

Development of MAN'S CUNNING Shown in FEATS of ENGINEERING SKILL HOW THE WAR

Neur Interesting Facts Science ... Life

BECAME A BATTLE OF ENGINEERS' BRAINS

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By LLOYD C. EDDY, JR.

This way is said to be an engineers' way. Few realize that engineering in warfare is a de-comment from past ages. Long before the days of Oyrus, King of Fersia, Ussiah, King of udah, used "engines, invented by cunning men, and great stones." Primitive savages used forth-factions and made bricks (or brick and rubble) wala. The walls of Babylon and Nineveh, for matance, wave 100 feet high and 32 inches thick, Solid and fanked ramparts were used at a later tate.

etc. Stones, hows and arrows, darks, etc., were they were appendent of the store of the store of the store were the store of the store of the store of the store the store of the store

A ^T the present time the attention of the pub-lic is turned toward that section of itself known as the blind community, to an ex-tent hitherto undreamed of, and, in consequence, a number of problems have arisen in the public mind concerning matters relating to the blind. By no means the least interesting of these is the much discussed question as to which is preferable —to be born blind or to lose one's sight in later life. cies invented engines of war which terrified the Romans. In Caesar's Commentaries (Book VIII.) we read that Caesar ordered his camp to be fortified with a rampart 13 feet high, with breastworks built on it proportional to its height; and two trenches, each 15 feet broad, with perpendicular sides to be sunk. Likewise he ordered several turrets, three stories high to be raised, with a communication to each other by galleries laid across and covered over, which about be gaarded in front by small parapets of osiers that the enemy might be re-pulsed by two rows of soldiers the one of whom, heing more secure from dampsr by their height, might throw their darts with more daring and to a greater distance. The other row, which was nearer the enemy, being stationed on the rampart. life. The man who is born blind develops his other senses to a degree that seems almost uncanny to sighted people. His hearing forms one of the principal channels through which he obtains knowledge of what is taking place around him.



ROMAN FORTIFIED CAMP CONSTRUCTED BY CAESAR'S ENGINEERS Alesia, Situated on a High Hill. (2) Ditch Made by Caesar Under the Hill. (3)
Stimuli. (4) Lilia. (5) Cippi. (a) Pits Covered with Bushes. (6) Two Ditches, 15 Feet
Broad. (7) Rampart and battlements. (8) Stakes in the Form of a Stag's Horns.
(9) Redoubts. (10) Towers.

Many PECULIARITIES of MARTIAN CALENDAR

N discussing periodic phenomena observed on the surface of Mars it is desirable to have some way of recording their time of occur-

would be protected by their galleries from darts failing on their heads. At the entrance he erect-de gates and turrets of a considerable height, as shown in the illustration. Gunowder consisting of a mechanical mixture of ve been used by the Chinese long before its appearance in Europe during the 14th century, mokeless powder was gdopted about the year state. During the latter part of the French revo-ution both hydrogen gas and fire balloons were used for reconnolitring. Many remarkable descents

were made in parachutes. Recent developments in aviation eclipse all that has preceded. Since the France-Prussian war there have been abundance of death-dealing devices such as winged bets a minute, mines, poisonous gases and gre bades, Armored tanks and machine ditch diggers bades, Armored tanks and machine ditch diggers to the work of several hundred men. Tangortation of troops anyolites is great facilitated by railroads, bridges and motor tucks. There are mobile batteries and tractor

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HOW HORSES GO TO SLEEP

HORSES seldom lie down to sleep. Through-out their entire lives most of them sleep while standing on their feet. The reason

A not there entry it was most of them steeps while standing on their feet. These reason for this is believed to be that the horses are straid that an insect might crawf into their no-tile. This is a very likely explanation when it is considered that a horse's nestrile are the most sensitive part of his body. If the insect could not be removed, it could easily irritate a horse to death. Many horses will not lie down because they have once been "foundered," that is, unable to get up unassisted. The seems to hear the slightest working. His ears, for instance, keep constantly noise. Because of this, it would probably be mough to prevent his waking up every horse in it. Horses act peculiarly also in time of firs. They will burn to death rather than rush out from the stalls.

Getting Warmer?

 S CIENTISTS claim the earth is becoming the great cap of lee over the south pole is the great cap of lee over the south pole is the great cap of lee over the south pole is the great cap of lee over the south pole is the great cap of lee over the south pole is the great cap of lee over the south pole is the great cap of lee is still goins on the south pole is the great cap of lee is still goins on the south pole is the great cap of lee is still goins on the south pole is the great cap of lee is still goins on the south pole is the great cap of lee is still goins on the south pole is the great cap of lee is still goins on the south is the south of the south is the south of the south is south is the south is

Is the Earth Now

alone sufficient to establish the following premi-ies: That Antarctic ice, although covering areas several times larger than all other ice-covered antarctic reasting in extent and depth. That the same succession, of geological initiates has prevailed in antarctic as in other initiates has prevailed in antarctic as in other initiates has prevailed in antarctic as in other initiates. This impressive and conclusive evidence is sive evidences of the comparatively recent uncov-ertered of the snowline to higher elevations in inemperate and tropical latitudes and toward the in antarctic regions. We are therefore confronted with the conclusions: That the disappearance of the ice age is an active present process and must be accounted that the disappearance of the ice age is m active present process and must be accounted that the oracies and inpas of retreat are and the conclusions: That the orace and lines of retreat are and

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Electric BONES Add SPARKS to Minstrels' JOKES

What MAKES You LAUGH When You Are TICKLED

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are resistance colls and a connecting wire, which wire may be used for connection with the electri-or collar, composed of metal, which may be cov-ered with rubber or other insultator, to be worn un-ductor wires are attached connecting the same with the bones. This collar is also connected by with the bones. This collar is also connected by with the bones. This collar is also connected by with the bones. This collar is also connected by the metal case. In operation the bones are placed in the usual dielectricity having been applied the movement of the aperator in shaking the bones connects the sheat parts, producing by their contact flashing isotric sparks. Needless to say the affect is best produced on a darkened stage.

BORN BLIND OR GOING BLIND --- WHICH IS LESSER MISFORTUNE?

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Medical Asso-clation,"their use is not al-ways free

Why FISH as a FOOD Really Should Be Classed with MEATS

THE necessity of restricting the use of meat in I its various forms in practically all parts of the world now involved in warfare has direct-

has never seen. His hearing is by no means so mut, his touch is usually heavy and far from be-ing sensitive, and he will need patience and sense degree. He is also very much at a disad-tout of purpose to develop these senses to the ange degree. He is also very much at a disad-tout of the sense to asset him in this direction. We have heavier, one asset which more than for previous comparisons; this lies in his memory, which is a veritable mine of treasures. By making comparisons with the things he has seen he is able descriptions supplied by his friends.

the world now involved in warfare has direct-ed attention more forcibly than ever before to fish as sources of human food. The response has been prompt. Long known species of fish have attained a sudden popularity, and new ones have been brought into distary prominence. Furthermore, fish have been made available either in fresh or preserved form where they were formerly ob-tained with difficulty. Friday no longer offers the only opportunity to eat fish. Every day is fish day nowadays. Although the reputation of fish, as a class, for witability as a food has come to be fairly satis-factory," says a writer in the Journal of The American

FRESH BEEF

AGSSECT WILL INICATS ifferent fahes studied would supply protein in totally available form. The average contents of digestibility of the far average contents of digestibility of the states far average of the mackerel, gravits and the regarded as 'fat fabes'. Considering the states of the protein and fat supplied by the fabes to the protein and fat supplied by the fabes to the protein and fat in distortherapy the controlling factor of choice has been assumed to determine



R EMEMBER the last ministrel show you saw, when the "end men" rattled their "bones" so delightfully? Sure you do! Well the end men of the next ministrel performance you winness may spring a novel surprise on you, for a New York inventior, Mr. Samuel Sussman, has patented a new thid of electric, fire-spitting "bones," which give promise of being a real novel yours, which give promise of being a real novel to its invention produces a dramatic light



The Up-to-Date Minstrel Uses Electric "Bones" Which Emit Flashes of Fire at Every Click.

The at Every Unce. Ing effect in addition to the rhythmic sounds pro-duced by the performer with the bones and syn-thermous with the movement of the same is de-serbed as follows in the Electrical Experimenter: Two electric wires connect with two elongated parts made of bone or ebony or some such hard parts made of bone or ebony or some such hard parts made of bone or ebony or some such hard parts made of bone or ebony or some such hard parts made of bone or ebony or some such hard parts made of each, are attached metal spark suched one end of a wire. A suitable portable bor is provided in which

some way of recording their time of occur-rence with respect to the Martian year and seasons. A Martian calendar proposed a few years ago by Prof. Douglass of the Lowell Observatory divided the planet's year into 365 parts, corre-sponding to 365 equal angular divisions of its orbit, but to unequal periods of time, owing to the eccentricity of the orbit. A somewhat different

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as seen from Mars. Thus it is Aug. 55 in Mars when the sun's longitude is 159 deg. The ter-restial date corresponding to the same solar lon-gitude is Sept. 1.

COTTON and EXPLOSIVES

COME striking facts regarding cotton in its relationship to the manufacture of high explosives were recently given by Sir William Ramsay. In the first place it should be ex-plained that gun-cotton is really cotton waste. carefully cleaned, combed, and dried, soaked in one part nitric acid to three parts sulphuric acid. It is afterward dried and pressed into cakes. It is employed in both a wet and dry condition, the her, with 30 per cent. of water added, being much safer to handle.

Sir William Ramsay points out that there is

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stantly against creeping insects and the heavy penetrating pressure of animals' teeth. This is why, according to this theory, the tickle reflex is elicited principally by a light running motion over the kin and by sudden prods. The reaction, in this age, is a violent discharge of energy in the form of laughter and efforts to be for or pain that might have been the forerunner of the laughter. Humanity takes ages to outgrow its prohistoric impulses. The habit of ticking is supposed to be some ticklish areas are located over the least pro-bacted parts of the body, where delicate vital or sams are to be protected. The reason for the support is that the skin is highly sensitive there are in the protected. The reason for the support is that the skin is highly sensitive there are to be protected. The reason for the support of the skin is highly sensitive there are to be protected. The reason for the support of the skin is highly sensitive there are to be protected. The reason for the support of the skin is highly sensitive there are to be protected. The reason for the support of the skin is highly sensitive the same start is the skin is highly sensitive the same same sensitive the same sensitive support of the same sensitive the same sensitive support of the same sensitive the same sensitive the same sensitive support of the same sensitive the same sensitive the same sensitive support of the same sensitive the same sensitive the same sensitive the same sensitive support of the same sensitive GIL Va 52 -6 ION 20 mar