# Causes of Volcanic Eruptions

**By Albert Perry Brigham, Professor of Geology.**

NO CONCLUSIVE word has been spoken on this subject. A final conclusion may lie beyond the bounds of human investigation. As with the glaciers of the Ice Age, earthquakes, or the origin of species, many facts are known, and some major conclusions cannot be doubted, but the ultimate cause yet lies in obscurity. This is not discouraging to the true student, but only one of many proofs of the limitation of our knowledge.

Two questions must be asked: (1) What are the sources of the heat needed to melt the rocks and form the gaseous clouds of vast extent? (2) What is the force that expels these materials from the crust? As regards the first, many answers have been given which must be set aside, or at least appear to be inadequate. Volcanic heat has been thought to be a remnant of the original heat of the globe. But on this theory it would seem that vulcanism should gradually have declined through the ages of geological history. This has not been proved, and some facts look in the opposite direction. Others have thought that the heat comes from powerful chemical reactions in the deep natural laboratories of the earth's crust. But this cause seems insufficient for the melting that is accomplished. It is known that rocks melt and become plastic, under great pressure, in the presence of water and alkaline materials. This is called aqueo-igneous fusion, but does not account for the great heat of volcanoes. All these causes may contribute to the result in various degrees and localities. Thus the original heat of the earth is believed to hold the rocks of the crust near the melting point at no great distance below the surface. Such crushing as goes with mountain making may add heat enough of mechanical origin to cause fusion. A seemingly paradoxical theory is that the under rocks would melt if they were not under stupendous pressure, and when at some points this pressure is relieved in the succession of strains which the crust undergoes the rocks there pass into a molten state. The two theories are not inconsistent. At one point we have added pressure and added heat; at another removal of pressure and lowering of the melting point.

As to the cause of explosion, the answer is hardly more satisfactory. The sudden conversion of water into steam is thought to have much to do with explosive eruptions, and the more as most volcanoes are near the sea. But this does not account for inland or quiet eruptions. Nor is it easy to see how enough water could reach the seat of the heat, either by saturation or sudden inflow. Chains of volcanoes, as in the Andes, correspond with lines of mountain making. A perfect theory must explain all the facts. Why are some eruptions quiet and other violent? Why the differences in the composition and heat of lavas? Why should there be a difference of 10,000 feet in the height of the lava columns of the adjacent volcanoes of Mauna Loa and Kilauea? Why are some vents intermittent and others constant in action? Such are some of the questions. No theory covers all of these.

# The Mortgage on the Farm

## Not Necessarily an Evil—It May Be the Source of Great Good.

**By Edwin Farrer.**

"THE mortgage on the farm" is a subject upon which numerous writers have exerted their energies in the production of poems, editorials, special articles, humorous squibs and pathetic stories without number, tending to impress the minds of the readers with sentiments of horror of this (as they represent it) peace destroying, poverty breeding curse, and we are led to regard the farmer who has affixed his signature to a mortgage as an object of pity, who is doomed to spend his days in slavish toil and his nights in sleepless misery. Thus has been created a hideous bugaboo which has frightened to their serious injury, many people who have been brought to regard the mortgage as the symbol of certain financial ruin, and who have thus been deterred from making any attempt to secure homes and farms of their own.

In the meantime hundreds of millions of dollars are loaned, in small sums, on mortgage security, to industrious, thrifty men, who are thus enabled to become owners of the soil upon which they live. Many of them, if questioned as to their method of accumulation, would, in reply, make a statement similar to the following:

"Having determined to become the owner of a farm, with the assistance of some friends I bought a small piece of land, mortgaging it for nearly all it was worth, and went to work with all the energy I possessed to pay off the debt. When I had succeeded in clearing it of all incumbrance I bought another piece, giving another mortgage, and working to pay it off, and have continued ever since to buy property, give mortgages and work to pay the debts. As soon as one piece was paid for I would buy another, and thus I have always had a mortgage to pay off, which has given me an object to work for and kept me hustling."

This simple method has been and is now being successfully practiced by thousands. There is really very little foundation, in fact, for the great mass of sympathetic gush on this subject that has been poured out upon the public by the imaginative writers of the age.

The mortgage is really one of the conveniences of our modern civilization, by which we are enabled to secure and use and enjoy the accumulated wealth of others, and, instead of being an unmitigated curse to the farmers of the land, it has been the lever by which many thousands of worthy men have been lifted from the condition of "hired hand" or that of "renter" to that of freeholder, and has thus proved a blessing rather than a curse.

# A Woman's Argument Against Suffrage

**By Heloise Edwina Hersey.**

WE come to the practical question of what would be the effect upon the country if women were now permitted to vote. The United States is to-day in grave peril from too wide an extension of the franchise. The corruption of our great cities is chiefly the result of a mass of ignorant voters. The wild heresies, financial and social, which sweep over our country every few years, find their force and danger among the ignorant. You must remember that the question is not whether you and I are better fitted to vote than the man that loafs on the benches of Boston Common, or that shovels sand on a Western railway, or breaks stone in the South. The question is whether he is better fitted to vote than his wife and his daughter, or whether we shall remedy the evil of his vote by adding to it that of his wife and daughter.

The truth is that in what, for want of a better phrase, we must call the lower ranks of society, the average political intelligence of women is far below that of men. It is easy to say that this is due to the fact that women have not been brought to acquire knowledge of politics, since they have had no voice in them. I doubt if this is true. The difference seems to me to be a fundamental intellectual one—a method of thought rather than a lack of thought. Even granting that it be not so, however, it is obvious that it would take at least two generations to cure the evil. To instruct a whole sex in political duties would be a gigantic task.

# The World's Mightiest Force.

**By the Rev. Howard Duffield.**

THE newspaper is the colossal force of the modern world. Mechanically the newspaper lays all other departments of invention and discovery under tribute, subsidizing the railway, the steamship and the electric wire.

Intellectually the newspaper sweeps the horizon of events and scans the encyclopedia of ideas. The tinsel of fashion, the shadow of death, the pomp of courts, the filth of slums, the grandeur of heroic achievement, the miasma of scandal, the austerity of the law, the brutality of vice, the triumph of science, the pulse of the money market, the glow of eloquence, the chimes of poetry, the vulgar impertinence of gossip, overlap in its columns.

Personally, the newspaper colors the thought and molds the character of uncounted multitudes. It interviews personally, and every day, all who dwell within the boundaries of civilization, from capitalist to gamin, outlining conversation, enlarging vocabulary, creating prejudice, kindly sympathies, at times ennobling, at times poisoning nobility, at all times enveloping the reader with the atmosphere through which he sees his world.

Ethically the newspaper is creedless, not immoral, but unmoral. It is a business enterprise pure and simple, sweeping the planet for information that is marketable and advocating those principles which are backed by a constituency able to express itself in dollars and cents.

Ideally the newspaper should be the lever for the uplifting of the world. It should dedicate its vast power to the dissemination of all that makes men patriotic, honest, kindly, devout. Its peculiar access to the public heart should issue in the invigorating, the purifying and the spiritualizing of the public life.

# Clinging to Old Beliefs

## Sailors of the Present Day Are as Superstitious as Were Their Ancestors.

It is a mistake, according to a well known young naval officer, to suppose that the sailors of our present navy are free from superstition. "I remember," he said, "only five years ago, when I was in the training ship Saratoga, that the old salts there were as full of old superstitious beliefs as any of their ancestors could have been.

"When at sea in a dead calm, the swaying of the masts in a motionless atmosphere sometimes causes a peculiar wailing sound like distant cries. This, the old seamen assured us, was the moaning of the souls of sailors lost at sea.

"Another one of their pet beliefs is that all sailors that die by drowning are at once transformed into Cape Horn pigeons, or, as they are also called, Mother Carey's chickens. Officers are supposed to find their reincarnations in seagulls and mews, while the big, solitary albatrosses, following the wake of passing vessels, are the souls of captains who have gone down with their ships. These are the reasons why sailors never kill these birds.

"I remember that these tales impressed me a great deal in those days when I was still a mere boy. On one occasion I was sitting in the forecastle on my watch below, chatting with the boatswain's mate, a real old-timer, when our conversation was interrupted by a low wail of agony, louder than that usually produced by the wind. We listened in deep, awed silence.

"'Boy,' said the goatswain's mate, 'ye hear that—that's a seaman's call, wot's been drownded.'

"Again the wail disturbed the silence.

"'Yes,' said the old sailor, in an anxious whisper, 'that's some old salt wot's lost his life on board this vessel—likely he's come for something he's forgot.'

"After a while I ventured out on deck. The wails were coming from the roof of the foreacstle. I climbed up, and there found the captain's little son tugging away at the cat's tail, which the poor animal was resenting with the full power of its lungs."

Time spent in bemoaning the failure of yesterday will not insure the success of to-morrow.

### A MALICIOUS MEDDLER,

**The Young Woman Had Very Good Ground for Detesting Him.**

Two well-dressed and attractive young women—business girls, apparently—rustled into a car the other morning and took seats. After they were comfortably adjusted, with parcels and umbrellas, the one in the blue cloth suit scanned the two men who sat opposite, and remarked to her companion:

"It's too near the stove here; let's move down."

Then the girls arose, and took seats farther down, out of range of the two men.

"What was the matter, Clara?" the other girl asked; "it wasn't really too warm back there."

"No," the first girl answered with spirit, "but that horrid man with the brown hat and overcoat sat near us. He is always on the car near me, Laura, and I detest the sight of him."

"I don't know him," commented Laura; "who is he?"

"Why, I don't know him, either," Clara explained; "but I won't sit where I have to look at him."

"Has he ever been rude to you?" asked Laura.

"Rude? I think so. About three months ago I dreamed I was standing before the altar in a lovely church all decorated with palms and flowers and was just about to be married—oh, to such a handsome man, Laura, and that hideous old thing in the brown hat and coat—the very same man—came rushing down the aisle and arrested my promised husband for bigamy."—Detroit Free Press.

**Child Laborers of Japan.**

Japan, as rapid as its development has been and as perfect a country as it is to-day, has not avoided the evil of child labor. In the Japanese match factories the boxes and labels are made by little girls, who are wondrously dextrous in the work. These little experts get only from one-half penny to two pence for twelve hours' work. And they are probably about as tired as any one by the time the day is done.


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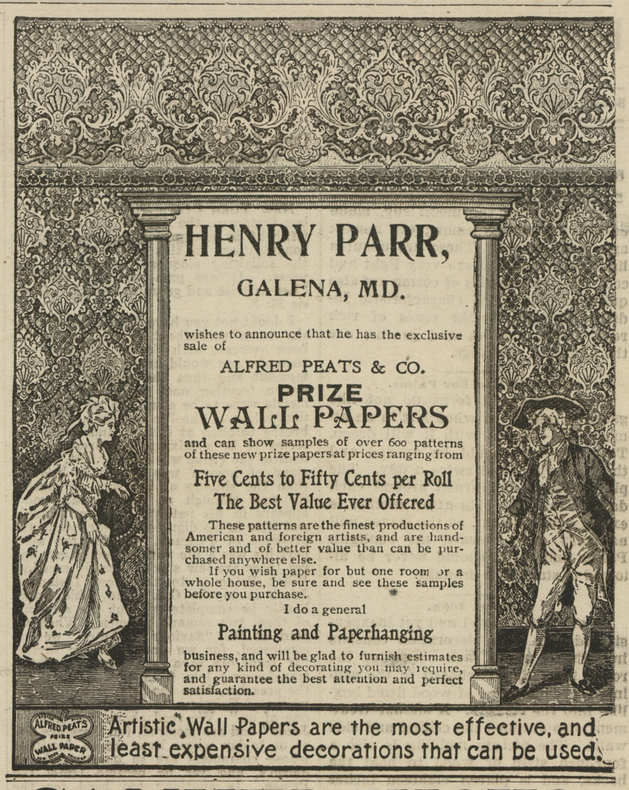


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