

LIGUOR PLUMBI ACETATIS DILUTUS. *Lond.*  
*Diluted Solution of Acetate of Lead.*

Take of

Solution of subacetate of lead, one fluidrachm;  
 Distilled water, one pint;  
 Proof spirit, one fluidrachm.

Mix.

CHAP. XII.—TIN.

STANNI PULVIS. *Dub.*  
*Powder of Tin.*

Take of

Tin, any quantity.

Having melted it over the fire in an iron mortar, agitate it until it be reduced to powder, which is to be passed, when cold, through a sieve.

THE college of Edinburgh do not give this preparation, inserting *Limatura et Pulvis Stanni* in their list of the materia medica.

*Med. use.*—It is often employed as a remedy against worms, particularly the tænia. The general dose is from a scruple to a drachm; some confine it to a few grains; but Dr Alston assures us, that its success chiefly depends on its being given in much larger quantities. He directs an ounce of the powder to be taken on an empty stomach, mixed with four ounces of molasses; next day, half an ounce; and the day following, half an ounce more; after which a cathartic is administered. He says, the worms are usually voided during the operation of the purge, but that pains of the stomach occasioned by them are removed almost immediately upon taking the first dose of the tin. This practice is sometimes successful in the expulsion of tæniæ, but by no means so frequently as Dr Alston's observations would lead us to hope.

CHAP. XIII.—ZINC.

OXIDUM ZINCI. *Ed.*  
*Oxide of Zinc.*

Let a large crucible be placed in a furnace filled with live coals, so as to be somewhat inclined towards its mouth; and when

the bottom of the crucible is moderately red, throw into it a small piece of zinc, about the weight of a drachm. The zinc soon inflames, and is, at the same time, converted into white flakes, which are to be from time to time removed from the surface of the metal with an iron spatula, that the combustion may be more complete; and at last, when the zinc ceases to flame, the oxide of zinc is to be taken out of the crucible. Having then put in another piece of zinc, the operation is to be repeated, and may be repeated as often as is necessary. Lastly, the oxide of zinc is to be prepared in the same way as the carbonate of lime.

*Dub.*

Take of

Zinc, broken into pieces, any quantity.

Throw it at different times into a sufficiently deep crucible, heated red hot, and placed with its mouth inclined towards the mouth of the furnace. After each time that any zinc is thrown in, cover the crucible with another inverted over it, but loosely, so that the air may have access to the zinc. Preserve the white and very light sublimed powder for use.

*Lond.*

Inject successively small pieces of zinc into a large, deep crucible, heated to whiteness. It must be inclined to one side, and covered with another crucible, so that the zinc may be exposed to the action of the air, and may be stirred with an iron spatula. Immediately take out the oxide, which arises from time to time, and pass its white and lighter part through a sieve. Pour water upon this, and reduce it to an impalpable powder, as directed for the preparation of chalk.

THIS is an instance of simple oxidizement. At a red heat, zinc attracts the oxygen of the atmosphere so strongly, that it is quickly covered with a crust of white oxide, which prevents the air from acting on the metal below; and therefore we are desired to operate only on small pieces at a time, and to place the crucible, so that we may easily take out the oxide formed, and introduce fresh pieces of zinc. As soon as the crust of oxide is broken, or removed, the zinc inflames, and burns with a brilliant white, or greenish blue flame, being at the same time converted into very light flocculi. To save these as much as possible, we are directed to use a very deep and large crucible, and to cover it with an inverted crucible. But as we must not cover it, so as to prevent the access of the air, it

is doubtful whether the latter precaution be of much service. The greater part of the zinc is, however, oxidized in the crucible, without being previously converted into vapour; and as this portion of the oxide is always mixed with particles of zinc, it is necessary to separate them by trituration and elutriation.

The oxide thus obtained is of a pure white colour, without smell or taste, infusible and fixed in the fire, insoluble in water or alcohol, and entirely soluble in acids. The presence of lead in it is detected by sulphuric acid, which forms, in that case, an insoluble sulphate of lead. The white oxide of zinc contains 82.15 zinc, and 17.85 oxygen.

Mr Phillips recommends, instead of this tedious process, an oxide, or rather a subcarbonate prepared by decomposing sulphate of zinc by subcarbonate of potass. "If solutions, consisting of about eight parts of the former and five of the latter, be boiled together for a short time, a very light white precipitate is obtained, containing about 12 *per cent.* of carbonic acid. Should the sulphate of zinc be contaminated with oxide of iron, it may be separated by potash previous to the precipitation of the oxide of zinc by the subcarbonate."

*Medical use.*—White oxide of zinc is applied externally as a detergent and esiccant remedy. With twice its weight of axunge, it forms an excellent application to deep chops, or excoriated nipples. But, besides being applied externally, it has also, of late, been used internally. In doses from one to seven or eight grains, it has been much celebrated in the cure of epilepsy, and several spasmodic affections; and there are sufficient testimonies of its good effects, where tonic remedies in those affections are proper.

CARBONAS ZINCI IMPURUS PRÆPARATUS, olim LAPIS CALAMINARIS PRÆPARATUS. *Ed.*

*Prepared Impure Carbonate of Zinc, formerly Prepared Calamine.*

The impure carbonate of zinc, after being roasted by those who make brass, is prepared in the same way as carbonate of lime.

LAPIS CALAMINARIS PRÆPARATUS. *Dub.*

*Prepared Calamine.*

Reduce calcined calamine to powder, and separate the impalpable parts in the same manner that is directed in the preparation of chalk.

CALAMINA PRÆPARATA. *Lond.**Prepared Calamine.*

Burn the calamine; then triturate it; lastly, reduce it to an impalpable powder, in the manner directed for the preparation of chalk.

As this oxide of zinc is intended for external application, and often to parts very easily irritated, too much pains cannot be bestowed in reducing it to an impalpable powder.

OXIDUM ZINCI IMPURUM PRÆPARATUM, olim TUTIA PRÆPARATA. *Ed.*

*Prepared Impure Oxide of Zinc, formerly Prepared Tutty.*  
It is prepared as carbonate of lime.

THIS oxide is also prepared for external use only.

SULPHAS ZINCI. *Ed.**Sulphate of Zinc.*

Take of

Zinc, cut into small pieces, three ounces;  
Sulphuric acid, five ounces;  
Water, twenty ounces.

Mix them, and when the effervescence is finished, digest the mixture, for a little, on hot sand; then strain the decanted liquor through paper, and, after proper evaporation, set it apart, that it may crystallize.

*Dub.*

Take of

Zinc, reduced to powder, in the manner directed for the powder of tin, three ounces;  
Sulphuric acid, five ounces;  
Water, one pint.

Put the zinc in a glass vessel, and gradually pour on the acid, previously diluted with the water. After the effervescence has ceased, digest a little; and, after due evaporation of the filtered liquor, set it aside to crystallize.

*Lond.*

Take of

Zinc, broken into bits, three ounces;  
Sulphuric acid, five ounces, by weight;  
Water, four pints.

Mix in a glass vessel; and after the effervescence has ceased, strain the solution through paper, then evaporate to a pellicle, and set it aside to crystallize.

SULPHATE of zinc is chiefly found native in the mines of Goslar, sometimes in transparent pieces, but more commonly in the form of white efflorescences, which are dissolved in water, and afterwards reduced, by evaporation and crystallization, into large masses. But the sulphate of zinc of commerce is never pure, always containing iron, copper, and a little lead. From the mode of its preparation, there is also a deficiency of acid and water of crystallization. The means formerly directed for purifying it by the London college supplied these, but did not separate the foreign metals, except perhaps the lead. If, therefore, a pure sulphate of zinc be wanted, we may, according to the direction of the colleges, dissolve pure zinc in pure sulphuric acid; but we believe this process is very rarely practised, especially as the common sulphate of zinc may be sufficiently purified by exposing it in solution to the air, by which means red oxide of iron is precipitated, and by digesting it upon pure zinc, which precipitates the other metals.

Sulphate of zinc crystallizes in tetrahedral prisms, terminated by pyramids. It has a metallic styptic taste; effloresces slowly when exposed to the air. It is soluble in 2.5 parts of water, at 60°, and in much less boiling water. It is not soluble in alcohol. It is decomposed by the alkalies, earths, and hydro-sulphurets. It consists of 20 oxide of zinc, 40 acid, and 40 water of crystallization.

*Medical use.*—Sulphate of zinc, in doses from ten grains to half a drachm, operates almost instantly as an emetic, and is at the same time perfectly safe. It is therefore given when immediate vomiting is required, as in cases where poison has been swallowed. By employing it internally, in smaller doses, it acts as a tonic; and some think it, in every case, preferable to the oxide of zinc.

Externally, it is used as a styptic application, to stop hæmorrhagies, diminish increased discharges, as gonorrhœa, and to cure external inflammations, arising from debility and relaxation of the blood-vessels, as in some cases of ophthalmia. It is often prescribed in injections and collyria.

SOLUTIO SULPHATIS ZINCI. *Ed.*

*Solution of Sulphate of Zinc.*

Take of

Sulphate of zinc, sixteen grains;

Water, eight ounces;

Diluted sulphuric acid, sixteen drops.

Dissolve the sulphate of zinc in the water; then, having added the acid, filter through paper.

THE acid is here added to dissolve the excess of oxide of zinc, which the common sulphate often contains. This solution is of a strength proper for injecting into the urethra, in gonorrhœa, or applying to the eyes in chronic ophthalmia.

LIQUOR ALUMINIS COMPOSITUS. *Lond.*  
*Compound Solution of Alum.*

Take of

Alum,  
Sulphate of zinc, of each half an ounce ;  
Boiling water, two pints.

Dissolve the alum and sulphate of zinc together in the water, and filter through paper.

THIS water was long known in our shops, under the title of *Aqua aluminosa Bateana*.

It is used for cleansing and healing ulcers and wounds, and for removing cutaneous eruptions, the part being bathed with it hot three or four times a-day. It is sometimes likewise employed as a collyrium, and as an injection in gonorrhœa and fluor albus, when not accompanied with virulence.

SOLUTIO ACETITIS ZINCI. *Ed.*  
*Solution of Acetite of Zinc.*

Take of

Sulphate of zinc, one drachm ;  
Distilled water, ten ounces.

Dissolve.

Take of

Acetate of lead, four scruples ;  
Distilled water, ten ounces ;

Dissolve.

Mix the solutions; let them stand at rest a little, and then filter the liquor.

TINCTURA ACETATIS ZINCI. *Dub.*  
*Tincture of Acetate of Zinc.*

Take of

Sulphate of zinc,  
Acetate of kali, each one ounce.

Triturate them together, and add one pint of rectified spirit of wine.

Macerate for a week, with occasional agitation, and strain through paper.

THIS is a case of double elective attraction, the lead combining, and forming an insoluble compound with the sulphu-

ric acid, while the zinc unites with the acetic acid, and remains in solution.

The acetate of zinc may be obtained by evaporation, in talcy crystals. It is soluble in water, and is decomposed by heat. It is not poisonous.

When crystallized acetate of lead and sulphate of zinc are triturated together, the mixture presently becomes moist, which is owing to the new compounds combining with less water of crystallization than the original salts, by which means a portion of the water is disengaged in its fluid form.

*Medical use.*—The solution of acetate of zinc is, with many practitioners, deservedly much esteemed as an astringent collyrium and injection. The solution in spirit of wine of the Dublin college, is stronger and more stimulant than that in water of the Edinburgh.

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CHAP. XIV.

ALCOHOL, ETHER, AND ETHEREAL  
SPIRITS.

ALCOHOL. *Lond.*  
*Alcohol.*

Take of

Rectified spirit of wine, one gallon;

Subcarbonate of potass, three pounds.

Put one pound of the subcarbonate, previously heated to 300° Fahr. into the spirit, and macerate for twenty-four hours, frequently stirring them; then decant the spirit, and add the remainder of the subcarbonate of potass heated to the same degree; and, lastly, distil off, in a water-bath, the alcohol, which is to be kept in a well-corked bottle.

The specific gravity of alcohol is to that of distilled water as 815 to 1000.

*Dub.*

Take of

Rectified spirit of wine, one gallon;

Pearl ashes, dried at 300° Fahr. and still warm, one pound;