

FOR BRIGHT YOUNG PEOPLE

MATTERS OF INTEREST AND VALUE TO THE YOUNG.

Tricks of Indian Jugglers—Tommy's Great Invention—Our Little Ones—The Reindeer—Origin of Tip-Cat—Wilber and the Cow.

Tricks of Indian Jugglers.

As commonly described in travelers' tales, the tree growing trick might well seem impossible of explanation. But if the spectator expects to see a seed placed in the ground, the leaves starting up above the soil, the growth increasing, the shrub spreading and the fruit appearing and ripening directly under his eyes, he will be grievously disappointed.

The juggler makes a little heap of moist earth, perhaps six or eight inches high, on the stone step or the hard carriage drive in front of the hotel where the traveler is staying. The juggler himself, dressed in a jointed outfit, squats on the ground behind the heap, places in it a nut, usually that of the mango tree, and spreads a cloth over the whole.

After a short time, during which he waves his hand in the air or assumes to call upon a pagan divinity to help him, he snatches away the cloth, and two or three tender leaves are seen appearing above the soil.

He spreads the cloth over it once more. The plant appears to be growing rapidly, and pushing the cloth up. The juggler again snatches the cloth away, and a large and wide-spreading shrub is seen, its leaves covered with dew.

Sometimes a tripod frame is used, over which the cloth is thrown, so that the plant may "grow" freely beneath the small tent thus formed.

When the leaves are just visible above the ground, the juggler lifts the plant from the earth and shows the spectators how the nut has apparently swollen and germinated, pointing out the rootlets that extend from the nut through the moist earth.

If, when it has fully grown, there is no fruit on the tree, the juggler covers the plant once more with the cloth, and after another short interval of waiting, again removes it. Two or three mangoes are seen which the juggler breaks off and presents to the spectators.

The best performance of it I have ever seen was in Madras, and I learned from the jugglers exactly how it was done.

When the juggler apparently places the seed mango nut in the earth he really places an old split nut there, which he has held concealed in the palm of his hand. The new nut he conceals in the place previously occupied by the old nut; in other words, he "palms it."

After spreading the cloth, he drops the new nut from the palm of his hand into a fold of his loin cloth, whence he takes and "palms" a small plant, two or three inches long—sometimes a little twig of mango with the roots of another plant fastened to the end of it.

This he does while the attention of the spectators is given to the waving of his other hand in the air, or to his gestures upward for the help of a god.

He then removes the cloth for the first time. No leaves appear. While replacing the cloth, he inserts the root of the twig in the old nut, and arranges the soil so that the top of the stem and one or two small leaves appear above the surface.

This done, and the cloth being fully spread, he waves his hands again in the air, and after a short time removes the cloth for the second time, and reveals the plant in its first stage.

While with one hand showing the plant with its roots, etc., to the spectators, he takes with the other hand from his loincloth a piece of branch half an inch or more in diameter, which is well provided with twigs and leaves. All of these are pressed close to the branch, and the whole wrapped round tightly with a piece of wet cloth. I have seen this branch as much as a foot and a half long.

The juggler conceals this behind his bare arm, and with a swift movement slides it under the cloth while he is apparently replacing the small plant. While spreading the cloth he unwraps the branch, sticks it into the soil, expands the twigs and leaves, and squeezes over them the water from the wet cloth. Then, "palming" and withdrawing the small plant, he proceeds as before with his gesticulations, removes the covering and shows the spreading shrub.

In the same manner slips the fruit, provided with stalks, under the cloth in the next stage, and twists the end of each stalk round one of the twigs. When he pulls the fruit afterward, he takes care to break the stalk close to the fruit.

The cleverness lies in the wonderful dexterity which the juggler displays in making his important movements without being observed.

Scarcely one of my readers, even with this knowledge of the way in which the trick is done, would actually see the juggler make any one of the movements which he desires to be concealed.—Richard Hodgson in Youth's Companion.

Tommy's Great Inventions.

"I've thought of a new way to make money, Uncle Peter," said Tommy, as he came in from the woodshed with a little box in his hand; "I'm going to invent things and get 'em patented."

"I suppose then you'll invent a jack-knife that won't get lost, and a pocket watch that will never wear out, and a gold watch that can be bought for twenty-five cents."

"Tommy didn't half hear, being very busy with his little box."

"Would you like to see my invention, Uncle Peter?" said he at last. "I've got it all fixed up just one little point. It's a mouse-trap. See, here he comes, looking for his supper. And here's a sort of little feed-box full of cake and cheese. And he smells the cheese, and keeps sniffing round till he sees it, and then he goes at this hole, and there's Mr. Mouse! Oh, it's lots better than a cat!"

"Why, of course 'tis," said Uncle Peter. "It'll never catch the baby, or drink out of the milk-pan, or keep folks awake in the night. I can see it's better than a cat!"

"And I'll make a bigger one for rats and quite a good-sized one for rabbits, and maybe a great, immense one for bears. Wouldn't that be splendid?"

SCIENCE AND INDUSTRY.

MATTERS OF INTEREST TO INQUIRING MINDS.

Firearms of Early Settlers—The Essentials of Mechanical Flight—Colonial Steel-Makers—A Tremendous Explosive.

Firearms of Early Settlers.

The precise population of New England, either Indian or white, at the time of Philip's war cannot be stated, but for the purpose of war it may be said that the forces on one side and on the other were equal. At that time the Indians were as well used to firearms as the whites, but the firelock of those days was but an inefficient weapon compared with the musket of later times or, with the rifle of today.

It seems certain that in Europe firelocks had been introduced before this time; but, on the whole, the concurrence of evidence shows that such locks were not used in the civil war in England, and that both the king's party and the Puritans still relied on the matchlock. The form of this can be readily explained to any person who has seen the old flintlock of the present century. A hammer—a good deal larger than the hammer which afterward held the flint, but quite like it—had a screw which tightened or loosened the hold which two pieces of iron had upon a match.

Each soldier was obliged to carry some yards of this match with him, and when the battle began he lighted the piece of this match which was fixed in the hammer of the gun. A pan which held powder, exactly as the pan of a flintlock afterward did, was in front of the hammer, with a cover projecting, from which a sort of horn ran up nearly vertical, to be opened by the hammer when the soldier pulled the trigger. The fire of the match communicated with the powder, and the gun went off.

This was a sufficiently complicated way in which men should go to battle, perhaps, in a wilderness, where even the procuring of fire at that time was attended with difficulty. The accounts of skirmishes of these times are full of occasions when a soldier put a stop to the whole battle. This is because the fire of the matches was extinguished by the rain.

To change this rather clumsy lock into a flintlock simply required that a flint of sufficient size should be screwed into the hammer in the place made for the match. The flint, then striking upon the cover of the pan, made a spark which fell at the moment the pan opened into the powder. Eventually these locks were made with great precision, so that the gun missed fire very seldom.

I have no doubt that one and another soldier in Philip's war found for himself that a flint Indian arrowhead served in the place of his match could be made to answer the purpose of firing the powder much more readily than the match itself could. A similar invention, however, as I have said, had already been made in Europe, so that it is thought that flintlock guns had been found in France as early as 1640. In 1672, however, just before the war with Philip began, the law of Massachusetts and the provision made for her soldiers still required the use of the matchlock.—The Chautauquan.

Early American Pottery.

Primitive potteries for the production of earthenware on a small scale were operated in the provinces at an early period, but as only the coarser grades of ware were needed by the simple inhabitants of a new country, no extended accounts of them appear to have been written by the older historians. As early as the year 1649, however, there were a number of small potteries in Virginia, which carried on a thriving business in the communities in which they existed; and the first Dutch settlers in New York brought with them a practical knowledge of potting, and are said to have made a ware equal in quality to that produced in the ancient town of Delft.

Dr. Isaac Broome, of the Beaver Falls, Pa. Works, informs me that the remains of an old brick-oven, saved from the ravages of time by being thoroughly vitrified, still exist a mile or two below Smith's Amboy, N. J. This is a relic of the earlier pottery ware made on this continent, and was most probably established by the Dutch to make stov-pans and pots.

Dr. Daniel Coxe, of London, proprietor, and afterward governor, of West Jersey, was undoubtedly the first to make white ware on this side of the Atlantic. While he did not come to America himself, he caused a pottery to be erected at Burlington, N. J., previous to the year 1690, through his agent, John Tatham, who, with Daniel Coxe, his son, looked after his large interests here. It is recorded that in 1691 Dr. Coxe sold to the West New Jersey Society of London consisting of forty-eight persons, his entire interests in the province, including a dwelling-house and "pottery-house" with all the tools, for the sum of £9,000 sterling.

Colonial Steel-makers.

In 1728 Samuel Higley, of Simsbury, and Joseph Dewey, of Hebron, in Hartford County, Connecticut, represented to the Legislature that the said Higley had, with great pains and cost, found out and obtained a curious art by which to convert, change, or transmit common iron into good steel sufficient for any use, and was the first that ever performed such an operation in America."

Swank gives on the authority of Mr. Charles J. Hooley, Librarian of the Connecticut State Library, a certificate, signed by Timothy Phelps and John Drake, blacksmiths, which states that, in June, 1725, Mr. Higley obtained from the subscribers several pieces of iron, so shaped that they could be known again, and that a few days later "he brought the same pieces which we let him have, and we proved them and found them good steel, which was the first steel that ever was made in this country that we ever saw or heard of."

A patent was granted Higley and Dewey for ten years, provided "the petitioners improve the art to any good and reasonable perfection within two years from the date of this act."

THE ESSENTIALS OF MECHANICAL FLIGHT.

THE ESSENTIALS OF MECHANICAL FLIGHT.

They do not appear to have done this, or to have continued the business of making steel.

In 1740 the Connecticut Legislature granted to Messrs. Fitch, Walker & Wyllys "the sole privilege of making steel for the term of fifteen years upon this condition, that they should in the space of two years make half a ton of steel"; this condition not having been complied with, the privilege was extended to 1744, before which time Aaron Eliot and Ichabod Miller certified that more than half a ton of steel had been made at the furnaces in Simsbury.

The Essentials of Mechanical Flight.

It is well for the present to use the balloon as the supplementary sustaining instrument; but let us always keep in mind that we shall thank it as soon as possible for its services and show it the door. A hypothesis should be to the physicist simply a provisional artifice for the convenient grouping or explaining of a number of determined phenomena; and, to our view, a balloon is a similar artifice, the present uses of which may be valuable.

We had the honor some years ago of becoming acquainted with MM. de la Landelle and Ponton d'Amecourt, warm partisans and advocates of the doctrine of machines heavier than the air, which originated, according to classical traditions, with Archimedes. They convinced us, and we have since been their fervent disciples. We are, in fact, a persistent admirer of the simple processes employed in Nature and used in a marvelous way by birds to sustain themselves in the air and guide their flight, and specious calculations have never caused us to doubt the possibility of a solution of the problem of locomotion in the air by wholly mechanical means; and we have long regarded the solution of it as depending solely on the discovery of a powerful and light motor.—The Popular Science Monthly.

A Tremendous Explosive.

A new explosive of great power is "Americanite." It is a liquid compound whose principal ingredient is nitro-glycerine. The other ingredients are still a secret. It is said to have two advantages over other explosives. It is insensitive to shock and can be exploded at will.

The inventors assert that the explosive can always be used without danger. It has withstood a blow of 27,000 pounds, and a lighted match simply sets it on fire so that it burns like a candle. Neither is it affected by friction, and an inexperienced person can handle it without running the risk of a premature explosion. Gen. O. Howard has, therefore, recommended the adoption of it by the Government.

"The advantages of being able," he says, "to use an explosive of a force equal to nitro-glycerine with safety, fired from any gun now in existence and with terrific effect at extreme range, is evident. With such a powerful agent the problem of coast defense is resolved almost to one of range, and our great seaboard cities can be made comparatively safe without excessive expenditure."—Boston Transcript.

A Speaking Watch.

One of Edison's latest inventions will be exhibited at the next electric exhibition at St. Petersburg, and will consist of a speaking watch. The dial is made to represent a human face, and the interior contains a phonograph. The mouth opens and tells the hours, the half-hours, and the quarters in a strikingly human voice. It can also be set at a particular hour in the morning to remark several times running, "It is time to get up!" "It is time to get up!"

Progress in Science.

Astronomers recently observed, by photography, a solar disturbance lasting fifteen minutes, in which vapors ascended to a distance of 80,000 miles. The compass needle was sensibly affected, and the effect was presumed to have been caused by a meteor striking the sun.

The popular belief that occupants of the highest floors in a city house live in the purest air seems to be upset by recent tests made of the atmosphere of London, which showed that the purest air was obtained between thirty and forty feet above the streets.

A good cement to fasten glass letters upon glass, windows, &c., consists of one part India rubber, three parts mastic, and fifty parts chloroform. Let the mixture stand several days in a closed vessel and apply rapidly.

The development of the cotton-seed industry has been so great, and many articles now made from it are so useful, that it has supplanted the famous olive-tree products in a majority of cases.

The alcohol process of obtaining sugar from cane syrup has revolutionized sugar making from that source. The process is very simple, and it is said that but 1 per cent. of the alcohol is lost.

Electric headlights of about 2,500 candle power are now in general use on the railroads in Indiana. They are very favorably spoken of by engineers.

The question of a change in the position of the earth's axis has led to some special refinements in the method of observing astronomical latitudes, and expeditions are about being fitted out in different countries for the purpose of making a series of latitude observations. The scientists from this country will go to the Hawaiian islands.

The dials of cheap clocks used to be printed on paper and then glued to a zinc foundation, but after a short time the paper came off the metal. Now the zinc is dipped in a strong solution of washing soda and afterward washed over with onion juice. The paper is then pasted on, and it is almost impossible to separate it from the metal.

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