ALKALIA, ET EORUM SALES.

AMMONIÆ SUBCARBONAS.

℞ Ammoniæ Muriatis libram,
Cretæ præparatæ exsiccatæ libram cum semisse;
Separatim in pulverem tere; tum misce, et sublima calore paulatim aucto, donec retorta rubescat.

Chemical Decomposition.

The muriatic acid of the sal ammoniac, from its greater affinity for lime, passes over to the chalk, and sets free the carbonic acid of the chalk, which unites with the disengaged ammonia, but not in sufficient quantity to saturate it.

'SUB-CARBONAS AMMONIÆ.'

'℞ Muriatis Ammoniæ partem unam,
Carbonatis Calcis mollioris siccati partes duas.'

'Utrumque seorsim tritum permisce, et sublima ex retorta in excipulum refrigeratum.'

"CARBONAS AMMONIÆ."

'℞ Muriatis Ammoniæ in pulverem redacti et probe siccati.
Carbonas sodæ siccati, utriusque similibram.'

"Commista retortæ immittito figulinæ; et calore gradatim aucto sublima in excipulum refrigeratum."

Chemical Decomposition.

From its greater affinity, the muriatic acid passes over to the soda, forms common salt, and sets free the carbonic acid, which passes to the ammonia. The preparation forms a coating on the sides of the vessel.

LIQUOR AMMONIÆ.

℞ Ammoniæ Muriatis uncias octo,
Calcis recentis uncias sex,
Aquæ octarios quatuor;
Calci superinfunde Aquæ octarium; tum vas con-

tege et sepone per horam; dein Ammoniæ Muriatem et reliquam Aquam, prius fervefactam adjice, et vas iterum contege; liquorem postquam refrixerit cola; tum distillent Liquoris Ammoniæ fluidunciæ duodecim.

Liquoris Ammoniæ pondus specificum est ad pondus Aquæ distillatæ ut 0.960 ad 1000.

Chemical Decomposition.

The muriate of ammonia is decomposed by the quicklime which unites with the muriatic acid, while the ammonia passes over, combined with water. At the temperature of 130° the ammonia is disengaged in the form of gas.

'AQUA AMMONIÆ.'

'℞ Muriatis Ammoniæ libram,
Calcis recentis libram cum semisse,
Aquæ distillatæ libram,
Aquæ uncias novem.'

'In vase ferreo vel figulino Calci contusæ affunde Aquam vas operito donec Calx, in pollen dilapsa, frigiuerit; dein Muriatem in pulverem tenuissimum tritum, cum Calce terendo in mortario permisce, et protinus retortæ vitreæ inde. Ponatur retorta in balneo arenæ, et accurate conglutinetur excipulus tubo instructus, qui immittatur ad imum fere phialæ Aquam destillatam continentis. Sit tamen phiala tantæ capacitatis, ut duplum Aquæ continere possit. Tandem supponatur ignis, sensim augendus, donec fundus ollæ ferreæ rubescat, et quamdiu gas et humor prodierint. Hujus Aquæ Ammoniæ pondus specificum est ad pondus Aquæ distillatæ ut 0.939 ad 1000. In phialis parvis bene obturatis servari debet.'

"AQUA AMMONIÆ CAUSTICÆ."

"℞ Muriatis Ammoniæ uncias sexdecim,
Calcis recens ustæ libras duas,
Aquæ *mensurâ* libras sex."

"Calci, vasi figulino inditæ, inspergatur aquæ libra, et operiatur vas. Post horas viginti quatuor, calci jam in pulverem dilapsæ, commisce salem, a vaporibus cavens; ingeratur dein mistura retortæ, superque affundatur aquæ quod reliquum fuerit. Agitatione præmissâ, distillent, callore medio, in excipulum refrigeratum liquoris *mensurâ* unciæ viginti juncturis vasorum probe conglutinatis. Pondus hujus liquoris ut 936 ad 1000."

'AQUA AMMONIÆ DILUTA.'

"℞ Aquæ Ammoniæ partem unam,
Aquæ distillatæ partes duas.'
'Misce.'

LIQUOR AMMONIÆ ACETATIS.

℞ Ammoniæ Subcarbonatis uncias duas.
Acidi acetici octarios quatuor ;

Ammoniæ Subcarbonati adjice Acidum, donec bullulæ non amplius excitentur, et misce.

Chemical Decomposition.

The carbonic acid is disengaged and flies off with effervescence, while the acetate of ammonia remains in solution.

'AQUA ACETATIS AMMONIÆ'

'℞ Sub-Carbonatis Ammoniæ triti quantum velis,
Acidi Acetici tenuis quantum satis sit.'

'Affunde paulatim Acidum donec Sub-Carbonas accurate saturetur.'

"AQUA ACETATIS AMMONIÆ."

"℞ Carbonatis Ammoniæ uncias duas."

"Adde paulatim, sæpius agitans, aceti distillati *pondere* libras tres cum semisse, vel quantum satis sit ut saturetur ammonia. Hoc ope litmi innotescit."

LIQUOR AMMONIÆ SUBCARBONATIS.

℞ Ammoniæ Subcarbonatis uncias quatuor,
Aquæ distillatæ octarium ;

Liqua Ammoniæ Subcarbonatem in Aquâ, et per chartam cola.

Chemical Decomposition.

The filtration is intended to remove the undissolved portions of the carbonate or any foreign matters which may be present.

'SOLUTIO SUBCARBONATIS AMMONIÆ.'

'℞ Subcarbonatis Ammoniæ partem unam,
Aquæ distillatæ partes quatuor.'

'Solve Subcarbonatem in Aqua, et per chartam cola.'

"AQUA CARBONATIS AMMONIÆ."

"℞ Muriatis Ammoniæ libram,
Carbonatis Sodæ uncias viginti octo,
Aquæ *mensurâ* libras tres."

"Distillent calore gradatim aucto libræ duæ *mensurâ*. Pondus hujus liquoris specificum est ad pondus aquæ distillatæ ut 1095 ad 1000."

Vide "Carbonas Ammoniæ."

"LIQUOR VOLATILIS CORNU CERVINI."

"℞ Cornu Cervini quantum velis."

"Retortæ ingeratur, et distillent, calore gradatim aucto, liquor volatilis, sal, et oleum; iteretur dein distillatio liquoris volatilis, usque dum limpidus instar aquæ evaserit, oleo et sale post singulas distillationes, colando separatis. Facilius depurgabitur liquor si, singulas post distillationes, primâ exceptâ, ei addatur pondere sexta circiter pars carbonis ligni prius ad rubedinem calefacti, dein extincti arena superfusâ, atque, dum calet, in pulverem redacti. Si cornua cervina minus supetant, ossa animalium terrestriam quorumcunque vicem eorum supplere poterunt."

Chemical Decomposition.

The ammonia which comes over is in the state of a subcarbonate, and is combined with water and an empyreumatic oil. That kept in the shops is often adulterated with water, the requisite pungency being kept up by a small portion of liquor ammonia. Alcohol will discover the adulteration.

LIQUOR POTASSÆ.

℞ Potassæ Subcarbonatis libram,
Calcis recentis libram dimidiam,
Aquæ distillatæ ferventis congium;

Liqua Potassam in Aquæ octariis duobus. Calci adjice Aquæ quod reliquum est. Liquores calentes inter se misce, tum sepone in vase clauso, et, postquam refrixerint, per pannum gossipinum cola. Si Acidum dilutum quodlibet instillatum bullulas excitet, plus Calcis adjicere oportebit, et iterum colare. Hujus Liquoris octarius pendere debet uncias sedecim.

Chemical Decomposition.

By the carbonic acid going over to the lime, the potass is set free, and is dissolved in the water, leaving the carbonate of lime on the filter.

'AQUA POTASSÆ.'

'℞ Calcis recentis uncias octo,
Subcarbonatis Potassæ uncias sex,
Aquæ bullientis uncias viginti octo.'

'Calci in vase ferreo vel figulino affundantur Aquæ unciæ vignti. Ebullitione peracta, statim addatur Sal ex

Aquæ unciis octo solutus; omnibusque bene permistis, vas operiatur donec frigescant. Frigefacta, materia, prius bene agitata, effundatur in infundibulum vitreum, cujus guttur linteolo puro obstructum sit. Infundibuli os superius operiatur dum tubus ejus alii vasi vitreo inseratur, ut Aqua Potassæ per linteolum in vas suppositum sensim stillet. Cum primum stillare desierit, affundantur in infundibulum Aquæ unciæ aliquot, sed caute, ut ea materiam supernatet. Incipiet iterum stillare Aqua Potassæ. Sic autem iteranda est Aquæ affusio, donec stillaverint libræ tres, quod bidui vel tridui spatio fiet; dein liquoris partes superiores cum inferioribus agitatione misceantur; ipseque in vase bene obturato servetur.'

"AQUA KALI CAUSTICI."

"℞ Calcis recens ustæ uncias octo
Subcarbonatis kali, uncias sex."

"Calci, vasi figulino inditæ inspergantur aquæ ferventis mensurâ libræ duæ, eidemque extinctæ immisce salem et operiatur vas. Materia, simul ac refrixerit, in infundibulum vitreum, cujus guttur linteo fuerit oppilatum, immittatur. Cooperto infundibulo, stillet lixivium in vas subjectum, aquâ identidem affusâ donec stillaverint pondere libræ tres. Agitetur liquor, et in vase e vitro viridi conflato probè obturato servetur. Lixivium ritè puratum coloris et odoris expers erit, et cum acidis mistum vix effervescet. Si notabilis fuerit effervescentia, addatur calcis recens ustæ in pulverem tenuissimum redactæ pauxillum; digere, per horas viginti quatuor, in vase clauso, subinde agitans; coletur denique lixivium modo jam præscripto.—Pondus hujus liquoris specificum est ad pondus aquæ distillatæ ut 1100 ad 1000."

Chemical Remarks.

The funnel is ordered to be stopped, to prevent carbonic acid gas being attracted from the external air. Calico is best adapted for this purpose.

LIQUOR POTASSÆ SUBCARBONATIS.

℞ Potassæ Subcarbonatis libram,
Aquæ distillatæ fluiduncias duodecim;
Liqua Potassæ Subcarbonatem in Aquâ, et per chartam cola.

Chemical Remarks.

This differs from the old formula, and from that of the Dublin College, in not being reduced in strength by the exposure necessary for deliquescence, and the consequent attraction of carbonic acid from the air.

"AQUA SUBCARBONATIS KALI."

"℞ Subcarbonatis kali quantum velis."

"Immittatur in infundibulum patens vitreum cujus guttur linteo obturetur; hoc reponatur in caveâ ut sal sub aëre humido liquescat. In vas subjectum recipiatur lixivium."

Chemical Remarks.

Instead of a subcarbonate, this is nearly a neutral carbonate, from the quantity of carbonic acid attracted from the air.

POTASSA CUM CALCE.

℞ Liquoris Potassæ octarios tres,
Calcis recentis libram;

Decoque Liquorem Potassæ ad octarium; dein adjice Calcem, affusâ aquâ resolutam, et diligenter misce.

Chemical Remarks.

The lime and potass being both alkaline, do not, of course, combine chemically. The preparation is less deliquescent than pure potass.

'POTASSA CUM CALCE; OLIM, CAUSTICUM COMMUNE MITIUS.'

'℞ Aquæ Potassæ quantum velis.'

'Vaporet ad tertiam partem in vase ferreo o[illegible] dein admisceatur Calcis recens extinctæ et tritæ, quantu[illegible]ciat ad pultis solidioris crassitudinem dandam. Servetu[illegible]eries in vase bene obturato.'

"KALI CAUSTICUM CUM CALCE."

"Vaporet aqua kali caustici ad tertiam partem; dein adde calcis recens ustæ in pulverem redactæ quantum satis sit ut fiat massa spissitudinis idoneæ, in vase probè obturato servanda."

POTASSA FUSA.

℞ Liquoris Potassæ congium;

Aquam in vase ferreo nitido ad ignem consume, donec, ebullitione finitâ, Potassa liquefiat: hanc super laminam ferream effunde in formas idoneas.

Chemical Remarks.

Unless the process be very rapidly conducted, carbonic acid is attracted from the air, and injures the preparation.

'POTASSA; OLIM, CAUSTICUM COMMUNE ACERRIMUM.'

'℞ Aquæ Potassæ quantum velis,'

'In vase ferreo mundissimo operto vaporet, donec, ebullitione finita, Materies Salina instar olei tranquille fluat, quod fit antequam vas igne rubescat. Dein effundatur super laminam ferream nitidam: in massulas secetur antequam durescat, et illico in phiala bene obturanda reponatur.'

"KALI CAUSTICUM."

"℞ Aquæ kali caustici quantum velis."

"Super ignem in vase ferreo mundissimo vaporet donec, ebullitione peractâ, materies salina, aucto calore, in vase ferè quiescat. Sal liquefactus effundatur super laminam ferream atque, inter concrescendum, secetur in massas idoneas quæ illicò in phialam probè obturandam immittendæ sunt. Inter vaporandum caveat operarius a guttulis e vase ejectis."

POTASSÆ ACETAS.

℞ Potassæ Subcarbonatis libram cum semisse,
Acidi acetici congium,

Simul misce in vase vitreo capaci, et, parte dimidiâ ad ignem consumtâ, insuper instilla paulatim Acidi acetici quod satis sit ad plenam saturationem. Liquor iterum ad dimidium vaporet, et coletur; tum balneo aquoso consumatur, sic ut, ab igne remotus, in crystallos abeat.

Chemical Decomposition.

The acetic acid unites with the potass, while the carbonic acid escapes in the form of gas. The crystallized acetate of potass is obtained by evaporation.

'ACETAS POTASSÆ.'

'℞ Sub-carbonatis Potassæ purissimi libram,
Acidi Acetici tenuis quantum satis sit.'

'Coquatur Sub-Carbonas, in Acidi libris quinque; ac plus Acidi diversis vicibus adjiciatur, donec prioris parte aquosa vaporando fere dissipata, novum Acidum additum nullam moveat effervescentiam, quod fiet consumptis Acidi libris circiter viginti; massa postea lente exsiccetur. Sal hic impurus, leni igne aliquantisper, nec justo diutius, liquefiat; dein solvatur in Aqua, et per chartam coletur. Si liquefactio rite peracta fuerit, liquor colatus limpidus erit, sin minus, coloris fusci. Postea, lenissimo igne vaporet hic liquor, ex

vase vitreo minime profundo, ita ut ab igne remotus, in massam crystallinam abeat. Acetas Potassæ in vase optime clauso asservari debet.'

"ACETAS KALI."

"℞ Subcarbonatis kali quantum velis."

"Repetitis vicibus adde acetum distillatum, caloris medii, pondere, plus minus, quintuplum. Cum peracta fuerit effervescentia, et aliquamdiù vaporaverit liquor, denuò adjiciatur, per intervalla, acetum distillatum donec in totum effervescere desierit mistura; continuatâ vaporatione, prodibit sal siccus, auctâ aliquantisper vi ignis, cautè liquefaciendus. Sal frigefactus in aquâ solvatur; coletur liquor, et decoquatur, donec ab igne amotus jamque frigescens in massam abeat crystallorum quæ albissima esse debet. Hæc, quam primùm, phialis immittatur probè obturandis."

POTASSÆ CARBONAS

℞ Potassæ Subcarbonatis ex Tartaro libram,
Ammoniæ Subcarbonatis uncias tres,
Aquæ distillatæ octarium.

Potassæ in Aquâ liquatæ Ammoniæ Subcarbonatem adjice: tum balneo arenæ caloris gradum 180m. adhibe per horas tres, vel donec expulsa fuerit Ammonia; denique sepone, ut fiant crystalli. Simili modo consumatur liquor reliquus, ut, ubi seposueris, iterum prodeant crystalli.

Chemical Remarks.

This is not a perfect carbonate, as it turns vegetable blues to green, and, of course, contains a portion of uncombined alkali.

'CARBONAS POTASSÆ.'

'℞ Subcarbonatis Potassæ purissimi partes duas,
Aquæ partes tres.'

'Solvatur Sal in Aqua, et in apparatu idoneo subjiciatur rivo Gasis Acidi Carbonici. Solutio, quum Acidum absorbere cessaverit, coletur, et postea vaporet calore gradum 180 haud superante, ut crystalli formentur. Acidum Carbonicum facillime obtinetur ex pari pondere Carbonatis Calcis in pulverem triti, et Acidi Sulphurici multa aqua diluti.'

Chemical Remarks.

This is a more pure and perfect preparation than the preceding one of the London College.

POTASSÆ SUBCARBONAS.

℞ Potassæ impuræ contritæ libras tres,
Aquæ ferventis octarios tres cum semisse ;

Liqua Potassam in Aquâ, et cola ; tum in vas ferreum nitidum effunde, et aquam lento igne consume, et spissescat liquor; dein, igne subducto, spathâ ferreâ assiduè move, donec Sal in grana parvula abeat—Potassæ Subcarbonas purior præparari potest, eodem modo, ex Tartaro, quod priùs ustum fuerit, donec cinerei sit coloris.

Chemical Decomposition.

The process is intended to purify the barilla from silex, alumina, iron, manganese, and the muriate and sulphate of potass, which are more or less apt to be present. Even after this process a small portion of some of these usually remains.

'SUBCARBONAS POTASSÆ.'

'Subcarbonas Potassæ impurus crucibulo inditus rubescat igne; dein cum pari Aquæ pondere, bene conteratur. Liquor, postquam fæces subsederint, in ollam ferream mundissimam effusus, decoquatur ad siccitatem ; Sal verosub finem assidue agitetur, ne vasi adhæreat.'

"SUBCARBONAS KALI."

"℞ Cinnerum Clavellatorum, in pulverem crassum tritorum, Aquæ frigidæ, singulorum libras sex."

"Misce conterendo, et macera per hebdomadam in vase patenti, subinde agitans—coletur dein lixivium et vaporet ad siccitatem in vase ferreo mundissimo—sub finem vaporationis, massa salina assiduè ope spathæ ferreæ agitetur. Hoc modo, in crassum redacta pulverem, reponatur vasis occlusis, Priusquam in aqua solvantur cineres, si minus puri sint, torreantur in crucibulo donec albi evaserint."

'SUBCARBONAS POTASSÆ PURISSIMUS.'

'℞ Super-Tartratis Potassæ impuri quantum velis.'

'Super-Tartras Charta bibula madefacta involutus, vel cru-

cibulo inditus, circumjectis prunis, in massam nigram comburatur; quæ dein contrita in crucibulo aperto, igni mediocri subjiciatur usque donec alba vel saltem cinerea fiat; cura adhibita ne liquescat. Tum in Aqua calida solvatur; per linteum coletur liquor, et in vase ferreo mundo vaporet, sub finem assidue agitatus cochleari ferreo ne materia fundo vasis adhæreat. Sal albissimus restabit, qui paulo diutius super ignem relinquendus est donec vasis fundus fere rubescat. Postremo refrigeratus in vasis vitreis bene obturatis servetur.'

Chemical Decomposition.

Carbonic acid is formed from the oxygen and carbon arising from the decomposition of the tartaric acid. This carbonic acid unites with the potass, forming a subcarbonate of potass. The preparation usually contains some lime and alumina.

POTASSÆ SULPHAS.

℞ Salis qui restat post distillationem Acidi nitrici libras duas,
Aquæ ferventis congios duos;

Misce, ut liquetur Sal; tum adjice Potassæ Subcarbonatis quod satis sit ad Acidum saturandum. Dein coque, donec pellicula supernatet, et, ubi colaveris, sepone, ut fiant crystalli. Has, effusâ aquâ, super chartam bibulam exsicca.

Chemical Decomposition.

The carbonic acid escapes in form of gas, while the superabundant sulphuric acid is neutralized by combining with the potass, and forming the sulphate.

'SULPHAS POTASSÆ.'

'Salem acidulum post distillationem Acidi Nitrosi residuum solve in Aqua calida, et admisto pulvere Carbonatis Calcis ad absumendum superfluum acidum, sepone donec fæces subsederint. Tum liquorem ab his effusum et per chartam colatum, vaporatione dispone ut crystalli formentur.'

Chemical Remarks.

This is Mr. Philips's process, and is more economical than that of the other two colleges.

"SULPHAS KALI."

"Sal qui restat post distillationem acidi nitrosi, in pulverem tritus, aquæ ferventis copia satis ampla solvatur; adde

cinerum clavellatorum quod satis sit ut saturetur acidum superfluum. Liquor colatus calore medio vaporet ut fiant crystalli."

POTASSÆ SUPER-SULPHAS.

℞ Salis qui restat post distillationem Acidi nitrici libras duas,
Aquæ ferventis octarios quatuor;

Misce, ut liquetur Sal, et cola. Dein coque ad dimidium, et sepone, ut fiant crystalli. Has, effusâ aquâ, super chartam bibulam exsicca.

Chemical Remark.

The filtration should not be performed till the liquor is cool, otherwise a copious deposition of uncrystallized salt takes place.

'SULPHAS POTASSÆ CUM SULPHURE.'

[*Nom. vet. Sal Polychrest.*]

'℞ Nitratis Potassæ in pulverem triti,
Sulphuris sublimati, pondera æqualia.'

'Bene commista injiciantur paulatim in crucibulum igne rubens. Peracta deflagratione, frigescat Sal, et in vase vitreo bene obturando reponatur.'

Chemical Decomposition.

The sulphur is partly converted into sulphuric and partly into sulphurous acid by combining with the oxygen disengaged by the heat from the nitre. The preparation consists of a mixture of sulphate, supersulphate, and sulphuret of potass.

POTASSÆ TARTRAS.

℞ Potassæ Subcarbonatis uncias sedecim,
Potassæ Supertartratis libras tres,
Aquæ ferventis congium.

Potassæ Subcarbonatem in Aquâ liqua; tum adjice Potassæ Supertartratem in pulverem tritam, donec bullulæ non amplius excitentur. Liquorem per chartam cola; dein coque donec pellicula supernatet, et sepone, ut fiant crystalli. Has, effusâ aquâ, super chartam bibulam exsicca.

Chemical Decomposition.

The non-neutralized potass [illegible] subcarbonate unites with the superabundant acid of the super-tartrate, forming a perfect neutral tartrate.

'TARTRAS POTASSÆ.'

'℞ Sub-Carbonatis Potassæ partem unam,
Super-Tartratis Potassæ partes tres, vel quantum satis sit,
Aquæ bullientis partes quindecim.'

'Sub-Carbonati in Aqua soluta Super-Tartratem in pulverem tenuem tritum paulatim adjice, quamdiu effervescentiam excitet, quæ fere desinit antequam triplum Sub-Carbonatis pondus injectum fuerit; dein liquorem refrigeratum per chartam cola, et post idoneam exhalationem sepone; ut Crystalli formentur.'

"TARTARAS KALI."

"℞ Subcarbonatis kali libram,
Crystallorum tartari in pulverem subtilissimum tritarum, libras duas cum semisse, vel quantum satis sit ut saturetur kali,
Aquæ ferventis congium."

"Subcarbonati kali in aquâ soluto tartarum gradatim adde; liquor, per chartam colatus, vaporet, et seponatur ut per refrigerationem fiant crystalli."

'AQUA SUPER-CARBONATIS POTASSÆ.'

'℞ Aquæ libras decem,
Sub-Carbonatis Potassæ purissimi unciam.'

'Solve, et subjice rivo Gasis Acidi Carbonici qui oriatur ex
'Pulveris Carbonatis Calcis,
Acidi Sulphurici, utriusque, unciis tribus,
Aquæ libris tribus, gradatim et caute commistis.'

'Huic præparationi bene convenit apparatus chemicus a Doctore Nooth inventus. Quod si majore liquoris copia opus fuerit, adhibeatur apparatus qualis dabit pressuram satis magnam. Liquor in vasis bene obturatis servari debet.'

Chemical Remark.

To impregnate the preparation sufficiently with the acid, it requires to be made on a scale considerably larger than that directed in the first part of the formula.

SODA TARTARIZATA.

℞ Sodæ Subcarbonatis uncias viginti,
Potassæ Supertartratis contritæ libras duas,
Aquæ ferventis octarios decem;

Sodæ Subcarbonatem in Aquâ liqua, et adjice paulatim Potassæ Supertartratem. Liquorem per chartam cola; tum coque, donec pellicula supernatet, et sepone, ut fiant crystalli. Has, effusâ aquâ, super chartam bibulam exsicca.

Chemical Decomposition.

The carbonic acid of the subcarbonate is disengaged, and escapes in the form of gas, while the soda, being thus set free, unites with the superabundant acid. A triple salt is the result.

'TARTRAS SODÆ ET POTASSÆ.'

'℞ Sub-Carbonatis Sodæ partem unam,
Super-Tartratis Potassæ partes tres, vel quantum satis sit,
Aquæ bullientis partes quindecim.'

'Sub-Carbonati in Aqua soluto Super-Tartratem in pulverem tenuem tritum paulatim adjice, quamdiu effervescentiam excitet, quæ fere desinit antequam triplum Sub-Carbonatis pondus injectum fuerit; dein liquorem refrigeratum per chartam cola, et post idoneam exhalationem sepone, ut Crystalli formentur.'

"TARTARAS SODÆ ET KALI."

"℞ Carbonatis Sodæ, uncias viginti,
Crystallorum tartari, in pulverem subtillissimum tritarum, libras duas,
Aquæ ferventis *mensurâ* libras decem."

"Carbonati Sodæ in aquâ soluto gradatim adde tartarum; liquor, per chartam colatus, vaporet, et seponatur ut lentâ refrigeratione fiant crystalli."

SODÆ CARBONAS.

℞ Sodæ Subcarbonatis libram,
Ammoniæ Subcarbonatis uncias tres,
Aquæ distillatæ octarium;

Sodæ Subcarbonati in aquâ liquatæ Ammoniam adjice; tum balneo arenæ caloris gradum 180m. adhibe per horas tres, vel donec Ammonia expulsa fuerit. Denique sepone, ut fiant crystalli. Simili modo consummatur liquor reliquus, et seponatur, ut iterum prodeant crystalli.

Chemical Remark.

Mr. Phillips says that it requires half an ounce more of the Subcarbonate of Ammonia than is ordered, to form the Bi-Carbonate of Soda. The preparation contains double the quantity of Carbonic Acid that the Carbonate of Potass does.

'CARBONAS SODÆ.'

'℞ Sub-carbonatis Sodæ partes duas,
Aquæ partes tres.'

'Solvatur Sal in Aqua, et subjiciatur rivo Gasis Acidi Carbonici, donec Acidum absorbere cessaverit. Tum coletur liquor, et postea vaporet calore gradum 180 haud superante, ut massa crystallina formetur. Acidum Carbonicum facillime obtinetur ex pari pondere Carbonatis Calcis triti, et Acidi Sulphurici multa aqua diluti.'

SODÆ SUBCARBONAS.

℞ Sodæ impuræ in pulverem tritæ libram,
Aquæ distillatæ ferventis octarios quatuor;

Coque Sodam in Aquâ per horam dimidiam, et cola. Hæc vaporet ad octarios duos, et seponatur, ut fiant crystalli. Liquorem superstitem rejice.

Chemical Decomposition.

Half an hour, as directed, is too short a time for completing the boiling. The magnesia, lime, alumina, and silex which exist in barilla, are separated by the filtration; while the muriate and sulphate of soda are separated during the crystallization of the salt.

'SUB-CARBONAS SODÆ.'

'℞ Sub-Carbonatis Sodæ impuri quantum vis.

'Contunde, tum coque ex Aqua donec omnis Sal aqua diluatur. Dein per chartam coletur solutio, et in vase ferreo vaporet, ut post refrigerationem concrescant Crystalli.'

"CARBONAS SODÆ."

(Syn. *Sub-Carbonas Sodæ.* Lond. et Ed.)

"℞ Barillæ in pulverem tritæ libras decem,
Aquæ congios duos."

"Barillam in aqua coque per horas duas in vase cooperto, identidem agitans; liquorem cola, et quod barillæ reliquum

erit triturato iterumque in pari aquæ quantitate coque: hoc tertio fieri potest. Lixivia colata et commista in vase ferreo patenti ad siccitatem residui vaporent, cura adhibita ne, aucto nimium calore, iterum liquescat massa salina quæ restabit; agitetur hæc spatha ferrea donec alba evaserit: aqua ferventi denique solve et post justam coctionem; sepone ut lenta refrigeratione fiant crystalli. Puriores hæ prodibunt, si ante singulas coctiones, barilla per aliquod tempus aeri exponatur. Crystalli fieri debent dum aer ad temperaturam aquæ conglaciantis accedit et in liquore cujus pondus specificum est ad pondus aquæ distillatæ ut 1220 ad 1000. Salis, si minus purum sit, repetatur solutio iterumque fiant crystalli."

SODÆ SUB-CARBONAS EXSICCATA

℞ Sodæ Sub-Carbonatis, libram;

Sodæ Sub-Carbonati, in vase ferreo nitido, calorem ferventem adhibe, donec penitus exsiccetur; eamque simul spathâ ferreâ assiduè move. Denique in pulverem tere.

Chemical Remark.

Dr. Beddoes's process of drying the crystals before a fire, will not expel so much of the carbonic acid, and is therefore preferable to this of the college,

"CARBONAS SODÆ SICCATUM,"

"Crystalli carbonatis sodæ in crucibulo argenteo super ignem liquefiant aucto dein calore, agitetur sal liquefactum, donec, absumpta aqua, siccum evaserit. Hoc, in pulverem tenuem tritum, phialis servetur clausis."

Chemical Remark.

This is the preparation which is best adapted for making soda pills, since they do not crack as when made with the powdered crystals.

'AQUA SUPER-CARBONATIS SODÆ.'

'℞. Aquæ libras decem,
Sub-Carbonatis Sodæ uncias duas,
Solve, et subjice rivo Gassi Acidi Carbonici qui oriatur ex.'
'Pulveris Carbonatis Calcis,
Acidi Sulphurici, utriusque, unciis tribus,
Aquæ libris tribus, gradatim et caute commistis.'

'Huic præparationi bene convenit apparatus chemicus a Doctore NOOTH inventus. Quod si majore liquoris copia opus fuerit, adhibeatur apparatus qualis pressuram satis magnam dabit. Liquor in vasis bene obturatis servari debet.'

SODÆ SULPHAS.

℞ Salis qui restat post distillationem Acidi muriatici libras duas.

Aquæ ferventis octarios duos cum semisse:

Liqua Salem in Aquâ: tum adjice paulatim Sodæ Subcarbonatis quod satis sit ad Acidum saturandum. Decoque, donec pellicula appareat, et, ubi colaveris, sepone, ut fiant crystalli. Has, effusâ aquâ, super chartam bibulam exsicca. [*Vide* Sulphas Potassæ.]

Chemical Remark.

It is this preparation which forms the basis of Cheltenham Salts.

'SULPHAS SODÆ.'

'Salem acidulum post distillationem Acidi Muriatici residuum solve in Aqua, et, admisto pulvere Carbonatis Calcis, ad absumendum superfluum Acidum, sepone donec fæces subsederint; tum liquorem ab his effusum, et per chartam colatum, vaporatione dispone, ut Crystalli fomentur.'

Chemical Remark.

This process is more economical than that of the London College.

"SULPHAS SODÆ.

"Sal qui restat post distillationem acidi muriatici aquæ ferventis sufficiente quantitate solvatur. Liquorem colatum, post debitam exhalationem, sepone ut refrigerationem lenta fiant crystalli."

Chemical Remark.

Though the crystals formed by this process are the same in form as when produced by the processes of the other Colleges, they contain a small portion of sulphuric acid loosely combined, which is apparent to the taste, and may be detected by muriate or nitrate of Barytes.

'PHOSPHAS SODÆ.'

'℞ Ossium ad albedinem crematorum, et in pulverem tritorum, libras decem,
Acidi Sulphurici libras sex,
Sub-carbonatis Sodæ quantum satis sit.'

'Pulverem Ossium in vase figulino cum Acido Sulphurico permisce; dein adde Aquæ libras novem, et iterum permisce; tunc vas in aquæ bullientis vapore fove per tres dies, quibus elapsis, materiam Aquæ bullientis libris novem dilue, et per pannum linteum fortem cola; quuam bullientem denuo massæ superinfunde, donec Acidum omne Phosphoricum eluatur. Liquorem colatum sepone, ut fæces subsidant, a quibus effunde: dein, vaporatione, minue ad libras novem. Huic liquori a fæcibus effuso, et calefacto in vase figulino, adde Sub-Carbonatem ex Aqua calida solutum, donec cesset effervescentia. Tum cola, et sepone, ut Crystalli formentur. His exemptis, liquori, si opus sit, adde paululum, Sub-Carbonatis Sodæ, ut Acidum Phosphoricum accurate saturetur, et vaporatione ad Crystallos iterum formandas dispone, quamdiu hæ prodierint. Crystalli demum in vase bene obturando reponantur.'

Chemical Decomposition.

The burnt bones are composed of phosphate of lime and a small portion of carbonate of lime. The latter is decomposed by the sulphuric acid which produces an insoluble sulphate of lime and a superphosphate of lime, and these are separated by the boiling water. The soda now unites with the superabundant phosphoric acid, which is dissolved in the water, while the neutral phosphate of lime which remains is insoluble, falls to the bottom, and is easily separated, and the crystals of the salt required are formed by evaporating the solution.

" PHOSPHAS SODÆ."

" ℞ Ossium, crematorum, et in pulverem tritorum, libras quinque,
Acidi sulphurici *pondere* libras tres cum semisse."

" Pulverem in vase figulino cum acido sulphurico misce; Adde, paulatim, aquæ *mensura* libras quinque, et agitetur mistura. Digere per dies tres, plus aquæ identidem adjiciens ne inarescat materies, et continuata agitatione; tunc adde insuper aquæ bullientis *mensura* libras quinque, et per pannum linteum cola, aquam ferventem, repetitis vicibus, affundens donec acidum omne eluatur; liquorem sepone ut fæces subsidant; tum defæcatum, et effusum per vaporationem minue ad dimidium, dein adde carbonatis sodæ (aquæ calidæ

sufficiente quantitate soluti) libras tres et uncias decem; cola, vaporationeque et refrigeratione alternatis fiant crystalli, quæ, in vase probè obturate reponendæ sunt. Salis, si minus purum sit, repetatur solutis iterumque fiant crystalli."

"MURIAS SODÆ SICCATUM."

"℞ Muriatis sodæ quantum velis."

"Torre, super ignem, in vase ferreo, laxè operculato, donec crepitare desierit, subinde agitans."

Chemical Decomposition.

This expels the water of crystallization, but it drives off at the same time the muriatic acid, leaving only a Chloride of sodium. (Sir H. Davy.)

TERRÆ, ET EARUM SALES.

ALUMEN EXSICCATUM.

Alumen in vase fictili ad ignem liquescat; tum augeatur ignis, donec ebullitio cessaverit.

Chemical Decomposition.

By this process, the water of crystallization is driven off, and also part of the acid, when the heat is great.

'ALUMEN EXSICCATUM.'

'Alumen in vase fictili vel ferreo liquescat, et urgeatur igne donec ebullire desinat. Dein in pulverem teratur.'

"ALUMEN USTUM."

"℞ Aluminis quantum velis."

"Igni forti in vasi fictili exponatur donec ebullire desinat."

'MURIAS BARYTÆ.'

'℞ Carbonatis Barytæ,
Acidi Muriatici, utriusque partem unam,
Aquæ partes tres.'