

Vol. 2

83

Lectures

and

Prints

on

Various Philosoph.

Subjects

Vol. 2

Coats —

~~244~~. A clock pendulum vibrates
in the best manner when the
M arc is 25' greater than the arcs
of the escapement —

~~245~~. The pendulum spring need
not be longer than an inch
M when the pendulum vibrates
below the flame of a candle
upon it with a blow pipe
till it is blue this is a great
improvement of W. Arnold's

~~246~~. Arnold's compound penitu-
lum consists of fine brass 3
M steel and two considerably
thicker of a mixture of Zent
silica and the composition
of which to steel is as

Coth

247. The pendulum ball should
not be supported on the lower
edge, not on the center either
of gravity or Oscillation, but
between these two centers as
Mr. Maskelyne demonstrates

~~248~~. When the appearance of
the object glass is contrasted
in Doctor Lenoir's transit
instrument the object appears
more distant tho' not so
much enlightened, the ^{effect of the} medium
seems not quite so great & in this
case —

249. What is the best combination
for making a watch go
which shall be winding? —

Cash
230.

The most disagreeable
smells are generally more
healthful than the sweetest.
The exhalations from a dirty
lame, or even necessary horse
consisting mostly of the Vol.
alkali are little prejudicial
to health - Doctor Ingenhousz
has proved by many exp.
That the effluvia of coals if
strong is harmful sometimes
fatal to animals - To
sleep in a room with many
rows or other strong scented
plants is dangerous -

251. A small degree either of convexity or concavity in and object placed at a distance is best discovered by the light falling on it ~

252. A conical chamber in a mortar throws the shell farther than a cylindrical one, and this last farther than any other. The reason is this, the narrowness of the aperture causes the powder strike the shell in a line passing thro' its center and therefore there is very little lost by the obliquity — It is of little consequence what the inside of the chamber is provided the aperture is exact. — Pocket

Corks
253. A cylindrical chamber 4 inches
long holding 12 grains of powder
was loaded with 6 grains by means
of a thin paper cartridge, when
the powder was placed close to
the shell it was thrown twice
as far as when placed at the
bottom of the chamber. —

The same
254. ~~Experiment~~ most in being,
loaded with the same quantity
of powder, a little piece of white
paper upon it by which the
shell went much farther than
without the paper —

255. When cylindrical chambers
are full, long and short
produce the same range
but when not full the
longest the greater range

Cork

256. Four vents were made
in a cylindrical chamber
on at the bottom, another
at top and two in the
middle all equidistant
The lowest vent threw
the shell farthest, the others
diminished in proportion
to their distance.

257 The worst test of an
achromatic glass is the
following, cut a circular
plate of the size of the
object end of the telescope
make a circular hole in its
center about 1/4 an inch in
with the telescope thus pre-
pared adjust it for an object
about 20 yards distance

257. Then remove the frosted glass
and cover the spot in the center
which was open before and im-
cover all the rest of the glass of
the same object appears distinct
with the same augmentation of the
glass than the glasses are good.
This exp^t. show. that in such
a reflecting telescope there is
no aberration of sphericity.

258. Now comes it to pass that
a flash of lightning for ex-
ample in the east makes a
west window, and enlightens
the room as much as when
in the quarter opposite the
window —

259. The flash is sometimes made
up of two, or three which succeed
each other very rapidly,
give the same —

Look.

260 All the Great ships in
French and the masculine
gender, all under the line are
feminine. —

261 A house which stands
east and west, its north
in roof will decay sooner than
the south. —

^x
262. The Carpenters, Boatmen
Gunnies and Purser are
never dismissed when the
ships lay in Harbour. —
Water is kept regularly
when the ship needs pump-
ing. The Carpenters order
a Jack to be fitted
on the main mast, over
the appearance of which

a boat is sent off from the
mouth of the port with forty
or fifty hands on board who
who pump her and then
they row to another. - The
top masts are cut taken
down nothing but the lower
lower poles, with a lar board
on the head of each. -

263. Mr. Dean's new pump

~~264.~~ Miss ^{was on}
Saturday 9 Sept. sitting near
a window and beside a table
she was struck with lightning
on her arm, she said that the
power of her arm for some
time, she felt as if some body
had given her a violent blow
on the elbow. -

Coth —
~~1st~~ — Would it not be better
for the Admiral in an engage-
ment, to hoist his flag aboard
a frigate ^{from} which the whole
line could more easily see
the signals — Low Noon —

~~2nd~~ — At the time of the flight
of a cannon ball affected
by the resistance of the air?
If it is shot perpendicularly
it will be resisted as much
upwards as downwards.
Will not the time be nearly the
same as in vacuo? —

~~3rd~~ — It is a curious circum-
stance that there is not
a word in the first Language
for Gratitude.

~~Cook~~
~~That~~ The extremities of animals
are more susceptible of the
variations of heat, and are
colder than the interior parts
on account of their projection
to a distance from the gene-
ral mass of heat. Mountains
are probably colder than the
even surface of the earth, pro-
bly for the same reason.

~~969~~ When the feet are put
into warm water heated to
about 112° they cannot
at first bear it after some time
for some time at least in the
water, if they are moved the

Cook
water fish intolerably hot
? since the same, Does the feet
cool the water and how is this
performed? —

~~egg~~ A man asleep is about
 $1\frac{1}{2}^{\circ}$ colder than when awake
this not the same but the effect of sleep

~~egg~~ Snow and ice are the
worst conductors of heat as
yet known, they never
allow their own heat to
rise above the freezing
point, so that no heat can
pass through ice ^{by} snow
when at 32° by which
means they become an ab-
solute barrier to all heat

But is at or above that Degree
so that the heat of the earth
or what ever substance they
touch, & is retained; but they
are conductors of heat below 32
perhaps that power decreases
in proportion as the heat de-
creases under that heat. In
1776 the air at Snow was at
15°, while the earth below the
snow was at 24, in which peas
and beans grew. A powder
pan and were with the snow
and the water beneath the snow
was at 35° when the Air was
at 15°.

Cook-

~~272~~ When a vegetable freezes
it dies and ^{loses} loses its life with
a considerable report, owing
to the sap's freezing. -

~~273~~ The sap of a walnut
tree froze when exposed
to the atmosphere at 32
and yet the tree suffered
a cold of 17° without freezing,
by what power are the
juices in them preserved from
freezing?

~~274~~ To make a watch glass
of a piece of window glass
make a hollow in a brick
of the dimensions of the glass
wanted, lay a piece of window
glass over it and make the
both red hot, milled nearly

Cont. Oct. 3

The pelvis of the wild mouse
down in the shape of the hollow
part of the trunk. M. M. -

200 To get a perfect skeleton of
mouse - lay the mouse in a
chess box with a number of holes
in the lid, near an end. Put food
the ants with in time eat off
the flesh and muscles and leave
a perfect skeleton of the mouse
M. M. -

201 To cut a piece of flat glass
in a circular or any other
form, bend a wire into the shape
of glass, heat it red hot, and
apply it a few seconds to the
glass, then let a drop of water
fall on it and it will instantly
be cracked and may be then
carried round in any direction
+ 200 -

Costs
~~274~~
If a candle nearly blown
out is moved upwards with
a sudden jerk it will be blown
and this after blowing upon
it has failed - just air -

X
275
The power of an Electrical
Machine is greatly affected
by the oil with which
it is rubbed, a new oil
is the best method of prepar-
ing this and spreading it
to the rubber -

~~276~~
An experiment that has
been made in Germany made
to break down a bridge
a great quantity of powder
was laid upon the bridge
which when fired broke
it down. - Raja-Fur

Cook

~~27~~ A curious case in optics
mentioned by Quaker Lib.
A Gentleman of his acquaintance
saw his for a month or 6
weeks seem double. A small
spot in just perceptible in
his eyes, when he uses one
eye, he sees well enough, &
they are nearly at the good.
The Gentleman being in London
and knows of ^{no} no injury that
either of his eyes has received.
This is similar to Doctor
Carson's case in the Phil.
Transactions.

~~28~~ It has been heard of in any
other strange instrument
cannot be turned properly
by weights, at least it
will not continue in turn

for any length of time, for as
the tone depends partly on the
diameter of the string, and as
this diameter will be altered
by a change of temperature in
the air, the notes will vary.

Di L - D

282. The Crutle is a Sawyerd
Instrument consisting of
one string and a wooden
wheel which rubs and over
it, there are Keys which
stop the ^{string} instrument in
different places so as to
sound the notes —

283. Heavy work machines
require will work in a
year in great Britain 135
Days, light windmills $\frac{1}{2}$ year

x Cork
255. Every vessel which has
a hundred men must have
or pay a chaplain, the East
India company to assist them
man their ships with 99
hands.

~~256.~~ If a piece of iron red hot
a infusion is blown upon
with a pair of bellows
the air without carrying fire
will keep the metal red.

~~257.~~ When a gun is fired there
is a quantity of soot or powder
which is the powder. This will
diminish the windage, and con-
duct the heat of the inflammation
forward more slowly.

Cook
287. Will not a light body
hang in the air before a
cannon shot by its resistance
whether the wave of air rushes
from or to the gun.

X
288 Method of throwing hand
grenades - they are now
coming again into fashion.

289. What is the weight
of a hand Grenade?

With many th Nov 1780

290. What is the use of the
modern coats or carnis?

- was it to convey intelligence
by lighting fires? or were they
combs for their great men
and raised on their grave by

happens every one of which,
had a stone or quaility of
earth. It is said that anyone
is ^{born} from some other one -

X
291. Had the first Romans any
coin? when was coinage intro-
duced among them? -

X
292. In the wind towers in
Ireland there is only one opening
about 3 or 6 feet from the top
which is supposed to have been
the door, there is not in any of
them the least vestige of a
stair, it is conjectured that
they ascended by ladders? -
It would be worth while to
dig round some of them to the
foundation to discover how
much is sunk, perhaps there
might be discovered below.

Ritkinny

~~293~~ It is affirmed that the
Gun smiths can make a
fowling piece either to scoble
or shoot close, this is done by
widening the bore ^{a little} at the muzzle
& 1/2 and about a foot down.

x
294. The advantages arising
from a free trade to Ireland
cannot ^{be} sensibly ~~be~~ felt
untill we have peace with
America. M. Sh - w

x
295. The principle Gun smiths
in London will not allow
the purchaser to buy the
Gun, he must take it
on the credit of the house.

Hithonney — Dublin 19th
296. A black smith at the black
smith is said to make a cold
nail and hot by five strokes
so as to bright his iron work
it —

~~297~~ When an iron tube or
ring is heated, is the iron
contracted? —

~~298~~ Might not an exposure
with the contraction or
similita principles to
the Balsam Peruvianum

~~299~~ The boxes of powder
should wrapped with
some common stuff.

300. The most engagements
in Ireland have hitherto
been more calculated to
please the eye than improve
the science — A plan is
the most improper place
— This might be greatly
improved —

301. What is the form of
the Grenadier's pouch
and how many grenades
does it contain —

302. How are the effects
of pressure and collision
compared together, or what
proportion does the shock
of a body falling from a

given might bear to the prof-
sion of the same body when at
rest? —

~~300~~ May not the Experiment
of the artificial sailing tub
be applied with advantage
in a Siege? —

~~301~~ The ancient Bala-
rian sling is still used
in Armenia it consists
of two cords with a piece
of leather or net work
in the middle —

~~305~~ May not the pro-
pion of the works be
such that two batteries
shall fall on the same

same point and consequently
by ~~the~~ considerable advan-
tage he derived to the busi-
ness, this will happen
when two faces produced
cross each other in the point
where the battery should
be made.

Prob. Given the weight of
a solid, to find the wt.
M of any particular part
without separating it from
the mass.

Ans. It is affirmed by
A bull's head better by
M the horn than by the
neck, and that they

are hoisted by the boom
into a board a ship —

306. Whether should the
A. Driver sit on a coach
in box or on the back of
the horse? —

307. The best frontograph
is a large square with
two small pieces mov-
able on one angle —

308. A brass cylinder for
the anamorphoses is
much easier kept clean,
but does not show the
image so bright —

~~209~~ would not the lower
part of a mortar be led
to bleed on the breast
mouldings, in the present
road it is less obliquely
and there is some risk
of a piece breaking out.

~~210~~ Is not the best posi-
tion of the breast hole
in the middle of the
piece? —

211. Bricks in present
must be 9, 4 1/2, 2 1/4, 1000
such will build 6 perches
each 21 feet long 1 foot
high and nine inches
thick —

Dublin
312. ~~Do~~ not the undula-
tory motion observed in
a reflector be occasioned
by the little inequalities
in the Speculum. may
supposing that's small motion
of the air

x
313. ~~Will~~ would not
a rectangular prism
make a good camera
obscura? — solve the
Hypothesis —

~~314~~ We cannot both see
and hear attentively
at the same time —

~~94~~ The oval and Ellipse
are very difficult curves
the former has never been
considered by Geometers

~~95~~ There is no true me-
thod of drawing the Vo-
lute - a regular snail
cap is a perfect volute
- Come no part of a circle

~~96~~ The reason for the Caliph
burning the Alexandria
Library was this: "These
books say he can either
equal to the book of
God or not, if they be
then their own is sufficient
if they are not, then

ought to be. (Perbwyd).

~~27~~ Apparatus and Tycho
were both led to the study
of Astronomy from the same
accidental circumstances
the appearing of a new
star -

~~28~~ The Pyramids of Egypt
have their sides from being
the four cardinal points.

~~29~~ The field of battle of
the heat of action was
no paper plan for using
explosives which required
any tedious explanation
- Joshua -

~~321~~ ^{Deception} The first person who
proved the earth to be a
sphere was Magellan in
the year ~~1492~~ ¹⁴⁹⁸ - sailed west - he
or ^{his} return home they
found he had lost a Day

x
322. Doctor Hooke has
given in his book
M a plan of the reading
desk with wheels -

323. The Romans fre-
quently wore their
swords on the right
side, this is perhaps
the best way, because
only if the swords
are short as they ought
to be -

~~224~~ Dublin —
The aqueous humor
in young eyes is in 9th quan:
tity than in old eyes, the
convergence is the eye
grows flatter. When the
Aq. H. is let out & returns
soon replaces it. — M.
— Burrows's Opuscul. —

~~225~~ No muscular fibres
have been observed in
the eye iris, either circu-
lar or longitudinal. How-
ever does it contract.
Darker Part of Iris
is owing to the distance
of the blood vessels —
When filled they become

more straight. A cat's eye
shows that it cannot be owing
to a circular muscle or
sphincter --

~~326~~ Doctor Purcell thinks

The reason why an eye
object erect is the effect
of the impulse or direction
of the stroke, a stroke
on the head must come
from above &c --

~~327~~ The Cornea which
is a greater number of
rays on the pupil --

~~328~~ Doctor Weber affirms
that a reflecting telescope
generally shows a greater
undulation in the air

than a reflector, that cer-
tain states of the air ~~are~~
but for the reflecting others
for the reflecting telescope

229. There is a fine char-
acter between the cap-
sa and the crystalline
humour in which the
humour ~~is~~ partly
- thin must be ~~to~~
connect the cap. & h.
that the must be very
slender as the humour
falls cavity out of the
cap. & h. -

230. The in outline of the
corpus alb. is not
in a line but by the
humour but more for-
ward -

~~337~~ There are people in Africa who are almost blind through the day but see in the night - Patients have been observed in this way in England &c.

339. The Hemeropia, and Nyctopia are often found, these Diseases may be owing to a want of contraction in the pupil and partly to the quantity of the Purgation *nigra* -

340. There is an artery which runs through the Vitreous Humour from the retina to the Cap.

out of the Crystalline h:

224.

The Momentum
of the red rays is greater
than any of the others,
the velocity is the same
therefore the quantity of
matter must be greater
— Hence there is no colour
that fatigues the eye so
much as red — Our
sensation to be agreeable
must be moderate —
— Intermediate colours not
agreeable. Hence Nature
is made the Sky blue
and the earth green —
Hence the reason why
in certain cases every ob-
ject has a red tint —

Quitting
In the *Jaune* very ob-
ject is said to appear yellow.
- This does not happen so fre-
quently as is commonly
supposed - In old people
the *Amyst* humour is a
little yellowish -

~~225~~ Every part of a negro
is of a deeper cast than white
people, as well as the skin

~~226~~ A torch it is affirmed
must move round in
a second to make the
circle of fire complete.
D. P. Will.

~~222~~ Dublin
A person naturally
with sight, when having
the Crystalline either
contracted or depressed
becomes long sighted
and requires now a
convex lense instead
of a concave.

~~223~~ It is affirmed that
a chicken the moment
it leaves the shell
runs to its food and
makes no mistake with
regard to the position
of the object. —

~~239~~ ^{Question} Why do we not see
two objects with ^{two} both
eyes - D? Must think
that we never look at
the same object with both
eyes at once but pass
quickly from one to the
other - we cannot both
see and hear at once.

- Expt of the finger held
before an object - with
one eye it has a certain
position with the other
it has a different but
with both it retains the
best position. D - P -

How long will
it retain this best position?

~~340~~ The characters of the pla-
 nets & Mercury & Venus
 & Mars & Jup. & Sat.
 are very ancient. The first
 represents ^{the} Caduceus. The
 next a mirror. Mars a battle
 and Part Jup. the first letter
 of his Greek name, and
 Saturn a sickle, this
 however is disputed —

~~341~~ The phases of Venus are
 no proof of the Copernican
 system, they equally prove
 the truth of the Ptolemaic

~~342~~ The inferior planets
 are longer direct than
 retrograde, in the former

case they move with the sun
of the earth and their own motion
in the latter with the Jupiter -

~~§ 9.~~ The position of the heaven
by bodies is ascertained by
any great circle and its sec-
ondary - The Meridian is a se-
condary both of the Equator
and horizon - A point in
a room, whose distance from
two of the walls at right
angles to each other is
given, has its position as-
certained -

~~§ 10.~~ Plans of Orbits and other
curves shown by curved
proper figures -

346. That part of the Equator
of time arising from the
obliquity of the ecliptic is
X the difference between the Hy-
pothenuse and base of a right
angled ^{triangle} ~~triangle~~
in the first ad third second -
fourth quarter alike & equal

~~346~~ A sidereal clock always
shows twelve when the
first of June is on the
meridian - and consequently
the right ascension of all
the heavenly bodies when
they pass the meridian

~~347~~ A star seen by a Tele-
scope in Day light does
not appear so bright but

more distinct than at night

~~218~~ ~~219~~ ~~220~~ ~~221~~ ~~222~~ ~~223~~ ~~224~~ ~~225~~ ~~226~~ ~~227~~ ~~228~~ ~~229~~ ~~230~~ ~~231~~ ~~232~~ ~~233~~ ~~234~~ ~~235~~ ~~236~~ ~~237~~ ~~238~~ ~~239~~ ~~240~~ ~~241~~ ~~242~~ ~~243~~ ~~244~~ ~~245~~ ~~246~~ ~~247~~ ~~248~~ ~~249~~ ~~250~~ ~~251~~ ~~252~~ ~~253~~ ~~254~~ ~~255~~ ~~256~~ ~~257~~ ~~258~~ ~~259~~ ~~260~~ ~~261~~ ~~262~~ ~~263~~ ~~264~~ ~~265~~ ~~266~~ ~~267~~ ~~268~~ ~~269~~ ~~270~~ ~~271~~ ~~272~~ ~~273~~ ~~274~~ ~~275~~ ~~276~~ ~~277~~ ~~278~~ ~~279~~ ~~280~~ ~~281~~ ~~282~~ ~~283~~ ~~284~~ ~~285~~ ~~286~~ ~~287~~ ~~288~~ ~~289~~ ~~290~~ ~~291~~ ~~292~~ ~~293~~ ~~294~~ ~~295~~ ~~296~~ ~~297~~ ~~298~~ ~~299~~ ~~300~~ ~~301~~ ~~302~~ ~~303~~ ~~304~~ ~~305~~ ~~306~~ ~~307~~ ~~308~~ ~~309~~ ~~310~~ ~~311~~ ~~312~~ ~~313~~ ~~314~~ ~~315~~ ~~316~~ ~~317~~ ~~318~~ ~~319~~ ~~320~~ ~~321~~ ~~322~~ ~~323~~ ~~324~~ ~~325~~ ~~326~~ ~~327~~ ~~328~~ ~~329~~ ~~330~~ ~~331~~ ~~332~~ ~~333~~ ~~334~~ ~~335~~ ~~336~~ ~~337~~ ~~338~~ ~~339~~ ~~340~~ ~~341~~ ~~342~~ 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350. ... from which have sup-
 plied the City of Edw. with
 water in Dublin there are
 papers

~~351~~ The appearance of Venus
 in her greatest obs. the same
 dark affords a sufficient
 proof that she is an opake
 body —

~~352~~ The decrease of the Obliquity
 of the ecliptic is owing
 to the motion of Venus
 nodes, the ecliptic and Eq.
 will never coincide. They
 will approach within
 degrees of each other —

~~303~~ Now the Ptolemaic
or Tycho's system base
the motion of the superior
planets through irregular
could never be retrograde.

~~304~~ What is the interval
on the scale of music be-
tween C natural and C[#]

~~305~~ The moon has four
librations, the Libration
in Longitude, in Longitude,
the Diurnal Libration
and the

~~956~~ Arguments for a lu-
x nor then or there - In a
solar eclipse the limb of
the sun appears a little
Darker before the catenoid
contact, Venus's horns
appear a little below her
before the occultation by
the moon. - When the
moon is totally eclipsed
flashes of light being
appreciated darting across
her Disk. - Suppose
her shadow in proportion
to the earth it would
be determined in the
way

~~257~~ The satellite which
M. Short thought he saw
near Venus was owing to
an optical deception, in the
reflecting telescope which
can be shown at any time

~~258~~ Saturns ring makes
an angle of 30° with the
plane of the Ecliptic and
therefore must always
be seen from the earth
obliquely, must appear
elliptical, looks like
a great number of con-
centric circles brightest
on the inside. Saturns
ring may disappear from
four different causes. when

The Dye of the evening is toward
the east 2 when the upper
part is unlightened and the
under part towards the east
3 when vice versa. 4 -

The ring is solid and their
in breadth is equal to the
distance from Saturn's body
= $\frac{1}{5}$ of Saturn's diameter. -

~~Fig~~ The Jewelobe, an instru-
ment for showing the
configuration of ~~the~~
Jupiter's Satellites -

~~Fig~~ To discover a good shell
from a worn perfect key
it is upon a hot paper
if good the dye will appear.

~~361~~. The Lunar Mountains
are commonly thought
to be 9 miles high but
by more accurate measure-
ment they are found
only three miles high.

~~362~~. If a clock pendulum
has lain in horizontal
position for some time
it will gain time when
first put up - & lose the

~~363~~. When a pendulum
is applied to clock work
it goes faster than when
single - the center of oscillation
is not exactly coinciding
with the center of mass.

364. Mercator's pendulum
M invented by Mr. Graham.

365. Grid iron pendulum,
by Mr. Harrison. This dis-
M proved by Graham.

— Theory of the compound
pendulum
Must be determined by
Experiment - mistakes
not vapour always the
same quantity —

366. When the pendulum hangs
by a spring. The center
of motion is unalterably
M changing this occurs
a motion up and down
in the crutch - Doctor
makes proposals to correct
this by hanging the pen-
dulum on a fixed

Diamond fixed in a piece of
marble, a groove through the
upper part of the pendulum
with a steel point to rest
on the Diamond —

X Springs cannot regu-
late a motion unless on

a pendulum. — They at-
tend their shops in every

part of the vibration —
this is partly removed
by the spiral spring

invented by M. Hooke —
The effects of heat on a

spring are partly removed
by 1.° making the ball
of two different metals.
and the radii unequal.

or I⁹ by making a brass joint
the curb but this cannot be
done in a case —

~~268~~ Whether is strong or small
bees hottest when boiling?

~~269~~ Would it not be better
to cover a conductor with
lead than paint or varnish
it in a case? —

~~270~~ There are in the human
body 30 different secretions
all from the blood

~~271~~ In the organ of hearing
there are about 100 muscles
concerned

~~272~~ The lungs when inflated
are equal to 500 square ft.

273. The cerebral part of the
air is finer in texture, in-
cluded a small part is found

~~274.~~ Arterial blood is more
fluid than venous

~~275.~~ Heat Degrees above
the human temperature
can easily supported by
Muss?

owing to Evaporation -
body surrounded with an
atmosphere - bathing
in warm water -

276 Object invented on the
retina from habit - has
the same position with

respect to the earth. —

~~377~~ 377. Why do we see objects
single with two eyes.
Each eye sees the object on
the line of the axis and con-
sequently in the same place.
— two bodies cannot be in
one place. —

~~378~~ 378. It is said the mind can
not attend to more than
one object at a time. —
Does it not move a suc-
cession of muscles at once?

~~379~~ 379. The legs perfect the
animal the more be-
nacious of life. The
sublime most of all
— a noble —

950. All animals but man
have a natural covering —
— Skin would have been the
sense of feeling — Most qua-
drupeds have a membrane
below the skin called
by which they can
stretch their skin and throw
off their skin. Man has no
need of this he has hands.
— The insertion of the muscles
in quadrupeds is further
X from the joints than in
man — by this they are
stronger but do not live
so long —

354. The sea violet was first
thought a mammal, then
a vegetable, but is now found
to be a production of the
sea pollype, How can any
mind the length of time be
to raise such stupendous
rocks as are found in the
sea? —

355. Calcareous earths, made
lime &c. are all the pro-
ducts of shells — While
therefore the larger animals
range the surface of the
earth — the means are
employed in laying the
foundations of islands the

support of empires and nations

949. A Lobster casts a piece
with its claw = leg, & wounds
— change its scales every year
— retains into some safe corner
— taken from 1 to 3 days, he
— gins at the tail, next the
head and lastly the claws
— is very tenacious of life —
— When any thing holds fast
its leg, it can withdraw it
self leaving the shell.

954. Many quadrupeds such
as the Cat - Weasel &c. & in
almost all birds have
a thin membrane which

They can draw over the eye
for its protection, thro' this
they see imperfectly, the
Eagle by this means can
look steadily on the sun -

~~255~~ The chick can be per-
ceived to hum after
incubation breaks out
itself

~~256~~ It was necessary that
fowls and other birds
be overpowered, had the
carried their young they
would have been too
heavy for flying and
swimming -

~~257~~ 257. Ships are seldom
struck ^{with lightning} or a storm the
waves and spray prevent
this - unless a anchor

~~258~~ 258. Through what part
of the egg is the Electric
shock ^{transmitted} - probably the
white - Electric force
not in incubation.

~~259~~ 259. Two conductors a pos.
and negative. Destroy the
electric power of the Machine
two jars charged the one
positive the other negative
(Discharge each other.)

~~390.~~ Joints on vegetables
were intended for the cir-
culation of Electricity, will
not the growth of a plant be
retarded by cutting off the
joint or covering it with
a piece of glass tube? —

~~391.~~ Whether does brass or iron
conduct best? the Electrical
matter prefers an iron con-
ductor to a brass, in some
experiments — proof.

392. In what part of the
body and in what man-
ner does the electrical mat-
ter act. —

~~393.~~ Whether should the
Barometrical gland be
in small Islands or
large continents —

~~27~~ In evaporation is there
- does it be a shallow
depth or a narrow and deep
one again most fact?

~~28~~ When the leg of a foot
is bended at the joint the
same muscle bends in-
ward the toe by this
means the foot is kept
fast to the branch when
it sleeps.

~~29~~ Is thunder as loud and
as frequent ~~it~~ on any
sea as it is near some
Shores? —

~~397~~ What is the best sea-
gauge? -

~~398~~ If a small hole is made
in a card and a pin
passed slowly over it the
pin appears to move
in the contrary direction
than the cause

~~399~~ If a Glass ^{convex} speculum
is held before ~~the~~ a
furnace it becomes
heated but reflects no
heat only light: but
if it is of metal it re-
mains cool and reflects
heat as well as light
- the cause -

X
400. What is the reason of the
Distinction of the West India ^{the}
into Windward and Leeward? —
— Should not the terms have been
reversed? —

X
401. It is affirmed that the word
word at the Town is same in
way perhaps of the Kings Dominions
How is it conveyed? —

~~402.~~ Theory says that ~~the~~
A the force requisite to draw
M a wheel is in the direct ratio
of the axle to the wheel — can
this be proved by experiment?

403. Would not jetties built
on both sides the river tend
to disperse it and carry away
the bar? —

~~404~~ In powder mills they
have two sometimes three
M sieves, when three, the powder
stopped at the second is can-
non powder, at the third,
mint powder?

405. Powder is glazed by heating
it in a barrel that has
held black lead.

~~406~~ Might not the force of
the air gun be greatly in-
creased by the application
of heat?

~~407~~ Might not the force of
gun powder be greatly in-
creased by firing it in con-
densed air?

~~408.~~ The Dry rot in wood will
destroy a floor or other part
— of a house in a few years
M it is said to begin at the
foot of the staircase and
around — is infectious or new
floor will receive the infection

X
409. In building a square
stack of stones may with a
— round vent — it is better to
M build each distinct and
fill up the spaces at the
angles — bricks join better

X
410. In battening a brick
— wall the bricks should
M be laid horizontal — and
the ends reduced to the
— slope — can be joining

~~What~~ What effect has salt water
on fish? - will fishes kept long
M. slowly in salt water Decay
sooner than in fresh? Does
the temperature promote or hinder
decay? - custom house -

212. Sept. 7^h 1782 Fri Day.
went aboard the St. Louis
along with Capt. M. Bird
from whom I learned -

~~The~~ The Lee line Capt. M. Bird
thinks preferable in most
cases to the weather line
particularly for the declining
flat - you must edge down
to attack the lee line then
bear a way large, you must
again edge down &c -
Lee line can see the weather

low more distinctly than a candle
the smoke of the lee gun rises and
you would see the enemy below it
than on the weather side - Also the
helm's man can see better - ~~There~~
snow captured on the Deck of the
weather line - When it blows
the lower parts shoot - weather
line consists of - Capt. M. M.
would always wish to attack a
frigate on the lee bow -
Disabled ship with difficulty
removed from the weather line

~~the~~ Capt. Jarvis said the Deck
on board the harbor gunboat
this not the safest place to board
because you are exposed to all the
fire of the quarrel Deck - Better to
board on the Deck in this
situation your quarrel Deck fire
affects you greatly, it is all thrown
obliquely into the advance ship -

~~the~~ Sparring is always made fast
to the cable from the bow, when
the ship is at anchor and it be-
comes necessary to put a Spring
on the cable it may be done
in a quarter of an hour or 10'.
If the Spring be on the ^{the} Starboard
side of the anchor the cables
are kept as much down in
the water as possible by spring

of iron hanging on them. When
I am to move across the current
I drag it by two anchors on the
the bow the other from the stern
~~the~~ Capt. M. M. approves much
of the cannonades, has improved
the carriages, the screw part which
was formerly fixed to the deck
he has made moveable and
longer - The screw is 18 ft.
long with Cannon shot consist-
ing of 72 Iron round balls
they flew to the distance of more
than a mile I am convinced
it would have done execution
at a ^{greater} mile - I mentioned
the objection of their hurting the
ports. to this he replied that
in most cases every gun was

in Paris respect a cannonade as
they often were not and sometimes
could not be run out of the port
on account of the

~~417~~ Capt. M. B. is entirely of
my op.ⁿ respecting the windage
and charge - He always begins
with the (American) charge = $\frac{1}{4}$
He also agrees with me in
thinking wrong that the only
effectual - single when at a
distance and two when near
the charge the same.

~~418~~ He uses a new method
for the cannonade, consisting
of the wire with two or three
strands of quick matches along
it, it is much preferable to the

butas, takes fire instantly by and
under me. —

X
419. Cap. M. B. has composed
a new set of signals on an
sudden plan —

420. He affirms that those
signals which are known to
every nation in Europe shall
be the most precise — such
as the signal for battle,
for all cruises, and for
taking.

421. He admires how
the signal for battle always
below his flag —

422. Cap. M. B. never speaks
Marines. He says, he always

their fire is of little use. He holds
murdering in great contempt.

~~423.~~ He blames the English for
entering too readily in to action
says he always wishes to receive
the enemy and the first fire -
men to lay down - great advantage

424. The royal George was
lost Cape M^o P^o - says,
by the greatest mismanagement!
- her lower parts were
left open and the Gun
on the lee side were
run out. The Guns on
the weather side were
broken in several places
and used for the purpose

of making her float some alle-
vations on her side below water
- a light was hoisted on board
this together with a sudden gust
of wind blew her over on her
beam ends, she fell and went
down in 2 minutes. On the
first alarm the men were ordered
to the lee side to haul in the
lower Deck Guns and if possible
shut the ports. This made the
vessel still heel more. Had
they run out the Guns on the
weather side it would probably
have saved the ship. Adm.
Pomplunett is perhaps better
than had he been saved
- he could never have enjoyed
any peace of mind.

X
125. Mr. Walker proposed
to construct a Double Gate
with Doors that would open
and shut with the tide in
order to improve the harbour
of Dublin -

X
126. All the operations
on board the Arcton are
conducted to the music of
the fiddle. - Boatwain's pipe
begins, alters the time of the
dance, the signal for leaving
for leaving off.

X
127. Capt. M. B. sent the
Dutch into the East by
making signals to the
people and she expecting
from English fleet suspect by

The Dutch to be at my great Dis-