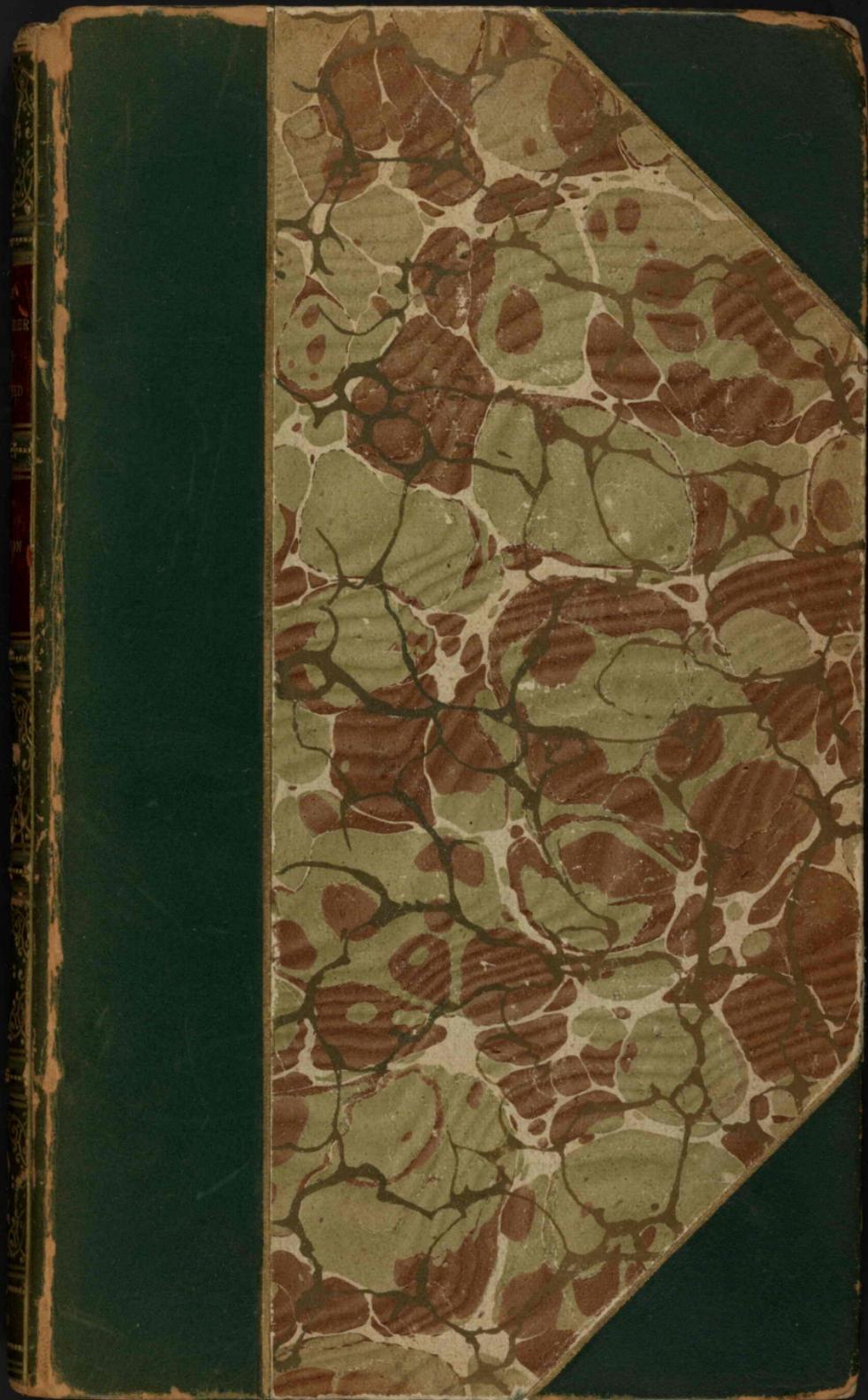




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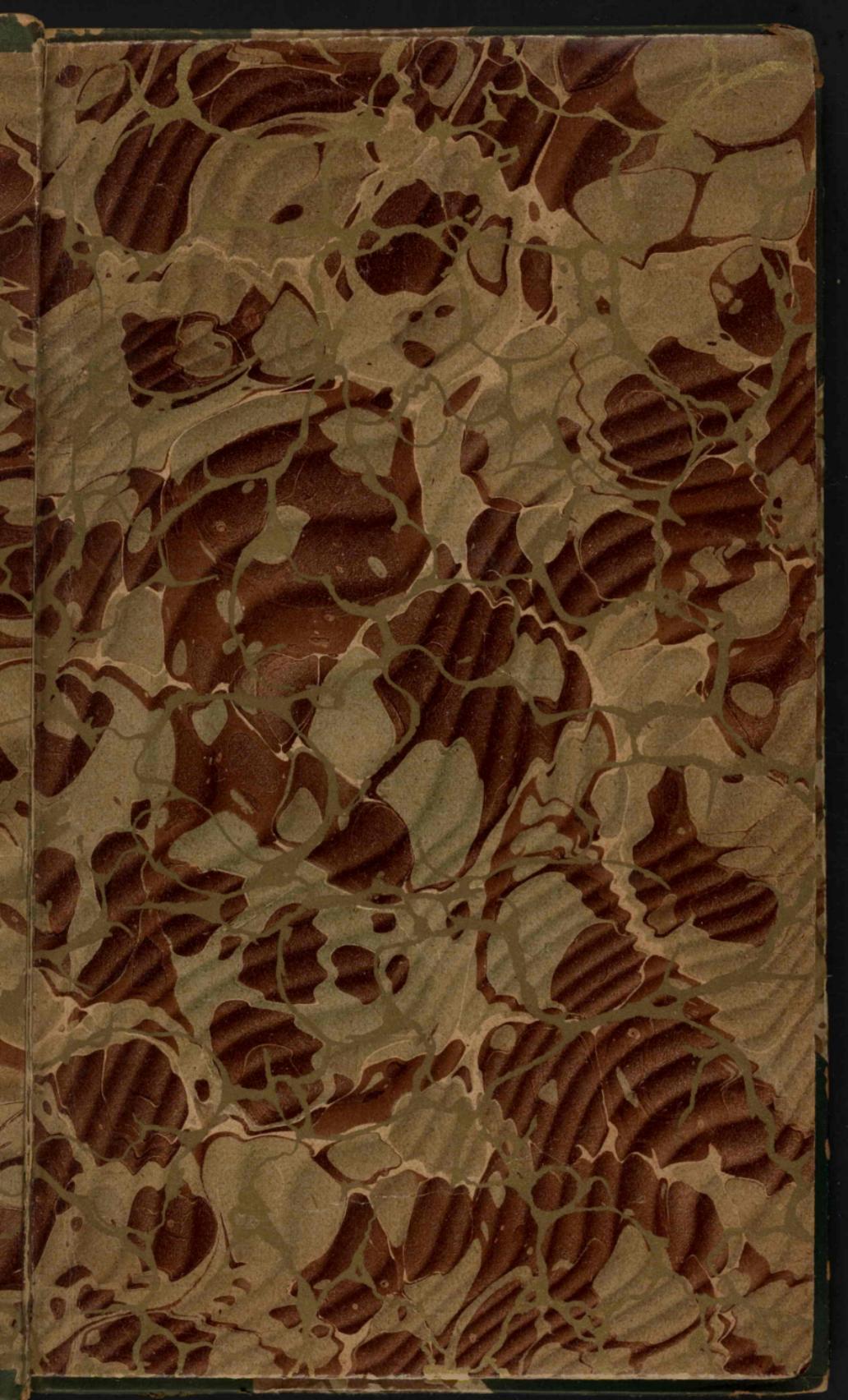
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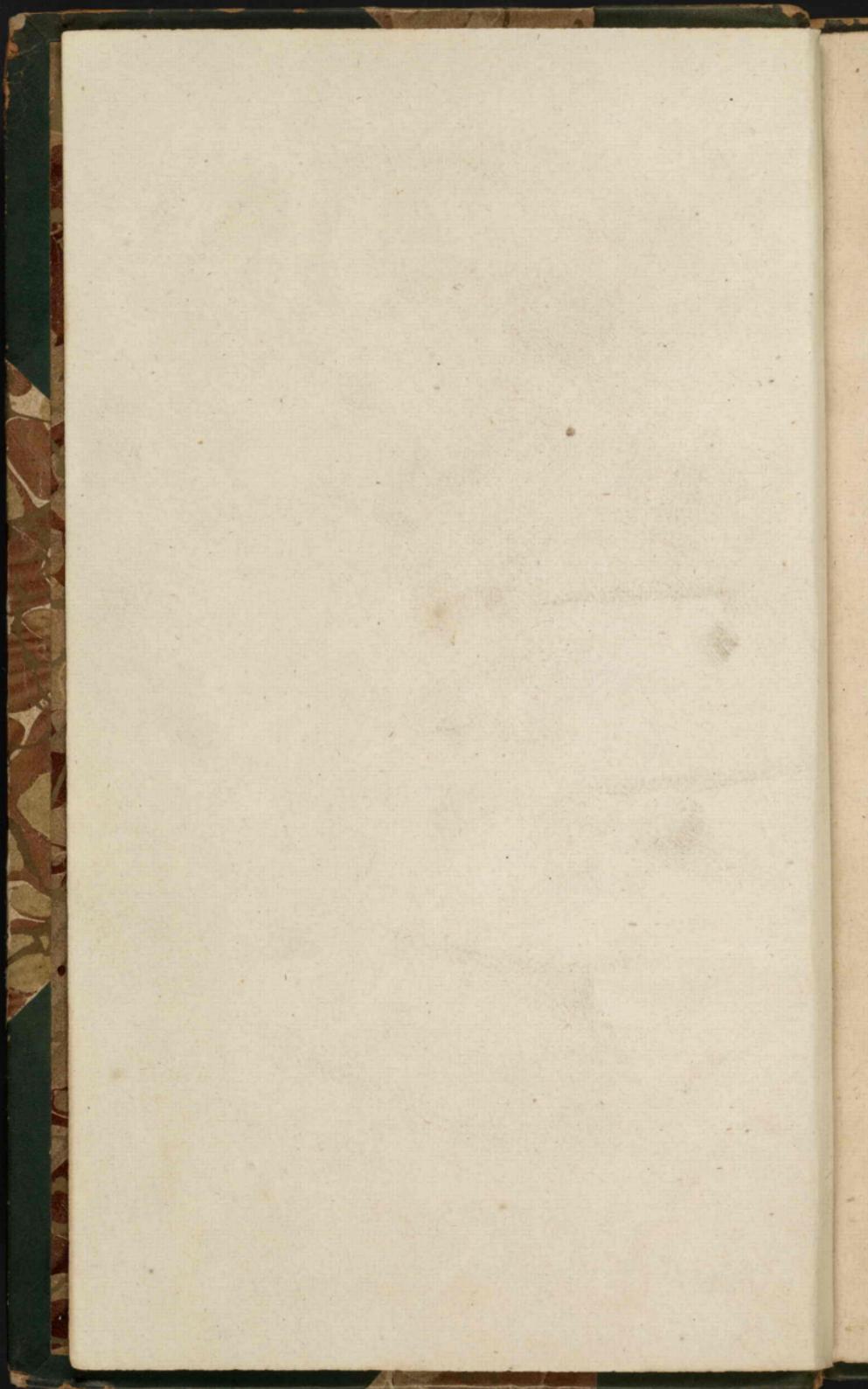


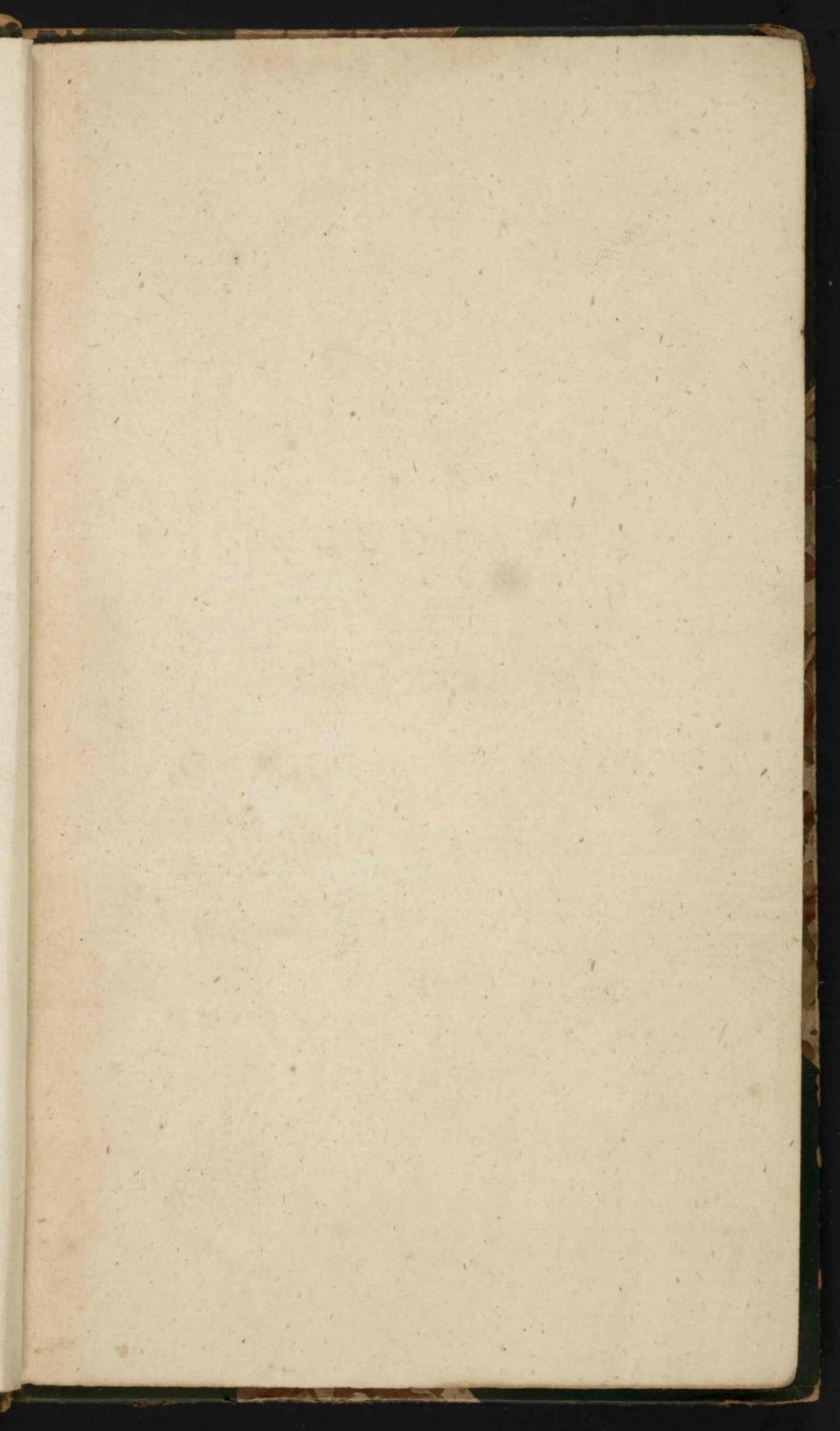


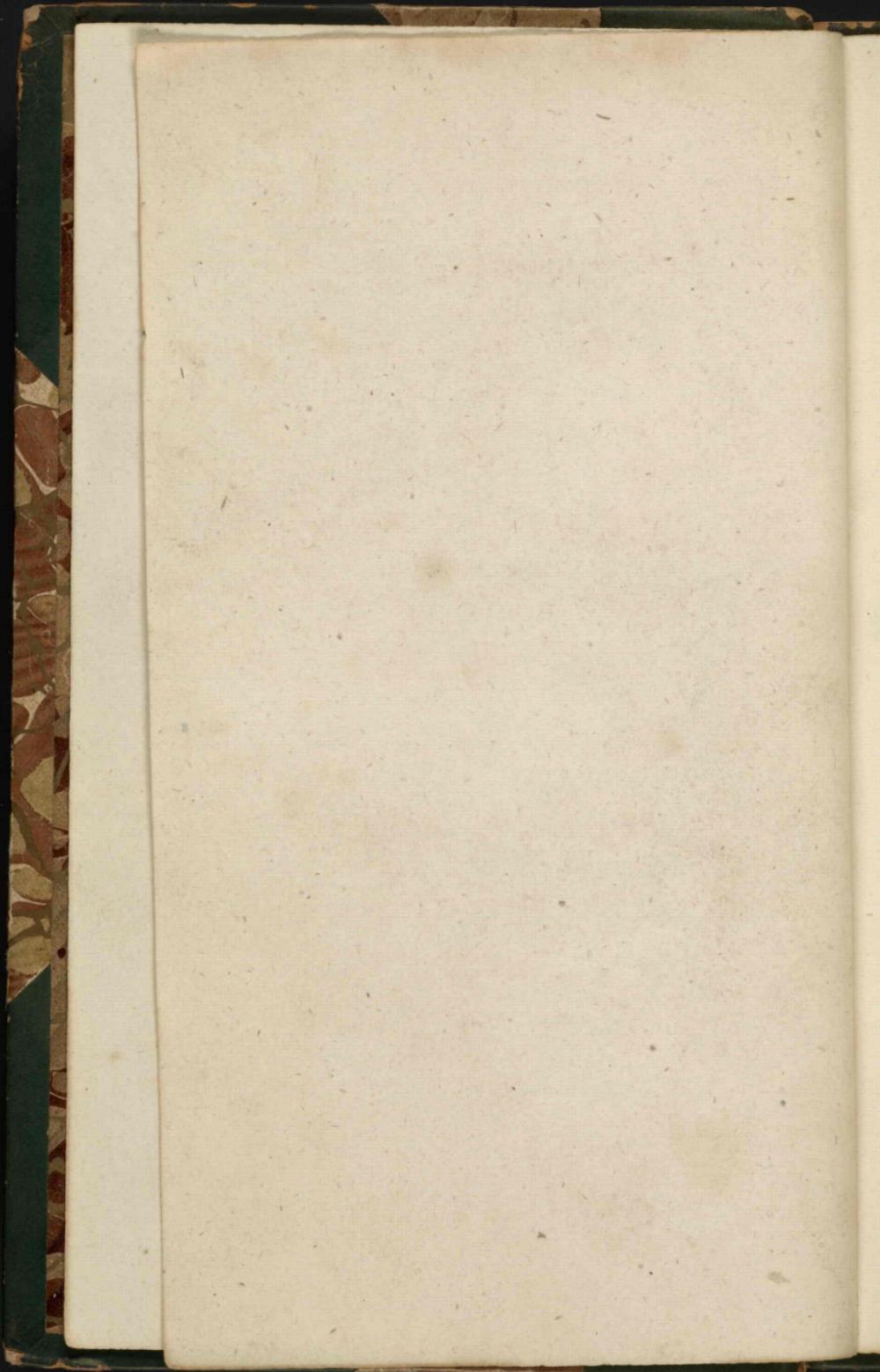
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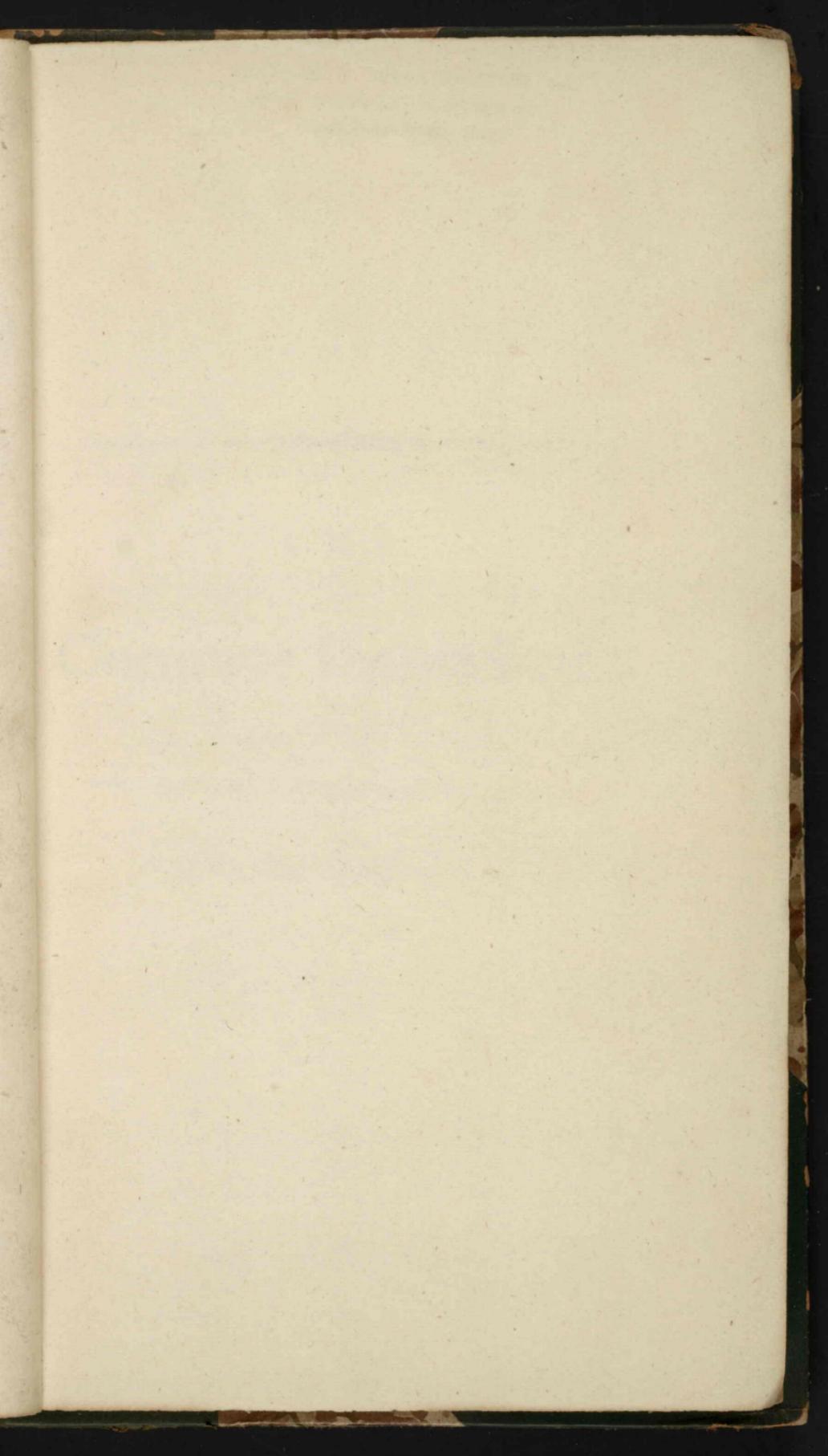
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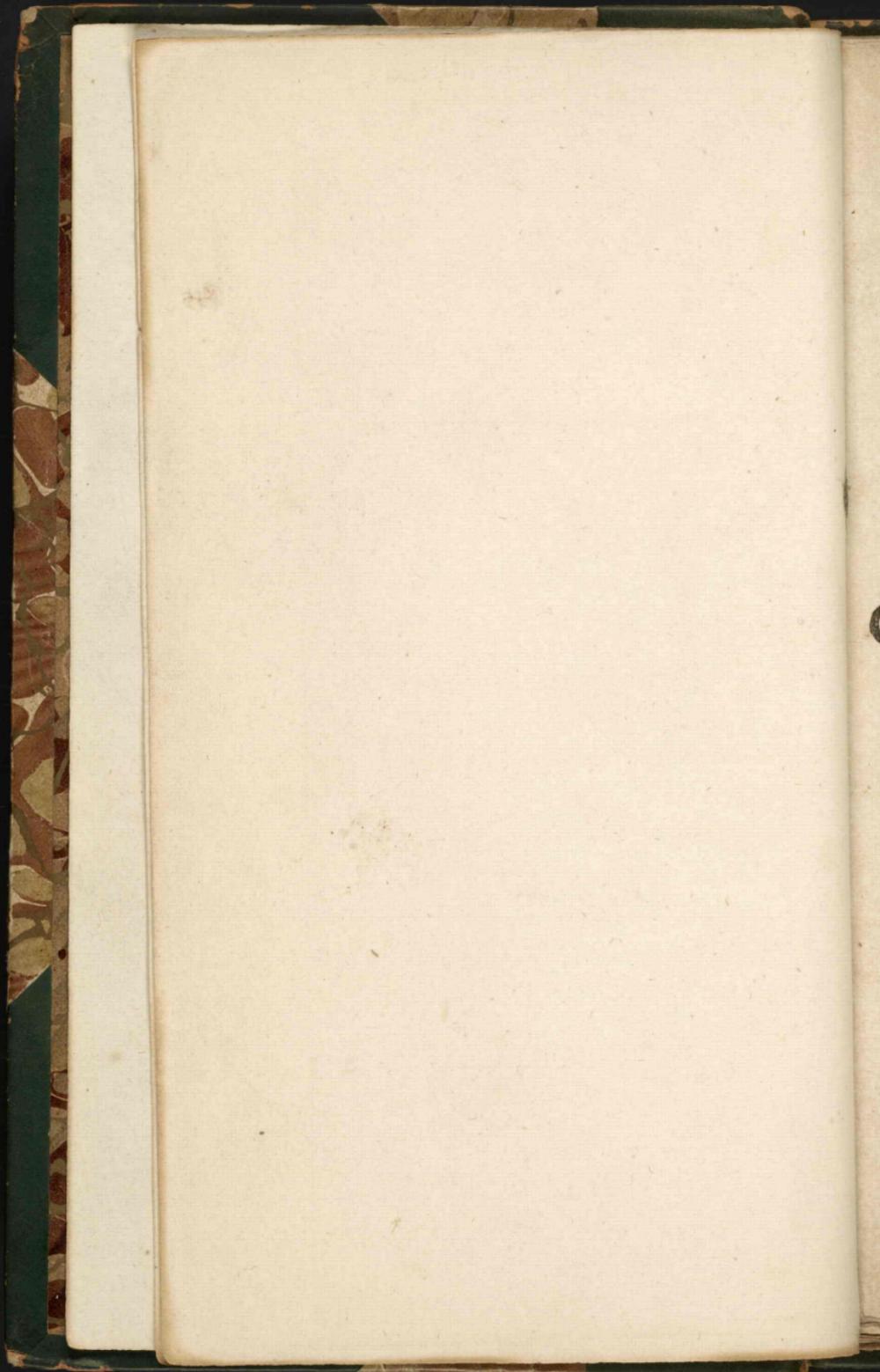












THOMAS C. WORTHINGTON *Scd.*
2112 POPLAR GROVE ST.
BALTIMORE, MD.

T H E

Conjurer Unmasked.

[Price Two SHILLINGS.]

[This THIRD EDITION is entered a
STATIONERS HALL.]

1790

d a



*The Professor of amusing Philosophy who having burned
a Card (taken at chance) to ashes, throws the Pack in the air
at which he fires a Pistol, & y.^e Card is found nailed to the Wall.
See Chap. V.*

Barlow sculp

T H E
Conjurer Unmasked;

BEING
A CLEAR AND FULL EXPLANATION
OF ALL THE
SURPRIZING PERFORMANCES

Exhibited as well in this
KINGDOM, as on the CONTINENT^s

By the most eminent and dexterous
PROFESSORS OF SLIGHT OF HAND,

TOGETHER WITH

The Tricks of the Divining Rod,—Automaton Chefs-
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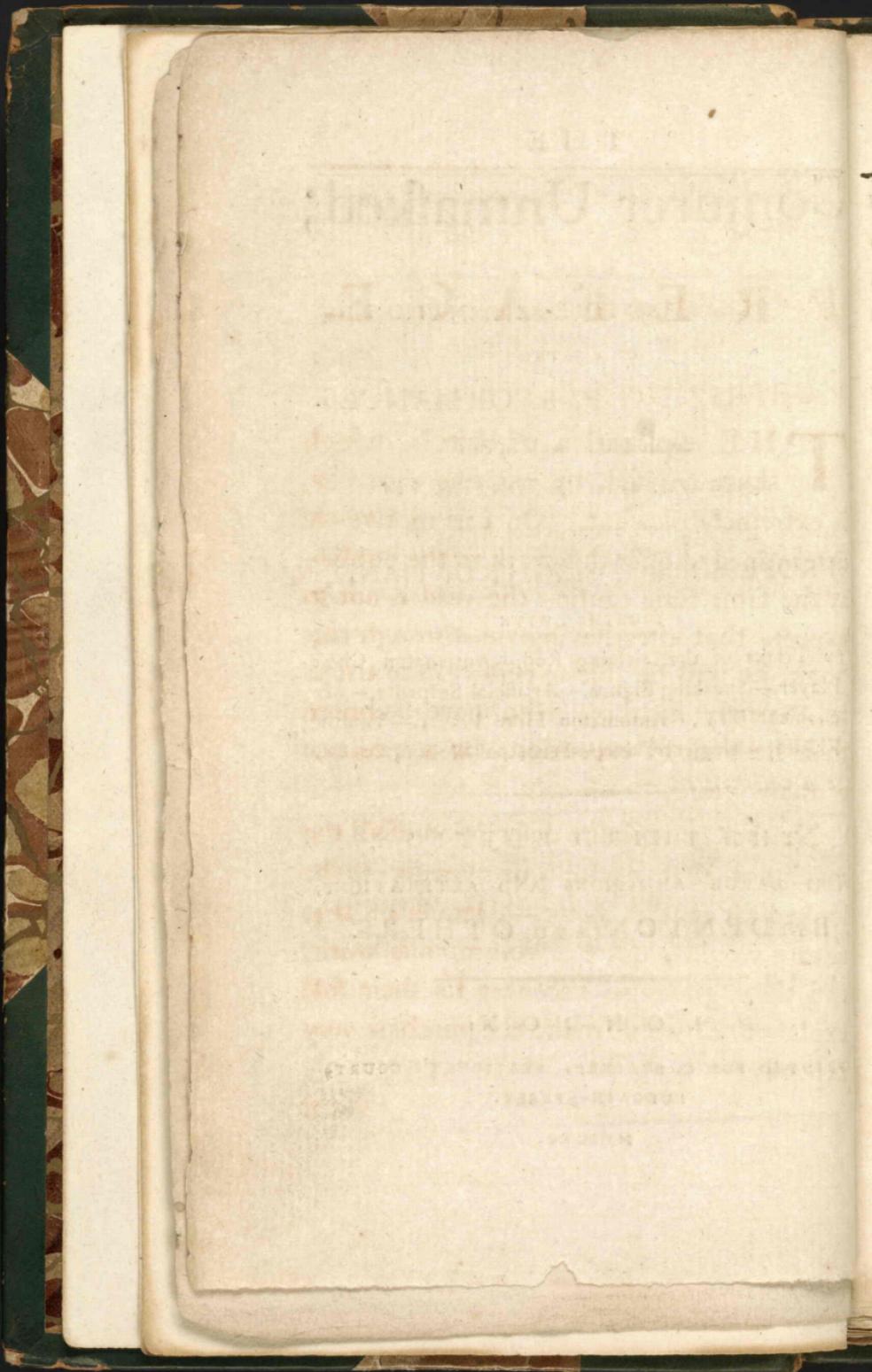
THE THIRD EDITION,
WITH LARGE ADDITIONS AND ALTERATIONS,
BY DENTON AND OTHERS.

L O N D O N :

PRINTED FOR C. STALKER, STATIONER'S COURT,
LUDGATE STREET.

M DCC XC.

1790



P R E F A C E.

TH E explanation of objects, which have amused, by exciting curiosity, is extremely pleasant. On this motive we determined to offer this work to the public; at the same time caution the reader not to expect, that after having run through this book, he will be able to perform the tricks as expertly as those who have acquired their neatness of execution, by a practice of many years.

Neither is a minute description of all the machines that excite our wonder to be looked for in this book.—Details of that nature would require a voluminous work, and the engravings, necessary for their full explanation, would make the purchase very expensive.

What we propose to ourselves is simply to satisfy the curiosity of our intelligent readers, by shewing to them the main springs that are used to amuse and deceive them.

It is more interesting than may appear at first sight to unveil those mysteries to a certain description of people.—When an unknown cause produces striking effects, the human mind, always inclined to the marvellous, attributes those effects to an imaginary cause, and an eloquent impostor frequently occasions weak and unenlightened minds to adopt pernicious prejudices.—We could cite many examples to prove our assertion, one is sufficient.—Sometime since an Italian received about fifty letters every week, consulting him seriously on things past, present, and to come!

This book appeared at Paris during the time of Mr. Pinetti's performance there, and hastened his departure from that city; and we pronounce, for a certainty, that

it will operate as a spring to the industry of performers in that art, by compelling them to some new inventions to deceive and amuse us.

This prediction we ventured in our first treatise printed in the year 1785, and now is really accomplished by the variety of new inventions and deceptions that have lately sprung up, many of which are here availed of; and, for the further amusement of our readers, annexed to the present; and, as an additional gratification, have made many improvements, and also rendered the explanation of the whole more accurate and easy than in the former edition, so that the amateurs of those ingenious and entertaining amusements may practise any of them with the greater facility.—And such as will not only divert, but improve even the philosophic mind, as their causes will be deduceable by physical, mathematical, and philosophical demonstrations.

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T H E

Conjurer Unmasked.

C H A P. I.

The Grand Sultan.

THIS piece of mechanism has been long known by the name of The Wise Little Turk; it is an Automaton figure of seventeen or eighteen inches in height, holding a little hammer in its hand, which strikes a bell.—First it is taken off the table it stands on, to shew it around to the company, to convince them that it is perfectly detached, and stands by itself—the Exhibitor then, having replaced it on the table, asks if he will compliment his

A master?

master ? the Little Turk, by turning his head, expresses no;—he then asks if he will pay his respects to the company ?—he bows his head to express—yes.—A pack of cards is then presented to the Spectators to draw out one by chance—without seeing the card, or approaching the Automaton figure, he is ordered to strike the number of strokes necessary to describe the card—the Little Turk instantly obeys;—he is then asked if the card drawn is a Heart, a Diamond, Club or Spade? and as the suits are mentioned he moves his head to give approbation or disapprobation, and an answer conformable to truth.—He then tells the number thrown on dice, and he tells before-hand the number which a second throw will produce.—One of the company having hid a little figure in a box divided into several compartments, he tells in which and at what number the little figure is to be found, and to give a humorous termination to this trick, when he is asked which of the company is the most
amorous,

amorous, he points out some old gentleman with spectacles, which occasions pleasantry.

E X P L A N A T I O N .

The table on which the Little Turk stands, is made with a double top, between which are fixed three cranks, similar to those used in the hanging of bells; and those are put in motion by the aid of three small wires passing through the feet of the table, under the stage, or behind a partition; the Little Turk is fixed on a pedestal, in the inside of which are three valves to correspond with the cranks in the table, —the person who acts as the confederate, draws those wires as he has occasion to give the different motions to the figure, at the moment they are required, in the same manner as a repeating watch is made to strike by pushing the button of the case.

N. B. Both the table and bottom of the pedestal is generally covered with green cloth, the better to conceal the machinery

from the spectators ;—then the performer takes in his hand a pack of cards, in which there is one a little longer than the rest, which he presents to the audience, in such a manner that they will naturally choose that card. He then interrogates the Little Turk by a question, which is so composed, that either the words, syllables, or vowels, communicate to the confederate the colour, and denomination of the card.—By a similar stratagem, knowledge is conveyed to the confederate of the first number thrown on dice, the Automaton can then very easily tell what number will come up on the second throw of the dice, because fresh dice are introduced, which are so loaded, that the center of gravity operates invariably.—As the person who has already thrown the dice may wish to throw again either accidentally, or thro' suspicion, and as the return of the same points might occasion the honesty of the dice to be suspected, all those inconveniences are removed, by getting rid of them as soon as possible.

The

The box where the little figure has been concealed ought to have a bottom of soft leather, by which means in handling beneath, you may by the touch discover the compartment where the little figure is, and the figure ought to be constructed of such dimensions as to press on the bottom of the box, when it is shut.

C H A P II.

The Handkerchief marked, cut, torn, and mended.

TWO of the company are requested to come forward on the stage, and a handkerchief is given to them, which they are to hold by the four corners, afterwards many other handkerchiefs are asked from the company, and as they are gathered they are put into the first one to make a bundle:—when a dozen have been

A 3 heaped,

heaped, the two persons who hold the bundle cause a third person to take one of them out by chance; and this third person is requested to examine the marks, &c. and to cut off a corner with a pair of scissors, other persons may also cut off pieces if they choose; after which the handkerchief is entirely torn to pieces.—All the shreds are to be collected, which after being sprinkled with some drug, are folded up and tied tight with a ribbon, to press them into a small compass; they are put under a glass, which is warm'd by rubbing with your hands—in a few minutes the handkerchief is taken from under the glass and unfolded—the company recognize the marks, and the astonished spectators cannot perceive any rent in the handkerchief.

E X P L A N A T I O N .

This operation, which produces so general a deception, is very simple.—One of the company is in confederacy, who having

ing

ing had two handkerchiefs exactly alike, gave one to the confederate, who is hidden behind the scene, and throws the other on the stage to be used in the trick. Care is taken to put this handkerchief on the top of the heap, although they are seemingly mixed at hazard; the person to whom you address yourself to take one by chance, naturally takes the uppermost, and if you perceive that another is taken, you request them to mix them well, under pretence of compleating the trick, and then, under pretence of settling them, you regain the position of the confederate handkerchief, and hand the bundle to some other of the company, whose countenance indicates less suspicion, who puts his hand to the bundle of handkerchiefs, and good-naturedly takes out the first.—When the handkerchief has been torn, and well folded, it is put under a glass on a table, which joins a partition. On the spot of the table where it is placed, there is a small trap which opens to let it fall into a drawer: the confederate hid behind

hind the scene, passes his hand into the table, to substitute the second in place of the first handkerchief, he then shuts the trap, which so neatly fits the space it has opened, as to appear one interrupted surface, and deceive the eye of the most acute and incredulous spectator.

C H A P. III.

The Artificial Bird, singing at the Desire of the Company.

THIS Bird perched on a bottle, sings, without any preliminary exercise, all the airs required, not excepting those which the most cunning musician can compose extempore.—He also sings equally correct changed to different bottles, and on different tables; and the breath from his bill blows out a candle and lights it speedily after.—To conclude, the bird performs whilst

whilst in your hand, without deriving any aid from the bottle.

E X P L A N A T I O N .

Behind the curtain which covers part of the partition are placed two small speaking trumpets, which the confederate employs to convey his voice to different parts, according to the position of the table and the bottle, on which the Bird is perched. The confederate has in his mouth the inner skin of an onion, by which he imitates the notes of a Bird in the same manner as the celebrated Rossignol follows the air given to the musicians, either by memory, or the notes furnished them.—If the air is too difficult for the confederate and the musicians to execute extempore—you acquaint the company that (to render the trick more astonishing) you will begin by some well known air, and then suddenly fall into the air given to be executed, as if to surprize the bird, and add to the difficulty of executing

cuting what is laid before it;—some of the musicians avail themselves of this moment to throw a rapid eye over the difficulty proposed, and take care not to begin until they are sufficiently studied in it; the bird has in its body a little double bellows, and between its legs a little moving peg, which puts the bellows in motion—by the levers which are under the cloth, when the confederate draws the wire which is hidden in the feet of the table—by the same means the bellows is moved to blow out the candle; and it proves to the spectators that the notes are really formed in the throat of the bird, because the air comes thro' its bill.—When you take the bird in your own hand you put the bellows in motion with your thumb, and the wind in the same manner, extinguishing the candle, persuades the company that the bird sings without the aid of any machinery hidden in the table;—the candle being only a moment extinguished, and the wick still warm, is lighted instantly by touching the bill of the

the bird, which for that purpose has been furnished with a little Phosphorus that operates as a match.

C H A P. IV.

The Dancing Card.

ONE of the company is desired to draw a Card, which is afterwards mixed with the pack, and is commanded to appear on the wall; it accordingly obeys, advancing as it is ordered, and describes an inclined line from the right to the left; it disappears at the top of the room, and appears an instant afterwards, moving in a horizontal direction.

E X P L A N A T I O N.

This trick is so simple that it hardly merits an explanation: It first consists in making a person draw a forced card, which
you

you know by the touch, because it is larger than the rest. After having shuffled them, you withdraw it from the pack, to shew the company that it is not there, and when you order it to appear on the wall, the confederate dexterously draws a thread, at the end of which is fastened a similar card, which comes from behind a glass, and this card is fastened by very minute loops of silk to another thread fully stretched, along which the card runs, and performs its rout—*si licet parva componere magnis*, it resembles the rope across the Seine, by which the ferry-boat of the Invalids is conducted.

C H A P. V.

The Card nailed to the Wall by a Pistol Shot.

A Card is desired to be drawn, and the person who chose it requested to tear off a corner, and to keep it, that he may

may know the card;—the card so torn, is then burnt to cinders, and a pistol is charged with gun-powder, with which the ashes of the card are mixed. Instead of a ball a nail is put into the barrel, which is marked by some of the company.—The pack of cards is then thrown up in the air,—the pistol is fired, and the burnt card appears nailed against the wall;—the bit of the corner which was torn off, is then compared with it, and is found exactly to fit,—and the nail which fastens it to the wall is recognized by the persons who marked it.

E X P L A N A T I O N.

When the Performer sees that a corner has been torn from the chosen card, he retires, and makes a similar tear on a like card.—Returning on the Theatre, he asks for the chosen card, and passes it to the bottom of the pack, and substitutes expertly in the place, the card which he has prepared, which he burns instead of the first.

B

When

When the pistol is loaded, he takes it in his hand under the pretence of shewing how to direct it, &c. He avails himself of this opportunity to open a hole in the barrel near the touch hole, thro' which the nail falls by its own weight into his hand; having shut this passage carefully, he requests some one of the company to put more powder and wadding in the pistol, whilst that in doing he carries the nail and card to his confederate, who quickly nails the card to a piece of square wood which stops, hermetically, a space left open in the partition, and in the tapestry, but which is not perceived as it is covered by a piece of tapestry, similar to the rest of the room, and by which means when the nailed card is put in, it is not perceived; the piece of tapestry which covers it, is nicely fastened on the one end with two pins, and to the other a thread is fastened, one end of which the confederate holds in his hand.—As soon as the report of the pistol is heard, the confederate draws his thread, by which means the piece of tapestry

pestry falls behinds a glass—the card appears the same that was marked—and with the nail that was put in the pistol. It is not astonishing that this trick being so difficult by its complexity to be guessed at, should have received such universal applause.

N. B. After the pistol has been charged with powder, a tin tube may be slipped upon the charge, into which the nail being rammed along with the wadding, by inclining it a little in presenting to one of the spectators to fire, the tube and contents will fall into the performers hand to convey to his confederate—If any one suspects that the nail has been stolen out of the pistol you persist in the contrary, and beg their company at the next exhibition to be further convinced, you then are to shew a pistol which you take to pieces to shew that all is fair without any preparation,—you charge it with a nail, which is marked by some person in confederacy with you, or you shew it to many people on purpose to avoid its being marked.—In this case the

card is nailed with another nail, but to persuade the company that it is the same, you boldly assert that the nail was marked by several persons, and you request the spectators to view it, and be convinced.

C H A P. VI.

*The Card burned, and afterwards found in
a Watch.*

ONE of the company draws a chance card, and you ask for three Watches from the spectators, which you fold up in separate pieces of paper in the form of dice boxes, which are laid on a table, and covered with a napkin—the card chosen is burned and the cinders put into a box—shortly after the box is opened and the ashes are not there.—The three watches are put on a plate, and some one of the company chuses one, the same person opens the watch and finds under the glass a piece of the burned card :

card: and in the watch case, under the watch, is found a miniature card resembling the one burnt.

E X P L A N A T I O N .

The card chosen is known by the arrangement we have explained in the first chapter.

The watches are placed, well covered with paper, on the little trap which we have spoken of in the second chapter: when you have made known to the confederate the card which is chosen, he stretches his arm into the table to take one of the watches, and deposit there what is requisite; the watches must be covered with a napkin, which is supported by bottles, or somewhat else, otherwise the hand of the confederate would be seen, or the napkin would be perceived to move.—As for the means employed to cause the ashes of the burned card to disappear in the box, it consists in putting into the cover a piece of wood or paper

B 3

which

which exactly fits it, and falls down to the bottom when the box is shut, this piece of wood or paper being of the same colour as the inside of the box, operates as a double bottom, and hides the ashes from the view of the deceived spectator, who at that minute is tempted to believe that the ashes are gone out to be combined afresh, and to produce the miniature card which is found in the watch.

C H A P. VII.

A Card made to jump into an Egg.

THIS wonderful feat is done by having two sticks made both of one bigness, and both of a likeness, so that no person can know one from the other; one of these sticks must be made so artificially as to conceal a card in the middle, as thus: you must have one of your sticks turned hollow quite through; and then an artificial spring

beholders; then conceal that stick, and produce the true one on the table.

C H A P. VIII.

How to tell what Card any Man thinketh on, and how to convey the same into a Kernel of a nut or a cherry stone, and the same again into one's pocket; to make him draw the same, or any card you please, and all under one device.

TAKE a nut, or a cherry stone, and burn a hole through the side of the top of the shell, and also through the kernel if you will, with a hot bodkin, or bore it with an awl, and with a needle pull out the kernel, so as the same may be as wide as the hole of the shell; then write the name of the card on a piece of fine paper, and roll it up hard, put it into the nut or cherry stone, stop the hole up with wax,

wax, and rub the same over with a little dust, and it will not be perceived.

E X P L A N A T I O N .

Let some stander-by draw a card, saying, *it is no matter what card you draw*: and if your hands so serve you to use the card well, you shall proffer him, and he shall receive the same card that you have rolled up in the nut; then take another nut, and fill it up with ink, stop the hole up with wax, then give that nut which is filled with ink to some boy to crack, and when he finds the ink come out of his mouth, it will cause great laughter. By this feat on the cards, many wonders may be done.

CHAP.

C H A P IX.

A Piece of Money shut up in a Box, which comes out of itself without being touched by any one.

A Person is required to hold a box, into which is put before his eyes a piece of money or a ring:—you stand at a distance and bid him shake the box gently, the piece is heard to rattle within side—he is desired again to shake it, and then it is not heard to rattle.—The third time it is again heard, but the fourth time it is gone, and is found in the shoe of one of the company.

E X P L A N A T I O N.

The box must be made on purpose, we will not describe it here because all the performers of tricks sell them: that one which has caused such wonder at Paris and London, only differ from the others as being

being somewhat better made, and belonging to a person who embellishes his tricks with all possible advantages.—This box is made in such a manner that in shaking it gently up and down the piece within is heard: on the contrary shaking it hard horizontally, a little spring which falls on the piece, prevents it from being heard, which makes you imagine it is not within.—He who performs the trick then touches the box, under pretence of shewing how to shake it, and altho' it is locked, he easily gets out the piece, by means of a secret opening, availing himself of that minute to put in a false piece, and to leave the box with the same person: and he causes you to believe either that the piece is or is not within, according to the manner the box is shaken; at length the original piece is found in the shoe of one of the company, either by means of the person being in confederacy, and furnishing him with a similar piece, or by sending some expert person to slip it on the floor—in this last case, it is found on the ground, and
you

you persuade the person that it fell from his foot as he took it out of his shoe.

C H A P. X.

The Writing hid in a Snuff Box, from whence it is taken without being touched, and it is found in a Candle.

A Box is demanded of one of the company, out of which you shake the snuff, you then ask one of the spectators to write any sentence on a small piece of paper, and this paper he puts in the Box—this writing is then taken out by another person who burns it to ashes, and it is at length found in a candle chosen by one of the company.

E X P L A N A T I O N.

The box which you borrow, must neither be gold or silver, nor with a hinge, but

round

round paper box with a dark inside, and with a cover which you can take off.— Whilst the spectator writes the sentence required of him, you carry off the cover, as if by accident into the adjoining chamber, to which you instantly make a thin circle of lead similar to what we have spoken of in the 6th chapter, this is put into the cover, with a little bit of paper folded from the four corners hid underneath, you return on the stage, and you cause the paper, on which the sentence has been written, to be folded in like manner to the paper hid under the lid, the spectator is then requested to put his writing into the snuff box, and it is shut—the double bottom, which is in the lid, falling into the box, hides the written paper, and the other only appears—taking this paper to burn it, the spectator is deceived, and leaves, unknowingly, the paper he has written on in the box. He is then desired to put this substituted piece of paper into a dice box, and to present it to the flame to be burned, first holding it at a

C

small

small distance to heat it gently, this last circumstance is only a pretence to gain time, after this is over, the performer goes into his closet with the box which holds the writing, he there has a candle prepared, one end of which, like the church tapers, has been pierced by an iron of a conic form; into this space he puts the writing, and fills up the external space with wax, which is heated, that it may incorporate nicely with the candle—this candle is mixed with others, and the spectator is obliged to give the preference to it by employing the artifice which we have spoken of in the second chapter.

N. B. The same means are nearly used to leave the writing to be found in an orange, a guinea in a casket, &c. &c.—To render this trick the more surprising, you must do it double, that is to employ two snuff boxes, and two writings, one of which is furnished by a person in confederacy with you.—This person having beforehand supplied you with five or six similar writings,

writings, you may prepare as many candles, and then leave the spectators at liberty to take which they chuse. This renders the trick almost miraculous to the clearest sighted people—If you are accused of confederacy, you contradict it, by saying, that “you have performed the trick with the snuff box of a person you have no sort of acquaintance with, and you can do the same with any other person’s box.”—If you are suspected to have made a false bottom when you carry off the lid, you say that “you have already performed the trick without carrying off the lid.” By such like evasions you confuse and elude the most penetrating people.

C H A P. XI.

Three Pen-knives are put into a Silver Goblet, at the Desire of the Spectator one of the three leaps out on the Floor.

YOU ask three pen-knives from different persons of your company, and put
 C 2 them

them into a goblet on the table—you desire the spectators to remark that the goblet has no communication with the table, and that there is no preparation within the goblet; nevertheless at the moment required, the pen-knife, which the spectator has chosen, leaps out on the ground, and the others remain steady within.

E X P L A N A T I O N .

When you have placed the goblet on the table, you slip to the bottom a half crown piece, fastened by the middle to a thread of black silk, which goes up perpendicularly to the ceiling into the hands of the Confederate: he then draws the thread at the moment required, and causes the pen-knife in the middle to leap out, which is the only one that rests on the half-crown, the others rest on the bottom of the goblet.

N. B. If a spectator maliciously, or by chance, desires that one of the other pen-knives should leap out, you pretend not to have

have heard which of the two he has spoken of, you touch the two pen-knives, asking, which of them he means, pointing with your finger, if the first or the second, and you avail yourself of that moment to place the knife chosen on the half crown, and the trick succeeds as usual. — You have seldom a necessity for this resource, as experience shews that the one in the middle is generally chosen by the company.

This trick may be performed without a Confederate, by means of a small steel spring, bent in a flat form until both ends meet, about one inch broad, and two and a quarter long; one end being compressed, and a small piece of loaf sugar put betwixt, will prevent it from unbending, then place it in the goblet, which must contain a few drops of water, and take care to place the chosen knife upon the spring, then touch the sugar with a wet finger, and in a little time it will leave the spring to extend itself, and make the pen-knife jump out.

C H A P. XII.

The Dancing Egg.

THREE eggs are brought on the stage, two of them are put on a table, and the third in a hat; a little cane is borrowed from one of the company, and it is shewn about to convince the spectators that there is no preparation.—It is then placed across the hat, the hat falls to the ground, and the egg sticks to it as if glued, the orchestra then plays a piece of music, and the egg, as if it was sensible of the harmony, twists about the cane from one end to the other, and continues its motion till the music stops.

E X P L A N A T I O N.

The egg is fastened to a thread by a pin, which is put in lengthways, and the hole, which has been made to introduce the pin, is stopped with white wax. The other end of

the

the thread is fastened to the breast of the person, who performs the trick, with a pin bent like a hook, the cane passing under the thread near to the egg serves for it to rest on;—when the music begins, the performer pushes the cane from right to left, or from left to right, it then appears as if the egg ran along the cane, which it does, not, being fastened to its thread, its center of gravity remains always at the same distance from the hook that holds it, it is the cane, which sliding along, presents its different points to the surface of the egg.

N. B. To produce the illusion, and persuade the company that it is the egg which carries itself towards the different points of the cane, the performer turns a little on his heel, by this means the egg receives a motion which deceives the spectators, it remaining always at the same distance from the point to which it is fastened.

CHAP.

C H A P. XIII.

The Resurrection of the dead Bird.

ONE of the three eggs which has danced on the cane, have been broken to shew all was fair, you take the two others which were left on the table, one of which is chosen by the company, and on breaking it a Canary bird alive is found within : a Lady of the company is requested to take it in her hands, and shortly after the bird dies—you take it again for a moment to put it under a glass on the table—in a few minutes you take up the glass, and the bird flies off.

E X P L A N A T I O N.

You must empty two eggs, and take half of the shell of each, and adjust the two halves together by the assistance of a small bit of paper, which you glue in the form of a zone or equator :—Being so arranged, they represent

represent an egg, and are capable to hold a Canary bird, provided you make a small pin hole to supply the bird with air.—When you deliver the bird to the person who is to hold it, you kill it by the pressure of your thumb and fore finger—you afterwards put it under a glass which covers such a trap as we have spoken of in the second Chapter, and your Confederate substitutes a living bird in the place of the dead one.

N. B. Not to fail in your trick, when you present the two eggs, for one to be chosen, if you have not a living bird in each, you must put the egg which contains the bird next to the lady who is to chuse.—She naturally chuses the nearest to her, because having no idea of the trick to be performed, there is no apparent reason to take the one further off;—at any rate, if the wrong one is taken, you do not fail in the trick; for you break the egg, and say, “you see that this egg is fair and fresh Madam; so you would have found the other if you had chosen it—Now do you chuse to find in
“ it

“ it a mouse or a Canary bird ? ” she naturally declares for the bird, nevertheless, if she asks for the mouse, there are means to escape.—You ask the same questions of several ladies, and gather the majority of votes, which, in all probability, will be in favour of the bird ; but if after all the voices are for the mouse, what can you then do, having only a Bird to produce ?—Courteous reader, after all we have already said, if you fear to fail in your trick, and that your genius does not supply you a better artifice, make use of this one ; pretend not to pay attention to those who wish for the little quadrupede, address yourself to one who wishes for the bird, and ask them if they chuse it dead or alive ? and be in readiness to kill it in case of necessity.

C H A P. XIV.

To cut Glass, or even a Piece of Crystal, let it be ever so thick, without the Help of a Diamond, in the same Shape as the Mark of the Drawing made on it with Ink.

THIS remarkable operation unites with amusement. For being in the country, or in a place where there is no glazier nor glassman to be had, the following means will answer the purpose without them.

E X P L A N A T I O N.

Take a bit of a walnut-tree, the thickness of a candle, cut one of its ends to a point; put that end in the fire, and let it burn till it is quite red. While the stick is burning, draw on the glass or crystal, with ink, the design or outline of the form in which you mean to cut it out. Then take a file or a bit of glass and scratch a
little

little the place where you mean to begin your section; then take the wood red hot from the fire, and lay the point of it about the thickness of a guinea, from the marked place; taking care to blow always on that point in order to keep it red; follow the drawing traced on the glass, leaving as before, about the thickness of a guinea, every time that you present your piece of wood, which you must take care to blow often.

After having followed exactly the outlines of your drawing to separate the two pieces thus cut, you need only pull them up and down, and they will divide.

C H A P. XV.

*To make a Calve's Head bellow as if alive,
when dressed and served up.*

THIS is effected by a simple and innocent stratagem.

E X P L A-

EXPLANATION.

Take a frog that is alive, and put it at the farther end of the calve's head, under the tongue, which you will let fall over it; taking care not to put the frog there till the calve's head is going to be served up.

The heat of the tongue will make the frog croak; which sound, coming from the hollow part of the head, will imitate the bellowing of a calf as if it were alive.

C H A P. XVI.

To extinguish two Wax Candles, and light two others, distant about three Feet, by the firing of a Pistol, loaded with Powder, as usual.

NOTHING is more simple than the operation which produces this supernatural effect.

D

Get

E X P L A N A T I O N .

Get some whole wax candles, and let them be recently snuffed. Put in the middle of the wick of the candles to be lighted, about the size of a millet grain of phosphorus; to do which, divide the wick with a pin; then place yourself at five or six feet distance from them, and fire your pistol at the lighted candles, which will be extinguished by the powder, whilst it will make the phosphorus take fire, which will light the other two.

You may light a wax candle, on the wick of which phosphorus has been applied, according to the foregoing method, by means of a sword well heated in a near room. You need only present the point of the sword to the wick of the candle, commanding it to light.

N. B. Observe that you are not to touch the phosphorus with your fingers; but take the point of a knife, or a pair of small pincers. You must take care also, that the wick

wick of the candle is cold before you put the phosphorus to it; without this precaution it would take fire immediately.

C H A P. XVII.

TO change the colour of a rose, whether it is on its stalk or not.

E X P L A N A T I O N .

Burn some sulphur under it; which will make it turn white, and it will not regain its primitive colour in less than two hours.

C H A P. XVIII.

TO make a colour that will appear or disappear by means of the air.

EXPLANATION.

Take a smelling-bottle; put in it some alkali volatile, in which you have dissolved some copper filings: this will produce a blue colour. Present then the smelling-bottle to one of the company, desiring him to stop it; and, to their great astonishment, the colour will disappear as soon as the smelling-bottle is stopped: you will make it easily re-appear by taking off the cork, which will be not less surprising.

 C H A P. XIX.

To compose a red Colour imitating the Colour of Blood.

THIS liquor or fluid furnishes the entertaining means of making known to a company the person who is most addicted to love.

Cut

Cut in very small chips a piece of Fernambuco wood; put them in a large glass full of good white wine vinegar; add to it a bit of common white allum, of the size of a small nut; make the whole simmer over a gentle fire for half an hour, in a new earthen pipkin; take care to stir this composition, to prevent it from boiling over while on the fire. When it is taken from the fire, let it cool, and strain it through a piece of linen; then pour it into a bottle of clear glass.

All these preparations must be made before-hand; as these experiments are only agreeable when performed with quickness. Provide yourself with a tube of clear glass, from fifteen to eighteen inches long, the thickness of a wax candle, and take care to have it stopt at one end.

When presented before a company, in order to perform this experiment, carry the tube in your pocket, and holding the phial in your hand, say, "Ladies and gentlemen, here is a phial containing
D 3 "liquid

“ liquid blood ; I hope to convince you
“ by it the person most addicted to love in
“ the company.

“ Please to observe that I pour a little of
“ this liquor in this tube. As you might
“ imagine that this liquor, like that put in
“ thermometers, may rise by dilating itself
“ when exposed to heat, and consequently
“ the pressure of the hand will suffice to
“ produce this effect, and it will condense
“ by rarifying when exposed to cold ; I as-
“ sure you, ladies and gentlemen, it is not
“ the case : this liquor differs from that
“ put in thermometers ; and you may easily
“ be convinced of it before I make the ex-
“ periment. You may put it near the
“ heat of a candle, and even that of a fire,
“ without any degree of heat making it
“ rise in the least ; but by a peculiar and
“ sympathetic virtue you will see it boil,
“ when the tube is touched by a person of
“ an amorous disposition.”

E X P L A N A T I O N .

Take out of your pocket a little pot-ash, keep it in the interior part of the hand that holds the tube at the top, as if you wanted to keep it shut, and as soon as the person you wish to make pass for the most amorous in the company takes the lowest part of the tube in his hand, you are to let fall dexterously a little of the potash in it, and you will see the liquor boil and rise to the top of the tube, to the great astonishment of the spectators.

C H A P. XX.

The Golden Head, which leaping and dancing in a Glass, answers different Questions.

TO shew that this Head is not connected with any other object, you put some crown pieces at the bottom of a glass, and a covering over all; this however

however does not prevent the head, which you affirm to be of solid gold, from dancing in the glass to answer by numbers, and to yes or no, questions proposed to it; at the same time a bunch of rings, in another glass, at a little distance, as if by sympathy, performs the same motions.

E X P L A N A T I O N .

In the room of the first Head, which is shewn round to the company, you take a second from off the table, where the experiment is to be performed—This second Head is attached to a silken thread which passes through the partition into the hands of the confederate; this thread, instead of leaning on the brim of the glass, where the cover would prevent it from sliding, passes thro' a small well polished nick to give it easy play, and prevent it from breaking.

N. B. The crown pieces which you put in the bottom of the glass, under pretext of preventing any communication between the
golden

golden head and the machinery, which may be suspected to be hid in the table, are not useless, for they serve as ballast, and prevent the glass from yielding to the motion occasioned by drawing the thread.

C H A P. XXI.

Rings strung on a double Ribbon.

YOU pass a double ribbon through a number of rings furnished you by the company, and you give the ends to be held by two of the spectators immediately after, without damaging the ribbon, or passing the rings off the ends, you disengage the rings from the ribbon, and restore them to their owners.

E X P L A N A T I O N.

A Century ago *Ozanam* printed, in his mathematical recreations, the manner of performing

performing this trick. It is known to all the jugglers, by the name of my grandmother's necklace, because instead of stringing rings they made use of beads; you must proceed as follows, to perform the trick well; begin by doubling a ribbon in such a manner that both ends meet, do the same by another, afterwards tie the two ribbons together in the middle with a thread of the same colour: this being prepared beforehand—you are to give one of the spectators the two ends of the first ribbon, and to another the two ends of the second, by this means their eyes are deceived, as each thinks he holds the extremities of the different ribbons, but be careful they do not pull hard, so as to break the thread; for in that case the ribbons would separate, and the rings fall to the ground;—to avoid this accident, and terminate your trick successfully, you must beg the holders of the ribbons to approach each other, asking each of them for the ends they hold, which you twist together, as if to form a knot, and then

then you exchange with them the end they before held, by this manœuvre each holds the ends of separate ribbons, then the thread is easily broken, the rings taken off, and the spectators astonished to see them come off.

C H A P. XXII.

The Cards named by a Person blindfold.

A Spectator in the boxes draws the cards out of the pack, a Woman on the stage blindfolded, to prevent her seeing any signals, names all the cards as they are drawn, without mistaking their number, suit, or description.

E X P L A N A T I O N.

The cards are arranged in such a manner, that the performer understands their sequence, when he has had a card drawn, he
apparently

apparently mixes them and as soon as they have been cut, he makes the pass to place underneath the card that was immediately over the one chosen.—Which, as soon as he sees, he communicates to the woman. At the moment that he promises to take all precautions that she should know nothing,—he says he will not speak a word whilst she names the cards, and he desires the person who holds the cards to shew them to the company, without calling the cards, by saying this is such a card or such another—it is by the last phrase, that he craftily names the uppermost card, the woman hears him, and names the cards in their sequence, having previously known the arrangement of the pack—Thus for example, if you convey the hint that the fifteenth is uppermost, she names the 16th, 17th, &c.—As soon as she has gone through the whole pack of cards, the husband, who during the time has been silent, now speaks, and requests the person who chose them to ask, which are the others that remain to be named?

named? the woman is apprised by the question that there are no more, and answers accordingly.

N. B. As soon as the spectator has chosen the pack of cards, you must desire him to mix them well together, without this precaution, he would perceive that they are demanded in the order they lie. And would conclude with truth that this arrangement served to communicate intelligence.

C H A P. XXIII.

The Sympathetick Lamp.

THIS lamp is placed on a table, you get to a distance to blow thro' a tube, without directing the air towards the spot where it is, yet nevertheless the lamp is extinguished, as if you blew it out.

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E X P L A N A T I O N.

This lamp has in its base a small bellows, the wind of which is, by a little tube, conveyed to the flame—The confederate, by moving the levers hid in the table, puts in motion the bellows to extinguish the lamp, at the moment it is required.

N. B. You may do this trick without a bellows.—In the base of the lamp it would succeed by having a spring to draw the wick into the socket, when the lever is moved in the table, by which means you may make it appear or disappear at pleasure.

 C H A P. XXIV.
The Little Sportsman.

THIS figure is of the size of the Little Turk, [of which we have spoken in the first chapter; it holds a bow, with an arrow, which it shoots at the instant required,

quired, and hits a paper placed opposite, on the top of a pedestal.—This paper is divided into several squares, which are numbered, and the arrow always hits and flies in the number chosen by one of the company.

E X P L A N A T I O N.

The action of the spring which impels it, is restrained by a little pin, which the confederate lets go at pleasure, by moving the levers hid in the table;—when you push this pin the arrow flies with rapidity to the paper—like the operation of the lock of a musket when you pull the trigger.—In placing the Automaton on the table, you must place it in such a manner that the arrow be directed towards one of the circles numbered on the paper.

To cause that number to be chosen against which the arrow is pointed, you must present to the spectator cards numbered and dextrously make him chuse the number required, which depends on peculiar ad-

dress, that is scarcely possible to be described by words;—yet it may in general be said to come under one of the following heads;—First, to put at the bottom the card to be chosen;—Secondly, to keep it always in the same place, altho' you mix, or pretend to mix the cards;—Thirdly, to pass the card to the middle, when you present the pack;—Fourthly, to pass many cards before the hands of the spectator, to persuade him that he may chuse indifferently;—Fifthly, to pass these same cards with such rapidity, that he cannot take any but the card intended;—Sixthly, to slip complaisantly into his hand the card you wish to be taken, at the very moment when the better to deceive him, you pray him most graciously to take which card he chuses.

C H A P. XXV.

A Ball is thrown into a house with three doors, and comes out of any one that the company chuses.

E X P L A N A T I O N.

An inclined tube into which the ball rolls descending, has, towards the bottom, two apertures at different heights, which are shut by machines like valves, which the confederate can open by the play of his levers;—these two apertures form the mouth and extremity of two other tubes, which terminate one to the right and the other to the left, of two different doors, the first tube answers to the middle door.

If the ball is required to come out of the right hand door, the confederate pushes a lever to open the first valve, which the ball must meet in its descent, this being open, the ball cannot pass without falling, by its own gravity, into the second tube, which conveys it into the door at the right hand.

If the left hand door be required, the confederate, with the assistance of another lever, opens the second valve, and the ball passing over the first, which is shut, falls necessarily into the third tube, which conducts it to the door required;—finally, if it be required that the ball should pass thro' the middle door,—the confederate has nothing to do, because the ball goes then directly, always following the first tube, without the possibility of falling into either of the others.

C H A P. XXVI.

THEOPHRASTUS PARACELUSUS.

A Pigeon killed by the Stab of a Sword given to its Shadow or Image.

THE name of Theophrastus Paracelsus, is given to this trick, because it is said that a man of that name killed his brother

brother by giving a stab with a dagger to his portrait—This anecdote, which doubtless has not been reported by cotemporary historians, nor confirmed by ocular witnesses, must be regarded certainly as apocryphal;—however, be this as it may, the trick in question, consists in tying the neck of a pigeon to a double ribbon well extended and supported by two pillars, and beheading the bird without touching it—at the moment you pierce with a sword a bird painted on paper.

E X P L A N A T I O N .

The two ribbons to which the pigeon is tied, hide a small steel blade, extremely sharp, and bent in the form of a sickle, this blade is tied to a small filken cord, which passing between the two ribbons, and into one of the columns, to which the pigeon is tied, is communicated to the hand of the confederate.—The neck of the pigeon must be controuled by a kind of
filken,

filken ring, to keep it steady—he who performs the trick, when he prepares to stab the painted bird, gives a stamp as a signal, the confederate then draws his cord, and the circular blade is brought to act on the neck of the pigeon, which instantly cuts off his head.

C H A P. XXVII.

THE magical nosegay, which shoots forth flowers and fruit at command.

E X P L A N A T I O N.

The branches of this nosegay may be made either of rolled paper, of tin, or any other substance, so as they be hollow from one end to the other, that the air which enters at the bottom, may extend itself to the top; to these branches are to be adjusted twigs, made of brass wire, and the whole is

to

to be decorated with leaves made of parchment, and strongly imitate those of nature.

The end of each of the branches is to dilate, so that they may contain small pieces of gummed silk, or very fine gold beaters skin, which are to take the figure of the flowers and fruit required when they are expanded by the air drove thro' the branches; to which they are to be fastened by a silk thread: previous to the performing this trick, you must with a little stick, made for that purpose, put each of the fruit within the end of the branch, together with the flowers; so that no part of them may appear: and the better to conceal them, the greatest number of leaves may be at the end of the branches—you must then fix the nosegay in the neck of a kind of bottle, which contains a double bellows, and is put in motion by the levers concealed in the table, and expands the flowers and fruit like ærostatick balloons, at the time you require, and by having a small valve in the principal stalk to open upwards,

wards, you may take it out of the bottle to shew the spectators.

N. B. This trick has been called Palin-genesia, a word derived from the Greek, which means a regeneration, because it consists in creating new objects for the sight of the spectators.

* * * There are many other ways of performing this trick, but we think it sufficient to give the most simple, the surest, and the most effective.

C H A P. XXVIII.

A Ring put into a Pistol, which is after found in the Bill of a Dove in a Box, which had been before examined and sealed.

ONE of the company is requested to put his ring into a pistol, which is charged by another of the spectators;—an empty box is shewn to the company, and a third person is desired to shut it, who ties it

it with a ribbon and seals it.—This box is placed on a table in sight of the company, nevertheless, after the pistol is fired, and the box opened, the dove is there found with the very ring in his bill which had really been put into the pistol.

E X P L A N A T I O N.

When the pistol is taken under pretence of shewing how it is to be managed, that moment the performer avails himself of, to smuggle out the ring, in the manner we have described in the fifth chapter;—it is then conveyed to the confederate, who puts it in the bill of a tame dove, and by stretching his arm into the interior part of the table, as we have described in the second chapter, he conducts the bird into the box, the bottom of which has a secret opening: the ribbon which has been sealed and surrounds the box does not prevent it from opening, because only part of the bottom opens, and care is taken not to give the ribbon

bon a second turn round the box, which by crossing the first might impede the introduction of the dove.

We shall not here describe the construction of such a box, first, because it would require many words to explain the simple effects of a groove, and, secondly, because there is no cabinet maker of any ingenuity who does not, of his own, or of the invention of others, know many things of this kind.

In order to make this trick appear more surprising to those who may suspect the smuggling of the ring, you may do it two ways;—that is to say, when you have employed the artifice we have pointed out,—you may cause a second pistol to be charged by one of the company, which you first take to pieces, to shew that there is no means of smuggling the ring out of the barrel—in this second pistol, you put a ring furnished you by one of the company who is in confederacy, and has already supplied your confederate with a similar one to put in the dove's bill in case of need.

C H A P. XXIX.

THE Chest which opens at command.

E X P L A N A T I O N.

There is a little figure of Mahomet within this chest, in the body of which is a spring, made of brass wire, twisted in a spiral form.—By this means the little figure, tho' higher than the chest, can, by the accommodation of the spring, be contained within when it is shut, as the spring in the body closes and shortens.—The chest is placed on the levers concealed on the table as described in the first chapter, which communicate their motions by the assistance of the confederate to the bolt of the lock, as soon as the staple is disengaged, the spring in the body of the figure, finding no resistance but the weight of the lid, forces it open.

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C H A P.

C H A P. XXX.

The Watch beat to Pieces in a Mortar.

A Watch is borrowed from one of the company, which being put into a mortar, shortly after another person is requested to beat it to pieces with a pestle,—the guts are then shewn to the company entirely bruised; in a few minutes the watch is restored entire to its owner, who acknowledges it to be his property.

E X P L A N A T I O N.

After what we have described in this book it is easy to devise, that the mortar must be placed near the trap of which we have spoken in the second chapter, and that it must be covered with a napkin, to afford an opportunity to the confederate of substituting another watch unobserved by the company.

In order to succeed in the illusion of this trick, you must take care to provide yourself with a second watch resembling somewhat the first in its size, case, &c. which will not be very difficult, as you may either be furnished with a watch by a person with whom the matter is preconcerted, or by addressing yourself to some one whose watch you have before observed, and procured yourself one like to it.—After having replaced all the pieces in the mortar, you must cover them a second time with a napkin, and whilst you amuse the company with some trick or story, you afford time to your confederate to take the bruised pieces, and replace the first watch in the mortar.

C H A P. XXXI.

The Magical Tea Caddies.

TWO cards being drawn by different persons are put into separate tea caddies and locked up.—The performer

F 2

changes

changes the cards without touching them, or any confederacy.

EXPLANATION.

The caddies are made with a copper flap, which has a hinge at the bottom, and opens against the front, where it catches under the bolt of the lock, so as when the lid is shut and locked, the flap will fall down upon the bottom; the performer places two cards that he intends to be chosen (as described in the twenty-fourth chapter) between the flap and the front, which, being lined with green cloth, may be handled without any suspicion; he then desires the first person to put his card into one of the caddies, taking care it be that which contains the contrary card from the one that he chose, and the second into the other; he then desires they will lock them up, which unlocks the flaps, covers their cards, and when opened, presents the contrary ones to view.

C H A P. XXXII.

The Wonderful Well.

FOUR different coloured seeds or small comfits are given to one of the audience to mix together, and throw down the well, he then is desired to let down the bucket, and name the colour he would have brought up first, and so on 'till all the colours are *separated*.

E X P L A N A T I O N.

The well is made to take off in the middle, in the lower part of which are four cells to contain the different seeds, which must be filled before the trick is performed, and closed by four valves similar to the keys of a German flute;—towards the bottom the well is made narrower so as just to fit the bucket, which being let down the performer demands what colour the company chooses to be drawn up first, and by touching the lever the seed required will fall into the bucket.

C H A P. XXXIII.

The Conjuror's Castle.

TWO cards being chosen by the company, are shuffled with the rest, the pack is put down the chimney and comes out of the door, and the chosen cards appear in the chamber windows.

E X P L A N A T I O N.

This trick consists in making the company draw two forced cards, the same as those you have placed behind the windows of the castle, (which being a little longer than the rest, can be easily smuggled out of the pack,) you then desire any one to shuffle the cards, and let the pack fall down the chimney, which, falling upon a lever, opens the windows, and discovers the chosen cards, and by its own weight comes out at the door.

C H A P. XXXIV.

The Multiplied Pieces.

THE performer lays a dozen of round tin pieces, the size of a half crown, upon the table, he then desires one of the company to take them in his hand, and hold them fast, and he demands how many he would wish to have from twelve to twenty, and causes him to count down the number required.

E X P L A N A T I O N.

This trick consists in palming of eight pieces in the right hand, holding it strait and using it in such a manner, as though there was nothing in it; after the performer has desired the person to take the twelve pieces in his hand, he orders him to count them down on the table to be convinced they are right, and in pushing them together, that you may not count them in the taking up again, he slips the
eight

eight pieces concealed in his hand among the rest, he then asks the person how many he desires to have, from twelve to twenty, and the highest number is usually chosen.

C H A P. XXXV.

The Double Transposition.

AFTER the foregoing trick, the performer borrows three rings from different persons, and covers them with a tin cap, he then commands the rings to disappear, and the twenty pieces to appear in their place, and *vice versa*.

E X P L A N A T I O N.

The performer is provided with twenty tin pieces rivetted together, with holes through them all but the uppermost, large enough to receive the rings; those he conceals in the cap, before he begins the trick, he then covers the rings with the cap,

cap, and takes the loose pieces in his hand, and in knocking under the table conveys them away, he then takes the cap by the top, the rings are gone, and those pieces appear; he then covers them again, and by knocking under the table a second time, lets you hear the pieces jingle into his hand, and in lifting up the cap he pinches the sides close, and by that means takes up the pieces which are fast together, and the rings appear again.

C H A P. XXXVI.

TO render hideous the faces of all the company.

E X P L A N A T I O N.

Dissolve some salt and saffron in some spirits of wine; dip a little tow in it, and set fire to it. At this light, those who are of a fair complexion will appear green, and the red of the lips and cheeks turn to a deep olive colour.

C H A P.

C H A P. XXXVII.

How to guess a Card that has been thought of by any body, by writing beforehand on a Paper or Card a Number, which will certainly be that of the Card that has been thought of.

ALL the preparation of this trick consists in a mathematical combination.

E X P L A N A T I O N.

Take a pack of piquet cards, present them to one of the company, desiring him to shuffle them well, and to get them shuffled by whoever he pleases: then make several persons cut them. After which propose to one of the company to take the pack, and think of a card, and remember it, as likewise of the number of its order in the pack, by counting one, two, three, four, &c. till he comes inclusively to the card thought of. Then offer to go in another room while he is doing what you required,

quired, or to be blind-folded, assuring the company that you will declare beforehand, if required, the number of the order in which the card is that has been thought of.

Supposing that the number you have marked is number 24, you will return into the room in case you have left it, or desire the handkerchief to be taken off, if you have been blindfolded; and, without asking any question of the person who has thought of the card, ask only for the pack, and apply it to your nose as if to smell it; then passing it behind your back, or under the table, you must take, beginning from the bottom of the pack, twenty three cards, that is to say, one less than the number you had designed beforehand; then place those twenty three cards on the top of the remainder; you must take particular care not to put one more or less, for that would prevent success. This being done, you are to return the pack to the person who has thought of the card, re-
com-

commending him to reckon the cards from the top of the pack, beginning by the number of the card he thought of. His card being the thirteenth, he will be obliged to count fourteen, and you are to stop him when he comes to twenty three, telling him that the number you have designed is twenty four, and that consequently the twenty fourth card which he is going to take up will be the queen of hearts, and it will be exactly the case.

C H A P. XXXVIII.

Sympathetic Ink.

THIS ink is curious, and serves for a number of physical recreations, very surprising to such as are acquainted with the manner of preparing it.

E X P L A N A T I O N.

It is made by taking an ounce of common aqua fortis, which you are to mix
with

with three ounces of common water; use this mixture to write on paper that is strong and stiff: this writing becomes totally invisible in drying; and in order to make it re-appear, you need only wet the paper; and when it dries the writing disappears again. This effect may be repeated two or three times.

C H A P. XXXIX.

To make a Ring shift from one Hand to another, and to make it go on whatever Finger is required while somebody holds both Arms, in order to prevent any Communication.

ASK some person in company to lend you a gold ring, recommending at the same time to make a mark on it that it may be known again.

G E X P L A -

E X P L A N A T I O N .

Have a gold ring of your own, which must be fastened by a small cat-gut string to a watch barrel, that is sown to the left sleeve of your coat.

Take in your right hand the ring that is given you, then taking with dexterity near the entrance of your sleeve the other ring fastened to the watch barrel, draw it to the fingers ends of your left hand: during this operation hide between the fingers of your right hand the ring that has been lent to you, and hang it dexterously on a little hook sewed on your waistcoat near your hip, and hid by your coat; you will after that shew your ring which is in your left hand; then ask the company on which finger of the other hand they wish it to pass, and as soon as the answer is given, put the before-mentioned finger on the little hook, in order to slip on it the ring; at the same moment let go the other ring, by opening your fingers: the spring which is in the watch

watch barrel, not being confined any longer, will contract, and make the ring slip under the sleeve, without being perceived not even by those who hold your arms, as their only attention being to prevent your hands from communicating, they will let you make the necessary motions. These motions must be very quick, and always accompanied by stamping with your foot. After this, shew the assembly that the ring is come on the other hand: make them remark that it is the same that had been lent, or that the mark is right. Much quickness must be made use of to succeed in this trick, that the deception may not be detected.

C H A P. XL.

To pull off a Man's Shirt, without undressing him, or having Occasion for a Confederate.

THIS trick requires dexterity when performed.

E X P L A N A T I O N.

The means off performing this trick are the following; observe that the cloaths of the person whose shirt is to be pulled off be wide and easy.

Make him pull off his stock, and unbutton his shirt at the neck and sleeves, tye a little string in the button-hole of the left sleeve; then, passing your hand behind his back, pull the shirt out of his breeches, and slip it over his head; then pulling it out before in the same manner, you will leave it on his stomach; then, go to the right hand, and pull the sleeve down, so as to have it all out of the arm: the shirt being all of a heap, as well in the right sleeve as before the stomach, make use of the little string fastened to the button-hole of the left sleeve, to get back the sleeve that must have slipt up, and to pull the whole shirt out that way.

To hide the way of operating from the person whom you unshirt, cover his head with

with a lady's cloak, holding a corner of it in your teeth.

In order to be more at your ease, mount on a chair, and do the whole operation under the cloak.

C H A P. XLI.

The divining Rod.

A Dozen boxes are produced to the company, and some one person is desired to put secretly, a crown-piece into one; these boxes are then in succession placed on the table,—without opening or touching them; a rod is held over each of them, which is supported on the two forefingers; when it is held over the box that contains the crown-piece, it turns round with rapidity, which occasions many persons to believe that the metallick emanations cause it so to turn.

E X P L A N A T I O N.

Each box must have in the inside a double moveable bottom, at a small distance from the first, by the action of a weak spring.

This double bottom presses on the spring, and when it feels the weight of the crown-piece, it sinks in about half a line, by this small movement a very minute pin, which was before imperceptible, appears on the outside of the box, and announces that the crown-pieces are in that box.

We shall now proceed to teach how to turn the rod, either for the purpose of performing the trick we have described, or in the pretended discovery of subterraneous waters, we shall point out the means of doing yourself, or causing any automation to perform the experiments of those who pretend to the exclusive power of discovering the sources of water.

First, you must have a rod of ozier, hazel, or any other wood, provided it be
of

of equal thickness, flexible, well rounded and polished.

Secondly, It must be two feet in length, and bent, by giving it the shape of a circle of two feet radius.

Thirdly, to give it weight, and of course fitter for the motion of turning round, you must apply to it three metal rings, one in the middle, and one at each end.

Fourthly, Let it rest on your two fore-fingers placed horizontally, in such a manner that the two points on which it rests shall be near the extremities of the rod, you will then perceive that the middle will be underneath the level of the two ends, but by gently approaching your two fingers to each other, you will find the middle of the rod to elevate by degrees, and the extremities to fall: then if you replace your hands in their former situation, and at the same distance as before, the rod will regain its first position.

Fifthly,

Fifthly, It is by this drawing of your hands to and fro, that you acquire the facility of turning the rod with address, being ever particularly careful to give the smallest apparent motion to your hands.

Sixthly, Having acquired the habit of turning the rod by the vibration of your hands, if any one perceives your motion when you perform the trick, and attempts to reproach you for so doing, answer them as the *spring tellers* do, that the metallick emanation, or the vapours of the subterranean waters, occasion the stick to turn and give you at the same time an ague.

Seventhly, When you are desired to discover water in the country, turn your rod boldly where-ever you perceive the grass to be green and fresh in times of drought, because it is really there that the vapours of the subterraneous waters supply the grass with moisture, that occasions its freshness.

Eighthly, If this fails, you choose always in preference the lowest spot of a valley, and there turn your rod, being well assured that

that there is water there, because that must be the deposit of the rain which the neighbouring heights have absorbed.

Nevertheless, if you should happen to be mistaken, say that at that moment a current of humid air, or electrical matter, produced on you the same effect as the vapours.

Ninthly, It is more difficult to cause an automaton to turn the rod than it appears at first sight, the spontaneous motions of an alert man can remedy every moment the changes which may chance to occur in the position of the rod, which, by inclining too much from the right to the left, or from the left to the right, would soon fall, if it was not speedily restored to its proper poise.— But the movements of an automaton being necessarily uniform, or various without foresight to consequences, cannot furnish remedies necessary for fortuitous situations.

We shall now smooth this difficulty to direct those who wish to have the rod turned by a figure, the hands of which receives a
small

small movement of vibration, by clock-work.

Tenthly, Make a curbed rod, similar to the one we have described, but instead of being cylindrical, it must be a parrallelpede rectangle—and at the two places on which it rests, it must be rounded, and of the smallest diameter—thus, when it rests on the brass wires held by the figure, it can neither err to the right or the left, and the uniform movements of the automaton, continue to turn the rod.

Eleventh, The rod being thus constructed, if you approach towards the middle the two weights that are at the extremities without being perceived, the center of gravity will be changed, and nobody will be able to turn it, when it is supported from the points that is rounded—nor will it be possible to make it turn on other points, because being squared every where else, the friction would be too great, and the vibration of the hands too visible.

Twelfth,

Twelfth, To occasion the rod to turn in the hands of a figure, when it is carried to different branches of an aqueduct, or when it is presented with water or money, you must have a loadstone concealed in your pocket, which can operate on a small iron trigger, and by that means put the clock-work in motion which is to produce the vibration in the hands of the automaton.

N. B. It is now easy to discover the origin of the popular errors respecting the divining rod, and to see how so simple a trick has imposed on the world from the twelfth century to our days: imposture, ignorance, and credulity, are the secondary causes of such error, but the principal cause, if I am not much deceived is, that the vibration of the hands is a gentle and insensible motion, and is performed in a right line—The motion of the rod on the other hand is very visible, and at the same time rapid and circular: it appears at first impossible that the second motion should be the effect of the first—we have said elsewhere that when vi-
sible

sible and striking phænomena depend on an insensible and unknown cause, the human mind always bent towards the marvellous, naturally attributes those effects to a chimerical cause—This has occasioned it to be believed that subterraneous vapours produced the turning round of the rod—error having once taken deep root in weak minds, they become entirely deaf to the voice of reason, and in this enlightened age we have seen those prejudices spread every day further by the industry of people interested in propagating them.

C H A P. XLII.

DIFFERENT performances, both ancient and modern, extracted from a work which is not yet published.

N. B. This work, by the same author as this book, is entitled, *The Voyages and Adventures of two Philosophers, with Reflections*

fections on popular prejudices, the Wonders of Nature and the Prodigies of Art.

THE Author who relates his story, and Mr. Hill the companion of his travels, having experienced a shipwreck, and many other misfortunes, at length arrive at the Island of Bourbon, where they are hospitably received by a Dutch merchant, Mr. Van Estin. After having shewn his valuable library to the two travellers, he introduces them into a rich cabinet of Natural History, where the productions of the three reigns are classed in a new and singular order; they there agitate several questions on microscopick insects, on equivocal generations, on the variation of animals, and the multiplications of their species by the difference of climate, food, or by crossing the breed.—He then conducts them to his country house where new objects are offered to their curiosity, as appears in the two next chapters.

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C H A P.

C H A P. XLIII.

Self performing Organ, Artificial Serpents, Mechanical Birds, Automaton Chess player, a Speaking and a Vaulting Figure.

THE day after our arrival in the country, Mr. Van Estin shewed us his cabinet of mechanism: we entered into a saloon lighted by large windows made in the dome.—“Here (said Mr. Van Estin) “is the choicest collection I have been able “to make of mechanicks;”—but we could only see ourselves surrounded with tapestry, on which was represented all kind of useful machinery, such as clocks, air pumps, presses, Windmills, Archimedes’ screws, &c. &c.

“All those instruments are certainly “very valuable, (said Mr. Hill, smiling) “they surely for a moment are pleasant to “the sight, but can never produce much “effect by their movements, they prove the “art of the painter rather than the mecha-
“nick.”

“ nick.” Mr. Van Estin, answered by a whistle, and instantly the tapestry disappeared, the saloon became enlarged, and our astonished eyes saw every thing which human industry has invented and executed of the most precious estimation; on one side we saw serpents crawling, flowers blowing, and birds singing, on the other swans swimming, ducks at feed, self performing organs, automatons which play at chess, and a speaking Infant giving answers in English, French, &c.

Mr. Van Estin whistled a second time, and all the motions were suspended. “ I think it better (says he) that we examine some particular pieces of machinery, for the observance of the whole at once would be no gratification whatsoever. Pay all your attention to this organ, which is to the full as large, and is much more perfect, complete, and harmonious, than those which we have usually in our churches.” We then heard military music, where the hautboy, kettle-drums,

and trumpets, were the leading instruments, we afterwards heard three human voices, which were succeeded by French-horns, and airs on the flute, fife, and flagellet.— At the conclusion a great number of instruments playing together, formed a complete orchestra, and at that moment we perceived to the right and left the portraits of Archimede and Rameau radiant with glory; and fire seemed to issue in streams around their heads.—“ Do you know (says Mr. “ Van Estin) why there is in this concert “ more precision in the measure than you “ usually hear in instrumental performan- “ ces executed by common musicians? it is “ because all those instruments are anima- “ ted and actuated by one and the same “ cause.”

“ Behind the tubes that appear at the outside, there is a prodigious cylinder stuck full of spikes, which, passing in succession on the keys, puts down a certain number of them of different dimensions, as it may be necessary,

cessary, and produces on the keys the same effect as the fingers of the ablest organist. The cylinder turns always uniformly, because it is fitted to a very large jack, the wheel work of which is perfectly regular, and is put in motion by the continual action of a weight of eight hundred pounds. Two wheels of this jack or turnspit are employed to open or shut the registers, and two others to blow the bellows."

"As for the streams of light which seems to issue from the portraits of Archimede and Rameau, it is an illusion produced by small twisted tubes of glass, which rest on the one side of a circle, which forms the frame of the picture, on the other they terminate as you see diverging to another large concentrick circle, in this they resemble the radii of a wheel from the nave to the fel-
loes, those tubes have at their extremities pivots on which they turn, and on the part which touches the lesser circle, they each carry a small pinion of six teeth, with the assistance of one large cog wheel,

all those pinions move at the same time, and the glass tubes turning like twisted columns, cannot roll on their pivots without occasioning their luminous parts to change at every moment, in the eyes of the spectator, thus the light seems to pervade them, proceeding from the small to the greater circle, or from the great to the small, or as the wheel turns from the right to the left, or from the left to the right."

Our attention was next directed to a duck swimming and muddling in a vase, in the midst of which was a tree loaded with leaves and fruit; a serpent issuing from the vase, crawled round the trunk of the tree, and rose in a spiral line to the branches, where it hid itself in the leaves, it was followed by a second, third, and many others, which passed the same spot, and hid themselves all in the same place.—
“Do not think says (Mr. Van Estin) that
“the serpents are numerous at the bot-
“tom of the vase, there are two in all,
“whilst the one rises without, the other
“descends

“scends within, thus each appears in its
“turn, and represents an inexhaustible
“nest.”

In a cage on one side were two canary birds, one of which sung the dance of St. Cloud, and the other sung the accompaniments; we might have very easily mistaken them for real birds if they had been feathered, but the artist, who did not here wish to produce the illusion, had formed their bodies of shells, and represented their eyes by precious stones, which made Mr. Hill imagine that a small organ, hidden in the bottom of the cage performed for them, and that the clock work which played it at the same time caused the motion of their bills and wings, by the means of brass wires hidden in their feet.

Such were the ideas of Mr. Hill, when the two canary birds quitted the rod on which they were perched, and leaped on another, thereby proving they were perfectly detached from the bottom of the cage, and of course that they could only be
actuated

actuated by springs contained within themselves, nevertheless the extreme minuteness of their size, the variety and multiplicity of their motions, which could only be produced by a complicated cause, did not permit us to believe, that the principal of their movements was shut up in so small a compass.

Mr. Van Estin extricated us from our embarrassment, by telling us that there was here a small illusion.—“ It does not consist
 “ (says Mr. Van Estin) in persuading you
 “ that these birds are alive, for to have
 “ obtained that effect they should have
 “ been feathered; but the illusion consists
 “ in making you think that the birds are
 “ perfectly detached from the bottom of
 “ the cage, though in fact they are really
 “ attached to it by threads which you nei-
 “ ther do nor ought to see: the two rods
 “ on which they appear alternately perch-
 “ ed, touch each other as you perceive, at
 “ their extremities, and form an angle
 “ of forty five degrees, the Canary birds
 “ are

“ are detached from these two rods, and
“ are held by a third which you do not
“ perceive, because it always appears to
“ make part of the two others: it passes ra-
“ pidly from the first to the second, one of
“ its extremities remaining constantly at-
“ tached to the summit of the angle, whilst
“ the other describes an arch of forty-five
“ degrees.—It is in this third rod, which
“ is fixed to a point, and moveable in all
“ its other parts that are hidden the threads
“ which put their bills and wings in mo-
“ tion.—The moveable rod passes sudden-
“ ly from one position to the other at
“ the moment you are occupied by some
“ other object, and when even your at-
“ tention was not entirely absorbed in the
“ song of the birds, or the fluttering of the
“ wings, the rod moves with such wonder-
“ ful rapidity, that you would scarcely per-
“ ceive it in its passage.”

Mr. Van Estin next shewed us an auto-
maton chess player, similar to the one
shewn at Paris and Vienna, by a German
mechanick,

mechanick, on which figure a verbose author has written a thick volume, and some foreign journalifts have pronounced the most emphatick eulogiums.

We faw the figure of a man as large as life, dressed in a Turkish habit, and feated behind a commode, on which was placed a chefs board, the doors of the commode were opened for a few moments, to shew that there was nothing contained within-side but wheels, levers, fprings, &c. &c. The automaton contained in its body iron wires, cords, and pullies. The whole was drawn on four small wheels to different parts of the room, to shew us that the machine had no communication with the adjacent apartments.

After this observation, it was evident to us that the automaton was actuated by its own resources: but its movements soon appeared to us as the effect of the most profound and best combined reasonings;—he almost continually won his game against the very best players, to do which

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it is certain, that at every moment new combinations should be formed, and that he should be obliged sometimes to take an irregular road to surprize the arbitrary march which his adversary had adopted.

Mr. Hill not being able to account for so marvellous an operation, requested Mr. Van Estin to explain it to him, to which he replied, “ that he would for this time solve
 “ the enigma: In mechanicks, as well
 “ as in Natural History,—the most wonderful effect, is the one produced the
 “ first time, when we are entirely ignorant
 “ of the causes—You will no sooner become acquainted with the present object
 “ of your curiosity, than it will appear to
 “ you puerile, whilst another more trivial
 “ still, but being unknown to you, shall
 “ occasion you to exclaim a miracle!”

Mr. Van Estin then told us that the automaton chess player, was put in motion by a dwarf, a famous chess player, who was hidden in the commode.—“ You cannot
 “ see him (said he) when the doors are
 “ opened,

“ opened, because his legs and thighs are
“ then concealed in the hollow cylinders,
“ which appear designed to support the
“ wheels and the lever, the rest of his bo-
“ dy is at that moment out of the com-
“ mode, and is hid in the petticoats of the
“ automaton; when the doors of the com-
“ mode are shut, a rounce is turned, under
“ pretence of shewing the springs of the
“ machine, this occasions a considerable
“ noise, the clacks which are heard, give at
“ the same time an air of candour and mys-
“ tery, and permit the little dwarf to
“ change his place, and re-enter the com-
“ mode without being heard.

“ Whilst the machine is rolled about to
“ different parts of the room, to prove that
“ it is perfectly detached, the little dwarf
“ shuts the trap through which he pass-
“ ed.—The petticoats of the automaton
“ are then lifted up, and all the interior
“ part of his body is shewn, to prove that
“ all is fair, and the whole terminates to
“ the great astonishment of the spectators,
“ who

“ who attribute to simple machinery, what
“ can only be produced by a well organized
“ head.”

“ It requires to be known (says Mr.
“ Hill) how the dwarf hidden in the com-
“ mode, can know the game played by his
“ adversary.”

“ There are many ways, replied Mr.
“ Van Estin.”

First, “ You may put into each piece
“ of the game a magnetic piece of iron—
“ and under each point of the chess board,
“ a very sensible compass needle, which
“ can, by its agitation, mark the point
“ which has been occupied or abandoned.

Secondly, “ You may give a mental
“ mark to each point, to distinguish it from
“ the others, and this may be express-
“ ed to the person concealed, by the num-
“ ber of figures shewn, or the pronouncia-
“ tion of certain words.”

Thirdly, “ A chess board may be made
“ half transparent, which seeming as a top
“ to the commode, effectually conceals the

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“ person

“ person within, but suffers light enough to
“ enter, that the dwarf may well perceive
“ what is done on the outside.”

As for the means employed, to give the automaton the necessary motions, it is easy to see that his arms, and the interior lever by which he is put in movement, must be considered as a pentagraph, of which one of the extremities describes a large picture, whilst the other end moves to delineate the same smaller, by tracing the lines of the object in miniature.

We were then shewn by Mr. Van Estin the figure of an infant suspended by a ribbon, and apparently quite detached from any other object, this figure gave rational answers to questions put to it, either in the French, English, German, or Italian languages.

He thus explained it to us.—“ This (said he) does not merit much of your attention, altho’ the multitude have gaped, and paid, and the learned have puzzled themselves

“ selves by their own conjectures on this
“ simple trick.”

This figure has in its mouth a tin speaking trumpet, through which the questions are put, and the answers received; this trumpet has communication with a similar one concealed in the head of the figure, the widest part being uppermost, each serving alternately as a speaking and a hearing trumpet. Two other trumpets of the same construction are in the ceiling, immediately over the head of the figure, and the confederate being in the room above, answers to the questions, thro' these two trumpets.

* * * The Speaking Figure lately exhibited in London, Edinbro', Newcastle, York, &c. &c. was constructed in the following manner, viz. it had in its mouth a small trumpet that communicated with one that projected obliquely from the back part of the head, which being covered with feathers, could not be perceived; on one side of the figure was placed a concave mirror,

made of tin, about two feet in diameter, and eighteen inch focus, which was let into a false frame, and covered with paper, printed on a dark ground, pricked full of small pin holes.

The figure was hung by two ribbons, in such a manner so as the trumpet in its head was directly opposite the middle of the mirror, and at the exact focal distance.

The person that gave the answers was concealed in a closet or room on the same floor, at about twelve or fourteen feet distance, where was another mirror of the aforesaid dimensions, and placed exactly parallel with it, then the door was closed up, all but a hole the size of the mirror, and covered with paper as before. Sound, similar to light, may be collected into a point, as into a focus; and it will be there more audible than at the place from whence it proceeded. So whatever questions were put to the figure, even in the lowest whisper, was distinctly heard by the person concealed,

cealed, and the answers returned in the same manner.

N. B. Some of these figures are hung in a Chinese temple, so that persons may walk round them, and has the voice conveyed by means of a tube concealed in one of the small pillars, (that has communication with the person that returns the answers,) and comes immediately over the head, or at the back of the figure, which for that purpose is made hollow and connected with the trumpet in its mouth.

Our attention was next called to observe an automaton figure, that vaulted upon a rope, performing all the postures and evolutions of the most expert tumblers, keeping exact time to musick.

By seeing Mr. Van Estin wind up the figure, and being shewn the wheels and levers contained in the body of the automaton, caused us to believe it moved by its own springs.

When Mr. Van Estin thus explained the deception, “ to make a figure of this kind,

“ depends a great deal on the proportion
“ and the materials with which it is com-
“ posed, the legs and thighs are formed
“ out of heavy wood, such as ash or oak,
“ the body of birch or willow, and made
“ hollow, and the head for lightness of pa-
“ per machee, the figure is joined by its
“ hands to a bar of iron, that passes
“ through a partition, and is turned by a
“ confederate, the arms are inflexible at
“ the elbows, but move freely at the shoul-
“ ders, by means of a bolt that goes
“ through the body; and the thighs and
“ legs move in the same manner at the
“ hips and knees, and are stayed by pieces
“ of leather, to prevent them from bend-
“ ing the wrong way, the bar is covered
“ with hollow twisted tubes, and orna-
“ mented with artificial flowers, so as no
“ part of it can be seen to turn, the
“ confederate by giving the handle a quar-
“ ter turn to the left, the automaton,
“ whose arms is parallel to the horizon, lift
“ themselves by little and little, till they
“ become

“ become vertical and parallel to the rest
 “ of the body, if in following the same di-
 “ rection, he gives the handle another
 “ quarter turn, the upper part of the body
 “ will move forwards, and by remarking
 “ the motions through a hole, he seizes
 “ the instant that a leg passes before the
 “ bar, to leave the automaton astride, af-
 “ terwards he ballances it by jerks, and
 “ causes it to take a turn round, keeping
 “ time with the musick as if it was sensible
 “ of harmony.”

N. B. Three circumstances concur here
 to favour the illusion.—First, by the assis-
 tance of a wire, the confederate can sepa-
 rate the bar from the automaton, which
 falling to the ground, persuades one it
 looses itself by real machinery.—Secondly,
 in winding up, and the levers shewn
 in its body, confirms the spectators in the
 idea, that there is no need of a confederate.
 Thirdly, the tubes that are twisted round
 the bar, except where the automaton is
 joined to it, seems to be the rope itself, and
 being

being without motion as is seen by the Garlands which surrounds them, it cannot be suspected that the bar turns in the inside, from whence it is concluded that the figure moves by its own machinery.

C H A P. XLIV.

The Automaton playing at Command on the Flute, being perfectly detached from Communication with any other Object,—a perpetual Motion.—Tables on which Machines are caused to move at Will, without either Levers, Brass Wires, or Magnetick Aid.—The invisible Stair-case, &c.

AFTER dinner we were presented with an automaton on a table playing on the flute, at first we thought that there was organick tubes hidden in his body, that the sound did not proceed from the flute itself, and that the automaton only moved his fingers to deceive

ceive us the more effectually: but we were speedily undeceived, when that a lighted candle was put near the mouth of the automaton, it was blown out by the wind that issued therefrom—that the flute always gave the same note when the fingers of the automaton were prevented from moving, and that the note was more or less sharp, as the finger of the automaton was nearer or further from its mouth: thus far it was not more marvellous than the famous flute player of Vaucanson: but here follows that which is more extraordinary.—Mr. Van Estin shewed us twelve airs, on separate leaves, and rolled them for the purpose of putting them into as many different cases, which were put into a kind of work bag.—“ You have remarked (said he) that these twelve airs in no manner resemble each other, you shall choose one of them by chance, nevertheless the automaton shall play the one you have chosen.” I put my hand into the bag, and took out a case, which contained this air in the opera
of

of the Marechal-Farrant, *I would obey you mamma.*

Mr. Van Estin a second time bid us observe that the other airs were different, and that I might by chance have taken another: to our great amazement the automaton played the air I had chosen.

Mr. Hill thought at first that this flute player had, like the chess player, a dwarf hidden in its body, who played at will, and he told us a story of a musician, who in the time of Louis the fourteenth gained a thousand Louis d'ors at the fair of St. Germain's at Paris, by shewing a spinnet which played at command, in which he had hidden a little child.

Mr. Van Estin, to undeceive us in this point, shewed us the inside of the automaton, where we saw nothing but springs, levers, barrels, and bellows: that is not all, continued Mr. Van Estin, you may command the minute or the second at which you choose the flute to commence, and it shall begin at that very instant, this second experiment

periment having completely succeeded
“ Mr. Hill said that the effect must proceed from some person hidden within the partition, who was in confederacy with Mr. Van Estin, and drew strings at the moment required, to advance or draw back, a loadstone hidden in the table, and that this mineral by its attraction was able at the proper time to let go an iron trigger, and permit the clock work movements (which were the soul of the automaton) to proceed to their functions.

Mr. Van Estin shewed us that the table had no communication with the adjacent chambers, and that there was no natural or artificial loadstone either about him, or in the table; he then carried the machine to the middle of the garden, and returning to the door of the saloon, which was even with the ground, he requested us to come to him and to choose another minuet for the flute player to begin, I chose the third minuet, from the one we were at, Mr. Van Estin took his violin, and after a prelude he played

ed

ed the charming minuet in *Zelidor*, which the automaton repeated at the moment I had chosen.

“ I see, said Mr. Hill, that it is not by the loadstone that this miracle operates: but I conceive it to be thus,”

“ It appears from the experiments of Rameau, Tartini, d’Alembert, Rousseau, and Muffchenbroek, that when you sound the string of a violin, where there are many of that instrument, that all the other strings which are in unison, without being touched, answer with the same note: this is done, without doubt, by the agitation occasioned in the air by the string sounded, and which produces in the other strings similar vibrations, this principle being once established, I can suppose that there is in the automaton, a string in unison with your treble string, in this case you cannot draw your bow powerfully across it, without occasioning sufficient tremulation in the other to let go a trigger, and by that means

means set the clock-work playing, which is hidden in the machine."

"I confess (says Mr. Van Estin) that the mode you have described might produce some effect, and you give me an idea which I can apply to many machines, but to prove to you that I do not use those means, I will now repeat the experiment without playing on the violin."—Mr. Van Estin then contented himself with merely moving his hand to the automaton to give a signal to begin playing—this dumb order met a speedy obedience: we heard an air which was followed by a second, and many others, untill we desired Mr. Van Estin, to give by signs a contrary order.

We were all in admiration, and Mr. Hill exclaimed "that human ingenuity had never invented any thing so astonishing!"

"Nevertheless (replied Mr. Van Estin) the effect which amazes you depends on a very trivial cause, and you will cease to admire it when I make you acquainted with my fraud."

K

"There

“ There is a little canary bird in the head of the automaton, which, without being seen by any one, sees every thing that passes without-side thro’ a half transparent matter which forms the front of the face, and thro’ the glasses which form the eyes, the smallest signal from me makes it change its place from right to left, and *vice versa*— Two months practice has been enough to complete the bird in this habit, and I have not had the same difficulty in succeeding in this point, to accustom it to lie down and pretend to be dead in the midst of a train of gun-powder set on fire, and to take up itself a lighted match to let off a cannon.— It is thus by changing place that it produces in the machine the effect which you attributed to the vibration of a string.”

“ This is sufficient, says Mr. Hill, to explain to me how the automaton can play at the moment required, but I cannot divine how the canary bird can occasion it to play an air chosen by chance.”

“ This,

“ This, replied Mr. Van Estin, is again the effect of fraud on my part, it is true that I shewed you twelve different airs, but I put them into a bag divided in two equal parts, by a cloth which seemed to you a lining—The part of the bag in which you put your hand did not contain any of these airs, but in their place there was twelve times the same air in as many different cases: thus it was not difficult for me to know before hand what you would draw out of the bag, and to arrange the machine so as to play that particular air in preference to the others.”

“ It is useless here to describe by what mechanism an automaton is wound up, and can play so much as thirty six different airs, and recommence them five or six times: to say that it is the effect of a piece of copper, turned like the volutes, which in architecture, ornaments the capitals of the Ionick order, and to which the clock makers have given the term of a snail, this would doubtless be a very obscure explanation: one single view

of a machine of this kind would in an instant teach more than I could by writing the whole length of a day.

We were desired to observe a piece of machinery, which seemed to us a kind of perpetual motion, it consisted of two small columns of the Tuscan order, about two feet high, and at the distance of eight inches, placed on an oblong board, betwixt those pillars, in an inclined position was fixed two hollow glass tubes, in which was seen a red liquor flowing continually from one column to the other, that pleased the eye by the liveliness of its colour, and the regularity of its motion. While this kind of circulation amused the sight, our minds were perplexed to guess at the cause, these columns being so very small would not allow us to believe that they contained pumps with pistons, set in motion by clock-work, &c.

“When Mr. Van Estin kindly thus unriddled the mystery, the glass tubes are those the Barometer makers sell under the denomination

denomination of pulse glasses, at the ends of which are two small balls, filled with colour'd spirits of wine, when a person takes the ball in his hand the heat of his body produces in this liquor a kind of ebullition that drives it continually from one ball to the other; before this machine is exhibited a quantity of hot sand is secretly put into the columns, which produces the same effects as the heat of the hand; but you must be careful not to let the machine be exposed to view above half an hour, because "when the sand gets cold the motion will stop, which would lessen the admiration."

We were then shewn automats that moved at command, lamps which extinguished themselves at the moment required, and many other similar objects.—It could not here be said that there was in the table either levers, brass wire, or loadstone; none of those objects could be concealed, because the table was of glass, and supported by chrystal feet—nor could it be

suspected that a bird was concealed in these automaton, as in the flute player we have spoken of: the most of these machines being made of transparent horn, gave full assurance to the spectator, that there was no animal concealed within.

Mr. Van Estin told us that his table was formed of two parallel glasses, at the distance of a line from each other, but so even at the ends that they appeared as one.—The upper glass had in the middle a small imperceptible hole, on which the automaton were placed.—The air driven thro' the foot of the table, by the assistance of a bellows, passed between the two glasses, and so thro' the little hole, thus occasioned the machines to move as soon, and as long as should be required.

Mr. Van Estin then conducted us to his summer house, the door of which opened and shut on either side, which, upon inspection, we found to consist in the disposition of four flat bars of iron, two placed on the top of the door, and two at the bottom;

tom; so that one side moved upon the hinges on the posts, and the other side upon two pins fixed into the door, so by the assistance of two of the bars it opened to the right, and by the other two to the left.

Mr. Van Estin desired us to observe, there was no visible way to ascend into the chamber; but after we had searched in vain for the stair-case, he took hold of a pin that was placed into the wall, and instantly let down a flight of stairs, which folding by hinges in the middle, one half fitted exactly into the ceiling above, and the other into the wall; so when any persons had ascended, by drawing it up after them they could not easily be discovered.

C H A P. XLV.

An artificial Spider, which moves by Electricity.

TAKE a bit of burnt cork, as big as a pea; give it the shape of a spider; make

make its legs with threads of hemp; put a grain of lead in the cork to give it some weight; then hang this artificial spider by a bit of grey sewing silk (that is not twisted) between two bodies, the one electrified and the other not; or between two bodies endowed with different electricities: it will go and come between these two bodies, and the movement of the legs will be seen as if it were a living spider.

C H A P. XLVI.

To make fine blue Wax, which is very difficult to be had.

TAKE an ounce of mountain blue, or blue ashes, an ounce of fine mastic, the fifth of an ounce of true Venice turpentine; then get a small iron pot or pan, well cleaned, and made so as to have a little spout or beak; put the mastic in it first, which is to be melted on the fire, taking

king care that it does not burn ; then mix the turpentine with it : this mixture being done, take the pan from the fire and put the blue ashes in it ; then stir it all well with a little stick : take care when you put in the blue ashes that the other ingredients are not too hot, as that would make the colour too black : when all is well mixed, and before it is quite cold, take two pieces of glass, which must be made wet with water ; then pour on one of them this composition, in order to roll it in sticks under your fingers, which must be wet.

In order to give this wax the necessary polish, pass the sticks over the flame of spirits of wine, which are to be lighted for this purpose.

C H A P. XLVII.

A philosophical Mushroom.

AMONG the numerous and surprizing phenomenons produced by different chymical

chymical proceedings, one of the most curious is certainly that of the inflammation of essential oils, by the mixture of nitrous acid. It is certainly astonishing to see a cold liquor take fire on pouring another cold liquor on it; such are the means by which one may form in three minutes the mushroom, called the philosophical mushroom.

In order to make this extraordinary and entertaining experiment, you must provide yourself with a glass, having a large foot, the basis of this glass is to terminate in a point.

Put in the glass an ounce of spirits of nitre, well rarified; then pour over it an ounce of essential oil of guaiacum. This mixture will produce a very considerable ferment, attended with smoke, out of which there will rise, in the space of three minutes, a spongy body, resembling perfectly a common mushroom.

This spongy substance, formed by the fat and oily particles of the guaiacum wood, being drawn up by the air, covers itself with

with a very thin coat of the matter that composes the oil of guaiacum.

C H A P. XLVIII.

How to dispose two little Figures, so that one shall light a Candle, and the other put it out.

TAKE two little figures of wood or clay, or any other materials you please, only taking care that there is a little hole at the mouth of each. Put in the mouth of one a few grains of bruised gunpowder, and a little bit of phosphorus in the mouth of the other; taking care that these preparations are made before hand.

Then take a lighted wax candle and present it to the mouth of the figure with the gunpowder, which taking fire will put the candle out: then present your candle, having

having the snuff still hot, to the other figure; it will light again immediately, by means of the phosphorus.

You may propose the same effect to be produced by two figures drawn on a wall with a pencil or coal, by applying, with a little starch or wafer, a few grains of bruised gunpowder to the mouth of one, and a bit of phosphorus to the mouth of the other.

C H A P. XLIX.

To change a Card which is in the Hand of a Person, recommending him to cover it well.

CUT out a three of spades very neatly; then, the card being cut through, take an ace of diamonds, which you are to place under your three of spades that was cast out, taking care that your ace of diamonds is perfectly covered by the spades, which is found in the middle of the three that is cut out: and then you must pour
lightly

lightly on that card some jet powder, which will easily stick on the places rubbed with pomatum, and by that means will form a three of spades on the card that was before an ace of diamonds. Take in your hand an ace of diamonds, behind which you must put a three of spades, turned the contrary way.

The Person who has in his hand the three of spades that is prepared, will shew the card to all the company; you will shew in your turn the ace of diamonds that you have in yours, and then tell that person to lay his card downwards on the carpet that covers the table; make him lay his hand on the card, and ask him whether he is very certain that it is a three of spades he has under his hand. On his affirmative, you may rally him on it, and tell him, at the same time that you push his hand which is over the card, that he is mistaken, and that it is an ace of diamonds he holds. The movement you will cause him to make while you push his hand, under which the

L

card

card is, will make the jet powder, that formed the three of spades over the ace of diamonds, remain on the carpet, and he will be extremely astonished to find really an ace of diamonds, whilst you, who make the trick, by turning your hand where the three of spades and ace of diamonds are, back to back, will shew, the three of spades, and make the company believe that you have conveyed it from the person who held the same without his perceiving it.

This trick must be done dexterously and quickly, in order that the little deception be not discovered. Practice is the greatest master.

Method of preparing jet powder.— Pound in a copper mortar your jet, which must have been bruised a little with a hammer ; when it is well pounded, it must be sifted through a sieve, and also through a piece of muslin. Keep that powder, which cannot be too fine, in a little box, to use it when occasion may require : take
a pinch

a pinch of it either with your fingers or with a piece of paper; then scatter it on the card, and it will stick only in those places that have been touched by the roll of pomatum, and may be taken off very easily by the rubbing against the carpet.

C H A P. L.

A mathematical Combination for guessing, in a whole pack composed of fifty-two Cards, how many Points will make the Cards under each Parcel, which Parcels are to be made by one of the Company, observing to him that each Parcel he makes is to compose the Number of Thirteen, to begin from the Point of the first Card which he takes to form each Parcel.

EXPLANATION.

THE pack having been shuffled by one or more persons, make it be cut by as many persons as you think proper.

L 2

Then

Then desire one of the company to form the parcels of cards, all which must contain thirteen each, beginning by the first card he takes up.

Suppose that this first card is a nine, the next will be called ten, and so on till thirteen; consequently this first parcel will be composed of five cards - - - - 5

If the next card should be an ace, the ace counting only one, the next parcel will therefore be composed of thirteen cards - - - - - 13

Suppose the next card is a court card, or a ten, they being of the same value, this parcel will contain, in order to make up thirteen, four cards 4

If the following should be a five, then the fourth parcel will contain nine cards - - - - - 9

Should the next parcel be a seven, the fifth parcel will be composed of seven cards - - - - - 7

A court card being the first of this parcel, it will be composed of four cards 4
If

If the seventh begins by an eight,
it will be composed of six cards - - 6

In that case the eighth cannot be
made, except it begins by a ten, or a
court card, since there remains only
four cards to employ the whole number
of the cards, which is fifty two - - 4

Sum total - - - - 52

In the supposition then that this eighth
parcel begins by a ten or a court card,
which is the same, there would remain no
cards, and you would have eight parcels.

If it began by any other card, not adap-
ted to make out thirteen, there would re-
main four cards, which must be spread on
the table, without discovering them.

In order to find out the number of points
contained under each of the parcels,
whether they be to the amount of eight, or
only seven, and four cards remaining, you
must make use of the following method.

L 3 Without

Without touching the cards, separate in your mind four parcels; then multiply silently by 14 the remaining parcels, whether they are four or only three.

In the first case you are to say in your mind, 4 times 14 are 56; then add to this number one point for each of the parcels that you have separated in your mind, which will make 60. Then make the eight parcels be turned up, and count the number of points contained in each of the cards that are under, you will then find 60, observing that the aces count only for one point, and the court cards for 10.

If there should be only 7 parcels, you will have 4 cards remaining; you will however separate 4 in your mind; then you are to multiply the 3 remaining parcels by 14; and say to yourself, 3 times 14 is 42, and 4 for the 4 parcels that you separated, make 46; to which you must add 4 more for the 4 cards that will remain, which will make 50. On turning up the 7 parcels you will necessarily find 50.

If

If by chance each parcel should begin by an ace, which is possible, you could then make only 4 parcels, and as it must be the 4 aces, that would be found under, you would only have 4 points.

If it happened also, that three parcels began each by an ace, it would then take up 39 cards; it is probable that in such a case there would be only four parcels in all, and a few cards remaining: you must then content yourself with counting as many points as parcels; to which you will add one point for each of the remaining cards, and this will mount infallibly to the just number of the points of the cards under the four parcels.

C H A P. LI.

TO take a Bird out of a Cage, and make it appear as dead, or to roll it about as you please.

E X P L A N A T I O N .

Take any bird out of a cage, and lay it on the table, then take a small feather, and wave over its eyes, and it will immediately appear as dead, but by taking the feather away it will revive again; let it lay hold of the stem part of the feather with its feet, and it will twist and turn about like a parrot; you may likewise roll it about on the table just as you please: that the feather is the cause of all this strange appearance is without doubt, but why it should be so is a secret which will not be discovered till we can understand the bird language, which has been lost ever since Adam was expelled the garden of Eden.

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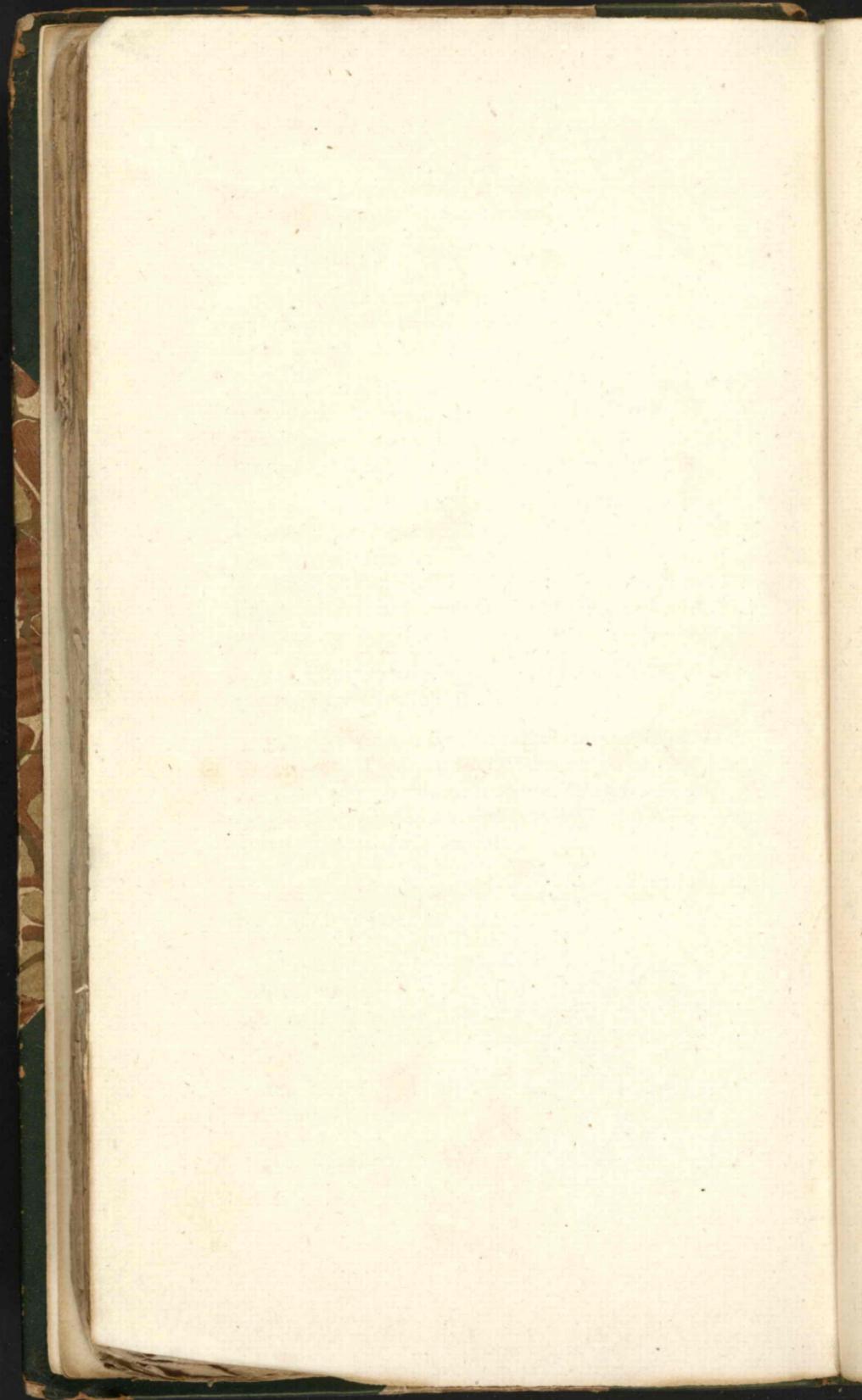
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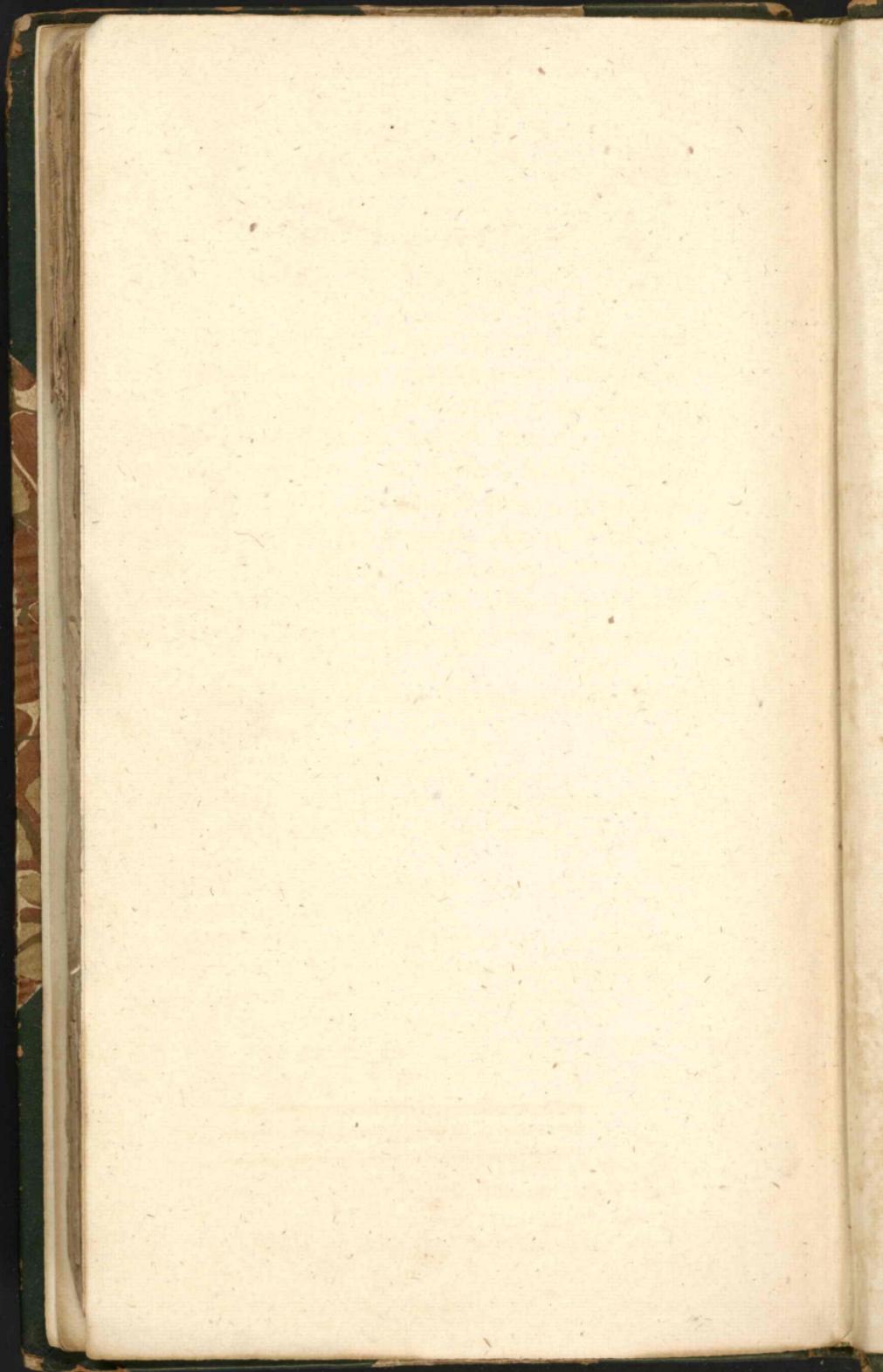
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