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# HIGHER SCIENCE



*of the*  
**MOTION of MATTER**  
*A MAGAZINE DEVOTED TO*  
**SCIENCE, TRUTH, INVESTIGATION**  
*& MATTERS OF GENERAL INTEREST*

DECEMBER, 1903

**FRANKLIN H. HEALD**  
EDITOR AND PROPRIETOR  
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# HIGHER SCIENCE

OF THE MOTION OF MATTER

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Vol. III.

LOS ANGELES, CAL.

Nos. 10, 11, 12

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## WHY A PLANET BURSTS WHEN NEAR THE SUN.

In my little book *The Procession of Planets*, Chap. X. is devoted to considering the possibility of one or more bursted worlds, between Mercury and the sun (160\*). At that time I had arrived at the conclusion that such was the case, and that the remnants were gradually falling into it and thus returning the heat or energy which it cost the sun originally to dissolve solid matter into gas and swell it up to the cold regions beyond Neptune's orbit; but I had not at that time investigated the reasons why they should burst at this particular point, in time to add to the sun's heat gradually, instead of allowing a whole planet to plunge into it at one time, thus blowing it to pieces and filling the solar system with its fragments. Since my attention has been called back to these asteroids, by a correspondent, I find that the theory furnishes a simple and perfect solution of what would very naturally present itself to the pious as the protecting act of a god. In falling in an orbit toward the sun, we have seen that all bodies increase their speed (255). As they fall around the sun in an orbit the increase of speed creates a contrary force to gravity, i. e., centrifugal force. To illustrate what we actually know of the gaining of speed by a planet's fall we know that Neptune has a speed of but 250,000 miles per day, while Mercury has gained a speed ten times faster, traveling 2,500,000 miles per day. In the same ratio, and according to Bode's law (90), the next planet (supposed once to be Vulcan)

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\* Numbers in parentheses refer to notes in "The Procession of Planets."

should be traveling at a speed of 5,000,000 miles per day and by the time it plunges into the sun its speed would not vary much from 10,000,000 miles per day. Centrifugal force at an orbit near the sun is therefore an immense power pulling away from the sun, and gravity a still greater power pulling towards the sun. The two forces, as we must see, are pulling in exactly opposite directions and at a certain point between Mercury and the sun (which good astronomical mathematicians should be able to easily determine) they would so nearly balance that any inside expansion of gas, such as water changing into vapor, would easily cause a sufficient explosion to tear them to pieces. Long years before reaching this point they have turned one magnetic pole to the sun and are dead, so to speak; no longer rotating upon their former or natural axis, parallel to the sun's axis, so that one-half would always be in the blazing sun-light, making it possible and probable that the water which it absorbed as it cooled, and which is now in its great interior caverns, as in the case of our moon, would be converted into steam of sufficient power to overcome the small adhesion which the two contrary forces of gravity and centrifugal force have left it.

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## WHAT CAUSES MOTIONS?

BY A. N. MOTE.

Some quite eminent reasoners assert that heat is a mode of motion, that cold is the absence of heat, and that heat and cold produces all motion. This is as sound logic as that old myth about God, "that God was hatched from an egg, and that he laid the egg he was hatched from."

If heat is a mode of motion it is a self-evident fact there was no heat until there first was motion. What, then, produced the first motion before there was any heat to be a mode of motion? There is no effect without a preceding cause. An effect is a result of a cause, and every atom of matter in the universe is a result of



some cause. Every atom of matter possesses an age; it is so old, and before the first part of their ages they did not exist.

511 Mulberry St., Des Moines, Ia.

(Here is a chance for students of the Processional theory to do some good hard thinking. Who can set our good friend right in this matter, at the rate of one cent per word?—Ed. H. S.)

## THE INTELLIGENCE OF PLANTS.

Mrs. W. M. Brown, of Arlington, Ga., writing of the Procession of Planets theory and the magazine, asks a very relevant question in regard to the seeming intelligence of vines, which deserves a special explanation. She says:

"I have studied the book carefully, and am carried away with it. It is different and goes far beyond any thing I have ever read on astronomy, and is perfectly grand. . . . I have closely observed plant life since childhood, and the greatest mystery to me is that vines and tendrils reach so far to some objects for support. They seem to know. Why not grow in any direction? . . ."

They are guided by force—the force of gravity or attraction. I once made quite an extended investigation of the doings of vines, after reading a magazine article by a minister, who proved to his own entire satisfaction that they are guided in the direction they grow for support, by the hand or mind of his god. One of my experiments was to plant a vine near an inch pipe. After the vine had wound around it several times I gradually filled the pipe with hot water. At once the vine began to unwind and in less than two hours it was reaching in the opposite direction for support (god had changed his mind again), as if it had consciousness, and indeed it had, as consciousness is only the result of force, as I have often attempted to show. [See HIGHER SCIENCE, June, 1902, p. 10]. The plant is an animal and has a nervous system, and is warm and expanding. It cannot go down, and there-

fore is attracted to the nearest object on the level or above its apex. The force which caused it to unwind was the expanding force of heat which overcame or destroyed the force of gravity, and repulsed it. Like the worm which is forced to crawl back and forth to eat the bud, it feels the presence or absence of the force of heat. Our own and all life, and what we do and think, are but forces. There is nothing in nature but matter and its force or motions, made by expanding and contracting, by heating and cooling. We are forced to do and think by the vibrations generated, by the disintegration of what we eat and drink and the other forces of expanding and contracting which operate upon us. For an example, we can change a man's mind by giving him stimulants. This may be done in many ways and a continued stimulant will cause him to see, hear, smell, taste, and feel things which do not exist. So also will starvation or great thirst force delirious or untrue conditions of consciousness and action in any life. Jesus once starved 40 days in the desert, which no doubt caused him to see and converse with that great story-teller, our friend the Devil, Lucifer the bearer of light; but most of the impossible things seen and heard by the saints and wise men of the Bible were caused by an over indulgence in *spirits fermenti*.

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### FORMATIVE FORCE.

The *Phrenopathic Journal* for August gives the Procession theory five pages of attention, with the idea that there is a "formative" force outside of the expanding and contracting of matter by heating and cooling. On page 25 Bro. Close says:

"After quoting a portion of our remarks concerning his brief explanation of the "powerful IT," in the June number of his excellent magazine, *Higher Science*, Editor Heald replies as follows: "

He then reprints my article of June, and after assuring me that he realizes there is no personal god or supernatural force of that kind, says in part:

"But if you mean that there is no formative force within this universal substance which by its inherent and dominating influence directs and controls the forces of expansion and contraction, then we must beg leave to differ from you.

"When we plant an acorn the seed begins the process of fermentation by which an expansion of the matter of which it is composed causes it to put forth a green shoot and by a continued expansion and contraction an oak tree is produced. We presume that you go with us thus far. Now we wish to put a few questions. Perhaps we'll answer them ourselves, but we would like your answer also.

"If expansion and contraction are the only forces, and there is no formative force in nature that directs and controls the action and reaction, expansion and contraction, heat and cold, why is it that the acorn when it is planted and grows into a tree invariably produces an oak?

"If expansion and contraction are the only forces at work in the growth of the tree why does it never happen that the acorn should produce an apple tree?"

The acorn does not produce an apple tree for the same reason that the light reflected from a horse falling upon the sensitive plate does not produce the picture of a donkey. In fact, I fail to find any formative force in it. It is simply the motion of light, which is no more or less than heat, fixing an exact image of the original. There appears to me to be no idea in it, and that indeed nature has no idea or ideas, and only has laws, and that they are simply the results of the motions of matter. The acorn simply reproduces the tree which it came from without any idea of doing so. Certainly there can be no ideas stored away in an acorn or hovering around it in space or in the surrounding dirt. An idea coming from a human brain is not even a force of itself, but is forced by heating or cooling of the brain as we see by increasing or decreasing the amount of our food or drink. By increasing our regular allowance of whisky we can increase the number and size of our ideas almost without limit, so much indeed that we can see things that do not exist in fact. These ideas are forced but are not force. They are the results of force only. The force is expansion and contraction produced by heating and cooling. The

very fact of hybridizing, which Prof. Close mentions, should show him that if there are any ideas waiting around to formulate the shape and quality of the coming fruit or tree it must be crystalized in the pollen of the flowers, and when the pollen is mixed the ideas are mixed also, which mixes the fruit reproduced.

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## ABSOLUTE ZERO.

In May and June *Examiner* we commented on a statement credited to the *Science Monthly* that, by "the aid of the spectro-scope, certain gases had been discovered in interplanetary space." It was our contention that no gas could exist at absolute zero. To this, our worthy contemporary (*Higher Science*), in his June magazine, excepts, by remarking :

" 'We do not believe such a place exists. Wherever there is the smallest light from the stars there is some heat, and light cannot travel through a vacuum.' "

Now, we suggest that the incandescent lamp is an almost perfect vacuum ; and, as the light travels through it fairly well, it may be necessary for *H. S.* to modify his *credo*. But will he tell us what he means, in this connection, as "a vacuum" ? A vacuum of what ? Might it not be inferred from this argument that absolute zero also signifies, to him, absolute vacuum. Usually he is pellucid ; but, just in this number he is a trifle \* ambiguous ; because, on page 172, he writes :

" 'Electricity is not a gas ; it is but a motion of expanded matter.' "

But constant tension is a characteristic of every gas ; and, as motion, or expansion is a property of matter, is it to be understood that he regards electricity and motion to be one and the same ? If so, he is still indefinite. It is in order for him to name the "matter," the expansion (motion) of which results in electricity. Is it common to any gas ? or, does it require a specific element ? There are sixty-five, say, elementary substances, called, collectively, matter. Will any of these do the job ?

In our humble judgment, while heat is essential to the generation of light, the colder the conductor the better. That there is such a degree of cold where the expansive force of heat ceases, there seems to be a uniform opinion among chemists and physi-cists, in and out of the text books.—*Examiner, Paris, Tex.*

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\* "Those oft are stratagems which errors seem,  
Nor is it Horner nods, but *we* that dream."

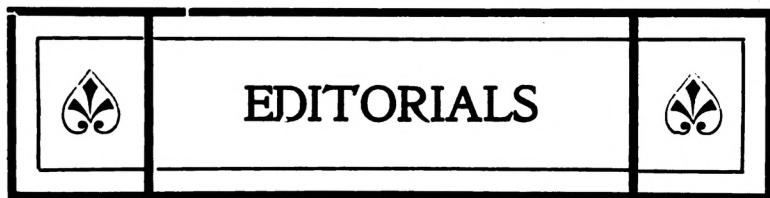
The italic is ours.

A vacuum would be a space where there was absolutely nothing, and that such a place does not and cannot exist is very easily proven. Simply because there is no oxygen in the bulb of an incandescent light does not make a vacuum. There are no doubt many elements of expanded matter or gas in the bulb after the oxygen is burned out (which changes its form). The sun is the center and life of the solar system and its matter is a complete admixture of all matter in the proportions that each element exists in nature. When it is expanded into colorless gas and pushed away continually from the sun this gas is the same, and its elements are not separated until it begins to condense into solid matter, when it crystalizes and begins to separate into elements of matter, but it is like dividing 10 by 3—there is always a remainder. If a glass bulb had absolutely nothing inside of it, it would instantly disintegrate particles of itself, as all matter is always doing, and the first atom disintegrated would fill the bulb, *i. e.* its center would occupy the center of the bulb and its expansion would fill the balance until the next atom occupied half the bulb with it, making it twice as dense. The common idea of a vacuum is a hollow receptacle out of which a part of the air has been pumped, but we might pump it forever and still there would be air in it, and what there was left in it would fill the whole space by its expansion. So it is in the whole space of the universe. Absolute vacuum would be absolute zero because there could be no heat, light, electricity, or any other motion traveling thru an absolute vacuum. There must be matter to vibrate in order that these motions may exist. Either of these motions can be changed into either of the others by changing the rate of their motion of vibration; and the time will come, and that soon, when the heat of a fire or the heat of the sun will be reduced in its vibration directly into electricity. I refer my readers to Apr., 1903, HIGHER SCIENCE, p. 94, for a description of how these motions travel. Remember it is not the individual atoms which

travel but only the force or motion, like the motion which travels thru the line of bullets in the gun-barrel, as I have often illustrated. If the gun-barrel is filled with bullets, and we push one more in at the breech, the one at the muzzle drops out no matter how long the gun-barrel. The force or motion travels the entire length and delivers the force or motion at the muzzle. All these motions of matter travel the same way, and cannot travel without a medium to travel thru, and, as all space is filled either with solid matter or some kind of gas from the sun and other suns, the never-ending motions they make in radiating their substance sends the motion, which is also heat (depending on the density of the medium thru which the motion travels), to and thru all space. The heat must be greatest where the gas is most dense because it takes more force to vibrate it. For example: Every direction from the sun is up (in our solar system), and if we suppose our gun-barrel to be long enough to reach beyond the orbit of Neptune we would find that it would require an immense force to push another bullet in at the breech at the sun, inasmuch as the whole weight of the long line of bullets must be raised the distance of the diameter of one bullet. The atoms of gas are light but for all that they have weight because they are matter, and the farther from the sun the less force it requires to raise them, because less weight above in the line, therefore less heat is developed. When the line reaches the atmosphere (gas) of a planet where the force of gravity is temporarily reversed the atmosphere or gas is more dense nearest the planet's surface, and as we penetrate it, it requires more force, and of course develops more heat the nearer we approach it. True, "the colder the conductor the better," because the degree of cold is caused by less force required to move it. If "the uniform opinion of chemists and physicists is, that there is a degree of cold where the expansive force of heat ceases," they will have to change their said opinion or point out the place and the "ceasing". Now, as the

*Examiner* is aware, there are millions of people who are "dead certain" there is a god, and must be a god, to create nature, but they fail to point him out, and overlook the fact that he could not make himself, unless they simply call nature god, which would be a silly attempt to make mystery where there is no occasion. Why then should we contend that there is a possible mysterious region of "absolute zero" when we know that such a region would absolutely cut us off from the light of distant orbs, as there must be some gas or medium thru which to transmit the motion of light, and where there is light or motion there is some heat. The *Examiner* should

"shift the meaning of its dream."



The more we learn about god the less we know.

If Admiral Dewey had not parted his hair in the middle, when he came home from Manilla and married the widow, he would easily be the next president of the United States.

We have been compelled to leave a lot of valuable matter, articles, etc., over until next month. Beginning with the new volume Jan. 1, we hope to have the regular 32 pages. You will receive extra numbers for those missed. Don't pray for us, but send lucky vibrations and paper dollars, money orders, etc.

You can greatly assist us if you will spare a moment and drop us a card. Remember, if you receive more than one sample of HIGHER SCIENCE you have



been recommended to us by a friend as a freethinker and all right. If you would like to have it continued drop us a card to that effect, and pay when convenient. If you do not, please ask your postmaster to notify us and greatly oblige. If you will kindly do so it will save us lots of trouble.

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The less the United States, with its armies and squadrons, sticks its nose into foreign religious missionary affairs the less human blood will be shed uselessly, and the less tax will be levied on people of America to whom all religion is disgusting. What does the average American citizen care how many Christian fanatics are killed in foreign countries? They have no business in Turkey or China or Russia, trying to proselyte the young of those countries away from their mother religions. If they do not want to be killed let them stay at home and attend to their own business.

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According to the Hebrew history of Jehovah, the god whom christians worship, he was the greatest meat-eater known to history, and required the sacrifice of the best and tenderest animals and fowls upon every possible pretext (Exod. XXIX, 33-46; the first twelve chapters of Leviticus), etc. He even compelled a woman who had given birth to a child, to furnish a tender yearling lamb to be burned (roasted) for the lord, before she could be forgiven for her crime; but in case she was too poor she should bring two turtles or two young pigeons (Levit. XII).

---

We have more than a hundred letters from thinkers which are so interesting that we are saving them to publish extracts from as we can find room. It is our experience that hundreds of people who deny an education, and consider themselves very common, are really the best of thinkers, and arrive nearer to the truth in their thinking than many so-called scientists. This is undoubtedly because of their freedom from superstition and their independence of thot.

### An Open Letter

To a minister, or to whom it may concern, is a 14-page pamphlet by J. M. Gilbert, Randolph, Texas, in which he shows a former friend, who has since joined the band of idlers who live by the charity of poor hard-working and ignorant women, the inconsistency of the doctrines and falsehoods he is teaching, and the harm he is doing this class of humanity. It is an argument which cannot be answered, and the minister addressed knew enough to see fit to ignore it.

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The saddest part of our duty in publishing this magazine is to note the going astray of priests and parsons. Although there have been 83 crimes discovered in the United States which were committed by them (and no doubt ten times as many undiscovered or laid at the door of innocent parties) since our last issue, we will mention but one. We would not do even that, but it happened right here in Southern California at the little town of Santa Paula, where a big christian brute of a Preacher ravished five little girls under the age of twelve years. The officers managed to save him from the crematory process which he so richly deserved at the hands of the populace, and now the church has united to save him from deserved punishment.

---

A certain pants shop in this city has been using their front window to illustrate the possibilities of degenerating nature. First they exhibited Earnest Darling, a human being who prides himself on having deteriorated from a respectable parentcy to a shameless, long-haired, bare-legged ape. Next they had an old female bull-dog with a litter of bull-pups that were so filthy that you could smell them thru the plate-glass window. And now they have a big pumpkin, in connection with which they will pay \$1000 to any person, living or dead, who can prove that it has not been tampered with and the seeds already counted.



He who teaches a man to think is greater than he who taketh a city.—*Suggestion.*

---

Let there be a commission of intelligent men in every county before whom all aspirants for hymenal honors must appear to show that they are fit to propagate the race.—*The Ghourki.*

Correct, and let that race be white, and the most intelligent portion of it.

---

Writing for HIGHER SCIENCE and books, Chas. R. Boerger, of Ft. Wayne, Ind., says:

“Every reader of *Freethot Magazine* should have it. That is where I saw *Procession of Planets*. . . . In-closed find check for amount.” . . .

---

We need a still newer and yet more progressive doctrine to take entire possession of us before we can show forth those mighty works we are so earnestly desirous of performing.—*Higher Thought.*

How would it do to try truth for a doctrine, and keep adding to it human knowledge, instead of placing flaming swords between the tree of knowledge and humanity as christianity does?

---

Are you interested in scientific theories? Then you will certainly be interested in Franklin H. Heald's "Procession of the Planets" as set forth in a small and inaccurately printed book for which he asks \$1. It looks like a big price, but you remember the old saying about "valuable goods"; and scientists have to ask larger prices than Hearsts and Eddie Boks and Winners get—the scientist's audience is smaller. Franklin Heald's theory is rational, logical, interesting. Address him or his magazine, HIGHER SCIENCE, at 218 Stimson block, Los Angeles, Cal.—*Nautilus.*

Franklin H. Heald, of 215 Stimson block, Los Angeles, Cal., editor of *HIGHER SCIENCE*, is the most rational minded writer coming to my desk. I don't get to read half he writes, but if everyone had as keen a sense for truth as he has, superstition in all lines would stand as much show as a snowflake in June. The Franklin of old would be proud of his namesake if he could return.

Just anyone can't digest the writings of this man Heald, but those who can should buy all he has written.—*Stuffed Club*.

---

"All is well that ends well," and altho the following letter from H. A. Hauser, of Grady, I. T., indicates trouble at the start, it ends all right, and Mr. H. is our good friend.

. . . . "Some time ago you began to send me *HIGHER SCIENCE* magazine without my knowledge or consent. How you got my name I don't know. Suffice to say I am very thankful to you, and think it a great educator. I am sure it is doing a great work of reform in ridiculing and putting down superstition and religion, so please find enclosed \$1.00 as evidence of my appreciation, and allow me to be your friend, etc." . . .

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*Editor Higher Science*.—It is with much pleasure that I received and read your September number of *HIGHER SCIENCE*. Your article, "The Gathering of a World," and similar articles on astronomical science that appear in each issue, are alone worth more than the price of a year's subscription, and should be read by Christians as well as Freethinkers. The especial value of *HIGHER SCIENCE* lies in the fact that it is instructive. It teaches its readers, scientifically, the wherefrom and whereto of the planetary system, and at the same time destroys that grim monster, superstition, that is holding millions in mental bondage.

The plain language used in handling the subject of religion is correct in style and effect, the criticisms of Dr. Phol notwithstanding. If it is necessary to shock the mental lethargy of the superstitious to arouse them to reason, then your comments are none too severe. The average mind may be lulled to sleep by smooth and evasive argument, but to stimulate the brain into activity requires just such shocks and jars and forceful language as you use to bring the benighted Christians to the proper and rational way of thinking.

Every Freethinker who can appreciate a scientific free-thought journal, as you have in *HIGHER SCIENCE*, should send in his subscription, and thus insure the success of a journal of superior merit.

Very truly yours,

Los Angeles, Dec. 1.

A. M. BRUNSWICK.

The *Spirit of Truth*, Hot Springs, Ark., announces that it has secured Jesus Christ as assistant editor, and gives a third-class editorial direct from him. Well, this won't do. HIGHER SCIENCE has started negotiations to secure the able assistance of his royal riblets the Devil, who, by the way, has more good hard horse-sense, honor, and virtue than all the gods, illegitimate saviors, prostitute virgins, polygamous wise men, murderers, "men after god's own heart," and drunken saints, priests, and preachers, in heaven above or hell below.

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F. G. Wilson, of Brooklyn, N. Y., says:

"Is HIGHER SCIENCE dead? If so it is nothing new. The pioneers of the light always have a hard fight and often die on the road. I miss it very much. . . . If it is discontinued don't dare send any unexpired sub. I am sorry because of the loss of such a good and vigorous champion of truth, but am well satisfied with the value I have received already. The *Procession of Planets* will live as long as the earth's pole revolves parallel to the pole of the sun." . . .

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Ada Lee Smith, of Harrison, Okla., compliments HIGHER SCIENCE highly, and further says:

"I am glad a lady has written her opinion straight forwardly concerning Dr. Phol's vilifying language about HIGHER SCIENCE. A pretty Poll' he is with his silly 'quack, quack'. I was angered when I read his miserable article. . . . Mr. Heald, what these times call for is more vigorous truth-tellers, and yours is a magazine to make its way to hearts who love truth." . . .

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Professor Edgar L. Larkin, who has charge of Lowe Observatory, at Mt. Echo, Cal., says:

"The whole world is to undergo tremendous changes in the next ten years. Discoveries in science are close at hand which will startle the most advanced creeds. . . . Orthodox creeds will be relegated to the dark ages, and a magnificent broad religious belief based on scientific facts will take their place."

The *Procession of Planets* and its theory of the motion of matter is already discovered, and when it is adopted by scientists as a working basis, Prof. Larkin's theory will have come true.

*Editor Higher Science.—My Dear Friend:—*It is with deep grief I write these lines. I have always been opposed to filth and obscenity, and now to my humiliation I find I know no more of either than a blind man knows of skyblue. I have read HIGHER SCIENCE since January and never found anything wrong in it, and just now I am informed by a writer in the *Blue Grass Blade* that HIGHER SCIENCE is teeming with filth and obscenity. Imagine the moral turpitude of a man who prides himself on leading a clean and spotless life, while at the same time he is wallowing in filth up to his neck and never knows it. Alas, such is my case, and hence my deep grief.

I feel deeply indebted to Dr. Pohl, from whom I got the information in the *Blue Grass Blade*, and I think his effort to purify the world ought not to go unrewarded. I for one would contribute my mite to send him to the St. Louis exposition, and there on a high pedestal, under a glass case to keep him from being contaminated, exhibit him as a model of purity. "Old Purity" would be a good inscription, but his name ought to be left off lest some wag turn it into polecat. Dr. Pohl, of Buffalo, N. Y., may have a very high opinion of his morality, but Free-thinkers will have a very low opinion of his judgment, for, as the German proverb says, "Self praise stinks."

I have been doing a little more missionary work and, I will send you a couple of clippings. We have imported a new preacher who is determined to make an ass of himself, and I am equally determined to keep him from doing it, and I think I have succeeded. He was craving for newspaper notoriety, and I made him so notorious that the papers got ashamed to print his trash.

I am sorry you find hard work in keeping your paper alive. But it seems a person who is not afraid to speak his honest thoughts has no business to live. For my part I would prefer to go to hell on a cork leg rather than repress my thoughts.

With kind regards to you and inquiring friends,

Yours fraternally,

Eureka, Cal.

ROBERT GUNTHER.

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