

SCIENTIFIC CORROBORATIONS OF THEOSOPHY

A VINDICATION OF THE SECRET DOCTRINE
BY THE LATEST DISCOVERIES

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SCIENTIFIC CORROBORATIONS OF THEOSOPHY.

VINDICATION OF THE SECRET DOCTRINE BY THE LATEST DISCOVERIES.

"Modern Science is every day drawn more into the maelstrom of Occultism ; unconsciously no doubt, but still very sensibly." (Secret Doctrine, I., page 149, 1887.)

"The modern tendency of Science is towards the invisible kingdom ; the more we exhaust the physical world, the more shall we find ourselves pushed into the other territory." (Prof. Sir Oliver Lodge, 1903.)

INTRODUCTORY.

Some thirty years ago, in presence of the ever-increasing tendencies towards materialism and unbelief, the holders of that occult knowledge which could alone fitly show the danger of such tendencies, decided that a new proclamation of the old Truths was timely and advisable. To these old Truths in their modernised garb was given the general name of Theosophy, and earnest students, headed principally by a most remarkable woman, Helena Petrovna Blavatsky, began to study and promulgate the bulk of these revived teachings. Literature was then gradually produced on the subject—the most prominent publications were, for a while, *Isis Unveiled* and Mr. Sinnett's *Esoteric Buddhism*—until in 1888 appeared what has been the masterpiece of modern theosophical teachings—**THE SECRET DOCTRINE**. This book—in spite of many failings and imperfections, of which the writer

(Mme. Blavatsky) herself was well aware (S.D. II. 676-7)—no fair-minded or impartial student can really study* without being struck with admiration and astonishment at the depth of knowledge it reveals, and at the extraordinary number of occult truths it contains. No other work extant for the general public sheds so much light on the mysteries of human life, as well as on all human so-called sciences, and on the past as well as the future of our planet and of ourselves. The Anthropogenesis it unfolds, from the Stanzas of Dzyan—let alone the Cosmogony—has been well characterised as “Titanic.”

But what, for the unbiassed student, is still more remarkable is that the *Secret Doctrine* teems with hints—often amounting to real predictions—about what the near future has in store for the world and for human knowledge, in connection with the tenets to which its author devoted her life. In fact, the more deeply the *Secret Doctrine* is studied, the more numerous and apparent these hints turn out to be.

It has been repeatedly asserted by observing students that every advance of science is now obtained on lines traced and anticipated by Theosophy. This the present writer himself, for one, believes to be not only a fact, but one easily proven; and as this fact must help to increase their prestige by showing the profound value of the occult teachings, it must be interesting, as well as useful, to review from time to time the principal scientific discoveries of our time, from the standpoint of the sayings of Theosophy's great exponent. It becomes a pleasure for the studious lover of Truth to watch their fulfilment.

The writer will therefore now proceed to submit some of the facts he has been able to gather, although he wishes to state that they have not, as some might suppose, been gathered with the intention of “bolstering up” Theosophy by the aid of modern science: Theosophy can stand on its own merits.

One of the first things to command our attention is that Mme. Blavatsky, to whom we will henceforth refer

* I say “really study” because no one can grasp its full meaning at a cursory reading.

by the now familiar initials H.P.B., could foresee exactly what would happen in respect to her book and the teachings it contains :

It is only in the Twentieth Century that portions, if not the whole of the present work (*The Secret Doctrine*) will be vindicated (S.D. II. 461). . . . The rejection of these teachings may be expected and must be accepted beforehand. No one styling himself a "scholar," in whatever department of "exact" science, will permit himself to regard these teachings seriously. They will be derided and rejected "a priori" in this century, but *only in this one*. For in the Twentieth century of our era, scholars will begin to recognise that the *Secret Doctrine* has neither been invented nor exaggerated, but, on the contrary, simply outlined ; and finally, that its teachings antedate the Vedas. . . . Have not the latter been derided, rejected and called "a modern forgery" even so recently as fifty years ago ? (S.D. I., 21*).

The Secret Doctrine was indeed met first with the greatest opposition, abuse and ridicule ; but already it can be seen how opposition and disbelief have gradually subsided ; and, every year having brought its share of confirmations, even her detractors can each year more plainly see how correct her utterances were.

Another of her assertions, which also deserves attention runs as follows :

We are at the very close of the first cycle of 5000 years of the present Āryan Kali-Yuga ; and between this time

[i.e., between 1887, the date of her writing]

and 1897 there will be a large rent made in the veil of Nature, and materialistic Science will receive a death blow. (S.D. I., 671).

Now—judging from the truly wonderful discoveries in various departments of science, made more especially within the last ten years, and which are evidently only the forerunners of many others far more important still—

the times are ripe for a more serious knowledge than hitherto permitted, though still even now very limited. (I., 21).

Judging from the ever-growing number of scientists who are now laboriously and enthusiastically studying the

* NOTE REGARDING QUOTATIONS FROM THE *Secret Doctrine*.—In nearly every case, these are *verbatim* transcriptions from the New and Revised Edition ; in some few instances, however, the sense of a whole page or long paragraph has been epitomised into a short sentence. In one or two instances also, words have been italicised which are not so in the text, in order to emphasise the point brought forward.

mysteries of man's psychic powers ; judging also from the results obtained through the persevering work of the Society for Physical Research, judging from all these facts, this special prophecy of H.P.B. appears to be in a very fair way towards its full realisation. More than this, her friends have already had the pleasure of seeing the unequivocal ideas she so often expressed about the absurdity and uselessness of materialistic theories, fully endorsed, unconsciously perhaps, by no less an authority, among many others, than Sir J. Crichton Brown. In a stirring address made to the medical students of Owens College, Manchester, he warns them against the " materialistic virus " still prevalent in Science, virus which, he says, such great " catholic " teachers as Spencer and Huxley inject into their followers, and under whose interpretation *" intellect is simply the activity of nerve cells ; immortality is a delusion ; virtue, honour and duty are forms of selfishness ; and heroism becomes a kind of disease ; all things are reduced to the pull of opposing atoms, and life is the blind result of fortuitous combinations of matter The true theory, however, is found in idealism, and if I discern the signs of the times aright, there are hard knocks in store for materialism and its congeners, Naturalism and Agnosticism. . . . Hold fast, as your sure refuge, to Idealism " . . . (Manchester Guardian, October 3rd, 1899).*

But a more ample justification for H.P.B. can be obtained by entering into a systematic review of the testimony of each science, and this will now be attempted.

In this regard another of her prophetic assertions is to the point.

" Chemistry and Physiology," she said " are the two great magicians of the future, which are destined to open the eyes of mankind to great physical truths." (S.D. I., 281.)

No Bible prophecy has ever been so clearly and rapidly fulfilled as these words of the great theosophical teacher, so that it would seem natural to start this work by a review of the first of the sciences to which she thus appealed. But Chemistry and Electricity, in the late advances of scientific research, have grown so interwoven, Chemistry has done so much to bring out some of the

mysteries of Electricity, while Electricity has forced on Chemistry so many entirely "new"—though quite "occult"—views on the real constitution of chemical elements, that it is now difficult to separate the two sciences. However, it may be best to start with the constant extension of science through those born magicians, Edison, Tesla, Marconi, Chunder Bose, Becquerel and others—in the apparently limitless field of Electricity.

CHAPTER I.

ELECTRICITY.

H.P.B. has left no direct prophecies about Electricity; but she evidently knew a great deal more of its nature and possibilities than science does even to-day, in spite of the truly wonderful progress made within the last ten years. Thus, her works are full of hints on FOHAT, the "mysterious link between Mind and Matter" (S.D. I., 44), the "Spirit of Electricity" (*id.* 163), the "Universal, Intelligent Force and essence of life" (*id.*, 109, 131-2, 134, 136, 163, 167, 169, 225, 236, 570, 735, etc.), and "his Seven Sons, which are his Brothers" (S.D. III. 507), *i.e.*, the seven forms (some still unknown to us) of that

mysterious something called Universal Electricity or Vital Fluid, which, on the physical plane, is only the *material* manifestation of some intelligent *noumenon* or distinct Individuality in the Divine Hierarchies of the Universe, for the Eastern Occultists insist that Electricity is an Entity (S.D. I., 105).

When she wrote, Electricity was still considered as a "fluid" or a "mode of motion"; she emphatically stated that it is "simply *matter* and no peculiar fluid" (*id.* 554), though of course

not matter in any of the states known to physical science . . . solid, gas or fluid* (*id.* 563)

consequently matter in super-sensuous states which can be perceived by the Seer or Adept (*id.* 561).

An occultist would even object to electricity being called a *fluid*, as it is an *effect* and not a *cause*. But its *noumenon*, he would say, is a *Conscious Cause* (*id.* 563);

* After being long confined to those three states of matter, science was recently driven to admit of another state, *viz.* "radiant" matter, one degree above gas; but now Prof. Baskerville, of the American Society, goes further still, with the bold conception of a *fifth* state, *viz.*, "frozen ether"! Thus does science come ever nearer to occult knowledge,

hence she notes with approval that Helmholtz regarded it as atomic when it was universally considered as a fluid and imponderable (*id.* 554, 635).

Occult Science . . . maintains that Forces are not what modern learning would have them; *e.g.*, magnetism is not a "mode of motion"; and, in this particular case, at least, exact Modern Science is sure to come to grief some day (*id.*, 562),

for light, or rather all its Occult properties, every combination and co-relation of it with other forces,—mental, psychic and spiritual, was perfectly known to the old Adepts (*id.*, 562).

If the men of science . . . would fathom the ultimate nature of these Forces, they have first to admit their *substantial* nature, however *supersensuous* [that nature may be] (*id.*, 560);

light, heat, electricity and so on are *affections* (not properties or qualities) of matter* (*id.*, 536).

Light and Heat [and Electricity, their brother] are the ghost or shadow of matter in motion (*id.*, 561).

not a mode of motion; and therefore matter is the condition, the necessary basis or vehicle . . . for the

manifestation of these forces or agents on the physical plane (*id.*, 536).

Naturally science has not yet reached the point of recognising the Intelligent Entity at the root of "Forces"—for Fohat belongs to the highest plane of the manifested Kosmos, so that it is impossible for our present humanity to understand its essential nature; all we can expect to do is to reach the *sheaths* it assumes on our planes. Yet science has at last been forced, not without reluctance, to admit that electricity *is* matter, that it is made of atoms in intensely rapid motion; it has even been obliged to coin new names—Ions or Electrons—for those electric atoms, which are "immaterial" only on account of their extreme minuteness, only because they nearly escape our ordinary perception. But matter does not cease to exist

* And these very words were used recently by a well-known scientist, Prof. J. A. Fleming, who admits that "the agencies we call electricity and magnetic force are *affections* of the Æther" (*Popular Science Monthly*, May, 1902)!

when it gets "imponderable" to science. "We will go further than this," says H.P.B.,

and assert that Electricity is not only Substance, but that it is an emanation from an Entity, which is neither God nor Devil, but one of the numberless Entities that rule and guide our world according to the eternal Law of Karma (*id.* 137). All these, "Light," "Flame," "Cold," "Fire," "Heat," "Water" and "Water of Life" [as used in occultism] are, on our plane, the progeny the "correlations" of Electricity. A Mighty word, and a still mightier symbol! Sacred generator of a no less sacred progeny: of Fire, the creator, preserver and the destroyer; of Light, the essence of our divine ancestors; of Flame, the soul of things! Electricity, the ONE LIFE at the upper rung of Being, and Astral Fluid (the Athonar of the Alchemists) at its lower, God and Devil, Good and Evil." (*Id.* 109, 110).

Of course, modern science cannot yet soar to such high levels of thought, and is contented to claim that electricity (*i.e.*, the physical manifestations of it familiar to our senses) is the result of "vibration," and Sir William Crookes has shown, in his table of vibrations, that increased velocity in matter manifests successively as sound, heat, light, and electricity, up to its highest known manifestations.

But what is the nature, the impelling *cause* of these vibrations, a cause capable of forcing inert matter into incomprehensible rates of motion? To use a trivial illustration, when we force "electricity" into manifestation, and turn its tremendous powers to our purposes, we are only using the outer garments of some Divine Life, even as the parasites living on our body burrow into its tissues, while remaining beautifully unconscious of the Soul, which inhabits and uses that body as its outer sheath. Therefore the scientists of the twentieth century, if they wish to realize all the possibilities of electrical science (which, marvellous as it is, is yet in its infancy) would do well to ponder over the occult nature of what they are working on, and try to gather in the full meanings of the hints given out in the *Secret Doctrine*.* One thing must, however, be realized, and this is, that if electricity is directly connected with divinity, its possibilities must

* The whole of Part III., Volume I., from page 477, in spite of many imperfections in form, due to the fact that the writer was not a scientist, and of language, due to her being a foreigner, is well worth the considerate attention of scientists.

be divine, *viz.*, unlimited, or at least super-human ; and the results so far obtained do not belie these postulates of occultism, as can be seen by simply reviewing what electricity already is for humanity : (a) a source of the highest available heat ; (b) a most potent power for traction ; (c) the swiftest means of communication, and (d) a source of sun-like illumination.

(a) As a heat producer, a large electrical plant will give temperatures which, in the hottest portion of the electrical arc, are estimated to be over 3,000° C., nearly 5,500° Fahr. This is such an excessive heat that it can only be faintly appreciated by comparisons :

" Thus it is seventeen times as hot as boiling water, four times as hot as melted copper, and twice as hot as melted platinum, that most refractory of common metals. Under this heat steel assumes the form of a thin mobile liquid which behaves much like water, and diamond melts away like ice in a gas flame, while, by using a less intense electric arc, common carbon can be volatilized and made to crystallize into artificial diamond."

(b) As a source of power, electricity is already far above steam, and the ease and responsiveness with which heavy cars are pulled up steep grades through a small, invisible current, on our yet primitive cable and trolley lines, gives an idea of what will be the work of the future.

(c) As a means of communication, while we are already familiar with the witchcraft of telegraph and telephone, new vistas are constantly opening before us, especially through the latest discovery, that of wireless telegraphy, which includes wireless telephonic communication, both of which offer the prospect of the nearest mechanical approach to that future triumph of human faculties, called thought-transference.

(d) As a source of constantly available sun-like light, obtainable through the natural unused force of waterfalls, science is rapidly striding into new fields, or what Theosophists call higher planes of magic.

Indeed, the manifestations of electricity as light have gone far to force science into the admission of the existence in space of matter more tenuous than air, matter which is now scientifically talked about as *ether*.

Not many years back, ether was vehemently denied by materialistic scientists (S.D. I., 641), and H.P.B. was roundly abused for referring so positively to its existence and daring to say that this "colourless substance, unseen and unknown" filled all space, though its body "is not yet fully manifested" (I. 498), but "will become visible in the air towards the end of our Fourth Round" (I. 40 ; II. 144), it exists in "seven states" (I. 353), the knowledge of which "can alone lead to the knowledge of forces" (I. 641. See also 554), while "Official Science knows nothing to this day" of its constitution (I. 528).

Ether is the Seventh Principle of the Astral Light, and THREE degrees higher than radiant matter. . . . It is the cosmic sediment of Akasha ; beginning with our Fifth Root Race, it will develop fully further on at the beginning of the next 5th Round. (H.P.B. Trans, Bl. Lodge, II. 19, 11).

But scientists are being forced by their new discoveries into the very midst of the lower planes of Ether, so that the study of that mysterious "something" is now the order of the day ; and we hear, among others, of some Chicago men—Professors Michelson and Mann of the Ryerson Laboratory—devoting earnest investigation to it and assuming, perhaps prematurely, that it is simply *matter* (!), while another scientist, Mr. Fessenden calls it a "fluid," which he named "Etheron" (see S.D. I. 554 ; also an excellent article of Professor Dolbear in *Arena*, VI., 1). Thus Theosophists may well wait with patience for straggling science to reach to and verify the teachings they have received.

In so far as he ventures to express it, the learned Prof. Bose is the only scientist who seems to realize what Ether is, and he simply echoes H.P.B. when he says that *Ether is the great field of the future, a field whose products no one can imagine or attempt to conceive*, while Marconi unconsciously justifies the Hindu theory of the Tatwas,* because, when asked what difference there was between the various electric waves that are now produced, he replied that probably the difference lies, not only in their length and the rapidity of their vibrations, but also in

* See *Nature's Finer Forces*, by Rama Prasad, T.P.S., 161, New Bond St., W.

the *form* of the wave ! Moreover our physicists, even Sir Oliver Lodge himself, are gradually forced into realizing the existence of some intimate relations between Electricity and Ether, and if they only would turn to the doctrines of Theosophy for help, well then might it be said that the world is on the threshold of discoveries, "by the side of which, all those of the proud nineteenth century will look like mere child's play." Yet we must not be too sanguine, nor expect too much, because all our new acquisitions in Electricity, through Ether, belong to FOHAT, the great Mystery.

However, as said above, the new facts in electricity have rendered *ether* indisputable, since the starting point of all recent discoveries has been the behaviour of electricity in the "vacuum tube," in other words, in a recipient or sealed glass tube, out of which all physical air or gas has been pumped as completely as modern appliances will allow. Now this exhaustion of air—or physical matter—does away in the tube with the pressure of the material atoms which in ordinary circumstances imprison and weigh upon the manifestations of the atoms of electricity, thereby allowing us to see how these atoms behave when, this pressure of physical matter being removed, they are allowed to manifest freely in the more tenuous substance of ether, wherein they clearly manifest an impulse from WITHIN WITHOUT, this showing the absolute correctness of these axioms, published in 1888 :

the waves and undulations of science are all produced by atoms propelling their corpuscles into activity from within (S.D. I. 694) ; The Universe is worked and guided from *within outwards* (id. I. 295).

In the same manner, the atoms of gases submitted to the influence of the electric current in a suitable vacuum become radiant, as shown by the experiments of Sir William Crookes. Everyone knows what happens when two pieces of platinum wire, acting as conductors and inserted in a vacuum tube, are connected with the two poles of a source of common electricity ; the tube begins to glow with a beautiful light and a stream of luminous matter flows from the kathode or negative pole. This light is now known as the kathode rays, which have been

specially investigated by Hittorf, Crookes and the Hungarian Lenard.

The findings of science were not to stop there, and other radiations or rays were gradually discovered, as it were to corroborate the theosophical assertion that every force obeys the septenary law, and that the seven Sons of FOHAT can themselves be subdivided each into other septenaries, which latter science is still very far from having discovered. In effect, it has already been ascertained by Prof. Lenard, that the kathode ray itself is composed of characteristic subdivisions corresponding to those of the spectrum and gamut.

But to follow up the line of discoveries—when a kathode tube, in a dark room, is placed inside a black cardboard muff which intercepts its light—at least to all appearances or the human eye—if any fluorescent substance is placed on a screen near the muffled tube, this substance will begin to glow, though no light is seen to fall on it, and any solid body interposed between the tube and the screen will throw a shadow on the screen ; in this way the dark shadows of the bones of the body are projected while the flesh gives no appreciable shadow. This proves that, together with the luminous kathode rays, other radiations exist, non-luminous and invisible to the eye, but capable of passing in straight lines through bodies opaque to ordinary light, capable also of decomposing photographic salts, and of making fluorescent substances glow. These are the so-called X or Röntgen Rays, of “dark” light—a common expression in the *Secret Doctrine*. Then again, if these last are properly deflected by metallic mirrors, they gain new properties, which vary according to the metal they are thrown upon, and these are named Secondary or S Rays. On the other hand, the bright kathode rays also get altered by passing through perforated metallic plates, producing what are now called Goldstein Rays.

Of course, the most astounding property of these newly-discovered radiations is that—being, as Dr. Fromm ascertained, seventy-five times smaller than the shortest wavelength of light—they are able to pass untrammelled through opaque bodies, and this proportionately to their

atomic weight, Lithium, the lightest, being apparently the most transparent. This property immediately brought into existence a new branch of science, Radiography or Skiagraphy, by which we are enabled to photograph, and even to see with our eyes into the interior of things, through apparently opaque envelopes of wood or metal—to see and photograph the bones of the skeleton through the clothes and the living flesh ! New applications of this miraculous faculty are being made daily, and as a new scientific field, its capabilities are yet undreamed of, although surgery and pathology have already derived unexpected benefits from it, for probing wounds and locating diseases, while it is even claimed that the new rays have the power of destroying the germs of contagious affections and of conveying medicinal particles into the internal organs, through the flesh tissues (Dr. M. T. Woolf, San Francisco). The curative action of the X-rays in cancer and other tumors appears to have been well demonstrated by Hyde, Ziesler, Percey and numerous others. It is claimed also that the X-rays will help to analyse substances and detect adulterations, and that through their use in connection with the sensitive Selenium, it will be possible to convey pictures through telegraph wires ; and several new instruments for the purpose of making this long-distance eye supplement the telephone or long-distance ear, and variously called “ telephote,” “ telecroscope,” “ telephotograph,” etc., have been devised by a number of inventors in various countries and at different times* though so far no real practical instrument has been perfected. We may mention also efforts made to take advantage of these new discoveries for helping the blind to see and the deaf to hear, as Dr. P. Steins, of Paris, claims to do with an invention of his that conveys the vibrations of light and sound direct to the mind through the brain.

The full import, however, of all these discoveries, from the theosophical point of view, was clearly summed up by the

* Cary, E. Rias, Sawyer, Laroque, Perosino, Senlecq, de Paioa, Nepkow, Gemmell, Liesegang, Heinzerling, Stern, J. Szczepanick, Bronk, St. Schneider, Dussaud, Ayrton, Korn, Perry, and others, including Edison,

London journal *Isis* (Vol. II. No. 2) as follows : *The great discovery by photography, of the power possessed by certain rays of light to penetrate matter we had always considered dense, and to present to us on the photographic plate, pictures of objects veiled beneath that surface of matter dense to the physical eye, in connection with discoveries made by the more audacious hypnotists of Paris, show conclusively the trend of physical science in these latter days of our dying century ; the prophecies of Madame Blavatsky and the promises given by the Masters through her ministration are being thus publicly verified and accomplished.* In effect, however wonderful these discoveries may appear, they only illustrate the correctness of this assertion of the *Secret Doctrine, viz. : that*

as the faculties of humanity are multiplied, so will the characteristics of matter be multiplied also (S.D. I. 272),

so that, "by the time Nature fully develops its next characteristic" of which H.P.B. said prophetically, in 1888,

let us call it for the moment PERMEABILITY this new characteristic will correspond to the next sense of man which we may call Normal Clairvoyance (I. 272, also 279).

And so it is, though it did seem incredible at the time she wrote. While the Ruling Powers above (called in the S.D. the Dhyān-Chohans), who preside over human inventions, graciously allow to Professors Lenard, Röntgen, Lebon, Becquerel and other searchers the first glimpses of new characteristics of electrical matter, *viz. : a power of "permeability" which carries with itself, as a corollary, a hitherto unknown property of matter, that of being "permeable," at the same time, the corresponding faculty in humanity is everywhere manifesting itself ; so that—in the United States especially—a large number of persons give proof of the undeniable development of a sixth sense, under various aspects of natural clairvoyance (see *Theosophical Review*, XXVII. 58).*

This "coincidence" was very wisely acknowledged in a now defunct review of San Francisco, *Mercury*, wherein it was said : *With the advent of invisible forces, such as electricity, as factors in the world's social life, there has also come an awakening of inner perception, that is rapidly changing man's relation to the so-called invisible world ;*

the veil of material sense lifts and startles even the materialist with glimpses of the Great Beyond, and each day phenomena of the invisible (clairvoyance, clairaudience, telepathy, hypnosis, psychometry) are better known and more universally acknowledged as facts, where a few years back they only called for ridicule and for clerical and scientific denunciation. But they are yet little understood or must be looked upon with misgivings outside of Theosophy. This is quite correct, all the more so, because, as *Mercury* also correctly stated, "materialistic science is now fast passing into magic," and in selfish hands, we know magic is sure to slide into Black Art. So the present scientific achievements are pretty sure to become a danger, perhaps even a curse, to humanity, if they are not illumined by the light of theosophy, the DIVINE WISDOM.

But the Röntgen ray was only a beginning in the "lifting up of the veil"; and hardly a year after its divulgation came, on the same lines, something more important and more revolutionary still. Two scientists from different countries, one, Prof. Jagadis Chunder Bose—a Europeanized Hindu "savant," who must know something of his race's past knowledge of the Ākasha—and the other a young Italian genius, Mr. G. Marconi, both unknown to each other, went to London at nearly the same time to tell the same story, as *McClure's Magazine* (March, 1897) expressed it: Namely, that telegraphy needs no wires, and that through walls, houses and towns, through mountains and even, perhaps, through the whole earth, dispatches can be sent to any distance, with no other apparatus than an exciter or sender, and a receiver, the communication taking place by means of certain electric waves in the *Ether*, that something which H.P.B. said filled all space.*

* The most curious and suggestive part of Mr. Marconi's discovery is the danger he apprehends from the use of the new force on a battleship or powder magazine, which may be destroyed by the mere power of the vibrations. Does not this recall the mysterious faculty attributed to Kapila by the Hindus, or the Mash-mak of the Atlanteans mentioned in the *Secret Doctrine* (I. 614) and so poetically foreseen by Bulwer Lytton in his "vril?" and may it not be another aspect of the Etheric Force of the much-abused Keeley, whose failure was so clearly foretold by H.P.B. (*Secret Doctrine* I. 606, 614, 615; see also *Theosophical Review* XXIV., 484).

Revelations, however, of various other radiations continued to be made and brought science to acknowledge a new, or so far unknown property of matter now called "Radio-Activity." Of the extraordinary discovery of Fr. Rychnowsky, the "Electroid," little can as yet be said. But some of these radiations induced the puzzled scientists to again examine the old mysterious phenomenon of phosphorescence or fluorescence—which had formerly been announced as a special property of the body called phosphorus, and therefore indicating the presence of this phosphorus in any glowing body. It was now found that electricity could render phosphorescent matter which was not naturally so and which contained no phosphorus. Moreover, it was soon ascertained that phosphorescent bodies—apart from their glow or luminosity—are also radio-active, that is to say, throw off invisible radiations very similar to the Röntgen Rays; and this led to the further discovery that other bodies, not at all fluorescent, did also emit some similar invisible radiations, which have been called the Becquerel Rays of "Invisible light."

Thus a whole world of various emanations or radiations, totally unsuspected less than ten years ago—and the latest of which are the Sagnac and Goldstein rays, the N-rays, the Alpha, Beta* and Gamma rays and others—displayed themselves before the amazed scientists, who in presence of this irrefutable fact of "invisible light" can no longer deny or ridicule "imponderable matter," nor even the fact that "absolute light is to us absolute darkness," two propositions boldly asserted in the *Secret Doctrine*, and which were made fun of as preposterous nonsense when this work first appeared. Furthermore, science also admits that this new world of radiations is intricately connected with visible light, with the invisible rays of the ultra-red and ultra-violet parts of the spectrum—known as caloric and actinic or chemical rays—and also with the various known manifestations of

* The Beta Rays, that is to say the radio-active substances emitting B rays, alternately attract and repel certain objects in the manner of a pendulum, so that they could be used to manufacture clocks that would need no winding up, for so long as the radio-active substance lasted, which might be thousands of years; a fitting accompaniment of radium's "eternal lamp."

electricity, including the so-called Hertzian waves now used for wireless telegraphy. Thus, as recently said by an expert, "*light, electricity, magnetism and the molecular motions of gases, liquids and even solids, all these formerly separated chapters of Physics, have now been brought into a most intricate and intimate connection, in fact are huddled together by these wonderful radiations*" (Prince Krapotkin). But this intimate connection between manifestations which were formerly considered as quite independent is only another of the theosophical assertions, namely, concerning the correlations between all the manifestations of the Universal Unity, between all the "Brothers of FOHAT."

It is quite interesting to hear the startling admissions or theories that the new discoveries force out of our scientists. For instance, the kathode rays are said to be "the path of very minute particles of matter which are thrown at a very great speed from the surface of the kathode, and are loaded with a mysterious something called electricity"; but Professor Thompson adds that the matter thus carried in the kathode rays "is not ordinary matter, such as we know it in our every-day chemical experiences, but matter in a state of high dissociation," so that the atoms of the chemist, although invisible to us, must be "giants" in comparison to the size of the kathodic atoms, or IONS, as they are now called. How close all this comes to the tenuous matter of the Etheric and Astral planes of the theosophist! But Villari and Righi describe also the kathode rays as "an electric dance of atoms (etheric atoms) along the lines of force"—two theosophical ideas—and while "extremely minute, these kathodic atoms carry relatively very great charges" of something we still call electricity, but "which may mean a certain vibratory or, better still, *spiral* movement," another occult teaching.*

Then again, science ascertained that the substances which convey the electric discharge in vacuo, are

* Occult teaching claims that the X-ray vibrations take the form of a double spiral or helix, as indicated—in a way—in Mrs. Besant's interesting disintegration of the Atoms in her article in *Lucifer* (November, 1895.)

masses of matter of about the one-thousandth part of a chemical atom of Hydrogen ("Echoes of Science," *Globe*, September, 1900). These particles, however, evidently come from the chemical atoms; therefore it is proven that the ordinary molecules and atoms of physical bodies can be dissociated; this further shows that, as advanced in the *Secret Doctrine*, chemical atoms are not simple bodies, but merely aggregates of these electrical corpuscles—ions or electrons—which are, through the action of what must yet be termed electricity, broken into "what we may call the primary atoms of some primary matter, out of which the atoms of all chemical elements must be built up," in other words, the Protyle of Sir William Crookes, another assertion made in the *Secret Doctrine* long before science had dared to assert that the chemical atoms could be anything else than undecomposable.

All these facts have caused a new theory of the structure and life of matter, in which Professor J. J. Thompson explains that the "molecules of which all bodies are composed are not something rigid; they live, and certain portions, atoms or corpuscles, are continually being detached from this or that molecule, and they wander [or circulate] through the substance, gas, liquid, or even solid, another corpuscle taking its place in the broken molecule; thus a continual exchange of matter [etheric matter, theosophy would say] takes place within the bodies, while the wandering corpuscles thereby always carry with them that sort of motion which science now calls an electric charge," or what Hindus might perhaps more correctly call a current of Prana. May we wonder whether Professor Thompson had read the *Secret Doctrine* before formulating his theory, or is he, in this respect, an unconscious theosophist? If not, he might at least be called an unconscious plagiarist of occult teachings.

But if the Kathode rays are "streams of etheric matter," what are the X, or Röntgen rays? Well, science says they consist of "a variety of radiations," or, as Professor Thompson puts it, "a mixture of various pulsations of very short vibrations of the Ether," incoherent

vibrations, as it were, perhaps something like "noise" in sound ; more than this, they belong to a "magnetic spectrum," composed, like the septenary spectrum of light, of vibrations of different rates or lengths, or perhaps spreading "longitudinally," as suggested by Lord Kelvin, but working in the ether instead of in the dense physical matter ; hence their effects must be "dark," or invisible to the physical eye, which can only sense longer and less rapid vibrations, unless trained to what is called clairvoyance.

The fact that certain electrical influences can render phosphorescent bodies not naturally so, bodies containing absolutely no trace of phosphorus, and the further fact that phosphorescence is found naturally in many vegetable products, and also in certain bacteria or micro-organisms also devoid of phosphorus (See *Lancet*, 1900), have brought science to explain phosphorescence, not only as a physical faculty of atoms of storing and throwing off stored light—whatever that may be—but also as a certain chemical capacity whether natural or induced, to throw off a glow when those atoms are able to insensibly absorb oxygen, as phosphorus does, or, in other words, when invisible chemical reactions continually take place on the etheric plane. But this points to yet unfamiliar workings of material life, or as occult science would have it, every known body, man included, leads at once two lives, one on the physical plane, the other on the astral.

But the persistent researches of Becquerel and the Curies, Elster and Geitel, Rutherford and others, have proved that even the invisible radiations, or Becquerel rays of "dark light," are "neither dust nor vapour, but a real transport of etheric matter," which can even be modified by certain extraneous influences ; thus, the radiations or "emanations" from Thorium compounds are so material as to be affected by "draughts in the room." Does not all this bring back to memory the valuable pioneer experiments of a much-abused scientist, Reichenbach, and his trained sensitives, on magnetic "flames?" However, since very powerful "radiations" have been ascertained to exist in bodies—both organic and inorganic—not at all privileged by phosphorescence, therefore the two things must be independent and reveal mysteries of life still

unknown to both the chemist and the physicist. For the theosophist, they would seem connected with both the material-etheric constitution of the atoms, and with the currents of life and forces acting through them, in other words, with the etheric double, the auras and the pranic forces which play in and around all bodies, but which science has yet to acknowledge and get familiar with. And in this way, the X rays and their natural equivalents, the Becquerel rays and others, would be somewhat connected with the pranic or "health" radiations, those straight emanations which are thrown off the human body, as shown in the theosophical studies of the auras.

Among the most remarkable bodies endowed with both faculties—radiation and phosphorescence—we find the metal Uranium and its salts; and through the special study of its radiations, three new elements, Radium, Actinium and Polonium, have been added to the chemical list by two Parisian students, Mr. and Mrs. Slodowski-Curie. The most interesting of these three bodies, so far, is Radium. This is represented as being somewhat similar in appearance to Bismuth and Barium, but as having the unique, transcendental faculty of emitting visible rays of light, after being heated, while it loses this faculty by being boiled in water, after which it looks "like a piece of green quartz, dead and cold," but ready to re-become luminous on being heated again to incandescence. A characteristic account of the wonderful properties of this Radium is found in the reports of the Smithsonian Institute. Specimens of Radium were sent to scientists, in various countries, and the box containing the piece received by Professor Langley was opened, according to directions, in the photographic dark-room; and before the assistants could realize what had happened, the room was filled with a clear, greenish glow, bringing out, in bold relief, the features of all present. At first they were afraid to touch the substance; but it was soon discovered that the light was cold and harmless, and that the specimens could be handled with impunity.* Tests have been

* Though they cause bad blisters and burns of difficult healing, if kept too long in near contact with the skin, even when enclosed in a glass tube.

made to ascertain the permanency of Radium's lighting power, and Professor Bach, of Berlin, testified that, even if the "radiations" did cause a waste of substance, it would take a "million years to destroy the luminosity of a piece only a quarter-of-an-inch square."

Here science has at last discovered a "cold flame," practically indestructible, which reminds one curiously of the supposed "eternal lamps" of antiquity (*Isis Unveiled*, I., 224-228). But how does this compare with the assertion of the Stanzas that "Light is cold flame" (S.D., I. 110), and "that primordial matter . . . is but a cool radiance," two assertions which were derided by scientific men, who, a few years ago, always associated light with heat, and held to such theories as these: "heat is light in complete repose, light is heat in rapid motion?" But such theories will have to be seriously modified now, through Science's own discoveries, and the new views will undeniably bring us considerably nearer to the derided and so-called "exploded" occult teachings. Many precious hints about the nature and noumenon of light exist in the *Secret Doctrine*; as H.P.B. said fourteen years ago,

electricity, magnetism, heat, light and chemical action are so little understood, even now, that fresh facts will constantly widen our knowledge (*Secret Doctrine*, I., 354);

but each day Theosophy will be verified to be the basis of and the key to all Sciences, and those who dogmatically and disdainfully assert that "there is nothing in Theosophy," only show how little they themselves know of it.

Now possibly the most interesting thought in all the strange, eventful history of Radio-activity, is the question: Whence do all these radiations come, what is the cause of their energy? This is less of a puzzle to the student of Theosophy than to Science, yet the latter, through the pen of Prof. R. K. Duncan, of Washington and Jefferson Colleges, makes the following admission: "Madame Curie suggested that, for instance, radium receives its energy from, and responds to radiations which traverse all space, much as some articles in a room will vibrate responsively to a certain tone of the piano. This may be, Heaven only knows! One thing we do know, space is

all aquiver with waves of radiant energy, ranging in length from many feet to a size infinitesimally small. [This is quite theosophical ; only what is the *cause* of all those vibrations ?] To only a few of these are our bodily senses fitted to correspond, or our mechanisms and appliances suited to detect. Waves of radiant energy constitute what has been called 'the harp of life.' We vibrate in sympathy with a few strings here and there, with the tiny X-rays, actinic waves, light waves, in the treble, and with the huge electro-magnetic waves of Hertz and Marconi and the grand air waves of sound, in the bass ; but there are great spaces, numberless strings, an infinity of possible radiations, to which we are blind and deaf, stone-deaf. Same day, a thousand years hence perhaps, we shall know the full sweep of this magnificent harmony, and with it we shall vibrate in accord with the Master Musician of it all !" (*Harper's Monthly*, 1901).

This is beautifully expressed, and could not have been more in accord with the teachings of the *Secret Doctrine*, had it been written by one of H.P.B.'s pupils.

And thus science is meeting us half-way.

CHAPTER II.

CHEMISTRY.

Now we come to the first science mentioned by H.P.B., as one of the "magicians of the future," of which—while devoting so much attention and space to it—she further said :

There is but one science that can henceforth direct modern research into the one path which will lead to the discovery of the whole, hitherto occult, truth, and it is the youngest of all—*chemistry*, as it now stands reformed. There is no other, not excluding astronomy, that can so unerringly guide scientific intuition, as can chemistry (S.D. I., 635).

Has not modern chemistry already vindicated the *Secret Doctrine* in many ways, and is it not fast becoming as she predicted, the "New Chemistry" or "Metachemistry" (*id.* 683) ?

ATOMIC THEORY.—As already shown in the chapter on Electricity, it is now fully conceded that the old chemical and atomic theories have been completely capsized, and that a new concept of matter is gradually developing along the very lines of the *Secret Doctrine*, (I. 565-566 ; 620, 621 ; 636, 637, etc.) ; that is to say, the unity of all things, and their temporary differentiations under the law of septenary divisions. A proof of this can be found in *Knowledge* for June, 1900, where a paper on "Chemical Evolution," reviewing the late findings of that science, is written entirely on occult lines.* Thus, while Tesla's and Keeley's works show electricity resolving itself into a simple mode of motion in etheric matter, the chemistry of Sir William Crookes and his followers admits that the primary constituents of all matter, of all atoms, are

* See also "New Departure in Chemistry," *Scientific American Suppl.*, No. 1144.

identical in their nature, and issue from one single basis, called *protyle*, their differences of form and appearance in molecules and compound bodies being only the result of a difference in *distribution* or *position* (S.D. I., 684). Thus the "ultimate" chemical atom is no longer held, as formerly, to be a "tiny particle of some unchangeable substance," but—as Lord Kelvin puts it—really a vortex, or electrical centre of force and motion or vibration (a soul or monad); in other words, the "whirlwind" on "spiral lines," of the *Secret Doctrine*. More recently still, Professor Fraser described the atom as "a veritable etheric bubble" (exactly as occultism does), this bubble having, as film, "a layer of ether particles in very rapid rotation [also an occult axiom] whereby, as known in Physics, a resistance like that of a solid can be obtained from non-solid matter, by giving it a very swift movement" (*Edinburgh R.S. Proc.* 1902). Other chemists describe the atom as "a core of positive electricity enclosed in a shell of electrons," or negative electricity; *i.e.* the occult idea in different words: and they now begin to speak of the "architecture" of the atoms. More than this, Prof. Osborne Reynolds, before the Physical Science Society (1902), not only advanced a new theory of gravitation, based on the invisible ether, but stated emphatically that all bodies, including humanity, were "nothing but ether waves," because "matter apart from ether does not exist, matter is simply ether conditioned by force"; now force, in theosophical parlance, being spirit, Prof. Reynolds' contention is exactly what the *Secret Doctrine* teaches, only this last work goes a little further, since it mentions three kinds or planes of physical ethers, before reaching the "astral" ether. (See next chapter.)

Similar views are now found in all scientific works. Thus, Hartley (*Brit. Assoc.* 1903), admits that "there is a growing conviction that all chemical atoms are not ultimate particles of matter, but have a very complex constitution." They are "combinations" and therefore divisible; and one of the curiosities of the "new" chemistry, is that it has already come to the point of acknowledging that "the former *indivisibility* of the

atom has become the *infinitely divisible*," (Sir Oliver Lodge) exactly as formulated in the *Secret Doctrine*, (I. 566, and also 567) where it is said that :

It is on the doctrine of the INFINITE DIVISIBILITY of the atom that the whole science of occultism is built.

Prof. Liveiny (*British Assoc.*) asserted that "many of our so-called elements, in the state we know them now, have a very complex molecular structure," and Prof. Baskerville adds that metalloids are certainly all compounds, while metallic elements are quite protean.* ("The Elements Verified and Unverified"; Address to the American Association for Advancement of Science, St. Louis, December, 1903; *Scientific American Suppl.*, Nos. 1524-1525, March, 1905).

Forced to it by the divisibility of the atom shown by the recent electric discoveries, Sir Norman Lockyer and Prof. J. J. Thompson have started the scientific hypothesis of Ions and Electrons, *i.e.*, masses of matter smaller than the atom. For instance, it is stated that there are about 1,000,000 electrons in *one* chemical atom of mercury. Moreover these electrons are not huddled up together, and if the distances between them were calculated they would seem, proportionally to their size, "to be as widely separated as the planets are in the solar system." This, by the way, is again an idea forestalled in the *Secret Doctrine* :

Occultism says that, in all cases, matter is the most active when it *appears* inert. A wooden or a stone block is motionless and impenetrable to all intents and purposes. Nevertheless, and *de facto*, its particles are in ceaseless eternal vibration, which is so rapid that to the physical eye the body seems absolutely devoid of motion; and yet the spacial distance between those particles in their vibratory motion is—considered from another plane of being and perception—as great as that which separates snow-flakes or drops of rain. But to physical science this will be an absurdity. (S.D. I., 553.)

How did H.P.B. obtain her knowledge of what, at the time, science not only did not know but even ridiculed?

* Certain "elements" seem to melt into others, so that, for instance, to use a biblical phraseology, it could be said: "for Yttrium begat cerium, and cerium begat lanthanum, and lanthanum begat samarium and didymium, and didymium begat neo and proeso-didymium, and proeso-didymium begat alpha and beta proeso-didymium, and so on. (Prof. Baskerville, *loc. cit.*; see also *Secret Doctrine* I., 164, 165).

Do we need another instance of antecedence ? If so, here it is. According to the New Chemistry, the division of the spectra-lines of certain elements into series, noticed by Rydberg, Bunge, Paschers and others, "indicates that the atoms of these supposed elements are complex, and there is no reason why these elements should not dissociate under favourable conditions of temperature and pressure." H.P.B. said :

Great heat breaks up the compound elements and resolves the heavenly bodies into their Primeval ONE Element. (S.D. I., 111, 112.)

But science is going still further : Sir Norman Lockyer, in his *Inorganic Evolution*, a book which runs on the borders of occultism, argues that "not only is the atom a complex compound of an association of different ions, but the atoms of those substances which lie in the same chemical group are perhaps built up from the same kind of ions and that the differences existing in the materials thus constituted arise more from the manner of association of the ions in the atom, than from differences in the fundamental character of the ions which go to build up the atoms." To this, Thompson, in his work *Bodies Smaller than the Atom*, adds this idea : that "in the kathode rays, we get matter in an entirely new state, in which, whatever body it may be derived from, it is all of one and the same kind." It is, in fact, matter from which *all* the chemical elements are built up, so that, as Dr. Preston also remarks, the new discoveries lend support to the old (and once exploded but now reviving) idea that "all the various so-called elements may be built up in some way of the same fundamental substance," the ancient Greek "primordial] stuff" (See "Theory of Ions," *Nature*, September 27th, 1900, also *Theosophical Review*, XXVII., 366, XXXII., 94).

Then we find Lockyer stating further that with the Ionic theory, we "can imagine *several* first [primordial] *forms* [quite so, the Seven Rays of the *Secret Doctrine*], which brings about the possibility of evolution along several parallel lines, whereby the possibility of an infinite number of intercrossings"; and this is exactly

the conclusion reached, from an entirely different point of view (*i.e.*, that of Geometry), by another remarkable student, Don Soria, for whom atoms are merely generators of geometric solids and their infinite combinations. ("Chemical Geometry," in *Sofia, Madrid*).

The distinguished metallurgist, Prof. Roberts-Austen, also fully endorses the idea that there is really but one element, the *Protyle* of Crookes, and that the so-called elements have been derived (like humanity itself according to theosophical ideas) from "simpler forms" and "gradual aggregations of the atoms of that primeval element," while, as far back as 1881, Clarke had foreseen that "the evolution of planets from nebulæ is accompanied by the evolution of the elements themselves," an echo from the *Secret Doctrine*, which teaches the

progressive development of every thing, worlds as well as atoms (S.D. I., 74, 278).

and the metals themselves produced

by the condensation of hydrogen or of some other primitive matter, or some ancestral cousin to helium perhaps (*id.* 652).

But H.P.B. went much further still than anything yet fathered by science. Thus, at a time when the first principles only of the New Chemistry were being cautiously formulated by Sir William Crookes—whom she warmly endorsed—and long before the astounding discovery of "radio-activity," she declared that :

Surely then, the elements now known to us—be their number whatever it may—as they are understood and defined at present [1888] are not, nor can they be, the *primordial elements* ; these are formed from "the curds of cold radiant Mother" and the "fire-seed of the hot Father," *i.e.*, those elements had their genesis in the depths of the primordial fire-mist, the masses of incandescent vapour of the irresolvable nebulæ ; . . .

(*i.e.*, before the formation of the sun and planets).

The elements now known have arrived at their present state of permanency in this 4th Round and 5th Race. They have a short period of rest before they are propelled once more on their upward spiritual evolution, when the living fire of Orcus will dissociate the most irresolvable and scatter them again into the primordial ONE (S.D. I., 593). We have shown our theories with regard to the evolution of Atoms. . . . their last formation, into *compound chemical molecules*, being produced within our terrestrial workshops in the Earth's atmosphere, and not elsewhere (*id.* 685-6).

She also refers, incidentally, to the fact that a great number of chemical substances and compounds existed, in previous periods of the Earth's evolution,

"which have now ceased to combine together."

and which, although described in the "Stanzas of Dzyan," are "simply untranslatable," this showing further an evolutionary law of change even in Chemistry (S.D. I., 518).

She then says that the New Chemistry

justifies several assertions in the Occult works: *Firstly*, that "neither the stars nor the sun can be said to be constituted of those terrestrial elements with which the chemist is familiar, though they are all present in the sun's outward robes—as well as a host more of elements so far unknown to science."

[Over a dozen have already been recognised since the time of her writing]:

Secondly, that our globe has its own special laboratory on the far-away outskirts of its atmosphere, "crossing which," every atom and molecule changes and differentiates from its primordial nature*

[an idea just adopted by science]: and

Thirdly, that though no element present on our earth could ever be possibly found wanting in the sun, there are many others there which have either not reached, or not as yet been discovered

[or possibly not as yet evolved and developed]

* "on our globe (S.D. I., 638). Some may be missing in certain stars and heavenly bodies in the process of their formation; or though present in them, these elements on account of their present state, may not respond as yet to the usual scientific tests (quoted from *Five Years of Theosophy*, page 258).

Helium, existing in abundance in the chromosphere of the sun,

an element purely hypothetical as far as the earth is concerned

at the time she wrote, has since been found here; and she closes by saying that, according to occult science,

not one of the elements regarded as such by chemistry really deserves the name (S.D. I., 638).

* "Occult Science teaches that there is a perpetual exchange taking place in space"—(our "atmosphere" acting for us as "a crucible")—"of molecules, or rather of atoms, correlating, and thus changing their combining equivalents in every planet" (S.D. I., 166)

No passage better than this is needed to justify our contention of priority and deeper knowledge for the *Secret Doctrine*.

Where H.P.B. is still ahead of science is also in the fact repeatedly asserted by her, that every atom was a "soul," a Monad or Jiva, attracted to, and attracting other souls, in various ways, to produce, through what we call molecules or material sheaths, all the known forms of matter, thus justifying the further assertion that,

in occultism, atoms are called vibrations, also sound.

And one of the late wonderful achievements of Theosophy was the presentment by Mrs. Besant in *Lucifer* (November, 1895) of the formation, by complex vibrations, of the atoms of three well-known gases, oxygen, hydrogen and nitrogen, out of one identical vibrating point, or central vortex or "whirlwind," of Akâsa or Ether, which may be considered as the soul of every atom. So the outside forms of the complicated chemical molecules are only the vestment, the material body of those atomic souls; just as our complicated bodies are the mere vestments of our souls.

LIFE EVERYWHERE.—Another point on which Chemistry as well as Physiology will soon come to an agreement with the *Secret Doctrine*, is that life is everywhere, that in everything there is a soul force.

There is but one indivisible and absolute Omniscience and Intelligence in the Universe, and this thrills throughout every atom and infinitesimal point of the whole Kosmos, which has no bounds, and which people call Space (S.D. I., 298). Everything in the Universe, throughout all its Kingdoms, is CONSCIOUS, *i.e.*, endowed with a consciousness of its own kind and on its own plane of perception. We men must remember that simply because *we* do not perceive any signs of consciousness which we can recognise, say in stones, we have no right to say that no *consciousness exists there*. There is no such thing as either "dead" or "blind" matter, as there is no "blind" or "unconscious" Law (*id.* I., 295, also 553).

It has been stated before now that Occultism does not accept anything inorganic in the Kosmos. The expression employed by Science, "inorganic substance," means simply that the latent life slumbering in the molecules of so-called "inert matter" is incognisable. ALL IS LIFE, and every atom of even mineral dust is a *Life*, though beyond our comprehension and perception, because it is outside the range of the laws known to those who reject occultism,

“the very atoms,” says Tyndall, “seem instinct with a desire for Life” (*id.* I., 269, also 687).

The “*breath* of Heaven,” or rather the breath of Life, called in the *Bible* *Nephesh*, is in every animal, in every animate speck and in every mineral atom (*id.* I., 233). . . . Life precedes Form and Life survives the last *atom* (*id.* I., 65).

Wherever there is an atom of matter, a particle, or molecule, even in its most gaseous condition, there is life in it, however latent and unconscious (*id.* I., 278).

“Each particle—whether you call it organic or inorganic—is a Life.” (I. 281).

Now, by the side of this, let us hear what science is obliged to confess, and listen to the most prominent metallurgist of the times, Prof. Roberts-Austen, lecturer to the English Royal Institution, author of several authoritative text-books, such as the *Introduction to the Study of Metallurgy*. Speaking of certain phases of the life-history of the metals, which the old chemistry used to call “inorganic,” that is to say lifeless, he says that “metals and alloys really present close analogies to living organisms,” to such an extent that “future generations will speak of the evolution [the growth] of metals, as we now do of that of animals,” and will “turn to the sun as a place where such an evolution can best be studied.”

Miners and workers in metals have, at all times, entertained the idea of the “growth” of minerals; * for instance, workers in iron claim that beds of iron ore, hematite especially, abandoned after being apparently “worked out,” are again profitably worked after years of neglect during which the metal is said to have grown; the same thing has been said of copper mines (especially in the Lake Superior region), of silver and gold mines, and of diamond diggings. But it is a new departure for science to talk of the *evolution of inorganic* matter, and to say that “metals are *sensitive* things, almost *sentient* in their organisation, and strangely life-like in their behaviour !”

* The celebrated Linnæus expressed this idea in his known definition : “Stones grow, plants grow and feel, animals grow, feel and move.”

Then follows Prince Krapotkin, who, reviewing in a very interesting article (*Nineteenth Century*, February, 1897, "The Latest Metallurgic Discoveries"), says: "It becomes more and more apparent that a solid mass of metal is by no means an inert body, but that it also has its own inner life; its molecules are not dead specks of matter, but they *never cease* to move about, to change places, and to enter into new combinations." This is rendered very apparent by the study of the curiosities presented by alloys, which are "real worlds, almost as complicated as an organic cell," and which should be studied as "living organisms," in which the three states of matter—solid, liquid and gaseous—can, at any time, be found existing together, though unseen by our eyes. What a difference from the former theories about "dead matter!"

Science also now does not hesitate to admit what is called the "fatigue" of metallic substances. Barbers say that their razors have freaks of ill-will and refuse to cut, unless allowed some rest; engineers also assert that engines, sewing machines and other metallic objects subjected to great and constant strain, do get out of order, merely through becoming *tired* of their work. After the strain of a certain number of detonations, guns are rendered useless and wheels of railroad cars grow so weary of rolling that they suddenly collapse, causing a railroad "accident." Even metal wires, which have to carry continuous streams of electricity, have been ascertained to offer a continually increasing resistance to the current, this showing them susceptible of getting wearied, in a like manner as an over-strained human muscle or eye, so that similarly a time of rest becomes necessary for them to recuperate their power and regain their initial capacity for work. Lord Kelvin became interested enough in the fact to start a study of it and take measurements, whereby he ascertained that the working conductivity of telegraph wires subjected to heavy work, steadily diminishes from Monday to Saturday, while it recuperates through the Sunday inactivity, this showing the necessity of a day of rest even for inorganic substances used by man. One electric conductor, after

three weeks of idleness, was found to have its conductivity increased more than ten times. Now the fact that strain or work affects metals is a proof that they have life and even a kind of nervous and muscular capacity.

But not only are metals subject to fatigue, they are also afflicted by disease, and some German scientists, Heyn, Buhold and Bradig have made a speciality of the study of such diseases, through which they reached the conclusion that infection and contagion exist among metallic substances, another proof of life and its concomitant decay even among the most stolid of molecules. To this must be added the fact that certain metals also get sluggish and torpid from disuse—going to sleep as it were—while extremes of heat or cold will affect some more than others, similarly to the effect produced on certain human constitutions by differences of climate.

Nothing so far, however, has more lucidly and conclusively proved the existence of life—and of a kindred life—in all “inorganic” as well as “organic” matter, than the studies and experiments of the world-famed Hindu, Prof. Jagadish Chandra Bose, of the Calcutta University, whose lectures on the “Response in Living and Non-Living” and on the “Action of Drugs on Plants and Metals” have been analysed or reproduced by papers and read by scientists in every country. After first proving—by means of electric appliances producing self-registering diagrams*—that in vegetable substances, as in the animal, there is a pulse-beat, which can be increased, modified, or stopped by certain stimulants and poisons, such as electricity, alcohol, ether, chloroform, cocaine, cyanide of potassium or corrosive sublimate, and others, Dr. Bose has shown that the same effects from identical causes were not limited to the animal or vegetable, but were equally apparent in various classes of metals. So that all matter is proven capable of responding to external irritation; the same causes that produce nervous or muscular tremors or irritation in the human body produce similar effects in metals. A living plant or a metal can

* Prof. Bose also invented an “artificial eye,” by means of which he demonstrates the distinct responses of inorganic matter to impulses, such as ordinary light, the Hertzian waves and the Röntgen rays.

thus be excited, fatigued, depressed, poisoned, revived or definitively killed, after which no more response can be obtained from it than from a dead human body. Now, this property of irritability and of response to outside stimulus proves that the same kind of life is shared by all physical matter, the only difference being in the manifestations of consciousness—just as the *Secret Doctrine* teaches. From all this, there is only one conclusion : that the three so-called kingdoms of Nature, the animal, the vegetable and the mineral, are one in essence, so that the old physiological distinction between *organic* and *inorganic* matter—of which man and metal are only extreme types—was based upon a false and unscientific assumption. It seems also that, at last, there is in view one absolute, infallible and universal test for distinguishing between the living and the dead condition. One of the striking remarks made by Dr. Bose in respect to his discovery, is the following : “ It was when I came upon the mute witness of those self-made records and perceived in them one phase of pervading unity that bears within all things—the mote that quivers in ripples of light, the teeming life upon our Earth, and the radiant suns that shine above us ;—it was then that I understood for the first time a little of that message proclaimed by my ancestors, on the banks of the Ganges, thirty centuries ago : ‘ They who see but One in all the changing manifoldness of this universe, unto them belongs Eternal Truth, unto none else. ’ ”

About the same time when Prof. Bose was first starting the scientific world with his reports, another bewildering proof of the same fact—the unity of all life—was brought out by the experiments and discoveries of another student, Dr. Otto von Schrœn, Professor of Pathological Anatomy in Naples, who has found “ life in stones,” “ vital sparks in crystals,” (*Chicago Tribune*, May 9th and 16th, 1897). While this “ discovery ” is merely the old assertion of Theosophy that crystals are *living entities* just as much as all the other matter of the Universe (S.D., I. 80, II. 266), theosophists will be thankful for the fact that the learned professor—and his enthusiastic sponsor, Prof. E. von Holst, of the Chicago

University, wants to have 500,000 dollars spent to illuminate the discovery—has been willing to “spend money, talent and all the resources of science, aided by the powers of photography,” to show the “birth of a baby crystal separated from the mother crystal,” and to demonstrate “mortal loves and dislikes and tragedies of extermination enacted by portions of what to the naked eye were dead or inorganic substances”—in other words, to prove the very basic assertions of theosophic authority, that life is everywhere (S.D. I., 269).

Moreover, as Prof. von Schrœn came to his discovery through the study of “organic” and pathological crystals, which led him to examine also the “inorganic” crystallisation which he found working under the same laws,

—soft stones that hardened, hard plants that softened (S.D. II., 16, 594)—

he was further brought to conclude that all terrestrial crystallisation was a manifestation of *life-force*, thus merely confirming the previous announcement of H.P.B., who said, speaking of the occult teachings, how the mineral atom is transformed by crystallisation and that “it is the same function and”

bears the same relation to its so-called “inorganic” Upādhi, or basis as the formation of cells to their “organic” nuclei.* The whole trouble (for science) is this, neither physiologists nor pathologists will recognise that the cell-germinating substance, the cytoblastema, and the mother-lye from which crystals originate, are one and the same essence, save in differentiation for certain purposes (S.D. II., 267).†

* See also I., 661.

† E. D. Walker, who may be termed a theosophical writer, had already, ten years ago, written as follows: “We generally think of minerals as dead lumps of inactive matter; but they may truthfully be said to be alive, creatures of vital pulsations and separated into individuals as distinct as a pine in a forest, or tigers in a jungle; the disposition of crystals are as diverse as those of animals, they grow in size as long as they have opportunity; they can be killed too, though not as easily as an oak or a dog” Then came a Californian, Mr. Mason Kinne, who, by startling experiments, laid claim to have discovered Sex in mineral molecules, so that Prof. von Schrœn’s revelations are not, by any means, unprecedented even outside of theosophical literature. Mrs. Besant, in her *Ancient Wisdom* (page 245-6), also pointed out that it is the Second Life-wave that produces crystals.

In Professor Max Verworn's recent book, *General Physiology, An Outline of the Science of Life*, we also find this later admission: "a cell bathed by a nutrient fluid, for instance an epithelial cell absorbing material from the lumen of an intestine, cannot be better likened than to a crystal growing in its mother liquor, and drawing only its special substance from the common nutrient fluid." Thus again is the bridge drawn between the various natural kingdoms on the very lines of the *Secret Doctrine*. Then comes Sir Norman Lockyer, who says that: "in the likeness between the chemical composition of the protoplasmic cell and that of the hottest star, we have a new bond between man and the stars," thus going even further than H.P.B. It is profoundly interesting to find how many of the mysterious transformations in the life of the crystals, noted by the patient studies of Prof. Schroen, are exactly on lines hinted at years previously in the *Secret Doctrine* (I. 124, II. 123, 159, 167-8, etc. See also *Theosophical Review*, XXXI. 143).

For a time the scientific press as well as the sensational newspapers, went into ecstasies over von Schroen's discoveries, which were called "one of the most astonishing demonstrations of modern times, and to be classed only on a par with the great discovery of Darwin," which revolutionized all the previous scientific notions; but the reader of the *Secret Doctrine* finds in all this only one more corroboration of the occult teachings, one more "lifting of the veil,"* because all this is nothing else than true theosophical occultism, which recognises life in the mineral and describes its evolution, even asserting that the Human Monad has to pass through all the lowest kingdoms before it becomes man. And on this occultism the *Secret Doctrine* was based, though all our learned professors might be very unwilling to admit the identity of their ideas with it, and especially unwilling to admit that, however much they find out, they have yet as much more to learn from Theosophy. Nevertheless, to Otto

* He also remembers the "Marriage in the Mineral World," of the *Theosophical Siftings* (IV. No. 6), and the "Joys and Sorrows of the Atom" of G. E. Bailey (*Theosophy in Australia*, VI. 211).

von Schroen can also be applied what H.P.B. wrote of Sir William Crookes :

For now the chasm, between the Occult "superstitious and unscientific" teachings, and those of "exact" science, is completely bridged, and one, at least, of the few eminent chemists of the day is in the realm of the infinite possibilities of Occultism ! every new step he will take will bring him nearer and nearer to that mysterious Centre, from which radiate the innumerable paths that lead down Spirit into Matter, and which transforms the Gods and the living Monads into Man and Sentient Nature (S.D. I. 604).

And so it is. But from the general trend of scientific research, every day pushing deeper into the "invisible unknown," it can also be added that the "new" sciences will ever more confirm the fact which she proclaimed :

From Gods to men, from Worlds to atoms, from a Star to a rush-light, from the Sun to the vital heat of the meanest organic being—the world of Form and Existence is an immense chain, the links of which are all connected. The Law of Analogy is the first key to the world-problem, and these links have all to be studied co-ordinately in their occult relation to each other (*id.* I. 662).

RADIUM.—It will be convenient here to refer again to H.P.B.'s prediction about

Chemistry being one of the magicians of the future as well as to a few other assertions of hers :

(a) Electricity, magnetism, heat, light and chemical action are so little understood even now that fresh facts will be constantly widening the range of our knowledge (S.D. I. 354) ;

(b) The essence of cometary matter and of that which composes the stars is totally different from any of the chemical or physical characteristics with which the greatest chemists and physicists of the earth are familiar While the spectroscope has shown the probable* similarity (owing to "the chemical action of terrestrial light" upon the intercepted rays) of terrestrial and sidereal substance, the chemical actions peculiar to the variously progressed orbs of space, have not yet been detected, nor proven to be identical with those observed on our own planet (*id.* I. 654) ;

(c) There is a perpetual exchange taking place, in space, of molecules, or rather of atoms . . . (I. 166).

. . . so that many elements have not yet been discovered on earth.

(d) Matter has five known characteristics, extension, colour, motion, taste and smell ;

* The correctness and reliability of spectroscopic conclusions are beginning to be severely questioned by several progressive scientists, who argue that there is as much uncertainty in this department of scientific research—which was yesterday considered infallible and unassailable—as in all other scientific theories of this transitory period:

and all that is needed—to explain the passage of matter through matter—is the knowledge “of a sixth characteristic” not yet fully developed—“let us call it for the moment *permeability*” (*id.* I. 272), which presupposes the power to penetrate as well as that of being penetrated.

Now, if anything can offer a brilliant justification to the ideas contained in those quotations, it is Radium, the “revolutionist,” the “miracle,” as it has been termed, whose discovery is the most “astounding, epoch-making fact so far recorded.”

As everyone knows who reads, the discovery of the new metal Radium, in 1903, by Prof. Curie, of Paris, and his talented wife, was the ultimate result of the peculiar lines of research started by Sir W. Crookes’ studies on “Molecular Physics in High Vacua” (1890), which led to a recognition of the heretofore unknown property of “Radio-Activity,” of which something has been said in the previous chapter. Now, the peculiar, unique paradoxical properties of this new element, one of the heaviest known (Uranium-240, Radium-225, Gold-197-3), are producing a complete revolution in chemical views and ideas, showing as H.P.B. said, how much science does not know, and raising for the future, hopes which, a few years ago, would have been deemed mere superstitions or vain dreams.

So much has been published on Radium that description is unnecessary here; all that is needed for our purpose is a brief summary:

(a) Radium constantly produces and throws out energy, without apparently borrowing from anything and without appreciably losing anything of its own bulk.

(b) This expulsion of energy takes the form of electricity, three kinds of rays of extraordinary penetrative power, brilliant light, and heat (3° C above the surrounding atmosphere) without combustion*; all this being further

* The heat-producing capacity of Radium has already brought one of its investigators, Prof. E. Rutherford (Royal Institution, 1904), to the suggestion that, on account merely of the radium it contains, “the Earth must have been habitable as it now is, for many millions of years”—precisely what the *Secret Doctrine* claims.

accompanied by the throwing off of a heavy emanation—fluid or gas—(named by Prof. Ramsay “Ex-Radio”) which is also luminous, but only for a time.

(c) When the luminosity of Ex-Radio has disappeared, a much lighter gas, Helium, is found to have taken its place.

(d) Radium does not lose its power of emanation and of creating heat, even when plunged into liquid cold air; on the contrary, it acquires more power still when placed in liquid hydrogen.

(e) Radium manifestations are so powerful that they impart a temporary faculty of phosphorescence unto all the substances submitted to its rays, and the velocity and penetration of those rays are so great that the propelled ions pass with lightning rapidity through several feet of solid iron, so that they reduce to child's play the once-surprising powers of the X-Ray, while demonstrating the permeability of “solid” matter.

(f) Radium also produces physiological effects, principally burns difficult of healing, destruction of bacteria and morbid growths, a property which has already been taken advantage of by medicine for the treatment of certain skin diseases; it is even said that radium rays will restore the sensitiveness of the skin in lepers (*Radium in the Cure of Disease*,” by Dr. Rupert Wells.)

Radium, therefore, treats the chemists to the anomalous spectacle of a well-defined, heavy (Atomic Weight 225), apparently simple metal, with a characteristic spectrum of its own, continuously exuding from itself another, also well-defined, though lighter simple body, Ex-radio, atomic weight 160, accompanied by a storm of innumerable electrons producing light, heat and electricity; this other body, Ex-radio, with another display of electrons and energy, in turn transforming itself spontaneously into Helium, atom weight 4. And yet it has been calculated that, in spite of this continual dissociation, it would take the original atom of Radium a thousand years to exhaust itself!

It has been ascertained, however, that Radium is not an absolute exception in Nature, several other heavy

metals having been found with similar, though not quite so intense properties and characteristics. The nearest, so far (outside of the little known Radium brothers, Actinium and Polonium, which exist with it in the same pitch-blende), seems to be Thorium (*a.w.* = 233), which gives out, together with light and electrons, a radio-active derivative ThX, similar to ExR., and which also similarly changes spontaneously after a while into a gas similar to Argon (Prof. Rutherford and F. Sudd, *Transactions of the Chemical Society*, April and May, 1902).

The theory suggested so far—which seems to come the nearest to theosophical analysis—is that Radium holds an unknown power of “sub-atomic” change, *i.e.* that, in view of its containing such an extraordinary number of compressed radical electrons, or elementary electric atoms, it is forced to gradually disgorge some of them, part of which are set free and part manifest under the temporary agglomeration of Ex-radio, while from this again, some more are liberated when it passes into Helium (see *Broad Views*, January 1904). But it has also been supposed that radium possesses an exceptional faculty of assimilating some external unknown energy or radiation from space : *

Just so ! those forms of energy “which become evident” in the laboratory of the Chemist and Physicist

are not the only ones in existence,

but “there are other forms of energy,” wedded to “other forms” of matter, “which are supersensuous,” yet are known to the adepts (S.D. I., 636 note).

But science has still much to learn, and these uncommon properties of emanation have already suggested to Prof. Schuster a very pregnant remark : “We have passed,” he said “through fifty years, in which all the prominent

* Mr. Edison gave his opinion that radium shines, not so much by a luminance of its own, as by the incitement of a source of light superior to it, just as the tungstate of lime shines by the incitement of radium. “I believe it probable,” said he, “that there are rays of vibration in ether, set in motion from some unknown source, and that these rays make their presence known by their action in causing radium to emit light and heat.”

features of advance have been connected with the theory of *conservation* of energy, conservation of matter, conservation of electricity ; perhaps now we shall pass through fifty years in which the prominent feature will be *dissipation* of energy, of matter and electricity." Quite true and prophetic, and the Professor's mind may perhaps be led thereby to the occult idea of general dissociation or "pralaya," temporary rests for Spirit and Matter. Similar conclusions about dissipation, dissociation and pralaya are also found in Sir William Crookes' address, *Modern Views on Matter* (Berlin, 1903) ; in fact, everything that comes from Sir William Crookes ought to be read and assimilated by theosophical students. Such are, however, the revolutionary notions of contemporary chemistry, and if theosophy is as fully correct as its devoted students think it is, science will have to pass through many other revolutionary stages as years go by.

Sir William Ramsay already admits that the mysteries of Radium and its congeners, and the laws they foreshadow "will certainly affect the material future of the human race." That there is unlimited power in Radium is true, but also unlimited danger, for a bulk of that metal, of a couple of pounds in a room, would burn up and kill all life around ; fortunately it would need, so far, five thousand tons of pitch-blende, or of Uranium residues, to produce that amount, which, a couple of years ago, would have cost over £400,000. Still, chemists are beginning to find that radium is not quite so rare as it was at first supposed to be, but that it exists in many unsuspected places in minute quantities ; for instance it has just been discovered in the slime or mud of the thermal waters of Baden-Baden, thereby suddenly giving a great value to a refuse formerly considered worthless and cumbersome.

One more thing of interest for the student of Theosophy in radium is the demonstration by it of the enormous energy that Nature can compress into a small compass. When H.P.B. wrote of the possibility of applying the basic principles of Sound in such a way as to create a force, equivalent to "a million Niagaras" (S.D. I. 606), and capable "in the hands of some modern Attila to in

a few days reduce Europe to its primitive chaotic state," etc. (I. 614), the scientific world contemptuously smiled ; now it admits without question the accumulation of power in radium (through a few pounds of which, according to Sir William Crookes, the whole British fleet could be lifted up), probably not reflecting that the fact of one being possible shows that the other cannot be impossible, once the *modus faciendi* is known.

TRANSMUTATION OF METALS.—The most deadly blow to the old chemistry and the most important point for the future of the new chemistry, which results from the discovery of Radium, is a positive proof of the theoretical possibility of the old alchemical dream about the transmutation of metals (*Isis Unveiled*, I. 503 *et seq.*), which the French "Société Alchimique" has been courageously advocating for the last half-century. As Sir William Ramsay boldly remarked : "Here one element has been literally *seen* to *change* into another of quite different nature under the eyes of the experimenter. What is this but an actual case of that transmutation of one element into another in which the ancient alchemists believed, when they so painfully sought to change lead into gold ?" The alchemists were undoubtedly right in theory, if wrong in their processes (as we understand them, at any rate), and science will now have to confess as much. If all matter is compounded of the same basic ions, and if the various elements are simply the result of differences in the arrangement of these particles and in their compression into atomic weights, there was no such folly or delusion in Alchemy as was supposed by the over-wise scientists who ridiculed it without knowing it. Therefore it is not surprising that new "scientific" ideas should already be cautiously offered, to the effect that transmutation might be obtained more easily by working on metals which show decided family features, as shown in the septenary or lemniscate distribution of elements (S.D. I. 601, 639-640, II. 664). On these lines, Mr. T. Fettica already claims, not to have changed lead or copper into gold, it is true, but to have succeeded in changing near chemical relatives, Phosphorus, Arsenic and Antimony, one into the other. And strange to say,

a new pharmaceutical methyl preparation of Arsenic, *viz.* cacodyl, can be used in large doses without toxic effects, to replace phosphorus in cases of anæmia or very debilitated conditions, so that the question is asked: does cacodyl take the place of phosphorus, or is its arsenic transmuted into phosphorus in the body? (*Lancet*, December 29th, 1900). The old school of scientists are, of course, still very sceptical about transmutation, but truth will eventually win, and instead of being "Meta-chemistry" the science of the future will be "Meta-Alchemy." A few years back, Prof. Emmens, a prominent metallurgist, claimed to have changed silver into gold, and stated that "in the reduction of the silver, the molecules are so subdivided as to differ so materially from the metal, that they must be regarded as a *new substance*, parent, apparently, of *both* gold and silver, *i.e.*, the raw material out of which either gold or silver is constructed.

. This new metallic substance can be aggregated into molecules of greater density than silver, and corresponding to gold in colour and weight." This is an occult theory, chemical bodies differing only by the number and position of the ultimate atoms; but the *Jeweller's Review* said, further, that while Prof. Emmens succeeded in making four ounces of gold out of six of silver, yet the cost of the operation was prohibitive. Prof. Emmens himself stated that his process of conversion, which was submitted to Sir William Crookes, was essentially based on combining chemical action with intense cold and intense pressure. He claimed to have sold to the U.S. Mint gold manufactured by him, and intended to start a special laboratory in Staten Island (New York), the *Argentaurum*, to work it out practically. If this be true, then from this to making gold out of lead, as it was asserted possible years ago by French chemists, there is only a step, after which our chemists will have to revise the number of their "elements," and bring them back to the element *One* of occultism. (S.D. I. 145.)

Dr. Emmens seems to have dropped out of sight, but another American, Prof. R. M. Hunter, a noted inventor, now steps in to take Emmens' place. He announces the building in Philadelphia of a factory costing

over 500,000 dollars, which will produce gold from silver by the ton ; and a society with twenty-five million dollars is backing him. Though his process is kept secret, yet he acknowledges that it was inspired by the latest developments in chemistry and is essentially based on chemical reaction produced under powerful electric currents combined with intense pressure ; in a word, very similar to that claimed by Emmens. The future will tell whether Prof. Hunter will be more successful than his predecessors or, in other words, whether, like Keeley, he will not be allowed, by the over-ruling powers, to carry out his enterprises ; his success seems to us very doubtful, since his unlimited transmutation would capsize the world's currency. Are the times ripe for such a revolution any more than they were for Keeley's dynaspheric force ?

Radium seems to be destined to bring to the knowledge of the Twentieth Century, more than a proof of transmutation by its own behaviour. The latest reports show Radium giving us another most startling and unexpected proof, if not of actual transmutation, at least of transformation of even stones, one into another, through the faculty it possesses of changing the colours and properties of gems, transforming corindon into topaz or ruby, and ruby itself into sapphire or emerald, as just shown by Prof. Bordas to the Paris "Académie des Sciences," (Nov. 1907). This amazing property of Radium had already been noticed, before his death, by the great French Chemist, Berthelot, who was constrained by it to say that "the curious colours of gems are evidently due to the influence of certain radio-active substances," *a fact which seems to have been known even to Aristotle*, but which now opens new vistas into the mysteries of evolution in the inorganic kingdom.

In connection with the problems of transmutation and of the changes in the appearance and properties of the elements that can be obtained through a modification in the position of the electrons that compose them, it may be well to quote a discovery of Edison, which was perhaps less of a surprise to theosophical students than to the scientific world, *viz.* : a new method of casting pure copper of unexpected and superior quality, resulting

from a change in the atomic structure of the metal, by which the shape of the atomic crystals has been altered "so that their lines have become parallel, the molecules thus being brought closer together, and in more intimate contact with each other," or, in other words, lessening the volume of free Ether between each atom.

Students of the *Secret Doctrine* know what importance was attached in that work to the septenary law, especially in its bearing on the formation of the elements, and the slow but uniform variations in characteristics that follow the development of that law. The matter was specially studied by the Russian, Mendeleef, the German, Lothar Meyer, and the English, Reynolds and Newlands, the crowning studies thereon being made by Sir William Crookes. Of late, the German, Wolf (*Metaphysische Runschau*, February, 1897), has been led to consider that the septenary law, in connection with the genesis of metals, was a little more complicated than is usually admitted, and after working it under the law of "magical squares," he came to the conclusion that the formula was really a spiral of twice seven plus three, or seventeen in all, which, curiously enough, Sir William Ramsay recently put at sixteen. There is no doubt, however, for the theosophist, that seventeen is only an occult modification of seven, and the chemical classification through it, has enabled science to suggest where gaps in the periodicity must indicate elements yet undiscovered. Thus were found the new gases, discovered by Lord Raleigh and Sir William Ramsay, *viz.* : Argon first, then Helium and successively Krypton, Xenon and Neon, which created such a stir in the chemical world, while other elements in various other families, still call for a discoverer.

Moreover this leads to another consideration :

When the atmosphere we breathe, formerly supposed to be formed of a mixture of two gases only (Oxygen and Nitrogen) had been shown to contain also another gas—the newly-discovered Argon—together with a compound form of carbon (making four in all) we were led to infer (*Sc. Cor.* 4th Edition, page 15),—if the laws of analogy were to hold good—that there was no reason why the air should not ultimately be found a mixture of seven

gases, and not four only. With the discovery of the other new gases, all of which are found in the air, although so far in very minute proportions, this inference has been realised (as acknowledged by Prof. Hann of Vienna*) though we must not forget that the *Secret Doctrine* also teaches that air is simply *differentiated* and *compound* Ether (I. 582-583). which is perfectly correct, since, according to the new chemistry, all elements are only differentiated electrons, or etheric atoms, so that the seven gases in the ocean we call air come from *one* radical matter. More than this even, it can be assumed that our Air is nothing else than the physical emanation or *aura* of the great living Entity we call Earth.

This brings to our memory a bold assertion of H.P.B., that

our purest *water* would be found to yield, instead of its two declared *simple* elements, oxygen and hydrogen, many other constituents, undreamed of by our terrestrial modern chemistry (S.D. I., 592).

How soon will this prediction be verified by the New Chemistry?

* One unexpected result of these new views concerning the constitution of the air, is that it is not of uniform composition at all altitudes, as assumed by the old chemistry; according to the new ideas, the atmosphere's density grows lighter with the increase of height, so that towards the highest limits, oxygen and nitrogen, with the other heavy gases, have entirely disappeared, hydrogen taking their place, with a little helium left. Moreover, the studies of Profs. Liveiny and Dewar have brought to our knowledge the existence of a large number of unknown spectroscopic lines in the air, which point to "an interchange of light gases between the atmosphere and outside space. . . . The lines thus far observed suggest the presence in the air of traces of an unknown gas existing in the nebulae, and possibly of a coronal substance, but give no certain indications of anything connected with the aurora," just as asserted by H.P.B. eighteen years ago (S.D. I. 638).

CHAPTER III.

PHYSIOLOGY.

Coming to the next "magician of the future," H.P.B. stated that

as regards the purely animal and material portion of man, science is on its way to discoveries that will go far towards corroborating the theory or rather the

occult doctrine that our bodies, as well as those of animals, plants and stones are themselves altogether built up of

bacteria of a hundred various kinds.

These bacteria

with the exception of the larger species, no microscope can detect. The physical and chemical constituents of all being found to be identical, Chemical Science may well say that there is no difference between the matter which composes the ox and that which forms man. But the Occult doctrine is far more explicit. It says: Not only the chemical compounds are the same, but the same infinitesimal *invisible* lives compose the atoms of the bodies of the mountain and daisy, of man and the ant, of the elephant and of the tree which shelters it from the Sun. Each particle—whether you call it organic or inorganic—is a Life (S.D. I., 281).

Now Physiology, within the last quarter of a century, has reluctantly come to admit the identity in ultimate chemical composition, the identity in motion, vibration, or life, and even in response to stimuli between the so-called organic and inorganic world; or, as H.P.B. said, "between the rock and man." And each subsequent discovery of physiology truly brings this science ever nearer to occultism. It is even ready to concede that every cell (so-called) of our bodies has a life, an independent consciousness of its own; and that certain cells assume the character of separate living entities with well-defined missions, these entities, or corpuscles, microbes or bacteria, being by science called leucocytes,

lymphocytes, phagocytes, erythrocytes, or other names, and by occultism, according to H.P.B., "fiery lives," "builders" and "devourers." Our bodies are made of them and filled with them (S.D. I., 281-283); our own life depends on the existence of these various entities, and pathology is growing so far ready to admit, not only the existence, but even the peculiar functions of some of those builders and devourers, that quite recently one of the medical papers contained this admission: That the best way for medicine to fight sickness is by helping the blood to produce, not only the builders or phagocytes, but especially the devourers or leucocytes in sufficient abundance and with sufficient rapidity to fight the foreign germs whose introduction in the system causes disease, so as to destroy them before they have time to multiply in our body. Thus, these leucocytes have been aptly termed the "policemen" of our organism; they have a faculty of penetrability and pass through the tissues, from one organ to another, wherever their presence is required to devour intruders; the only difficulty in relation to the above medical suggestion is that these devourers having a wonderful appetite, after they have accomplished their mission of doing away with foreign germs, and finding nothing more to eat, they are apt, if too abundant, to turn around and destroy the very tissues they were intended to protect, thus causing disease in their turn, or, in the words of the S.D., the builders become destroyers (I. 283). All these curious facts, and many more, are gradually being recognized by medical science, since the *Secret Doctrine* registered the fact of their existence and described their properties. And the peculiar motions, habits and appetites, likes and dislikes—which show that these "lives," these "specks of protoplasm," are really imbued with a peculiar consciousness—their whole existence, in fact, have been studied *con amore* by the Russian Metchnikoff, and recorded in an interesting scientific work, Binet's *Psychic Life of Micro-Organisms*, which shows that H.P.B. was correct in asserting that

everything in the Universe . . . is endowed with a consciousness of its own kind (S.D. I., 295).

Lately we have been reaching out even farther still, on the lines of the *Secret Doctrine*. In effect, microbes and bacteria, after being treated by science as only intruders (S.D. I., 245) and enemies, causing every imaginable disease, are gradually recognized as also the cause of every life, and their systematic multiplication is being even admitted as necessary to the farmer for making his best butter or cheese, and fertilizing his soils (Dr. Wiley, U.S. Agricultural Chemist. See also various numbers of *Scientific American*). Thus, after having been scientifically studied and cultured in order to facilitate their extermination as our enemies, microbes and bacteria are now being just as systematically cultured as our friends, to help man in his wants and build up his life.

We also have another recent and probably unconscious demonstration in the medical world of the theosophical theory of an independent life for every molecule and atom in general, and in particular for every atom (or separate life) in man's body—with a consciousness and power of conscious action quite independent of that of the central Ego. This fact is the added importance given to the nervous system in general which Prof. Loeb, of Chicago, says is formed of gelatinous cells which act as batteries through which electrical discharges take place; and especially to the *neuron*, "one of the countless number of units of which the nervous system is composed, each neuron being formed of a cell and a series of processes." (Ganeas, *Medical Dictionary*.) Observations started independently by the German Rabl-Ruckard, in 1890, and the French Lepine and M. Duval, in 1894, have led such medical authorities as Drs. Azoulay and Pepin in France and A. O. Kelly and the well-known Prof. F. X. Dercum in America (*Trans. Philadelphia C. Med. Soc.*, 1896-97) to admit that each neuron or nerve cell, not only has a special and full power of motion, direct and lateral like the *amœbæ*, but that its accessories, the arborescent and plumed collaterals, the dendrites, the axons, the brushlike endtufts, etc., can also extend and retract, and, to a certain extent, change places, so as to interfere with or interrupt the flow of the vital nervous fluid through which are carried the sensations

to the centre and the volitional control of motion to the periphery. And this hitherto unknown faculty of the neuron immediately leads the scientist to a new theory, with very plausible explanations of many hitherto unexplainable nervous actions which are beyond the control of the Ego's consciousness and will-power, such as: hysterical paralysis, pathological unconsciousness after blows, the mechanism of sleep, the power of sight and hearing to register (as it were automatically) phenomena not perceived by the direct consciousness of the Ego, thereby elucidating unconscious memory, automatism, delusions, and perhaps even the true rationale of hypnotism and suggestion. But all these results, in connection with the atoms of nerve matter, cannot help leading the materialists to admit also that all the atoms of our other tissues must similarly enjoy their own special consciousness; of which the—to us unconscious—faculty of our stomach and liver to discriminate in the matter of foods, is only one example. Thus is the *Secret Doctrine* once more vindicated. Moreover, discoveries such as these can merely tend, as a theosophical friend expressed it, to "give evidence of the conscious direction which is now being given to the whole thoughts and writings of the age," in harmony with our occult teachings, for it is also

evident that the nerve in itself, and in spite of its inherent consciousness, is an inert body, until played upon by vibrations coming to it, either from the outside, as in concrete feeling, or from the higher planes of spirit and mind, as in abstract thinking;

hence, in this last case, there must be a "soul" or spirit—and not a "plastidular" one—to start the vibration. (S.D., III., 509.)

Prof. Bose has done much to confirm the occult assertion of the unity of sensation between the three kingdoms of nature, as mentioned in the preceding chapter. His experiments tend, moreover, to prove that even metals have physiological properties and are endowed with a kind of nervous system that thrills under outside impact; and several independent observers have been, for some time back, talking of the *nerves* of plants,

rudimentary it may be, yet quite recognisable. As H.P.B. said :

Where is that daring man who would presume to deny to vegetation and even to minerals, a *consciousness of their own*. All he can say is, that this consciousness is beyond his comprehension (S.D. I., 298).

In the *Pall Mall Magazine* (May, 1902), Mr. Marcus Reed presented some very interesting studies of "Consciousness in Vegetable Matter," in which he showed, through microscopical observations, that when the tissue of a plant is injured, symptoms are plainly visible as of fright and pain. He has also seen male and female cells, while floating in the sap, become aware of each other's presence and put out feelers or processes towards each other, while the circulation perceptibly quickens. Mr. Etard, of the Paris Academy, some years ago studied chlorophyll—which in plants corresponds to the red corpuscles of the blood, while the sap corresponds to the serum—and was able to show that different species of plants have each various chlorophylls differing from those of other kinds : "Each plant," he said "requires a certain number of different chlorophylls to catch up and hold captive the heat and light rays, by means of special 'bands of absorption,' which select for every molecular change the particular heat and light waves that suit them best." And this selection, says Mr. Etard, "plainly shows *intelligent* action."

But now the foremost medical men of the age, American, French and even English biologists, are beginning to realize that, as the *Secret Doctrine* puts it, "mind and life *precede* material organism." So that one of their representatives, Prof. Cope, sustained by Prof. Mellone, of Edinburgh, lately said that "the entire process of ascending evolution appears to be dependent on the presence of mind, *i.e.*, consciousness, in gradually more complex stages." And the same is shown in Geddes and Thompson's *Evolution of Sex*. Thus are medicine, biology, physiology and even anatomy, "discovering," as new facts, what the Old Wisdom taught ages ago.

A curious illustration of this was lately found outside of theosophical publications : A very recent admission of

medical science, as a result of some very extensive researches, is to the effect that the propagation of many diseases is due to flea and especially to mosquito bites ; malaria and yellow fever particularly have just been demonstrated to result from mosquito inoculation ; hence at present, a general crusade the world over, against these dipteræ. Now Sir H. A. Blake, late Governor of Ceylon, stated, at a recent meeting of the Asiatic Society, that Singalese medical books of the 6th century, described 67 varieties of mosquitoes and 424 kinds of fevers, malarial and others, caused by them.

This is only one more instance that our "discoveries" are merely *re-discoveries* of the ancient and forgotten knowledge, to the existence and records of which theosophical writings so often refer.

Even the austere *Lancet* brings us a scientific contribution on the same lines, this being on the "thread" which theosophy describes as making the connection between our dense and etheric bodies, linking them still together when one passes out of the other, and the breaking of which produces death. "If anybody watches closely the last few spasmodic gasps of the dying," says Dr. D. Ferguson, "he will hear in most cases a peculiar snap in the region of the head ; it is not loud but it can be plainly heard if listened for ; what this may be owing to I cannot say, but can only vouch for the case, though I have never heard of it being taken notice of in any medical literature. . . ." Thus our materialistic physicians acknowledge that as yet they do not know anything about what the wisdom of the ancients very properly called the "thread of life." But then there are so many other facts of death and of life also that fail to be noticed in current medical literature, that this only shows again how much our physicians have to learn regarding the constitution of man.

Another instance. Readers of theosophical books know the importance attributed therein to the two mysterious organs, the Pituitary Body and the Pineal Gland—this last especially (S.D., II., 126, 308-313, 315, III., 504 to 507 and 577). Now we hear of two French authorities, the Drs. Sajous and Crille, who declare

that the Pituitary Body is the ruling agent in health, by controlling the oxygenation of the blood and the action of certain medicines (*Science Siftings*, June, 1903). This may or may not be the case, but it is interesting to the student of Theosophy that these men should have tried to rehabilitate that occult organ, which is the organ of the Psychic Plane (S.D., III., 548). And this recalls the fact that another Frenchman, Descartes, nearly 300 years ago, was intuitional enough to state that

the Pineal Gland was the seat of the Soul (S.D. II., 311).

Nevertheless, up to the present time, the materialistic medical authorities continue to characterise the two organs as "atrophied glands" or "useless excrescences."

Such are a few illustrations of how Physiology fulfils the prophecy of H.P.B. But H.P.B. did more than announce how certain sciences would be developed on occult lines; she also said where scientific men of the old schools would be unsuccessful. For instance, the favourite hobby of certain scientists, *i.e.*, the "missing link" between man and his supposed forefather, the anthropoid monkey, has not yet been, and will not be discovered, because, as boldly asserted in the *Secret Doctrine*, these apes descend from primitive man, and not the reverse (S.D. II., 195, 724, *et seq.*, see also under *Ape* in Index); and remains of primitive man will *not* be found, because man had only a vapoury astral, boneless body (S.D. II., 128-311) in "the beginning," that is to say before cyclic evolutions had brought him down to those stages mentioned in the Bible, when Jehovah Elohim gave him "coats of skin" (solidification of physical body), "and created him male and female" (separation of sexes.)

This assertion, that the Apes are "degenerate descendants of the earliest man of the third and fourth Races, by crossings with huge mammals now extinct" (S.D. II., 22), has been a subject for unending ridicule from many so-called scientists and pseudo-darwinists (S.D. I., 325). But at the Congress of German Anthropologists at Halle in 1900, Prof. Klaatsch, of Heidelberg, from purely anatomical observations on the muscles of the thigh, declared that "the hypothesis of

the direct descent of man from apes can no longer be maintained" and that "apes are degenerate forms."

In addition to this, another German, Prof. Hœckel, recently gave the result of his researches, as against the theories of Darwin and Hæckel, and concludes emphatically that man "is not an improved or civilised ape, but that the ape is a degenerate man." Similar ideas can also be found in Friedenthal's studies (*Arch. für Anatomie und Physiologie*, 1900, *heft* 5-6).

Another scientific theory that H.P.B. handled rather roughly, in spite of its being at the time a favourite axiom, was that of Natural Selection (S.D. II., 195, 683-685, etc.). This doctrine, she said, though partly correct, would have to be greatly modified ; but

the day *may* come when in its
ultimate modification,

it will

form only a *part* of our Eastern doctrine of Evolution (I., 657) ;
natural selection is a pure myth when credited with the origination
of variations the true solution of the mystery is to
be found in the impersonal Divine Wisdom in its ideation reflected
through matter (II., 313, footnote).

How poor H.P.B. was blamed for such "unscientific" theories ! Since then, however, the deserters from Darwin have been growing daily more numerous, and, in the *Contemporary Review* (July, 1902), Mr. J. B. Johnston wrote a very forcible article, in which he showed that "the proved influence of Natural Selection is being written down as *less and less* every day," especially on the uncontrovertible evidences brought forth by the recent progress of Paleontology ; "the influence of natural selection on either the secondary or the tertiary mammals seems to have been quite trivial and unimportant and paleontology proclaims it emphatically as of quite minor importance. . . . It is the *inward powers* of adaptation that are and have always been the *chief* factor of evolution," or, theosophically speaking, evolution takes place under the laws and "ideal designs of the hosts of divine, human and sub-human builders," not through the uncertain chances of fortuitous selection. And thus is our teacher again justified.

In connection with what might be termed the physiology of the invisible, the *Secret Doctrine* refers in many places to a partly correct theory of a "nervous ether" or aura, formulated some years since in the *Popular Science Review* by Dr. B. W. Richardson. The recent studies on the new "X" and other Rays have indicated that every part of the nervous system of man emits radiations similar to the "N" Rays, which can be rendered visible by the use of a fluorescent screen, though this has been denied by those whose power of sight is deficient. The eminent French scientist, J. Becquerel and the American, Prof. E. Gates, are also reported as having even produced, from dying rats placed in vacuum, the emission of a strong flow of "N" Rays from the spinal column and medulla oblongata. Some sensational papers contended that it was the *soul* itself that was thus rendered visible, but theosophists know better. It has been suggested that this discharge is due to the fact that, at the moment of death, the Etheric Body of the animal, separating itself from the physical, is illumined and rendered temporarily visible by the electricity of the apparatus, after which it vanishes by rising to its proper plane. At any rate, on these lines, interesting developments may be anticipated from the new science, not only for making visible the Etheric Body, but also the various Auras.

Theosophy has always claimed that we, as well as all things animate and inanimate and the earth itself, are enveloped, surrounded by a very complex, yet subtle, emanation, which—to the clairvoyant eye—is not only luminous, but tinted with the most variegated colours, these colours indicating our constitution, our passions, our ideas.

The *Secret Doctrine* refers to this in various places—while it had already been mentioned by Reichenbach—and several members of the Theosophical Society have made it the subject of special studies, which inspired articles by Messrs. Sinnett, Elliott and Leadbeater and Mrs. Besant (*Transactions of the London Lodge*, 18, 21; *Theosophist*, XVII., 134; *Theosophical Review*, XVII., XVIII.), and also a pamphlet, for the publishing of

which the present writer was responsible,* followed by Mr. Leadbeater's *Man Visible and Invisible*. Of course, materialistic scientists, who are so far from being gifted with clairvoyant vision—since materialistic tendencies destroy psychic faculties—and who, consequently, cannot see any man or woman's aura, boldly denied its existence *in toto*. Yet here again science has been obliged to bow to the esoteric teachings. Among other proofs, the photographic camera—that little instrument which cannot lie (as an enthusiast expressed it), and which has already revealed so many things which were imperceptible even with the help of the microscope and telescope, the little fairy who has given us the picture of millions of stars whose light does not affect our vision or manifest through our other instruments—the camera came forward to certify to the existence of the aura. A specialist in Paris, Dr. Baraduc, after special study in the matter, obtained a series of beautiful photographs, some of which have been published in a very curious book,† in which the auras of various persons are clearly imprinted with variations due to the tendencies or passions ideas and emotions of the subject (*Theosophist*, XVII., I. 182; *Lucifer*, XVII., October; *Theosophy in Australia*, 102); and Dr. Baraduc's later studies bring him ever nearer to our theosophical assertions, while a legion of French, Russian and German photographers, following in his footsteps, are now trying to catch in their cameras thought-forms and other things invisible to the ordinary eye.

Moreover, at nearly the same time, an American psychologist, Prof. E. Gates, reported: 1st, that the material emanations of the living body, or lower auras, differ according to the states of the mind, as well as to the conditions of the physical health; 2nd, that these emanations can be tested by the chemical reactions of some salts of selenium; 3rd, that these reactions are

* *The Human Aura*, by A. Marques and McElroy, with coloured and black illustrations, San Francisco, Mercury Publishing Co. Now out of print.

† *L'Âme Humaine, ses mouvements, ses lumières et l'Iconographie de l'Invisible Fluidique*, Dr. H. Baraduc, Paris, G. Carré, 1896.

characterized by various tints or colours, according to the nature of the mental impressions ; 4th, that forty different "emotion" products, as he calls them, have already been thus obtained (*Metaphysical Review*, 1896). Here is another confirmation of occult assertions by scientific authority.

Other students, outside of the Theosophical Society, are now taking up the investigation of Auras. One, Mrs. Margaret Gladstone Stuart, a grand-niece of the English statesman, after being accidentally blinded for years, found, when her sight was restored, that she had developed, the faculty of seeing all kinds of auras and she was lately reported as electrifying the "upper four hundred" in New York and in Newark with her wonderful insight. According to a report found in *Science Siftings* (1904), the interpretation given to psychic colours by Mrs. Stuart, seems to be very similar to that found in theosophical publications. Another privileged seer, Dr. Stenson Hooker, of 7, Bickenhall Mansions, London, has been studying human auras for years and has a large volume of tabulated cases ; he is also able to visualise the psychic colours belonging to individuals through letters or other objects pertaining to them. In spite of his exceptional faculty, Dr. Hooker has been ridiculed by those who cannot see, and a certain pseudo-scientist was presumptuous enough to say that such studies, being entirely "subjective," were utterly "useless." The same, however, might be said of that "Scientist's" mind and intellect.

Nevertheless, it will be now no longer possible to sneer at theosophy's scientific description of the human aura and its variations, which show the spiritual man in his true nakedness, just as Röntgen's X-ray shows the nakedness of the skeleton. Admitting that there is a growing number of sensitives who can perceive this aura, there can be but one result. All hypocrisy and crime will be vain when man is able to see every other man just as he really is, not as he tries to appear. Dr. Hooker is very emphatic in the opinion that the study of Auras, like that of other psychic matters, ought to be attempted with extreme caution, and left severely

alone by all neurotic, unbalanced, or weak-minded persons. Moreover, it will require caution to avoid misconceptions, as the following example will show :

The Rev. Henry Frank is a well-known Independent clergyman of New York, who, in his Metropolitan Church, carries on a most liberal form of religious worship. The extent of his broad-mindedness is best seen in the nature of the sermons he delivers—many of which are full of the best kind of theosophy—and by several very pungent articles he has contributed to various reviews. Lately the Rev. Mr. Frank has gone into another subject. Basing his opinion on the recent studies of Dr. Lionel Beale, a microscopist and physiologist of some repute, he attempted in two pamphlets to prove physically and scientifically the Existence and Immortality of the Soul. His argument is based on the fact lately ascertained by science, that “the physical body is interpenetrated by an invisible living matter,” provisionally called “Bioplasm,” which can be made visible by the use of an ammoniacal solution of carmine, and which is described—always scientifically—as “an indwelling, perfectly outlined, transparent, colourless, and invisible body—the Physical Basis of the Soul—of which we are at no time conscious, yet which exists as the exact, invisible counterpart of our consciously visible bodies.” All this is perfectly correct, and Theosophists will at once recognise in this invisible “bioplasmic” counterpart of our bodies, what their literature has made known and described for the past twenty-five years as the second lower sheath or principle of man, or the Etheric Double—formerly called *linga sharira*—on which the material body is built. We are, therefore, most thankful to science, to Dr. Beale and to the Rev. Henry Frank for thus confirming the theosophical teachings. But where the sympathetic writer rushes into imprudent deductions is when he wants to argue that this “bioplasmic” body is the *Soul* itself, an idea he tries to fortify by psychological evidences. He therein falls into exactly the same error as Dr. Baraduc did, when this scientist successfully discovered scientific appliances for detecting and photographing the living Prana, or vital body, the various lower Auras,

and that same Etheric Double of man. All these Dr. Baraduc also claimed were the Soul. But, as Mrs. Besant says, the Soul is perceptible to the Soul alone, not to physical senses and physical appliances, and though "Bioplasm" corroborates the theosophical tenet of the various "sheaths" of the Soul, it is far from being the Soul itself, and we regret the Rev. Mr. Frank's hasty conclusions, which a better knowledge of man's 'Principles,' as enumerated in theosophical literature, would have enabled him to rectify.

At any rate, such facts as the X-ray will certainly be, to use H.P.B.'s words, "a death-blow to the old materialistic theories," for, if there is in Nature an "invisible light" capable of penetrating through the densest matter, why cannot the Human Soul—which is the essence of "invisible" light—also be able to pass through matter, thus justifying and explaining clairvoyance and hypnotic penetration? And in connection with this idea, another singular thing has been made patent by the X-ray, *viz.*: that, while glass is the most transparent, pervious, of all material substances to the ordinary light, it is one of the most impervious to the X-ray, as it also is to the human psychic consciousness. It is a fact known to all mesmerists, magnetizers and hypnotists, that the soul-consciousness of a person placed in a magnetic trance can permeate through nearly all matter, except glass. In the writer's own experiments, he has never been able to make the consciousness of a magnetized subject pass through a sheet or a vessel of glass, it has to go around it. This would seem to indicate a certain unknown relationship between the nature of the new X-ray and that of the soul or its sheaths, and this fact is now attracting the attention of students.

One thing is sure, however, *viz.*: that, by entering practically on the heretofore ridiculed field of Ether, and by showing that material electricity can be used for telegraphing without wires, there can henceforth be no more denial that man's brain-electricity can also be used so as to make of thought-transference a scientific axiom, and the latest researches in the field of radio-activity bring their contingent of support to that idea.

This we say in reference especially to the discovery that the human body is radio-active, that is to say, throws off various radiations or emanations which—as said herein above—can be rendered visible by the screens devised for the study of radio-activity. One of these radiations, which has been compared to the N-rays, accompanies all muscular and nervous motion (*see S.D. III., 511*), to this extent that even the various centres of action in the head get clearly more luminous, or throw off more rays, when in a state of activity, than when they are passive. The act of thinking is therefore marked by corresponding emissions of rays, so that the discoverers argue that “there is no reason why these rays should not influence, through the law of sympathetic vibrations, the corresponding centres in other brains,” which may come within the sphere of their radiation. And here we see no less a scientific star than Sir William Crookes, corroborated by such another authority as Sir Oliver Lodge, come out boldly with a new Brain-Wave Theory, built upon an elaborate calculation of the vibrations which produce sound, heat and light. He shows, as quite possible, that “intense thought concentrated by one person upon another with whom he is in close sympathy (in other words two brains acting as Marconi’s *exciter* and *receiver*) should induce a telepathic chain along which the brain-waves should go straight to their goal without loss of energy due to distance”; and he thinks that shortly the matter will be submitted to such experimental tests “that no scientific man shall be able either to wilfully shut his eyes, or to stand deliberately aloof from the ‘worlds not yet realized.’”

Coming from such world-known authorities, the matter has produced a profound sensation everywhere; yet, for the theosophist, it is a mere straw in the wind, showing the fulfilment of the predictions found in the *Secret Doctrine*, about the events to be expected within the new century. Although here again, Theosophy goes a little further, and claims that individual thoughts go to swell immense waves of collective thought, which finally influence the whole race.

One of the fundamental tenets of theosophical teaching

is, that we must get knowledge by direct effort and personal study or research, and that we have in ourselves latent faculties, which can be developed by proper training (S.D. III., 575), and which, if properly cultivated, may enable us to reach first-hand knowledge on any subject to which we wish to devote our study. The key to the development of these inner faculties is through a regular and wise course of what is called meditation, concentration and contemplation (also yoga, samādhi and trance) (S.D. II., 648, III., 490, 502), through which the mind is forced back into the Inner Self, and the brain organs are especially exercised and strengthened. A corroboration of this assertion comes from the Paris Académie des Sciences, before whom a blind man, Dr. Javal, denied vigorously that nature compensates blindness by increased sensibility of touch and hearing. "In a blind person," he said, "what occurs is rather the extra development of a new sense—the Sixth Sense" (S.D. I., 278, III., 505), "which is latent in most persons," but which he calls the "sense of obstacles." Just as the peculiar exercise given to that sense through the failure of sight, brings it out and procures thereby to the man, a faculty for knowledge compensating for his infirmity, so, developed in a different manner, the same sense would bring out psychic or astral clairvoyance.

With the new tendencies of Science, Physiology, in many points, has had to make room for Psychology :

more and more as science advances, the psychic will be reached and understood (S.D. III., 542) ;

and while Theosophy has always been foremost in proclaiming the over-powering influence of Mind—which reaches, in the Adept, the extremes of *Kriyasakti* (see reference in Index, also III., 467), or the faculty of creation from universal matter by the sole use of will and mind—we witness the dominance of mind gradually admitted outside of Theosophy, and, in its lesser forms, represented by Christian Science and Mental Healing or Mind Cure, etc. (*id.* III., 490). But science itself, through its highest representatives, is coming to recognise the supremacy of mind, and we see Sir Oliver Lodge

(Birmingham address, 1904) laying down the axiom that "all matter is only the instrument and vehicle of *mind*." (Theosophy says *spirit*) and that "matter exists only in a state of incarnation," (*i.e.*, as a *sheath* for life, theosophically speaking); and to this, Mr. Balfour (Presidential address to the British Association, 1904) added that "until five years ago, man had lived under the illusion that the things he saw, felt and handled, were plain matter-of-fact," but, to speak broadly, "now science declares them to be *illusions*

[the whole of the objective Universe and everything in it is only *Maya*, temporary illusion (S.D. I., 294)]

and regards the very stones on which we tread as vehicles of mind and sensitive embodiments."

As anyone can see, nothing can come nearer to a plagiarism of the *Secret Doctrine*—unconscious though it may be—than these utterances of official science. Thus we note how completely the wheel has swung a full circle from the materialistic views of the 19th century positivism, so ridiculed by H.P.B., to perhaps the other extreme of exaggerated psychism. Only a few years ago, every emotion and feeling was ascribed to a physical cause, the physical brain being the sole originator of all life, thought and intelligence. Now everything is regarded as psychic, and psychology, the newest, is becoming the first of sciences, while ascribing all physical effects to mental causes.

The great importance attributed in theosophical writings to vibrations in general, and to those of Sound and Light in particular, seems to have already been the indirect cause of two new medical departments, one being "Chromopathy," or the application of colours to the treatment of diseases, of which the late Dr. Babbitt, of Los Angeles, and the Norwegian *protégé* of Queen Alexandra, Dr. Finsen, are the principal exponents; and "Musical Therapeutics," already adopted in a large number of sanatoria in the United States, whereby music adapted to the *key-note* of the patient's personal vibrations, is used with great benefit. H.P.B. herself acknowledged to have been three times restored to life through the power of sound (S.D. I., 606).

Before closing the subject of Physiology, it will not be out of place to note how often H.P.B.'s assertion has been confirmed that, in all sciences—formerly secret or “Hermetic”—and even in medicine, the ancient Hindus and Egyptians had, on many points, a deeper knowledge than that possessed by our modern science; or, that facts of supposed late discovery are only re-discoveries. For instance, she quoted from Manetho that Athotis, son of the first Pharaoh Menes

built the palace of Memphis; he was a physician and left *anatomical books* (S.D. II., 349).

The latest Egyptian discoveries have shown even more than this. As acknowledged by Dr. R. Caton in the last Harveian Oration (Royal College of Physicians, London), “the priest-doctors of Egypt had anticipated, by at least 6000 years, Harvey’s momentous discovery of the circulation of the blood. As far back as 4000 B.C., Egypt had works on medicine and anatomy, and one all-round genius, physician, architect, astronomer, alchemist, so illustrious that after death he was reputed the son of the supreme deity, Ptah—all this and yet nearly lost to fame, forgotten nowadays and omitted from the cyclopedias—I-em-hotep, priest of the sun god Ra, and physician to King Torsothros, became so eminent that he was revered as a demigod after death, a temple was built over his tomb, and in his honour hospitals were raised in Memphis and other cities. Here the priest-physicians treated the sick and embalmed the bodies of men and sacred animals. Their papyri contain intelligent references to the heart, the blood vessels and the pulse, and show a fine knowledge of the circulation of the blood. Of the heart in particular they knew much, and their writings refer to its enlargement, fatty degeneration, displacement, palpitation and pericardial effusion, and also their treatment. They also knew magnetism and mesmeric treatment. Not Greece, therefore, but Egypt, long before Galen and Hippocrates, was the motherland of rational medicine and anatomy. The views of the ancient Greeks on the circulation of the blood were almost exactly those which the Egyptians had taught many centuries earlier.”

CHAPTER IV.

ASTRONOMY.

New astronomical discoveries are also fast accumulating on lines that agree with the *Secret Doctrine*. Among these we find the study of the planet Mars, and, more recently still, the magnificent observations of Venus and Mercury (*Atlantic Monthly*, March-April, 1897), by some promising American astronomers, Percival Lowell, Pickering, Douglas, etc., whereby a much better knowledge of these planets is being obtained.

According to the esoteric teachings, Mars is somewhat older than the Earth, and must have been inhabited by a highly intellectual, superior and much more civilized humanity than ours, about whom the earlier Aryan scientists and adepts seem to have known far more than our modern anthropologists know about the early stages of our own Earth (S.D. II., 738). Only the men of Mars are more ethereal than we are (S.D. I., 660). According to Theosophy, Mars is now in obscurity (S.D. I., 188), that is to say, in a period of evolution when animal life is dormant previous to the manifestation of higher forms. At any rate, our scientists now say that Mars has no seas, and water only around the poles during the summer periods, but that it is covered by fields, whose dense vegetation, formerly taken to be seas, is sustained by the waters derived from the melting of the polar snows and distributed by a gigantic system or network of apparently artificial and geometrically-disposed canals, 436 of which have been counted, together with 185 immense round artificial lakes or oases, into which many canals

evidently converge. Fifty-one of these canals are known to duplicate themselves during the summers of the planet, showing that provision even had been made to collect the excess of melted snows in order to help the fertilization of the arid portions of the planet * All this necessarily postulates the existence on Mars of races capable of gigantic efforts, conducted with high intelligence, and pre-supposes also that the gradual transformation, through old age, of the planet itself, has resulted in the bringing on of terrible droughts, prototypes of what will happen to this Earth (S.D. II., 528 a). How near science is coming to the mysterious connection that occultism affirms between Mars and the Earth !

But the study of Venus and Mercury has just brought out results more startling still, showing that the conditions of those two planets, through exceeding old age, are such that no humanity, as we now know it, could live on either. Though these views are naturally opposed by the old-school astronomers, recent observers show that both these planets rotate around the Sun in such a manner that the same side, the same half sphere of both is constantly turned and exposed to the Sun's light and heat, while the other side never receives a single ray from it ; this must, therefore, produce on one side of both those planets, an eternal day, with an inexorable, intense state of heat, and on the other side eternal night, with the most intense cold. A similar condition obtains, as we know, with our Moon ; but, owing to the attractive action of the Earth, our satellite turns one same side to us and not to the Sun, so that, although she may be " dead " (a mystery, as H.P.B. says) yet her physical conditions must be preferable to those reigning on Venus and Mercury. However, through Mr. P. Lowell's studies, in the clear skies of Arizona, where fogs never obstruct the astronomer, we now get a new idea of planetary conditions :

* A very good map and views of these canals were published in the *Scientific American*, February 29th, 1896, and interesting information about Mars can be found in various recent numbers of the *Popular Astronomy Monthly*, also in the *Reports of the Royal Astronomical Society* (See also *Theosophical Review*, XXVI, 100, and *Sc. Amer. Suppl.* 1907, No. 1660).

VERY OLD—"far older than the Earth," S.D. I., 179-180, II., 36) *Mercury, Venus and Moon* :

Length of Solar Day on one side and of night on the other, *infinite* ; colour, Venus, *straw* (half death) ; the two others *white* and *black*, with chiaroscuro (material death) ;

OLD—*Mars and the Earth* :

Length of Solar Day, 24 h. 39½ m. and 24 h. ; colour, *ochre* and *blue-green*, hues of vegetation and life, but the predominant ochre in Mars showing greater age ;

YOUNG—*Jupiter and Saturn* :

Length of Solar Day, 9 h. 55 m. and 10 h. 14 m. ; colour, *brick-red* under their clouds, incandescent heat glow :

UNKNOWN—*Uranus and Neptune* :

Day probably rapid ; colour *pale-green*.

This scientific statement of their relative age capsizes the old astronomical theory of the formation of the planets through the successive annular segmentation of a solar nebula ; for the farthest would then necessarily be the oldest, and the closest to the Sun the youngest ; but it does not disagree with theosophic knowledge, quite the contrary. However, it must be mentioned here that the astronomers of the old and conservative school are greatly worried about Mr. Lowell's discoveries and conclusions, and are fully prepared to deny them, for the mere purpose of preventing the upsetting of old favourite theories about the similarity of motions and length of day among all the planets, etc. But it may be to Mr. Lowell's satisfaction to know that—although his new facts about the inferior planets must destroy the former astronomical speculations about their probable formation and about the animal life, probable or possible, on those planets—yet they do agree very wonderfully with some of the hints of the *Secret Doctrine*.

Thus, on Mercury, who has long been dormant, physically, and is just getting out of Pralaya (S.D. I., 188)—probably beginning its 7th Round—the men are *immortal* (S.D. II., 48), that is to say, progressed far above our

present mortal bodily conditions, and, consequently, able to live under physical conditions of their planet which would be unbearable to us, and in bodies practically indestructible.

Of Venus, Mr. Lowell says "we gaze on a world which has run its course, and is left motionless, changeless, dead"; the *Secret Doctrine* says she is in her *last Round* (I., 188), therefore *dying*, after which she will cease to be visible on our plane (I., 176), and she is now probably beginning to prepare for transferring her soul and life to her offspring and successor, to which she will afterwards act for a while as a Moon, as our Moon has done for us (S.D., I., 179).

But how much better can we now understand, through Mr. Lowell's observations, what the occult teachings meant by Venus being "the 'little sun' in which the solar orb stores his light" (S.D. II., 27), receiving of light and heat "twice the amount falling on our insignificant globe" (S.D. II., 31), (since there is no night on the illumined side); and that out of this supply, she sends the earth one-third and has two parts left to herself (II., 32 footnote), whereby she is our light-bearer physically and mystically (II., 36); every change on *Sukra* (Venus) is felt and reflected by the Earth (II., 35), Venus "the occult sister and alter ego of the Earth" (S.D. I., 323), changing simultaneously with our changes on account of having "adopted the Earth, the progeny of the Moon, *who overgrew its parent and gave much trouble*" (II., 36). We must admit that, in her present stage, Venus does receive more light and heat, and through her constant opposition to the Sun, must store it up, so that, while reflecting some to us, must keep more than her share; and from her advanced stage of evolution, we can also understand how,

in spite of its closer proximity to the Sun

Venus is

less dense than the Earth (I., 649),

because her "matter," "in its last Round," must have grown more ethereal than ours in our 4th Round. At the same time, her humanity must also have grown to such

a status as to be physically indifferent to the material conditions of their planet, which would be unendurable to us. We must, however, remember that

the Earth is passing through the habitable phase, ONLY for the *present order* of things, and as far as our present mankind is concerned with its actual "coats of skin," and phosphorus for bones and brains (S.D. II., 76),

while Theosophy asserts that there is life everywhere; suitable life to suitable environments. But from what is shown us by our Moon, Venus and Mercury, we may realize that, in their old age, planets gradually change their rotation so as to keep only one same half-side constantly turned towards the Sun; therefore, so it will happen to our Earth at some due period of her future Rounds, at which time "Mother-Water" will again arise and disappear (II. 68). This, however, is admitted by science, since the studies of J. C. Adams, Helmholtz and Darwin, who assert that "tidal friction must gradually, but inexorably, lengthen our day to a month, and then to a year, when our Earth will also present one same side eternally to the Sun." Therefore, as says Dr. H. S. Williams in *Harper* (March, 1897), "modern calculations, based on inexorable tidal friction, suffice to revolutionize the views formerly current as to the stability of the planetary system. The 18th-century mathematician looked upon this system as a vast celestial machine, which had been in existence about 6,000 years, and which was destined to run on forever. The analysts of to-day compute both the past and the future of this system in millions instead of thousands of years, yet feel well assured that the solar system offers no contradiction to those laws of growth and decay, which everywhere seem to represent the immutable order of nature." No theosophist could have expressed better the occult views of Kosmic evolution, in which Sun is to follow Sun, at regular intervals separated by necessary rests, as explained in the *Secret Doctrine*. Thus science also comes to agree with Theosophy about the old biblical fallacy of "unmovable, unchangeable and eternal as the heavens," which must be replaced by the idea of eternal life and its concomitant decay—motion and evolution—everywhere.

And this grander theosophical conception of evolutionary laws, embracing the whole Kosmos, is daily verified by the recent researches and discoveries in the Milky Way and the Nebular Systems. The new information has been condensed by Sir J. Norman Lockyer in his magnificent work, the *Meteoric Hypothesis*, which, except in minor details, is nearly theosophical. This theory, enlarged by the knowledge obtained through the spectroscope, of the various stages of development and the various motions of the diverse stellar bodies, leads modern astronomers to admit that "the growth of a star starts from a nebular gas" (Laya centre and Cosmic dust of *Secret Doctrine*), "condensing gradually into a self-luminous star, which passes on to a condition in which it is only capable of reflecting foreign light, and finally it becomes a dark, invisible body—the culminating and final stage of cosmic existence of which is disintegration, either by the slow action of the natural forces, or by collision with other stellar masses," as Dr. Croll imagines. "Such collisions may be long delayed; the dark star may be drawn in a comet-like circuit about thousands of stellar masses, before it chances to collide, but that matters not—*billions are the units in the arithmetic of Eternity*" (just as the *Secret Doctrine* teaches)—"and, sooner or later, a collision must occur, and the mutual impact must shatter both colliding bodies into vapour, or vapour combined with meteoric fragments, in short, into a veritable nebula, the matrix of future worlds; thus the dark star, which is the last term of one series of cosmic change, becomes the first of another" (*Harper, ibid.*).

Let us compare this scientific ideal with what the *Secret Doctrine* had to say, ten years previously, about the genesis and evolution of worlds :

The Central Sun [or Logos] causes Fohat to collect primordial dust in the form of balls, to impel them to move in converging lines and finally to approach each other and aggregate. . . . Being scattered in space, without order or system, the World-germs come into frequent collision until their final aggregation, after which they become Wanderers (Comets). Then the battles and struggles begin. The older (bodies) attract the younger, while others repel them. Many perish, devoured by their stronger companions—those that escape become Worlds (I., 222-223). . . . Born in the unfathomable depths of space, out of the homogeneous

Element called the "World-Soul," every nucleus of cosmic matter, suddenly launched into being, begins life under the most hostile circumstances. Through a series of countless ages, it has to conquer for itself a place in the infinitudes. It circles round and round, between denser and already fixed bodies, moving by jerks and pulling towards some given point or centre that attracts it, and like a ship drawn into a channel dotted with reefs and sunken rocks, trying to avoid other bodies that draw and repel it in turn. Many perish, their mass disintegrating through stronger masses, and, when born within a system, chiefly within the insatiable stomachs of various Suns. Those which move slower, and are propelled into an elliptic course, are doomed to annihilation sooner or later. Others, moving into parabolic curves, generally escape destruction, owing to their velocity (I., 225 ; see also 288, 167, 179, 222, 223, etc.).

Even Sir Norman Lockyer has nothing more descriptively graphic than this ; and as his writings as a whole (save some fanciful interludes) agree so fully with H.P.B.'s teachings, it will be excusable to continue the quotation from Harper's *Astronomical Progress of the Century*, above mentioned : " In this extended view, nebulae and luminous stars are but the infantile and adolescent stages of the life-history of the cosmic individual ; the dark star its adult stage or time of true virility [time of decrepitude say we]. Or one may think of the shrunken dark star as the germ-cell, the pollen-grain of the cosmic organism ; reduced in size, as becomes a germ-cell, to a mere fraction of the nebular body from which it sprang, it yet retains within its seemingly non-vital body, all the potentialities of the original organism, and requires only to blend with a fellow-cell to bring a new generation into being. Thus may the cosmic race, whose aggregate census makes up the stellar universe, be perpetuated—individual solar systems, such as ours, being born and growing old and dying *to live again in their descendants*, while the Universe, as a whole, maintains its unified integrity throughout all these internal mutations, passing on, it may be, by infinitesimal stages, to a culmination hopelessly beyond human comprehension"—though Theosophy, and Theosophy alone, can and does compass it satisfactorily.

Here, however, if the authority of a man like Sir Norman Lockyer (and Prof. G. H. Darwin also, who fully upholds him) is considered insufficient, we might quote very similar views about the beginning of Creation, from no less an authority than Lord Kelvin, who, in his address at Glasgow

(1901), suggested that "in the beginning, space is filled with atoms at rest, but this equilibrium being destroyed, there results meteoric dust, out of which stones are formed, which begin to collide and agglomerations are formed." And he has no false shame in declaring that such was also the theory of the old philosophers, Democritus, Epicurus and Lucretius, while H.P.B. had long before remarked that

all such knowledge, if justice be only done, is an echo of the Archaic Doctrine,

which she attempted to elucidate, although, of course, the so-called nebular theory agrees with occultism only in so far as it tells of the formation of Suns and Stars from primitive matter, because, as the *Secret Doctrine* says,

the development of the PLANETS around their Sun rests on quite different facts . . . they are at the opposite poles of being (S.D. I., 651, note).

Now, if we compare all of the above scientific quotations with such further references to the nebular theory as are found elsewhere (S.D., II., 199 ; I., 643-657), we may well ask whether, with the theosophical addition of the idea of Intelligent Forces or Cosmic Rulers, at the back of sidereal life, the views expressed in *Harper's* are not pure occult teachings, although written by a man who evidently knows nothing of theosophy? What might not our astronomers accomplish, if they only allowed themselves to be assisted by our occult information?

But many other new astronomical theories are falling into line with H.P.B.'s teachings, and we will briefly enumerate a few of them.

FIRST ABOUT GRAVITATION. — All readers of the *Secret Doctrine* must remember the interesting, though sarcastic, remarks of H.P.B. in the chapter dedicated to it* which brought against her the virulent denunciations of the first reviewer of her masterpiece, equalled only by those that her previous book, *Isis Unveiled*, had met with. Now, aside from Prof. Reynolds' new theory, already mentioned, a few years ago a New York scientist, Dr. St. H. Emmens, sent to

* I., 577 to 589, 662, and other passages noted in the Index.

various scientific bodies a startling challenge and assault on Newton's famous and so-far sacred law of gravitation—as understood by his successors—wherein he promulgates an “astonishing theory of natural law, boldly assailing the recognised gravitation law and calling upon scientists to reform their belief in order to square the accepted theory with ‘stubborn facts’ which gravitation alone cannot explain” (*N. Y. Herald*, February 3rd, 1897). Dr. Emmens' theory seems principally based on the idea of centrifugal force as a parallel force to gravitation. This may, perhaps, be incomplete, specious or hazardous, especially since he wants to deny Ether, which he calls a “fantastic fetich (!) ;” but his attack on accepted science shows that there is a growing unconscious tendency to turn towards new ideas, as suggested in the *Secret Doctrine*, and seems to indicate that occult theories are insensibly but surely spreading.

ABOUT THE MOON.—It was the universal consensus of astronomical opinion that the Earth was the parent of the Moon, this latter having been separated, thrown off from the Earth; and official science sneered at the contrary fact asserted in the *Secret Doctrine* (I., 180, 172 note, 203, 415; II., 68). But now comes Mr. W. J. Lynn, F.R.A.S., boldly writing from scientific deductions, that, “however much it may surprise some of his readers, the Moon is *not* a satellite of the Earth; but must be looked upon as a *companion planet* to it, accompanying our planet in its annual journey around the Sun, the two mutually perturbing each other's motions.” just as H.P.B. said of the Moon acting

like a mother who walks round and round her child's cradle, keeping watch over the infant (S.D. I., 203) ;

and the singular fact—that the pretended rulership or action of the Earth over the Moon, is really limited to just enough physical attraction for producing a circular motion (S.D. I., 203)—is further confirmed by the above writer stating that the Sun exerts on the Moon double the attraction of the Earth, whereby if the Moon's motion in space was suddenly stopped, she would fall *to the sun* and not to the Earth, as was generally supposed (*Astronomy made Easy*, Lloyd's Weekly, August 23rd, 1896).

H.P.B. says that the Moon "is a *dead*, yet a *living* body"; she died when she transfused her life unto the Earth, her child and successor, which overgrew and gave much trouble; she is still living, because the particles of her "shell," of "her decaying corpse,"

are yet full of active and destructive life, although the body which they had formed is soulless and lifeless.

She is

the *cold* residual quantity, the shadow dragged after the new body,
 doomed for long ages to be ever pursuing the Earth,
 to be attracted by and to attract her progeny (S.D. I., 180).

In the *Inter Ocean* of 1901, an entirely "new" theory of the Moon was very trenchantly propounded by a Dr. L. Y. Van Morter, of Toledo. His hypothesis was that our satellite is now in her glacial epoch, "similar to that glacial epoch of the Earth, when man first appeared" (?). He claims to have also discovered many other things, for instance, that the Moon being covered with glaciers, snow and ice, it is this condition that produces the peculiar quality of reflected light we receive from our satellite. Since the Moon is "dead," there is no objection, theosophically, to her corpse being covered with snow. But Dr. Morter hits the French proverb: *Qui veut trop prouver ne prouve rien*, when he claims that "what have been called extinct volcanoes on the Moon, are simply ice mounds and ice cups," and these could not be volcanoes "because the craters are too big (!), also too low, and because of their shape and colour; real volcanoes are conical peaks with small cups at their apex, the moon ice-cups are not conical, they are circular and mound shape."

Now, these arguments spoil even his snow theory, because: (1) The moon having been an earth, she must have had her volcanoes and her periods of volcanic activity like the Earth, and the fact of their being now covered with snow would not prevent the fact of their former fiery existence; (2) the author neglects to say what forces could have caused the formation of those immense ice-cups and mounds, "too big" for formation by fire; (3) he evidently never has seen any "real" volcanoes, only ideal pictures of Vesuvius, Fuji or some slender South American conical peak—has never seen the

extinct craters of Auvergne, for instance, which are images of the lunar ones—and if he wants to improve his ideas about “real” volcanic forms, he ought to go over to Hawaii, the new U.S. territory, where he will see extinct craters by the dozen, including the three largest in the world* which are *not* conical with small apex cups, but mounds with immense circular basins, while the active volcano of Kilauea is a large lake of living fire in the floor of a still larger crater, far down the slope of the Mauna Loa mountain, without any conical formation at all, and very little even of the mound.

Next comes Mr. W. C. Pickering, of Harvard, who, while admitting that there is hoar-frost on the moon, claims that even now volcanic activity is *not* extinct,† and that the latest studies in selenography show that many of the lunar craters undergo constant changes, some having even completely disappeared. Mr. Pickering also believes in a kind of low vegetation on our satellite.‡ But, at any rate, astronomers agree with H.P.B. that there is, on the moon, no life like that of our Earth.

CONCERNING THE AXIS OF THE EARTH. Occultism asserts that this axis, and therefore the place of the poles in respect to the sun, is very steadily changing through at least two different motions, one admitted by science, *viz.*, the Precession of the Equinoxes, and the other, a gradual change in the obliquity of the *Ecliptic*, which, according to the occult teaching, *recedes* from the present Poles at the rate of 4° in about 26,000 years (S.D. II., 345). This last teaching, which is at present denied and ridiculed by official astronomers—who only admit a “wobbling” motion confined within an arc of $1^{\circ} 21'$ (or $2' 42''$ in 10,000 years)—seems to have received a recent and very unexpected confirmation from peculiar studies on old Pompeiian and Etruscan vases by Prof. Folgheraiter, mentioned in the London *Electrician*, whereby this scientist

* Haleakala on Maui, Mauna Kea and Makuaweoweo on Hawaii.

† See “Changes on the Moon’s Surface,” *Nature*, 1905.

‡ Mr. Pickering rather weakens his value as an authority by propounding the theory that the moon was originally thrown off from that side of the earth which now forms the depth of the Pacific Ocean (See *Sci. Amer. Suppl.*, No. 1640).

claims that the magnetic dip, which is now in Florence of 60° *below* the horizon, was, in the most ancient times, of 25° *above* the horizon, while it is shown by the more modern of those old vases, to have progressively changed to 25° below, so that the descending motion from 25° to 60° below, must have taken place gradually since the early times of Rome. Such a great change cannot be due only to the displacement of the magnetic poles, but shows plainly also a simultaneous displacement of our own polar horizon; and this is a very unwelcome fact to the old school of mathematical astronomers, who still stubbornly cling to the theory of the immutability of the terrestrial axis, although sorely puzzled over several polar motions and displacements, whose admission has recently been forced on science, under the collective name of "secular changes in latitude," etc.

A few years ago, a Mr. Wilde submitted to the Paris Académie des Sciences, a new apparatus called the "magnetarium," composed of two terrestrial globes, one of which, properly insulated and submitted to the current from a dynamo, revolved in the inside of the other. The aim of this instrument was to demonstrate and reproduce all the phenomena of the terrestrial magnetism, and especially the secular changes and variations of magnetic elements, over the different parts of the terrestrial surface. This instrument is claimed to show that, while the annual retardation of magnetic currents is $22''5$, the period of time corresponding to a difference of one revolution in the rotations of the two spheres is exactly 960 years, this period embracing all the known secular variations (*La Nature*).* Now, students interested in cycles will notice that 960 multiplied by 27, the number of lunar asterisms, gives exactly 25,920, the esoteric period for the Precessional year or "Annum Magnum" of the Ancients, to which H.P.B. so often refers (though she felt herself bound to quote only the current astronomical value. 25,868). This, among other things, would indicate that 960 years must have been one of the secret cycles; probably also, this cycle, together with the one of 1080

* See also *Sci. Amer. Suppl.*, No. 1144.

years—half of the precessional month—is the real basis for all the supposed cycles of 1000 years.

A curious confirmation of theosophical teachings came, in 1903, from Paris. A self-taught man, but a zealous student, M. L. Rémond, noticed certain errors in reading Laplace's work on astronomy (which still is reckoned as law by many professors);* and these errors led him to discover for himself that the motion of the ecliptic towards the Equator was *not* the limited "wobbling," quietly accepted by scientists,† but that it was in reality a *continuous* motion, which would bring the poles of the Earth into all kinds of positions in respect to the Ecliptic, *i.e.* a regular rotation of the Earth over its Poles. M. Rémond further ascribed 2,800,000 years to that rotation, while various considerations forced him to the conclusion that the Earth had already seen at least 1,200,000 years of civilised humanity (*Douze Cent Mille Ans d'Humanité*, Paris : L. Bodin). Whether his figures for the total revolution are correct or not need not be taken into consideration here, except to say that it is really not very different from what has been taught in theosophical circles. But the amusing part of M. Rémond's experience is, that having naïvely submitted his "mémoire" to various "savants" for their opinion, he has been roundly abused and ridiculed by many supposed authorities, who, in reality, have shown the most astounding ignorance, narrow-mindedness and carelessness in the matter, disclosing that their knowledge was based merely on erroneous book-authority and thereby giving M. Rémond occasion to display some very cutting sarcasm. Another curious point in the matter is that Rémond is annoyed rather than otherwise if told that theosophy taught his theory long before he had unravelled it (through what seems a clear case of unconscious clairvoyance or remembrance); yet this fact rather increases than otherwise the significance of such an unexpected verification of a teaching which has been the cause of much prejudice

* More recently Mr. Geo. Sutcliffe, of Bombay, has been making a strong attack upon these same errors. (See pamphlet *A Gigantic Hoax*.)

† And even by Col. Drayson on a larger scale.

and scornful abuse directed by the old school of astronomers against the *Secret Doctrine*.

OCCULT ASTRONOMY indicates the existence between the Sun and Mercury of a mysterious planetary body, the highest of the Solar group, which "became invisible at the close of the Third Race of this Round" (S.D. III., 459, 462, note). This question has long been an astronomical bone of contention, the first French scientist, Dr. Lescarbault, who saw the intra-mercurial body, which he called Vulcan, being laughed at by his colleagues. But now astronomers begin to admit, not only one such planet, but two or three, very crimson in colour, and Mr. S. J. Corrigan vouches even for the existence of *four* of them (*Popular Astronomy*, February and July, 1897), one only of which, of course, would be the sacred one mentioned by occultism, unless indeed, that one, in the due course of her evolution, was split up into several fragments, as occultism says our moon will be some day. The question of these inter-mercurial planets has made the subject of an interesting pamphlet by Mr. G. E. Sutcliffe, a Bombay theosophist (*Two Undiscovered Planets*, Bombay), in which he is led to admit of two such planets, which he names Vulcan and Adonis, and which he claims to be the principal cause of sun-spots and of the irregularities in motion of both Mercury and Venus.

ABOUT MARS having "two satellites to which he has no right" (S.D. I., 188) and whose motions show that "Phobus, the supposed *inner* satellite is no satellite at all," astronomy now makes the same admission, and Mr. E. Muller, in *Popular Astronomy*, even explains the fact of Phobos and Daimon not being true satellites to that planet, by showing that, as the orbit of Mars intersects that of the group called the Asteroids, his present two satellites are really nothing else but two small asteroids who happened to meet Mars at the crossing and were attracted and captured by him, while there is still another neighbouring asteroid, Æthra, which may some day meet with the same fate.

NEW SATELLITES TO JUPITER AND SATURN. In order to carefully hint at the more profound knowledge

on astronomical subjects which is found in Occultism, H.P.B. asked some awkward questions :

Why should Venus and Mercury have no satellites though

they had Parents, just as the Earth had ?

Why

are there planets which have *several* moons—a mystery again which no *Œdipus* of Astronomy has solved ? (S.D. I., 179, 180).

Why do the satellites of Neptune and Uranus display a retrograde motion ? (S.D. I., 173). Why are the satellites of Jupiter

more dense by 0.288 than their primary ?

Why

so many variations in the inclination of the axes and orbits of both the Planets and their Satellites, which are all the supposed progeny of the Central Orb ? etc., etc. (S.D. I., 649).

The recent discoveries would have given her a chance for a few more questions which occultism alone can solve. For instance, two more satellites have been found to Jupiter by Prof. Perrine, of the Lick Observatory, both outside of the five old ones and making seven in all, and distant from the primary by some six and eight millions of miles. Why do the planes of their respective orbits make some very large angles, both with each other, with the planes of the other inner satellites, and with Jupiter's equator ; and why so many satellites ? Then again, Phoebe, the ninth, farthest and last discovered of Saturn's satellites, shows a *contrary* motion, this again capsizing Laplace's celebrated theorem, that all the bodies in the Solar System must rotate in the same direction (S.D. I., 173). To explain this anomaly, Prof. Pickering dives unconsciously into the occult, by offering two hypothesis, either : (a) that formerly Saturn's axial rotation was the reverse of what it is now, this change having been produced by sun-raised tides which first retarded and finally inverted the rotation, while this satellite was too far off to be affected by this cause [and here we find that,

at any rate, Occultism teaches that the so-called " reverse rotation" is a fact (S.D. I., 174)] ;

or (b) that it was caused by an entire change in Saturn's axis, also an occult idea, applicable to that planet quite

as much as to the Earth, whose axial disturbances, both cyclical and karmic, are mentioned in so many places (see word "Axis" in Index to *Secret Doctrine*.)

OCCULT SCIENCE teaches that there is a perpetual exchange taking place in space, of molecules, or rather of atoms, correlating and thus changing their combining equivalents on every planet. . . . Thus not only

the elements of our Planet, but even those of all its sisters in the Solar System, differ in their combinations as widely from each other as from the cosmic elements beyond our Solar limits (S.D. I., 166; see also 540, 638, 653).

Material science tried to assume the identity of elemental matter in all the universes, though many scientists dissented, Clerk Maxwell for one (I., 166). But the Observatory of Harvard College published a recent circular, showing the spectrum of *Zeta Puppis*, remarkably unlike any other yet obtained, and "containing an element not found on earth or in any other star," and this is only one example out of many. Moreover, even universal elements like Hydrogen, are now shown to present different spectroscopic lines [*Popular Astronomy*, 1896-7] and consequently different atomic conditions, in different stars (S.D. I., 686).

STARS are known by Astronomy to suddenly blaze out in conflagrations whose magnitude baffles the human imagination. The example of *Y. Coronæ* is familiar to students; for a few days this star shone out, brilliantly enveloped in a mantle of burning Hydrogen; and astronomers admit that such a sudden conflagration must mean a catastrophe disastrous to the system of worlds which may circle around that star. "Imagine, if our Sun was suddenly to blaze out for a while, with several hundred times its usual lustre, what the result would be? The creatures of the Earth would be destroyed in an instant . . . the very heavens would be dissolved and the elements would melt with fervent heat." (*Myths and Marvels of Astronomy*, R. A. Proctor, page 161.) How closely does this compare with the account of the Incidental and Elemental Pralayas in the *Secret Doctrine*! (I., 397-401; II., 646-7).

The observers of Yerkes, Harvard, Edinburgh, Heidelberg and Kiel have recently been watching a new

nebula, discovered near Nova Persei, consisting of a fiery nucleus with wreaths of nebulous matter encircling it, something like the rings of Saturn ; and if the calculations of Kiel are correct, the whole mass moves at the rate of two thousand miles per second, or sixty times the speed of any hitherto known motion. The idea suggested by this, is that of a world in formation, a theosophical "whirlwind," at the end of a Pralaya.

OCCULTISM denies that the Sun is incandescent, simply a globe in combustion (S.D. I., 591, 646). Now we read that Dr. A. Schmidt, of Stuttgart and Dr. Knopf, of Jena, who have evolved a theory of the Sun based on mathematical investigations and logical reasoning, state that "excepting perhaps a central nucleus under great pressure, the Sun is merely a ball of gases without any definite surface whatever the density of the gases diminishing gradually from the nucleus to the outer space ; the disc of the Sun, as we see it in the sky is therefore only an optical illusion," that is, a *maya*, in theosophical parlance, or

the real Sun being hidden behind, and the visible Sun being only its reflection, its shell (S.D. I., 591, 576) ;

"and the observed edges of the sun are being produced by refraction, in spite of what may appear through telescope or spectroscope" (*Nature*). . . . Now compare with the *Secret Doctrine* :

He who tells thee he has seen the sun, . . . laugh at him,
for the visible sun is only

the glowing vesture of the mighty Being or Ruler of it.

SUN SPOTS. From the fact that the Sun is not incandescent, nor in a molten condition, it follows that the solar spots are not scorix of molten matter on its surface, as some scientists believe, nor are they indications of detachment of matter from the Sun's body, as Mr. Corrigan explains (*Popular Astronomy*, July, 1897). Eighteen years ago, H.P.B. gave out the teaching, from occult sources, that the

Sun is the Heart of the Solar World System and its brain is hidden behind the (visible) Sun. Thence, sensation is radiated into every nerve-centre of the great body, and the waves of the life-essence flow into each artery and vein The planets are its limbs and pulses (S.D. I., 590).

H.P.B. followed the illustration further, by saying that the arterial circulation of the Solar System was carried on through rhythmical contractions of the Sun—as the heart of this system—corresponding to the contractions of the human heart, the cycle of that circulation taking ten years, plus

a whole year to pass through its auricle and ventricle before it washes the lungs, and passes thence back to the great veins and arteries of the system.

Moreover, this great circulatory scheme is characterised by what astronomy knows as Sun-spots, the cycle of which is just eleven years, at the end of which the number of Sun-spots increases to a maximum, since they are due

to the contraction of the Solar Heart. Could the human heart be made luminous, and the living throbbing organ be made visible, so as to be reflected upon a screen . . . every one would see the sun-spot phenomenon repeated every second and that they were due to contraction and the rushing of the blood (S D. I., 591, 592).

Painful to say, this assertion has already been verified by some horrible experiments of vivisection, so that we may admit, with H.P.B., that the solar spots are the “auricle and ventricle” contractions of eleven years’ course, through which “the waves of life-essence” flow into each planetary limb, pulse and artery, whereby we can also believe, with the above quoted Mr. Corrigan (though his theory of the subject may be entirely erroneous) that certain paroxysms of solar spots must be accompanied by synpathetic corresponding “great disturbances in the atmosphere and great bodies of water of the Earth.” Here Mr. Corrigan further states that “the Earth is now closely approaching a critical epoch of its career.”

Such being the case about Sun-spots, it cannot be surprising that this astronomical phenomenon should have attracted the attention of minds, scientifically or mystically inclined, and although the true cause of the Sun-spots, as given from the above occult authority, has not yet been duly taken into consideration, nevertheless, as a Review recently remarked, “There is probably no sort of terrestrial event which some speculating mind has not connected with Sun-spots”; and, we may add, not

without some reason, as will be seen. A distinguished economist—Professor Jevons—years ago, in his *Investigations into Currency and Finance*, did not hesitate to attribute all the great periodical commercial crises to the influence of *Sun-spots* (!) every eleventh cyclic year, and H.P.B. described this idea as being

worthy of praise and encouragement surely (S.D. I., 591 note).

Another American observer, a simple Ohio farmer, Samuel Benner, whose "Prophecies" on market fluctuations attracted great attention, when first published in 1875, and when re-edited in 1884, went a little further still, for he noted cycles of about eleven years in the prices of *corn* and *hogs*, twenty-seven years in prices of *pig-iron*, and fifty-four years in depressions and panics in general business, based on tables carefully prepared from statistical data. Now, these periods are all purely astronomical and they carry out the idea that provisions, crops, and trades are affected, not only by the solar "blood circulation," but also by other planetary influences; and here, let it be remarked, that 1874 was a year of great depression in the production of iron, and twenty-seven years later we see signs of a similar crisis, the indications of which have probably led to the recent formation of the great Metallurgic Trust. Judging now from Benner's tables, while 1900 and 1901 have seen a repetition of the commercial facts of 1878 and 1889, and while 1902 has been inclined to panics, this last period will be followed by six dull years; in the same way, 1882 and 1893-4, having been times of the greatest Sun-spot activity, the maximum period of the next cycle culminated in 1905 and 1906, with mining and financial panics in 1907-8.

With regard to the influence of Sun-spots, it may be well, perhaps, to anticipate possible scoffers, who deprecate theosophical inferences, but are ready to believe blindly "scientific" assertions, by recalling the fact that after all this is no new idea or fad, for a hundred years ago, in 1801, Sir W. Herschel arrived at the conclusion that there must and did exist a relation between the prices of wheat and the appearance of many, or few spots, on the Sun's surface. This was really an intuition of genius, for Sun-spots were then a rather new discovery of science, the

nature and consequences of which could not possibly be known to ordinary students. But since Herschel's assertion, the phenomenon has been well studied, data have accumulated, and it has now been fully ascertained that, especially in what concerns India, the cycle of Sun-spots rules over the harvest, and consequently over those terrible visitations of famine with which even all the power of the English Government is unable to cope. Then again, it has been ascertained that cyclones and rainfalls, whether in the East or West Indies, or in other regions, are at a maximum when there are the greatest number of spots on the Sun. Sir Norman Lockyer, the well-known British astronomer, has embodied the results of the scientific investigations on the matter in some very interesting works, wherein it is shown that the excess of rain-fall in India always occurs at the periods of maxima and minima, while the intermediate periods are those of droughts and famines, and similar results occur also in the basins of the Nile and of the Mississippi.

In his paper in *Nature* (February, 1904), Sir Norman—after alluding to the fact that the Ancient Chinese seem to have known of the spots on the Sun and of their magnetic influence—sums up the matter by showing that the periods of increased spots coincide with :—(a) increased heat of the sun ; (b) increase of cyclonic and general atmospheric disturbances on the earth ; (c) marked interference in telegraphic communications ; all of which run on the eleven year cycle. But, in addition to the sun-spots there are certain solar “prominences,” extending at times almost across the whole disc and occupying about one-sixth of the sun's surface, the cycles of which seem to run in about 3·7 years, or exactly three to the eleven years, and the influence of these prominences seems to be even more striking than that of the spots. Moreover, there seems to be another long cycle of weather variations, the mean length of which is about thirty-five years (or three eleven-year cycles) and to the action of which again must be added the power of the various planetary cycles. At any rate, since science has had to admit an influence of Sun-spot cycles over the weather, the weather again ruling the crops, this can be taken by us

as another confirmation of the teachings of the *Secret Doctrine* in regard to the Sun's power, as the circulatory evolver, ruler and centre of all *life*, as well as of motion.

AGE OF THE SOLAR SYSTEM. Even in the matter of the age of the Solar System, although science is not yet settled in her theories, every new scientific assertion comes nearer to the theosophical calculations, and lately the cleverest pupil of the celebrated authority, Lord Kelvin, demonstrated conclusively that the Earth must be "thousands of millions of years" old (!) ; in other words, just what H.P.B. gave out (S.D. II., 72, etc.).

CHAPTER V.

PHYSICS.

In the domain of Natural Philosophy, H.P.B.'s positive announcement has proved absolutely correct, namely, that in spite of all his genius, and in spite of his working on the most accurate basis, J. W. Keely, the discoverer of the "Inter-Etheric Force and Forces," would fail to make a success of his invention and discoveries. When she wrote, in 1888, the world, especially America, was anxiously awaiting the harnessing of a new power, the so-called "dynamospheric force," and its inventor was at the height of his most sanguine expectations for using psychic force and the latent faculties of the super-physical regions of the Ether. Yet H.P.B. boldly asserted that, although Keely was a natural-born occultist or magician, although his theory was perfectly correct and quite on occult lines, yet he would never be *allowed* to perfect his discovery, though with no apparent reason for the failure except, as she stated, that

the fifth and sixth planes of the Etheric, or Astral Force, "will never be *permitted* to serve for purposes of commerce and traffic" (S.D. I., 613)

. and because the discovery of this "terrible sidereal Force," the "Mash-mak" of the Atlanteans is

by several thousand—or, shall we say—hundred thousand years too premature (S.D. I., 615),

and liable to bring disaster instead of help to humanity, while "terrible secrets, untimely discoveries" are often due to the nefarious influence of the "Brothers of the Shadow" (S.D. III., 488). And truly, poor Keely, after many more weary years of unsuccessful

efforts—towards the end of which he probably was driven to use trickery in order to make his financial backers wait patiently for the delusive accomplishment which he always felt just within his grasp—had to be buried, branded as an impostor or a fraud, while his only guilt was really to have been born ahead of his time. But the curious part of the matter has been that when his failure became patent, and in harmony with H.P.B.'s prediction, her memory was assailed and she was taken to task for the very failure she had announced, while her pupils and friends could find only the lamest apology for her defence (*Theosophist*, XX., 687), talking of her "mistakes" and of her "ignorance" of scientific discoveries, when in fact everything she said about Keely was quite correct—the only one who took up the proper justificative argument being Dr. Franz Hartman (*Ibid*, 764).

But anyone who may doubt the original sincerity and the latent possibilities of Keely as a discoverer, only needs to read carefully the chapter on the "Coming Force, Its Possibilities and Impossibilities," (S.D. I., 605-618, as well as other sundry references to be found in the Index about Keely), to remain convinced that H.P.B. knew perfectly well what she was writing, even had the sequel not proven her correct. Moreover, the fact of "sympathetic vibrations," which was the basic idea of Keely's motor (S.D. I., 612), has now become the admitted basis of all wireless telegraphy; of such further improvements on this as have been devised by Mr. Menadier, of the Paris Polytechnic School for multiple telegraphy; and of those more wonderful still, which are the outcome of Messrs. Armstrong and Basil Orling's researches in England. And that fact may perhaps be taken as a sufficient justification of both Keely and H.P.B.

If, however, the world was not yet mature for the use of Keely's "Inter-Etheric Forces," worked by the psychic powers in man, other forces less dangerous are found and harnessed daily for man's use; we seem indeed to be on the eve of accomplishing aërial navigation, which the *Secret Doctrine* mentions as having been well known to the Atlanteans (S.D. II., 444). Moreover, we can neither deny the wonderful progress made by our civilised races

during the 19th century, nor the still more startling outlook for the 20th, which, if nothing else, will certainly be a period of extraordinary electrical development.

One more link to the chain of evidence of H.P.B.'s correct foresight in regard to the verifications of theosophical doctrines—which she asserted would be furnished by science before the close of the nineteenth century—is to be found in the new practical facts being gathered in respect to the identity proclaimed by occultism (S.D. I. 605), and now acknowledged scientifically, between Sound, Light, Colour, etc.

The difference between these manifestations is now treated merely as one in the number, or velocity, force and form of the vibrations induced into matter [see Prof. Crookes, in *Borderland*, 1897, p. 138]. The slowest produce sound, a most important factor in occultism (S.D. I., 325, 502, 606), and at either extremity of the sound "spectrum" there exist vibrations physically provable but not perceptible to our ears—"inaudible sound"; then follow heat and electricity, also divisible into appreciable and unappreciable as regards our senses; and finally light and colour, the extremes of which, on both sides of the scale of vibrations, produce to us "invisible light or invisible radiance, and invisible colours," followed by the various X-ray manifestations.

VIBRATIONS, WAVES and CYCLES.—Since Theosophy has recalled from olden times and forced upon the attention of students the knowledge of the great law of vibration which the *Secret Doctrine* asserts to be the very basis of all life (I., 694, 553), no other subject has so rapidly grown a favourite one with every school of thought in the scientific world. In it both the materialists and the psychologists find a common ground for experiment, speculation and theory. Vibrations have excited so much interest under their new aspects, that they are now admitted as worthy of deep study, so that new facts are constantly discovered and numerous articles are published. Among others, a very peculiar one appeared in that very sedate Review, *The Arena* (February, 1901), by the Rev. J. S. Davis, a Swedenborgian minister. It is full of theosophical ideas, but this cannot be regarded as strange,

seeing that Mr. Davis borrowed from that great natural theosophist of past centuries, Swedenborg (S.D. I., 143). Thus he asserts that : " A universal and most essential law in Nature is that of vibration ; a stationary point is impossible, absolute rest being death. The finer movements we call vibrations or waves, the larger movements we call oscillations, the paths of the planets we call orbits, and the epochs of history we call cycles. Everything has a cyclic or undulatory motion, waves of air, of ether, of aura, of water, of earth, of cloud, of nebulae, waves of thought, of emotion, of prosperity, of adversity, waves of everything imaginable. The law is universal on all planes and in all relations. There are certain slow and coarse waves in the air and ether, and we call them Sound ; other waves of ether, immensely finer and quicker, cannot affect the drum of the ear, but impinge upon the retina of the eye and we call them Light " (compare S.D. I., 561). The writer then passes on to nebulae and is led to theories very similar to the teachings of the *Secret Doctrine*, as also in respect to race cycles ; and finally, while examining the causes of vibrations, waves and cycles, he is brought to the Swedenborgian-theosophical conclusion that they are all caused by the vibrations of the Divine Life itself (S.D. I., 491).

About the same time, a Dr. F. B. Ward gave an account of some studies of his on " Vibration as a Hypnotic and Anæsthetic." (*New York Medical Journal*, December, 1900). One might suppose that the writer had in mind the well-known hypnotic influence of sound, leading to therapeutic treatment by music, but he was more material, and referred simply to the fact that if one lies or sits upon the rails or cross-ties of a railroad over which a train is moving, even at a great distance, the distinct vibration of the motion running along the rails and thereby communicated to the body, produces on some persons such a pleasant, agreeable and soothing influence on the nervous system, that, as it grows gradually stronger with the approach of the train, it finally produces anæsthesia as deep and complete as that resulting from chloroform or other anæsthetics. In support of his discovery, Dr. Ward relates cases collected in twenty

years of observation, one of which is especially striking : " A workman returning home, stopped to rest on the end of a cross-tie of a railroad track, where the vibration lulled him to sleep with one arm resting over the rail. When he awoke, it was late in the night, and though he felt quite well and rested, he discovered that during his sleep a train had passed over his arm, completely severing it, except that some skin was still adhering, and the arm was quite cold, this showing that a considerable time had elapsed since the passage of the train. Yet he felt no pain whatsoever and was able to walk leisurely over to a physician to have his stump of arm attended to, and no more shock to his system resulted from this strange amputation than if the man had been operated upon under real hypnotic influence." Dr. Ward adds that this strange effect of rolling vibration can be verified upon any rails on which trains are running, but it ought not to be tried by a person alone, lest the hypnotic influence resulted in the person not being able to pull himself away at the approach of danger.

SOUND-FORMS.—Many instruments have of late been devised for experimenting on sound vibrations and the forms they create, the study of which was initiated by the physicist Chladni, towards the end of last century, and has been interestingly renewed and improved upon by Mrs. Watts-Hughes. (*Voice-Figures* new edition published 1904 ; see also article in *Century Magazine*, May, 1891). Subsequently, her methods were verified and perfected by Dr. H. Holbrook Curtis, author of *Voice Building and Tone Placing* (Appleton, 1896), who, through a new process, photographed complete scales of the geometrical figures produced by the voices of various celebrated singers (see figures in *Scientific American*, May 29th, 1897) which show that, although the same note (or same number of vibrations) always reproduces the same typical form, yet this form is endlessly modified by the expression and personal characteristics of the singer. So we see how much each Ego shapes even the ether waves and impresses them with his personality, a pure voice producing beautiful flowers, a harsh note charged with evil intention bringing forth an

aborted shape, thus giving us a striking concordance with the auric thought-forms, which are themselves the results of mental vibrations. Later developments in this same line were made by a New York specialist for ear and throat diseases, Dr. J. Mount Bleyer, assisted by K. L. Dickson, ex-photographic expert of Edison's Laboratory. The combined efforts of these scientists resulted in a further improvement on Mrs. Watts Hughes' geometrical voice pictures in this manner, that, while hers are merely the forms settled on a plane surface, Dr. Bleyer photographed the forms produced in the air by the pigments, when they are thrown up from a disk vibrating under the impact of sound vibrations, thus obtaining the reproduction of the full geometrical solid form, of which Mrs. Hughes' picture is only a plane projection. This was really an elaboration of the phonograph, with this difference, that instead of the voice vibrations being imprinted on wax, they were caught by a camera in the shape of the figures they produce. A remarkable feature of the experiments is that these forms have been found to reproduce objects familiar: "Thus, a sharp, staccato tone gave a picture like a snake coiled as if to strike. Sometimes the reproductions are as if a beautiful flower had been photographed. These make most interesting pictures when they are magnified and thrown upon a screen" (*New York World*, April 9th, 1897). The photographs of these vibration-forms were taken at the rate of one hundred per second; thus, continuous pictures were obtained of musical phrases, say "Home Sweet Home," "when the music is shown in what appear to be reproductions of marvellously pretty submarine vegetation, intermingled with reefs and spidery forms, orchids and other plants, and tracings in new and strange patterns." It is to be deeply regretted, in the interests of science, that all the splendid photo collections of Dr. Bleyer have been destroyed by fire, and that this scientist is unable to go over his past work to duplicate them. Instead, he is now interested in what he calls "gravitation figures," which are another manifestation of the law of rhythmical vibration governing the whole Universe.

Another instrument designed by Prof. McKendrick,

and described in the *Practical Engineer*, graphically registers the number and form of the vibrations produced by musical sounds and spoken words, in such a way that it may eventually develop into a new method of communication with the brain of the deaf and dumb, through the nerves of the skin. This demonstrates what the *Secret Doctrine* (I., 502 ; also II., 209) said about the language of *incantations* or of *mantras* being formed of sounds, numbers and figures [forms], our words consisting, according to Mr. McKendrick's instrument, of a succession of material, rather slow, musical sounds, varying in pitch and quality, according to the voice of the speaker, and thus carrying with them the imprint of our "numbers" and "figures," while beings on higher planes of nature can only be reached through different octaves of the same note, *i.e.*, manifested as form and colour. Hence the invention of "mantras" and "incantation language" [I., 502] unconsciously illustrated by another strange instrument, devised by Mr. A. W. Rimington, and called by him the "Colour Organ," for the production of "Colour Music" ; [*Theosophist* XVI., 726, *Path*, X., 249]. Through this ingenious contrivance, every note of music is connected with a shade of colour, whereby a perfect parallelism is proven to exist between the sound vibrations producing the different octaves of musical sounds, and the vibrations of the light waves ; and the inventor expresses himself quite theosophically when he says : "If our eyes could only see them, the colours of the invisible spectrum would probably repeat themselves in successive octaves like sound." Moreover, his instrument even enables him to give his audience music in both sound, colour and form, each note producing, not only a flash of the corresponding coloured light, but also a geometrical design on a properly prepared film, which can be projected at the same time on a screen, illustrating that the same note always reproduces the same design.

On similar lines, Mr. Howard Swan (*Electrical Engineer*, 1897) has studied the forms and coloured manifestations which are caused in the inside of the eye by music and even by the sound of spoken words, and which are

probably connected with the faculty of seeing colours when listening to musical sounds. Then again, according to some American papers, another student has gone further still, by devoting his study to the vibrations of the stars. The reflection of a star on a polished steel plate is received in a microphone, and thus Mr. Albertson has found that each star gives out sounds peculiar to itself, the brighter the star, the less pure and clear the tones produced, the Sun giving millions of incoherent sounds, Sirius tones of agony, Arcturus first sounds like a mighty hurricane, then soft and soothing, while other stars give exquisitely sweet tones. If this be true, then indeed will be justified the old idea of the "Music of the Spheres" (S.D. I., 190; II., 635).

MUSICAL KEY-NOTE.—H.P.B. spoke of the key-note of Nature being the middle "Fa" (S.D., III., 463), a fact already mentioned by Rowbotham (*History of Music* I., 296) and by Amiot (*Mémoires sur les Chinois* VI., 95). The correctness of this statement having been questioned, the study of the facts has brought out the following points: At the normal temperature of the Earth (68° Fahr.), sound travels 13,599 inches per second; if this number is divided by 625, a value obtained by squaring the sacred cubit of the Egyptians, the result is 21'6. Now, to produce a note of 21'6 vibrations, it needs a pipe 26'5 in length; but such a pipe actually gives out the Fa of the 32 feet octave, the lowest clearly defined sound audible to human ears. So that the only mistake made by H.P.B. was to call it the middle, instead of the lowest, "Fa." But practically the first available Fa is the next octave above, *viz.*, 43'2 vibrations, and this tone has the singular property of vibrating—itsself and its four immediate over-tones in the following rates: 43'2, 86'4, 129'6, and 172'8 per second; but if to these we add the proper number of ciphers, we obtain the exact lengths of the four Indian Yugas (S.D. II., 73), which were therefore based on the *middle*, and *not on the lowest* "Fa"! Furthermore, if the day of twenty-four hours is expressed in Indian, "truti," (which equals 1/150th of a second), the result, 1,296,000, is also a Yuga number, this showing that the interval of a second is a correct occult division

of time, and that the cyclic figures given by H.P.B. have various correspondences in Nature.

"GOD EVER GEOMETRIZES."—The result of all studies on vibrations is to prove the correctness of the old Hermetic adage, which means that all forms existing in this world are the mathematical result of geometrical vibrations, as shown even in vegetation by the Russian Stanoievitch (*Paris-Cosmos*, March, 1898) in his study of the growth marks of plants. In fact, just as the voice-forms can be reproduced as they appear in space, so every plane geometrical figure could also be thrown out into space as a three-dimensional solid form, the basis of which would be found to be the old Platonic Solids—the study of which has been lately carried out by a thoughtful Spaniard.*

Thus corroborations accumulate from all sides, and we welcome every invention and discovery as timely and practical demonstrations—allowed by the Guiding Powers—testifying to the truth of the assertion of H.P.B., that sound, form or number and colour underlie all manifestation (compare S.D. III., 475). Yet scientists do not, generally, seem to imagine that they are working on purely theosophical lines, and certainly they do not themselves realize all the possibilities of their own inventions and discoveries.

The fact of the knowledge possessed by the most ancient nations—that the world is built on numbers and geometrical combinations—coupled with the knowledge of harmonious proportions displayed in their architecture, monuments and statuary, has been a puzzle for the modern mind, for whom the true law or "canon of proportion" is now lost. H.P.B. often referred to that ancient

* Arthur Soria Y. Mata, *Contribucion al Origen Poliedrico de las Especies*, translations of which have been made in French and in English (see also *Theosophical Review*, XX., 89, 398; XXI., 153, 341, and XXII., 113, 253). Don Soria's work is full of true Pythagorean and theosophical views, and among other points, he comes to the occult conclusion that the world is not created, but is constantly becoming, and that "the ceaseless appearing of new things is the logical and mathematical result of the law of combination," each form being the cause of more complex forms that are derived from it—in other words, *Karma*, or indefatigable evolution, alike in the star, in the chemical atom and in man.

knowledge, also quoted the wonderful works of the Latin architect Vitruvius, and she stated that infant humanity got its knowledge of "arts and sciences" from its "Divine Teachers," the "Sons of God," "under the direct silent guidance" of the Initiator, "the Great Sacrifice," the "Maha-Guru" (S.D. I., 229), whose pupils of the third Root Race in turn

handed on their knowledge from one generation to another to Egypt and to Greece . . . just as the disciples of the Initiates of the Fourth, the Atlanteans, handed it over to their Cyclopes, the "Sons of Cycles" (S.D. I., 229),

while all the Aryan knowledge came direct from the Atlanteans (S.D. II., 444). In connection with this law of proportion, the *Athenæum* (November 15th, 1902), published a curious article by Mr. J. Hambridge, who claims to have re-discovered the lost Greek canon, through studies of the Parthenon as compared with the principle of proportion which underlies all the symmetrical forms found in nature, both organic and inorganic. "The examination of the proportions of crystals and of the outlines of living forms, such as flowers, diatoms, radiolaria, butterflies, etc., show that—allowance being made for modifications of growth—all the proportions and curves involved in these forms may be analyzed into: (a) a primary series of circles standing to each other in a binary relation ($1 : 2 : 4 : 8$, etc.) combined with (b) a secondary series of circles obtained by using as radii the sides of the triangles, squares, pentagons or hexagons inscribed in the circles of the primary series," this holding good in the curves of the Parthenon, down to the minutest detail, and thus linking the Greek art to Nature. But who taught the Greeks, "if they came down from the palæolithic cave-dwellers?"

In a later number of the same journal (April 30th, 1904), Mr. N. Howard, under the heading of "A Synthesis of Cosmic and Æsthetic Rhythms," goes over the whole ground, including Mr. Hambridge's studies of Hellenic proportions, and conclusively shows the identical law working through nature—from the crystals, the organic life and plants, as well as man, up to the stars—passing through the entire gamut of sounds and music and of

the chemical spectra. In fact, the whole of this valuable paper is a perfect vindication of H.P.B.'s assertion :

Let the student remember that number underlies form and number guides sound ; number lies at the root of the manifested Universe, numbers and harmonious proportions guide the first differentiations of homogeneous substance into heterogeneous elements, and number and numbers set limits to the formative hand of Nature (S.D. III., 436).

SPACE.—An article, curiously bordering—quite unconsciously—on the occultism of the *Secret Doctrine*, entitled the “Hypothesis of Continuity,” appeared in the *Paris Revue Scientifique* (March 16th, 1901), signed A. Müller. Herein one single medium is held to fill all space, being itself space, as it were, such as is spoken of in the “Stanzas of Dzyan,” and this medium is made up of an indefinite number of “series” of “atomic ethers” (S.D. I., 63, 693), this being also similar in idea to the structure of the four etheric sub-planes described in Mrs. Besant’s *Occult Chemistry*. Furthermore, Mr. Müller supposes the Sun to be a single complex molecule (S.D. I., 105), surrounded by an ether which fills all the space between the other solar molecules of the Kosmos ; (see also the “Cellular Constitution of the Universe,” *Bombay Gleaner*, January 1904 ; or *Modern Astrology*, XIV., 146, also XIII., 241). Finally, in Mr. Müller’s view, an ordinary molecule of physical matter, air, water, etc., is a miniature solar system, the distances between the component units and their relative magnitudes being analogous with those of the suns, or as the Hermetic axiom has it, “As above, so below.”

It is indeed a sign of the invisible influence of theological thought that such theories should be formulated at this time, even if the scientific world may not be quite ready to fully acquiesce therein at present. But we can now pass on to illustrations, on other lines, of our teacher’s veracity.

CHAPTER VI.

GEOLOGY AND PALÆONTOLOGY.

These two younger sciences are constantly coming nearer to the theosophical teachings, and even the doctrine of Cycles, first traced out by H.P.B., is taking possession of science, as can be seen by the works of the well-known and beloved Californian "savant," Prof. J. Le Conte, who, in spite of his clinging to Christian limitations and restrictions, shows, in his "Critical Periods in Geology," that all phenomena of nature "are more or less periodic and paroxysmal."

Then again, we read in a recent issue of the *Scientific American* that, according to late estimates by Dr. James Croll, "the ice sheet at the South Pole is at this age several miles in thickness, its upper surface being above the line of perpetual snow and therefore not capable of melting away during the warm eras succeeding glacial periods. Further, when such an enormous mass of ice is again incrustated about the Earth's surface (as some geologists believe may be the case in the process of time), the consistent supposition is that as soon as it begins to yield once more to the influences of a milder atmosphere, as its counterpart did long ages ago, the same process of flooding great areas of the earth will be repeated, and the same remarkable evidences of the presence of seas and oceans that no longer endure will be left behind. The theory entertained by Alfred R. Wallace is much to the point, namely that as a past glacial age was melting into the tertiary period, the seas in the northern hemisphere covered a much larger area than now, and extended across central Europe and parts of Western Asia and the

Arctic Ocean was likewise enlarged. It is well known by geological evidences not admitting of any question, that the lowlands of Europe were submerged and that the Baltic, Caspian and neighbouring seas were simply a part of the vast Atlantic Ocean, instead of being land-locked waters as they are now."

Is not this a faint echo of the stupendous changes narrated in the *Secret Doctrine*? and may not science one day admit that those accumulations of ice at one pole, combined with the gradual increase of the obliquity of the Earth's axis, might finally bring about a sudden displacement of the Earth's centre of gravity, causing the rapid melting of that huge bed of ice, with all its diluvial consequences, and yet allowing the axis to resume

its previous degree of inclination as rapidly as it had changed it (S.D. I., 396)?

Geology also is slowly coming to admit complete changes in the axis of rotation, such as H.P.B. tells of happening periodically seven times "*pari-passu* with the Races," and

in strict accordance with Karmic Law the great Adjuster (S.D. II., 344).

The study of seismic phenomena by our modern specialists, and especially by Prof. Milne, in Japan, also tend to confirm one of the assertions of H.P.B., *viz.*, that :

Elevation and subsidence of continents are always in progress, but

violent minor cataclysms and colossal earthquakes are recorded by the annals of most nations (S.D. II., 831 note) due to . . . the Moon and Planets

and even to the

modest and neglected constellations (S.D. II., 739).

Prof. Milnes' conclusions are as follows : " Earthquakes have nothing to do with volcanoes (as the old scientific theories had it), nor are they at all local phenomena due to causes engendered in their neighbourhood, but to *great slow waves*, huge undulations or pulsations, now newly-termed 'bradyseismic disturbances,' to which the crust of the Earth is *constantly* subject, these undulations occurring just as freely and steadily in parts where ordinary earthquakes are unknown, as where they are

frequent, and the vibrations of one point being felt over the rest of the world." He also gives, as a cause of seismic disturbances, what he calls "secular crush and flow," all of which tends to show that science is constrained to slide into the theosophical idea of the "gradual operation" of forces, which, even without cataclysms, must, through long cycles, induce great changes on land and water, whereby (as said by H.P.B.), the evolution of the globe goes on *pari passu* with that of the races who inhabit it. With this comes the announcement, startling to New Yorkers, that their whole coast is slowly—only a few feet in 100 years—but surely *sinking*; and the same is said of San Francisco, and of parts of England, of Holland and Germany, etc., while other parts of the world (Greenland, for instance), are slowly rising.

Another corroboration of geological facts related in the *Secret Doctrine*, has been given us by the American Scientific Exploring Expedition to Patagonia, the results of which (as found in the "Report" lately published), show this strange and forlorn region a veritable mine of hitherto unknown palæontologic wonders, an immense cemetery of extraordinary extinct primitive types of animal life, belonging to the very earliest ages of the world. And this also proves that Patagonia was once a part of a primitive continent—the *Lemuria* of the *Secret Doctrine*—which enjoyed a tropical climate, this again showing that the Poles of the Earth were not then where they now are, and adduces another proof of the occult theory of axial changes, so often referred to by H.P.B.

Recent discoveries in the United States have brought Palæontology into prominence, and among other localities, Wyoming seems to be a rich field strewn with extraordinary animal remains, a fair sample of which is the gigantic Brontosaurus, 67 feet in length, recently restored in the New York Museum, and the description of which, while reading like a romance from Gould's *Mythical Monsters* (S.D. II., 228), also reminds one forcibly of some Stanzas of the Book of Dzyan :

The Wheel (Earth) whirled for thirty crores more (300 millions).
It constructed Rupas (S.D. II., 16). After thirty crores,
she turned around. She evolved Water-Men, terrible and
bad from the remains of others, from the dross

and slime of her First, Second and Third [rounds] the Lhas the Lhamayin came. They slew the Forms which were two and four-faced. They fought the Goat-Men and the Dog-Headed Men, and the Men with fishes' bodies. . . . Then they were destroyed, Mother Earth remained bare (*Ibid*, 16, 17). . . . From the drops of sweat, from the residue of the substance, matter from dead bodies of men and animals of the Wheel before, and from cast-off dust, the first animals were produced. Animals with bones, dragons of the deep, and flying Sarpas [serpents] (S.D. II., 21, see also 193) were added to the creeping things. They that creep on the ground got wings. They of the long necks in the water became the progenitors of the fowls of the air. During the Third, the boneless animals grew and changed; they became animals with bones, their Chhayas became solid. The animals separated the first (the sexes). They began to breed (*Ibid*, 21, 22, 194). . . . The first great waters came. They swallowed the seven great Islands

(Atlantis and remains of Lemuria),

all holy [men] saved, the unholy destroyed. *With them most of the huge animals* produced from the sweat of the earth (*Ibid*, 24; see also 58, 211, 299, 803).

Thus has Palæontology made wonderful progress on occult lines, and other references will be made to it herein, under other headings, principally in reference to the lost continents; in fact, the information gathered through it has brought scientists to say that Palæontology has now become of more importance than Geology, and certainly it bids fair to verify the occult teachings quicker even than the other sciences.

GEOLOGY AND THE LOST CONTINENTS.

One of the most fascinating portions of the *Secret Doctrine*, is the one relating to the evolution of the Earth, though the cyclic transformation of its continents, a subject treated in various chapters of the second volume, and for which H.P.B. herself tried to accumulate all the scientific and geological proofs known at the time of her writing. From occult sources of knowledge, she affirmed that:

Twice already has the face of the Globe been changed by fire and twice by water, since man appeared on it (S.D. II., 766); Towards the close of the age of a great root race the wheel flattens about its belt, when it goes down in some places and swells in others, and the swelling running toward the poles, new lands arise and the old ones are sucked in (S.D. II., 339 adapted); Our present continents, like Lemuria and Atlantis, hav

been several times already submerged, and have had the time to reappear again and bear their new groups of mankind and civilisations, . . . which, at the next cataclysm, will go down again, while the Lemurias and Atlantises will come up again . . . (S.D. II., 347 adapted).

It must be borne in mind that the *Secret Doctrine* distinctly professes to treat only of the evolution of the Earth in this Fourth Round, and, of the many "lost" continents which have been successively upheaved and submerged in totality or in parts since the beginning of this Round, to only two does H.P.B. devote especially her attention, that is to say, to those of Lemuria and Atlantis, probably as being the nearest to our own epoch and the most intimately connected with our civilisation. When her book first came out, no end of ridicule was heaped on its "benighted" writer, for harping on those old "exploded myths," but since then her assertions have been repeatedly corroborated by scientific discoveries, some instances of which will now be reviewed.

ATLANTIS.—Donnelly's work, now classical, came out just previous to H.P.B.'s teachings, and she made copious references thereto. But since then interesting facts and even maps, have been published concerning that lost continent, to such an extent that it even brought out the suggestion to start an expedition to explore the Sea of Sargasso (sea-weeds), or shallow waters, east of the Bermudas, wherein an area, said to be equal to one half of Europe, still remains unpenetrated and unknown. Since this area is pointed out by theosophy as having been a part of the last large Island of Atlantis (Poseidonis), which, in one night, 11,000 years ago (S.D. II., 338), amid terrific volcanic phenomena, sank with a population of sixty millions of highly-civilized inhabitants, it may be the reward of the explorers to find there some of those material proofs predicted by the *Secret Doctrine*.

Atlantis was originally a very huge territory, embracing not only large areas of the Atlantic and Pacific Oceans, but also many parts of North and South America, wherein remains are constantly found, showing connections racial, geological and paleontological, and some of these will be mentioned briefly.

The persevering researches of Dr. Le Plongeon have done much to call the attention of the public to many

"unexplainable" resemblances between Central American and Egyptian antiquities. Later, the American expedition working for the Peabody Museum of Archæology made some very interesting and important discoveries among the extensive ruins of Copan, a town which seems to have been once the capital of the formidable Mayan Empire, and this at a period as long before the invasion of the Aztecs as these were previous to the conquest by Cortes, so that, when first discovered by Garcia de Palacio, in 1576, the history of this town had already been forgotten by the aborigines. The present excavations indicate that the Mayan buildings show a most striking resemblance to the Assyrian and Egyptian ruins, so that Prof. Putnam, the curator of the Peabody Museum, declares them to be "one of the greatest mysteries of the age," a mystery, of course, only for whoever ignores the existence of the perfect civilisation of Atlantis. But, extraordinary as Copan is for the archæologists, other ruins in British Honduras, those of Tical, promise to be still more wonderful, because, though as yet untouched, they are described as being very superior in size, magnificence and high degree of civilisation even to Copan. Moreover, the whole of Mexico is now known to be strewn with large ruins, silent witnesses to various stages of long-lost civilisations. And thus the discoveries accumulate.

In C. Lumholtz's *Unknown Mexico*, an account is given of the discovery of a hitherto unknown remnant of unconquered Aztecs, the Huichols, or Wizards of the Sierra Madre del Norte, who still preserve unaltered their primitive customs, and through the use of a small cactus, the Hikuli, go into trances and practise the black arts ascribed to the Atlanteans.

An interesting article appeared in the *Edinburgh Review* (1901), concerning the Aztecs and Mayas. . . . "The Mayas had a complicated arithmetic, they could count up into the millions, so that they must have had a perfect system of figures. . . . Corresponding with this advanced arithmetic was a knowledge of astronomical science of no mean order. Both the Mayas and Aztecs divided the solar year (of a luni-solar they knew

nothing) into eighteen periods. . . . Each of these periods consisted of twenty days, or 360, with five unnamed, idle, 'unlucky' days added at the end, making, like the Egyptian before the metonic reform, a year of 365 days, not further corrected. There was, therefore, no bissextile (leap year). . . . But the Aztec system comprised a short cycle of four, and a great cycle of $4 \times 13 = 52$ years, and between each great cycle an adjustment was made by intercalating thirteen unlucky days in a lump. . . . The Mexican Aztecs . . . recognised a kind of original sin, which was washed away by cleansing waters like those of the Christian baptismal rites. We are told by one interpreter that Xochiquetzal, the 'Mexican Eve,' the 'first sinner,' was depicted weeping for her lost happiness, having been driven from Paradise for plucking a flower. Elsewhere, the Earth Goddess, Tlacolteotl, is expounded as an embodiment of sin, which was from the beginning of time. . . . Besides this inherited sin (from the father and mother), there was personal sin, which, as in the Roman Catholic Church, was removed by auricular confession to the priests of Tlacolteotl. Absolution, however, with the remission of the temporal punishment incurred by the trespass, could be imparted once only in a lifetime, and as there was thus no redemption for 'recidivists,' we are told by Sahagun that the Mexicans usually put off disburdening their souls till their old age. Amid the sanguinary rites of the State religion, sublime notions of the Godhead were credited to the esoteric philosophy, and the interpreters tell us that to Tonacateculi, the one true God of the Mexicans—the creator, the maker of the world, the supreme lord—no offerings were made, because he desired or needed none. . . . The ideal, personified in the Supreme Lord, was the outcome of philosophic speculation, of a need of a principle of causality, such, for instance, as the God of our modern systems."

Then, again, recent explorations in the State of Guerrero, Mexico, by a Scotch mineralogist, Mr. W. Niven, now working under the auspices of the American Geographical Society, have brought to our knowledge a very extraordinary part of that country, which, from its

immense number of ruins and of human remains, is adequately called Quechmictoplican, the Land of Bones. "It is one immense cemetery in which human bones are found everywhere, in all directions, without even the necessity of any excavation, and there are places where the layers of human remains show themselves along the face of great cliffs like the Colorado canyons, not lying as though buried, but in great jumbled masses, as though thrown in their present position by some great convulsion of the land." The whole trend of Mr. Niven's discoveries so far tends to indicate that Nature here worked her greatest and most awful cataclysms, and that probably we have found here the remnants of some Atlantean nation just as it was when struck by the sudden destruction mentioned in the *Secret Doctrine*, and this further confirms facts brought out by the early explorers of last century, Humboldt and his followers, who note many similar cataclysmic remains and cemeteries in other parts of Central America.

A curious fact, that went around the American press a few years ago, and which has a certain philological interest, is that some Creek Indians from the Indian Territory (U.S.) having enlisted in the American Army and being sent to the Philippines, are said to have found there a so-called "Malay" tribe, whose dialect was the exact aboriginal language of the Creek nation, so that they could understand each other perfectly.

Atlantis had its dwarfs as well as its giants (S.D. II., 452, note, 797, 346, 284). Mr. Sullivan, of Boston, claims to have rediscovered Humboldt's dwarf race on the upper course of the Rio Negro, between the Amazon and the Orinoco, the men being a little above four feet in height, while the descendants of the giants are still found in the tall Patagonians.

If the reports published by the German explorer, Dr. Von der Steinen, can be relied upon, he has discovered the existence of four tribes of aborigines still living in saturnian primitive conditions of free, peaceful, happy life, in the basin of the river Chingu, in the very centre of the province of Matto Grosso, in Brazil. Matto Grosso means big jungle, densest bush. It is a large territory of

very difficult access and consequently very little known, and this may account for the quiet, undisturbed existence of these four tribes, who live in the patriarchal manner ascribed to prehistoric races, their wants being very few, their language very limited, their dress reduced to a minimum. Yet they cannot be deemed savage, for they are very kindly, their morals are remarkably pure, and, more surprising still, their religious ideas are quite spiritual. They have a dim conception of a Supreme Deity, whom they revere more than fear, because he is supremely good, and they very firmly believe in the immortality of the Soul, and its return to existence. They also claim that during sleep the spirit leaves the body, and can visit any place, either on earth or in heaven, and may not return for several days ; more than that, if the spirit goes too far, or is interfered with by the malefices of some sorcerer, he may not find his way back, and in that case the decaying body is interred by his friends, but without any regret, for the living ones, who fortunately have no civilised notion of hell, can always communicate in their sleep with the departed. So death has no terrors for them ; but what inspires them with great dread is sorcery, which has among them many very powerful adepts. These tribes have each their peculiar avocations—the Baikiris weaving hammocks and white shell necklaces ; the Nabuacas making domestic gourd utensils and strings of red shells ; the Manitakus excelling in the manufacture of earthen pottery, and the Trumais cultivating tobacco and grinding stone axes and other implements ; and this diversity of production keeps up an intercourse of barter and exchange between the different tribes. They have no metals, and use no intoxicants. Each village has a chief with a patriarchal authority. From these details, and from their position, it may be surmised that these tribes are the undisturbed remnants of early 4th race, or perhaps even of Lemurian stock, though their physical aspect is more Atlantean, or, as Dr. Steinen says, like the dark olive aboriginal Cuban. The women are quite pretty, with lustrous dark eyes, and long wavy black hair, and remarkably small hands and feet. Does not this description remind one of the details

given in some of the theosophical books about the workings of the Manu of a race, who keeps in perfect isolation a few innocent tribes as seeds of his future race?

A very interesting article on the "Theogony and Magic" of the aboriginal tribes of Central Brazil, written by Dr. Dario Vellozo, was published in *Sophia* (1903, pp. 58 and 139), the remarkable part of which is that showing these tribes still in possession, not only of the belief in re-incarnation, but also of hypnotic and magical rites, very similar to those attributed to the Atlanteans. Another interesting work on the same subject is *L'Occulte chez les Aborigènes de l'Amérique du Sud*, by Dr. H. Grégoir (Paris), in which the student will find many Atlantean reminiscences.

From the other extremity of America, now come the legends current among the Alaskan Indians, of cyclopean ruins of large towns still in existence in the inaccessible interior of the Alaskan Territory, perhaps remnants of the early Atlanteans or late Lemurians, before

the axle of the wheel tilted people knew snow,
ice and frost (S.D. II., 344).

H.P.B. refers to the Norwegian lemmings—that start in multitudes every autumn, on a migrating tour, which ends in the sea, where they drown—as a proof that land formerly existed from Norway down to the Equator, as a branch of Atlantis, whereto the lemming of that period migrated during the winter (S.D. II., 826). A few years ago, as reported to the British Association in Belfast, bones of the Arctic lemming have been discovered in the Coffey Cave, of the Keishcorran mountain, south of Sligo in Ireland, thus proving the former land connection between Norway and the British Isles, connection which is now also admitted on other geological and botanical grounds.

"Archæologists have lately been poking, with curious trowels and spades (according to the *Melbourne Argus*, November 23rd, 1901), at the base of that great wonder, Stonehenge, and deep beneath the base of the great trilithon, which leans over the altar stone, they have discovered the rough prehistoric tools of the men who chipped the vast stones into the rough shape they now

wear, with the actual chips from the stones themselves. It was supposed that Stonehenge belonged to the bronze age. . . . but the implements found are of stone hammers and axes of flint ; This discovery alters the whole chronology of Stonehenge, and pushes it back to the stone age itself." Again, to quote from the *Secret Doctrine* (Vol. II., p. 358),

We say that most of these stones are the relics of the last Atlanteans.

Captain Otto Sverdrup, the head of the second Polar Expedition, publishes the fact that he found, in that far North, within the Arctic Circle, two of those mysterious stone towers of which Ireland affords so many examples, but which are also dotted throughout the world. The readers of O'Brien's *Round Towers of Ireland*, as well as the students of the *Secret Doctrine*, will appreciate the significance of Captain Sverdrup's discovery, for Ireland is said to have once been a part of Lemuria and of Northern Atlantis, several arms of which extended nearly to the Pole (S.D. II., 348, 423, etc.).

LEMURIA.—The recent studies of several geologists, like the Blandfords, Suess, Neumayer, Forbes, Scott, Hutton, Hedley, Huxley, etc., have now definitely proven the former existence, between South Africa, Ceylon and Australia, of a primitive continent, which, in the *Secret Doctrine*, is referred to as "Lemuria"; only the Lemuria of H.P.B. was a huge continent making a nearly continuous belt all around the world, about the equator, with various projections, both north and south. This was called by Suess, the Gondwana Land, and by others the Great Antarctic or the Great Pacific Mesozoic Continent, while Winchell places in the Madagascarean part of it the birthplace of man. An assertion of Dr. Gunther, that this continent was the habitat of the same kind of gigantic land tortoises now still found in the Galapagos, coupled with the fact that the fossil *Miolania*, a large horned tortoise found only in Patagonia, is closely allied to specimens found in Australia, furnishes very strong support to the theosophical contention that Madagascar, Australia and South America were once connected. Another fact, among the many

which have induced scientists to adopt the hypothesis of our Southern Lemuria, is the existence of a peculiar flora and fauna, called the "Glossopteris," which is found in the fossil beds of all the present Southern lands, Africa, India, Australia and America.

But further than this, Prof. W. Amalitski (*Die Umschau*, June, 1901) announced the discovery at Sokolski, on the Dwina, Ural Mountains, of the fossil remains of various reptiles, especially the large Anomodont *Parieasaurus* and of the Dicynodont, which theosophy would recognise as characteristic of the Lemurian period, but which (as this Russian savant says), "was hitherto known only in South Africa, and always associated with the well-known Glossopteris flora." From this discovery he naturally reaches the further conclusion that this peculiar Southern flora and fauna, "which formed a *belt* round the globe, in low latitudes, during the early Mesozoic times, *must* have had also a *northern extension* into Eastern Europe." Quite so, for this is exactly what the *Secret Doctrine* asserted, calling it "Northern Lemuria," only H.P.B. was led, in her writing, to refer principally to Norway, in Western Europe, as being a remnant of such an extension, this portion being probably more important in her eyes, on account of having included the British Islands (or at least Ireland), and also because it was

from a point of this extension now under the mid-Atlantic Ocean that the early Fourth Race (Atlanteans) were first developed (*Ibid*, 334).

Soundings on some of the Islands of the Pacific Ocean, and especially at Funafuti, were drilled, in 1896, down to the depth of 640 feet, all in pure coral reef, showing conclusively that the land below had subsided this much—and nobody knows how much more—thus verifying H.P.B.'s assertion that science would before long corroborate the occult records concerning the submerged continent, of which the Pacific Islands are only the highest surviving peaks. (See *Knowledge*, January, 1898).

H.P.B. makes much of, and refers repeatedly to, Easter Island and its mysterious statues, in connection with the former Lemurian Continent. Another island, in

identical conditions, seems to have been found lately, Dawson Island, in the Marshalls, the description of which, by Prof. Allison, of the Berlin Geographical Society, reminds one of Easter Island in the matter of enormous heads and of statues, statues whose busts alone measured over 30 feet in height, cut out of hard volcanic rock. This island presents, moreover, the further interesting fact (lacking at Easter Island), that these statues are found in the midst of some wonderful ruins of what must have been a large town and is now a veritable mine of truly remarkable archæological remains. This also reminds us that cyclopean remains (similar to Stonehenge) have been found at Kologa, Tongan Islands, together with ancient tombs, built of gigantic slabs of coral, several tons in weight. Again, in the interior of Sawaii, in Samoa, ruins and immense cause-ways are in existence, which the present aborigines attribute to the work of the spirits.

The *Secret Doctrine* contends that a large inland sea—communicating once, through what is now Turkestan, with the Mediterranean and Atlantic Ocean—existed formerly where now are found the Gobi sandy deserts, enclosed by high mountains. This idea has been recently sustained by botanical discoveries, which were submitted by Dr. A. B. Rendle to the Linnæan Society (December, 1900). Specimen of grasswrack (*Zostera Marina*), a purely maritime plant common to this day on all the Mediterranean and Atlantic shores, have been found in beds of clay, at the altitude of 16,500 feet, in the Kwen-Lun Mountains, which, by-the-bye, must have formed an extensive portion of the south-west shores of this prehistoric sea, during its Lemurian period. But this plant could not have grown in that district and at that altitude, if the basins of those waters had not communicated with the other salt-seas, and if it had not been then considerably lower than the beds in which the remains of the plant are now found.

A very interesting study on Lemuria, from the geological point of view, has been written by an Australian scientist, Mr. J. Sterling, in the *Theosophical Review* (December, 1900, January, 1901, January, 1902). Interesting developments are also expected from the labours of some

investigators who have made a speciality of finding out the religious ideas of the remaining tribes of Northern Australia ; and, on this same subject, the *Age* (January 11th, 1900), gave a report on a valuable paper contributed to the Melbourne A.A.A.S. by Mr. F. J. Gillen, in which great stress was laid on the fact that the Arunta tribes, like most Australian people, fully believe in re-incarnation—in and through the same tribe—an idea common to all Lemurians and Atlanteans, and which seems to be an echo of the old occult idea that re-incarnation, in the lower species and in the earliest men, took place through what Mrs. Besant calls the “Group-Soul,”—the group-souls being further sub-divided according to the “Rays,” whereby an intimate connection existed between all the minerals, plants, animals and men of one and the same ray, whence the institution of the Totems.* In fact, in Australia there are slowly accumulating the evidences of a former thickly populated, highly civilised and vast continent in the South Pacific, the “gigantic Lemuria” of our Teacher. Thus, recent careful explorations in Spanish Micronesia have shown, according to a lecture given in Sydney by Mr. F. W. Christian, that the celebrated ruins in Metalanim, Ponape, were built on models exactly similar in style to the monuments found at four extreme points, *viz.*, Cambodia, Yucatan, Peru and the lonely Easter Island, showing that intimate communication must have existed formerly between those remote parts now separated by immense watery tracts.

In Africa, Dr. Schlichter's expedition (1898), through Rhodesia, discovered cyclopean ruins, which constitute the first tangible proofs of an old civilisation in South Africa. He also found buildings connected with the ancient working of the gold mines, which are in the style of Stonehenge. Though these ruins and

* The *Secret Doctrine* does not use the graphic term “group-soul,” but it refers to the *fact*, by explaining that the collective MONAD of every kingdom keeps on differentiating more and more. . . . “The ocean of matter does not subdivide into its potential and constituent *drops* until the sweep of life-impulse reaches the evolutionary stage of man-birth. The tendency toward segregation into *individual monads*, is gradual, and, in the higher animals, comes almost to the point. . . .” (S.D. I., 201)

mines may point to the fact that this region was the one from which came the wealth of the biblical Queen of Sheba, yet they also indicate a much older civilisation, with Atlantean, or probably better still, Lemurian characteristics. It may be confidently expected that the engineering works that will be started for the utilisation of the great Zambesi Falls, will bring out yet more "old facts." On the other hand, the great Lake Tanganyika has been found to show unmistakable evidence of its having been formerly connected with the ocean, a fact confirming the theosophical report, that, in Lemurian times, the whole region of the great African lakes and the northern Deserts formed one great sea connected with the Atlantic.

CHAPTER VII.

ARCHÆOLOGY.

This department of investigation also has greatly contributed to the revival of "Dead Facts," and one of the most remarkable forewarnings of H.P.B.—which is thereby fully borne out—is the one in which she stated that :

the more Archæology and Philology advance, the more *humiliating to our pride*

(i.e., to the pride of materialistic and theological sciences),

are the discoveries which are daily made, the more glorious testimony do they bear in behalf of those (nations) who, perhaps on account of the distance of their remote antiquity, have been until now considered ignorant flounders in the deepest mire of superstition (S.D. II., 449)

And it is a fact, that, within the last decade, there has been—as the *Argus* justly expressed it—"a most amazing procession of curious and unexpected archæological discoveries, in view of which it almost seems as if history will soon have absolutely no unguessed riddles and no undecipherable hieroglyphics." At the same time these accumulating archæological and philological discoveries undeniably prove, as H.P.B. hinted, the existence of brilliant civilisations in the dim past ; in fact, of civilisations displaying more and more brilliant remains the further back they go, thereby not only crushing the old theological theories about the age and creation of the world, but even bringing science to the point of asking whether humanity ever had a beginning, because, forsooth ! the earliest known savage races are now shown to have co-existed, or even to have been preceded by still

earlier times of civilisation, evolution being ever carried through alternate cycles of light and darkness, knowledge and ignorance, as asserted by theosophy as well as by history.

EGYPT.—The reader of the *Secret Doctrine* cannot have failed to notice how brilliantly H.P.B. took advantage of the discoveries that had been made in Egypt and Greece up to the time of her finishing her book (1888). Since then, year after year, discoveries have never ceased among the old ruins of the world, unveiling more wonderful vistas, the latest being ever more astounding, but all furnishing interesting facts in corroboration of the assertions of Theosophy; gradually pushing back Hellenic and Egyptian History into the night of time, far antedating the dwarfed figures of the Jewish Era of Creation. Thus Mr. de Morgan, the present energetic Director of the Egyptian Antiquarian Service, first discovered some years back the tombs of a hitherto unknown sovereign and his family, Au-Ab-Ra, of the Twelfth Dynasty, about 2500 years B.C., or nearly 400 years before Abraham; and the ornaments and precious jewels found in these tombs are described as being of the purest gold and the “finest possible workmanship,” so that they “could hardly be imitated to-day,” showing a “mastery of art almost incredible.” (*Scientific American*, 1896) And yet—before that time even—Egypt had had *eleven* glorious and indisputable dynasties, “the monuments of which show the Egyptians to have been a highly civilised nation from the very beginning of the reign of their first King Menes,” whom a new work, by one of the best-informed Egyptologists, Prof. Flinders Petrie, pushed back as far as 4777 years B.C., or 6682 A.M., in other words, 773 years *earlier* than the usual ecclesiastical date for the first day of Creation, while other savants, like Mr. de Morgan, give the date of 4800 B.C. to the Fourth Dynasty, thus pushing Menes much further back still.

A later achievement by Mr. de Morgan was the discovery of a tomb of unknown antiquity near Negada, between Thebes and Abydos, where is supposed to have existed the very cradle of the earliest Egyptian civilisation and

its First Dynasty ; but the objects found therein were of such ancient character that the Egyptologists were not able to decipher them. Yet, here again, were found evidences of the most refined knowledge, while furniture, bronze statues, colossal stone figures and marvellously and weirdly carved vases, cut out of such hard substances as alabaster, obsidian, rock crystal and quartz, raised the query :—how could such work have been done by men supposed to use only flint tools, which, in reality, were the only kind of implements found around ? And science can only answer so far by the word “mystery !” But the still more recent discovery of the actual mines from which the above-mentioned flint implements themselves had been quarried by the aboriginal inhabitants, before the invasion of the more cultured races to whom the ruins belong, has brought our same scientists, Messrs. Morgan, Petrie and Sayce, to acknowledge, as the latest dictum of Science, the existence of Humanity in the Valley of the Nile some *two hundred thousand* years ago ! Now Science is really fast approaching to the theosophical “exaggerations.”

Near the same city, Abydos—which has proved to be the container of the most unexpected and apparently inexhaustible archæological treasures—later discoveries brought to light in 1895 the monuments of Sneferu, first king of the Fourth Dynasty. The French Egyptologist, Amelineau, found tombs which he claims to be those of no less personages than Osiris, Set and Horus—old kings who were deified later—to which he assigned the provisional date of 8,000 B.C., and in which were found perfect hieroglyphics, as well as numerous *chefs d'œuvre*, of a most advanced architecture and splendid statuary, tokens of a very advanced civilisation. (*Comptes-Rendus de l'Académie des Inscriptions*, Paris, 1898.) Mr. de Morgan, in 1899, discovered another royal tomb, subsequently identified as that of Mena or Menes himself, the first king of the so-called First Dynasty, or the first of the Pharaohs. The first remark made about this was “this tomb and the treasures it contained were not the work of a primitive race, but of a people long used to the art of building and to the delicacies of the

fine arts, also showing that they were by no means isolated from the outer world, but exchanged freely with other nations." Moreover, the character of the buildings and style of ornamentation was much more Chaldean than later Egyptian, thus showing the result of long centuries of thought and labour. Then came other discoveries by Prof. Flinders Petrie at Abydos, Mr. Randell-Maciver at El Amrah, Mr. Garstang at Beit-Khallaf, and others, through which the continuous record of sixteen kings of the First, Second and Third Dynasties (approximated 4777-3998 B.C.) has been established, showing, as might be expected from H.P.B.'s assertions, a most advanced state of civilisation behind the earliest of those early dynasties and proving further that commercial intercourse had been carried on with the contemporaneous civilisations of Greece and Crete, even before the time of the "Mythological" Minos!

As reported by the discoverers: "There is no doubt that behind even this early period, there is a long vista of prehistoric ages, of which many records have already been found and exhibited." In a word, science is slowly coming to the point of verifying the "fabulous" Divine Dynasties of Manetho.

Excavations started at Benihasan, on the east bank of the Nile, 200 miles above Cairo, led to the discovery of 887 tombs, absolutely intact, belonging to twenty-three centuries B.C., and in which, among other curiosities was found an exact counterpart of the modern weaving reed as used in the mills at Wigan (England), the only difference being that the ancient Egyptians of 2300 B.C. used cane teeth instead of steel.

Finally, Prof. Petrie reported in June 1903, that new findings had been made on the site of the old temple, again at Abydos, showing successive buildings going back to over 5000 B.C., clearly antedating the first dynasty; here again the Egyptologists admit that the "most wonderful thing (and their wonderment never ceases!) about these discoveries is that the earliest show a workmanship, not only unrivalled in any subsequent period in Egypt itself, but also unrivalled by the art of any other (so far known) country of antiquity; the drawings and

sculptures are wonderfully life-like and graceful and free from the stiff conventionality of subsequent Egyptian art, and (more important still) the human heads thus represented seem to suggest a race very different from those that followed," this confirms the theosophical assertion of early Atlantean intercourse with Egypt, while it shows also this early civilisation to have been far superior to the earliest known Babylonian civilisation, which it has been fashionable of late to claim as the origin of all Egyptian culture.

Thus are the former theories gradually disproved in favour of H.P.B.'s assertions, thus every step of true and impartial scientific research tends *towards* theosophical data, not *against* them, so that the modern Egyptologists themselves can no longer deny that even their present corrected chronology does not yet begin to do justice to the facts, because the civilization of Egypt truly shows no traces of ever having had a beginning, seeming already old, time-worn, at the earliest period,

a more glorious culture is apparent, the further back we are enabled to carry our retrospect (S.D. II., 830 note, also 349).

This is a puzzle to Science, while to Theosophy the explanation is as clear as daylight: "All our 'historical' civilisation has no real beginning, because all our Fifth Root Races borrowed their knowledge from the preceding—to us 'pre-historical'—and glorious civilisation of the various nations of the 'mythical' Fourth Root Race," and

Egypt was first settled by Atlanto-Aryan colonists from India (S.D. II., 789, 349, 447, 455, 718); (*Isis Unveiled* I., 589, 627)

at the beginning of the Fifth Race, but their progress was hastened by the advent of other colonists, fugitives from Atlantis (Poseidonis), who brought with them the perfected and already old civilisation of their own country, long before it finally disappeared under the waters; and the late unearthings prove that the *oldest* Egyptians, so far reached by modern science, already knew of things that we have not as yet *re-discovered*!

Another very significant fact for us but strange for the scientist, is that, in the most recent discoveries, which are the oldest in date, have been found large quantities

of remains of strange, uncanny mammals, hitherto unknown ; this fact indicates that those remains date from an epoch anterior to the convulsion that destroyed Atlantis and most of the old huge animals,* Egypt itself, with Greece and the neighbouring countries having been temporarily submerged at the time, a fact which gave origin to the Jewish legend of the Universal deluge, and to the Greek one about Deucalion.

BABYLONIA and ASSYRIA.—The interest that attaches to the Egyptian discoveries is due principally to the fact of Egyptian history being closely interwoven with the Jews and their Bible, so that the identification of the Egyptian dynasties, formerly supposed to be imaginary, together with a reliable settlement of their chronology, puts an end to the ridiculously dwarfed figures, for the “creation of the world,” that Usher and his followers have saddled on a credulous western world. A similar interest, of course, attaches also to the Babylonian and Assyrian researches, in so far as they help to elucidate and correct the Bible ; but the interest is greater for the Theosophist, because the dates attributed by archæological science to the discoveries in these parts already reach a much greater antiquity than those obtained in Egypt up to the present, and confirm the assumption of the existence of huge civilisations of Aryan creation millenniums before Abraham’s adoption by Jehovah. These results are still more damaging to orthodox chronologists than those of Egypt have been. Already in his Hibbert Lectures for 1887, Prof. A. H. Sayce of Oxford (quoted in S.D. II., 730, 731, 732), admitted that Sargon of Accad, the first Semitic Emperor, “must have reigned as early as B.C. 3750,” and that the Accadian monuments of Tel-loh must reach back to about B.C. 4000, “in other words, to the fourth year of the world’s creation agreeable to Bible chronology, and when Adam was still in his swaddling clothes.” “Perchance,” said H.P.B., prophetically, “in a few years more, the 4000 years may be further extended.” Prof. Sayce also admitted that the Accadian Zodiac showed

* See Stanza XI., Shlokas 45-46, S.D., II.

that the vernal Equinox was then in Taurus 4700 B.C., and H.P.B. added that "some fresher discoveries may lead to a new necessity of pushing the Babylonian dates so far beyond the 4000 B.C. creation, as to make them entirely Pre-Kosmic" Now, this prediction is already realized, and the same authority, Prof. Sayce, in reviewing some of the latest Babylonian unearthings, admits (*Fortnightly Review*, January, 1897) that the authentic records of the early history of that empire now date back to a period of B.C. 7000, or 3000 years before that which our fathers were taught as being the world's first day of creation! And still those figures are likely to be further extended (S.D. II., 73); for they are yet nothing by the side of the antiquity assigned by Theosophy to humanity—"as we know it"—of more than eighteen millions of years (S.D. I., 174 note, II., 262).

The German exploring expedition at Babylon, under the direction of Dr. Koldewey, have reported extraordinary good luck and successful results in their work for the first years of the new century, the whole of that ancient city having been located, 15 kilometers in diameter, as also the palace of Nebuchadnezzar, with remains of incredible richness. But these results having proved so fatal to the old idea of the divine inspiration of the Old Testament, they have naturally caused, in clerical quarters, quite a turmoil, which is well exemplified by the controversy in Germany between the professors Harnack and Delitzsch, that led to the manifesto of the German Emperor, in which he wanted to put a limit to the intervention of science into biblical scrutiny: "thus far and no farther!"

But despite the alarm of theology, other blows from the reviving "dead facts" continue, and referring only to the results of eleven years of hard work of the Pennsylvania University Exploring Expedition, under Professor Hielprecht, an American paper recently contained the following admissions—"Enough information from the work at ancient Nippur* has been received to

* Nippur was the capital of North Babylonia before the foundation of Babylon, but it was finally destroyed 2000 B.C. by the Elamites.

show that 10,000 years ago there existed a civilisation as comprehensive as our own, a commercial system built on 'modern lines,' an exalted patronage of art and letters, a far-seeing appreciation of the good opinion of posterity; people went then to war on the same pretext that animates modern armies. They had libraries in which were dictionaries, histories, cyclopedias, and public museums in which were paintings, sculptures, archæological specimens; they used machinery for making earthen pots and platters; their architecture included magnificent palaces at least two stories high, covering the surface of a modern city block, and having a drainage system in which resemblance can be traced to certain 'modern' patents; their scientists studied astronomy, and knew the motions of the stars; the educated went in for special religious cults, and looked down upon those pagans of the time who were without the law; the rich wore jewellery, which a modern goldsmith might be proud to make, and they did exquisite enamelling; and their belief was, even then, that their civilisation was already very old."

PERSIA.—Similar results are looming here also. The beginning of the new century has seen—through the labours of the French "Mission Scientifique" to Persia—the unearthing of the ancient capital of Elam, in which was found the oldest and longest known Chaldean inscription, relating to an unknown king, Manishtisu, who reigned before Sargon of Accad, and we know that this Sargon claimed to have conquered Elam 3900 B.C.!

Moreover, the whole region is covered with promising mounds of old ruins, and at Mal Amir, distinct traces have been found of a still more ancient city of the Anzanian kings. The total results of all these discoveries are so important, that they lead the French scientists to hope that there they will eventually reach the "very beginnings of Chaldean civilisation," how many centuries earlier than the biblical Creation of the World, "no one yet knows!"

ITALY.—Even the well-beaten field of the old Roman Empire is bringing out its contingent of "dead facts." A second Pompeii, near Caserta, has just been discovered,

in a more perfect state of preservation, and the excavations so far give promise of an immense wealth of archæological treasures. Furthermore, in Rome itself, prehistoric tombs of an unknown race have been discovered beneath the earliest foundations of Romulus, beneath the soil of the sacred Forum. And the most startling thing in these findings—for “science,” though not for the followers of H.P.B.—is that “in these tombs sleep men and women of a different race, surrounded by vases, jewels, weapons and diverse utensils, resembling mysteriously those that have been found in the mounds of primitive America,” among those Aztec and Toltec ruins in which Charnay and Le Plongeon found so many marvellous things. As a French reporter puts it: “It might be said that the same mysterious ancestors who once peopled the great dead cities of ancient Mexico had brothers in Europe, or that perchance, the intervening oceans were not yet born, so that the same humanity lived here as well as there, on the shores of the Mediterranean as well as throughout that immense region now covered by the ocean, about which Voltaire and Bailly wrote so sensibly, in the *Lettres sur l’Atlantide*.” . . . Quite so, says the theosophist, for he knows that even after the destruction of the great continent, the surviving Atlanteans of Poseidonis had colonies on all the shores of what was then the Mediterranean, as Plato told to his people.

INDIA.—Recent publications of the Royal Geographical Society of London, and of the Imperial Geographical Society of Russia, contains account of discoveries by a Swede, Dr. Sven Hedin, in 1899-1902, in the Takla-Makan desert (Chinese Turkestan) especially near Khotan, which fully confirm what H.P.B. said about the mysterious deserts of Central Asia (S.D. II., 434 note) also that these deserts have been under water (S.D. II., 4); and the inhabitants interviewed by Dr. Hedin still preserve traditions similar to those noted in *Secret Doctrine*, about 1001 cities buried under the sands, which cover vast ruins recalling the Hindu types of architecture, and untold treasures (S.D. I., 16, *seq.*, also *Theosophist* XVIII., p. 240). These facts have been further confirmed by the expedition of Dr. M. A. Stein, of the India Educational

Department, who has collected many interesting manuscripts and seals, some of which point to some intercourse with Greece (*Journal of the R. Asiatic Society*, April, 1901), so that future researches in that region will give interesting developments.

In 1898, the well-known Hindu, Babu P. C. Mukerji, Government Archæologist, who was ordered by the Province of Oudh to investigate the alleged discoveries of Dr. Fuhrer, Dr. Waddell and Mr. Peppe at Kapilavastu, finally located at Rumindei, the exact spot where Sakya-muni Buddha was born, and where King Asoka erected a commemorative monument, B.C. 229, a fact of considerable interest to Indian history, as it refutes and confounds the foolish contention that the Buddha never existed.

CRETE.—But, of all the recent discoveries, those that have created the greatest excitement in the scientific world, by dealing a fatal blow to many of the older theories in favour of theosophical ideas, and by opening the way to entirely new speculations, are those made in Crete, by the various International Commissions, but more especially by the British scientists, Messrs. Hogarth and Evans, to whose discoveries a most unprecedented attention has been awarded by the English press, the *Times* and the *Daily Mail* especially.

As explained in the reports of the exploring expeditions, "Students of the origins of European civilization have been impatiently expecting light from Crete for many years past," because while this Island was, archæologically and otherwise, the least-known of the Ægean group, it certainly promised more than all the others together, from its great size and natural wealth, its position, and the remarkable part it had held in mythology. "The Greeks placed there events not less important than the birth of their Supreme God and the first giving out of His Law," so that a question of the greatest ethnological interest was: "Who were the original race of Crete, and whence did they come, who played such a 'rôle' in pre-historical records?" But the great Island had always been unreachable and closed against all researches, so that science had not only no knowledge of the speech of the old autochthones, but even doubted if they had any system

of writing, any culture at all, though they were known to have made great achievements in art. It now seems as if Crete, in her position of holding the key to important ethnological knowledge, had been mysteriously, but purposely, kept closed by powers above, in order that her treasures should be preserved unviolated until the proper time came, when their unearthing and the revelations they would bring might be useful or necessary for the advancement of humanity's knowledge. The discoveries, so far, are only preliminary, superficial, yet they promise unprecedented results—more than justifying scientific expectations. Among them can be mentioned : (a) The unearthing of "Knossos" as the town and palace, in fact the very throne of Minos, the king-founder of the celebrated mythological Cretan dynasty : (b) The exploration of the cave, above Psychro, so sacred in the Ægean religion, where baby "Jupiter" was reported to have been kept hidden to save him from Saturn's homicidal tendencies, this same cave being also the one into which Minos himself went "alone," like Moses, previous to his coming out with the code of laws which were declared to have been given to him by Zeus himself, for the ruling of his people. This cave has been found to be strewn with "ex-voto" offerings, showing it to have been for millennia the Holy of Holies of Crete.

All these facts, even the very existence of Minos were heretofore considered as purely mythical, lying fables ; even the later Greeks, corroborated by Paul (Titus I., 12), asserted that "all Cretans were nothing but liars." Now we may expect to find, not only the tomb of Minos, but perhaps that of Jupiter or Zeus himself, since "all the Gods ever adored by man first lived as men." But the most important point for the students of the *Secret Doctrine* is that here again the unearthings show that, even at the origin of this singular Ægean civilisation, the culture of the people was of the highest kind, with no primitive, barbaric stage in evidence ; and that this mythological abode of Gods and God-like Kings, was truly the seat of a far-advanced civilisation, even before Greece had a history, before its Olympus had been officially declared the seat of the Gods, before the Grecian historical

towns had been built. Moreover, we are now shown that this prehistoric Ægean Nation—the Eteokrites of Homer—knew the use of writing, and used at least two kinds of characters, this being another proof that this Island of Crete, to students of Theosophy, ought to be of a very peculiar interest, because it must, from its position and conformation, be much older, both geologically and ethnologically, than the other lands of the Mediterranean coasts, which appeared only after the great changes resulting from the shifting of the waters from the previous Sahara basin. It must be even older than the old Greece, which the priest of Sais told had been temporarily submerged, and it must have escaped from that other partial deluge which ruined Samothrace, when the Black Sea or Pontus Euxinus—then an enormous lake—broke through the Dardanelles and left its trace in the local traditions.

The early Cretans were thus, if not Atlanteans themselves, most probably direct descendants from Atlantean stock; and this would seem corroborated by the very fact of their myths concerning the infancy of Zeus. Zeus was a ruler of the Fourth Race, while Saturn was one of the Third Race; we also see that Zeus—the original one—not the degraded Olympian Deity (S.D. II., 438), was also the ruler of the Androgynes or Hermaphrodites, “terrible in force and strength,” whom he had to divide in two (S.D. II., 187), an operation which he accomplished through the “Labrys” or double axe, which ever after remained the peculiar emblem or symbol of Zeus. Now this identical symbol has been found in abundance in the Cretan remains recently excavated, together with figures and statues of bulls, relating evidently to the “Minotaur,” or Taurus of Minos. We shall now have to watch for the findings that will surely be made in the celebrated Labyrinth, which Dædalus was reported to have built there, in imitation of the Egyptian building on the shores of Lake Moeris.

Want of space does not allow here more than a few quotations about the Cretan discoveries, to prove the very high degree of civilisation reached by those early contemporaries of Minos, *i.e.*, a pre-Mycenæan civilisation, which gives us: “vases of startling elegance”

and "novelty of form," made to imitate and copy metal forms with a "perfection difficult of attainment to-day"; painted with "gorgeous colours" which have defied the action of time for over 3000 years; hard gems and rock-crystal, precious, like diamond, carved in most "exquisite intaglio"; metallurgy in iron and bronze, "equal to the finest old Egyptian"; coloured "bas-relief" with human figures of a "wonderful purity and elegance of design" and perfect knowledge of anatomy, excelling all the contemporary productions; paintings of ladies' fashions, with puffed sleeves and flounced skirts! In fact, "the Knossos Palace shows a civilisation that reached the highest point attained by archaic art in painting the human form, in modelling plaster and in carving stone and gem." (D. C. Hoggarth). But here follow a few extracts principally from the *Times*.

"A MYSTERIOUS CIVILISATION.—The prehistoric site, of which some two acres have now been uncovered at Knossos, proves to contain a palace beside which those of Tiryna and Mycenæ sink into significance. By an unhopèd for piece of good fortune the site, though in the immediate neighbourhood of the greatest civic centres of the island in ancient, mediæval and modern times, had remained practically untouched for over 3000 years. At but a very slight depth below the surface of the ground, the spade has uncovered great courts and corridors, propylæa, a long succession of magazines containing gigantic stone jars that might have hidden the Forty Thieves, and a multiplicity of chambers, pre-eminent among which is the actual throne-room and council chamber of Homeric kings. The throne itself, on which Minos may have declared the law, is carved out of alabaster, once brilliant with coloured designs and relieved with curious tracery and crocketed arcading which is wholly unique in ancient art and exhibits a strange anticipation of thirteenth-century Gothic. In the throne-room, the western entrance gallery, and elsewhere, partly still adhering to the walls, partly in detached pieces on the floors, was a series of fresco paintings, excelling any known examples of the art in Mycenæan Greece. A

beautiful life-size painting of a youth, with a European and almost classically Greek profile, gives us the first real knowledge of the race who produced this mysterious early civilisation. Other frescoes introduce us to a lively and hitherto unknown miniature style, representing, among other subjects, groups of women engaged in animated conversation in the courts and on the balconies of the palace. The monuments of the sculptor's art are equally striking. It may be sufficient to mention here a marble fountain in the shape of a lioness's head with enamelled eyes, fragments of a frieze with beautifully cut rosettes, superior in its kind to anything known from Mycenæ, an alabaster vase naturalistically copied from a Triton shell, a porphyry lamp with graceful foliation supported on an Egyptianising lotus column. The head and parts of the body of a magnificently painted relief of a bull in gesso duro are unsurpassed for vitality and strength. There can be little remaining doubt also that this huge building, with its maze of corridors and tortuous passages, its medley of small chambers, its long succession of magazines with their blind endings, was, in fact, the Labyrinth of later tradition which supplied a local habitation for the Minotaur of grisly fame. The great figures of bulls in fresco and relief that adorned the walls, the harem scenes of some of the frescoes, the corner stones and pillars marked with the labrys or double axe—the emblem of the Cretan Zeus, explaining the derivation of the name "Labyrinth" itself—are so many details that all conspire to bear out this identification. Nor is this all. Exploratory digging to the south and west of the palace revealed a veritable Pompeii of houses of the same early period, which yielded, among other things, by far the finest series yet found of vases of the singular primitive Cretan polychrome style, unrepresented in European museums. One remarkably well-preserved block of buildings appears to be a group of shrines devoted to a phallic pillar workshop, such as is known on the Phœnician and Palestinian coasts—the bethels of the Jews—and of which the palace itself supplies an example, connected with the cult of the Cretan Zeus. But brilliant as are the illustrations thus recovered of the high early civilisation

of the city of Minos, and of the substantial truth of early tradition, they are almost thrown into the shade by a discovery which carries back the existence of written documents in the Hellenic lands some seven centuries beyond the first known monuments of the historic Greek writing. In the chambers and magazines of the palace there came to light a series of deposits of clay tablets, in form somewhat analogous to the Babylonian, but inscribed with characters in two distinct types of indigenous prehistoric script. The inscriptions, over 2000 of which were collected, were originally contained in coffers of clay or wood (which rotted away), and gypsum, which had been in turn secured by clay seals impressed with finely engraved signets and countermarked and countersigned by controlling officials in the same script while the clay was still wet. The clay documents themselves are, beyond doubt, the Palace archives. Many relate to accounts concerning the Royal Arsenal, stores and treasures. Others perhaps, like the contemporary cuneiform tablets, refer to contracts or correspondence. The problems attaching to the decipherment of these clay records are of enthralling interest, and we have here locked up for us material which may some day enlarge the bounds of history, for there cannot be any doubt that the Cretan hieroglyphs will be found to have a special importance in their bearing on the origin of the Phœnician Alphabet. The work of excavation in the Palace of Knossos is barely completed, and yet whichever way we turn the relics already obtained from within its walls supply new and un hoped for data for the reconstruction of early *Ægean* civilisation." (See also *Theosophical Review*, XXVII., 460, XXVII., 482.)

In a cellar of massive stonework, found under the pavement of one of the excavated store-rooms, were discovered various relics evidently belonging to a shrine ; but here, the central aniconic of the cult, instead of being the Double Axe, as in other adjoining shrines, was a fine marble cross, of the kind now used by the Orthodox Greek Churches ; furthermore, it was found that this same cross had also been used for seal impressions to documents therewith found, and relating probably to the cult of that sanctuary (See *Times*, September 16th, 1903).

Finally, and this is also very important, the ruins so far discovered prove distinctly that the Minos Palace was itself built on previous Cyclopean—i.e., Atlantean—remains, “showing very ancient and superior native culture,” and that “his dynasty only ousted another previous one, possessing a very high *antecedent* culture, refined to the verge of decadence”; we can furthermore see that, in its turn, this civilisation of Minos was followed by a decadent period, called the “Geometric Age,” previous even to the dawn of the so-called Mycenaean Age, which itself, until lately, was termed “prehistorical” if not absolutely mythical. Now, all these epochs will have to be recognised as historical, and their “mythology” simply as previous history veiled under allegory. And this will again justify a quotation from A. Thierry, which the writer of the *Secret Doctrine* appropriated, viz., “that in legend alone rests real history, Legend is living tradition and three times out of four, it is truer than what we call history” (I., 739), as well as this other assertion, that “the origin of nearly every popular myth and legend could be traced invariably to a fact in Nature” (II., 307).

The work in Crete is yet far from being exhausted, and students of Theosophy may expect some more light to come, through it, on many other points, including possible findings connected with the real Atlantean colonies:

How many more cities and localities called *fabulous* are on the list of future discoveries, how many more personages regarded as mythical (see p. 307) will one day become historical, those alone can tell who read the decrees of Fate in the Astral Light (S.D. II., 246).

In conclusion, the reader must now decide whether, as a whole, all recent archæological unearthings do not show that, “As one civilisation after another looms out of the mists of antiquity, each ancient kingdom proves itself, by its ruins and fragments, to have been the possessor of a high and complex civilisation,” whereby the teachings of the *Secret Doctrine* become more and more justified. Thus also, is truly and constantly verified that other prophecy of H.P.B.. that

the yet buried but to be unburied civilisations would prove the truth of her words;

and the reason for this—a mystery still to science—is that the Fourth Root-Race (Atlanteans), whose rule once embraced the whole world,

had its periods of the *highest* civilisation. Greek and Roman, and even Egyptian civilisations were *nothing* compared with the civilisation that began with the Third Race after its separation [of the sexes] (S.D. II., 448).

Thus we only need to patiently watch in order to see whether the future discoveries will not soon prove that :
“In the Twentieth Century, scholars will begin to recognise that the *Secret Doctrine* has neither been invented nor exaggerated”

For once the door permitted to be kept a little ajar, it will be opened wider with every new century (S.D. Introduction).

CHAPTER VIII.

PHILOLOGY.

The next science on which H.P.B. relied for the vindication of her assertions and foresight, has not failed her either, although its progress has been linked principally with that of Archæology.

The *Secret Doctrine* contends that writing was invented not at all by the Phœnicians, but by the Atlanteans (S.D. II., 458) "many hundreds of millenniums ago," before Poseidonis—the last island remnant of their huge territory—was submerged, about 12,000 years ago. The narrow-minded scientists of fifty years ago, beginning with Grote and Dugald Stewart and ending with Weber and Max Müller, contended that writing

"was an *ars incognita* in the days of Hesiod and Homer . . . and unknown to the Greeks so late as 770 B.C."; and yet the Phœnicians who had invented it . . . 1500 B.C. were living among the Greeks . . . all the time (S.D. II., 459),

as H.P.B. so sarcastically remarks. The first death-blow inflicted on these short-sighted views was delivered when Schliemann made his discoveries at Troy; but since then other proofs have been accumulating. Thus, among many others:

(a) In Egypt, it has been ascertained that the first chapter of the well-known mystic poem so-called the "Book of the Dead," was written in hieroglyphics, under Hesepti, the fifth king of the First Dynasty, before 4266 B.C., *i.e.*, at least 200 years previous to the biblical date of Creation;

(b) Dr. E. A. Wallis Budge, of London, brought from the ruins of Larsa—the Ellasar of Genesis XIV.—in South

Babylonia,—a most important collection of fifty letters, written by King Khammurabi, generally thought to be the Amraphel of Genesis, at least 2,300 years B.C., thus confirming the discovery, previously made, of the celebrated Tel-el-Amarna tablets, which however, only date back to 1,450 B.C. These tablets and letters, are important because they prove, not only “the existence of a regular system of correspondence between rulers and their vassals” previous to the age of Abraham, but also that at the same time, “writing was already used for ordinary purposes”; moreover, this discovery of Dr. Budge is regarded as merely a prelude to others still more important;

(c) The French explorers have proved that the Chaldeans did not invent their writing, but received their knowledge from anterior civilisations; at the same time, the Austrian explorers working on the site of the biblical Taanach, have also found therein cuneiform tablets which prove that when Babylonia ruled over Canaan, the official accounts and even the private correspondence of a third rate Canaanite town were kept in that foreign language and in that complicated script. Now, it is also known that Abraham was a contemporary of King Amraphel, who governed North Babylonia while South Babylonia was ruled by Eri Aku of Larsa (the Ellasar of Genesis)—both these kings being under the suzerainty of Elam—and that the three of them, even according to Genesis XIV., made war against Canaan. Consequently already, before Abraham’s time, cuneiform writing was currently known even in Palestine. Moreover, the French mission at Susa has discovered a well-preserved copy of the code of laws drawn by the same King Amraphel, showing that it was prepared for a highly civilised and well-organised community, the code of Moses, of later date, being evidently only a very poor, rough copy of Amraphel’s, made to suit the rougher civilisation of the Jews. Even the Babylonian legend of the Deluge, of which a copy exists in the eleventh book of the recently found Epic of Gilgames, is clearly far anterior to the age of Abraham, so that the Jewish version in the Bible had merely been copied from older written records.

(d) As of equal importance to philology, we must not forget the wonderful discovery, at Lagas, Chaldea, of 33,000 clay tablets, by the indefatigable Prof. Sayce (*Times*, May 13th, 1897) ;

(e) In an article in the *Academy* (September, 1902), Prof. F. Legge, after alluding to the Babylonian and Egyptian scripts, and to the fact that states, quite as highly organised and civilised as the Roman Empire, were flourishing around the Euphrates more than 7,000 B.C., goes on to mention the Hittites, Kheta or Khatti, who held out successfully for centuries against Babylonia, and who were possessed of a script of their own, consequently anterior to the Babylonian. Moreover, this Hittite script, "of a conventional character," has been found to be "of a debased execution," so that those who used it had received it from a still more "remote antiquity." Now it is known that the cuneiform characters were "in use more than 5000 B.C." and this newly found Hittite script "on the face of it, is older than the cuneiform," whilst the language itself has "no affinity with either Egyptian or Babylonian" ; "we have therefore," says Prof. Legge, to "look for a civilisation older than that of Babylonia, sufficiently developed to have acquired a system of writing at least as good as that of Egypt, and which sent no emigrants to the West until 1400 B.C. Where could this civilisation have developed ? For my part, I cannot even hazard a guess. . . ." Atlanto-Aryan, would probably be the guess of the student of the *Secret Doctrine*.

(f) Many and valuable have been the unearthings by Prof. H. von Hilprecht, head of the University of Pennsylvania's exploring expedition in Assyria ; but the most precious for us is the discovery, in 1900, of the well-preserved stone "books" belonging to the great temple library and priest school of the town of Nippur, which had been destroyed by the Elamites 228 B.C. They comprise 16,000 priceless volumes—which Prof. Hilprecht, rather rashly, asserts cover "the entire theological, astronomical, mathematical, magical and linguistic knowledge of those days"—besides interesting letters, biographies, inscriptions and 5,000 official documents of

"inestimable value to the student of ancient history," in all 23,000 imperishable stone writings, "written about the time when Adam and Eve were heretofore supposed to have still been living in the garden of Eden." And the Professor admits that "the records found indicate that even the civilisation then in existence was evidently many thousands of years old!" Therein are found curious explanations of the customs and religions of the people before the time when Abraham went to Palestine, and proof is also obtained that, after the destruction of Jerusalem by Nebuchadnezzar, the greater portion of the Jewish captives were sent to live in the neighbourhood of Nippur. These documents will, as soon as possible, be translated. The latest report of Prof. Hilprecht's discoveries states that he has found in the same library, a tablet bearing the plan of the whole city of Babylonia, including the famous temple of Bel and of the citadel which contained it so that this will not only guide the future excavations, but enable the whole scheme of the structure to be restored.

(g) Among the extraordinary findings in the excavations of Crete, mentioned in the previous chapter, not the least important is the proof that those early Cretans, at the latest 3000 B.C., knew and used two kinds of letters for writing (though science used to affirm that writing was unknown at that time), one, a sort of cuneiform hieroglyphic, *quasi* pictorial, the other a regular linear script with elegant upright letters of a singularly European aspect, in a language, so far, unknown. Several thousands of specimens, partly in hieroglyphic, but mostly in script, have been found, which will be deciphered as soon as our savants are able; curious heraldic signs have also been discovered, and paintings show the use of the symbolical "*fleur de lys*" on the crowns of the sovereigns. But now, there seems no room to doubt that these early Cretans did not invent either their calligraphy or their heraldic signs; hence we are driven to conclude with H.P.B. that, from the Atlanteans, writing had been learned in turn by the other "historical" races, whether Hindu, Assyrian, Egyptian, Phœnician or Greek, and that therefore the

art was much anterior to our European mythological epochs (see S.D. II., 458; also, in *Five Years of Theosophy*, the article "Was writing known before Panini?")

(h) Another fact—all the more curious because it again recalls one of H.P.B.'s announcements, that discoveries would be allowed as soon as they became timely and useful—is that, contemporaneously with the calligraphic discoveries in Crete, similar signs were found by Prof. F. Petrie in Egypt. . . . For some years previously, Prof. Petrie had noticed signs similar to the Greek alphabet, in excavations belonging to the period of 1400-2000 B.C., but he did not stop to study them, because at the time, all letters were supposed to be derived from the hieroglyphics; but, in 1899, on uncovering some of the royal tombs of the Twelfth Dynasty (2600-3000 B.C.), that is to say of a period before the hieroglyphic system had been introduced, he again stumbled on a large quantity of signs and letters on the pottery and utensils, and it so happened that, at the same time, the explorers in Knossos discovered the Cretan script; Prof. Petrie immediately collected his Egyptian signs and letters to compare them with those gathered by Mr. Evans.

This resulted in the startling and significant discovery that the letters of the contemporaneous Cretan writing and those of Egypt were *identical*, and formed a most reliable basis for restoring an alphabet which dates not only from a far older age than the one generally attributed to the invention of writing, but patently older than the Egyptian hieroglyphics, which now seem to have been merely a kind of symbolical short-hand writing, probably invented later for religious purposes. Now, in presence of these corroborative discoveries, the hypothesis of the scientists is that the Cretan alphabet was at that early date in general use, all over the Mediterranean coasts, for the commercial intercourse of the times (see *Reports of Anthropological Institute*).

(i) Incidental mention may be made here of the fact that during the last Chinese war (1896), the Russians, in their occupation of Mukden, are said to have looted a large quantity of valuable manuscripts, Latin, Greek, and Mongolian, many of which—among those considered

the most precious—have been sent to St. Petersburg, to be examined by the heads of the Imperial Library there. It is not yet known whether the world has to be congratulated, or not, on this fact, because it might be anticipated that, if any old documents were therein found, considered to conflict with the Holy Orthodox (Greek) Church, they would be most carefully laid aside, out of the reach of students, as was done with the mass of precious documents collected in the same library, on Free-Masonry, Rosicrucianism and Occultism generally. Still future events may yet bring them to light.

(j) In connection with the valuable exploration that has been made by Mr. Schechter in the building called the "Genizah" of old Cairo, an interesting philological problem has been in discussion, in respect to the origin of that word. Mr. Schechter himself says that Genizah comes from the Hebrew verb "Ganaz," and means a treasure-house or hiding-place, and he very plausibly refers to the Apocrypha, as composed of works that were fit only for the treasury, not for the temple, and consequently had to be stored in the hiding-place. In the Bible, the word appears in 1st Chronicles (XXVIII., 11), as "treasure" and in the Megillah or Book of Esther (III., 9) where it designates the treasury of the king, into which Haman's bribe for the destruction of the Hebrews was to be paid. In the book of Esther, it is natural to look for a Persian origin for any dubious word, but a similar vocable is found in both Latin and Greek, "Gaza," also meaning treasure, for example in reference to the treasure of the fugitive Trojans which the storm dispersed over the waters (*Æneid*, 1st book); and in both those languages it seems to be an exotic word, so that all the philologists, headed by Genesius for the Hebrew and Curtius for the others, admit both those words as having been derived from the Persian, with this difference, that in Latin and Greek, the nasal *n* had been dropped. Therefore, if "Gaza" is the same as "Ganza," there is a curious link between Virgil's "Gaza" and the "Genizah" of the synagogue. But where did the Persians get their word, also connected with the idea of mysterious wealth? Here however, it is interesting to note that, in Sanscrit, the

word "Ganesa" designates the Hindu Elephant-headed God of Wisdom and of Hidden Knowledge. Much has yet to be gained by a deep study of Sanscrit.

Before closing this chapter, it will be proper to offer a few passing remarks in connection with another prediction of H.P.B. about :

THE RE-APPEARANCE OF DOCUMENTS

concerning old and apparently lost or hidden knowledge (S.D. I., 18).

Very numerous interesting findings have been made of late—and they still continue. Among others, a Papyrus M.S. now in the Berlin Egyptian Museum, containing original Gnostic writings ; a copy of *Logia* (sayings) of Jesus and several other primitive Christian documents, throwing a new light on early Christianity ; a coptic Papyrus of the Acts of Paul or Thekla, sent to the Heidelberg library ; the Ethiopic History of the twelve Apostles and some other early Christian Manuscripts, already translated by Dr. W. Budge ; some important papyri found at Hermopolis, by Dr. Brecci, of the Italian expedition ; as well as some very important Jewish manuscripts, found in the Genizah of Cairo and in Hebron (*Jewish Chronicle*, April, 1897), by Mr. Schechter, of the Cambridge Library, and by others, and including fragments of Aquilla's Greek translation of the Old Testament, which clearly shows how absolutely untrustworthy is the version commonly known as that of the "Seventy."

. "The English explorers Greenfell and Hunt returned later to Behnesa, the ancient Oxyrhynchus, and in the "Genizah" thereof, again found some very valuable documents of the first centuries after Christ, both of the early Christian Creed and of the contemporaneous decadent Alexandrian or Egyptian religion, apparently connected with the writings known under the name of Hermes Trismegistus. Among the Christian documents is a new collection of sayings of Jesus, containing phrases not existing in the New Testament, but found repeatedly quoted in the writings of the early Christian Fathers, and also a fragment of an entirely new Gospel."

These unexpected discoveries give some credence to the rumour that immense literary treasures, some of which came from the destroyed Alexandrian Library (*Isis Unveiled*, II., 28-29), or had been collected when the Sovereigns of Ethiopia ruled over Egypt, are still gathered and hidden in various remote places in Africa and Abyssinia, out of reach of all profanation, to come to light again when the times are ripe.

"OLD DOCUMENTS" reappear also in the shape of numerous translations that are perseveringly being searched for among the treasures hoarded in the various public libraries of Europe. It would be too long to review these publications, many of which come into close relation with the *Secret Doctrine*; but there is one which seems to deserve an exceptional notice. It is a book issued in 1900 by the Clarendon Press, Oxford, and which might be a fit addition to the Oxford *Helps to the Study of the Bible*. It is called *The Stories of the High Priest of Memphis*, and is translated by F. L. Griffith, from a valuable old demotic papyrus, bought in 1895, at Aswan, for the trustees of the British Museum. This document belongs to what is now known—through the labours of Brugsch in 1865—as the *Tales of the Khamua Cycle*, Khamua having been a son of Rameses II., and a high priest of Ptah (1250 B.C.), who became celebrated for his wisdom and magical powers, and thereby—somewhat like the Caliph Harun al Raschid of Arabian Tales—became the hero of innumerable legends and folk-tales. In the particular volume above mentioned, we find, among other tales, the story of a strange boy, whose life incidents are evidently the prototypes of many facts attributed later to Jesus, to this extent that: (a) the birth of the child and the revelation of his name and future greatness to his father in a dream seems to have been copied in Matthew (I., 20-21); (b) his rapid growth in wisdom and stature, copied in Luke (II., 40); (c) his controversy with the priests in the temple copied in Luke (II., 46-47); and (d) the parable of the rich and poor man copied in the story of Dives and Lazarus (Luke XVI., 19-31). But, further, the demotic story tells how this abnormal child was a re-incarnation of a famous Egyptian magician, who

had lived 1500 years before this Khamua and who, like Moses, defended his people against the machinations of evil Ethiopian magicians; and, still more curious, that great magical contest was then carried on, according to the text, through aerial boats or vehicles, created on both sides by magical incantations (*kryasakti*), this narration vividly reminding one of the great battle between the black and white Magicians of Atlantis (*S.D.* II., 446), where the "Lords of the Dazzling Face" had to seize the "*vismanas*" (airships) of the "Lords of the Dark Face" before they could overcome them, so that this part of Khamua's tale seems verily an echo from old Atlantis, the birth-place of the early Egyptians, as well as a confirmation of the *Secret Doctrine*.

Every year new "criticisms" are published on the Bible and on correlated subjects, and stranger still, works and studies and even sermons by orthodox divines are daily though unwittingly helping to demolish the ignorant, narrow-minded ideas of exclusive and infallible divine revelation once assumed by Christianity. The ecclesiastical atmosphere is full of the new ideas, which sometimes call forth vehement suspicions of heresy from one sect against another, and give rise to very bigoted reactions. Thus we heard of the Rev. Dr. Lyman Abbott, of Plymouth Church, Brooklyn, N.Y. (February 3rd, 1896), boldly preaching that he did not believe in the old ideas "of the World created as described in the dead letter of Genesis," but that he believed God to be an *Evolutionist*, using natural and slow growth, in other words, working according to Prof. J. Le Conte's conceptions of Evolution. Dr. Abbott "sees, with Spencer, creation as an infinite and eternal energy, and, with Mathew Arnold, that energy always working for righteousness"; therefore, as the French would say, he is a Theosophist *sans le savoir*! Similar ideas were expressed, in Sydney, by the Rev. G. Campbell, who took for the subject of the annual address before the Congregational Union: "Modern Knowledge and Biblical Interpretation." "The last fifty years of the Nineteenth Century," he said, "had handed over to the Twentieth an extension of knowledge unparalleled in any past age.

. But the great discovery of the age was the doctrine of evolution. The idea of evolution was as old as Greek philosophy, but the new and scientific phase of the doctrine belonged to our generation. Evolution was briefly defined by Professor Le Conte 'as a continuous progressive change, according to certain laws, by means of resident forces.' That doctrine was now verified by its application to the entire circle of modern knowledge. It was really a philosophy, and bade fair to become the unifying principle of all knowledge of God, man, and the world." Of Historical Biblical Criticism, he said that it was impossible to ignore or pass by on the other side of this immense body of new knowledge; neither could he set it aside in obedience to prejudice or in deference to ignorance. "At first sight the work of historical criticism seemed wholly destructive, destroying some of our most cherished conceptions of sacred Scriptures. For example, the books bearing the names of Moses, Joshua and Samuel they now saw were not composed by them; but whatever they contributed to them, the books themselves were compilations of various unknown authors, differing in literary style, in degree of culture, in mode of thought and point of view. The form in which they possessed them was given to the books, not by contemporary writers, but by the latest editors. . . .

. Was the truth of the inspiration and the reality of the Divine authority of the Bible impoverished by such searching criticism? By no means: The old and long-accepted mechanical theory of verbal inspiration received its deathblow at the hands of the historical critics. But this theory had been dying a slow but certain death; though, doubtless, it would linger still for a long time in the heart of Christendom. One great advantage they derived from this school was that it showed how a hundred difficulties which had perplexed the interpreter of Scripture disappeared; because it turned light on the human element in the Bible literature, and showed the unconscious errancy which belongs to all human things. On the other hand, it had enabled them to see more clearly, and to feel more keenly, and to grasp more firmly the imperishable truth of the Divine revelation of God's relation

to and His purpose with man. When the results of historical criticism were carefully weighed and measured he ventured to affirm that every serious Christian mind would admit that the gain was enormous, and that they owed a debt of gratitude to those scholarly workers."

But some recently written works on Christianity have been far more dangerous to conventional orthodoxy than mere liberal sermons, as witnessed: 1st, by a book called *The Causes of the Corruption of the Traditional Texts of the Holy Gospel*, by J. W. Burgon, late Dean of Chichester, which has been characterised as containing (very innocently, naïvely), "the most damaging attack on the *trustworthiness* of the New Testament that has, perhaps, ever been penned" (*Athenæum*, December, 1896); 2nd, by the new *Polychrome Bible*, showing, in colours, the various strata added time after time to the original sacred books; 3rd, by the scholarly and painstaking works of Dr. Ed. A. Abbott, on the *Origins of the Synoptic Gospels* (*Diatessarica*, seven volumes), in which he proves that the Greek original version used by Christian theologians must have been a mere translation or compilation—and a very poor one at that—of an earlier and unknown text, written in pure Hebrew, so that our "texts" are only fourth or fifth-hand translations, a fact which readily accounts for their general incorrectness; 4th, by various works on the Christian origins, by G. R. S. Mead.

All this recalls H.P.B.'s allusion about the KARMA of the nineteenth century, being that of "History cunningly perverted by bigotry," which the next century will see duly righted. And if asked what will come of this rising flood of discoveries of all kinds, we may boldly prognosticate: *Confirmations of Theosophy*; while even scientists acknowledge that "the historical revelations of to-day are more than likely to be surpassed in interest and importance by those of to-morrow!"

CHAPTER IX.

ANTHROPOLOGY.

Among the many assertions made in the *Secret Doctrine* in reference to questions of Anthropology, the following deserve a passing notice :

(a) "A process of decimation is taking place all over the globe, among those races whose 'time is up,' . . . the senile representatives of archaic nations " (S.D. II., 824). Among these are, or still were a few years ago, the "Tasmanians (now extinct), Australians, Andaman Islanders, etc." the oldest relics "of half-animal tribes or races, both of remote Lemurian and of Lemuro-Atlantean origin " ; the balance of the Australians, of different and later stock, though also very old and degenerate, have been spared longer, on account of "the law of retardation " in the Continent itself, but that their time is also up is shown by the fact that they are unteachable, young children taken to the best schools returning to wild life as soon as released from school, and they are also now "rapidly dying out " (S.D. II., 205, 207, 766), while "the other old races are soon to follow." . . . "The Polynesians belong to the very earliest of the surviving sub-races " of the Fourth Root-Race, mostly giants, this accounting for the fact that the Polynesians were "of a higher stature than the rest of mankind " (*id.* II., 346). . . . Among them, "The peoples that have been the most spared . . . the Hawaiians and the Maoris, have been no less decimated than the tribes massacred or tainted by European intrusion." "The dying out of the Hawaiians . . . is one of the most mysterious problems of the day," which cannot be adequately accounted for by the usual excuse of

"cruelties or abuses perpetrated by colonists" or of "change of diet, drunkenness, etc." . . . "the true solution has to be sought for in a comprehension of the workings of Karma," and of "the operation of Cyclic Law." "The tide-wave of incarnating Egos has rolled past them to harvest experience in more developed and less senile stocks" (*id.* II., 824, 825). It is a fact that in spite of all efforts to protect them, the Hawaiians—and a more lovable race the writer does not believe to be in existence—are disappearing more quickly even than H.P.B. anticipated; when she wrote her book, 36,000 were left of the hundreds of thousands found by the first discoverers; to-day they are already less than 25,000, and of these, though counted as full natives, the great majority have strains of white or Chinese blood in them, although there are also about 7,000 more called half-whites, in whom the white-blood proportion clearly predominates. And the Hawaiians will disappear more rapidly still, now they have lost their independence through American "expansion." So it is safe to say that, in another quarter of a century hence, no pure-blooded Hawaiians will be left—the diseases that carry them off being those of consumption, heart failure, syphilis and leprosy—and at the same time, the half-castes will also have merged into the white population, for all traces of Polynesian characteristics disappear in them at the third or fourth generation. Through the process of immigration, Chinese and Japanese have now taken the place of the natives in these Islands. . . . The Maoris of New Zealand, the Tahitians and the Samoans, all cognate races, are also running to extinction in the same manner, though being apparently more sturdy and healthy tribes.

(b) "Occult Philosophy teaches that even now, under our very eyes, the new race and races" (*i.e.*, the sixth sub-race of the Fifth-Root Race) "are preparing to be formed and that it is in America that the transformation will take place, and has already silently commenced."

"Pure Anglo-Saxons hardly three hundred years ago, the Americans of the United States have already become a nation apart, and owing to a strong admixture of various nationalities and inter-marriage, almost a race *sui-generis*, not only *mentally* but *physically*."

"To quote from De Quatrefages : ' this new mixed race, when uniform and settled, will be able to play the part of a primary race.' "

" Thus the Americans have become in only three centuries, a *primary race* temporarily, before becoming a race apart, and *strongly separated* from other now existing races. They are in short the germ of the Sixth sub-race, and in some few centuries more will become most decidedly the pioneers of that race which must succeed to the present Europeans of the Fifth Root-Race, in all its new characteristics." (S.D. II., 463, 464-466)

That the population of the United States is rapidly amalgamating and settling into a new race, with new characteristics, is a fact growing every year more patent, since the time when the *Secret Doctrine* first stated it, and this new race has already asserted its power in the world. But even the *physical* changes foreseen by H.P.B. have become noticeable, though still misunderstood by scientists. Thus, " Prof. F. Starr, of the Chicago University, has reiterated his belief that the American people are fast developing into Indians. Professor Starr has believed in the theory for some time, and has now confirmed it, he announces, by a personal observation. He examined the descendants of a small colony of Germans who came to the United States years ago, locating in Pennsylvania, and found that the fourth and fifth generations had developed marked Indian characteristics, such as black hair, black eyes and darker-coloured skins. These variations in physical appearance, he declared, do not take place only in German immigrants, as other nationalities coming to the United States have been affected in the same way. " The changes noted take place invariably," said Professor Starr, " through the influence of the potent American climate and environment," furthermore, " they serve to illustrate more effectively what forces are at work on the people of the United States. The American Indian as he exists to-day is a development of the Mongolian " *

Of course, Prof. Starr's observations are ridiculed and denied by those who keep wilfully blind to the existence of occult laws. But remarks, similar to his, have been made in California, in reference to the predominance of the

* Compare with Scott-Elliot, *Story of Atlantis*, page 41.

brunette type out of blond parents, a fact explained there as due to the influence of the substratum of Spanish-Mexican blood from those settlers who preceded the American invasion; but it is more probable that the changes are due there to the same "climatic" and karmic powers whose results are noticed by Prof. Starr. Only, it may be asked whether, instead of becoming "Indians," the United States people are not *re*-becoming Atlanteans, with the old tendencies towards black magic, as prognosticated in H.P.B.'s many warnings?

(c) Cycles of China.—In the *Theosophist* (I., 242), H.P.B. writing on the—then quite new—theory of cycles, mentioned a cycle of one thousand years in the manifestations of the prosperity of China; "for instance, the golden age of Chinese philosophy, 2000 B.C.; next another wave in Central Asia about 1,000 B.C.; then, about the time of Jesus Christ, a re-organisation of China as a powerful empire; and another wave 1,000 years later, which leads us to expect another flourishing period for the Extreme Orient in 2000 A.D.!" Does not the sudden awakening and the unexpected manifestation of power of Japan—which will lead to the leavening of the whole of China and Asia in less than a century—point to the correctness of this theory of H.P.B. just as much as of so many of her other utterances, and indicate the beginning of a new Asiatic cycle, while a prophecy now current in India, also points to 1905 as the starting of a new upward cycle for Hindostan? Moreover, in reference to Japan and to the cyclic law operating in races, sub-races and nations, the following prediction, by Mr. Scott-Elliot, may be noted: "But the interesting fact about the Mongolian race is that its last family race is still in full force—in fact it has not yet reached its zenith—and the Japanese nation has still got history to give to the world" (*The Story of Atlantis*, p. 41, London, 1896). To this correct remark, Mr. Elliot might have added another one, on the fact that the isolation in which the Japanese nation had so far been kept, reminds one forcibly of what is said of the manner in which the *Manu* of a new race chooses his pioneers and keeps them isolated until the proper time for starting them into action has come.

THE REVIVAL OF OLD BELIEFS.

A further prediction of H.P.B., which is in a very patent way of at least some realization, is the following :

Dead facts and events deliberately drowned in the sea of modern scepticism, will ascend once more and reappear on the surface (S.D. I., 739).

In other words old beliefs rejected by former science will be revived.

For a confirmation of this we only need refer to a lengthy editorial in a late *Argus* (March 18th, 1905), which bewails the general recrudescence of "old superstitions" or practices: "One of the most notable features of our times is the coming back into fashion of old beliefs that had long been regarded with contempt by educated people, Palmistry, Cheiromancy, Crystal Gazing, Clairvoyance, Dowsing, etc." Only the writer thinks that this revival of belief in occult knowledge is an instance of the "intellectual reaction that always follows great advances of knowledge" (!), whereas, for the impartial mind, it is only a sign that "educated persons" begin to realize, through the progress of sciences, that some of the "old superstitions" condemned by ignorant materialism, might have had some truth in them. And it is this truth which makes them, in due time, "reappear on the surface." At any rate, the lachrymose admission just quoted is a proof of a considerable revival of "Dead facts," instances of which could easily be multiplied.

Again, while chemistry is fast going back to Alchemy, look at *Astrology* ! Forty or fifty years ago nobody dared acknowledge a belief in that exploded science, "a relic of superstition and barbarism," for fear of the most galling ridicule ; but since the *Secret Doctrine* has shown that there might be more truth than fallacy in it—if properly studied and mastered—it once more lifts up its head. Journals for its dissemination have been started in various parts of the world and find thousands of readers, while men and women of various ranks in the leading nation of the world have made efforts, in London, to found a Society for the purpose of bringing together all those

interested in the formerly despised science, and to study, purify and re-establish it in the proud sceptical West, on truly theosophical lines.*

The Divining Rod—that old “pestilent heresy,” as it used to be called, and dowsers to use it are lately appearing in such numbers that they have formed the subject of Part XXXII., Vol. 13, of the *Proceedings of the S.P.R.*, and of later communications, wherein no less authoritative men than Dr. Barrett of the Royal College of Science at Dublin and Mr. J. Mansergh, President of the Society of Civil Engineers, show, among other things, that out of 152 experiments, 140 were successful, and this even in cases where the best science had been unsuccessful.

Consider also the truly mysterious and much derided powers, formerly attributed by popular “credulity,” to witchcraft, so loftily denied by materialistic science, now “ascending once more,” confirmed and admitted by scientific experiments in hypnotism and studies on mediums, and even culminating as devil-worship in Europe, as predicted by H.P.B. (S.D. II., 678). It is clearly indicated that the witches of old were only mediums or hypnotizers under another name, sensitives who increased their powers by magical ceremonies, such as even the ancient Polynesian “kahunas” knew how to perform, and such as men, like Frank H. Cushing, the adopted son of the Zuni Indians, tells of being still performed every year by the wild tribes of Central America, and by the Moki tribes of Arizona. And here it may be as well to add that if the Bible condemned witches, Theosophy also condemns passive and ignorant mediumship, hypnotism, witchcraft, sorcery and all kinds of Black Magic. While the Bible condemns without explanation, however, Theosophy explains why such practices should be denounced, and while the Bible teaching condemned all witches to a cruel and often unjust death, Theosophy only points out the folly and unwisdom of these evils. Think of obsession and possession, at all times

* It is only fair, in connection with this re-building of Astrology, to mention the efforts and work of Mr. Alan Leo, editor of the monthly magazine *Modern Astrology*.

admitted by the Roman and Greek churches, but ridiculed by materialistic science, now "reappearing on the surface," verified by scientific researches in magnetism or mesmerism. It is only necessary to read the experiments related in every number of that weird publication, *Borderland* [whose very publication, or that of the later *Occult Review*, would not have been possible one hundred years ago], or those conducted by Dr. Luynes and by Col. de Rochas (Director of the highest of all scientific schools, the "Ecole Polytechnique" of Paris), and other European and American observers or again all the facts communicated and discussed in the publications of the S.P.R., and we soon discover that many strange things can be learned from such authorities as those.

"Old Dead Facts" are thus begrudgingly readmitted by modern science, "generally under new names," it is true, but still as facts, and dangerous facts, too, which were deemed mere "superstitions" only yesterday.

In the same manner ghost stories, apparitions of the "double," communications with the dead, formerly objects of contempt, are no longer considered below the dignity of scientific research. And, strange to say, the old legend of Napoleon's grand review of a ghost army, at midnight, is now duplicated by an account, from the Egyptologist Maspero, in *Le Temps*, of a shadowy procession seen on certain nights by the fellahs, while on its way from Karnak to Luxor, where a king on a white horse, preceded and followed by large numbers of armed guards and women on litters, goes to celebrate the ancient rites in all the old pomp; but if the belated looker-on calls out to "Allah," the whole procession vanishes in a storm of wind. In a similar way, the old sacred lake of the temple of Ammon, is seen illuminated once a year with ghostly "dahabeahs" circling around it. From the Soudan, too, comes the story that Gordon and other dead warriors still hold nightly parades.

CHAPTER X.

THE PRESENT OUT-LOOK.

Further points, scientific and otherwise, might here be gathered and adduced as evidence of H.P.B.'s reliability as a teacher. We have seen, in the foregoing notes, how often already her words have been vindicated. In fact, "corroborations" can be culled in almost every number of every scientific publication; but it would take more than a volume to review them all properly, the greatest difficulty being to know what to select and where to stop. However, those already mentioned will probably suffice to convince any impartial mind that there is no lack of scientific proof to sustain the assertion that Theosophy forestalls modern invention and discovery. Hence, in view of all that has been confirmed so far, the fair-minded student must feel the safer in accepting those of H.P.B.'s teachings that have not yet been verified, but which we may not unreasonably expect to see confirmed within another decade, agreeably to her own announcement.

The value of the teachings of the *Secret Doctrine* rests essentially on the following points:

(a) the logical completeness, sequence and intelligibility of its scheme of the world, in all its sub-divisions;

(b) the assertion of the original unity of matter and of its evolution into atomic constitution through Divine vibrations, all the forms built in the basic matter being simply the result of temporary differences in vibration and position (see S.D. I., 491);

(c) the assumption of life eternal and of constant evolution or becoming, everywhere, under the guidance of intelligent forces ;

(d) in man, the union of spirit and matter.

All these positions are continually being confirmed by the new discoveries of science.

The status of Theosophy can also be summed up by a statement often repeated by H.P.B., *viz.* : that, while in its devotional aspect, it is undeniably the real substratum to all religions, because it is absolute truth—in its scientific aspect, it also embraces every science and may be justly called the Science of Sciences, the beacon of all knowledge, capable of satisfactorily explaining many problems that no branch of materialistic science could ever fully explain, throwing perfect light on questions that the most advanced scholars cannot yet illumine.

This once admitted, the teachings of the *Secret Doctrine* ought to be worthy of the respectful attention of all scientific students. Therefore it remains all the more a matter of surprise that Theosophy and modern Science should have been so long estranged—even at times, antagonistic—while, in truth, they ought to lean on each other. But even this, as we know, was foreseen by H.P.B. ; and the principal reason for the past breach between official science and the new output of occult knowledge, brought about by her, seems to have been that Theosophy starts essentially from *Spirit*, or makes of *Spirit* the basis of all things, admitting even that intelligent entities or sparks of the *One Spirit* must be the wise and conscious leaders and guides of the whole evolution of what we call Nature, while modern science starts from *Matter*, studies matter, and too often admits of matter alone, totally ignoring, or even denying Spirit.

Nevertheless, science has undeniably done wonders for humanity, especially in the last half century. M. Berthelot, one of the most eminent chemists of the age, correctly noticed that there is nothing so astounding as the difference between the modern era of applied science during the last 75 years, and the whole development of the race during the last 6000 years, “a difference so

marked that a new man was being created as it were, in a new Earth, and the entire social organization was being transformed amid conditions for the comprehension of which the Past offered no suggestive precedents or data.

. the present continuous intervention of science in human life being an unprecedented fact in human history ;” and the same note of enthusiasm for the conquests of scientific knowledge was sounded in a later work, *New Conceptions in Science*, by C. Snyder.

Now, while making due allowance for a little pardonable exaggeration, in so far as the history of our puny, modern races goes, the eminent scientists are probably right, although it would be rather difficult for a Theosophist to admit, without demurring, that the present perfection of science and its intervention in daily life “are absolutely unprecedented,” or that there have never been any previous epochs or cycles in the history of humanity—for instance, during the glorious culmination of the Fourth Race—when science may have been materially quite as advanced as now, if not even more so ; but the records of these facts are lost to all remembrance outside of the Occult Records. On the other hand, also, there is no denying that however great its attainments, modern science has been exclusively directed to benefit man physically, to pander to all his material wants and desires, and that it has rendered possible the crushing, the grinding down of the many in favour of the few, while it has certainly done nothing to improve human spirituality or even human morality. Most of the scientific tendencies of the past hundred years have been to make man forget that he has a soul, to make him believe he was matter only, with material necessities alone, the satisfaction of which was the *summum bonum* of a life ending in the material grave.

This materialistic position of science was especially strongly and sharply defined at the time when Theosophy was first introduced to the present generations. It is even admitted that the new dispensation of theosophical tenets was inaugurated purposely to counteract and destroy the evil effects of the then predominant materialistic ideas. Thus, as the messenger of the Masters, H.P.B.

was forced to be a great iconoclast, and in her *Secret Doctrine* and *Isis Unveiled*, as well as in *Lucifer*, she had to handle severely many erroneous scientific theories which have since been repudiated or have gradually become obsolete or corrected through the constant studies and new discoveries of younger scientists. As Prof. John Mackenzie has said, H.P.B. had to expose "many of the weaknesses of science, the absurdity of many of its theories and their self-contradictions, and how that utter anarchy prevailed in the scientific world with respect to many of the most important problems of science."* Even now, it might be well for any who still incline to sincerely believe that the present dicta of "science" are infallible, or that it gives us the limit of all possible knowledge—to read, in *Harper's Monthly* (April, 1900), a telling article on "Some Unsolved Scientific Problems," which, at any rate, gives the theosophical student a striking illustration of how much science yet needs the help of Theosophy.

During her life, H.P.B. was repeatedly asked by timid friends of the cause to try and "harmonize" theosophical teachings with the then current scientific theories; and of course she could not, since many of these were wrong, and she knew it, as later shown by the fact that numerous theories, prevalent when she started her work, have been overthrown, revolutionized or considerably modified through the growing current of fuller knowledge.

But since H.P.B.'s time, the whole position of science has rapidly changed as predicted by her; the old materialistic sceptical theories are modified so radically that—often unconsciously to the scientists themselves—science is daily coming, as we have tried to show above, into the domain of Theosophy, corroborating theosophical theories, assertions and predictions. The younger students of the present day, can hardly realise how different the whole scientific world and its tendencies were thirty-five years

* "Her works have certainly had a most salutary influence on my own mind, I owe her a debt of gratitude and I regret I did not become acquainted with them sooner." ("Theosophy and Science," *Lucifer* XX., 57.) Brave words, those, bravely uttered, though they only express our common indebtedness to the great Teacher.

ago, and against what odds H.P.B. had to contend. Nor can probably the older students themselves fully realise how many of the gradual changes are due to the mysterious influence of theosophical thought over all the branches of human knowledge. And this gradual evolution of science, while it cannot fail to be of great benefit to humanity, must also be of mutual advantage to Scientists and Theosophists alike, and will help to counteract the dangers which a misdirected science would thrust upon humanity, at this stage of our Dark Cycle of materiality, in connection with the wonderful progress accomplished of late, in civilisation, arts, sciences and their connected developments, when "the powers of steam and electricity have been resurrected from forgotten ages; the history of ten thousand bygone years has been unearthed from imperishable structures buried almost in the bowels of the Earth, and the 19th century has flitted away, leaving us a bewildering and overwhelming mass of scientific discoveries crushing upon us daily, with still further portents of almost terrifying discoveries reaching nearly to the supernatural, which threatens to momentarily open on us." But it is precisely because of these ominous, impending, terrifying discoveries in the supernatural that the Adepts, who foresaw them, recognised the necessity of giving out to the world the teachings of Wisdom, so as to ward off, as much as possible, the dangers to humanity that must accompany them. Man must be enlightened through occult revelation. Otherwise, in his ignorance, he will be playing with the new forces, the new discoveries, as a child with gunpowder, and with even worse consequences. Fortunately Theosophy, like a rising flood, is rapidly permeating the whole world with its spiritual message.

On the scope and value of the *Secret Doctrine*, much ignorant commentary has been written at different times; it has been characterised by some, as the wild romance of a wilder imagination,*; by others, as a series of

* A rather curious accusation, for it would have been far more wonderful and creditable for the writer to have invented all her teachings, than to have merely compiled and translated them, as she herself claimed.

plagiarisms. To this H.P.B. answered by anticipation in her 'Preface,' which so few take the trouble to read :

What is contained in this work is to be found scattered throughout thousands of volumes embodying the Scriptures of the great Asiatic and early European religions, hidden under glyph and symbol, and hitherto left unnoticed because of this veil. What is now attempted, is to gather these oldest tenets together, and to make of them one harmonious and unbroken whole (S.D. I., 20).

I have here made only a nosegay of culled flowers, and have brought nothing of my own but the string that ties them (S.D. I., 29).

Her critics, also claimed that her Theosophy was merely a copy of the Kabbalah, or of the Vedas, or said it was merely Buddhism. To this she also had an answer beforehand :

The teachings, however fragmentary and incomplete, in these volumes, do not belong to the Hindû, the Zoroastrian, the Chaldean or the Egyptian religion, nor to Buddhism, Islam, Judaism, nor Christianity exclusively. The *Secret Doctrine* is the essence of all these. Sprung from it in their origins, the various religious schemes are now made to merge back into their original element, out of which every mystery and dogma has grown, developed and become materialised. . . . (S.D. I., Preface, xxi.).

And certainly, those volumes throw light on, and illumine all religions and all sciences.

Those who gave to H. P. Blavatsky the information which she embodied in her writings are regarded by theosophical students as Masters of Wisdom, Great Teachers, who have yet stores of knowledge which they are more than willing to place at the service of mankind so soon as the development of greater altruism shall fit humanity for the possession of powers which, at present, human selfishness and cruelty would make dangerous.

As many theosophical students testify through their personal experiences, these Masters are no fancy ; they are men, living but perfected, exalted immeasurably above ourselves, yet such as we can some day expect to be, if we only will it and work for it. They teach students through our literature, they teach the world at large by mystically suggesting and allowing discoveries which materially confirm their teachings, according to the necessities of the cycle. Therefore the next quarter of a century may confidently be expected to be still more interesting and pregnant with discoveries and revelations

than the last, and we may be sure to find the theosophical teachings in general ever more fully vindicated.

In Century the Twentieth, some disciple more informed, and far better fitted, may be sent out by the Masters of Wisdom to give final and irrefutable proofs that there exists a Science called *Gupta Vidya* (Hidden Science), and that like the once mysterious source of the Nile, the source of *all* religious and philosophies now known to the world, has been for many ages forgotten and lost to men, but is at last found (S.D. I., 22).

Concerning this last prophecy of forthcoming occult teachings, the future will tell.

THE END.

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