

## FAKERS OF SCIENCE

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The salvation of the world depends upon the development and applications of science. This is a statement that may be considered unsailable. But if anyone objects to this use of the word "salvation" I shall not argue the question or become irritated—I shall simply shift my ground somewhat and reiterate: The hope of the world lies in science and its developments. If it should be that other contentious individuals should manifest a doubt as to the propriety of confining "hope" to such materialistic lines, I shall not even reply, but again side-step and repeat: The whole future of the world, animate and inanimate, is held in the hands of scientists, past, present and yet to be born.

In this evasiveness I can indulge with a perfectly clear conscience because I consider all of these statements as meaning essentially the same thing. In such circumstances one can afford to be generous and to allow another, who may not so regard the matter, to select the term, the phrase, the formula that best agrees with his own ideas upon the subject.

Now if my fancied opponent remains obstinate and unconvinced, I fall back upon a vice that has already become apparent in this introduction to my paper—namely, that of over-indulgence in the pronoun, first person, singular. I speak for myself alone. No one else is involved in any of my statements; no one is asked to accept them unless he likes.

So now the way is cleared, technicalities are brushed aside and opposition is trampled down. Exceptions have been noted by the court and the basis laid for an appeal. But you will not find the present speaker there when the case is called. What I have to say, I say now. In the picturesque language of Young America, take it or leave it. It is all one to me. So now let us plunge at once into seriousness.

Can it be that you have forgotten what it is that I have been saying so many words about? Well, I am simply trying, in all seriousness, to stress the idea that studies in science, the concentration of the human intellect, mass action of human *intellects*, upon the problems of the universe has resulted in enormous benefits to the human race and that there is every indication that future efforts will uncover other vast fields for the application of forces and principles of which our brightest minds do not now even dream.

The fact is that every one who observes intently and who thinks deeply knows that what I have said is true—stripped of all verbosity, redundancy and prolixity of every variety, it is essentially true. Then to the next idea.

When we realize what a serious business is the matter of the health and comfort and happiness of the human race, individually and col-

lectively, and how intimately bound up with these is the matter of discovery and correct application of the scientific principles upon which the universe operates, we may ask the question: What of the man who, in the full knowledge of all this, deliberately distorts the truths of science in order to deceive, to harm or to rob human beings of their benefits, and especially if this be done for personal gain, financial or otherwise? What, in short, of the *faker* of science?

Deception and thievery have always proved to be profitable enterprises, in a temporary sense, at least. How much easier and how much more pleasant a job it is to permit others to do the drudgery involved in high achievement and then magnanimously to shoulder the profits or the credit or whatever gain is involved, and to appropriate it to one's self. How simple a proposition to take the discoveries of science and the scientific achievements of men's minds and to misapply them to one's own financial gain or credit and this, frequently, in a quite spectacular manner, trusting to universal ignorance and inexhaustible human credulity for success in the undertaking.

If one were to attempt to give even scant notice to any considerable proportion of individual fakers of science, and of their fakes, that are recorded in literature the result would be a ponderous volume. Far be it from me to inflict any such attempt upon this grave and dignified body. But I should like briefly to discuss a few outstanding *classes* of fakers, using this discussion for the conveyance of certain personal opinions that have long been struggling for expression.

Schemes for accomplishing work without supplying energy or consuming materials have long engaged the attention of pseudo-scientists. These are so familiar to everyone, under the general head of "perpetual motion" contrivances, that we shall waste no time in discussing them. In most cases work and study have been spent upon such ideas as a result of lack of scientific training on the part of the schemers and we can feel only pity for the misguided zealot who spends the best years of his life in chasing such a phantom. It is only when a device of the "perpetual motion" class is actually produced for demonstration for the purpose of obtaining financial aid or credit for the "inventor" that the latter qualifies for the society of fakers. For he must necessarily know, before that event, that the machine will not work and that the scheme is impractical and he becomes then a plain swindler—a real faker of science.

So much for this ancient class of fakers. I should like to give brief mention, now, to the Free-Energy faker. This is truly a clever and audacious individual. The most recent developments of physical and chemical science have given a tremendous emphasis to the possibilities of utilization of energy stored in the individual atom. This energy is a reality and the problem of its practical utilization is one of the many fascinating fields for future exploration. The general, non-scientific public also has caught something of the vision and, with little or no understanding of the real meaning of the discoveries that have already been made, is nevertheless willing to accord a certain doubtful respect to the scientist himself. Here is the golden opportunity for the faker. Ever on the alert and with an eye to the main chance, he

(metaphorically) nimbly mounts to the shoulders of the man of science, snatches the banner from his hands and bravely rides his steed into public notice. What with his excessive shouting and his skillful use of language, it is small wonder that he absorbs the principal share of attention, for a time at least.

One example shall be mentioned and then we may pass on. In the year 1917 came one silver-tongued Armenian, styling himself Garabed T. K. Giragossian, before certain Congressmen and secured their attention to an "invention" for obtaining "free energy" from the inexhaustible supply furnished by nature. He gave no description of his machine or of the principles employed in its construction or operation. But his references were so splendid and his language so eloquent that he experienced little trouble in obtaining the introduction and ultimate passage of a joint resolution authorizing the government to accept the free use of "Garabed", as the device was called, for the purpose of bringing a speedy end to the war. A clause was inserted in the resolution to the effect that a committee of scientists should first examine the validity of principles and witness a demonstration of a working model of his machine. This proviso may have been inserted as an after-thought,—or it may have been the work of some brutal materialist whose lack of vision kept his feet on the ground. At any rate the demonstration proved a complete failure and "Garabed" turned out to be only one more of the many pulley-and-flywheel devices for perpetual motion.

Dr. C. H. Herty, former editor of *The Journal of Industrial and Engineering Chemistry*, adds his own poetic comment, thus:

"The Garabed's completely dead. 'Twas put to sleep through just one peep by a bloomin' committee that had no pity."

What the motives of Mr. Giragossian were, we are unable to state. In the light of his offer to the government we are inclined to be charitable and to suppose that he was, like many others before him, a self-deluded victim of his own lack of scientific training. But when we observe how nearly he came to hoodwinking an important branch of our government we indulge in a shiver of apprehension for what might have been the result had Mr. Giragossian been less altruistic and more skillful in holding fast to his dupes. The human mind is capable of believing anything, however wild, and even in working up considerable enthusiasm in connection with such belief. To support which statement I offer a part of a speech on Garabed, delivered in the House of Representatives:\*

"Mr. Speaker, the miracle of yesterday is the commonplace of today. There was a time when man was perfect in all his parts and elements. He was complete physically. The poet, the painter, the sculptor, the dreamer, in the wildest flights of superb fancy, never caught more than a fleeting vision of that beauty which was given by the Lord to the first man and first woman.

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\* Congressional Record, Dec. 15, 1917, p. 358.

"Not only was man complete physically at one time, but he was perfect mentally. He knew all philosophy and all science. Mathematical exactness was instinctive with him. He knew and could interpret bird song. He knew where the flower bloom came from, and why. He understood the passions of the tiger. He saw all problems with clear and unmistakable vision.

"He was complete spiritually. He discussed with the Divine the themes of the divinity. He communed with the angels.

"He was so complete in his structure that he possessed the power to destroy his own perfection, and he exercised this power. He sinned. That is to say, he violated some law of harmony. What it was we do not know. Perhaps we shall never know. But we know that it was the exercise of a power by which the integrity of the triple structure was destroyed. I think that touched his every phase and characteristic. It devitalized him physically. The majestic brow receded; the form became bent. Warts and vile protuberances grew upon the skin. The nerves lost control over the muscles, and these, uncontrolled, fell to hideous expression. And it devitalized him mentally. He lost intellectual excellence. He lost the power of discerning truth clearly amidst every confusion and complexity.

"It devitalized him spiritually. He could no longer look clear-eyed upon the angels nor commune in freedom with the God. And in this condition—a physical degenerate, a moral wreck, an intellectual prostitute—he was cast into the wild amid the wild things over which he had held unrestrained dominion."

This, you will observe, is offered in support of the claims for scientific excellence of "Garabed". If you are sufficiently generous you will admit that it completely establishes the case!

The Keely motor swindle is a classic, so familiar to all that it shall here receive mention only. Also the perennial device for "burning" air instead of expensive fuel. Likewise a myriad of other schemes for obtaining something for nothing, that have deluded and bewildered men of all generations.

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It is time now that we should give some attention to the mineral water faker. This gentleman's business is, perhaps, considerably less obnoxious than many others because, in a general way, some of the results are wholesome. Bear in mind, therefore, that it is only to the extent and in the sense that it is a *fake* that we visit our displeasure upon it. Also please remember that our faker of science is the one who shows people not the real science or a correct application of the real science, but a slightly different one, so like the true one (perhaps even a mirror image of it) that the untrained cannot discern the difference. But this slight variation is the one item upon which is based the success, financial or otherwise, of the faker.

Scientifically speaking, the task of the mineral water faker is comparatively simple. It is a fact well known among medical men that many (if not most) people do not drink enough water and that constipation, with all of its attendant ills, is the consequence of such

abstinence. Also it is known that several of the chemical compounds commonly found in ground waters have a pronounced effect (sometimes a wholesome one, if taken in correct quantities) upon the digestive apparatus. Add to this the psychology of illness and health and you have the case. The waters of a given locality are advertised as of a curative nature, the chemist's analysis is published, together with a statement of the physiological effect of each constituent named, and a health resort is established.

Some people suffer from poor health because of overwork (although the number of such is really not as great as we often like to believe), some from *under*-work and great numbers think they are ill when they are not (or are ill because they think they are, which perhaps amounts to about the same thing). These in addition to the people who need more water to drink, as already explained, and to those who chronically disobey most of the rules for caring for their bodies. Induce these folk to believe that a peculiar water from the bowels of the earth, found only in certain famous wells, is the long-sought fountain of health, if not even of youth, persuade them to go to this health resort for a season and a cure is almost certain. They are placed in the hands of skilled dietitians who cause them to eat sensibly and to drink abundantly,—of other attendants who look to it that they shall bathe and exercise regularly and properly,—and the entire atmosphere is made pleasant and cheering. Under the circumstances Nature gets her opportunity and the patient is cured. The cost, in money, has been rather high but it was worth it, wasn't it?

This is all very fine and it is probably true that a cure as the result of deception is better than no cure at all. But I am dogmatic enough to believe that education is better than deception, cure or no cure, and that in the long run it will have a better effect upon the health of our people. The thing that the patient did not understand was that rest, recreation, correct diet, drinking sufficient water (plain monoxide of hydrogen), frequent bathing and rubbing and pleasant thoughts were the cause of the cure, when he innocently considered them mere necessary evils,—and that the mineral content of the water, which he understood to be the curative principle, was only so much bosh and clap-trap, an adjunct to the main business. He could have practiced proper eating, drinking, bathing, etc., at home but did not understand that they were necessary or important. He could have bought at the corner drug store, for twenty-five cents, as much mineral salts as was contained in a thousand gallons of the water he drank, but knew neither this fact nor that the salts themselves had no appreciable effect upon him because of their very small concentration, and that they were therefore unnecessary to the success of the treatment. (Please note that I am not here discussing the so-called "mineral waters" that are found bottled on the market, consisting of ordinary ground waters "fortified" by the addition of quantities of laxative salts.)

And now let me attempt to justify the statement that education is preferable to deception, science to fake, by reminding you that where one sufferer is cured by this benevolent deception, a thousand others

fail of cure because they cannot afford the cost of the deception and because they have not been told how to cure themselves at home, at no cost at all.

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Enter now the Patent Medicine faker. This individual has been with us for a very long time and he bids fair to favor us with his presence for some time to come. Again we notice the essential characteristic of the faker family,—the ability to confuse science with *un*-science, truth with a lie, real medicine with pseudo-medicine. The patent medicine faker relies for his success chiefly upon (a) the almost universal knowledge that scientific medical practice has proved its worth to mankind, (b) the almost universal *ignorance* of what is and what is not scientific medical practice, (c) *quite* universal credulity and (d) the strange fascination that seems to be possessed by mankind for self-dosing. And his reliance is not misplaced. How we love to be ill so that we may become well and how we love to prescribe for ourselves,—or so we think we are doing, while in reality we are responding to psychic suggestion, so cunningly conveyed to us by paid advertisements in newspapers, frequently masquerading as news matter and through which the patent medicine faker prescribes for us.

It has been repeatedly pointed out that the worst feature of the patent medicine evil is the fact that money is so frequently squandered for worthless, or worse than worthless, materials by those who can least afford its loss, and that these same people are so frequently the ones who most need the advice of wise, well-trained physicians. Why self-respecting druggists continue to vend the stuff and why self-respecting newspapers continue to accept money for concealed and un-concealed advertisements, used for the deception of the credulous,—passes my understanding. But I long ago gave up trying to understand a number of things.

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Now, with fear and trembling I arise to pay my respects to the Religious faker. My trepidation is based upon the knowledge that any man of science who essays to discuss any matter connected with religion treads upon dangerous ground. People are extremely sensitive concerning the so-called materialism of our scientists. "Atheism in the colleges and universities" is a phrase with which to conjure. Let me say at the very outset that I am not going to attack religion. Neither shall I defend religion. I shall not discuss religion in any way but I am going to say a few things about religious fakers of science. And again please notice (I am very particular here, of necessity) that we have consistently discussed fakers of science as men who pervert or misapply the truths of science in order to bolster up any case which they desire to make, whether this be through ignorance or "with malice aforethought". I believe I am right in maintaining that it is no compliment to religious ideals to fake anything, anywhere in their support.

The "conflict" between science and religion is at least as old as science. Scientific men, accustomed as they are to rigid self-discipline in methods of thought, basing their conclusions upon demonstrated or demonstrable facts, have long manifested impatience concerning the

irrational superstitions that have attached themselves to religious thought. Not only have certain scientists attacked these ideas very bitterly but many others have felt a rebellion in spirit, mostly suppressed for reasons of expediency. It has indeed been unfortunate for the cause of religion that its exponents have always been slow to accept scientific principles. Giving ground inch by inch, but always fighting, organized religion has kept itself always in the position of the reactionary instead of in that of the enthusiastic supporter of all search for truth by every available method. Many of the foremost religious thinkers of recent times have seen and regretted this anomalous position and there has, of late years, been noticed a tremendous effort on the part of religious writers and speakers to reconcile the conflicting elements and to remove from the church the stigma of always posing as the obstructionist in matters of scientific advancement.

In casting about for means to this end they have made another unfortunate mistake. "Let us be magnanimous," we can imagine them saying, "and admit that organized religion has been reactionary in the past, dogmatic and intolerant to progressive scientific ideas, and clinging to ancient and mediæval superstitions. But let it be so no more." So we have it now that there is no longer opposition to true science. The chasm is closed, the discord is harmonized. The result? Why, science *proves* the truth of religion! People may now be religious in spite of their doubts, because science and the truths of science corroborate the theories of religion. The church has adopted the "scientific method" of reasoning and the problem is solved.

This course of procedure is a mistake, for the simple reason that never, as long as this world shall endure, can science ever corroborate a single *dogma* of religion, any more than it can corroborate a single dogma of any other kind. This is because religious dogma, like any other dogma, is essentially a non-demonstrable theory. It can be neither proved nor disproved and so science can have nothing whatever to do with it. Science is concerned only with hypotheses that are susceptible of test and when it becomes apparent that any theory lies outside that conceivable possibility, that theory immediately becomes impossible of consideration from any scientific standpoint and it must remain a matter for acceptance or rejection, according to the personal inclination or emotions of the individual.

But here is where our faker takes up the matter. If science will not concern herself with our dogma let us have a science of our own! So it has become fashionable for speakers and writers, eminent and otherwise, to adopt the words and phrases of science and to weave them into discussions of religious theory, creating or attempting to create the idea that because the religious exponent himself is scientific, science is therefore of religion. Scientific terms are bandied about with perfect familiarity and handed out with an effrontery that awes the non-scientific hearer and compels his respect, even if it amazes or amuses the scientist himself. This is particularly true in college towns, where great numbers of young men and women are engaged in the study of pure and applied science. Thanks to the reactionary religious

training of the past, these young people have been taught a vast number of things that have to be unlearned when they begin the process of absorbing scientific fundamentals. Now, in order to keep them in the proper channels of religious thought, the possibilities of their scientific training must be counteracted in some manner. They must be impressed with the idea that their "doubts" are only imaginary and temporary and that future training will dispel them because: "I" (the speaker) "have had such doubts and have overcome them, and is it not evident that *I* am scientific?" In addition to this very prevalent vice among the stationary teachers of religion we have numbers of eminent divines going about the country, making a specialty of talks to mass meetings of college students and using the methods above outlined. No doubt they have visited your town as they have ours. These men are usually orators of first distinction. They mix with their addresses a perfectly amazing patter of science. Dinosaurs, relativity, electrons, paleontology, anti-toxins, protoplasm, light-years and gamma rays are the breath of life to them. Even the more or less mature scientist is somewhat hypnotized by the brilliancy of the discourse. It is only on the way home that he begins to realize that the speaker had very little realization of the true meaning and significance of the half of what he said and that he had been guilty of brazenly faking science in order to appear to prove something that, in the very nature of things, can not be proved.

Unfortunately the young student is dazzled by this procedure because he is in a period of his development where he is only beginning to think logically and independently about the deeper things of life and he is very likely to regard his religious instructor as one of his scientific authorities and to be led to put aside real questions that should be decided, if his future training is to be along sane and logical lines. If the student is really serious-minded his doubts cannot be permanently satisfied in this way and he will not be content with the plan of thinking along one set of ideas within the laboratory and another, incompatible with the first, in the pew.

It may appear from this that I regard it as unfortunate that a young man should be won to religion by pulpit orators. Not at all. As it was remarked in the discussion of the Mineral Water faker that a cure as the result of deception is probably preferable to no cure at all, so it may be better that a man should be won to a life of rectitude by a religious faker than that he should ultimately fail to see the real significance of life. Yet here again I adhere to the idea that deception is unnecessary and that in the long run more people will be attracted to religion by the policy of playing fair and telling the truth, for if they think at all they will find out the truth sooner or later.

Why must our religious leaders ever persist in standing upon ground that they will be compelled to abandon later, just as they have stood upon and fought for ground that later had to be abandoned, through all the history of religion? Why must they insist upon giving so much prominence as essentials to the views and theories of men who lived in the very infancy of our civilization, instead of standing upon the simple and *absolutely unassailable* proposition that *religion is*

*life and service?* Why, in short, must we have faking of science, where science, with or without faking, has no connection with the subject?

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It may appear that in this discussion I have dealt harshly with well-intentioned classes of people,—that I have magnified a fancied trespass upon our domain into a well-nigh capital offense. But, fellow scientists, in my profession, as in that of many of you, I associate constantly with young people, eager to learn of the whys and wherefores of life. In the college is eternal spring-time of youth. We as teachers, may eventually grow old but, figuratively at least, our classes never do. I cannot look into the faces of inquiring youth day after day, year after year, and forgive myself for any deception regarding the subject I am teaching. How, then, can I forgive deception on the part of other teachers? If we lie to our students we are unworthy of the high duty that is ours.

For all of us who are teachers of science, let us note that science has one insistent demand, which is that we shall teach the truth, according to our best lights, welcome or unwelcome though the truth may be to others.

So for our fakers of science. Their name is legion, though we have discussed but a select few. Wherever there is a truth there is a corresponding untruth that may be made to resemble the truth and if there be any possibility of temporary profit, credit or honor in exploiting the untruth, the faker arises, ready for the job. The work of progress is thus complicated by the efforts of those who persist in pulling in the wrong direction. In this connection I am fond of quoting from Thomas Carlyle, who wrote:

“We have, simply, to carry the whole world and its businesses upon our backs, we poor united Human Species; to carry it, and shove it forward, from day to day, somehow or other, among us, or else be ground to powder under it, one and all. No light task, let me tell you, even if each did his part, honestly, which each doesn't, by any means. No, only the noble lift willingly with their whole strength, at the general burden; and in such a crowd, after all your drillings, regulatings, and attempts at equitable distribution, and compulsion, what deceptions are still practicable, what errors are inevitable! Many cunning, ignoble fellows shirk the labor altogether; and instead of faithfully lifting at the immeasurable universal handbarrow with its thousand-million handles, contrive to get on some ledge of it, and be lifted!”

Carlyle was discussing neither science nor fakers of science, yet his remarks could scarcely be more apropos of any other subject. Beside this eloquent enunciation of the problem of life and this denunciation of the obstructionist of progress, our remarks are feeble and impotent. Yet, until another Carlyle shall arise to lambast the modern faker of science, we shall have to be content with saying in our own way, the indignation that is in us. This I have tried to do.

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