor Bloomfield proves that the philosophy of Euhemerus is by no means so shallow as it is commonly represented, a fact which is proved by the worship of both heroes and the chthonic gods. Yama is first a king, then king of the dead, and finally a god. Mr. Bloomfield finds that there is a tendency in man to personify abstractions, thus producing what he calls the "symbolic gods." A flagrant instance of this kind of personification of abstract conceptions is found in the Zoroastrian Ameshaspents, but it is done also in more remote antiquity, for even such cases as Agni or Zeus owe their origin to abstraction and personification. An abstract quality is considered as something solipsistic, as a thing *per se*; and by and by it acquires the qualities of a living personality. The names (*nama*) and the essence of things (*rupa*) are somehow never held apart by the Hindus, and therefore names are at once taken to be objective realities. The essay is interesting, and shows a deep insight into the psychology of religion.

---

A new work on Egypt by E. A. Wallis Budge, Keeper of the Egyptian and Assyrian antiquities in the British Museum, has been published under the title *A History of Egypt from the End of the Neolithic Period to the Death of Cleopatra VII. B. C. 30*. The work gives an elaborate survey of the history of Egypt during this period, in eight richly illustrated volumes, with good map and index. The reputation of the author is a sufficient guarantee that we have here a reliable source of information, Egyptology being a branch of learning in which he has distinguished himself as one of the foremost of investigators. The work is published by Messrs. Kegan Paul, Trench, Trübner & Co., of London, who are represented in America by Henry Frowde, Oxford University Press, American branch. The Open Court Publishing Company have made arrangements to supply their patrons. (Price, 8 vols., \$10.00.)

---

*Impressions Quarterly* is the name of a new periodical published by Paul Elder and Morgan Shepard, of San Francisco. It is a large quarto printed on deep cream paper. The body of the text consists of eighteen pages, and contains in addition two artistic leaflets printed in red, green, and gold. The leading article is on "The Rise of Ukiyo-ye," the name of a modern Japanese art school following the impressionist style. All the other articles, and the poems, are short; among them we notice one entitled "A Little Trip to Utopia," and another "The Things That Abide," the latter by A. T. Murray. (Price, 50 cents per year; single copies, 15 cents.)

---

Peter Eckler, of New York, publishes *A Rebuttal of Spiritism et al.* by J. K. Hayward. The author imparts many rude shocks, not only to spiritism, but also to such dearly cherished illusions as that Shakespeare, whom he calls the "Stratford malster," wrote his own plays, or that David Hume could write intelligible English. The book is in the main a demolition of the "philosophy" of John Bascom. It is a large book to devote to such a purpose, but the author has said in his discursions many forcible things. (Pp., 457. Price, \$1.50.)

---

#### NOTES.

May 25th being the centenary of Emerson's birth, Mr. Conway's reminiscential article in the present number will be found particularly appropriate.

# THE HASKELL GROUPS

FOR HOME, SCHOOL AND CLASS-ROOM



IN PREPARATION: { ENGLISH AUTHORS—Dickens, Scott, Thackeray, Ruskin, Carlyle, Macaulay.  
AMERICAN POETS—(2) Poe, Whitman, Harte, Carleton, Field, Riley.

These are large HIGH-GRADE PHOTOGRAVURES, much finer than the cuts indicate, with soft, transparent effect and requiring no mat in framing. The length is over three-quarters of a yard ( $8\frac{1}{2} \times 29$ ), the portraits being 5 inches high. The heads are large, the features clear and distinct in detail.

Four Groups: American Poets, British Poets, American Authors, Great Musicians.

Single copy, 30 cents; the four for \$1.00—stamps or currency. Sent prepaid.

Special rate for larger quantities.

**W. L. HASKELL, ART PUBLISHER**

715 BALTIMORE BUILDING, 17-21 QUINCY STREET, CHICAGO.

## A History of Egypt

From the End of the Neolithic Period to the Death of Cleopatra VII., B. C. 30. By E. A. WALLIS BUDGE, M.A., Litt.D., D.Litt. Keeper of the Egyptian and Assyrian Antiquities in the British Museum. Richly Illustrated. In 8 volumes, cloth, \$1.25 each.

Vol. I. Egypt in the Neolithic and Archaic Period.

Vol. II. Egypt under the Great Pyramid Builders.

Vol. III. Egypt under the Amenembats and Hyksos.

Vol. IV. Egypt and Her Asiatic Empire.

Vol. V. Egypt under Rameses the Great.

Vol. VI. Egypt under the Priest Kings and Tanites and Nubians.

Vol. VII. Egypt under the Saïtes, Persians and Ptolemies.

Vol. VIII. Egypt under the Ptolemies and Cleopatra VII.

“The publication of this work, certainly the most complete and exhaustive English history of the Egyptian Kingdom from the earliest times which we possess, may be said without undue eulogy to mark an epoch in Egyptological studies in this country.”—*Glasgow Herald*.

“In these volumes we have a graphic history of the period written from a careful study of their monumental records that have survived the downfall of the nation. They are indispensable to the student of those ancient times, and will make the history of the Old Testament seem more real.”—*Syracuse Messenger*.

THE OPEN COURT PUBLISHING CO., CHICAGO,  
324 Dearborn St.

# ESSAYS ON NUMBER

- I. CONTINUITY AND IRRATIONAL NUMBERS.
- II. THE NATURE AND MEANING OF NUMBERS.

By *Richard Dedekind*, Professor in Brunswick, Germany. Authorised Translation by *Wooster Woodruff Beman*. Pages, 115. Price, Red Cloth, 75 cents.

"The Open Court Publishing Company deserves praise for continuing to publish translations of foreign scientific classics into English."—*Bulletin of the American Mathematical Society*.

"The work of Dedekind is very fundamental, and I am glad to have it in this carefully-wrought English version. I think the book should be of much service to American mathematicians and teachers."—*Prof. E. H. Moore*, Univ. of Chicago.

"It is to be hoped that the translation will make the essays better known to English mathematicians; they are of the very first importance, and rank with the work of Weierstrass, Kronecker, and Cantor in the same field."—*Nature*.

THE OPEN COURT PUBLISHING CO., CHICAGO

LONDON: KEGAN PAUL, TRENCH, TRÜBNER & Co., LTD.

## MONON ROUTE

Best Line from

CHICAGO

to

INDIANAPOLIS,

CINCINNATI,

LOUISVILLE

Parlor and Dining  
Cars by Day

Palace Sleeping  
Cars by Night

Only Line to the Famous Health Resort

West Baden and French Lick Springs

City Ticket Office:  
232 Clark Street

Depot:  
Dearborn Station

CHICAGO, ILL.



HETWEEN



THROUGH PULLMAN SERVICE  
BETWEEN CHICAGO AND



IF YOU ARE CONTEMPLATING A TRIP, ANY PORTION OF WHICH CAN BE MADE OVER THE CHICAGO & ALTON, IT WILL PAY YOU TO WRITE TO THE UNDERSIGNED FOR RATES, MAPS, TIME-TABLES, ETC.

GEO. J. CHARLTON,  
GENERAL PASSENGER AGENT,  
CHICAGO, ILL.

# Geometric Exercises in Paper-Folding

By T. SUNDARA ROW. Edited and revised by W. W. BEMAN and D. E. SMITH. Pp., x, 148. Price, cloth, \$1.00 net (4s. 6d. net).

"Simply a revelation in the possibilities of paper-folding."—*Teachers' Institute*, N. Y.

"The editors have performed a genuine service in bringing this work before our public, and in such neat and attractive form. The twenty-six exquisite half-tone illustrations with which they have replaced the line drawings of the original, are a decided enrichment of the volume."—*Science*.

"For teachers of elementary geometry the book is really of considerable value, and it shows in a forcible and tangible way how properties vaguely known to us by experience are logical and necessary consequences of a few definitions. A set of colored squares of paper is provided with the book."—*Journal of Physical Chemistry*.

"A most welcome contribution to concrete geometry, well worthy the attention of teachers."—*Charles DeCarmo*, Cornell University.

"A helpful and stimulating book for teachers."—*E. M. Langley*, Bedford, Eng.

**THE OPEN COURT PUBLISHING CO.,** CHICAGO, 324 Dearborn St.

LONDON: Kegan Paul, Trench, Trübner & Co.

# THE BOOK OF THE DEAD

By E. A. WALLIS BUDGE. Three Vols. Price, \$3.75 net.

"Very timely and will be received with delight in many quarters. . . . We congratulate all interested in Egyptian literature upon the opportunity of securing at least this intensely interesting and valuable memorial of the religious beliefs of a great and a vanished people."—*Seminary Magazine*.

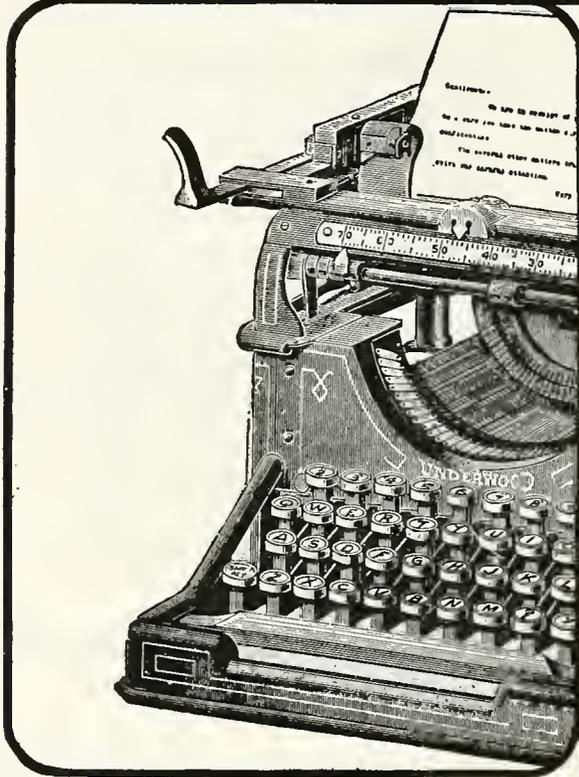
"A reprint in handy form of the third volume of Dr. Budge's elaborate edition of the Book of the Dead. The learned world is by this time pretty well agreed as to the value of this translation, and one can only express gratitude to the publishers for bringing it within the reach of many whom the high price of the former volume would have prevented from possessing it."—*American Journal of Theology*.

"Everything has been done here to present to the English reader the Egyptian funeral texts in a complete and thoroughly intelligible form: and all but specialists on Egyptian studies will find it to their profit to procure the present admirable edition."—*Presbyterian and Reformed Review*.

**THE OPEN COURT PUBLISHING CO.,** CHICAGO, 324 Dearborn St.

LONDON: Kegan Paul, Trench, Trübner & Co.

# The Underwood Typewriter.



It is especially designed for long terms of service under most exacting conditions, where it will be found trustworthy.

Would you like a plain talk on the Typewriter question? If so, send for an Illustrated catalogue.

Wagner Typewriter Company  
139 Monroe St.  
CHICAGO.

## A POPULAR BOOK ON MATHEMATICS

### On the Study and Difficulties of Mathematics

By AUGUSTUS DE MORGAN. With Portrait of De Morgan, Index and Bibliographies of Modern Works on Algebra, the Philosophy of Mathematics, Pan-Geometry, etc. Pages, viii, 288. Cloth, \$1.25 net (4s. 6d. net) : : : :

**Second Edition. Recently Published.**

"You have really done a service in getting out so handsome an edition of so excellent a book."—Prof. W. W. Beman, University of Michigan.

"As a sensible and lucid commentary on the principles of arithmetic, algebra, geometry, and trigonometry, it cannot easily be surpassed. The author says that his object has been 'to notice particularly several points in the principles of algebra and geometry which have not obtained their due importance in our elementary works on these sciences.' The way in which this has been done is ample justification for reproducing the work now."—Prof. Joseph E. Trevor, Ithaca, N. Y.

"It is a pleasure to see such a noble work appear as such a gem of the book-maker's art."—Dr. David Eugene Smith.

"The book is worthy of a place in every teacher's and student's library. It is full of sound pedagogy. The explanations of fractions, decimals, fundamental laws of algebra, the the negative sign and proportion are so clear and simple that the reader is fascinated, and wonders why he ever considered these subjects difficult."—*Inland Educator*.

**THE OPEN COURT PUBLISHING COMPANY, CHICAGO, ILLINOIS.**

LONDON: KEGAN PAUL, TRENCH, TRÜBNER & COMPANY, LIMITED.

THE KEY TO BUDDHISM

# HYMNS OF THE FAITH

## (DHAMMAPADA)

Being an Ancient Anthology Preserved in the Short Collection of the Sacred Scriptures of the Buddhists. Translated from the Pāli by ALBERT J. EDMUNDS. Cloth binding, gilt top. Printed on India tint paper. Pages, xiv, 110. Price, \$1.00.

"This celebrated ancient anthology of Buddhist devotional poetry was compiled from the utterances of Gotamo and his disciples; from early hymns by monks; and from the popular poetic proverbs of India. . . .

"If ever an immortal classic was produced upon the continent of Asia, it is this. Its sonorous rolls of rhythm are nothing short of inspired. No trite ephemeral songs are here, but red-hot lava from the abysses of the human soul, in one out of the two of its most historic eruptions."—*Translator's Preface.*

THE OPEN COURT PUBLISHING CO., CHICAGO, ILL.  
LONDON: KEGAN PAUL, TRENCH, TRÜBNER & CO., LTD.

# Foundations of Geometry

A systematic discussion of the axioms upon which the Euclidean Geometry is based. By DAVID HILBERT, Professor of Mathematics, University of Göttingen. Translated from the German by E. J. TOWNSEND, University of Illinois. Pages, 140. Price, Cloth, \$1.00 net (4s. 6d. net).

Defining the elements of geometry, points, straight lines, and planes, as abstract things, Professor Hilbert sets up in this book a simple and complete set of independent axioms defining the mutual relations of these elements in accordance with the principles of geometry; that is, in accordance with our intuitions of space. The purpose and importance of the work is his systematic discussion of the relations of these axioms to one another and the bearing of each upon the logical development of the Euclidean geometry. The most important propositions of geometry are also demonstrated and in such a manner as to show exactly what axioms underlie and make possible the demonstration. The work is therefore not only of mathematical importance as a contribution to the purifying of mathematics from philosophical speculation, but it is of pedagogical importance in showing the simplest and most logical development of our analysis of space relations.

"The Open Court Publishing Company deserves praise for continuing to publish translations of foreign scientific classics into English. . . . A widely diffused knowledge of the principles involved in this work will do much for the logical treatment of all science and for clear thinking and clear writing in general."—*Bulletin of the Am. Math. Society.*

THE OPEN COURT PUBLISHING CO., CHICAGO,  
324 Dearborn St.  
LONDON: Kegan Paul, Trench, Trübner & Co., Ltd.

# Attractive Combined Offers

Asiatic Russia (postpaid) - - -	\$7.95
Records of the Past - - -	2.00
The Open Court - - -	1.00
Bibliotheca Sacra - - -	3.00
	<hr/>
	\$13.95

**All four for \$10.75.**

Asiatic Russia (postpaid) - - -	\$7.95
The Open Court - - -	1.00
Bibliotheca Sacra - - -	3.00
	<hr/>
	\$11.95

**All three for \$9.75.**

Records of the Past - - -	\$2.00
The Open Court - - -	1.00
Bibliotheca Sacra - - -	3.00
	<hr/>
	\$6.00

**All three for \$4.75.**

**Asiatic Russia.**—"A work of highest authority, presented with literary grace and skill. . . . The result of prodigious scholarship and wide observation presented in easy, readable style."—*The Critic*.

**Records of the Past.**—A new monthly periodical published at Washington, D. C., under the editorship of Rev. Henry Mason Baum, D. C. L., with Mr. Frederick Wright as assistant. Each number contains thirty-two quarto pages, accompanied with numerous elegant illustrations.

Remittances, strictly in advance, may be made by Money Order, New York Draft, or Registered Letter to

**Bibliotheca Sacra Co., Oberlin, Ohio, U. S. A.**



MRS. ALICE MEYNELL



A.C. SWINBURNE



SIR C. PARKER



A.T. QUILLER-COUCH



BISHOP OF RIPON



AUGUSTINE BIRRELL



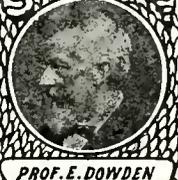
JANE H. FINDLATER



LORD ROSEBERY



W.L. COURTNEY



PROF. E. DOWDEN



OWEN JEAMAN



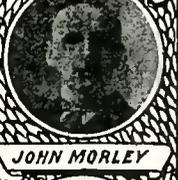
W.F. HENLEY



THE HON. H.R. ASQUITH



W.S. LILLY



JOHN MORLEY



SIR LEWIS MORRIS



W.B. YEATS



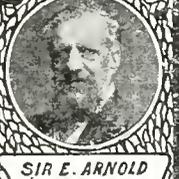
ANDREW LANG



SIDNEY LEE



HERBERT PAUL



SIR E. ARNOLD



EDMUND GOSSE



SIR WEMYSS REID



JOHN BUCHAN



LESLIE STEPHEN

**OUR FIELD**

EMBRACES THE WHOLE WORLD OF LITERATURE

A MAGAZINE OF FOREIGN PERIODICAL LITERATURE

UNEQUALLED IN QUALITY QUANTITY

PUBLISHED WEEKLY

BOSTON

HISTORY

POLITICS

FICTION

EUROPE

SCIENCE

BIOGRAPHY

TRAVEL

ADVENTURE

POETRY

DISCOVERY

EXPLORATION

THE

**THE LIVING AGE**

WORLD'S GREATEST INTELLECTS

**ARE REPRESENTED IN ITS PAGES**

All of the writers whose portraits appear in the margin of this page were represented in last year's numbers of THE LIVING AGE; and with them Katharine Tynan, Maxwell Gray, George Meredith, Fiona Macleod, Maurice Maeterlinck, Hilaire Belloc, Sir Rowland Blennerhassett, Eugene Melchior de Vogue, Paul Bourget, Henry Lawson, Arthur Christopher Benson, Max Beerbohm, Pierre de Coubertin, William Watson, Maxime Gorky, G. M. Trevelyan, Emily Lawless, Theophile Gautier, Prince Kropotkin, and many others.

**THE LIVING AGE**

AS IT ENTERS UPON ITS  
**SIXTIETH YEAR AND 236TH QUARTERLY VOLUME**

still maintains the high standard of literary excellence which has characterized it from the beginning. It presents in an inexpensive form, considering its great amount of matter, with freshness, owing to its weekly issue, and with a **satisfactory completeness** equalled by no other publication, the best **Essays, Reviews, Criticisms, Serial and Short Stories, Sketches of Travel and Discovery, Poetry, Scientific, Biographical, Historical and Political Information**, from the vast field of Foreign Periodical Literature.

**TO INTRODUCE THE MAGAZINE**

To readers who are not now familiar with it, the publishers of **THE LIVING AGE** will send it by mail, postpaid, to any name not already on the subscription lists, for

**THREE MONTHS, Thirteen Weeks, FOR ONE DOLLAR.**

These thirteen issues will aggregate about eight hundred and fifty octavo pages of the **World's Best Current Literature**. Subscriptions may begin with any desired date.

Published every **Saturday**, and giving about **3,300 pages a year**. Popular, vet of permanent value.

Subscription Price, \$6.00 a Year      Single Number, 15 Cents

**THE LIVING AGE COMPANY**

P. O. Box 5206      13 1/2 BROMFIELD STREET, BOSTON

## Harvard Summer School of Theology

Fifth Session, July 7-23, 1903

**Subject: Principles of Education in the Work  
of the Church**

LECTURES by Professors N. S. Shaler, F. G. Peabody, E. Emerton, G. F. Moore, E. C. Moore, E. Hale, J. H. Ropes, of Harvard, and Professors F. A. Christie, G. A. Coe, G. B. Foster, H. H. Horne and the Rev. S. M. Crothers.

*For circulars, apply to the Rev. R. S. Morrison, Secretary of the Divinity Faculty, Cambridge, Mass.*

### Librarians, Book Collectors, and Students

desiring to secure the back numbers of *The Open Court* can obtain exceptionally favorable terms by addressing the publishers at once, as a limited number of sets in excess of requirements are to be disposed of for want of storage facilities.

**The Open Court Pub. Co., P. O. Box F, Chicago**

## Buddhism and Its Christian Critics

By *Dr. Paul Carus*. 8vo. Pages, 311. Price, \$1.25.

### Contents:

THE ORIGIN OF BUDDHISM.  
THE PHILOSOPHY OF BUDDHISM.  
THE PSYCHOLOGICAL PROBLEM.  
THE BASIC CONCEPTS OF BUDDHISM.  
BUDDHISM AND CHRISTIANITY.  
CHRISTIAN CRITICS OF BUDDHISM.

“Every religious man should study other religions in order to understand his own religion; and he must try to trace conscientiously and lovingly the similarities in the various faiths in order to acquire the key that will unlock to him the law of the religious evolution of mankind.”—From the author's Preface.

**The Open Court Pub. Co., Chicago**

## TWO BOOKS BY F. MAX MÜLLER

### *Three Introductory Lectures on the Science of Thought.*

With a correspondence on “Thought Without Words,” between F. Max Müller and Francis Galton, the Duke of Argyll, George J. Romanes, and others.

1. The Simplicity of Language; 2. The Identity of Language and Thought; and
3. The Simplicity of Thought. Pp., 128. Cloth, 75 cents.

Prof. F. Max Müller sets forth in this book his view of the Identity of Language and Thought, which is a further development of Ludwig Noiré's theory that “man thinks because he speaks.”

“The ripe expression of a life-long labor in the study of the science of language.”—*Scotsman*, Edinburgh.

### *Three Lectures on the Science of Language.*

The Oxford University Extension Lectures, with a Supplement, “My Predecessors,” an essay on the genesis of “The Science of Thought.” Pp., 112. Cloth, 75 cents.

Prof. F. Max Müller points out that the difference between man and animal is due to language, yet there is no mystery in language. Thought is thicker than blood, and the bonds of the same language and the same ideas are stronger than family or race.

“The old fascination and still riper wisdom are offered in these later utterances.”—*The Watchman*, Boston

**THE OPEN COURT PUBLISHING COMPANY,**

324 DEARBORN ST., CHICAGO, ILL.

IMPORTANT PUBLICATION!

# The Science of Mechanics

A Critical and Historical Account of Its Development

THE SCIENCE OF MECHANICS. A Critical and Historical Account of Its Development. By **Dr. Ernst Mach**, Professor of the History and Theory of Inductive Science in the University of Vienna. Translated by **Thomas J. McCormack**. *Second Enlarged Edition*. 259 Cuts. Pages, xx, 605. Cloth, Gilt Top, Marginal Analyses. Exhaustive Index. Price, \$2.00 net (gs. 6d. net).

## Comments on the First Edition.

"Mach's *Mechanics* is unique. It is not a text-book, but forms a useful supplement to the ordinary text-book. The latter is usually a skeleton outline, full of mathematical symbols and other abstractions. Mach's book has 'muscle and clothing,' and being written from the historical standpoint, introduces the leading contributors in succession, tells what they did and how they did it, and often what manner of men they were. Thus it is that the pages glow, as it were, with a certain humanism, quite delightful in a scientific book. . . . The book is handsomely printed, and deserves a warm reception from all interested in the progress of science."—*The Physical Review*, New York and London.

"Those who are curious to learn how the principles of mechanics have been evolved, from what source they take their origin, and how far they can be deemed of positive and permanent value, will find Dr. Mach's able treatise entrancingly interesting. . . . The book is a remarkable one in many respects, while the mixture of history with the latest scientific principles and absolute mathematical deductions makes it exceedingly attractive."—*Mechanical World*, Manchester and London, England.

"The book as a whole is unique, and is a valuable addition to any library of science or philosophy. . . . Reproductions of quaint old portraits and vignettes give piquancy to the pages. The numerous marginal titles form a complete epitome of the work; and there is that invaluable adjunct, a good index. Altogether the publishers are to be congratulated upon producing a technical work that is thoroughly attractive in its make-up."—Prof. D. W. Hering, in *Science*.

"A masterly book. . . . To any one who feels that he does not know as much as he ought to about physics, we can commend it most heartily as a scholarly and able treatise . . . both interesting and profitable."—A. M. Wellington, in *Engineering News*, New York.

"Sets forth the elements of its subject with a lucidity, clearness, and force unknown in the mathematical text-books . . . is admirably fitted to serve students as an introduction on historical lines to the principles of mechanical science."—*Canadian Mining and Mechanical Review*, Ottawa, Can.

"There can be but one opinion as to the value of Mach's work in this translation. No instructor in physics should be without a copy of it."—*Henry Crew*, Professor of Physics in the Northwestern University, Evanston, Ill.

THE OPEN COURT PUBLISHING CO., CHICAGO, 324 Dearborn St.

LONDON: Kegan Paul, Trench, Trübner & Co., Ltd.

# New and Interesting Publications

**The Surd of Metaphysics.** An Inquiry Into the Question, Are There Things-in-Themselves? By *Dr. Paul Carus*. Pp., vii, 233. Price, cloth, \$1.25 net (5s. net).

The subject discussed in this book (the idea of things-in-themselves) is one of the most important of the problems of philosophy, and is of a paramount practical nature in its application to real life, especially in the domains of ethics and religion.

**A Brief History of Mathematics.** By the late *Dr. Karl Fink*, Tübingen, Germany. Translated by *Wooster Woodruff Beman*, and *David Eugene Smith*. With biographical notes and full index. Pp., 345. Cloth, \$1.50 net (5s. 6d. net). Second edition.

"Dr. Fink's work is the most systematic attempt yet made to present a compendious history of mathematics."—*The Outlook*.

"This book is the best that has appeared in English. It should find a place in the library of every teacher of mathematics."—*The Inland Educator*.

**Fundamental Problems.** The Method of Philosophy as a Systematic Arrangement of Knowledge. Third edition, enlarged and revised. By *Dr. Paul Carus*. Pp., xii, 373. Cloth, \$1.50 (7s. 6d.).

**The Gathas of Zarathushtra (Zoroaster) in Metre and Rhythm.** Being a second edition of the metrical versions in the author's edition of 1892-1894, to which is added a second edition (now in English) of the author's Latin version also of 1892-1894, in the five Zarathushtrian Gathas, which was subventioned by His Lordship, the Secretary of State for India in Council, and also by the Trustees of the Sir J. Jejeebhoy Translation Fund of Bombay, and is now practically disposed of. (See also the literary translation in the Sacred Books of the East, XXX., pp. 1-393 [1887], itself founded by especial request upon the limited edition of 1883.) By *Lawrence H. Mills, D. D.*, Hon. M. A. Professor of Zend Philology in the University of Oxford. Large octavo. Pp., 196. Price, cloth, \$2.00.

**The Temples of the Orient and Their Message;** in the light of Holy Scripture, Dante's Vision, and Bunyan's Allegory. By the Author of "Clear Round!" "Things Touching the King," etc. With Map showing the Ancient Sanctuaries of the Old World and their relation to Abraham's Pilgrimage. Pages, x, 442. Price, cloth, \$4.00.

A work dedicated to the intending missionary, with a view to broadening his conception and appreciation of the great religions of the East.

**The Age of Christ.** A Brief Review of the Conditions Under which Christianity Originated. By *Dr. Paul Carus*. Pp., 34. Price, paper, 15 cents net.

**The Canon of Reason and Virtue** (Lao-Tze's Tao Teh King). Translated into English from the Chinese by *Dr. Paul Carus*. Separate reprint from the translator's larger work. Pp., 47. Paper, 25 cents.

**Karma, A Story of Buddhist Ethics.** By *Paul Carus*. Illustrated by Kwason Suzuki. American edition. Pp., 47. Price, 15 cents.

**THE OPEN COURT PUBLISHING CO.,** CHICAGO, 324 Dearborn St.  
LONDON: Kegan Paul, Trench, Trübner & Co., Ltd.