

THOSE MARS CANALS.

Mathematics Showing What They Mean to an Engineer.

A MAGNITUDE THAT IS APPALLING

If the Work is supposed to Be of Human Accomplishment.

WHY IT IS PHYSICALLY IMPOSSIBLE

Whatever we may know absolutely or approximately of another world, must necessarily be measured by the absolute-ness or approximation that we can bring to bear on this. We have no other standard of measurement. Whatever physics were involved in producing this world undoubtedly produced the others. The conditions that wrought the evolution of man on this planet would, beyond doubt, call for his apparition on another, while his powers, with their restrictions within natural limits, may be postulated as bearing on these powers, re-

gardless of locality. It is proposed in the matter now in view to carefully consider certain physical features on the planet Mars, and consider those features specifically in their relation to congeneric standards that govern with us.

It is affirmed by gentlemen high in the science of astronomy that the higher grade of glasses reveals peculiar lines on the face of the planet mentioned, and that these lines are canals, and as such are of necessity must be, the creation of a human intelligence.

Dismissing now any consideration of geology, ethnology or anthropology, as having any bearing on the case, let us simply consider the canals as a fixed quantity and measure them by the only standards we know of. There can be no doubt, if these lines are canals, that they represent a total of 150,000 miles of length. This is a long distance, but not longer than the lines will aggregate. In width, it is claimed they range from 150 to 450 miles, and the depth is the feature which is most difficult to determine. But if they were wrought by human energy, then they were wrought for a great purpose, and if there were reasons to excavate them to such an amazing width, assuredly whatever called for this would call for some kind of proportionate depth.

A Conservative Estimate.

Without demanding this, let the estimate be conservative, and accepting the length already given, the width at an average of 200 miles and a depth of only 20 rods, we

may proceed to a mathematical consideration of the subject.

We have then an area of 30,000,000 of square miles. In a mile square are 102,400 rods, and 20 rods deep would give us 2,048,000 cubic rods of excavation for each square mile of these immense waterways. In the entire system of canals there are 61,440,000,000,000 cubic rods, which reduced to cubic miles makes the amazing number of 1,575,000!

In one cubic rod of excavation there are 15 good carloads of material, and our canals represent a total of 921,600,000,000,000 loads. Nine hundred and twenty-one trillion, six hundred billion! This is the task to which the modern curved glass fraternity would consign the luckless inhabitants of our ruddy neighbor of the sky. It will take 3,771,428 railroad cars to reach around our globe, and there are enough loads of material to fill 244,387,371 trains, each long enough to encircle the earth at the equator. It will take 13,878,801,100,000 cars to cover the distance of nearly 92,000,000 miles to the sun, and this excavated material would fill more than 628 trains reaching from the earth to the great solar luminary.

The entire land and water surface of the earth is covered with 13,878,801,100 cars, and these supposititious Marsians have filled cars enough to cover our entire planet 49 layers of cars deep and have dirt enough left over to level the Ohio Valley with all its tributaries down as far as Cincinnati.

For the purpose of a simple and graphic presentation of this subject the writer has prepared a table showing given rates of carloads per day and the centuries required, at such rate, to accomplish the labor. The figures are all inside of mathematical precision:

Centuries.	Carloads Per Day.
40,000	446,901
20,000	893,802
10,000	1,787,604
5,000	3,575,208
2,500	7,150,416
1,250	14,300,832
625	28,601,664
312	57,203,328
156	114,406,656
78	228,813,312
39	457,626,624
20	915,253,248
10	1,830,506,496
5	3,661,012,992
2	7,322,025,984
1	14,644,051,968

must be taken from the canals and made into artificial mountains! But let us consider a six-century rate:

Carloads per day.....	3,661,012,992
Carloads per hour.....	152,542,208
Carloads per minute.....	2,542,370
Carloads per second.....	42,373

Just think of it!

But it would seem that 40,000 carloads per day would be great work, and this makes 1,686 carloads per hour, 27 carloads per minute, and this had to be kept up at an incessant rate for the amazing time of 44,640,000 years.

Volume of the Work.

Such is the Titanic volume of the work that such intelligences would have had to do. The question is, is it physically possible? This may be said: With an adult male human, on every square acre of the planet, the force to do this, measured by earth standards, would have proved wholly inadequate, even on a three thousand century rate.

But this is far from being all that is comprehended in this Marsian Canal scheme. There are hydraulic and hydrodynamic considerations of most appalling magnitude that must be taken into consideration. The great Chrysothos Canal is 3,535 1/2 miles long and over 400 miles wide. We will consider a contractor on a section 17 1/2 miles long; 175,400-70,000. Here we have the number of square miles that discharge their precipitation into the Ohio river, tally to a point a trifle above Cincinnati. On these 70,000 square miles there is delivered

annually 392,723,200,000 tons of water, and assuming from the aqueous indications on Mars, that the discharge on that sphere is probably no less, we may direct our attention to the piping and pumping that would inevitably follow the handling of such colossal quantities of water. This must be provided for to allow the canal-digging Marsian to prosecute his aquatic pastime.

Who can estimate the tens of thousands of miles and the many millions of tons of 4-foot pipe that would be required in this branch of the work? Those who remember the flood in the Ohio Valley in February, 1884, when the river at the Queen City rose 71 feet 6 inches, may have some idea of what may be involved in pumping the precipitation and forcing in on the vast area of 70,000 square miles. Do the astronomical gentlemen embrace these considerations when they insist that the phantasmal lines on Mars are the creation of human hands? Who, let us ask, attends to civil government and agriculture during the cycles of time involved in this canal construction?

On Another Basis.

Shall we go into the domain of American hydraulics and plain machinery in keeping with the stupendousness of the scheme? Are the inhabitants of any other stellar worlds claiming that we dug the Atlantic and Pacific valleys and ridged the Rocky mountains? Let us conceive of pumps covering 20 acres, with pistons 10 feet in thickness, 30-foot cylinders and fly wheels 20 feet in diameter! Fuel? That also is to

be considered. Really, the entire proposition resolves itself into a most complete and beautifully gilt-edged reduction ad absurdum!

But this is not all. Unless the Marsian crust is much thicker than that of the earth the excavating of such huge trenches and piling the material on mountain-like ridges would depress the crust under such artificial mountains, which depression would involve direful consequences. And, if the crust be too thick to such a degree, then would the water have followed in, to mainly lie in vast crevices in congealation, as in the case with the moon.

Viewed then from any standpoint, there are no known logical factors to sustain the generally credited astronomical conclusion. This is not claiming that there may not be an infinite number of spheres in space, habitable and inhabited; the point urged is simply this, that there is absolutely nothing to sustain this popular view of the Marsian line.

The Homestead Strike.

The accounts of the Homestead strike trials are not half so interesting to the average man or woman as would undoubtedly be the perusal of one of our catalogues testing forth the merits of the "Bevis Filter." The purification of the water used in private dwellings for cooking, for drinking, for the bath and for laundry purposes is a subject worthy the consideration of every thinking man. The health of your family demands that you give it attention. We manufacture a device the use of which will insure a pure, wholesome water at all seasons of the year. Do not imagine because water is clear as it comes from the spring that it is pure—nothing but filtrate can accomplish this desirable result. It should not be a question whether or not you will put a filter in your house, but simply which filter on the market today is the best. We desire nothing but an investigation of the merits of the different filters made, resting assured that the superiority of the one manufactured by us will be apparent. Send postal card for catalogue and price list, which will be forwarded by return mail.

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1,000 Ladies' Jackets in all the latest styles and colors, plain and fur-trimmed. Materials are Kerseys, Meltons, Cheviot, Cheverons, etc. These are all new and desirable and have been selling for \$18 and \$20. As a special bargain for this week we offer them at

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Ladies' Camel's Hair Vests or Pants, worth 69c. For 50c.

Ladies' Fine Australian Wool Vests or Pants, worth \$1.50. For \$1.00.

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MEN'S OVERCOATS \$6 UP.

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LADIES' COSTUMES \$1.98 UP.

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WOMEN LOOK AT DEM PRICES!!

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\$10 TO \$18
\$20 TO \$40

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