

Scientific and Useful

ARE SAFES FIREPROOF?

After the great San Francisco fire it was found that a large proportion of the so-called fireproof safes and vaults had failed to stand the test, that their contents were destroyed, and in some cases their owners were ruined. Few safes could, of course, come through such an ordeal with their contents intact. In salving them care was taken to dig the safes out of the smouldering ruins at once, and cool them by covering with sand or swathing in wet blankets. In cases where the safes remained amongst hot ashes the contents were transformed into charcoal. An article in the "Magazine of Commerce" gives the comments of various British manufacturers on this state of affairs, some of whom are of opinion that this result has been largely owing to the use of cheap and unreliable safes. Few, if any of them, seem to have been of British manufacture. The American idea of filling chambers of safes with infusorial earth or asbestos is condemned as sure to cook the contents of the safe in the hour of severe trial. Not a fireproof but a steam-generating and moisture-evolving composition keeps the inside cool, and would dry into a non-conducting material and keep heat from the contents for a longer period. Most of the large safe manufacturers in England understand this, and so are ahead of American makers.



EXTRAORDINARY VITALITY OF MICROBES.

The festive microbe would depopulate the earth in short order if there were no other microbes to eat him. Fortunately for man's sake these cannibal microbes keep pretty busy, and the mortality among the whole outfit is something tremendous. Their longevity, however, when they do survive all the battles to which existence subjects them, is one of their most unpleasant traits, and it is hard to have any feeling of confidence about the matter even when they seem to be most certainly dead. It has been shown that years after their supposed period of activity they have retained their death-dealing qualities.

An instance is given of the devastating plague that broke out in the Dutch town of Haarlem about the time of the London plague.

A whole family who died of this disease were interred in the churchyard, and it was found necessary a few years ago to repair the family tomb containing their bodies. The masons who were so employed proved the activity of these germs after two hundred years, by contracting, in a mild form, the original disease, from which, however, they all recovered.

Another case was a Scotch bank-note, discovered by a girl in the Bible that her grandfather had used at the time of his death from some malignant disease. On taking it out of the book she licked the corner of the note to prove its genuineness, and contracted the disease which had been fatal to her ancestor seventy-six years before.

An epidemic broke out among the sharks in the Indian Ocean which proved to be cholera, and the supposition is that they became infected by devouring the bodies of British sailors who had died of this disease and were buried in Bombay Harbour.

The hardy microbe is believed to survive on land for over two centuries, and maintain its activity still longer in water.



SLAVE ANTS.

It has long been known to naturalists that several species of ants maintain and feed another sort of insects for the sake of the wax that they exude and which the ants use as food. These ants are said, therefore, "to keep cows." But it has been discovered only within recent years that there are ants that rise on the backs of others and are thus the cavaliers of the insect world.

Within this period a scientist in the

employment of the Smithsonian Institution observed, while travelling in the Malay Peninsula, a species of small grey ants that were new to him. These ants were much engaged in travelling; they lived in damp places and went in troops. To the scientist's great surprise, he noticed among them from time to time an occasional ant that was much larger than the others and moved at a much swifter rate. Closer examination revealed the interesting fact that this larger ant invariably carried one of the gray ants on its back.

The scientist noted down many interesting facts with regard to their movements. He found that while the main body of gray ants were always on foot, they were accompanied by at least one of their own sort mounted on one of these larger ants. It mounted and dismounted itself now and then from the line, rode rapidly to the head, came swiftly back to the rear, and seemed to be the commander of the expedition.

The scientist was soon satisfied that this species of ant employs a larger ant (possibly a drone of the same species), though he had no means of proving this) as we employ horses to ride upon; though as a rule only one ant in each colony seemed to be provided with a mount.

Some ants maintain others in their service as servants or slaves. Certain warrior ants of South America confine their own physical efforts to raiding and plundering, while all the ordinary offices of life are performed for them by slaves. The little gray ants of the Malay Peninsula appear to be a more industrious race, though they appreciate the great convenience of having one on "horse-back" among them.



BIRDS AS SURGEONS.

Sportsmen declare that game birds possess the faculty of skilfully dressing wounds and even setting bones, using their own feathers for bandages.

Authentic instances are recorded of sportsmen having killed birds that were recovering from wounds previously received, and in every case the old wound was neatly dressed with down plucked from the stem feathers and skilfully arranged, no doubt by the beaks of the birds. In some instances a solid plaster was formed, completely covering and protecting the wounded part, the feathers being netted together, passing alternately under and above each other and forming, so to speak, a textile fabric of considerable power.



A PRE-HISTORIC SKULL.

BELONGED TO THE LOWEST TYPE OF MAN KNOWN ON THIS CONTINENT.

A skull, or at least part of the skull, of the lowest type of prehistoric man that the North American continent has yet revealed has just been discovered several miles north of Omaha, buried in a so-called Indian mound. Antedating, it is estimated, by thousands of years the famous "Lansing skull" of Kansas, which has been said by some scientists to be at least 150,000 years old, "Gilder's Nebraska skull" has interested the scientific men of the entire country, and they are visiting the home of Robert S. Gilder, in Omaha, where now are the skull and several other bones of this man, who lived before the glacial period covered North America with a vast field of ice.

Professor Henry Fairfield Osborn, of Columbia University, New York, says: "It is without doubt the skull of the lowest order of primitive man ever found on this continent." He adds that the skull shows an extremely small brain, with almost negligible possibilities of a power of thought.

When asked, "How does this skull compare with the Lansing skull, which has been estimated as being 150,000 years old?" Professor Osborn said:

"This skull antedates the Lansing skull by probably thousands of years."

Dr. Barker, professor of operative dentistry in Creighton University, says: "The jaw indicates tremendous crushing power. These teeth have been worn down through the process of grinding roots, nuts and raw meat. The lower jaw protruded beyond the upper, and there is an abnormal development of both of them."

As compared with a normal skull, the Gilder Nebraska skull shows receding chin and forehead, abnormally large cheek bones and a brain pan ridiculously small. The dome of the head is only one inch above the top of the eye sockets.

But the man was a giant, nevertheless. From other bones found in the same mound the man who owned that skull originally must have been nearly seven feet tall, despite his little head, with the strength of two ordinary men of to-day.

For and Against Simpler Spelling.

DISCUSSION AROUSED BY THE PROPOSAL TO REFORM SOME OF THE WORDS IN THE ENGLISH LANGUAGE.

The edict has gone forth that hereafter government publications will contain the form of spelling proposed by the Simplified Spelling Board in the list of three hundred words prepared by that body. English critics are especially bitter against the President for what they consider his unwarranted meddling with the language. Only the "Spartan" has arisen to defend him. Professor Brander Matthews, chairman of the board, protests, however, that no drastic revolution is contemplated by the reform organization.

It is prepared to make haste slowly, and not to expect too much in a hurry. It is planning a campaign in which ultimate victory is only dimly foreseen. It proposes first of all to call public attention to the whole question, and to keep on calling attention to it, urging every man to enquire into it for himself, and to decide on his own course. It hopes to be able to encourage independence, and to overcome lethargy, and in time to make a breach in the walls of bigoted conservatism. It has issued a list of words now spelled in two ways, and it will urge the public and the publishers and the printers to accept finally the simpler of the two.

It will lend the weight of its authority to the various minor simplifications now struggling to establish themselves—the and altho, for example, catalog and program, esthetic and maneuver. Attempting at first only the easiest things, and those nearest at hand, working along the line of least resistance, and arousing as little opposition as possible, it will propose still further simplifications by the casting out of letters which are plainly superfluous.

Slowly and steadily, without haste and without rest, it will try to win acceptance for many little simplifications, inconspicuous and unimportant individually, but collectively putting our spelling in a more satisfactory position to take a longer step in advance whenever the public has been prepared to consider this favorably.

One result of its efforts is likely to be the restoration of many an old spelling discarded foolishly in the eighteenth century. And another will be to accelerate more or less the constant tendency toward simplicity (by the casting out of useless letters) which has been steadily at work in English from the very beginning, and which is opposed only by those who are obstinate in declaring that there shall be no change of any kind hereafter.

The board believes that this attitude of opposition to all change is not only unreasonable in itself, but also that it is contrary to the tradition of the language. It feels assured that its fellow citizens, however wedded to the existing forms, can be made to see clearly the many disadvantages of the present spelling of our language, with resulting wastefulness of time and money, with its inconveniences for foreigners, and with its cruelty to our own children.

Another friend of the new movement is Benn Pitman, brother of the father of phonography. Mr. Pitman would go much further and propose a reform of the alphabet which would eliminate the letters c, q, and x:

"They are entirely superfluous. I would eliminate the dot over the p and l, and the dot over the vowels a, e, i, o, and u, to indicate when they are long. Then when the child saw the word 'pet' he would pronounce the e short, because there is no dot over it. When he saw the word 'pate' he would know that the a is long, for a dot is over it."

Do you know that the twenty-six letters of the alphabet may be used 638 ways? Hence the chance of your pronouncing a strange word is in the ratio of 638 to 26 pretty long odds. The perfect alphabet that I have devised contains forty letters, but twenty-three will answer. However, the solution of the spelling problem is found in the elimination of c, q, and x, and the new use of the dot as I have described.

The sound o is obtained in nineteen different ways. Which one will the child choose? I would spell 'rough' 'kof.' The pronunciation could not be wrong, for there is no dot over the o to denote that it is anything but short. Where e is soft s may be used, where it is hard k will do, and k will invariably do for q.

On the other side of the house President Eliot, of Harvard, rises to declare that unless the English accept the reform it will be fruitless:

It can be seen at a glance that the publishers will object strenuously to any change in the system of spelling, and as our books naturally set the style of orthography, it would certainly be practically impossible, or at least difficult, to bring about any innovation in this direction without the assistance of the publishers. It will be found that the public will not like the looks of "thru" and "tho," and words similarly spelled.

The opinion of Professor Goldwin Smith is no less unfriendly, although based on different reasons. He says:

English spelling, like the language itself, is the product of a very complex history, of which its anomalies show the traces. But it is at once historical and familiar. Phonetic clipping will make it unhistorical, unfamiliar, and unsmooth. Can anything be more unsmooth than "thru," commonly found as a specimen of the phonetic system? The language eschews endings in "u" except in the cases of diphthongs and incorporated foreign names.

The contents of our existing libraries would suffer, especially, perhaps, our books of poetry. There would be perplexity in our schools. Would a slight saving of type or of handwriting suffice to repay us?

Such a change at all events would seem to require the consent of the various communities by which English is written. How could this consent be obtained?

Mouder Conversations. Man and wife at train:

- "Good by, dear."
- "Good-by. Don't forget to tell Bridget to have the chops for dinner."
- "All right."
- "And be sure and feed the caunny."
- "Sure."
- "Lock up the silver every night."
- "Very well."
- "And don't forget that the gas man is coming to renew the burners. Be sure and have him put the four-foot burner in the servant's room."
- "I'll remember."
- "Order kuddling wood on Thursday."
- "All right."
- "Consult the list I made out if you forget anything."
- "I will."
- "Better not kiss me. People will think we are just married."
- "Nod if they have been listening."

An American visiting Dublin told some startling stories about the height of some of the New York buildings. An Irishman who was listening stood it as long as he could, and then queried:

"Ye haven't seen our newest hotel, have ye?"

The American thought not.

"Well," said the Irishman, "it's so tall that we had to put the two top stories on ladders."

"What for?" asked the American.

"So we could let 'em down till the moon went by," said Pat.

SOME symptoms of Acute Rheumatism are: A feeling of coldness; want of appetite; thirst; and sharp pains in the joints. RHEUMATISM arises from the cause of the trouble excess mucus in the blood, 2/6 and 1/6.