No. 1

— Chemistry —

— Gases —

× Bladders filled with Hydrogen

— Silk bag & other contrivances for Nitrous oxyd —

— Iron and Copper filings —

— Muriate of Ammonia. —

— Nitrous Acid for mf. Experiments

— Pure Nitric Acid —

— — Muriatic —

— A little Sulphuric Acid

— Phil. Jar with respiring

— Balloon — Paper — Silk —

— Galvanic Pile and trough prepared — Esp. of an drowned animals —

— Gum Benzoin — Flour paste —

Experiments

1. Oil and water – add Alkali

2. Equal quantities of oil Turp: highly rectified Alco – and concentrated solution of carbonate of pot ash – will all separate –

3. Oil Turpentine & Rect: alcohol

4. ~~Half~~ a glass full of Sulph: acid and half that quantity of water or alcohol, heat greater than that of boiling water is produced – Caution in the two last Ex

5. Mix a concentrated solution of Carbonate of pot ash ~~to~~ with sulphuric acid – P.t sulphate of P

6. Two globules of Mercury attract each other

7. Plate of Glass prepared on a drop of Mercury

8. Lepidoptera attr.

9. Glass plates — Hyperbola

10. Immerse a piece of Tin, lead Bismuth taken or Gold in Mercury, a portion of the Mer. cannot be scattered off from the Metal.

11. Drop of water is spherical

12. Lepidoptera or other bodies in Mercury — surface must be broken or cut

13. Magnetic repulsion

14. Two small corks both suspended and that repel each other

15. Put over a sheet of paper with hyposodium (puff ball) if a little water be poured on it, it rolls over without touching the paper

16. If the surface of water in a bowl be covered over with hyposodium a solid substance may be taken from the bottom without touching the hand — Compensation atts —

17. Two readers both flatted on one side.

18. Take glass filled with water
— Throw it off —
19. Put into a smooth equal
parts of sulphur and mercury
Stir the substances for a few
minutes — Sulphuret of Mer.
20. Tin and iron both malleable
form a very brittle metal
21. Infusion of red Cabbage — syrup
of violets — acid — red — Alk: green
22. Muriate of Am: and Slaked
lime — odour
23. Ammonia and concentrated
muriatic acid — smoke destroyed
24. To a saturated sol.n of muriate
of lime, let fall gradually oxam:
— a solid — sulphate of lime —

25. Equal parts of fresh chrys.d
acetate of lead and acetate of
sulphate of Alumina and pot.
ash be rubbed together in a
mortar — a flame
— The same with chrys.d nitrate of
Am.a and sulphate of Soda.
26. — A solid alloy of mercury &
bismuth, and a ~~solid~~ another
compound of lead and mercury
when triturated together instantly
become fluid —
27. Bismuth 8 parts } melt well
Lead 5 } in boiling
~~Alloy~~ 3 Tin } water
28. Lead 2 Tin 3. and Bismuth 5
then 1 melt at a less heat than B. w
L

29. A composition of lead, zinc and Bismuth may be fused on a spatula over a lamp.

30 Dry Carbonate of Soda and Tartarus and mingled no change. Pour on water or let one of the salts be previously dissolved a violent effervescence takes place

31. Let a lump of fluor spar fall into concentrated Sulph: acid no change – reduce the spar to powder – Strong Action

32 Sulphate of Soda and Acetate of Lead be brought into contact with each other, no change – But in a Mortar – A stain

33. Phosphorus exposed to the Atmosphere is gradually converted into Phos: acid, but in a greater heat converted into a yellow substance which afterwards becomes phosphorous acid

34. Equal parts of Nitr: of Amm and Carbon: of Magnesia with ten or eight parts of water, and suspend to stand some time exposed to the ordinary temperature of the Atmosphere, a mutual decomposition takes place. For if evaporated spontaneously Nitrate of Magnesia, and carbonate of Amm will be obtained. The Effervescence

35. Nitrate of ~~Am~~ Soda and Sulphate of Magnesia mixed in any proportion, and exposed to a temperature below zero, they decompose each other, and Nitrate of Magnesia and Sulphate of Soda are formed

36 Ardent spirit and a solution of Salt in water — separately by diff. degrees of temperature

37. 4 parts of Comm Sulphuric acid and 1 part of water each at the temperature of 50 the mixture immediately acquires a temperature of 300

38. All the Dense acids, am. and Ardent spirit raise the temperature of water, Alkalies in Concentrated acids the same — In many instances of Cold are also produced —

39 1½ oz of Nitr: of Am. 1½ oz of Nitrate of Potash reduce to powder separately and mix them intimately together, then pour the compound into 4 oz of water in a Glass. Thin vessel — Thermr. sinks 36° — a nice addition of the same quantity of Salts will produce 14° — If the water used in the ⅓ process be lowered to about 32 and applied to a 2 prong result — 4

40. Muriatic acid poured in either pure Baryta or its carbonate — muriate of Baryta — add sulphuric acid — sulphate of Baryta

41. Silver in Nitric acid series Mercury, Lead, Copper, Iron, Zinc, Ammonia, lime water and oxalic acid —

— Saturation —

42. — Sulphuric acid dilute with 10 add gradually solution of soda — when saturated — neither red nor green prevails

43. — Same with Muriatic acid and Carbonate of lime —

44. 1 oz of Copper filings 4 oz Muriatic acid in an 8 oz phial

cork well — stand undisturbed, the acid soon a green color, which becomes deeper as the copper is dissolved — in a few days the color vanishes on shaking the vessel — Air diminished — Open the ~~bottle~~ phial the green color returns —

45. Experiments to prove the expansion of solids and fluids —

46. — Exception to the expansion of water by heat — water first expands Mercury contracts, cast iron bismuth &c when fully fused are more dense than when solid — they expand in the act of cooling + Obj.n against — Crystal. &c — cutter — same with iron — Clay loses water &c —

Conducter of heat

47 — Metallic rods covered with wax — in boiling water —

48 Count Rumford's experiments on the non conducting power of water —

latent heat — Cal: of fluidity

49. A lump of ice at temp: 22° brought into a warm room melts slowly, Therm: soon rises to 32 when it remains fixed till the whole ice is melted —

50. Take 1 lb of ice at 32 in warm powder in a wooden bowl, and pour over it gradually one pound of water at 172. ice melts and the temp: becomes 32.

140° of Calorec are therefore lost, this quant: required to conv: ice into water