

THE TOCCI TWINS.

We give illustrations of what are probably the most remarkable human twins that have ever approached maturity. They recently arrived in this country. They are known as the brothers Giovanni and Giacomo Tocci. They were born on July 4, 1875, their mother being nineteen years old. The mother's maiden name was Antonia Mezzano. Their birthplace was Locana, Turin (Italy). The same mother has had nine children, all strong and well. The twins are connected from the sixth rib downward, and have but one pair of legs and a single abdomen. The spinal columns are distinct until the lumbar region is reached. There they unite at an angle of 130 degrees. The sacrum seems to be a single bone. They have two distinct stomachs, hearts, and pairs of lungs. The arterial and respiratory systems are quite distinct; the heart beats and breathing differing often in the two individuals. At the age of thirty days they weighed eight pounds, and in the next thirty-one days gained nearly three pounds.

It was at this period of their lives that they were first subjected to critical examination.

Their lives are distinct. They have regions of common sensibility, and of purely individual sensation. One often sleeps when the other wakes. There is no direct correspondence of their appetites. One may be hungry while the other is fast asleep.

In their general appearance there is nothing repulsive. They have bright, intelligent faces, not of the peculiar cast common to cripples. They are educated and write their names as souvenirs for visitors.

They are able to stand, but have not yet succeeded in walking, as each leg is governed by its own brain. The want of correspondence has proved fatal to any attempts in this direction. They can stand quietly, so that it is not only a question of strength. At their home they spend much of their time on the floor, using their inner arms for the most part, crawling and tumbling about and thus getting a certain amount of exercise. They can dress and undress themselves.

The one on the reader's left as he faces the picture, Giovanni, drinks beer in considerable quantities. The other one Giacomo, not liking beer, drinks mineral water in its place. Giovanni is quite fond of sketching and draws with some spirit. He rests the book or paper on his knee. Sometimes his brother, who is more of a talker and more volatile in disposition, finding some fault with the drawing, will kick the drawing off his knee. All this in good part, for they live on excellent terms with each other, and seem unconscious of any misfortune in their condition.

They are disconnected as regards illness. Quite re-

cently one of them had a cold, while the other was suffering from a bilious attack.

The Siamese twins Eng and Chang, who died in 1874, within a few hours of each other, at the age of sixty years, were very celebrated. They were far less completely united. A thick fleshy ligament connected the lower ends of their breast bones. They were of a good degree of intelligence, conversed with visitors, and seemed reasonably well contented with their lot. Had the uniting ligament been purely muscular they could, doubtless, have been cut apart, with survival of both



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persons. The possibility of doing this was often discussed in their life. But on post mortem examination it was found that a process of peritoneum extended from one abdominal cavity to the other. But one or two cases are on record of the severing of such a ligament at the time of birth, with survival of even a single member of the pair. Before the Siamese twins, the "Hungarian sisters," Helena and Judith (1701-1723), obtained much celebrity. Their region of connection was the sacrum. The South Carolina negroes, Millie and Christine, exhibited under the misleading title of the two-headed nightingale, were another interesting example of twinning. They were also connected by the lower parts of the back, including the sacrum and probably lower lumbar region. They had four legs, and were really not much more closely connected than the Siamese twins. They enjoyed excellent health and spirits and used to sing together. They progressed by walking either on the rear pair of legs or on all four, in which case they moved sidewise. Waltzing was one of their accomplishments. Unquestionably their intestines were united. While they possessed common sensory nerve systems as regards the legs, both feeling a touch, the motor nerves were so distinct that one could not move the limbs of the other. They were born about 1851.

EXPERIMENTS IN PRESTIDIGITATION.

*Spirit Slates.*—Two ordinary wooden framed slates are presented to the spectators, and examined in succession by them. A small piece of chalk is introduced between the two slates, which are then united by a rubber band and held aloft in the prestidigitator's right hand.

Then, in the general silence, is heard the scratching of the chalk, which is writing between the two slates the answer to a question asked by one of the spectators—the name of a card thought of or the number of

spots obtained by throwing two dice. The rubber band having been removed and the slates separated, one of them is seen to be covered with writing.

This prodigy, which at first sight seems to be so mysterious, is very easily realized.

The writing was done in advance; but upon the written side of the slate A there had been placed a thin sheet of black cardboard which hid the characters written with chalk. The two sides of this slate thus appeared absolutely clean.

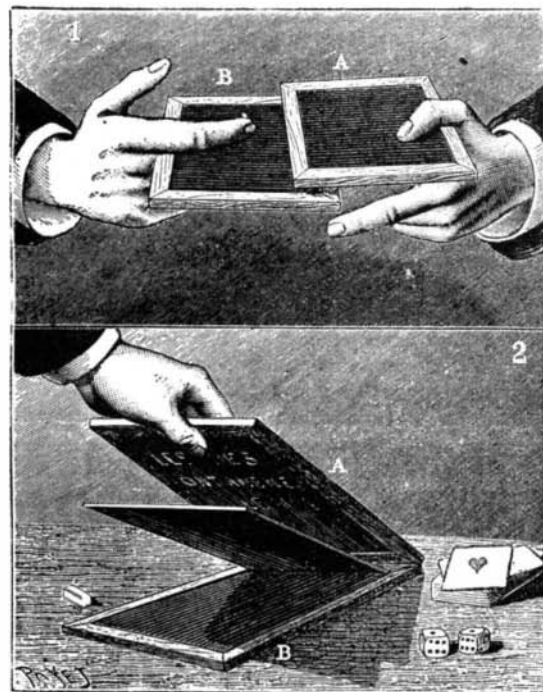
The slate B is first given out for examination, and, after it has been returned to him, the operator says:

"Do you want to examine the other one also?" And then, without any haste, he makes a pass analogous to that employed in shuffling cards. The slate A being held by the thumb and forefinger of the left hand and the slate B between the fore and middle finger of the right hand (Fig. 1), the two hands are brought together. But at the moment at which the slates are superposed, the thumb and forefinger of the right hand grasp the slate A, while at the same

time the fore and middle finger of the left hand take the slate B. Then the two hands separate anew, and the slate that has already been examined, instead of the second one, is put into the hands of the spectator. This shifting, done with deliberation, is entirely invisible.

During the second examination the slate A is laid flat upon a table, the written face turned upward and covered with black cardboard. The slate having been sufficiently examined, and been returned to the operator, the latter lays it upon the first, and both are then surrounded by the rubber band.

It is then that the operator holds up the slates with the left hand, of which one sees but the thumb, while upon the posterior face of the second slate the nail of his middle finger makes a sound, resembling that produced by chalk when written with. When the operator judges that this little comedy has lasted quite long enough, he lays the two slates horizontally upon his table, taking care, this time, that the non-prepared slate shall be beneath (Fig. 2). It is upon it that then rests the black cardboard, and the other slate, on be-



Figs. 1 and 2.—SPIRIT SLATES.

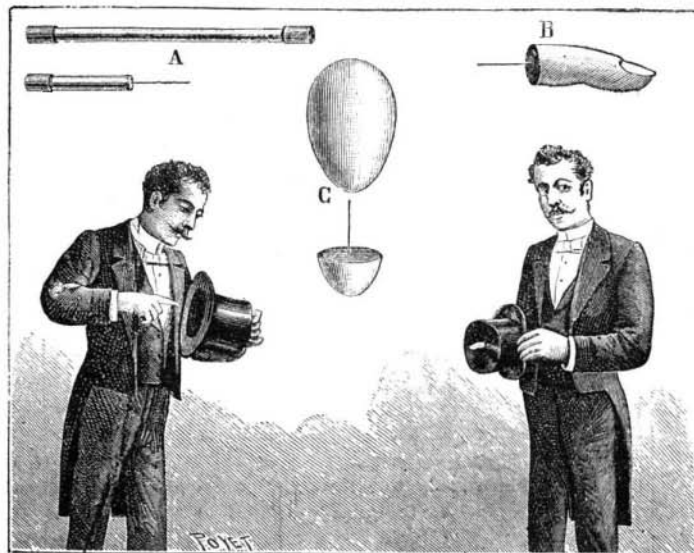


Fig. 3.—PASSING A FINGER, ROD, AND EGG THROUGH A HAT.



Fig. 4. THE ENDLESS PAPER RIBBON.

ing raised, shows the characters that it bears, and that are stated to have been written by an invisible spirit that slipped in between the two slates.

Our readers will not ask us how we manage to know in advance what should be written upon the slate. It is useless to say that deceit is allowable in prestidigitation; loaded dice always turn up the same number, and nothing is easier than to know the name of the card that a spectator will draw from a pack composed of thirty-two similar cards, if one is not skillful enough to cause him to take the forced card.

**Tricks with a Hat.**—Prestidigitators frequently borrow from their spectators a hat that serves them for the performance of very neat tricks which are not always easily explained. We shall describe some of the most interesting of these.

The operator will begin by proving to you that the felt of your hat is of bad quality, and, to this effect, he will pierce it here and there, with his finger, his magic wand, an egg, and with a host of other objects.

This is all an illusion, the mystery of which is explained by Fig. 3. See the finger B. It is either of wood or cardboard, and terminates in a long slender needle. The prestidigitator, who has concealed the finger in his left hand, thrusts the point into the top of the hat, whose interior is turned toward the spectators. Afterward, raising the right hand, the forefinger of which he points forward, he seems to be about to pierce the top of the hat, but, instead of finishing the motion began, he quickly seizes in the interior, between the thumb and forefinger, the point of the needle, wiggles it around in all directions, turns the hat over, and the cardboard finger, which moves, seems to be the prestidigitator's own finger. The same operation is performed with the wooden half egg, C and the rod A, which, like the finger, appear to traverse the hat, in the interior of which are hidden the true rod and egg. We may likewise solder a needle to a half of a five franc piece, and thus vary the objects employed for this recreation to infinity.

In order to take from a hat a large quantity of paper in ribbons, and then doves, and even a duck or a rabbit, there is no need of special apparatus nor of a great amount of dexterity, and still less of the revolving bobbin or of the mysterious machine whose existence is generally believed in by the spectators when they see the paper falling regularly from the hat, and turning gracefully of itself as the water from a new sort of fountain would do.

Nor is there here any need of a high hat; a simple straw hat (or a cap, at a pinch) will suffice. The prestidigitator holds close pressed to his breast and hidden under his coat a roll of the blue paper prepared for the printing apparatus of the Morse telegraph, and which is so tightly wound that it has the aspect and consistence of a wooden disk with a circular aperture in the center. In turning around after taking the hat, the opening of which rests against his breast, the operator deftly introduces into it the roll of paper, which has the proper diameter to allow it to enter by hard friction as far as to the top of the hat, and stay where it is put even when the hat is turned over.

Were it needed, the paper might be held by a proper pressure of the left hand exerted from the exterior. The introduction of the paper is effected in a fraction of a second.

"Your hat, my dear sir, was doubtless a little too wide for your head, for I notice within it a band of paper designed to diminish the internal diameter," says the prestidigitator, while, at the same time, he draws from the hat the end that terminates the paper in the center of the roll. Then he reverses the hat so that the interior cannot be seen by the spectators. The paper immediately begins to unwind of itself and to fall very regularly and without intermission (Fig. 4, to the right).

When the fall of the paper begins to slacken, that is, in general, when no more than a third of the roll remains, the prestidigitator turns the hat upside down, and, with the right hand, pulls out and rapidly revolves in the air the paper ribbon, whose capricious contours, succeeding one another before the first have

had time to fall to the floor, produce a very pretty effect (Fig. 4). The quantity of paper extracted from the hat appears also in this way much greater than it really is, and at length forms a pile of considerable bulk.

This experiment may be completed in the following manner: The operator, approaching his table, which, upon a board suspended behind it, carries a firmly bound pigeon, quickly seizes the poor animal in passing, and conceals it under the pile of paper, while he puts the latter back into the hat, in order to see, says he, whether all that has been taken out can be made to enter anew.

Having thus introduced the pigeon or any other object into the hat, the paper is taken out, and it is at the moment that the hat is restored to its owner that he pretends to discover that it still contains something. —*La Nature*.

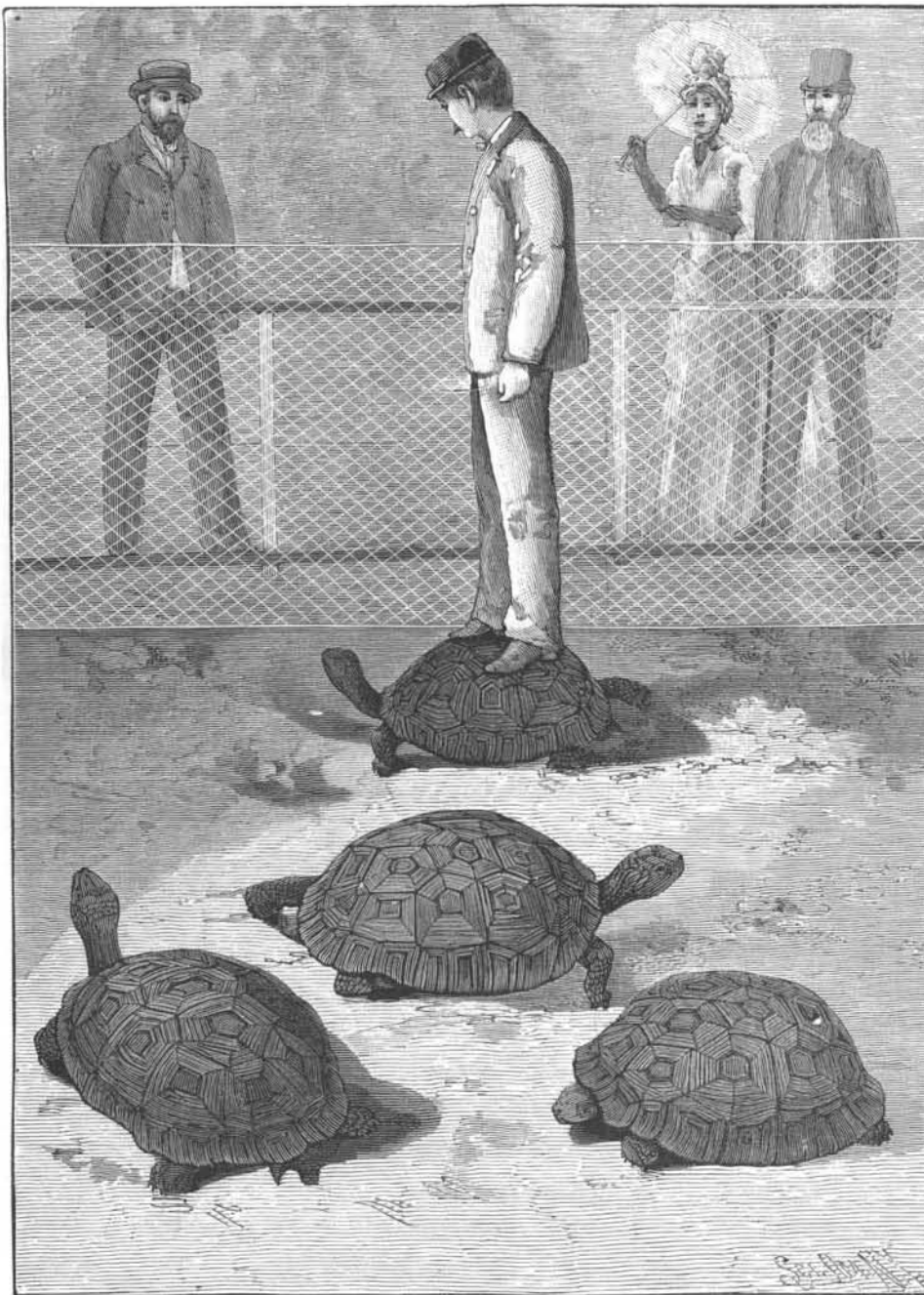
THE GALAPAGAS TORTOISES.

If the visitor to the Central Park menagerie will pass into the house behind the lion quarters, and walking past the stalls where the graceful antelopes of South

name Galapagos alludes to them, which is seen more clearly in the German translation, *Schildkrotteninseln*, and in the French, *Isles des Tortues*, both designations being literally the islands of the tortoises. Chas. Darwin has devoted a chapter in his "Voyage of the Beagle" to a description of these curious reptiles, and they have been made the subject of many sketches by the chance tourists or wandering visitors of this remote region. Dr. A. Gunther also prepared a masterly paper on these animals for the *Philosophical Transactions*, of England, and their discussion is a wide and tempting field in the subject of animal distribution and variation.

The Galapagos Islands are volcanic in their origin and present desolate surfaces of scoriæ, rugged and black surfaces of blistered and splintered lava. Here these immense tortoises were found by some of the earliest navigators, and were long resorted to as food by the buccaneers of the Spanish Main. Their flesh, especially that upon the breast bone, as instanced by Darwin, is very delicious, and as they retain their size and sweetness after months of confinement, they afforded a very convenient source of food for the provisioning of ships which would be for a long time away from means of supply of fresh meat. The great numbers of these reptiles in the islands before they had become reduced by men were surprising. They had multiplied in unchecked fecundity, and this, combined with their length of life, resulted in an enormous population. In 1680 Dampier said of them: "The land turtle are here so numerous that five or six hundred men might subsist on them alone for several months without any other sort of provision." As early as Admiral Porter's visit to these islands (1813) the difference between the occupants of the different islands had been noticed. Dr. Gunther has separated the tortoises from this group into five different species, each restricted to its own island, and assumes their derivation from some typical ancestor whose characters have gradually diverged into these subordinate races by reason of the varying features of food and habits. Darwin has given some of the most interesting observations about these strange creatures. They live by preference on the higher and more moist portions of the islands, though found in the arid and lower coast country. They are forced to travel considerable distances toward the center of the islands to secure water, and in this connection Darwin makes one of the most suggestive and entertaining statements in his account of his visit to the Galapagos Islands.

He says ("Voyage of the Beagle"), "The tortoise is very fond of water, drinking large quantities, and wallowing in the mud. The larger islands alone possess springs, and these are always situated toward the central parts and at a considerable height. The tortoises, therefore, which frequent the lower districts, when thirsty are obliged to travel from a long distance. Hence



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Africa, the pretty gemsbok (*Oryx gazella*), are confined, look over the last bin on the right hand side, he will see a group of interesting objects—the Galapagos tortoises. If the temperature, the character of the day, and their own dispositions are in accord, he will find them taking some interest in their surroundings, and may be able to observe their stiff and strained attitudes, their inane, staring eyes, their gaunt, wrinkled necks, and the comical protrusion of their legs. But if it is dark, or the surfeit of a late dinner has thrown them into post-prandial reflections, he will observe nothing but a bundle of dirty brown box-like humps, which are marked on their outer surface by a series of sculptured and raised ridges, while dimly seen within the gaping edges of their front and back margins, the folded limbs and withdrawn somnolent heads of their inmates are provokingly descried, motionless and torpid. These lumps of bone have, however, to the naturalist a great interest. They have been brought from that remarkable group of islands which lie some seven hundred miles from the west coast of South America, opposite Ecuador, beneath the equator, and belong to a fauna which, from its remote and insular position, has assumed an indigenous and unique character. Indeed, the Galapagos Islands have received their name from these large tortoises. The

broad and well beaten paths branch off in every direction from the wells down to the seacoast, and the Spaniards, by following them up, first discovered the watering places. When I landed at Chatham Island, I could not imagine what animal traveled so methodically along well chosen tracks. Near the springs it was a curious spectacle to behold many of these huge creatures, one set traveling onward with outstretched necks, and another set returning, after having drunk their fill. When the tortoise arrives at the spring, quite regardless of any spectator he buries his head in the water above his eyes, and greedily swallows great mouthfuls, at the rate of about ten in a minute. The inhabitants say each animal stays three or four days in the neighborhood of the water, and then returns to the lower country; but they differed respecting the frequency of these visits. The animal probably regulates them according to the nature of the food on which it has lived. It is, however, certain that tortoises can subsist even on those islands where there is no other water than what falls during a few rainy days in the year." A most surprising peculiarity of this creature is the retention of water in its urinary bladder which subserves the purposes of the animal, and can even be imbibed by men, Darwin asserting that when the bladder is full, the liquid is quite limpid and only