1. Consumed in great part.	Not Consumed.
URIC ACID ($C_5H_4N_4O_3$ $2HO$)	PHOSPHATE OF LIME.
URATE OF AMMONIA.	TRIPLE PHOSPHATE.
URATE OF SODA OR LIME.	OXALATE OF LIME.
XANTHIN $C_5H_4N_4O_2$	CARBONATE OF LIME.
FIBRIN.	
BLOOD	
CYSTIN $C_3H_6N_2S_2O_2$	
UROSTEALITH. MYELIN.	
INDIGO-BLUE C_8H_5NO	

Organic Cement either albuminous, mucous, or horny.

The volatile substances usually have some small quantity of earthy matter, and the fixed substance some quantity of animal matrix in combination. So that most commonly there is associated, with the substances in the left hand column, some fixed, and with those in the right, some volatile constituent.

B. The calculus is chiefly volatile. Note the behaviour of the substance during heating. It may give off some distinctive odour; it may simply vanish; it may blacken; it may fuse; it may give off smoke; it may burn with thick smoke.

(*a*) Uric acid and urate of ammonia simply blacken and disappear without fusing or giving off any marked smoky vapour or smell.

(*b*) Xanthin fuses, blackens, and is then consumed.

(*c*) Fibrin burns with a smoke like that of burnt feathers, leaving a considerable ash of phosphates.

(*d*) The substances included under the name of "urostealith" (and "myelin") burn like camphor with a smell like that of burning fat.

(*e*) Indigo sublimes, the vapour burning with an odour of its own, partly like that of soot, partly like that of burnt feathers.

(*f*) Cystin fuses, blackens, and volatilizes with a faint sickly odour, which is very persistent.

C. In the case of both volatile and non-volatile calculi, uric acid should next be specially sought. For this the murexid test is used. A small quantity of the powdered calculus is placed in a porcelain capsule and a drop of strong nitric acid is added. Heat being applied, a brisk effervescence ensues, and when this is over, heating is continued so as to drive off the nitric acid without producing any charring of the solid residue. When no more nitric acid vapour is emitted, a drop of liquor ammoniæ is added, and if uric acid be present an intense crimson-purple colour is produced. Very often this tint is faintly seen before the addition of ammonia, either because ammonia was already present, or because the heating process has been a little too rapid, and has produced some decomposition.

If the presence of uric acid is declared, further tests are required. It may be pure, or combined with ammonia, potash, soda, or lime.

(*a*) For ammonia. Place some of the powder in a small test-tube, add liquor potassæ, and heat gently. If ammonia be present it can sometimes be detected by its smell; or in smaller quantities, by placing a rod, dipped in strong hydrochloric acid, at the mouth of the tube; when, if ammonia be present, the white vapours of chloride of ammonia will be produced. This process must be very cautiously carried out. If the heating be intense or prolonged, uric acid is decomposed by the potash, and ammonia is evolved.

(*b*) For soda, potash, and lime, the ash left after calcination should be submitted to the blow-pipe, and the colour of the flame observed,—yellow, in the case of soda; purplish blue, with potash; reddish purple, with lime. If they are present together, the blow-pipe may be supplemented by the spectroscope. For this, and like purpose, I usually carry a little spectroscope in my pocket, but would scarcely advise you to include it among your apparatus at first.

But here comes in the use of the microscope. You may make some excellent determinations here, by noting crystals thrown down from distilled water in which some of the powder of the calculus has been boiled for a few minutes. The liquid having been filtered, is left in a cool place for a few hours, and if there be uric acid or urates present they will be found as a deposit, and can be submitted to microscopic examination. Uric acid then occurs in flat, quadrangular, somewhat elongated plates, look-