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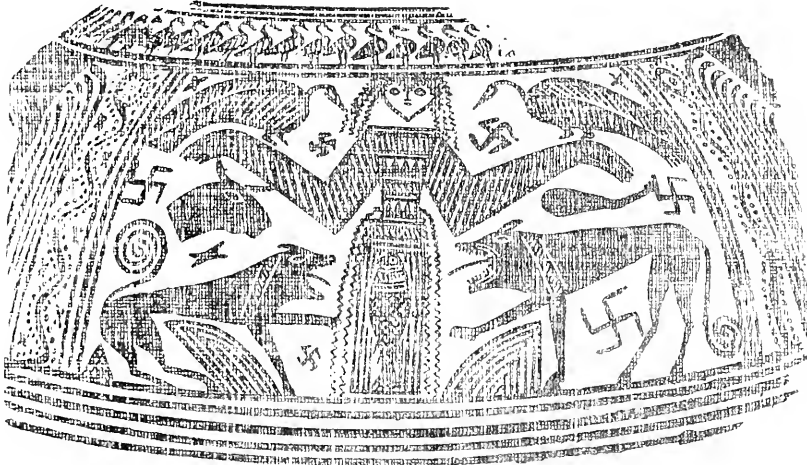
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# The Open Court

A MONTHLY MAGAZINE

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

Founded by EDWARD C. HEGELER



THE MOTHER GODDESS ARTEMIS.  
(See page 168.)

The Open Court Publishing Company

CHICAGO

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

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

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LAO-TZE AND YIN-HI.

*Frontispiece to The Open Court.*

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VOL. XXV. (No. 3.)

MARCH, 1911.

NO. 658

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## THE TRANSFORMATION OF ROMAN PAGAN- ISM.\*

BY FRANZ CUMONT.

ABOUT the time of the Severi the religion of Europe must have presented an aspect of surprising variety. Although dethroned, the old native Italian, Celtic and Iberian divinities were still alive. Though eclipsed by foreign rivals, they lived on in the devotion of the lower classes and in the traditions of the rural districts. For a long time the Roman gods had been established in every town and had received the homage of an official clergy according to pontifical rites. Beside them, however, were installed the representatives of all the Asiatic pantheons, and these received the most fervent adoration from the masses. New powers had arrived from Asia Minor, Egypt, Syria and Persia, and the dazzling Oriental sun outshone the stars of Italy's temperate sky. All forms of paganism were simultaneously received and retained while the exclusive monotheism of the Jews kept its adherents, and Christianity strengthened its churches and fortified its orthodoxy, at the same time giving birth to the baffling vagaries of gnosticism. A hundred different currents carried away hesitating and undecided minds, a hundred contrasting sermons made appeals to the conscience of the people.

Let us suppose that in modern Europe the faithful had deserted the Christian churches to worship Allah or Brahma, to follow the precepts of Confucius or Buddha, or to adopt the maxims of the Shinto; let us imagine a great confusion of all the races of the world in which Arabian mullahs, Chinese scholars, Japanese bonzes, Tibetan lamas and Hindu pundits would all be preaching fatalism and

\* Translated by A. M. Thielen.

predestination, ancestor-worship and devotion to a deified sovereign, pessimism and deliverance through annihilation—a confusion in which all those priests would erect temples of exotic architecture in our cities and celebrate their disparate rites therein. Such a dream, which the future may perhaps realize, would offer a pretty accurate picture of the religious chaos in which the ancient world was struggling before the reign of Constantine.

The Oriental religions that successively gained popularity exercised a decisive influence on the transformation of Latin paganism. Asia Minor was the first to have its gods accepted by Italy. Since the end of the Punic wars the black stone symbolizing the Great Mother of Pessinus had been established on the Palatine, but only since the reign of Claudius could the Phrygian cult freely develop in all its splendor and excesses. It introduced a sensual, highly-colored and fanatical worship into the grave and somber religion of the Romans. Officially recognized, it attracted and took under its protection other foreign divinities from Anatolia and assimilated them to Cybele and Attis, who thereafter bore the symbols of several deities together. Cappadocian, Jewish, Persian and even Christian influences modified the old rites of Pessinus and filled them with ideas of spiritual purification and eternal redemption by the bloody baptism of the taurobolium. But the priests did not succeed in eliminating the basis of coarse naturism which ancient barbaric tradition had imposed upon them.

Beginning with the second century before our era, the mysteries of Isis and Serapis spread over Italy with the Alexandrian culture whose religious expression they were, and in spite of all persecution established themselves at Rome where Caligula gave them the freedom of the city. They did not bring with them a very advanced theological system, because Egypt never produced anything but a chaotic aggregate of disparate doctrines, nor a very elevated ethics, because the level of its morality—that of the Alexandrian Greeks—rose but slowly from a low stage. But they made Italy, and later the other Latin provinces, familiar with an ancient ritual of incomparable charm that aroused widely different feelings with its splendid processions and liturgic dramas. They also gave their votaries positive assurance of a blissful immortality after death, when they would be united with Serapis and, participating body and soul in his divinity, would live in eternal contemplation of the gods.

At a somewhat later period arrived the numerous and varied Baals of Syria. The great economic movement starting at the be-

ginning of our era which produced the colonization of the Latin world by Syrian slaves and merchants, not only modified the material civilization of Europe, but also its conceptions and beliefs. The Semitic cults entered into successful competition with those of Asia Minor and Egypt. They may not have had so stirring a liturgy, nor have been so thoroughly absorbed in preoccupation with a future life, although they taught an original eschatology, but they did have an infinitely higher idea of divinity. The Chaldean astrology, of which the Syrian priests were enthusiastic disciples, had furnished them with the elements of a scientific theology. It had led them to the notion of a God residing far from the earth above the zone of the stars, a God almighty, universal and eternal. Everything on earth was determined by the revolutions of the heavens according to infinite cycles of years. It had taught them at the same time the worship of the sun, the radiant source of earthly life and human intelligence.

The learned doctrines of the Babylonians had also imposed themselves upon the Persian mysteries of Mithra which considered time identified with heaven as the supreme cause, and deified the stars; but they had superimposed themselves upon the ancient Mazdean creed without destroying it. Thus the essential principles of the religion of Iran, the secular and often successful rival of Greece, penetrated into the Occident under cover of Chaldean wisdom. The Mithra worship, the last and highest manifestation of ancient paganism, had Persian dualism for its fundamental dogma. The world is the scene and the stake of a contest between good and evil, Ormuzd and Ahriman, gods and demons, and from this primary conception of the universe flowed a strong and pure system of ethics. Life is a combat; soldiers under the command of Mithra, invincible heroes of the faith, must ceaselessly oppose the undertakings of the infernal powers which sow corruption broadcast. This imperative ethics was productive of energy and formed the characteristic feature distinguishing Mithraism from all other Oriental cults.

Thus every one of the Levantine countries—and that is what we meant to show in this brief recapitulation—had enriched Roman paganism with new beliefs that were frequently destined to outlive it. What was the result of this confusion of heterogeneous doctrines whose multiplicity was extreme and whose values were very different? How did the barbaric ideas refine themselves and combine with each other when thrown into the fiery crucible of imperial syncretism? In other words, what shape was assumed by ancient idolatry, so impregnated with exotic theories during the fourth

century, when it was finally dethroned? It is this point that we should like to indicate briefly as the conclusion to these studies.

However, can we speak of *one* pagan religion? Did not the blending of the races result in multiplying the variety of disagreements? Had not the confused collision of creeds produced a division into fragments, a comminution of churches? Had not a complacent syncretism engendered a multiplication of sects? The "Hellenes," as Themistius told the Emperor Valens, had three hundred ways of conceiving and honoring deity, who takes pleasure in such diversity of homage.<sup>1</sup> In paganism a cult does not die violently, but after long decay. A new doctrine does not necessarily displace an older one. They may co-exist for a long time as contrary possibilities suggested by the intellect or faith, and all opinions, all practices, seem respectable to paganism. It never has any radical or revolutionary transformations. Undoubtedly, the pagan beliefs of the fourth century or earlier did not have the consistency of a metaphysical system nor the rigor of canons formulated by a council. There is always a considerable difference between the faith of the masses and that of cultured minds, and this difference was bound to be great in an aristocratic empire whose social classes were sharply separated. The devotion of the masses was as unchanging as the depths of the sea; it was not stirred up nor heated by the upper currents.<sup>2</sup> The peasants practised their pious rites over anointed stones, sacred springs and blossoming trees, as in the past, and continued celebrating their rustic holidays during seed-time and harvest. They adhered with invincible tenacity to their traditional usages. Degraded and lowered to the rank of superstitions, these were destined to persist for centuries under the Christian orthodoxy without exposing it to serious peril, and while they were no longer marked in the liturgic calendars they were still mentioned occasionally in the collections of folklore.

At the other extreme of society the philosophers delighted in veiling religion with the frail and brilliant tissue of their speculations. Like the emperor Julian they improvised bold and incongruous interpretations of the myth of the Great Mother, and these interpretations were received and relished by a restricted circle of scholars. But during the fourth century these vagaries of the individual imagination were nothing but arbitrary applications of uncontested principles. During that century there was much less intellectual anarchy than when Lucian had exposed the sects "for sale

<sup>1</sup> Socrates, *Hist. Eccl.*, IV, 32.

<sup>2</sup> Reinach, *Mythes, cultes*, III, 1908, pp. 365 f.



at public auction"; a comparative harmony arose among the pagans after they joined the opposition. One single school, that of neo-Platonism, ruled all minds. This school not only respected positive religion, as ancient stoicism had done, but venerated it, because it saw there the expression of an old revelation handed down by past generations. It considered the sacred books divinely inspired—the books of Hermes Trismegistus, Orpheus, the Chaldean oracles, Homer, and especially the esoteric doctrines of the mysteries—and subordinated its theories to their teachings. As there must be no contradiction between all the disparate traditions of different countries and different periods, because all have emanated from one divinity, philosophy, the *ancilla theologiæ*, attempted to reconcile them by the aid of allegory. And thus, by means of compromises between old Oriental ideas and Greco-Latin thought, an *ensemble* of beliefs slowly took form, the truth of which seemed to have been established by common consent. So when the atrophied parts of the Roman religion had been removed, foreign elements had combined to give it a new vigor and in it themselves became modified. This hidden work of internal decomposition and reconstruction had unconsciously produced a religion very different from the one Augustus had attempted to restore.

However, we would be tempted to believe that there had been no change in the Roman faith, were we to read certain authors that fought idolatry in those days. Saint Augustine, for instance, in his *City of God*, pleasantly pokes fun at the multitude of Italian gods that presided over the paltriest acts of life.<sup>3</sup> But the useless, ridiculous deities of the old pontifical litanies no longer existed outside of the books of antiquaries. As a matter of fact, the Christian polemicist's authority in this instance was Varro. The defenders of the church sought weapons against idolatry even in Xenophanes, the first philosopher to oppose Greek polytheism. It has frequently been shown that apologists find it difficult to follow the progress of the doctrines which they oppose, and often their blows fall upon dead men. Moreover, it is a fault common to all scholars, to all imbued with book learning, that they are better acquainted with the opinions of ancient authors than with the sentiments of their contemporaries, and that they prefer to live in the past rather than in the world surrounding them. It was easier to reproduce the objections of the Epicureans and the skeptics against abolished beliefs, than to study the defects of an active organism with a view

<sup>3</sup> Augustine, *Civ. Dei*, IV, 21.

to criticizing it. In those times the merely formal culture of the schools caused many of the best minds to lose their sense of reality.

The Christian polemics therefore frequently give us an inadequate idea of paganism in its decline. When they complacently insisted upon the immortality of the sacred legends they ignored the fact that the gods and heroes of mythology had no longer any but a purely literary existence.<sup>4</sup> The writers of that period, like those of the Renaissance, regarded the fictions of mythology as details necessary to poetical composition. They were ornaments of style, rhetorical devices, but not the expression of a sincere faith. Those old myths had fallen to the lowest degree of disrepute in the theater. The actors of mimes ridiculing Jupiter's gallant adventures did not believe in their reality any more than the author of Faust believed in the compact with Mephistopheles.

So we must not be deceived by the oratorical effects of a rhetorician like Arnobius or by the Ciceronian periods of a Lactantius. In order to ascertain the real status of the beliefs we must refer to Christian authors who were men of letters less than they were men of action, who lived the life of the people and breathed the air of the streets, and who spoke from experience rather than from the treatises of myth-mongers. They were high functionaries like Prudentius;<sup>5</sup> like the man to whom the name "Ambrosiaster"<sup>6</sup> has been given since the time of Erasmus; like the converted pagan Firmicus Maternus,<sup>7</sup> who had written a treatise on astrology before opposing "The Error of the Profane Religions"; like certain priests brought into contact with the last adherents of idolatry through their pastoral duties, as for instance the author of the homilies ascribed to St. Maximus Tyrius;<sup>8</sup> finally like the writers of anonymous pamphlets, works prepared for the particular occasion and breathing the ardor of all the passions of the moment.<sup>9</sup> If this inquiry is based on the obscure indications in regard to their religious convictions left by members of the Roman aristocracy who remained true to the faith of their ancestors, like Macrobius or Symmachus; if it is particularly guided by the exceptionally numerous inscriptions that seem to be the public expression of the last will of expiring paganism,

<sup>4</sup> Burckhardt, *Zeit Constantins*, 2d ed., 1880, pp. 145-147.

<sup>5</sup> Cf. Prudentius, 348-410.

<sup>6</sup> Souter's ed. *Questiones*, Vienna, 1908, Intr., p. xxiv.

<sup>7</sup> His identity with the writer of the eight books *Matheseos* seems to be established.

<sup>8</sup> Maximus was bishop of Turin about 450-465.

<sup>9</sup> Riese, *Anthol. lat.*, I, 20.

we shall be able to gain a sufficiently precise idea of the condition of the Roman religion at the time of its extinction.

One fact becomes immediately clear from an examination of those documents. The old national religion of Rome was dead.<sup>10</sup> The great dignitaries still adorned themselves with the titles of augur and quindecimvir, or of consul and tribune, but those archaic prelaties were as devoid of all real influence upon religion as the republican magistracies were powerless in the state. Their fall had been made complete on the day when Aurelian established the pontiffs of the Invincible Sun, the protector of his empire, beside and above the ancient high priests. The only cults still alive were those of the Orient, and against them were directed the efforts of the Christian polemics, who grew more and more bitter in speaking of them. The barbarian gods had taken the place of the defunct immortals in the devotion of the pagans. They alone still had empire over the soul.

With all the other "profane religions," Firmicus Maternus fought those of the four Oriental nations. He connected them with the four elements. The Egyptians were the worshipers of water—the water of the Nile fertilizing their country; The Phrygians of the earth, which was to them the Great Mother of everything; the Syrians and Carthaginians of the air, which they adored under the name of celestial Juno;<sup>11</sup> the Persians of fire, to which they attributed preeminence over the other three principles. This system certainly was borrowed from the pagan theologians. In the common peril threatening them, those cults, formerly rivals, had become reconciled and regarded themselves as divisions and, so to speak, congregations, of the same church. Each one of them was especially consecrated to one of the elements which in combination form the universe. Their union constituted the pantheistic religion of the deified world.

All the Oriental religions assumed the form of mysteries.<sup>12</sup> Their dignitaries were at the same time pontiffs of the Invincible Sun, fathers of Mithra, celebrants of the taurobolium of the Great Mother, prophets of Isis; in short, they had all titles imaginable. In their initiation they received the revelation of an esoteric doctrine strengthened by their fervor.<sup>13</sup> What was the theology they learned? Here also a certain dogmatic homogeneity had established itself.

<sup>10</sup> Paul Allard, *Julien l'Apostat*, I, 1900, p. 35.

<sup>11</sup> "Ἡρα = ἀήρ.

<sup>12</sup> The Greek divinities Bacchus and Hecate retained their authority because of the mysteries connected with them.

<sup>13</sup> CIL, VI, 1779 = Dessau, *Inscr. sel.*, 1259.

All writers agree with Firmicus that the pagans worshiped the *elementa*.<sup>14</sup> Under this term were included not only the four simple substances which by their opposition and blending caused all phenomena of the visible world,<sup>15</sup> but also the stars and in general the elements of all celestial and earthly bodies.<sup>16</sup>

We therefore may in a certain sense speak of the return of paganism to nature worship; but must this transformation be regarded as a retrogression toward a barbarous past, as a relapse to the level of primitive animism? If so, we should be deceived by appearances. Religions do not fall back into infancy as they grow old. The pagans of the fourth century no longer naively considered their gods as capricious genii, as the disordered powers of a confused natural philosophy; they conceived them as cosmic energies whose providential action was regulated in a harmonious system. Faith was no longer instinctive and impulsive, for erudition and reflection had reconstructed the entire theology. In a certain sense it might be said that theology had passed from the fictitious to the metaphysical state, according to the formula of Comte. It was intimately connected with the knowledge of the day, which was cherished by its last votaries with love and pride, as faithful heirs of the ancient wisdom of the Orient and Greece.<sup>17</sup> In many instances it was nothing but a religious form of the cosmology of the period. This constituted both its strength and its weakness. The rigorous principles of astrology determined its conception of heaven and earth.

The universe was an organism animated by a God, unique, eternal and almighty. Sometimes this God was identified with the destiny that ruled all things, with infinite time that regulated all visible phenomena, and he was worshiped in each subdivision of that endless duration, especially in the months and the seasons.<sup>18</sup> Sometimes, however, he was compared with a king; he was thought of as a sovereign governing an empire, and the various gods then were the princes and dignitaries interceding with the rulers on behalf of his subjects whom they led in some manner into his presence. This heavenly court had its messengers or "angels" conveying to men the will of the master and reporting again the vows and petitions of his subjects. It was an aristocratic monarchy in heaven as on earth.<sup>19</sup>

<sup>14</sup> Pseudo-August. (Ambrosiaster), *Quæst. Vet. et Nov. Test.*, Souter's ed., p. 139, 9-11.

<sup>15</sup> Firmicus Maternus, *Mathes.*, VII.

<sup>16</sup> Diels, *Elementum*, 1899, pp. 44 f.

<sup>17</sup> *Rev. hist. litt. rel.*, VIII, 1903, pp. 429 f.

<sup>18</sup> Cumont, *Mon. myst. Mithra*, I, p. 294.

<sup>19</sup> Tertullian, *Apol.*, 24.

A more philosophic conception made the divinity an infinite power impregnating all nature with its overflowing forces. "There is only one God, sole and supreme," wrote Maximus of Madaura about 390, "without beginning or parentage, whose energies, diffused through the world, we invoke under various names, because we are ignorant of his real name. By successively addressing our supplications to his different members we intend to honor him in his entirety. Through the mediation of the subordinate gods the common father both of themselves and of all men is honored in a thousand different ways by mortals who are thus in accord in spite of their discord."<sup>20</sup>

However, this ineffable God, who comprehensively embraces everything, manifests himself especially in the resplendent brightness of the ethereal sky.<sup>21</sup> He reveals his power in water and in fire, in the earth, the sea and the blowing of the winds; but his purest, most radiant and most active epiphany is in the stars whose revolutions determine every event and all our actions. Above all he manifests himself in the sun, the motive power of the celestial spheres, the inexhaustible seat of light and life, the creator of all intelligence on earth. Certain philosophers like the senator Praetextatus, one of the *dramatis personae* of Macrobius, confounded all the ancient divinities of paganism with the sun in a thorough-going syncretism.<sup>22</sup>

Just as a superficial observation might lead to the belief that the theology of the last pagans had reverted to its origin, so at first sight the transformation of the ritual might appear like a return to savagery. With the adoption of the Oriental mysteries barbarous, cruel and obscene practices were undoubtedly spread, as for instance the masquerading in the guise of animals in the Mithraic initiations, the bloody dances of the *galli* of the Great Mother and the mutilations of the Syrian priests. Nature worship was originally as "amoral" as nature itself. But an ethereal spiritualism ideally transfigured the coarseness of those primitive customs. Just as the doctrine had become completely impregnated with philosophy and erudition, so the liturgy had become saturated with ethical ideas. The taurobolium, a disgusting shower-bath of luke-warm blood, had become a means of obtaining a new and eternal life; the ritualistic ablutions were no longer external and material acts, but were supposed to cleanse the soul of its impurities and to restore its original innocence; the sacred repasts imparted an intimate virtue to the soul and furnished sustenance to the spiritual life. While efforts

<sup>20</sup> August., *Epist.*, 16 (48).

<sup>21</sup> *Paneg. ad Constantin. Aug.*, 313 A. D., c. 26 (p. 212, Bahrens ed.).

<sup>22</sup> Macrobius, *Sat.*, I, 17 f.

were made to maintain the continuity of tradition, its content had slowly been transformed. The most shocking and licentious fables were metamorphosed into edifying narratives by convenient and subtle interpretations which were a joy to the learned mythographers. Paganism had become a school of morality, the priest a doctor and director of the conscience.<sup>23</sup>

The purity and holiness imparted by the practice of sacred ceremonies were the indispensable condition for obtaining eternal life.<sup>24</sup> The mysteries promised a blessed immortality to their initiates, and claimed to reveal to them infallible means of effecting their salvation. According to a generally accepted symbol, the spirit animating man was a spark, detached from the fires shining in the ether; it partook of their divinity and so, it was believed, had descended to the earth to undergo a trial. It could literally be said that

"Man is a fallen god who still remembers heaven."

After having left their corporeal prisons, the pious souls re-ascended towards the celestial regions of the divine stars, to live forever in endless brightness beyond the starry spheres.<sup>25</sup>

But at the other extremity of the world, facing this luminous realm, extended the somber kingdom of evil spirits. They were irreconcilable adversaries of the gods and men of good will, and constantly left the infernal regions to roam about the earth and scatter evil. With the aid of the celestial spirits, the faithful had to struggle forever against their designs and seek to avert their anger by means of bloody sacrifices. But, with the help of occult and terrible processes, the magician could subject them to his power and compel them to serve his purposes. This demonology, the monstrous offspring of Persian dualism, favored the rise of every superstition.<sup>26</sup>

However, the reign of the evil powers was not to last forever. According to common opinion the universe would be destroyed by fire<sup>27</sup> after the times had been fulfilled. All the wicked would perish, but the just would be revived and establish the reign of universal happiness in the regenerated world.<sup>28</sup>

The foregoing is a rapid sketch of the theology of paganism after three centuries of Oriental influence. From coarse fetichism

<sup>23</sup> Allard, *Julien l'Apostat*, II, 186 f.

<sup>24</sup> Augustine, *Civ. Dei*, VI, I and VI, 12.

<sup>25</sup> Macrobius, *In Somn. Scipio.*, I, 11, § 5 f.

<sup>26</sup> Cumont, *Mon. myst. Mithra*, I, p. 296.

<sup>27</sup> Lactantius, *Inst.* VII, 18.

<sup>28</sup> Gruppe, *Griech. Mythol.*, pp. 1488 f.

and savage superstitions the learned priests of the Asiatic cults had gradually produced a complete system of metaphysics and eschatology, as the Brahmins built up the spiritualistic monism of the Vedanta beside the monstrous idolatry of Hinduism, or, to confine our comparisons to the Latin world, as the jurists drew from the traditional customs of primitive tribes the abstract principles of a legal system that governs the most cultivated societies. This religion was no longer like that of ancient Rome, a mere collection of propitiatory and expiatory rites performed by the citizen for the good of the state; it now pretended to offer to all men a world-conception which gave rise to a rule of conduct and placed the end of existence in the future life. It was more unlike the worship that Augustus had attempted to restore than the Christianity that fought it. The two opposed creeds moved in the same intellectual and moral sphere,<sup>29</sup> and one could actually pass from one to the other without shock or interruption. Sometimes when reading the long works of the last Latin writers, like Ammianus Marcellinus or Boëthius, or the panegyrics of the official orators,<sup>30</sup> scholars could well ask whether their authors were pagan or Christian. In the time of Symmachus and Praetextatus, the members of the Roman aristocracy who had remained faithful to the gods of their ancestors did not have a mentality or morality very different from that of adherents of the new faith who sat with them in the senate. The religious and mystical spirit of the Orient had slowly overcome the whole social organism and had prepared all nations to unite in the bosom of a universal church.

<sup>29</sup> Arnobius, II, 13-14.

<sup>30</sup> Pichon, *Comptes Rendus Acad. Inscr.*, 1906, pp. 293 f.

# ON THE FOUNDATION AND TECHNIC OF ARITHMETIC.\*

BY GEORGE BRUCE HALSTED.

THE TWO DIRECT OPERATIONS, ADDITION AND MULTIPLICATION.

## *Notation.*

THE symbolic representation of numbers and ways of combining numbers comes under the head of what is called *notation*.

The natural numbers, as shown in the primitive numeral pictures 1, 11, 111, 1111, begin with a single unit, and, cardinally considered, are changed to the next always by taking another single unit.

## *The Symbol =.*

A number, an integer, is said to be *equal* to, or the same as, a number otherwise expressed, when their units being counted come to the same finger, the same numeral word. The symbol =, read *equals*, is called the sign of equality, and takes the part of verb in this symbolic language. It was invented by an Englishman, Robert Recorde, replacing in his algebra, *The Whetstone of Witte*,<sup>†</sup> the sign  $\varepsilon$  used for equality in his arithmetic, *The Grounde of Artes*, 1540. Equality is a relation reflexive, symmetric, invertible. Equality is a mutual relation of its two members. If  $x = y$ , then  $y = x$ . Equality is a transitive relation. If  $x = y$  and  $y = z$ , then  $x = z$ . A symbolic sentence using this verb is called an equality.

Ordinarily,  $x = y$  means that  $x$  and  $y$  denote the same number in the natural scale. Formally,  $x = y$  means that either can at will be substituted for the other anywhere.

\* Continuation of an article begun in the February *Open Court*.

† London (no date, preface 1557).



*Inequality.*

When the process of counting the units of one number simultaneously one-to-one with units of a second number ends because no unit of the second number remains uncounted, but the units of the first number are not all counted, then the first number is said to contain more units than the second number, and the second number is said to contain less units than the first.

If a number contains more units than a second, it is called *greater* than this second, which is called the *lesser*. By successively incorporating single units with the lesser of two primitive numbers we can make the greater.

Thomas Harriot (1560–1621), tutor to Sir Walter Raleigh and one of “the three magi of the Earl of Northumberland,” devised the symbol  $>$ , published 1631, read “is greater than,” and called the sign of inequality. Inequality is a sensed relation. Turned thus  $<$  its symbol is read “is less than.” Inequality in the same sense is transitive. If  $x > y$  and  $y > z$ , then  $x > z$ .

Since the result of counting is independent of the order of the individuals counted, therefore of two unequal natural numbers the one once found greater is always the greater. Without knowing the number  $n$ , we can write “either  $n > 5$ , or  $n = 5$ , or  $n < 5$ .” Any number which succeeds another in the natural scale is greater than this other. Ordinally,  $x < y$  means that  $x$  precedes  $y$  in the scale.

*Parentheses.*

When we can get a third number from two given numbers by a definite operation, the two given numbers joined by the sign for the operation and enclosed in parentheses may be taken to mean the result of that combination. The result can now be again combined with another given number, and so we may get combinations of several numbers though each operation is performed only with two.

Parentheses indicate that neither of the two numbers enclosed, but only the number produced by their combination, is related to anything outside the parentheses.

Parentheses (first used by the Flemish geometer Albert Girard in 1629) may without ambiguity be omitted:

First, When of two operations of like rank the preceding (going from left to right) is to be first carried out:

Second, When of two operations of unlike rank the higher is the first to be carried out.

*Expressions.*

The representation of one number by others with symbols of combination and operation is called an expression. By enclosing it in parentheses, any expression however complex in any way representing a number, may be operated upon as if it were a single symbol of that number. If an expression already involving parentheses is enclosed in parentheses, each pair, to distinguish it, can be made different in size or shape. The three most usual forms are the parenthesis (, the bracket [, and the brace {. In translating the expression into English, ( should be called first parenthesis, and ) second parenthesis; [ first bracket, ] second bracket; { first brace, } second brace.

*Substitution.*

No change of resulting value is made in any expression by substituting for any number its equal however expressed. From this it follows that two numbers each equal to a third are equal to one another. This process, putting one expression for another, substitution, is a primitive yet most important proceeding. A single symbol may be substituted for any expression whatever.

Permutation consists in a simultaneous carrying out of mutual substitution, interchange. Thus  $a$  and  $b$  in an expression, as  $abc$ , are permuted when they are interchanged, giving  $bac$ . More than two symbols are permuted when each is replaced by one of the others, as in  $abc$  giving  $bca$  or  $cab$ .

*Addition.*

Suppose we have two natural numbers written in their primitive form, as 111 and 1111; if we write all these units in one row we indicate another natural number; and the process of getting from two numbers the number belonging to the group formed by putting together their groups to make a single group is called *addition*. This operation of incorporating other units into the preceding diagram is indicated by a symbol first met in print in the arithmetic by John Widman (Leipsic, 1489), a little Maltese cross, +, read plus.

If one artificial individual be combined with another to give a new artificial individual in which each unit of the components appears retaining its natural independence and natural individuality, while the artificial individuality of the two components vanishes, the number of the new artificial individual is called the *sum* of the numbers of the two components, and is said to be obtained by *adding* these

two numbers (the terms or summands). The sum of two numbers, two terms, is the numeric attribute of the total system constituted of two partial systems to which the two terms respectively pertain.

In the child as in the savage, the number idea is not dissociated from the group it characterizes. But education should help on the stage where the number exists as an independent concept, say the number 5 with its own characteristics, its own life. Therefore we have number-science, pure arithmetic. So though it might perhaps be argued that there is only one number 5, yet we may properly speak of combining 5 with 5 so as to retain the units unaffected while the fiveness vanishes in the compound, the sum, 10.

Addition is a taking together of the units of two numbers to constitute the units of a third, their sum. This may be attained by a repetition of the operation of forming a new number from an old by taking with it one more unit; thus  $3 + 2 = 3 + 1 + 1$ .

If given numbers are written as groups of units, e. g. (*exempli gratia*),  $2 = 1 + 1$ ,  $3 = 1 + 1 + 1$ , the result of adding is obtained by writing together these rows of units, e. g.,  $2 + 3 = (1 + 1) + (1 + 1 + 1) = 1 + 1 + 1 + 1 + 1 = 5$ .

Since cardinal number is independent of the order of counting, therefore in any natural number expressed in its primitive form, as 1111, the permutation of any pair of units produces neither apparent nor real change. The units of numeration are completely interchangeable. Therefore we may say adding numbers is finding one number which contains in itself as many units as the given numbers taken together.

In defining addition, we need make no mention of the order in which the given numbers are taken together to make the sum. A sum is independent of the order of its parts or terms. This is an immediate consequence of the theorem of the invariance of the number of a set. For a change in the order of the parts added is only a change in the order of the units, which change is without influence when all are counted together.

To write in symbols, in the universal language of mathematics, that addition is an operation unaffected by permutation or the order of the parts added, though applied to any numbers whatsoever, we cannot use numerals, since numerals are always absolutely definite, particular. If, following Vieta's book of 1591, we use letters as general symbols to denote numbers left otherwise indefinite, we may write  $a$  to represent the first number not only in the sum  $2 + 3$ , but in the sum  $4 + 1$  and in the sum of any two numbers. Taking  $b$  for a second number, the symbolic sentence  $a + b = b + a$  is a statement

about all numbers whatsoever. It says, addition is a *commutative* operation.

The words commutative and *distributive* were used for the first time by F. J. Servois in 1813.

The previous grouping of the parts added has no effect upon the sum. Brackets occurring in an indicated sum may be omitted as not affecting the result. The general statement or formula  $(a + b) + c = a + (b + c)$  says, addition is an *associative* operation, an operation having associative freedom.

Rowan Hamilton in 1844 first explicitly stated and named the associative law. For addition it follows from the theorem of the invariance of the number of a group.

### *Formulas.*

Equalities having to do only with the very nature of the operations involved, and not at all with the particular numbers used are called *formulas*.

A formula is characterized by the fact that for any letter in it any number whatsoever may be substituted without destroying the equality or restricting the values of any other letter. In a formula a letter as symbol for any number may be replaced not only by any digital number, but also by any other symbol for a number whether simple or compound, in the last case bracketed. Thus  $a + b = b + a$  gives  $(a + c) + b = b + (a + c)$ . So from a formula we can get an indefinite number of formulas and special numerical equations.

Each side or member of a formula expresses a method of reckoning a number, and the formula says that both reckonings produce the same result. A formula translated from symbols into words gives a rule. As equality is a mutual relation always invertible, a formula will usually give two rules, since its second member may be read first.

By definition, from the inequality  $a > b$  we know that  $a$  could be obtained by adding units to  $b$ . Calling this unknown group of units  $n$ , we have  $a = b + n$ .

Inversely, if  $a = b + n$  then  $a > b$ , that is a sum of finite natural numbers is always greater than one of its parts. A sum increases if either of its parts increases.

### *Ordinal Addition.*

Addition may also be defined and its properties established from the ordinal view-point.

Start from the natural scale. To add 1 to the number  $x$  is to

replace  $x$  by the next following ordinal. So if we know  $x$ , we know  $x + 1$ .

When we have defined adding some particular number  $a$  to  $x$ , when we have defined the operation,  $x + a$ , the operation  $x + (a + 1)$  shall be defined by the formula (1) . . .  $x + (a + 1) = (x + a) + 1$ . We shall know then what  $x + (a + 1)$  is when we know what  $x + a$  is, and as we have, to start with, defined what  $x + 1$  is, we thus have successively and "by recurrence" the operations  $x + 2$ ,  $x + 3$ , etc.

The sum  $a + b$  is thus defined ordinally as the  $b$ th term after the  $a$ th.

It serves to represent conventionally a new number univocally deduced by a definite given procedure from the numbers summed or added together.

*Properties of Addition.*

*Associativity:*  $a + (b + c) = (a + b) + c$ .

This theorem is by definition true for  $c = 1$ , since, by formula (1),  $a + (b + 1) = (a + b) + 1$ . Now supposing the theorem true for  $c = y$ , it will be true for  $c = y + 1$ . For supposing

$$(a + b) + y = a + (b + y),$$

it follows that

$$(2) \dots [(a + b) + y] + 1 = [a + (b + y)] + 1,$$

which is only adding one to the same number, to equal numbers.

Now by definition (1), the first member of this equation (2)

$$[(a + b) + y] + 1 = (a + b) + (y + 1) \dots (3),$$

as we recognize that it should be, since  $y$  is the number preceding  $y + 1$ .

But by the same formula (1), read backward, the second member of equation (2)

$$[a + (b + y)] + 1 = a + [(b + y) + 1] \dots (4),$$

as we see it should be, since  $b + y$  is the number preceding  $b + y + 1$ .

But again by (1), the second member of (4),

$$a + [(b + y) + 1] = a + [b + (y + 1)] \dots (5)$$

Therefore [by (5), (4) and (3)], (2) may be written,

$$a + [b + (y + 1)] = (a + b) + (y + 1).$$

Hence the theorem is true for  $c = y + 1$ .

Being true for  $c = 1$ , we thus see successively that so it is for  $c = 2$ , for  $c = 3$ , etc.

*Commutativity:*  $1^\circ \dots a + 1 = 1 + a$ .

This theorem is identically true for  $a = 1$ .

Now we can verify that if it is true for  $a = y$  it will be true for  $a = y + 1$ ; for then

$$(y + 1) + 1 = (1 + y) + 1 = 1 + (y + 1)$$

by associativity. But it is true for  $a = 1$ , therefore it will be true for  $a = 2$ , for  $a = 3$ , etc.

$$2^{\circ} \dots a + b = b + a.$$

This has just been demonstrated for  $b = 1$ ; it can be verified that if it is true for  $b = x$ , it will be true for  $b = x + 1$ . For, if true for  $b = x$ , then we have by hypothesis  $a + x = x + a$ ; whence, by formula (1), by  $1^{\circ}$  and associativity,  $a + (x + 1) = (a + x) + 1 = (x + a) + 1 = x + (a + 1) = x + (1 + a) = (x + 1) + a$ .

The proposition is therefore established by recurrence.

### *Multiplication.*

Sums in which all the parts are equal frequently occur. Such additions are often laborious and liable to error. But such a sum is *determined* if we know one of the equal parts and the number of parts. The operation of combining these two numbers to get the result is called *multiplication*; the result is then called the *product*. The part repeated is called the *multiplicand*, and the number which indicates how often it occurs is called the *multiplier*. Multiplicand and multiplier are each *factors* of the product. Such a product is a *multiple* of each of its factors. In forming such a product, the multiplicand is taken once as summand for each unit in the multiplier. More generally, *a product is the number related to the multiplicand as the unit to the multiplier.*

Following Wm. Oughtred (1631), we use the sign  $\times$  to denote multiplication, writing it before the multiplier but after the multiplicand. Thus  $1 \times 10$ , read one multiplied by ten, or simply one by ten, stands for the product of the multiplication of 1 by 10, which by definition equals 10. The multiplication sign may be omitted when the product cannot reasonably be confounded with anything else, thus  $1a$  means  $1 \times a$ , read one by  $a$ , which by definition equals  $a$ .

From our definition also  $a \times 1$ , that is  $a$  multiplied by 1, must equal  $a$ .

*Commutativity.* Multiplication of a number by a number is commutative.

Multiplier and multiplicand may be interchanged without altering the product.

$1 \ 1 \ 1 \ 1 \ 1$       For if we have a rectangular array of  $a$  rows each  
 $1 \ 1 \ 1 \ 1 \ 1$       containing  $b$  units, it is also  $b$  columns each contain-  
 $1 \ 1 \ 1 \ 1 \ 1$       ing  $a$  units.

Therefore  $b \times a = a \times b$ .

Taking apposition to mean successive multiplication, for ex-

ample,  $abcde = \{[(ab)c]d\} e$ , calling the numbers involved *factors*, and the result their *product*, we may prove that commutative freedom extends to any or all factors in any product.

For changing the order of a pair of factors which are next one another does not alter the product.  $abcd = acbd$ .  
 $a \ a \ a \ a \ a$  For  $c$  rows of  $a$ 's, each row containing  $b$  of them,  
 $a \ a \ a \ a \ a$  is  $b$  columns of  $a$ 's each containing  $c$  of them. So  
 $a \ a \ a \ a \ a$   $c$  groups of  $ab$  units comes to the same number as  $b$  groups of  $ac$  units.

This reasoning holds no matter how many factors come before or after the interchanged pair. For example

$$abcdefg = abc \ ed \ fg,$$

since in this case the product  $abc$  simply takes the place which the number  $a$  had before. And  $c$  rows with  $d$  times  $abc$  in each row come to the same number as  $d$  columns with  $e$  times  $abc$  in each column. It remains only to multiply this number successively by whatever factors stand to the right of the interchanged pair.

It follows therefore that no matter how many numbers are multiplied together, we may interchange the places of any two of them which are adjacent without altering the product. But by repeated interchanges of adjacent pairs we may produce any alteration we choose in the order of the factors.

This extends the commutative law of freedom to all the factors in any product.

*Associativity.* To show with equal generality that multiplication is associative, we have only to prove that in any product any group of the successive factors may be replaced by their product.

$$abcdefgh = abc(def)gh.$$

By the commutative law we may arrange the factors so that this group comes first. Thus  $abcdefgh = def \ abc \ gh$ .

But now the product of this group is made in carrying out the multiplication according to definition. Therefore

$$abcdefgh = def \ abc \ gh = (def) \ abc \ gh.$$

Considering this bracketed product now as a single factor of the whole product, it can, by the commutative law, be brought into any position among the other factors, for example, back into the old place; so  $abcdefgh = def \ abc \ gh = (def) \ abc \ gh = abc \ (def) \ gh$ .

*Distributivity.* Multiplication combines with addition according to what is called the *distributive* law.

Instead of multiplying a sum and a number we may multiply each part of the sum with the number and add these partial products.

$$a \ (b + c) = (b + c) \ a = ab + ac.$$

$$4 \times 5 = 4(2 + 3) = (2 + 3)4 = 2 \times 4 + 3 \times 4 = 5 \times 4.$$

Four by five equals five by four, and four rows of  $(2+3)$  units may be counted as four rows of two units together with 4 rows of 3 units.

As the sum of two numbers is a number, we may substitute  $(a+b)$  for  $b$  in the formula  $(b+c)d = bd+cd$ , which thus gives  $[(a+b)+c]d = (a+b)d+cd = ad+bd+cd$ . So the distributive law extends to the sum of however many numbers or terms.

Since  $a(b+c) > ab$  and  $(a+b)b > ab$ , therefore a product changes if either of its factors changes. A product increases if either of its factors increases.

Notwithstanding the historical origin of addition from counting and of multiplication from the addition of equal terms, it is now advantageous to consider multiplication, not as repeated addition, but as a separate operation, only connected with addition by the distributive law, an operation for finding from two elements  $x, y$ , an element univocally determined,  $xy$ , called "the product,  $x$  by  $y$ ," which by commutativity equals  $x$  times  $y$ .

## THE TWO INVERSE OPERATIONS, SUBTRACTION AND DIVISION

### *Inversion.*

In the preceding direct operations, in addition and multiplication, the simplest problem is, from two given numbers to make a third.

If  $a$  and  $b$  are the given numbers, and  $x$  the unknown number resulting, then

$$x = a + b, \text{ or} \\ x = a \times b,$$

according to the operation.

An *inverse* of such a problem is where the result of a direct operation is given and one of the components, to find the other component. The operation by which such a problem is solved is called an inverse operation.

Since by the commutative law we are free to interchange the two parts or terms of a given sum, as also the two factors of a given product, therefore here the inverse operation does not depend upon which of the two components is also given, but only upon the direct operation by which they were combined.

### *Subtraction.*

Suppose we are given a sum which we designate by  $s$ , and one part of it, say  $p$ , to find the corresponding other part, which, yet



unknown, we represent by  $x$ . Since the sum of the numbers  $p$  and  $x$  is what  $p+x$  expresses, we have the equality  $x+p = s$ .

But this equation differs in kind from the literal equalities heretofore used. It is not a formula, for any digital number substituted for one of these letters restricts the simultaneous values permissible for the others. Such an equality is called a conditional equality or a *synthetic* equation, or simply an *equation*.

The inverse problem for addition now consists just in this,—to solve the synthetic equation

$$b+x = a,$$

when  $a$  and  $b$  are given; in other words, to find a definite number which placed as value for  $x$  will satisfy the equation, that is which added to  $b$  will give  $a$ , and thus *verify* the equation. The number found, which satisfies the equation is called a *root* of the equation.

If the operation by which from a given sum  $a$  and a given part of it  $b$  we find a value for the corresponding other part  $x$  is called *from a subtracting*  $b$ , then, using the minus sign ( $-$ ) to denote subtraction, we may write the result  $a-b$ , read  $a$  minus  $b$ .

We may get this result, remembering that a number is a sum of units, by pairing off every unit in  $b$  with a unit in  $a$ , and then counting the unpaired units. This gives a number which added to  $b$  makes  $a$ .

The expression or result  $a-b$  is called a *difference*.

The term preceded by the minus sign is called the *subtrahend*; the other, the *minuend*.

Thus  $(a-b)+b = a-b+b = a$ ; also

$$b+(a-b) = b+a-b = a.$$

Ordinally, to subtract  $y$  from  $x$  is to find the number occupying the  $y$ th place before  $x$ .

### *Division.*

The term division has two distinct meanings in elementary mathematics. There are two operations called division: 1°, Remainder division; 2°, Multiplication's inverse.

1°, Given two numbers,  $a > b$ ,  $a$  the *dividend*, and  $b$  the *divisor*, the aim of *remainder division* may be considered the putting of  $a$  under the form  $bq+r$ , where  $r < b$ , and  $b$  not 0. We call  $q$  the *quotient*, and  $r$  the *remainder*. Both are integral.

The remainder division of  $a$  by  $b$  answers the two questions: 1°, What multiple of  $b$  if subtracted from  $a$  gives a difference or remainder less than  $b$ ? 2°, What is this remainder?

When  $r$  is 0, then  $a$  is a *multiple* of  $b$ , and  $a$  is *exactly divisible* by  $b$ .

The case  $b = 0$  is excluded. In this excluded case the problem would be impossible if  $a$  were not 0. But if  $a = 0$  and  $b = 0$ , every number,  $q$ , would satisfy the equality  $a = bq$ . So this case must be excluded to make the operation of division unequivocal, that is, in order that the problem of division shall have always one and only one solution. A second solution  $q'$ ,  $r'$  would give  $a = bq + r = bq' + r'$ ,  $b(q - q') = r' - r$ . But  $r' - r < b$ , while  $b(q - q')$  not  $< b$ .

2°, Division may also be regarded as the inverse of multiplication. Its aim is then considered to be the finding of a number  $q$  (quotient) which multiplied by  $b$  (the divisor) gives  $a$  (the dividend). Here division is the process of finding one of two factors when their product and the other factor are given.

The result  $q$  is represented by  $a/b$ . If  $a = 0$ , then  $q = 0$ . This definition of division gives the equality  $(a/b)b = a$ .

Remember  $b \neq 0$ , that is,  $b$  not equal to 0.

In particular  $a/1 = a$ .

In general 1°  $(a+b)/m = a/m + b/m$ .

2°  $(a-b)/m = a/m - b/m$ .

3°  $a(b/c) = ab/c$ .

4°  $a/(bc) = (a/b)/c$ .

5°  $a/(b/c) = (a/b)c$ .

6°  $a/b = am/bm$ .

7°  $a/b = (a/m)/(b/m)$ .

## TECHNIC.

### *Addition.*

In adding a column of digits, consider two numbers together, but only *think* their sum.

	38	Now in adding up this column only think 9, 16,
3	23	18, 27, 32, 43, stressing forty, and writing down the
8	48	three while thinking it.
5	35	The stress on the forty is to hold the four in mind
9	59	for use in the next column to the left. Such a num-
2	62	ber is said to be <i>carried</i> . Begin adding up the next
7	87	column to the left by thinking 13.
4	74	To check the work, add the column downward,
5	95	since mere repetition of work tends to repeat the
43	3	mistake also.

*Subtraction.*

Look at the question of subtracting as asking what number added to the subtrahend gives the minuend. Always work subtraction by adding. Thus subtract 1978 from 3139 as follows:

3139	Think, 8 and one make 9; 7 and six make 13, carry 1;
1978	10 and one make 11, carry 1; 2 and one make 3. Write
1161	down the spelled digits just while thinking them.

Explain "carrying" by the principle that the difference between two numbers remains the same though they be given equal increments.

9254	
8365	Again think, 5 and nine make 14, carry 1; 7 and eight
889	make 15, carry 1; 4 and eight make 12, carry 1; 9 equals 9.

In working the examples we have added *downwards*, so check by adding *upwards* the difference (the answer) to the subtrahend, think (for 9 and 5) 14, (for 9 and 6) 15, (for 9 and 3) 12, (for 1 and 8) 9.

*Multiplication.*

Set down the multiplier precisely in column under the multiplicand, units under units. Begin by multiplying the units figure of the multiplicand by the leftmost figure of the multiplier, writing under this leftmost figure the first figure thus obtained. Then use the successive figures in order.

35427	
1324	
35427	The figure set down from multiplying the units always
106281	comes precisely under its multiplier.

70854	The advantage of this method is that it gives the
141708	most important partial product first, and in abridged
+6905348	or approximate work one or two of the leftmost figures may be all that are wanted.

Rule: If of two figures multiplied one is in units column, the figure set down stands under the other.

*Verify Multiplication by Casting out Nines.*

Proceed as follows: Add the single figures of the *multiplicand*, but always diminish the partial sums by dropping nine. The remainder is identical with the remainder found much more laboriously by dividing by nine. Thus 35427 gives 3, since 7 and 2 give nine as also 4 and 5. Find just so the remainder of the *multiplier*. Here 1324 gives 1. If our work is correct, the remainder, or *excess*, of the product of these two remainders equals the remainder, or excess, for our product. Here 46905348 gives 3.

The complete proof of this method of verification lies simply in the fact that the remainder left when any number is divided by nine is the same as that left when the sum of its digits is divided by nine. For  $10-1=9$ ,  $100-1=99$ ,  $1000-1=999$ , etc. Hence if from any number be taken its units, also a unit for each of its tens, a unit for each of its hundreds, a unit for each of its thousands, etc., the remainder is a multiple of nine. But the part taken away is the sum of the number's digits.

### *Shorter Forms.*

When the multiplier contains only two digits, shorten the work by adding in the results of the multiplication by the second digit to that already obtained.

$$\begin{array}{r} 9587 \\ \quad 32 \\ \hline 28761 \\ \hline 306784 \end{array}$$

Here, after multiplying by 3, think, *fourteen*; 16, 17, *eighteen*; 10, 11, *seventeen*; 18, 19, *twenty-six*; ten; three. Write down the unaccented part of these spelled numbers while thinking it.

If in a multiplier of only two digits either is unity, write only the answer.

$$\begin{array}{r} 9867 \\ \quad 15 \\ \hline 148005 \end{array}$$

Here think *thirty-five*; 30, 33, *forty*; 40, 44, *fifty*; 45, 50, *fifty-eight*; fourteen.

$$\begin{array}{r} 7968 \\ \quad 41 \\ \hline 326688 \end{array}$$

Here think eight; 32, *thirty-eight*; 24, 27, *thirty-six*; 36, 39, *forty-six*; 28, *thirty-two*.

When in a three-place multiplier taking away either end-digit leaves a multiple of it, shorten by adding to this digit's partial product the proper multiple of it.

$$\begin{array}{r} 1234 \\ \quad 568 \\ \hline 9872 \\ 69104 \\ \hline 700912 \end{array}$$

After multiplying by 8, multiply this partial product by 7 (tens).

$$\begin{array}{r} 4213 \\ \quad 864 \\ \hline 33704 \\ 269632 \\ \hline 3640032 \end{array}$$

After multiplying by the 8, (hundreds), multiply this partial product by 8. This gives units.

### *Division.*

Write the first figure of the quotient precisely over the last figure of the first partial dividend. Use no bar to separate them.

Omit the partial products, the multiples of the divisor, writing down the partial dividends, the differences, while doing the multiplication.

27	Here think 10 and nought, 1'6. Carry 1, 10,
358) 9762	11 and six, 1'7. Carry 1. 6, 7 and two, 9. 56 and
260	six, 6'2. Carry 6. 35, 41 and nine, 5'0. Carry 5.
96	21, 26.

*Verify Division by Casting Out Nines.*

The excess of the product of excesses of divisor and quotient increased by excess of remainder equals excess of dividend.

In our example the excess from the quotient is 0. So the excess from the dividend, 6, equals that from the remainder.

[TO BE CONTINUED.]

## THE SANCTITY OF TABU.

SACRIFICIAL animals were always deemed holy, for they belonged to the deity, and so it happened that among many people they were not eaten except when the worshipers appeared as guests of the god. In other words, holy animals, as a rule, became tabu.

There is a close connection between things holy and tabu. Professor W. Robertson Smith, of Cambridge, England, one of the most learned and at the same time conservative theologians, has collected the data of *The Religion of the Semites* under this title into a highly instructive volume. He says:

“Holy and unclean things have this in common, that in both cases certain restrictions lie on men’s use of and contact with them, and that the breach of these restrictions involves supernatural dangers. The difference between the two appears, not in their relation to man’s ordinary life, but in their relation to the gods. Holy things are not free to man, because they pertain to the gods; uncleanness is shunned, according to the view taken in the higher Semitic religions, because it is hateful to the god, and therefore not to be tolerated in his sanctuary, his worshipers, or his land. But that this explanation is not primitive can hardly be doubted, when we consider that the acts that cause uncleanness are exactly the same which among savage nations place a man under tabu, and that these acts are often involuntary, and often innocent, or even necessary to society. The savage, accordingly, imposes a tabu on a woman in childbed, or during her courses, and on the man who touches a corpse, not out of regard for the gods, but simply because birth and everything connected with the propagation of the species on the one hand, and disease and death on the other, seem to him to involve the action of superhuman agencies of a dangerous kind. If he attempts to explain, he does so by supposing that on these occasions spirits of deadly power are present; at all events the persons involved seem to him to be sources of mysterious danger, which has all the characters of an infection, and may extend to other people unless due precautions are observed.”

Anthropologists have discussed the question as to the origin of tabu and the theory has been advanced that the tabu is placed

upon the totem of a tribe. This is true enough in frequent instances, but there are cases in which the tabu is simply due to the fear of the supernatural power of the object tabued, and it happens frequently that with a change of religion an originally holy animal comes to be looked upon as unclean.

Habits are more enduring than beliefs. If a belief changes, the habits engendered by it continue. This truth appears most clearly when a primitive faith yields to a new, perhaps a higher, religious conception. The tabu of holy animals remains even when the reason why they were deemed holy has disappeared.

The most flagrant instance of this rule is the tabu placed by the northern Semites on swine. They did not eat the swine, presumably because it was sacred to Adonis, their most popular god, who annually died and came to life again. The Israelites deemed the



JUDEA DEVICTA.

Coin commemorating the Roman conquest of Judea.

swine impure; it was under tabu; but there is no trace left in their scriptures why it was so greatly detested. The Jews showed their abhorrence to such a degree that they would rather die than eat pork, and the Jewish nationality remained so associated with the tabued animal that the Romans placed a swine on the coin intended to celebrate their conquest of "Judea devicta."

Callistratus (*Plutarchum Symp.*, IV, 5) expresses a suspicion that the Jews abstain from pork because they hold the hog in honor, as also do the Egyptians who revere the hog because it is supposed to have first taught man the use of plowing and of the plowshare when digging the ground with its snout.

Since Herod was so ready to have the members of his own family executed, Augustus said, "I would rather be the pig of Herod than his son."\*

There is another remarkable instance of a change from holy

\*"Melius est Herodis porcum esse quam filius."

to tabu as unclean. The European race has now a great abhorrence for horseflesh, but the reason has never been pointed out. It is because the horse was sacred to Wodan and the pagan Saxons ate



SACRIFICE OF A PIG TO DEMETER.

Initiation scene from the Eleusinian Mysteries. (After Panofka, *Cabinet pourtalès*, pl. 18).

its flesh as a sacrament. Hanover, the state which has developed from the old Saxon dukedom, even to-day bears a horse on its coat of arms,\* and the Saxons who conquered Britain were led by the



ELEUSINIAN COIN.

On its obverse the sacrificial pig of the mysteries. (From Harrison, *Prolegomena to the Study of Greek Religion*, p. 153).

mythical Hengist and Horsa, both names meaning "horse." In pagan times the horse was holy, but when Christianity came the eating of horse flesh was branded as an abomination. Even the

\* Hence the German slang *berappen*, which means "to pay," referring to the horse (*Rappe*) on the coins.



present generation without knowing why shrinks from partaking of this food which is no less wholesome and palatable than beef, as much as the Jews abhor the swine.

It is not impossible that all civilized people detest cannibalism because man was the main and the highest sacrifice in the days of savagery, and so human flesh has become the tabu of tabus.

In Greece there was no tabu on swine, though the pig was deemed a most efficient expiatory sacrifice in the mysteries of Eleusis and elsewhere. Many vase pictures and bas reliefs representing initiations and atonement offerings bear witness to this belief. There



THE PURIFICATION OF ORESTES.

(Harrison, *Proleg. to the Study of Greek Rel.*, p. 229).

are also Eleusinian coins which commemorate the significance of the mystic pig. In the one here reproduced the pig is seen standing on a torch thus indicating that the ceremony took place in the underworld. The reverse shows Demeter on her chariot accompanied by a huge snake.

A vase painting of the end of the fifth century represents the ceremony of the purification of Orestes. Apollo, recognizable by the laurel, holds the sacrificial pig over the head of Orestes, and Diana with bow and quiver stands just behind. The spirit of the murdered Clytemnestra calls up from Hades the Erinyes, who represent

the sinner's conscience. One is fully awake, another is still drowsy and the third is just emerging from the realm of shades.

A cinerary urn found in a grave on the Esquiline is decorated with scenes from the initiatory rites of Eleusis. On one side we see a pig being sacrificed. The hierophant pours out a libation and carries a dish containing three poppies symbolic of the underworld. To the left of this scene Demeter is holding a basket over the veiled head of the initiate.

The Thesmophoria was an autumn festival in which only women took part. It celebrated the *κάθοδος*, descent into, and the *ἀνοδος*,



CEREMONIES OF THE ELEUSINIAN MYSTERIES.

(Harrison, *op. cit.*, p. 547).

the return or ascent from, the underworld. The third day was devoted to *καλλιγένεια*, "the mother of the fair babe."<sup>1</sup> A vase painting on one of the *lekythoi* of the National Museum at Athens represents a woman sacrificing a pig, which probably illustrates one of the rites of the first day of the Thesmophoria. The three torches indicate the chthonian character of the ceremony. They prove that the sacrifice refers to Orcus, the underworld. The basket carried in the left hand contains the "ineffable things" (*ἄρρητα*).

The sanctity of the swine was not limited to the Semites and

<sup>1</sup> It is difficult to translate the Greek word in the same terse way. Literally it means "bearer of the beautiful one." This was the epithet by which the goddess Demeter was invoked in the Thesmophoria.

the Greeks, for we must also remember that the boar was sacred to Fro, the Adonis of the Germans. Both names, Fro and Adonis, mean "Lord."<sup>2</sup> In Walhalla, the Teutonic heaven, the heroes feasted on a boar whose flesh grew again as soon as it was cut off.

Prof. W. Robertson Smith in his *Religion of the Semites* mentions the swine repeatedly. He says (pp. 290-291):

"According to Al-Nadim the heathen Harranians sacrificed the swine and ate swine's flesh once a year. This ceremony is ancient, for it appears in Cyprus in connection with the worship of the Semitic Aphrodite and Adonis. In the ordinary worship of Aphrodite swine were not admitted, but in Cyprus



THE SACRIFICE OF A PIG IN THE THESMOPHORIA.

Vase painting in the Museum at Athens (Harrison, *op. cit.*, p. 126).

wild boars were sacrificed once a year on April 2. The same sacrifice is alluded to in the Book of Isaiah as a heathen abomination, with which the prophet associates the sacrifice of two other unclean animals, the dog and the mouse. We know from Lucian (*Dea Syria*, ch. 54) that the swine was esteemed sacrosanct by the Syrians, and that it was specially sacred to Aphrodite or Astarte is affirmed by Antiphanes, *ap. Athen.* iii. 49. In a modern Syrian superstition we find that a demoniac swine haunts houses where there is a marriageable maiden. (*ZDPG.* VII, 107.)"

The ass is another animal of pagan significance which has be-

<sup>2</sup> The name *Fro* was transferred to Christ and is preserved in the German word *Frohnleichnam*, which is still in common use and means the "body of the Lord" or *Corpus Christi*.

come connected with the Jews.<sup>3</sup> It was sacred to the Semites that invaded Egypt and also to the inhabitants of Harran. Professor Smith says (p. 468) :

"The wild ass was eaten by the Arabs, and must have been eaten with a religious intention, since its flesh was forbidden to his converts by Simeon the Stylite. Conversely, among the Harranians the ass was forbidden food, like the swine and the dog; but there is no evidence that, like these animals, it was sacrificed or eaten in exceptional mysteries. Yet when we find one section of Semites forbidden to eat the ass, while another section eats it in a way which to Christians appears idolatrous, the presumption that the animal was anciently sacred becomes very strong. An actual ass-sacrifice appears in Egypt in the worship of Typhon (Set or Sutech), who was the chief god of the Semites in Egypt, though Egyptologists doubt whether he was originally a Semitic god. The ass was a Typhonic animal, and in certain religious ceremonies the people of Coptus sacrificed asses by casting them down a precipice, while those of Lycopolis, in two of their annual feasts, stamped the figure of a bound ass on their sacrificial cakes (Plut., *Is. et Os.* § 30).... The old clan-name Hamor ("he-ass") among the Canaanites in Shechem, seems to confirm the view that the ass was sacred with some of the Semites; and the fables of ass-worship among the Jews (on which compare Bochart, *Hierozyicon*, Pars. I, Lib. II, cap. 78) probably took their rise, like so many other false statements of a similar kind, in a confusion between the Jews and their heathen neighbors."

The bear is not met with in the Orient, and there is no trace of its sanctity among the Semites, but it is a favorite totem among the Indians, as well as of the Ainus who live in the northern archipelago of Japan. Mr. Albert P. Niblack, while still an ensign in the U. S. Navy, tells us of his visit to the Alaskan Indians, and how he witnessed the funeral ceremony of Chief Shakes of Fort Wrangel in a village belonging to the Tlingit tribe. An important duty of the Alaskan chiefs, as Portlock, Dunn and other travelers tell us, consists in the performance of theatricals and cultus dances. And among the most important of the latter are those performed in connection with funerals. We see in the pictures which Mr. Niblack published in his report<sup>4</sup> how the body of Chief Shakes, while lying in state, is surrounded by totems, especially the bear with whom the Tlingit Indians centuries ago concluded an alliance. After the chief's death the ceremony is performed by the chief's adviser. Mr. Niblack says :

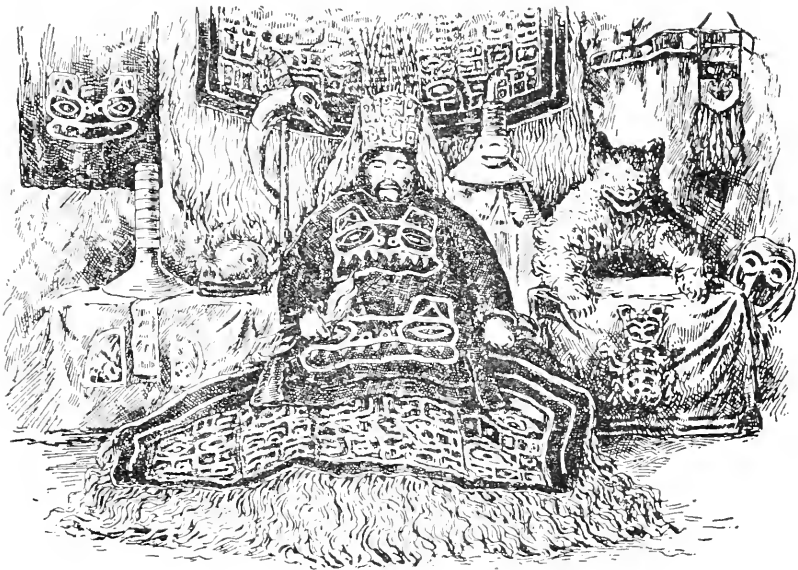
"It was formerly and is now somewhat the custom in the more out of the way villages for each chief to have a helper or principal man, who enjoys the

<sup>3</sup> See the article "Anubis, Seth and Christ," in *The Open Court*, XV, 65. Compare also the author's *Story of Samson*, pp. 103-107.

<sup>4</sup> "The Coast Indians of Southern Alaska and Northern British Columbia," *Report of National Museum*, 1888, Plate LXVIII.

confidence of the chief, has considerable authority, gives advice and instruction to the chief's successor, and has the care and keeping of certain secrets and properties belonging to the chief. These last duties pertain largely to assistance rendered in the production of the theatrical representations of the traditions and legends relating to the chief's totem. On such occasions, the guests being assembled, the chief presides, while the principal man directs the entertainment.

"The figure of the bear is a mannikin of a grizzly with a man inside of it. The skin was obtained up the Stikine River, in the mountains of the interior, and has been an heirloom in Shakes's family for several generations. The eyes, lips, ear lining, and paws are of copper, and the jaws are capable of being worked. A curtain screen in one corner being dropped, the singing of



THE BODY OF CHIEF SHAKES LYING IN STATE.

(*Rep. Nat. Mus.*, 1888, Pl. LXVIII).

a chorus suddenly ceased, and the principal man dressed as shown with baton in his hand, narrated in a set speech the story of how an ancestor of Shakes's rescued the bear from drowning in the great flood of years ago, and how ever since there had been an alliance between Shakes's descendants and the bear. This narration, lasting some ten minutes, was interrupted by frequent nods of approval by the bear when appealed to, and by the murmur and applause of the audience.

"In these various representations all sorts of tricks are practised to impose on the credulous and to lend solemnity and reality to the narration of the totemic legends."

Among the Ainus the bear represents an incarnation of the godhead. Their ritual of eating the bear sacramentally is very inter-

esting and evidences great antiquity.<sup>5</sup> A similar case is mentioned by Professor Smith (p. 295) :

"The proof of this [the sacramental eating of the totem] has to be put together out of the fragmentary evidence which is generally all that we possess on such matters. As regards America the most conclusive evidence comes from Mexico, where the gods, though certainly of totem origin, had become anthropomorphic, and the victim, who was regarded as the representative of the god, was human. At other times paste idols of the god were eaten sacramentally. But that the ruder Americans attached a sacramental virtue to the eating of the totem appears from what is related of the Bear clan of the Oua-



THEATRICAL ENTERTAINMENT AT THE FUNERAL OF CHIEF SHAKES.

Commemorative of the legend of the alliance of Shakes with the bear family. (*Rep. Nat. Mus.*, 1888, Pl. LXVIII).

taouaks (*Lettres édif. et cur.*, VI, 171), who when they kill a bear make him a feast of his own flesh, and tell him not to resent being killed: "Tu as de l'esprit, tu vois que nos enfants souffrent la faim, ils l'aiment, ils veulent te faire entrer dans leur corps, n'est il pas glorieux d'être mangé par des enfants de Capitaine?"

Not only animals were sacred to the gods; so also were (and still are in pagan Asia) the four elements, earth, water, air and fire, later on called five elements when ether<sup>6</sup> was added to their number.<sup>6</sup>

<sup>5</sup> For details see Prof. Frederick Starr's book on *The Ainu*, and also an article published in *The Open Court*, Vol. XIX, p. 163.

<sup>6</sup> See the author's *Chinese Thought*, pp. 41 ff.

Of the elements water was most sacred to the Semites who, coming from Arabia, had learned in their desert to look upon water as the sustainer of life. Together with the water the fish was regarded as a symbol of the life-begetting deity.

Professor Smith says:

"The myths attached to holy sources and streams, and put forth to worshippers as accounting for their sanctity, were of various types; but the practical beliefs and ritual usages connected with sacred waters were much the same everywhere. The one general principle which runs through all the varieties of the legends, and which also lies at the basis of the ritual, is that the sacred waters are instinct with divine life and energy. The legends explain this in diverse ways, and bring the divine quality of the waters into connection with various deities or supernatural powers, but they all agree in this, that their main object is to show how the fountain or stream comes to be impregnated, so to speak, with the vital energy of the deity to which it is sacred.

"Among the ancients blood is generally conceived as the principle or vehicle of life, and so the account often given of sacred waters is that the blood of the deity flows in them. Thus Milton writes:

"Smooth Adonis from his native rock  
Ran purple to the sea, supposed with blood  
Of Tammuz yearly wounded."<sup>7</sup>

"The ruddy color which the swollen river derived from the soil at a certain season<sup>8</sup> was ascribed to the blood of the god who received his death-wound in Lebanon at that time of the year, and lay buried beside the sacred source.<sup>9</sup>

"Similarly a tawny fountain near Joppa was thought to derive its color from the blood of the sea-monster slain by Perseus, and Philo Byblius says that the fountains and rivers sacred to the heaven-god (Baalshamaim) were those which received his blood when he was mutilated by his son.<sup>10</sup>

"In another class of legends, specially connected with the worship of Atargatis, the divine life of the waters resides in the sacred fish that inhabit them. Atargatis and her son, according to a legend common to Hierapolis and Ascalon, plunged into the waters—in the first case the Euphrates, in the second the sacred pool at the temple near the town—and were changed into fishes.<sup>11</sup> This is only another form of the idea expressed in the first class of

<sup>7</sup> Paradise Lost, I, 450, following Lucian, *Dea Syria*, VIII.

<sup>8</sup> The reddening of the Adonis was observed by Maundrell on March 17/27, 1696/7, and by Renan early in February.

<sup>9</sup> Melito in Cureton, *Spic. Syr.*, p. 25, l. 7. That the grave of Adonis was also shown at the mouth of the river has been inferred from *Dea Syria* VI, VII. The river Belus also had its Memnonion or Adonis tomb (Josephus, *B. J.* II, 10, 2). In modern Syria cisterns are always found beside the graves of saints, and are believed to be inhabited by a sort of fairy. A pining child is thought to be a fairy changeling, and must be lowered into the cistern. The fairy will then take it back, and the true child is drawn up in its room. This is in the region of Sidon (*ZDPV.* VII, p. 84; cf. *ibid.*, p. 106).

<sup>10</sup> Euseb. *Praep. Ev.*, I, 10, 22 (*Fr. Hist. Gr.*, III, 568). The fountain of the Chabōras belongs to the same class.

<sup>11</sup> Hyginus, *Astr.*, II, 30; Manilius, IV, 580 ff.; Xanthus in Athenæus, VIII, 37. For details see *English Hist. Review*, April 1887.

legend, where the god dies, that is ceases to exist in human form, but his life passes into the waters where he is buried; and this again is merely a theory to bring the divine water or the divine fish into harmony with anthropomorphic ideas.<sup>12</sup>

"The same thing was sometimes effected in another way by saying that the anthropomorphic deity was born from the water, as Aphrodite sprang from the sea-foam, or as Atargatis, in another form of the Euphrates legend, given by the scholiast on Germanicus's Aratus, was born of an egg which the sacred fishes found in the Euphrates and pushed ashore. Here, we see, it was left to the choice of the worshipers whether they would think of the deity as arising from or disappearing in the water, and in the ritual of the Syrian goddess at Hierapolis both ideas were combined at the solemn feasts, when her image was carried down to the river and back again to the temple.

"In all their various forms the point of the legends is that the sacred source is either inhabited by a demoniac being or imbued with demoniac life. The same notion appears with great distinctness in the ritual of sacred waters. Though such waters are often associated with temples, altars and the usual apparatus of a cultus addressed to heavenly deities, the service paid to the holy well retained a form which implies that the divine power addressed was in the water. We have seen that at Mecca, and at the Stygian waters in the Syrian desert, gifts were cast into the holy source. But even at Aphaca, where, in the times to which our accounts refer, the goddess of the spot was held to be the Urania or celestial Astarte, the pilgrims cast into the pool jewels of gold and silver, webs of linen and byssus and other precious stuffs, and the obvious contradiction between the celestial character of the goddess and the earthward destination of the gifts was explained by the fiction that at the season of the feast she descended into the pool in the form of a fiery star. Similarly, at the annual fair and feast of the Terebinth, or tree and well of Abraham at Mamre, the heathen visitors, who revered the spot as a haunt of "angels,"<sup>13</sup> not only offered sacrifices beside the tree, but illuminated the well with lamps, and cast into it libations of wine, cakes, coins, myrrh, and incense.

"On the other hand, at the sacred waters of Karwa and Sāwid in S. Arabia, described by Hamdāni in the *Iklil* (Müller, *Burgen*, p. 69), offerings of bread, fruit or other food were deposited beside the fountain. In the former case they were believed to be eaten by the serpent denizen of the water, in the latter they were consumed by beasts and birds. At Gaza bread is still thrown into the sea by way of offering.

"In ancient religion offerings are the proper vehicle of prayer and supplication, and the worshiper when he presents his gift looks for a visible indication whether his prayer is accepted. At Aphaca and at the Stygian fountain the accepted gift sank into the depths, the unacceptable offering was

<sup>12</sup> The idea that the godhead consecrates waters by descending into them appears at Aphaca in a peculiar form associated with the astral character which, at least in later times, was ascribed to the goddess Astarte. It was believed that the goddess on a certain day of the year descended into the river in the form of a fiery star from the top of Lebanon. So Sozomen, *H. E.*, II, 4, 5. Zosimus, I, 58, says only that fireballs appeared at the temple and the places about it, on the occasion of solemn feasts, and does not connect the apparition with the sacred waters. There is nothing improbable in the frequent occurrence of striking electrical phenomena in a mountain sanctuary.

<sup>13</sup> i. e., demons. Sozomen says "angels," and not "devils," because the sanctity of the place was acknowledged by Christians also.



cast forth by the eddies. It was taken as an omen of the impending fall of Palmyra that the gifts sent from that city at an annual festival were cast up again in the following year. In this example we see that the holy well, by declaring the favorable or unfavorable disposition of the divine power, becomes a place of oracle and divination. In Greece, also, holy wells are connected with oracles, but mainly in the form of a belief that the water gives prophetic inspiration to those who drink of it. At the Semitic oracle of Aphaca the method is more primitive, for the answer is given directly by the water itself, but its range is limited to what can be inferred from the acceptance or rejection of the worshiper and his petition.

"An oracle that speaks by receiving or rejecting the worshiper and his homage may very readily pass into an ordeal, where the person who is accused of a crime, or is suspected of having perjured himself in a suit, is presented at the sanctuary, to be accepted or rejected by the deity, in accordance with the principle that no impious person can come before God with impunity. A rude form of this ordeal seems to survive even in modern times in the widespread form of trial of witches by water. In Hadramaut, according to Macrizi, when a man was injured by enchantment, he brought all the witches suspect to the sea or to a deep pool, tied stones to their backs and threw them into the water. She who did not sink was the guilty person, the meaning evidently being that the sacred element rejects the criminal. The story about Mojammî' and Al-Ahwas (*Agh.* IV, 48), cited by Wellhausen (*Heid.*, p. 152) refers to this kind of ordeal, not to a form of magic. A very curious story of the water test for witches in India is told by Ibn Batuta, IV, 37.

"The usual Semitic method seems to have been by drinking the water. Evidently, if it is dangerous for the impious person to come into contact with the holy element, the danger must be intensified if he ventures to take it into his system, and it was believed that in such a case the draught produced disease and death. At the Asbamæan lake and springs near Tyana the water was sweet and kindly to those that swore truly, but the perjured man was at once smitten in his eyes, feet and hands, seized with dropsy and wasting."<sup>11</sup> In like manner he who swore falsely by the Stygian waters in the Syrian desert died of dropsy within a year. In the latter case it would seem that the oath by the waters sufficed; but primarily, as we see in the other case, the essential thing is the draught of water at the holy place, the oath simply taking the place of the petition which ordinarily accompanies a ritual act.

"Among the Hebrews this ordeal by drinking holy water is preserved even in the pentateuchal legislation in the case of a woman suspected of infidelity to her husband (Num. v. 11 ff.) Here also the belief was that the holy water, which was mingled with the dust of the sanctuary, and administered with an oath, produced dropsy and wasting; and the antiquity of the ceremony is evident not only from its whole character, but because the expression "holy water" (ver. 17) is unique in the language of the Hebrew ritual, and must be taken as an isolated survival of an obsolete expression. Unique though the expression be, it is not difficult to assign its original meaning; the analogies already before us indicate that we must think of water from a holy spring, and this conclusion is certainly correct.

"Wellhausen has shown that the oldest Hebrew tradition refers the origin

<sup>11</sup> *Mir. Ausc.* § 152; Philostr., *Vit. Apollonii*, I, 6. That the sanctuary was Semitic I infer from its name, which means "seven waters" (Syr. *Shab'a maya*) as *Beer sheba* means "seven springs."

of the Torah to the divine sentences taught by Moses at the sanctuary of Kadesh or Meribah, beside the holy fountain which in Gen. xiv. 7 is also called 'the fountain of judgment.' The principle underlying the administration of justice at the sanctuary is that cases too hard for man are referred to the decision of God. Among the Hebrews in Canaan this was ordinarily done by an appeal to the sacred lot, but the survival of even one case of ordeal by holy water leaves no doubt as to the sense of the 'fountain of judgment' (En-Mishpat) or 'waters of controversy' (Meribah)."

Professor Smith might have added that these customs explain the meaning of the significance of an oath sworn "by the waters of Styx" which was kept inviolate even by the Olympian gods, Zeus himself included.

Concerning the fish Professor Smith says:

"Where the legend is so elastic we can hardly doubt that the sacred waters and sacred fish were worshipped for their own sake before the anthropomorphic



A FISH SACRAMENT.  
On an Assyrian clay cylinder.

goddess came into the religion, and in fact the sacred fish at the source of the Chaboras are connected with an altogether different myth.

"Fish were *tabu*, and sacred fish were found in rivers or in pools at sanctuaries all over Syria.<sup>15</sup> This superstition has proved one of the most durable parts of ancient heathenism; sacred fish are still kept in pools at the mosques of Tripolis and Edessa. At the latter place it is believed that death or other evil consequences would befall the man who dared to eat them.<sup>16</sup>

"Fish, or at least certain species of fish, were sacred to Atargatis and forbidden food to all the Syrians, her worshipers, who believed—as totem peoples do—that if they ate the sacred flesh they would be visited by ulcers. Yet Mnaseas (*ap. Athen.* viii. 37) tells us that fish were daily cooked and presented on the table of the goddess, being afterwards consumed by the priests; and Assyrian cylinders display the fish laid on the altar or presented

<sup>15</sup> Xenophon, *Anab.*, I, 4, 9, who found such fish in the Chalus near Aleppo, expressly says that they were regarded as gods. Lucian, *Dea Syria*, XLV, relates that at the lake of Atargatis at Hierapolis the sacred fish wore gold ornaments, as did also the eels at the sanctuary of the war-god Zeus, amidst the sacred plane-trees (Herod. V, 119) at Labramda in Caria (Pliny, *H. N.*, XXXII, 16, 17; Ælian, *N. A.*, XII, 30). Caria was thoroughly permeated by Phœnician influence.

<sup>16</sup> Sachau, *Reise*, p. 197.

before it, while, in one example, a figure which stands by in an attitude of adoration is clothed, or rather disguised, in a gigantic fish skin. The meaning of such a disguise is well known from many savage rituals; it implies that the worshiper presents himself as a fish, i. e., as a being kindred to his sacrifice, and doubtless also to the deity to which it is consecrated."

Both the fish and water were sacred to Istar (the Babylonian and Assyrian Venus) and also to all the gods of life and the reproduction of life. Among the Greeks, especially the Ionians, the



A CONJURATION TABLET.

On the third row of figures, a sick man is being cured of his disease. The priests at the head and foot of his couch are dressed in fish skins.



ARTEMIS AS THE MOTHER  
GODDESS.

The illustration shows the statue as being drawn by horses in procession.

great mother-goddess of nature, Artemis or Diana (best known in this her more archaic character as Diana of Ephesus) takes the place of Istar, and Istar, not unlike the Virgin Mary in Christianity, is at once both maid and mother.<sup>17</sup> On an ancient amphora found in Boeotia she is pictured with winglike arms. She is surrounded by lions and two birds fly above her; a fish appears in her own body, the lower part of which is made up of streams of water.

<sup>17</sup> Artemis or Diana, the personification of the moon, the chaste virgin goddess and a lover of the chase, as we know her from the later traditions of Greek mythology, is a very specialized differentiation of this old awesome figure of the great nature goddess, the virgin mother of life.

There are many reasons why the fish has become sacred in so many different countries. We have seen that among some of the Indo-Germanic races the fish symbolizes the power capable of passing through the gulf between life and death, and emerging from it with unimpaired vitality. Among the Semites the fish was held in awe because as an inhabitant of the water, the life-giving element, he was the spirit of the water and the symbol of life. Yea more than that. Since the Semites distinguished between the waters on earth and the waters above the firmament, the fish came to represent the sun traversing the heavenly ocean. In either case, whether the fish was conceived as crossing the Stygian flood or as the spirit

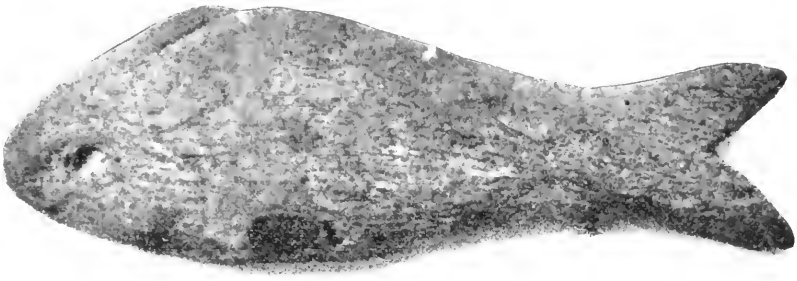


THE MOTHER GODDESS ARTEMIS.

(Boetian amphora, now in the Museum at Athens).

of the waters of life, he became sacred to Astarte, to Venus or Aphrodite, also to Artemis or Diana, to Eros or Amor, to Dionysos or Bacchus, to Hermes Psychopompos or Mercury the dispatcher of souls. All these deities possess in addition to their joyous character of bringing light, life, love and wealth, a close connection with the underworld because they were invoked against the terrors of Hades and were believed to lead man through the shadows of the valley of death back to life, in which capacity they were called the Chthonian<sup>18</sup> Venus, the Chthonian Eros, the Chthonian Dionysos and the Chthonian Mercury. It is obvious that the relation of the fish to these several deities must be sought in these their chthonian charac-

<sup>18</sup> Derived from *χθών*, earth, then underworld, and pronounced in English "Thōnian."



A FUNERARY FISH.  
Found in an Egyptian grave.

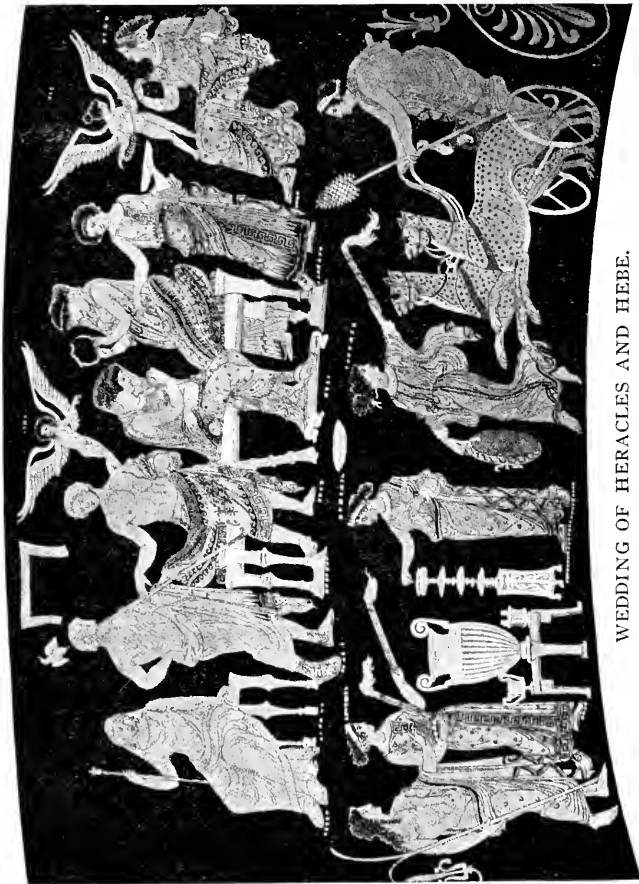


LOVE CONQUERING DEATH.



THE CHTHONIAN DIONYSUS.  
(After a vase painting.)

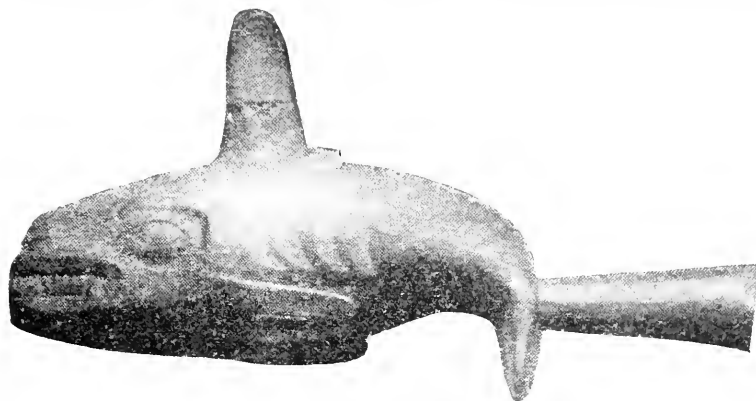
ters, and so the fish comes to stand generally for the conquest of death by life. A fish carved out of wood has been found in an Egyptian tomb, which proves that the most important symbol of the Christian Roma Sotteranea was not unknown on the Nile. The same idea, dear to all, is pictured in a neat cameo of a later date, here reproduced. Eros chases death in the shape of a skeleton, round a vase and knocks him down.



WEDDING OF HERACLES AND HEBE.

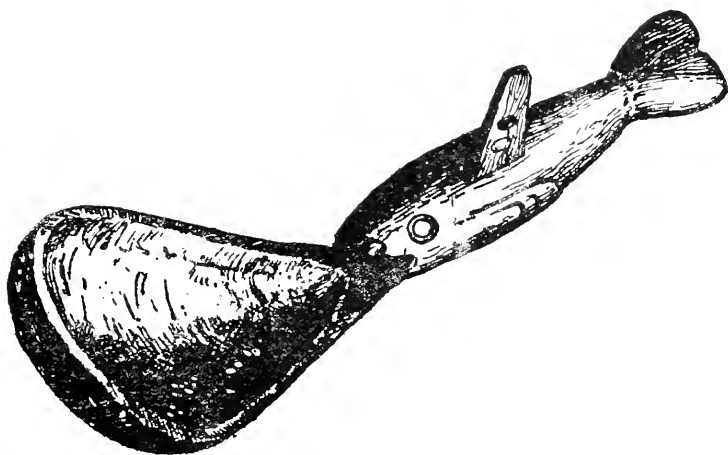
As an interesting instance of the joyful spirit in which Greek artists represent the chthonian gods, we select a picture from a large and beautiful vase published by Gerhard in *Apulische Vasenbilder*, Pl. XV. Heracles after his death is received in Olympus and married to Hebe, the goddess of youth. He appears beardless as in his prime. Between him and the girlish bride hovers Eros. Zeus and Hera are

on the left; Aphrodite, accompanied by Himeros (Desire) and two maids, is placed on the right. The scene below Olympus is Hades, as indicated by the torches. The Chthonian Dionysus, guided by



A RATTLE USED IN CEREMONIAL DANCES.

Euphemia the personification of glory, arrives from the right drawn in his chariot by panthers. At the left the Chthonian Artemis and Apollo, the former with two torches, meet Eunomia the patroness



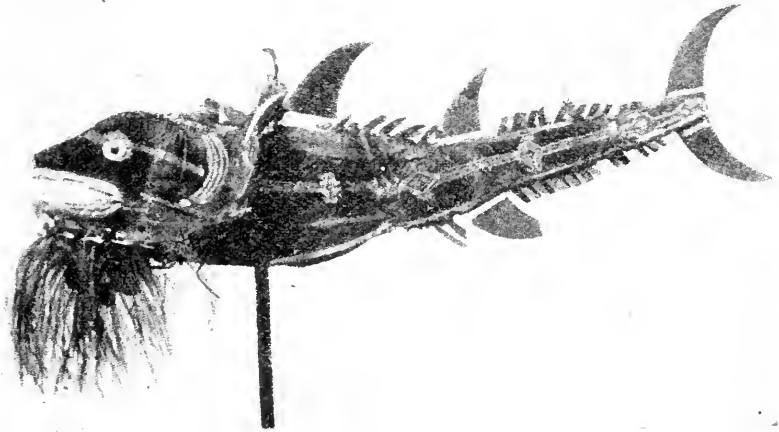
A WOODEN CEREMONIAL SPOON.

Having the Orca totem for a handle.

of law, superintending the propriety of religious ritual. The vase picture proves that chthonian gods are not necessarily gloomy but lead through the realm of death to the bliss of a life with the celestials in Olympus.

It is natural that people who live mainly by fishing should select fishes as their totems. This is apparent among the Alaskans and South Sea islanders. Their very deities assume the shape of fishes and the ocean spirit of the Melanesians is a manlike figure compounded of the denizens of the deep.

Our illustration of the ocean spirit of the Melanesians is instructive because it shows the transition from the older period of nature worship to an anthropomorphic conception. Originally the water itself, the sky, the sun, the moon, the stars, etc., the fish, the dove, or other animals were divine, then the several deities were personi-



A CEREMONIAL FISH.

Carried in procession among the Jervis Islanders. (Preserved in the British Museum).

fied, and when this process had been completed the sacred objects became mere symbols.

The psychology of this progress is based upon the fact that primitive man looks up with awe and admiration to those things by which he is somehow benefited: to mountains, trees, springs, rivers, etc., and also to the animals who in one way or another are his superiors. The bear is stronger, the birds can fly, the fish can swim.

The more man becomes conscious of his superiority the more he loses this admiration for animals and finally it becomes impossible for him to worship them. The Egyptian gods show an arrested development in a similar period of transition. Most of them are



human in body but preserve their animal heads while the symbol of the soul retains the body of the hawk and gradually assumes a human head. A last trace of this reverence for the divinity of sacred animals appears in the strange declaration of Tertullian when he says that if Christ were not a fish he could not be our saviour.

We will conclude with a few references to the Alaskans.

Judge Swan, one of the best authorities on the habits and religion of the Haida Indians, the inhabitants of certain islands along



THE OCEAN SPIRIT OF THE MELANESIANS.  
(Redrawn after a native picture.)

the Alaskan coast, praises their art in wood-carving. They ornament, he says, almost everything in use with symbols of the totems of their tribe, and also tatoo their bodies in the same way. We reproduce here illustrations of wood-carvings representing the totem of one of their tribes which is the orca or whale-killer, a fish armed with a weapon on its back. One of our illustrations is a rattle used in ceremonial dances; another represents a ceremonial spoon, the handle of which is an orca that holds the bowl in his mouth. In the ritual when a Haida youth attains his majority, the youth has

to swallow about two quarts of fish oil from this Haida spoon as a kind of sacrament.

Another tribe of Alaskan Indians uses the halibut as a totem and our picture shows a halibut design bearing a totem pole. The outlines of the figure are edged with bead and button trimming. It is worked in red on a blue garment and is worn during the ceremony of the dance.



A HALIBUT TOTEM.

Worked on a Ceremonial Vestment.



CHIEF KLUE.

With fish totems tattooed on his body.

The Haida believe that the orca is inhabited by a demon called *scana*, who can change his shape at will and is accordingly a kind of maritime werwolf.<sup>19</sup>

Chief Klue has been portrayed by Mr. Niblack, decorated with the totems of the Haida village which he governs. The figure of a codfish is tattooed on his breast and a salmon on each lower arm.

Among the innumerable totems and symbols those survive which have a religious significance based upon the religious needs of man; and it is strange that though the argument why it is significant or

<sup>19</sup> We shall become acquainted with the *scana* in a future article on Jonah, the man in the fish.

even efficient may change, the underlying idea remains. Such is the case with the cross and also with the fish.

There is a persistence in human thought which is surprising. Man's religion, his world-conception and the commonly accepted philosophy have changed again and again in the progress of the millenniums which have passed by since our civilization originated in the valley of the two rivers Euphrates and Tigris, called by the Greeks Mesopotamia. But the foundation which our ancestors laid remains, as for instance the arrangement of the week, together with other astronomical, mathematical and even religious institutions. In Lent Friday still possesses its Chthonian character, we still cherish a day of rest, and Sunday is still the festival of resurrection. Many revolutionary movements have taken place in all the departments of human existence—perhaps most of all in religion—but we have never been able to rid ourselves of our past. The fabric of Christianity contains among its most important fibers threads of ancient paganism, and even to-day the bygone ages vibrate through the heartbeats of the present generation.

Our inheritance from the past, especially our social habits, sports etc., show frequent reminiscences of savagery, but other heirlooms of past ages indicate that pre-Christian religions, ancient institutions and aspirations, contained seeds of much that was true and good and beautiful.

## THE NEW INDIVIDUALISM.

BY HOWARD T. LEWIS.

SINCE the time when the first adventurous European set sail for the newly discovered land to the far west, critics have said that the predominant American characteristic has been individualism. There are others, but this one overtops them all. That old spirit of initiative and aggression—that something which is forever calling us out of the old and on to the new, this has been called the spirit of the American race.

And rightly so. Our national character—so far as we have any—supports the assertion without further discussion, and our history furnishes ample explanation of it. Indeed, America was born from out a long battle of individualism. The reactionary conflict in Europe which started with the rebellion against the extreme institutionalism of the medieval church and ended with the extreme individualism of the French Revolution could not but have its effect upon America. Seeking freedom from the oppression of outworn institutions, Spanish, English and French individualists came in rapid succession to the new land. Some came ostensibly for gold, some for adventure, some for religious liberty,—but deeper than these surface reasons, they all came that they might leave behind forever that old world where individual thought and action was held to be synonymous with political crime, if not indeed with anarchy. These men were truly no exception to the general rule that it is only those who are self-reliant and self-centered that sever their home ties, migrate to a new land, largely unknown, and risk their all on an uncertain venture. “The twenty-seven odd million immigrants who have come to this country since it was discovered by Europeans have thus left a strong individualistic impress upon their descendants.” And the natural conditions with which the adventurous settler found himself surrounded, far from lessening this inherent trait, served rather to deepen it.

Alone in a seemingly limitless wilderness, the pioneer found nothing to restrain him and nothing to guide. That spirit of individualism, born in a desperate struggle, was vivified and strengthened in him as he encountered a strange climate, rocky barriers, and relentless foes. Naturally, this spirit grew deeper as he met these new difficulties and overcame them. Forced to depend entirely upon himself for subsistence and protection, expecting nothing from the loose government of the time, contemptuous of any suggestion of legal restraint, whether good or bad,—all this laid the foundation for that “excessive individualism which made him independent and resourceful, it is true, but which was destined later to make him partial to the spoils system, tolerant of lynch law and labor violence, and indifferent to waste and weakness in the administration of his government.” In due time this roving pioneer acquired land, settled down with his family, and became a private land owner—a thing well-nigh impossible in his older home across the sea—and had still more strengthened in himself and his children all those individualistic traits of character which the private ownership of land engenders. Steadily the population increased, and instead of widely isolated farms, cities and villages sprang up, and other institutions of a political and social nature began to appear. Yet with individualism ever rampant, it seemed at times impossible to secure the unity of action among the colonists essential for the establishment of these very necessary institutions save under the pressure of most urgent circumstances, as in the case of war. Note how the Articles of Confederation were forced upon the states by the ultra-individualistic members of that early convention. When the Constitution was finally adopted, the spirit that had been nurtured since the beginning was made the keynote of that famous document.

Naturally, as the country developed, the people that had founded their nation upon this one dominant principle continued to foster it. In time the Congregational movement, so called, swept away what little vestige remained of Puritanical domination in New England. Political enfranchisement was widened. In 1823 the Munroe Doctrine was announced, proclaiming to the world that hereafter the western hemisphere was to stand alone. Yet with these gains of individualism the states of the South were not content. They had lagged behind the North in their economic development and were far more individualistic after the type of the early pioneer. The climatic and geographic conditions made the towns fewer and smaller, farms larger, farther apart, and more independent in their management, and manufacturing centers practically unknown. Hence

the Southern people were not so quick to see the inevitableness of the curtailment of "personal liberty" in the interests of the many and of the supreme need of a strong central government as were their Northern neighbors where geographic conditions compelled men to live closer together and to pay more heed to the rights of others. So it was but natural that the men of the South clung to the old conception of State Rights until all the nation saw that the logical outcome of this extremely individualistic principle was anarchy.

Since that memorable conflict, the attention of men has been turned more or less away from the consideration of political matters and has centered upon industrial and financial enterprises. Here, too, the spirit of individualism was made manifest and it was only a matter of time before cut-throat competition was superseded by industrial combination. But more of this later. The point now is, that we of the present day have sprung from an intensely individualistic stock, natural conditions have strengthened this spirit in every possible way, and the result is that it has manifested itself in all our social and political relations. True, the pressure of an increasing population has altered its form, but its presence and strength have never been doubted.

Time was when it was well that this self-centered, self-reliant spirit should predominate. So long as the national interests were chiefly agricultural this early form of individualism tended to develop those qualities in men which have made us as a nation what we are. It is true that in the past it has always been this spirit "that has extended our boundaries, developed our resources, and created our national institutions." Yet it is equally true that this same much-lauded spirit of the pioneer, because it has not been readjusted and adapted to the varying demands of the twentieth century, has become the first cause of many of the most serious problems which confront us as a nation to-day. This is true because individualism in the past has been essentially materialistic and self-centered, driving men into a desperate struggle for individual success and blinding them to the interests of their fellow-men—a question which becomes increasingly important as the population becomes more dense. Individualism of this type is synonymous with selfishness; personal welfare is everything, and the well-being of the many is so far crowded into the background as to be wholly forgotten. Evidences of this fact are everywhere.

For instance, to take a somewhat remote example, far up in the backwoods of Tennessee a rough mountaineer manufactures

illicit whiskey in his rude distillery, and defends his act on the plea that he has a right to produce what he pleases as he pleases, and that any attempt to restrain him is a violation of his personal liberty. Resisting what he firmly believes to be an encroachment upon his inherent, individual rights, he violates a national law, clashes with the federal officers, and is sent to the penitentiary. Down amid the tobacco fields of Kentucky, the Night Rider resorts even to the terrible tyranny of mob law to get and maintain what he pleases to call his "rights as an individual." Out among the mountains of Colorado, the cattle herder swoops down under cover of the night, kills a score of sheep herders, and finds his excuse likewise in the doctrine of individual rights. In the heart of a great city a cultured citizen of the commonwealth, disregarding the law, drives his automobile at a reckless rate of speed, thereby endangering the lives of hundreds of his fellow-men. Though he bitterly denounces the man who buys a seat in the Senate, he would not himself hesitate an instant to hide his dutiable goods out of the sight of the revenue collector. And the rest of us, though we may not be active violators of the law, but a short while ago each fought desperately for a tariff bill advantageous to ourselves, regardless of the effect upon others. Manufacturing in the East cared not a whit for the agriculture of the West, nor the lumber of the North for the cotton of the South. Too often we willfully misrepresent the amount of our taxable property to the tax-assessor, forgetful of the fact that we thereby breed contempt for the law and undermine our own real personal liberty. Nor do we always condemn as a Cain him who "murders with an adulterant instead of a bludgeon" because, somehow or other, we feel that a man's mercantile methods are solely his own business. Professor E. A. Ross, of the University of Wisconsin, is right. The sins of the modern age are none the less real and harmful because they are of a different character from those of two centuries ago. And most of these modern sins are due primarily to an individualism which is in its true place and sphere constructive, but, being outgrown, has become destructive instead.

Again in the labor question, the problem of the evils of an excessive individualism may be seen in its larger aspect. Labor, demanding that its rights be protected, terms all capital oppressive, and denounces indiscriminately all forms of organized industry as invariably evil. Capital, in its turn, unites and fights with its last effort the right of labor to organize, and only under the pressure of evolutionary tendencies, begrudgingly grants it a place. Each thinks

only of its own interests, regardless of those of the other party or of the public at large.

Nor is this all. Contemporary social critics universally turn upon the so-called "American plutocracy," regarding which so much has been said, as the personification of this selfish spirit. They bitterly denounce its members, condemn its methods, and proclaim its very existence a national menace. What has this "plutocracy" done to merit such abuse? It has entered and corrupted politics that it might better serve its own individual ends. It has perverted legislation to the interests of special privilege. It has repeatedly reorganized its business that it might thereby evade the law and better crush competition. It has been wastefully extravagant of our natural resources. It has evaded the written law whenever it might do so to its own advantage, and the spirit of the law, always. The customs fraud of the sugar trust, the much-commented-upon business methods of the Standard Oil Company, and of the others mentioned in Attorney General Wickersham's recent report on the cases before the Supreme Court, tell the story better than volumes of description. And yet, whatever accusations or condemnations may be brought against it, the "plutocracy" has done no more than to bring the unaltered spirit of the pioneer into modern complex society.

So this spirit of intense, extreme individualism—unchanged with the passing years—is endangering the sanctity of those very institutions it called into being. In its place it was good. The pioneer in the trackless forest might fire his rifle wheresoever he chose and take for his own whatever he found. For him there was no law save the law of his own desires, and no master but himself. Lawlessness for such a one was impossible. But when in the fulness of time that roving pioneer became a colonist, when institutions began to appear and men were forced to live together, that same individualism became selfishness and lawless greed. And so to-day we find that this perverted philosophy lies at the bottom of most of our national ills, and many an intelligent critic, seeing in our national life much that one wishes might be different, has turned to socialism and other radical systems of social reform because he could see no other way out.

To what extent is this pessimistic observer of modern conditions justified in seeing only a picture of gloom? We are ever loath to admit that the future is utterly dark and devoid of a way out of the difficulties which we are forced to admit exist, and particularly is this true when the future has been painted as darkly as some reforming demagogues have colored it. So, without lessening in the least



the importance of the things we have just noted, we are not willing to accept the conclusions which these pessimists have drawn as inevitable. And if asked the reason for a belief to the contrary it would seem to be not far from right to say that the fundamental cause and reason is gradually disappearing, and hence it is safe to conclude that in due time the results will tend to disappear as well.

By this is not meant that individualism is ceasing to be the distinguishing characteristic of the American citizen, but rather that *it is being adapted to modern conditions through being directed to a new end*. It is surely an evil day for any people when that spirit of initiative and aggression—the eternal dissatisfaction with the present, the determined pushing on to something better—that have ever been and must ever continue to be, the essential characteristics of individualism, weaken and disappear. Yet Henry R. Seager of Columbia University voices the opinion of the vast majority of people to-day when he says that “the program of individualism is little better than a program of despair.” (*Survey*, April 2, 1910.) In fact, we are forced to grant that this expression of the current thought of the day is sound, if by the term “individualism” we mean just what it has of necessity meant in our earlier national history—pure selfishness. But is the individualism of the future to be of that kind? May not this spirit change—nay, is it not already re-adjusting itself in obedience to the new demand of an ever advancing civilization? Surely there are many evidences of a new individualism, or, as ex-president Eliot, of Harvard, put it in a recent lecture at the University of Virginia, “a new development of individualism.”

If this be true, it seems hardly fair to say that “the program of individualism is little better than a program of despair,” as some modern thinkers insist. The note of optimism which the more rational among them sound (and among them Professor Seager) finds its true base not in a new program of social reform based upon a new philosophy, but rather in a working out of the old. Paraphrasing, we may say that the cure for the present evils of individualism is in not less but in more individualism. Not in the old self-centered sort, to be sure, but in the old spirit adapted to the conditions of the present day and age. And, indeed, there can be little doubt but that the old spirit of the pioneer is changing to conform to the new demands of our rapidly evolving civilization. The restless, irresistible, impulsion of this mighty power is being directed, not to the self-centered interests of the individual alone, but to those of all society. It is throbbing with the same old vitality and purpose, but it is finding its truest expression and most

perfect development in the performance of social service. It is being followed as a matter of business if for no other reason, since men are learning that their own interests are better advanced by taking the humanitarian factor into consideration.

The thought thus expressed is by no means a new one, either in theory or in practice. Philosophers have long dreamed of it, but it seems to have remained for the present age to see its actual realization. We find it amply expressed in many of the political leaders of the present hour. The names of Folk, Lindsey, La Follette, Hughes, and Roosevelt need only be mentioned in this connection. Are they not individualists of a most pronounced type? Yet are they not the personification of progress and true reform? We may only surmise what the future has in store for us, but we may rest well assured that the individualism of this type will bring nothing to be feared. The so-called Insurgent movement attests its popularity.

Nor is this new individualism confined alone to the political world. It is sending its roots down deep into our industrial and social system. Every movement undertaken in the interests of humanity that is backed by active, aggressive men and women is an example of it. The great railroads are pensioning their old and faithful workmen, immense corporations are seeking the cooperation of their employees, the negro problem is being solved by industrial education, and the solid South is passing away before a renewed feeling of national unity. The white plague is being fought throughout the length and breadth of the land in the interests of the present and future generations. The temperance movement and the white slave agitation are national in their scope. Labor and capital are slowly learning that it is to the interests of both parties to conciliate and arbitrate rather than to war with each other. The nation is asserting its right as never before to control those industries upon which the welfare of the people depends. Special interests are being denied the right to monopolize and devastate our great natural resources. Social settlement work, university extension and circulating libraries are but further evidences of an individualism turned away from self-interest to the interests of others.

Momentous, indeed, are the great questions that lie before us for solution. None but a Utopian dreamer would think that our national problems are solved. Neither can our saving common sense permit us to think that through the application of any one rule or principle we can reach that millennium of which so many reformers

dream. Yet we are safe in holding to that spirit of which others say we are the best representatives—individualism—if by that term we mean the old spirit of Martin Luther, Lief Erickson, and the Puritans remade to meet the new demands of a growing civilization. With it for a philosophical basis we may safely proceed with practical, progressive measures for reform.

## STRANGE COINCIDENCES IN LAO-TZE AND PLATO.

LAO-TZE in speaking of the heavenly Reason in Chapter 14 of his wonderful book, *Tao Tsch King*, "The Canon of Reason and Virtue," describes it thus:

"We look at Reason and do not see it; its name is Colorless. We listen to Reason and do not hear it; its name is Soundless. We grope for Reason and do not grasp it; its name is Incorporeal.

"These three things cannot further be analyzed. Thus they are combined and conceived as a unity which on its surface is not clear but in its depth not obscure.

"Forever and aye Reason remains unnameable, and again and again it returns home to non-existence. This is called the form of the formless, the image of the imageless. This is called transcendently abstruse.

"In front its beginning is not seen. In the rear its end is not seen.

"By holding fast to the Reason of the ancients, the present is mastered and the origin of the past understood. This is called Reason's clue."

This chapter is remarkable for several reasons.

Lao-tze speaks of the Tao and describes it by saying what it is not. It is not perceptible by the senses; accordingly it is "colorless," "soundless," and "incorporeal." It can not be seen, it can not be heard, it can not be touched; but this super-sensible something, the purely relational in all things, the divine Reason, is one and the same throughout. It is the Unnameable, the cosmic law, the world-order which moulds all things. Both its beginning and its end are wrapped in obscurity.

It is strange that Lao-tze's description of the Tao finds an almost literal parallel in the *Phaedrus* where Plato speaks of the pres-

ence of a being in the over-heaven, the supercelestial realm, a being imperceptible to the senses and to be apprehended only by the mind, the "pilot of the soul." This presence is described as an essence, truly existent, without color, without shape and impalpable. Plato says: "Of the heaven which is above the heavens, what earthly poet ever did or ever will sing worthily? It is such as I shall describe; for I must dare to speak the truth, when truth is my theme. There abides the very being with which true knowledge is concerned; the colorless, the formless, the intangible essence visible only to mind, who is the pilot of the soul."—Phaedrus, pagina 248.

In addition to this surprising similarity between Lao-tze's very words and the thoughts of a philosopher who lived about 200 years after him in ancient Greece, a distant country which at that time was in no connection with China, we must point out another strange coincidence. The three words, "colorless," "soundless," and "incorporeal," read in Chinese *i, hi, wei*, and the French scholar Abel Rémusat saw in this combination of Chinese characters, *i hi, wei*, the corresponding three Hebrew letters, *Jod, Heh, Vav*, indicating the name Jehovah, and his theory was accepted by many others who for some reason or other believed that there ought to have been a mysterious prehistoric connection between the Chinese and the Israelites. The theory has found the support of a German translator of Lao-tze's book, Victor von Strauss, a confessed mystic, but it is not countenanced by any other sinologist of standing, and there is no need to refute it. We look upon it as a curious though most remarkable coincidence.

Another coincidence between Lao-tze and Plato, not less remarkable because it seems to us far-fetched, is found in Chapter 50. The parallel is even more strange than in the passage on the colorless, inaudible and impalpable. Lao-tze says in Chapter 50: "Yet have I heard that he whose life is based on goodness, when traveling on land will not fall a prey to the rhinoceros and tiger.

"When coming among soldiers he need not fear arms or weapons. The rhinoceros finds no place wherein to insert his horn. The tiger finds no place whereon to lay his claws. Weapons find no place where to thrust their blades. The reason is that he does not belong to the realm of death."

This passage finds a striking parallel also in Plato's Phaedrus. In the same book and on the same pagina (248) it contains these words: "There is a law of destiny, that the soul which attains any vision of truth in company with a god is preserved from harm until the next period, and if attaining always is always unharmed."

## MISCELLANEOUS.

### THE LARGER GOD.

BY THOS. E. WINECOFF, D.D.

Your paltry schemes of doubt-cursed men,  
Your little God to creeds trimmed down,  
Your limits set by tongue and pen,  
Your heaven but an elfin town—

A larger God than these I own.  
My God who once the star-fields sowed,  
Hath surely since no lesser grown,  
Nor heaven walled with priestling's code.

I've seen Rainier's eternal snows  
Alight with awful altar-fires  
No man-made altar ever knows,  
Nor glint the tallest churchly spires.

I've seen his garments brush the dew,  
And heard the thunder's pedal swell  
His praise, in anthems grand and true,  
Your little creeds can never spell.

With fire the hymnist never knew  
I've seen him touch the outcast's lip,  
And men that human creeds had damned  
He gave the wine of God to sip.

With doubting, damning rule and line  
You wall his larger presence out;  
Unbounded God hail I as mine—  
And leave your creeds his heart to doubt.

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### THE SCHOLAR'S HUMBLE DWELLING.<sup>1</sup>

BY LIU YU HSI.

[Liu Yu Hsi, otherwise Liu Meng Tc, belonged to the city of Peng. After obtaining his degree, he was given an honorary title that may be rendered as "doctor of literature." On the accession of Shun Tsung, he received an

<sup>1</sup> Translated by James Black.

appointment in the treasury, but when Hsien Tsung became emperor shortly afterwards, he was degraded to Lien district as sub-prefect, soon, however, being made prefect, and then transferred in the same capacity to the districts of Fan and Ho in succession. He returned to the capital as secretary of imperial receptions and was granted another high literary degree. He left the capital once more to be prefect of Suchow, where he acquired fame as an official. Finally, he reached the highest office, becoming advisor of the heir-apparent, inspector of Han-liu manuscripts, and president of the board of rites. Su Wen Chung, a later poet and statesman, said that Liu Yu Hsi and Liu Tsung Yuan, by not adhering to the plans of the faithless censor, Wang Shu Wen, were to be reckoned among the most faithful subjects of the Tang dynasty. Po Chu-i, the contemporary poet, praised Liu Yu Hsi as a most eminent poet and a most poetical correspondent, and, according to a fashion then current, the works of both poets were classed together under the single name of Liu Po. Another story runs that one day Liu Yu Hsi, Liu Tsung Yuan, Po Chu-i, and others, sitting together, started to versify on the subject of "Thoughts of old Nankin." Liu finished first, and Po, looking at what he had written, said: "Four of us have been seeking the dragon, but Liu has found the pearls. All that is left is the scales and the claws, so why should we write any more?" And with that the others cast aside their unfinished verses. It was a Chinese mode of conceding Liu's superiority. Not unlikely the following lines were written on some similar occasion.]

Who heeds the hill's bare height until  
 Some legend grows around the hill?  
 Who cares how deep the stream before  
 Its fame is writ in country lore?  
 And so this humble but of mine  
 May shelter virtues half divine.  
 The moss may climb its ruined stair,  
 And grassy stains the curtain wear,  
 But scholars at their ease within,  
 For all but Ignorance enters in,  
 With simple lute the time beguile,  
 Or "Golden Classic's" page a while.  
 No discords here their ears assail,  
 Nor cares of business to bewail.  
 This is the life the Sages led.  
 "How were they poor?" Confucius said.

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#### A CRITICISM OF THE CLERGYMAN'S "CONFESSIONS."

To the Editor of *The Open Court*:

Not having read the book entitled *Confessions of a Clergyman*, I am perhaps in no position to discuss intelligently any of its points. However, I shall trust the powers of lucid exposition of Dr. Carus concerning one position of the unknown author.

"He rejoices that the passage in Mark relating to the story of the Ascension has been cut out by higher (*sic*, why not lower?) criticism so that it will no longer trouble a distressed faith" (*Open Court*, Dec. 1910, p. 769).

Why rejoice? Because the passage contains an account of "the signs that

shall accompany them," or because of the Ascension itself? If the former, does it make the New Testament any the less miraculous? Then we should welcome somebody who would show us the spuriousness of the Book of Acts. It must be because of the account of the Ascension that our clergyman rejoices. But to remove from the text any account in so many precise words of the ascension of Jesus even though perfectly justified on grounds of textual criticism, is no cause for rejoicing, for it does not make primitive Christianity one whit more modern. The ascension of Jesus is a logical necessity in the world-view of the time to faith in Jesus as Messiah. The same might be shown of the Resurrection.

The course of Gospel criticism has made it increasingly plain that Jesus believed in the coming of the Kingdom in an eschatological sense, and that its advent was at the door. His disciples shared in his messianic secret that he was to usher it in coming as the Son of Man on the clouds of Heaven. He foresaw that he must die and rise again if he was to come again in this supernatural manner. For, forsooth, was he not on earth in Galilee? To understand this we must have recourse to the ancient Jewish cosmogony. Above the firmament was Heaven; in the bowels of the earth was Hades, the abode of the dead. For Jesus to die meant to the early Christians to descend to Hades (some even said he preached there). For Jesus to come in the clouds of Heaven meant the necessity of his departure upward from Hades (= his resurrection), his ascension to Heaven, where he was seated for the moment at the right hand of God, and whence the early Christians were daily awaiting his coming in glory on the clouds of Heaven to usher in the Kingdom. This is the testimony of the early speeches in Acts. It is the woof into which the early Christian hopes are woven. To remove the words at the end of Mark is not to remove its fundamental idea from the beliefs of early Christianity or its documents. To remove the ascension of Jesus is to take away a necessary joint in the framework on which their hopes and beliefs are hung.

Why then rejoice? To remove the ascension of Jesus does not make first century Christianity more modern and it does not even allow it to be itself. It seems this unknown author is endeavoring to do what so many have fruitlessly tried, make twentieth century ideas live in the first. The early cosmogony is dead and to us it seems childish, but let us at least admit that to the first century it was real; if we do not choose to admit that, then, these documents are closed to an historical understanding. The hopes of Jesus and his disciples as to an early end of the world were illusions. Let us admit it once for all and save at least our intellectual integrity. The early eschatological ideas of Christianity are crude and do not fit into our modern view of the world. We do not even give them that serious consideration which is involved in argument. To mention them is to reject them. Yet all these views are necessary to true historical knowledge and appreciation of primitive Christianity and to deny them is not equivalent to banishing them from the New Testament.

From Dr. Carus's review of this work I judge that our author has renewed his faith by a patch-work process and not by a clear-cut analysis of the distinctions between ancient and modern faith, and that if his confessions are valuable they are only so to those just emerging or about to emerge from an antiquated world-view.

AN UNCONFESED CLERGYMAN.

P. S. Why has nobody (at least to my knowledge) written an account of the "Resurrection of Jesus in the light of the eschatological hopes of Jesus and



his disciples"? If the disciples believed Jesus would come as the Messiah in a supernatural manner, surely the *post mortem* appearances were after all not so unexpected as we have been given to suppose, and the legends did have some better understood cause than Renan or Strauss etc. have held forth.

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#### LAO-TZE AND YIN-HI.

Sze Ma Ch'ien, the historian of China, says in his Historical Records when speaking of Lao-tze, the Old Philosopher:

"Lao-tze resided in Cho most of his life. When he foresaw the decay of Cho, he departed and came to the frontier. The custom-house officer, Yin-Hi, said: 'Sir, since it pleases you to retire, I request you for my sake to write a book.'"

The artist who made our frontispiece represents this scene. Yin-Hi with two attendants reverently approaches the philosopher and causes the venerable sage to write that famous book which has been a power in China down to the present day throughout its subsequent history of over two and a half milleniums. The book on "Reason and Virtue" was declared a canon by Emperor Ching (156-143 B. C.), and since that time has been called "The Canon of Reason and Virtue." It consists, as states Sze Ma Ch'ien, of about five thousand and odd words. These have been quoted and requoted by authors who lived from about 300 to 200 B. C., and in these ancient quotations about three quarters of the book has been verified. No one doubts that these quotations are genuine and that they were taken from the Canon of Reason and Virtue, which was known to Sze Ma Ch'ien. In modern times Lao-tze's Canon of Reason and Virtue is considered genuine by practically all sinologists with the sole exception of Professor Herbert A. Giles, who believes that the present book is a garbled reconstruction of the true Lao-tze from these many quotations, and he thinks that the original was lost at the time of the burning of the books. Professor Giles, however, stands alone in his opinion, for the very shortcomings of the book, its rambling composition and its lack of system and coherence, are evidence of the reliability of Sze Ma Ch'ien's report. Lao-tze's little book on "Reason and Virtue" bears all the imprints of the conditions under which it is reported to have been written. The old sage who is commonly supposed to have reached the mature age of three score and ten, is depressed with the ominous condition of his native land and quits the country and the misery that is sure to come upon it. He is old and ill at ease but his soul is full of profound wisdom welling over with sentences of far-reaching significance. Nevertheless he has not the time to arrange his thoughts in logical order. His brush glides over the paper hurriedly, nor does he take the trouble to revise what he has written. Thus his sentences are rambling. He quotes from his predecessors, the sages of yore, and he gives new meaning to some homely phrases.

Normally his book is divided into the first part on the *tao* or reason, and a second part, on *teh* or virtue; but according to the sense of his sentences, this distinction is not justified. He speaks of virtue or *teh* as much in the first part as of reason or *tao* in the second. We have no reason to doubt the genuineness of the book, nor the statement of the ancient Chinese historian on the mode of its composition.

The world is indeed indebted to Yin-Hi for having requested Lao-tze to write the book. Had he not done so, the life of one of the most venerable,

the most profound, and the most religious thinkers would have passed by without leaving a trace or a monument of its paramount significance.

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### BOOK REVIEWS AND NOTES.

THE AUTOBIOGRAPHY OF THE I OR EGO; OR, The Metaphysics of an Interloper and Imposter, Himself in the Role of Confessor. By *Charles Kirkland Wheeler*. Boston, 1903. Pages 115. Price \$1.00 net.

Charles Kirkland Wheeler boldly attempts to prove that not he nor any one else is self-conscious or even conscious. He claims that that we are conscious or self-conscious is an illusion. "This is not to say that there is not consciousness, not self-consciousness of a sort; but that it is not I, that it is not you, that are either conscious or self-conscious."

On page 29 he proposes a theorem: "That consciousness cannot be conscious of itself, that is, be self-conscious; that there is no such thing as the self-consciousness of self-consciousness. Or, to state it again, that the self in any mental attitude of self-consciousness is but an abstraction, and, so, nothing itself conscious, and so, again, not anything that might be self-conscious."

Of his own experience which is typical he says: "I was first aware of myself as myself on seeing, as by reflection in a mirror, myself as object."

Thus consciousness attaches to an object, and every act of self-consciousness which any one may experience is consciousness not of one's self but of something outside or of somebody else (page 53).

But what is that self-consciousness which we experience? Mr. Wheeler answers that it is a mere idea, and this idea might just as well be a mistake. At any rate it is a phantom. He illustrates it thus: "That the distinction I am making may be clearly understood, let me, as it were, call to the stand Macready lost in the idea of being King John.

"Macready, where did you say you were going?' 'Macready!—that's not I,—Who's Macready? I am King John.' 'Then you are King John, are you?' 'Certainly.' 'Then, if you are at any time self-conscious as you think, it is King John conscious of King John?' 'Why, yes; who else could it be consciousness of?' 'Then in your mind, your self-consciousness is consciousness of the king.' 'Why, of course.'

"Here, Macready's whole experience of self-consciousness is an *idea* of King John's being self-conscious. He has no consciousness of Macready, and so, of course, no experience of Macready's being self-conscious. And this is what I mean by having only an idea of self-consciousness as contrasted with an experience of itself, as would be Macready conscious of Macready.

"Need I insist that to have the former is not to have the latter? To have an idea simply of going to the moon is not to go."

Mr. Wheeler explains the situation rather stiltedly in these words: "While there is the thought object, there is at the same time the *thought* subject *thought* conscious; but no conscious subject itself at all. It is the thought subject thought conscious that is the correlate of the thought object."

The conclusion at which he arrives is that the ego is an interloper and an imposter, but in answer to what we are, he quotes on the title page as his motto the following lines:

"Art thou not thyself, perchance,  
But the universe in trance?"

A reflection inly flung  
 By that world thou fanciest sprung  
 From thyself—thyself a dream—  
 Of the world's thinking thou the theme?"

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IMPORT AND OUTLOOK OF SOCIALISM. By *Newton Mann*. Boston: James H. West Co., 1910. Pp. 336. Price \$1.50 net.

The Rev. Newton Mann is known to us as the author of *The Evolution of a Great Literature*, a book which treats the development of the Bible, and condenses in a very popular and independent way the results of higher criticism. He now surprises his readers by publishing a book entitled *Import and Outlook of Socialism*. He says: "The two fundamental purposes of socialism are: collective ownership of the instruments of production—land, factories, utensils, machinery,—lifting labor out of bondage to capital: and the abolition, or great restriction, of inheritance, so that every person may (except in so far as natural endowments differ) have approximately an equal chance in the world."

He takes the view that socialism is the real second coming of Christ, and wants the gospel of peace restated. He knows very well that socialism and even communism was the primitive condition, and that progress has been made by making the individual more and more responsible. He believes that all great undertakings have been made by communal effort; but in this he seems to be mistaken, for all progress is due to individual initiative. Our own view of socialism has been explained in an article on "Socialism and Anarchism" (*Open Court*, V, p. 2856), in which we claim that both are factors of social evolution. That neither of them will ever be realized in its entirety and that progress will consist in a continued but equal assertion of both principles. We shall have more of socialism in the future, and more of anarchism, which means a scope for personal liberty at the same time. Mr. Mann's book is suggestive and interesting, but his expositions appear to us one-sided.

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THE TELEO-MECHANICS OF NATURE; or the Source, Nature and Functions of the Subconscious (Biologic) Minds. By *Hermann Wettstein*. Fitzgerald, Ga.: Fitzgerald Pub. Co., 1911. Paper \$1.50 net.

Mr. Hermann Wettstein has come to the conclusion that nature is directed on purpose, and natural phenomena are not merely determined by the push of mechanical cause.

He is the son of a jeweler who is well known in the circles of freethinkers and his philosophy is a case of development on independent lines. His main criticism is directed against Professor Ernst Haeckel with whom he has been in friendly correspondence and whose views he considers contradictory. He shows decided views in his chapters "The Horrors of Vaccination" and "Temperance vs. Prohibition." The Editor of *The Open Court* also comes in for his share of good-natured censure.

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The weekly lessons in Social Christianity as published by the American Institute of Social Service in their magazine *The Gospel of the Kingdom* under the editorship of Dr. Josiah Strong, are now very generally and favorably known. Some 500 classes throughout the country have been using them for

the last two years and it will therefore be of interest to note the striking subjects chosen for this year. Those for the first quarter are on the general topic of "The Church and Social Purity"; for the second, "Immigration"; for the third, "The Church and the Workingman"; and for the fourth, "Dangerous and Unsanitary Occupations and Conditions." These subjects have the approval not only of the large Interdenominational Committee under whose auspices they are published, but also that of the Commission on the Church and Social Service appointed by the Federal Council of the Churches of Christ in America. This Commission has appointed the American Institute of Social Service to collect information on these subjects, with a view to definite action in the future, so that, in the treatment of these lessons the editors will have the latest and most reliable data to draw from. Further particulars may be had by addressing the Secretary, Studies Committee, 85 Bible House, New York City.

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The *Sage School of Philosophy*, Cornell University, awards annually to distinguished graduates of universities and colleges three fellowships of \$500 each, and six scholarships of \$300 each. Of these, one fellowship and one scholarship are awarded to students who are making psychology their major study. The scholarships are intended for college graduates who, during their undergraduate course or subsequently, have given evidence of special attainments in philosophy or psychology. The fellowships are given to students who have already pursued graduate work in these subjects for one or more years in American or foreign universities. Applications for fellowships and scholarships should be sent to The Registrar, Cornell University, on or before April 15th. These applications should be accompanied by a full statement of the candidate's previous training, by recommendations from professors, and whenever possible by specimens of written or published work.

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Tutonish is an international language which competes with Esperanto and Ilo, and its originator, Elias Molee, is also opposed to the use of capital letters, the memorizing of which he deems a burden on school children. Not being interested in this reform we returned his manuscript, and here is his answer which is characteristic of his prejudices both in favor of a Teutonic universal language and against the customary use of capitals. He writes:

"dier her! just efr. mi had shreibn to u, emfangn mi back mio haendushrift abaut e gros forbookstafa (capital letters). mi tenk e shrift bin to long for u, but mi vil giv e styk to e gros dayli avis hier, vich alteim tak in vat mi shreib to de, as de hav mor raum, dan u hav, u de bi not so genau ov vat de infoer. ein dayli avis nied not hav ein so individuel karaktr, as ein montshrift mus hav.

"mi hop dat u kan ferstand, vat mi shreibn hier to u. u kan vel se dat dis "*tutonish union spiek*" bi ein samling ov angel-saksish (germanish) english, deuch, hollandish and skandinavish (svergish, norgish and danish). dis spiek bi ein *pangermanish union spiek* veil *esperanto* bi panromanish. vio folkstam bi mor strong and mus derfor vin.

uo truli—elias molee.

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