N.° 1

Recreations

1. A Thread equally strong in every part will not break

2. A Glass half full of French wine in a paper over its mouth inverted, may be held over the flame of a candle and the French boiled without destroying the paper

4. A leg of mutton may be boiled on a chair four feet from the fire —

5. One cube may be made to pass thro' another of equal size — In the same manner two pieces of wood of equal size may be mortised into each other so as equally to pass through each other

Galaxy

6. A pin may be supported on the point of a needle either in a vertical or horizontal position — Cut a two forks —

7. The Phenomena of fire in Coxe museum effected by rods of Crystal Glass

8. Optical paradox — A telescope to look through a board — has no magnifying power — Plane mirror —

9. Three forks may be put on the same spit and a round at the same time to the same fire, one shall be roasted another boiled, and the third shall remain raw —

10. Smoke a common seal over a candle or Lamp, wipe off the smoke from the cavity but not out of the letters, seal the letter in the usual way; after which hold it to a hot poker sufficiently near to melt the wax. The wax will be rendered smooth on the surface and the Intaglio impression will remain below — This was the invention of Archibald Duke of Argyle and called by him the uncancelled seal

11. To cut a strong Beer Glass in a spiral form so as to draw out to a great length — wrap round the Glass a thread waxed in Bees pitch — Or apply a red hot poker to the Glass with a crack in it and it may be then followed out in any direction —

12. If a Tobacco pipe be drawn obliquely over the edge of a lamp

the tumbler will be thrown to pieces — guess will the experiment succeed equally when the tumbler is filled with water? —

13. To make the appearance of a serpent, work over a piece of wooden with very thick Indian ink and with the finger draw the representation of a serpent —

14. A pewter plate is supported on a common drinking glass, a table knife is laid across the plate with some salt on it, an egg is laid on the salt either across or supported upright, if the plate be struck horizontally the egg will drop into the glass whole —

15. write down Eleven thousand eleven hundred and eleven —

16. A pressure equal to one lb. may be constantly carried about with me without the least inconvenience —

17. A natural magnet in shape of a head that pulls from the hand and beard —

18. Thirty soldiers having deserted, 15 are to be punished, to arrange the thirty in such manner in a circle that any fifteen may be saved —

Populeam Virgam Mater Regina ferebat
4 5 2 1 — 3 — 1 — 1 : 2 2 3 : 1 2 2 : 1
P. S. P. S. P — S — P — S. P — S P. S. P. S P

Now the number of vowels expresses the number of men selected together, first 4 saved then 5 punished & begin and punish every 9th person

A person in company having pitcha
ing privately on one of his fingers to tell
the person, the hand, the finger and the
joint — Rule — Double his rank
add 5, multiply by five add 10 and the
no of the hand rank: 1 = right and 2 left,
multiply the sum by 10, to this add the
number of the finger rank: the thumb 1
fore finger 2 &c, and multiply the whole
by 10, then add the number of the joint
and to the whole add 35, he then tells
you the amount of the whole from
which you deduct 3535 and the re-
mainder will consist of 4 figures the
first expresses the rank, the 2 the hand
no 1 being the right and 2 the left,
the 3d no. the finger and fourth
the joint

Example

third rank, second joint of the thumb
of the left hand

rank (double — —	6
add — —	5
	11
Multiply by — —	5
	55
add — —	10
	65
no. of the hand —	2
	67
multiply by —	10
	670
add no. thumb —	1
	671
multiply by	10
	6710
add no. joint .	2
and 35 —	35
	6747
deduct .	3535
	3212

That is the third finger, left hand, third
second joint

Open a demonstration of this

20. Arithmetical magic squares are such as have the sums of the columns all equal to each other. Geometrical when the products of the columns are equal. Organum has written fully on this subject. The Egyptians and Pythagoreans he says were much devoted to magic squares they were dedicated to the seven planets

do Saturn a square of	nine cells
Jupiter	sixteen
Mars	twenty five
Venus	forty nine
Mercury	Sixty four
Moon	Eighty one

to the Deity one of a single cell implied his indivisibility, unchangeableness &c

— Then the Arithmetical squares consist of odd numbers they are easily filled by Mechanical rules. but when even difficult —

Geometrical squares

16	512	4	24	768	6	56	179	214
8	32	128	12	48	192	28	112	448
256	2	64	384	3	96	896	7	224

21. N—2

The changes on 12 Bells are

479,001600 —

Suppose the bellow of the Alphabet wrote so small that each would take up but the 100 part of an inch, how much surface would contain all their permutations of the same size — Answ.

11,489,785,217,282,211,0404 or 18620 times the surface of the Earth —

22. Take four equal squares and divide them diagonally into eight triangles paint seven with the primaries colours and leave the eighth white. To find how many regular four sided figures different either in form or colour may be made out of these eight triangles

The first two squares consisting of two parts out of eight may be taken each 28 times = 56

and the last two squares consisting of 4 parts may be taken each 70 140

no. of diff.t four sided figures + 196

Table for Pyramids

Month	Terms
1	1
2	2 · 1
3	3 · 3 · 1
4	4 · 6 · 4 · 1
5	5 · 10 · 10 · 5 · 1
6	6 · 15 · 20 · 15 · 6 · 1
7	7 · 21 · 35 · 35 · 21 · 7 · 1
8	8 · 28 · 56 · 70 · 56 · 28 · 8 · 1
9	9 · 36 · 84 · 126 · 126 · 84 · 36 · 9 · 1
10	10 · 45 · 120 · 210 · 252 · 210 · 120 · 45 · 10 · 1
11	11 · 55 · 165 · 330 · 462 · 462 · 330 · 165 · 55 · 11 · 1
12	12 · 66 · 220 · 495 · 792 · 924 · 792 · 495 · 220 · 66 · 12 · 1

Example

How many changes of of 5 in eight the fifth term of the eight cards is 56

Brachen's method of drawing
mamosphere — 71 —
— Mathematical method — Abbe
Nollet —

23.