

the boy to return, and in an instant more there fell from the roof of the tent a gory head which rolled to the magician's feet. An arm followed. Another. Then two legs. Then the body all bloody and torn; and the magician having uttered forcible cries and threats as each portion fell before him gathered them all into the cloth again, tied it up and fell to beating it once more. Immediately shrieks for pardon were heard within, and untying the bundle, the magician disclosed the boy sitting quietly on the cushion, with a broad grin on his mahogany countenance, and no sign of injury about him.

How the man performed the trick I do not know. We could discover nothing. "It is clever," said the major. "I must say I've been more amused than I expected to be this hot day. What else can you do, sorcerer? "I can show the fine English gentlemen their sweethearts," said the man. "I can tell what they are doing, whether they are faithful. You are thinking now of yours, Sahib. Shall the boy look for her?"

He spoke to me. "I am a thinking of my wife," said I. "For Heaven's sake, if you have any power by which to tell me of her welfare, do so."

Ridiculous as the request may have seemed none of my brother officers smiled. The sorcerer bowed, and motioned to the boy, who came and stood before him. He took the little brown hand in his, and making a cup of the palm, poured into it a reddish liquid from a little flask which he drew from his bosom.

"Write the lady's name on a piece of paper," he said, "and give it to me."

I did so; I gave it to the sorcerer. He placed it on the boy's head a moment; and then dipped it into the liquid in his palm.

"Look for the lady," he said. The boy sighed.

"I am looking," he said, "but it is far away, away, I am tired."

"Go on," said the sorcerer. "I go," said the boy. "This is the place. Oh! how strange! Not like this place. A tall house—big trees—flowers, flowers everywhere—water. Now I see a lady. She sits on a seat. She holds a book too. She reads. Pretty lady. Her hair is yellow. Her eyes are blue. She has a white dress. And on her finger are two rings. One gold—one gold with a diamond."

"It is Helen," I cried. "Go on. What is the matter?"

"Oh!" cried the boy—"Oh! don't you see? She is asleep. She does not know, and it is coming—closer, closer. Don't you see? Look!"

His eyes were fixed upon the fluid in his palm. Impelled by my excitement, I gazed into the depths, and then I also saw what he saw. The English garden; the bench beside the river; my Helen sitting upon it asleep. A book had fallen into her lap. Her eyes were closed; her head rested against the tree behind her.

"I see it now," I cried, "I see her. Helen! Helen!"

"Oh!" exclaimed the boy—"Oh, look! it comes! it comes! it creeps over the rock! it will kill her! See!"

Then I also saw. A large viper was gliding over the rock behind my darling. Its horrible fangs were displayed. In a moment more it will be upon her.

I gave a wild cry, "My darling! my darling!" and sprang forward.

"Seize it," cried the sorcerer.

For a moment I was no longer in India, I was in the garden of my own house. I stood beside my wife. I seized by the throat the horrible thing that threatened her life. Its fangs entered my own arm, and I fell upon the grass in a swoon.

When I came to myself, the sorcerer was kneeling beside me, applying to the wound on my arm a singular perfumed salve. On the floor, at my feet, lay a dead snake. I heard the Major say:

"But where the deuce did it come from? It was wound around Dudley's arm when I first saw it."

And I heard the sorcerer reply: "It is an English snake—not a very deadly one, and this salve will save the Sahib's life."

And it was all a juggler's trick, you say. Perhaps. But let me tell you the rest. The next letter I received from my wife ended thus:

"My darling, a strange thing has happened to me. You know the little bit of garden by the river was always said to be infested by snakes. I went there to read the other afternoon, and was foolish enough to go to sleep there. I was dreaming of you, and thought I saw you in a tent, talking to a strange man—an Indian in an embroidered dress—when suddenly I started broad awake and there on the rock beside me lay coiled a viper just ready for a spring. I shrieked aloud and in a moment I saw you before me. Yes, you, darling. I don't know how you came, but you were there. You seized the snake by the throat and it coiled itself around your arm. I don't know any more. They picked me up from the grass a few minutes after, and I must have fainted I think. Mamma says it was all a dream, but it seemed so real. My darling, I shall wait in terrible anxiety until I hear from you. It seemed to me that you were there, and that I was broad awake. Your anxious, loving wife. HELEN."

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THE TWO ARMIES.

BY O. W. HOLMES

As life's unending column pours,
Two marshalled hosts are seen—
Two armies on the trampled shores
That death flows back between.

One marches to the drum-beat's roll,
The wide-mouthed clarion's bray,
And bears upon a crimsoned scroll,
"Our glory is to slay."

One moves in silence by the stream,
With sad, yet watchful eyes,
Calm as the patient planet's gleam
That walks the clouded skies."

Along in front no sabres shine;
No blood-red pennons wave;
Its banner bears the single line,
"Our duty is to save."

For those no death-bed's lingering shade;
At Honour's trumpet call,
With knitted brow and lifted blade,
In glory's arms they fall.

For these no flashing falchions bright,
No stirring battle-cry;
The bloodless stabber calls by night—
Each answers, "Here am I!"

For those the sculptor's laurelled lust,
The builder's marble piles,
The anthems pealing o'er their dust,
Through long cathedral aisles.

For these the blossom-sprinkled turf,
That floods the lonely graves,
When spring rolls in her sea-green surf,
In flowery, foaming waves.

Two paths lead upward from below,
And angels wait above,
Who count each burning life-drop flow,
Each falling tear of Love.

Though from the Hero's bleeding breast,
Her pulses Freedom drew,
Though the white lilies in her crest
Sprang from the scarlet dew—

While Valour's haughty champions wait
Till all their scars are shown,
Love walks unchallenged through the gate,
To sit beside the throne!

SCIENTIFIC.

THE LOST ARTS.

ANCIENT MASTER ARTISANS.

Taking the metals, the Bible in its first chapters shows that man first conquered metals there in Asia, and on that spot to-day he can work more wonders with those metals than we can. One of the surprises, that the European artists received when the English plundered the summer palace of the King of China, was the curiously wrought metal vessels of every kind, far exceeding all the boasted skill of the workmen of Europe. English surgeons going to India are advised to have their instruments gilded because English steel cannot bear the atmosphere. Yet the Damascus blades of the Crusades were not gilded and they are as perfect as they were eight centuries ago. There was one at the London Exhibition, the point of which could be made to touch the hilt, and could be put into a scabbard like a corkscrew, and bent every way without breaking. If a London chronometer maker wants the best steel to use in his chronometer, he does not send to Sheffield, the center of all science, but to Punjanb, the empire of the seven rivers, where there is no science at all. The first needle ever made in Europe was made in the time of Henry the VIIIth, and made by a negro; and when he died, the art died with him. Some of the first travelers in Africa stated that they found a tribe in the interior who gave them better razors than they had. Scott, in "Tales of the Crusades," describes a meeting between Richard Cœur de Lion and Saladin. Saladin asks Richard to show him the wonderful strength for which he is famous, and the Norman monarch replies by severing a bar of iron which lies on the floor of his tent. Saladin says, "I cannot do that," but he takes an elder down pillow from the sofa, and, drawing his keen blade across it, it falls in two pieces. Richard says: "This is the black art; it is magic; it is the devil; you cannot cut that which has no resistance;" and Saladin, to show him that such is not the case, takes from his shoulders a scarf which is so light that it almost floats in the air, and, tossing it up, severs it before it can descend. George Thompson states that he saw a man in Calcutta throw a handful of floss silk into the air, and a Hindoo sever it into pieces with his sabre. We can produce nothing like this.

EGYPT'S MECHANICAL MARVELS.

Taking their employment of the mechanical forces and their movement of large masses from the earth, we know that the Egyptians had the five, seven, or three mechanical powers, but we cannot account for the multiplication and increase necessary to perform the wonders they accomplished. In Boston, lately, we have moved the Pelham Hotel, weighing fifty thousand tons, fourteen feet, and are very proud of it, and since then we have moved a whole block of houses twenty-three feet, and I have no doubt we will write a book about it; but there is a book telling how Domenico Fontana, of the sixteenth century, set up the Egyptian obelisk at Rome on end, in the Papacy of Sixtus V.

Wonderful! Yet the Egyptians quarried that stone and carried it one hundred and fifty miles, and never said a word about it. Mr. Batterson, of Hartford, walking with Brunel, the architect of the Thames tunnel, in Egypt, asked him what he thought of the mechanical power of the Egyptians, and he said: There is Pompey's Pillar, it is one hundred feet high, and the capital weighs two thousand pounds. It is something of a feat to hang two thousand pounds at that height in the air, and the few men that can do it would better discuss Egyptian mechanics.

CANALS.

The Suez Canal absorbs half its receipts in cleaning out the sand which fills it annually, and it is not yet known whether it is a pecuniary success. The ancients built a canal at right angles to ours, because they knew it would not fill up if built in that direction, and they knew such a one as ours would. There were magnificent canals in the land of the Jews, with perfectly arranged gates and sluices. We have only just begun to understand ventilation properly for our houses; yet late experiments at the Pyramids in Egypt show that those Egyptian tombs were ventilated in the most perfect and scientific manner.

Again, cement is modern, for the ancients dressed and joined their stones so closely that, in buildings thousands of years old, the thin blade of a penknife cannot be forced between them. The railroad dates back to Egypt. Arago has claimed that they had a knowledge of steam. A painting has been discovered of a ship full of machinery, and a French engineer said that the arrangement of this machinery could only be accounted for by supposing the motive power to have been steam. Bramah acknowledges that he took the idea of his celebrated lock from an ancient Egyptian pattern. De Tocqueville says there was no social question that was not discussed to rags in Egypt.

OLD HINTS OF NEW THINGS.

Years before Franklin's invention of the lightning rod, and before muskets were thought of, the old soldiers on guard on the towers, if a spark passed between them and the spear head, ran and bore warning of the state and condition of affairs. Solomon's Temple lofty and situated on an exposed part of a hill, was guarded by a system exactly like Franklin's. The Duchess of Burgundy took a necklace from the neck of a mummy and wore it to a ball given at the Tuileries, and everybody said they thought it was the newest thing there. A Hindoo princess came into court, and her father seeing her said: "Go home, you are not decently covered—go home;" and she said, "Father, I have seven suits on; but the suits were of muslin, so thin that the king could see through them. Four hundred and fifty years ago the spinning machine was first introduced into Europe. Yet we have evidence to show that it made its appearance two thousand years before.

We have not an astrology in the stars serving only the kings and priests; we have an astrology serving all those around us. We have not a chemistry hidden in underground cells, striving for wealth, striving to change everything into gold. No; we have a chemistry laboring with the farmer, and digging gold out of the earth with the miner. Ah! this is the nineteenth century, and of the hundreds of things we know, I can show you ninety-nine of them which have been anticipated. It is the liberty of intellect and a diffusion of knowledge that has caused this anticipation.

THE OCEAN TIDE AS A PRIME MOTIVE.

The power of the ocean tides is the only power on earth due directly to gravitation. All other powers are obtained by the intervention of solar heat, which causes the watery vapors to ascend. These, returning as rain, are the cause of the rivulets, and all water power. Solar heat also causes the unequal expansion of the air and so gives rise to air currents, or winds, which drive our sailing vessels and windmills. Again, the solar heat causes vegetation to flourish and so produce combustible material, which is used either fresh, as wood, or from the inexhaustible deposits, stored up in geological periods and transformed by age and circumstances into coal, petroleum, asphaltum, etc. The heat of this fuel is, in appropriate engines, changed into motion, or certain products of vegetation are consumed by animal bodies which, in return may be utilized as moving forces; or, lastly, the solar heat may be directly employed to move machinery, a problem to which it appears that Captain Ericsson the well known inventor of the calorific engine, the monitors, etc., appears now to have devoted the rest of his life.

Indeed, whichever way we turn, we see that all life and all motion on the surface of our earth, with the sole exception of the ocean tides, may be traced back to the heat of the sun as primary cause; and the power we may obtain from the tides is due to the combined attraction of the sun and moon. Investigations in this regard have shown that the original tide wave is generated in the Pacific Ocean, and that this wave moves westward with the apparent motion of the sun and moon, one wave following the sun and another the moon, but as the apparent motion of the latter body is slower, the lunar wave is continually overtaken by the solar wave; if the whole equatorial belt of our earth were water, the solar wave would make the revolution

around the earth in 24 hours, while the lunar wave would accomplish this in a little over 28 hours. As it is, however, the continents of Africa and America prevent this regular flow of tides, and the Pacific tide waves have to go around the Cape of Good Hope, and thence spread northward through the Atlantic Ocean. Any gulf having a funnel-shaped mouth, placed in the right direction, will increase the height of the tide entering it; this is the case with the Bay of Fundy and the Red Sea; and all gulfs having a narrow entrance not placed in the right direction will have a tide wave of much less height than that in the free ocean; such is the case with Chesapeake Bay and the Baltic Sea. Different forms of the coast and its direction will exert a similar influence; while the greatest divergence will be reached where the tide waves reaches any place from two sides, as is often the case behind large islands. The effect will be then, of course, to increase the height, if the high or the low tides coincide, while the height will be diminished and even the whole tide neutralized if the high tide wave, coming from one side, coincides with the low tide from the other side.

It is thus not at all surprising that the tides are so different in different localities. In the Bay of Fundy the difference between the ordinary high and low tide is 70 feet; at the mouth of the Severn, England, and at St. Malo, France, it is 46 feet; at Guernsey and Jersey 36 feet; at the mouth of the Scheldt 26 feet; along the coast of Holland 10 to 16 feet; along the coast of the United States the tides vary from 4 to 10 and 20 feet; while in the Mediterranean they are scarcely perceptible.

To estimate the power of the tides, we have only to consider that the attraction of sun and moon elevates the surface of the ocean to a mean height of about two feet; this happens twice in 24 hours, and we may then set down the extent of surface of the earth, of which the ocean occupies three quarters. We have then 100,000,000 square miles of water 2 feet thick; every square mile of water of this thickness contains nearly 60,000,000 cubic feet, or 3,840,000,000 pounds of water, and this multiplied by 100,000,000 (the number of square miles affected by the tide) gives the enormous number of 384,000,000,000,000 of foot pounds exerted every 12 hours, or 750 minutes, which is 500,000,000,000 foot pounds per minute; dividing this by 33,000 to reduce it to horse power, we obtain more than 15,000,000 horse power for the mechanical value of the tide wave over the whole surface of the earth; of which, however, only a comparatively small portion can be utilized, namely that within reach of sea coasts along continents and islands.

Such an enormous power, due to the combined action of the solar and lunar attraction and the terrestrial rotation, must have its influence on this rotation, and this is the theoretical problem for the future astronomer; while the method of utilizing this enormous power is the practical problem for the future engineer and mechanic.

SPIRIT PHOTOGRAPHS.

The spirit photographs which pass current among credulous spiritualists for genuine ghosts of the departed are produced in various ways. The latest and most scientific method is as follows: The plain background screen, before which the sitter is placed in order to have his portrait taken, is to be painted beforehand with the form of the desired "spirit," the paint being composed of some solution of sulphate of quinine. When this painting dries on the screen, it is invisible to the eye; but it sends out rays that have power to impress the photo plate; and thus the image of the person together with the quinine ghosts are simultaneously developed upon the negative.—Scientific American

LOSS OF WEIGHT IN COOKING.

This is greater than many persons suppose. Flour gains about one-sixth in passing into bread. But meat of all kinds lose both substance and weight. Nine pounds ten ounces of mutton roasted, is reduced to six pounds twelve ounces, and the weight of the cooked meat was only four pounds thirteen ounces, just one-half the weight before roasting. Beef does not lose weight in like proportion. Much waste may be prevented by care, but a large portion of food is wasted in any process of preparation for the table. Eggs alone come back to you with full weight, and if the first cost is not too high, are a convenient, nutritious and cheap article of food.

THE MYSTERY OF PERFUME.

No one has yet been able to analyze or demonstrate the essential action of perfume. Gas can be weighed, but not scents; the smallest known creatures—the very nomads of life—can be caught by a microscopic lens and made to deliver up the secrets of their organization; but what is it that emanates from the pouch of the musk-deer that fills a whole space for years and years with its penetrating odor, an odor which an illimitable number of extraneous substances can carry on without diminishing it in size and weight—and what is it that the warm summer air brings to us from the flowers, no man has yet been able to determine. So fine, so subtle, so impalpable it has eluded both our most delicate weights and measures, and our strongest lenses. If we come to the essence of each odor, we should have made an enormous stride forward, both in

hygiene and in chemistry; and none would profit more than the medical profession if it could be as conclusively demonstrated that such an odor proceeded from such and such a cause, as we already know of sulphur, sulphurated hydrogen, ammonia and the like.

HEAT OF THE SUN.

The heat of the sun nowhere penetrates the ocean more than six hundred feet. At a depth of from one to two miles the temperature is everywhere about four degrees below the freezing point, caused, probably, by the ice water poured into the ocean from the arctic regions, northern and southern. This, being heavier than the surface water, sinks to the bottom and forms currents ever flowing toward the equator, to take the place of water which, there heated and rendered lighter, rises to the surface and forms the Gulf and other warm streams. As these flow again toward the arctic regions, it will be seen that a perpetual circuit is kept up, the arctic waters continually lessening the heat of the tropical waters, and these, in their turn, giving out their heat as they flow away from the tropics. England is warmer than Greenland only because of the warmth derived from the Gulf stream.

NOT RETROGRADING.

The degeneracy of the age, both in a moral and physical sense, is firmly believed in by many wisecracks, who think that we have lost the vigor and the strength of our fathers, and are growing weak and sickly. But statistics, carefully gathered, tell a very different story. The average size of Englishmen is larger than three centuries ago, for the armor worn by the knights of that time cannot be put on to-day save by small men. Every London exhibition of ancient arms and armor prove that the men of earlier times were smaller in limb and shorter in stature than the men of the present day. The ancient British and Roman arms exhibited in Somerset House could have been effectively wielded only by a smaller race of men than that of our time. The handles of the swords and daggers were too small to afford a firm grasp to the hand of the average Englishman, and even few women's hands would have fitted it between the guard and the hilt. It seems, then, that England, instead of producing a race inferior to that which flourished in the historic times, now breeds men of grander and more athletic frame than she has hitherto done. In the light of this fact we must revise our early historic impressions. Richard Cœur de Leon, the Prince of Crusaders, and the fear of Saladin, we must now be compelled to regard as, after all, only a light weight; Edward the First, that L'ngshauks who was the "Hammer of the Scotch nation," as being considerably short of the standard of the Horse Guards, and the famous and splendid Black Prince as a hero of skill and energy, but of very ordinary form and with a constitution so delicate, that after a few years' campaigning in France, and a disastrous raid into Spain (where he suffered severely from the heat), he pined and faded and drooped into an early and premature grave. So much for the stature and strength of old-time heroes! The average duration of life is also longer. Accurate registers have been kept in Geneva since 1560. The average of life was then only twenty-two years and six months; it is now over forty-three years, or nearly double. In France, four hundred years ago, the annual mortality in Paris was one in sixteen; now it is one in thirty-two, which shows about the same ratio as in Geneva. In England, two centuries ago, the annual mortality was one in twenty-three; now it is one in forty-two. It is pleasant to know that the world is improving, and that the vigor and health of our race are gaining steadily, instead of declining.

On the evening of Hook's arrival at the Oxford University, he joined a party of old school fellows in a carouse at one of the taverns. Sundry bowls of "bishops" of egg-flip having been discussed, songs, amatory and bacchanalian, having been sung with full choruses, and altogether the jocularity having begun to pass the limit of becoming mirth, the Proctor made his appearance, and advancing to the table at which the "freshman"—fresh in every sense of the word—was presiding, put the usual question, "Pray, sir, are you a member of this University?" "No, sir," replied Hook, rising and bowing respectfully. "Pray, sir, are you?" A little disconcerted at the extreme gravity of the other, the Proctor held out his ample sleeve and said, "You see this, sir?" "Ah," returned Hook, having examined the fabric with great earnestness for a few seconds, "Yes, I perceive—Manchester velvet—and may I take the liberty, sir, of inquiring how much you might have paid for the articles?" The quiet imperturbability of manner with which this was uttered was more than the reverend gentleman could stand, and, muttering something about supposing it was a mistake, he effected a retreat amid shouts of laughter from Hook's companions.

It has been carelessly remarked that the happiest woman in the world are those who have no history. The lesson of daily observation compels us to say that is a mistake, and that the happiest women in the world are those who possess new bouquets.