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SCIENCE AND SCIOSOPHY[1]

"Quand la vérité est fantaisiste la fantaisie n'a qu'être vraie."—Ferdinand Brunetière.

SCIOSOPHY is systematized ignorance. Its nature was indicated more than three hundred years ago by Giordano Bruno in Florence, who for this and other heresies, for example, wanton denial of the concentric crystalline spheres of heaven, insistence on the infinite extension of the universe and in the plurality of worlds, was later appropriately punished. "Ignorance is the most delightful science in the world because it is acquired without labor or pains and keeps the mind from melancholy."

The word *sciosophy* (shadow-wisdom) was coined by me in 1899 to meet a long-felt want. Sciosophy in action is called *magic;* latent magic is *mystery.* It differs from ordinary science in its basis. It is not derived from tested and verified human experience, because life is short and humanity demands quick returns. It recognizes no relation of cause and effect, for these are mere human devices. Instruments of precision, logic, mathematics, the telescope, the microscope and the scalpel, are not needed in sciosophy. Its processes are instantaneous and intuitional while all scientific testing is slow and laborious. It is indeed folly to wait for this, when tradition, memory, impulse, imagination are all at hand pointing straight to truth or at least indicating that one conception is as good as another, if not better. My interest in sciosophy, or more exactly in creating a word by which to define it, was provoked by a volume called, in English translation, "Posthumous Humanity, a Study of Phantoms," by Dr. Adolphe D'Assier, a member of the Academy of Sciences at Bordeaux. In this remarkable work are given many illustrations of the spontaneous activity of astral doubles and even of ordinary shadows. It is, in fact, a complete "fauna of the shades," in which are included all manner of wraiths, shadows and phantoms, some of them lycanthropic (wolf-manly), some of them derived from astral doubles, and still others due to the expulsory force of the sun.

The nature of such organisms is easily understood without use of the tools of precision, in fact, here as elsewhere in sciosophic truth instruments are quite unnecessary, except for the purpose of impressing the spectator. It is now well known that all animals

[1] Address of the President, Pacific Division of the American Association for the Advancement of Science, at Stanford University, June 26, 1924.

and plants are built up of cells or chambers, each one charged with magnetic life jelly or protoplasm. These cells are never completely filled with this substance, which is in reality not a fluid but a vivified network, like a skein of tangled yarn. Into the cell with its network the odic forces of the universe penetrate, and by their entanglement and permeation build up within a form corresponding in all respects to that of the creature as a whole. It is, however, not the original, but its double or negative, being solid only when the cell is empty and empty when the cell is solid. This theory is amply verified by the observations of Mr. William Q. Judge, an eminent expert in Medusas, who has discovered that "the body of the jelly-fish is almost pure astral substance."

But greater interest attaches to human phantoms, and especially to the activities of shadows, the most abundant constituent of the fauna of the shades. A most remarkable case is that of Herr Peter Schlemihl, as related by the Baron Adelbert von Chamisso, himself a man of science, the discoverer of our own California poppy, to which he gave the romantic name of *Eschscholtzia*.

It seems that Herr Schlemihl, of Kunersdorf, was once approached by a stranger, gray-bearded and dignified, in fact, a Master of Arts. This gentleman expressed to Schlemihl a desire to purchase his shadow. A high price was named and promptly accepted. Thereupon the stranger knelt on the grass, rolled up the shadow, folded it neatly and thrust it into his knapsack, disappearing down the road between two hedges of roses, leaving Schlemihl himself absolutely shadowless.

At first the poor man thought he had made a good bargain, but afterwards whispered words and doubtful glances warned him that he was marked as a shadowless man. His anxiety over this fact gave him real discomfort. He set out in search of the shadow, and after many adventures he overtook the grave and serious individual to whom he had sold it.

But neither offers of money nor blows of the fist availed anything. To the former the stranger turned a deaf ear, and to the latter he used the shadow for protection. To struggle for it only served to damage the precious article itself. When Schlemihl died at last it was noticed that he left no wraith to rustle through the old graveyard at Kunersdorf. The baron who relates this story remarks sagely that "an event had taken the place of an action, as has happened not infrequently in the world's history." This cryptic utterance is of itself typical of sciosophy. If one meaning does not satisfy, hunt up another. In Schlemihl's days such events were usually ascribed to the devil. But this can not be, as sciosophy gets along without him (or with him, as the case may be). At the most he is but a "fabled fancy of an elder world, the fluidic phantom of effete orthodoxy." The fact that the stranger was dressed in black, which by transmitted light looked reddish, and that his breath exhaled a faint sulphurous aroma favored the common superstition. A highly concentrated odic aura probably accounts for this.

A rather well-authenticated record of the separation and independent life of a shadow is given by Mr. H. C. Andersen, of Copenhagen, a careful observer of occult phenomena. It appears that a Danish country gentleman of good family once lost his shadow. This did not worry him much until his strength began to give way and his clothing grew alarmingly brittle. Still worse, while confined to his room, he got wind of strange pranks performed by his double who seemed trying to undo him by bringing him into ridicule. At last the phantom usurped his master's place at the head of the table. After this, in burning indignation, by a supreme effort of the will the gentleman recalled the phantom, to the endless mystification of the guests at the function. After this effort, his vigor returned and his new suit ordered direct from Copenhagen showed no deficiency in stamina. This experience demonstrates that the phantom man wears phantom clothing. All wraiths recorded, though usually in night attire, appear to be properly dressed, else indeed they would be rushed by the police. The facts in this case are easily explained by the astral substance which fills the cloth cells of all garments. Phantom men wear phantom clothes, else their appearance would shock even the adept, a large percentage of adepts being ladies.

D'Assier has conclusively shown that even inanimate bodies have their doubles or phantoms as well as men and beasts. It is a matter of ancient observation that cliffs and trees show shadows as distinct as those of man. The "shadow of a rock in a weary land" is classical. That shadows may be detached and yet hold a sort of life of their own is well authenticated. In a curious tale by one Barrie of Edinburgh, a boy called "Sentimental Tommy" in running once turned a corner so suddenly that he "dislocated his shadow." It is easy to see how such an accident might occur, though not frequently. One Stevenson, also a Scotchman, tells of a boy who lost his shadow and of the embarrassments he met in consequence. In a child's book of verse I find that

> Little Willie lost his shadow
> As he walked across the meadow;
> Little shadow got away,
> Hasn't seen him since that day.

There is no doubt, therefore, according to the followers of D'Assier, that the shadow of a man or

a tree is an objective reality as much as man or tree itself. Phantoms are driven from their original status by the expulsory force of the sun. "The huge conical shadow of the earth which reaches beyond the moon and is called night" is not merely absence of light. It is a real thing and for all we know may help to hold the moon in place. Its appearance marks the hour of phantoms when the odic and fluidic forces of the earth are concentrate. It is natural that about midnight should be the clustering time of phantasms of all degrees, and so it is. In this period most successful studies of the natural history of the shades have been accomplished. It has been noticed that in daytime a shadow is seldom seen far from its host. Towards evening however, it asserts itself, stretching more widely, and in sleep it often becomes altogether detached, to be more or less painfully recalled in the morning.

According to D'Assier, after the death of his host the shadow wanders freely and at will. But not for long. The stars, arch enemies of shadows, soon begin to breathe and drink it up—l'aspirent et le boivent—and in ten to twenty days it is reduced to primeval vapor. The ever present fear of dissolution often causes phantoms to become violently excited. In spite of their freedom to move they tend to linger about original haunts. In a few cases they find a means to suck blood from living creatures, thus, as vampires, maintaining a precarious existence. It is asserted that the swift remedy for vampires is cremation. The testimony of peasants in Little Russia bears this out, and it is plain that once drawn into a current of hot air, no phantom could ever regain its pristine form. For this reason, burning at the stake was preferred in the Middle Ages to other penalties for lack of conformity.

"The phantom's most common yearning," says D'Assier, "is to bid the last farewell to those who were its familiars." But this can be but one of many motives, and it is never wise to read our own emotions into the vagrant actions of disconsolate shadows. At the best their span of independence is short. This is "a wise provision of nature, for otherwise the earth would be solidly full of shadows." "The accumulation of specters of the terrestrial fauna heaped at the surface of the globe since the first geological epochs would render the air irrespirable. We could not breathe a dense atmosphere of ghosts." This is the conclusion of D'Assier (p. 176) and chemical analysis of air in different localities seems to bear out his conclusions.

I need not dwell farther on the studies of D'Assier, but I may note their extension and expansion by other eminent adepts, such as Allan Kardec, Eliphas Levy, William Q. Judge, Henry Olcott, Karl Marx and others of world reputations. I may merely call attention to the line of thought as old as humanity and ranging in its subject-matter from the era of the witch of Endor to that of vitamine candy, the fourth dimension of space and the angel of Mona.

Unlike materialistic science which rests on mere sensory contact, sciosophy has a foundation of principles.

First, matter rests on mind. On mind it depends for recognition which is its sole existence. Its alleged laws are mental channels only, the grooves through which the spirit passes. With your will you can cut such grooves. You can frame your own laws. The crude notion of cause and effect, so cramping to material science, is cast aside in sciosophy. Its propositions are proved by inversion, a simple process unknown to materialistic logic. Thus the great founder of Neminism asserts: "There is no pain in truth, therefore there is no truth in pain. There is no nerve in mind, therefore no mind in nerve. There is no matter in good, therefore no good in matter."

The motto of this cult, *"Nihil nemini nocet,"* is a fine illustration of the method, as in the expressive Latin the words can be arranged in three ways, always expressing the truth; this "Nemini nihil nocet," nobody hurts nothing, proves the original thesis: nothing hurts nobody.

It is rightly claimed that sciosophy is at once the complement, the opposite and the antidote to material science. For that reason, as the learned Dr. Alger, of Boston, has demonstrated, sciosophy is to be preferred to "the gutter-psychology of to-day." For, as he observes, "it brings no contact of the soul with vulgar matter"; not to touch matter is to deprive it of real existence. "It does not soil the hands nor blunt the sensibilities," and its final reflex effect is purely one of spiritualization. He especially commends the study of what he calls "Speculative philosophy [itself an exalted branch of sciosophy] to thoughtful people of leisure, and especially to cultured women," for the whole face of philosophy will be changed when permeated by the instant intuitions of the eternal womanly.

It happens indeed that the clean, quick methods of sciosophy appeal to many outside the inner circles of the cult. To get there quickly is better than to wait for a generation or two. Wherefore some devotees of the most exact science have used the "running high jump," a technical term for speculative philosophy, in matters in which the old system of trial and error seems unbearably slow. It is said of William Crookes, one of the greatest of physicists: "The fiery imagination of the discoverer of electrons would not be stayed by the balance or the burette." Hence his plunge headlong into sciosophy.

To advance by quick methods towards the infinite is one of the temptations alluringly held out to exact

sciences. An aeroplane moves more swiftly than a goods van, though it may carry less weight. And while art is long, time is fleeting, and to reach finality in a lifetime is a great aim of sciosophy. If external nature has no objective existence, and one thing is as true as another, this method of enlivening "funeral marches to the grave" is, as Bruno observed, most satisfying.

I quote from a distinguished physicist: "The human mind is a force which divests matter and bends it to its will . . . I will bend my finger, and the muscles of my finger obey and my finger bends. If mental force really exists, and can make dead matter move as it directs, why can't it work without the intervention of matter? The fact is that it can. . . . Every day we read items that tell of a man in America receiving a message from a relative in Africa, and many others beside myself have talked with dead friends. . . . Thought transference takes place just as easily between people in England and people in China as it does between people in adjoining rooms." This, it is claimed, can not be due to waves of any kind, for these become diffuse and must weaken as the square of the distance increases.

Sciosophy, as history tells us, was the basis of the wisdom of the Middle Ages. The Divine Right of the Church, that of the King, and in later times, the divine right of the state rested solidly upon it. They could have no other basis, as the tested results of human experience all point in other directions. In the thirteenth century the learned men, taught on this foundation, knew everything, or at least all that was worth knowing, for the world they lived in was a sink of iniquity soon to be destroyed and only by the blasphemous and impious ranged with the pure planets and the eternal stars.

It has been left for modern times to drag the purity of celestial conceptions into terrestrial mud. Not content with supplanting the divine power of direct action by Newton's law of gravitation, they have set aside the "fall of man" by the thesis of his "ascent from the brute." The protest against this profanation was finely voiced some years ago by a group of sciosophists in Columbia, South Carolina.

"Resolved, that Man was created by an instantaneous process without previous animal parentage." Quite recently a similar cult in Texas "reaffirms its historic stand that Adam's body was fashioned out of matter previously created out of nothing." Either of these in a single sentence as compact as any of Lyell, Darwin or Huxley, elucidates the origin of man. And if necessary the same truth could be proved by inversion. There is no man in animals, therefore there is no animal in man.

A definite assertion like this at once clears the air and closes the door against future heresies. For nearly 200 years the famous dictum of Archbishop Ussher has held its ground in the field of religion. "Heaven and earth, center and circumference, were created all together in the same instant, with clouds full of water, on October 23, 4004 B. C., at nine o'clock in the morning."

Just as definite is this statement of a modern sciosophist:

"Whenever God gets ready to set this old world off he has all the coal, the gas and the oil right in this old earth to fire it with and down inside the fire is burning."

In an essay attributed to Lord Bacon (quoted by Harry Elmer Barnes), the story is told of the effort to find out how many teeth a horse has. Appeal was made to the Fathers and to Aristotle, but without result. Finally someone suggested looking at a horse. This was fiercely resented by the scholars. "Satan hath tempted this bold neophyte to declare unholy and unheard of ways of finding truth, contrary to all the teachings of the fathers." The disputants finally declared it to be "an everlasting mystery, because of a grievous dearth of historical and theological evidence thereof—and so ordered the same writ down."

In political economy, sciosophy still rules the world. It requires neither telescope nor microtome to ensure its primacy. As a nation we have been prosperous, and this according to sciosophy is due to the tariff. We have taxed ourselves rich. This we may prove by direction or by inversion. It needs neither scalpel nor statistics, nor any effort of the mind. To use war as the means to settle disputes is perhaps the greatest triumph of sciosophy. War leads to peace, for when nations are thoroughly exhausted it takes years to fatten them up. Therefore war-making is the surest means to bring about peace. This truth is proved by inversion as peace is the surest road to war.

The most useful weapon devised for war is forged by sciosophy. It is known as "impersonal hate," the hatred of people of whom one knows nothing. It is sometimes usefully called "patriotism," but that ancient and revered word has other meanings. Its truth is again proved by inversion. Let us assume that our military opponents are Hottentots. There is no Hottentot in Good, therefore no good in Hottentots.

No discussion of sciosophy could be complete without recognition of its immediate personal values. In the words of the man on the street, "there is a good deal in it." The witchhazel rod is to many the staff of life. In the rush to the Klondyke thirty years ago, the vender of the rabbit's foot grew wealthier than the washer of pans of gold, especially if his quarry were obtained in a country graveyard in the dark of the moon. At the present time indus-

tries based on sciosophy are especially repaying. War lifted the lid on society, and secret actions and beliefs held in the dark now dance openly on every green. For the aftermath of war is the heyday of temperamentalism, and of forty thousand other isms, social, political or religious, soothing to the soul and requiring no effort of the mind or hardening to the hands to secure them. "To live in two worlds at once" or at least in one "world with four dimensions" far from the distractions of realities appears as an ideal easily obtained and earnestly to be desired.

Dr. Harry Roberts, referring to the relations of Sciosophy to Medicine, says:

> Among the ultra-modern a feeling is spreading that these things (laboratory work) are at the best a little Victorian and old-fashioned, and that truth may be captured by less laborious and more dashing methods. Guessing is coming into fashion.

I find in the London *Nation* this account of a noted medicine-man of California:

> Dr. Abrams, possibly honestly obsessed by the researches in physics of Professor Rutherford and others, evolved the theory that all human sickness is due to faulty vibrations of electrons. He produced an instrument which he called an oscilloclast, whereby he alleged, these vibrations could be measured, and a complete diagnosis arrived at. By subjecting the sick man's electrons to the impact of vibrations corresponding with those responsible for the disease, a cure, he claimed might in all cases be effected. He believed or alleged that, by means of the oscilloclast (well defined by an American newspaper as "a contraption which might have been thrown together by a ten year-old boy who knows a little about electricity, to mystify an eight year-old boy who knows nothing about it"), he could determine whether an individual was a Catholic, a Seventh-Day-Adventist, a Theosophist, or a Jew. The real value of this instrument is well shown by the following report of the diagnosis made from a sample of blood submitted by Dr. Blue, of Michigan:
>
> "Congenital and cryptogenic syphilis; congenital gonorrhoea; carcinoma of stomach, small and large intestine, colon, pancreas, kidneys and bladder; epithelioma (not localized); sarcoma of spine; chronic malaria; diabetes. That may look like a formidable array of diseases to you, but it is not so bad from an electronic standpoint. I can not give a prognosis without a personal examination, but if all other things are equal your chances of recovery are very good."
>
> When it is explained that this blood specimen was obtained from a healthy Plymouth Rock cock, the optimism of the prognosis does not seem so misplaced.[2]

A fascinating phase of sciosophy is disclosed in the effort to probe the soul of the atom or to gauge the conscious feeling of a chopped tree. If the universe is alive, and whatever is alive has feeling, why not atoms, crystals and grains of sand, as well as amœbæ, salamanders and humanity? Marvelous are the achievements of the "Synthesis of Life," not a laboratory job, of course, but a task for the adept who creates life through juggling words, thus producing "a reasoned synthesis of the fabrication of protoplasm," even if he never sees protoplasm itself.

A touch of sciosophy may be traced in the work of those scientists who would cast aside Darwinism in the interest of making science more exact by purging it of variation. In Mr. Shaw's preface to "Back to Methuselah," the method is plainly indicated. Why not? May it not be true that a great philosopher may know instinctively more of the ways of creation than any plodding realist like Darwin, "in his greenhouse tying strings to his plants and making them do things"?

Authority on the one hand, a pillar to lean against, and sympathy on the other, a bosom to weep into, these are the chief demands of humanity in the mass. Both these sciosophy can furnish in full measure. No instruments of precision are necessary to set up authority or to set free the fountains of the soul, and these once flowing know no limitations of time or space. Esoteric dreams solace the future, absent treatment is better than present medicine. Its defiance of materialism proves its spiritual value. Sciosophy is ennobled by being set to work "to cure men of all ills whatever," says a high priest of the Neministic cult, "we have only to show them the stars. When we waken in the night only the sight of the stars . . . can tell us that we are awake. When we are awake all dreams must vanish, and all is dream which breaks the serenity of the mind. . . . We need not deal with the body for the body does not exist. It is dull, heavy and aching because it is the dead residuum of dream. When we forget it it is no longer there. . . . The body says, 'I am ill!' The reports of sickness may form a coalition with the reports of sin and say, 'I am malice, lust, appetite, envy, hate.' Treat a belief in sickness as you would sin, with sudden dismissal." To this in the cryptic fashion characteristic of sciosophy is added this great principle: "The equipollence of the stars above and of the mind below shows the awful unreality of evil." And as to this proposition one can have no reasonable doubt. And the whole ends with a sudden dash of worldly wisdom. With perfect faith in the unreality of external things it matters little what the practitioner does or leaves undone. Though money has no real existence the shadow in its substance proves that there is substance in its shadow. "The population of our cities," says the high priest lately quoted, "is ample to supply many practitioners, teachers and preachers with work. To enter this field of labor beneficially to ourselves it is necessary

[2] *The Nation and the Athenaeum*, April 12, 1924.

to demonstrate that the patient who is able to pay for being healed is more apt to recover than he who withholds a slight equivalent for health." Thus he who has paid for a touch of an old bone, a King or a blessed handkerchief, or for learning to say "To-day, to-day, in every way, I am getting better and better," is more likely to keep his faith than one to whom such favors come unasked. It is human nature to try to get the worth of one's money.

We may notice that followers of esoteric doctrine gather in cults, the choicest product of sciosophy. These yield in fact one of its best distinctive marks. There is no cult of objective science. It runs in another track and never seeks a majority vote.

I do not need before this audience to contrast sciosophy with science. Science is classified knowledge, no more, no less. The cardinal principle of science is that we know nothing until men find it out. There is no authority under heaven or above it that can give answers in advance to any question of fact. *"Roma locuta est, causa finita est,"* closes no scientific investigation. Science is human experience, tested and verified by our instruments of precision, telescope, microscope, scalpel, spectroscope, and those finer instruments of the mind itself, memory, logic and mathematics. Once its facts are obtained, they must be set in order. They must show relations of cause and effect, else they lead nowhere. "Facts are stupid things," Agassiz used to say, "unless they can be combined into truth," and to become truth facts must be stated in terms of human experience.

I have thus given, I trust, not unsympathetically, a few concrete examples of the most varied and most widely spread of all philosophical systems and the one most comforting to the human soul. Only a gigantic cyclopedia could tell the whole; I can only touch the fraying edge of a huge mantle which has enveloped humanity since it tasted its first knowledge of good and evil. It ranges throughout the universe from the cure of toothache and heartache through all the clustering multitudes of stars to its culmination in the ineffable, mouth-closing syllable of OM.

My own views may be tinged with it, for no one can escape from the atmosphere of his environment. To me the goal of human evolution is found in no single syllable but rather in reason, religion and love, and the central axis of these is reason or intelligence. Through the intellect, love and reverence are raised above the level of instincts. Each has its primal origin in simple relations. Intellect arises from reflex action, a complexity of tropisms. Love looks forward to the continuance of the race. Religion finds its initiation in fear and awe, culminating in reverence and duty. Each of these in its exalted reaches is upheld by intelligence, at once its backbone and its organ of vision.

Science, another name for knowledge, is our estimation of realities. There exists a parallelism between the actual character of objects in nature, and the impressions these objects make on the sensory organs and the nervous system of man and other animals. The impression which man sees or feels is not the object itself but object and impression run the same course, the one the inevitable effect of the other and the impression changing as the object changes.

The term *reality* is used in psychology to denote impressions on the mind or nerve center due to the impact of external impulse. It is an objective impression as distinguished from a subjective condition. Subjective appearances of reality seen by "the mind's eye" only may be illusions. An illusion at bottom is usually a fading memory, a continuance of a reality after its source has passed away. An untruthful interpretation of an actual reality is a delusion. Delusion and illusion form the subject matter of sciosophy, as reality forms the basis of science. To borrow a telling phrase from Roosevelt, sciosophy is science's "lunatic fringe."

I once walked in a garden with a wise little girl to whom I told Riley's story of "the goblins that get you if you don't watch out." She was not particularly impressed and she said, "There isn't any such a thing as a goblin and there isn't ever going to be any." In the spirit of philosophic doubt possessed by Berkeley and affected by Balfour, I answered, "Maybe there isn't any such a thing as anything." "Yes, there is," and she looked about the garden for unquestioned reality, "yes, there is such a thing as anything; there is such a thing as a squash."

And in this conclusion of the little girl the reality of the objective world, the integrity of science and sanity of man are alike bound up. The distinction between objective and subjective, between reality and illusion, between fact and dream, between presence and memory, between reason and tradition, all fundamental in human psychology, each is essential in human conduct. Truth is livable and error is not, a difference which appears in the stress of the conduct of life.

Men and animals are guided by their realities. They live by truth. Instinct points the way ancestors have safely trodden. Intellect is the power to choose new conditions, new responses to the demands of new environment. Of the hosts of men and animals and plants now living on the earth, not one had an ancestor who died in infancy. That they have each and all passed that period at least shows that they have had safe guidance with capacity to size up the situation with substantial accuracy so far as they were themselves concerned. Were it not for this faculty the race of men could never have

maintained itself. The sense organs of every animal are so constructed that the realities they grasp are adequate for their inherited needs. For truth in dealing with external things is not primarily understanding of the things themselves but rather of their relation to us.

The power to summon up adequate truth from our realities is called common sense. Science is only common sense expanded and verified and applied to a wider range of objects. With its instruments of precision (mind, memory, logic, mathematics, and its accessory tools) it goes beyond the obvious into the hidden complexities of truth. The final test of truth is its "livableness," the degree to which we may trust our lives to it or to the methods by which it is won. It is not merely "workableness," for an idea false or incomplete may be workable in a degree. Many elements of sciosophy are workable, if not put to an acid test. That one man or ten million men get along with an idea or a dogma does not argue its soundness, unless these men have successfully translated it into action.

The purpose of science is in the main threefold: first, to help humanity by its control of sanitation, conservation, and the use of the forces of nature—this is applied science; second to furnish a sound basis for the conduct of life—this is the art of ethics, and right living can fall back on no other authority. We may not trust to impulse or instincts, for the power to control and to discriminate among these is the function of intelligence. We can not trust to religion, for the sentiment of fear, awe, reverence and duty is sadly bound up with superstition. Superstition is believing or trying to believe what we know is not true. It is for science to combat superstition and to disentangle religion from its meshes.

The third function of science is to widen the human mind. Its span is the universe, dealing as well as may be with the infinite great as with the infinite little. We can reach a small part, not a fraction but a tangible fringe of a universe in which there is neither great nor small. We find in it endless change, but every change is orderly. So far as we can see "nothing endures save the flow of force and the rational intelligence that pervades it." This intelligence we can not describe, nor circumscribe. We can not speak of it in any terms of human experience, and to try to do so shows only the narrowness of our conception. These words are attributed to Mencius in China thirty centuries ago. "He will appear without showing Himself, effect renovation without moving, create perfection without acting. It is the law of heaven and earth whose way is solid, substantial, vast and unchanging."

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MEDICAL EDUCATION AND CULTURE[1]

IN a recent discussion of medical education there occurred the phrase, "This culture business." It is a challenge in its implied scorn. It questions the intimacy of relationship between education and so-called culture and suggests that the more widely they are separated the better it is for education. As to real culture, that comes only from a scientific study of man and the world around him.

In view of what William James called "the fluidity of the facts," it may be worth while to accept the challenge, or at least to think about accepting it.

What have men of science to do with culture, and what is culture to them? Not only of men of science, to whom the method of science is as the breath of their nostrils, but of doctors, teachers, there is asked the question, "What has culture to do with education?"

No attempt will be made to give a new definition of culture, nor to catalogue what others have said about it, but the words of Whitehead are both apt and beautiful. In his presidential address to the British Mathematical Association on the "Aims of Education," he says, "Culture is activity of thought and receptiveness to beauty and humane feeling."

Now culture may be looked upon from two points of view. It may be regarded as the end-product, the result of endeavor; or it may be regarded as the process, which, in so far as process determines result, determines what is to be attained. It is to culture as a process that consideration will now be given.

In moments of depression, one may feel as if some of the present-day methods of teaching are like feeding the dog. The dog is given a bone, in the form of a lecture to the student. If, later, the disfigured bone is recovered with some inconvenience and perhaps risk, the lecturer has in the examination paper a scarcely recognizable fragment of what he intended to convey to the mind of the pupil.

But the mind of the pupil should be fertile. Ideas thrown into it should germinate, grow and bear fruit. The seed should fall on good ground, ground that has been well prepared. It is true that in a general scheme of education the rocky ground and the shallow soil have to be considered. But by the end of two years of college work, the present minimum requirement for admission to the medical school, the processes of selection may be expected to eliminate most of the candidates who are naturally unfit. If the processes of selection are just, and they need careful revision from time to time, and the educational

[1] Read at the meeting of the Council on Medical Education of the American Medical Association in Chicago, March 3, 1924.