

soluble in alcohol, sparingly so in cold water. The *nitrate* forms small crystals melting at  $230^{\circ}$ , and is sparingly soluble in water. The *platinochloride* is a red, crystalline powder, whilst the *picrate* is a yellow, crystalline powder sparingly soluble in water.

The salts of the tolyl- and naphthyl-amidoguanidines reduce ammoniacal silver nitrate, and do not react with benzaldehyde. The free bases could not be isolated, as they decompose as soon as formed.

*Ethylphenylamidoguanidine*,  $\text{NH}_2\cdot\text{C}(\text{NH})\cdot\text{NH}\cdot\text{NEtPh}$ , is prepared by heating  $\alpha$ -ethylphenylhydrazine hydrochloride with cyanamide; the *platinochloride* is obtained as a yellow, flocculent precipitate melting and decomposing at  $150^{\circ}$ . The *picrate* crystallises in red prisms melting at  $224^{\circ}$ ; it is accompanied by another *picrate* which crystallises in transparent scales melting at  $269^{\circ}$ .

*Phenylamidomethylguanidine*,  $\text{NH}_2\cdot\text{C}(\text{NH})\cdot\text{NMe}\cdot\text{NHPh}$ , is obtained by heating hydrazomethylphenyl hydrochloride with cyanamide in alcoholic solution. The *hydrochloride* crystallises in white, transparent prisms, melts at  $227^{\circ}$ , and is very soluble in water or alcohol; the *platinochloride* is obtained in thin, red needles. The *nitrate*, which forms white crystals melting and decomposing at  $105$ – $106^{\circ}$ , is very soluble in water or alcohol. The *picrate* crystallises in yellow needles melting and decomposing at  $215^{\circ}$ . W. J. P.

**Guanazole and its Derivatives.** By G. PELLIZZARI (*L'Orosi*, 17, 143–155, 185–192; compare Abstr., 1892, 356).—*Paratolylguanazole*,  $\text{C}(\text{NH})\cdot\text{NH} > \text{N}\cdot\text{C}_6\text{H}_7$ , is obtained, with evolution of ammonia, on

heating paratolylhydrazine hydrochloride with dicyanodiamide in molecular proportion, at  $140$ – $200^{\circ}$ ; it crystallises in yellowish prisms, melts at  $172^{\circ}$ , and is soluble in water or alcohol. It dissolves in acids, and is reprecipitated on adding potash; this fact is taken advantage of in its purification. The *hydrochloride*,  $\text{C}_6\text{H}_7\text{H}_4\cdot\text{C}_6\text{H}_7\cdot\text{HCl}$ , crystallises in white needles melting at  $256^{\circ}$ , and is readily soluble in water or alcohol. The *platinochloride*,  $(\text{C}_6\text{H}_7\text{H}_4)_2\cdot\text{H}_2\text{PtCl}_6$ , crystallises in lustrous, yellow needles melting at  $93^{\circ}$ . The *nitrate*,  $\text{C}_6\text{H}_7\text{H}_4\cdot\text{HNO}_3$ , separates from water in aggregates of small needles melting at  $155^{\circ}$ . The *picrate* crystallises in transparent, yellow needles melting at  $218^{\circ}$ .

*Orthotolylguanazole*,  $\text{C}_6\text{H}_7\text{H}_4\cdot\text{C}_6\text{H}_7$ , is prepared by a process similar to that which yields its para-isomeride; it forms large, reddish crystals melting at  $159^{\circ}$ , and is soluble in water or alcohol. The *hydrochloride* separates in large, hard crystals melting at  $202^{\circ}$ . The *nitrate* crystallises in prisms melting at  $226^{\circ}$ , and is sparingly soluble in water. The *picrate* separates from its aqueous solution in small crystals melting at  $212^{\circ}$ .

$\beta$ -*Naphthylguanazole*,  $\text{C}_6\text{H}_7\text{H}_4\cdot\text{C}_{10}\text{H}_7$ , crystallises in transparent laminæ melting at  $199^{\circ}$ ; it is soluble in alcohol, but only sparingly so in water. The *hydrochloride* crystallises in thin, white needles melting at  $255^{\circ}$ . The *platinochloride* is obtained in very minute, yellow crystals, and is sparingly soluble in water.

*Phenylmethylguanazole*,  $\text{C}(\text{NH})\cdot\text{NMe} > \text{NPh}$ , is prepared by heating

methylphenylhydrazine hydrochloride with dicyanodiamide at 130°; it forms small, white crystals melting and decomposing at 208°, and is soluble in water or alcohol. The *hydrochloride* is very soluble in water, and crystallises in transparent prisms which do not melt at 275°; the *platinochloride* crystallises in small, yellow needles, whilst the *nitrate* forms large, yellowish crystals which, at 245°, melt and decompose.

Guanazole,  $\begin{matrix} \text{C}(\text{NH})\cdot\text{NH} \\ \text{NH}\cdot\text{C}(\text{NH}) \end{matrix} > \text{NH}$ , is most readily prepared by heating hydrazine monohydrochloride and dicyanodiamide with alcohol at 100°; only a small yield of guanazole is obtained on heating without alcohol. It crystallises from water in beautiful, transparent, monosymmetric crystals melting at 206°;  $a : b : c = 4.2743 : 1 : 2.4967$ .  $\beta = 88^\circ 14'$ . It is soluble in water or alcohol, but insoluble in ether, chloroform, or benzene; its aqueous solution has a feebly alkaline reaction, and, on the addition of potassium nitrite and acid, deposits a yellow *nitroso*-derivative. On crystallising a solution of guanazole in hydrochloric acid, the dihydrochloride is obtained in long needles melting at 145°; it has a strongly acid reaction, and dissociates in aqueous solution. The *monohydrochloride* is obtained by repeatedly evaporating the aqueous solution of the acid salt with water or alcohol; it crystallises in white prisms melting at 100°, and is very soluble in water or alcohol; no platinochloride could be prepared. The *sulphate*,  $\text{C}_2\text{N}_4\text{H}_6\cdot\text{H}_2\text{SO}_4\cdot 2\text{H}_2\text{O}$ , separates from its solution in small, white prisms which lose their water at 100°; the *nitrate*,  $\text{C}_2\text{N}_4\text{H}_6\cdot\text{HNO}_3$ , is obtained in very small crystals melting at 165°, and is very soluble in water; the *picrate*,  $\text{C}_2\text{N}_4\text{H}_6\cdot\text{C}_6\text{H}_3\text{N}_3\text{O}_7$ , crystallises in flat needles melting at 245°. *Guanazole silver nitrate*,  $\text{C}_2\text{N}_4\text{H}_6\cdot\text{AgNO}_3$ , is obtained by adding silver nitrate to an aqueous solution of guanazole; it forms white flocks soluble in nitric acid or ammonia, and slowly blackens on exposure to light; *guanazole copper sulphate*,  $\text{C}_2\text{N}_4\text{H}_6\cdot\text{CuSO}_4\cdot 5\text{H}_2\text{O}$ , is a green, crystalline precipitate, obtained on adding copper sulphate to a solution of guanazole; it loses its water at 200°. A *substance* of the composition  $2\text{C}_2\text{N}_4\text{H}_6\cdot\text{HgCl}_2$ , is precipitated as a white powder on adding mercuric chloride to an aqueous solution of guanazole; it is insoluble in water, but dissolves in acids. On dissolving it in warm hydrochloric acid, and cooling, a *substance* of the composition  $2(\text{C}_2\text{N}_4\text{H}_6\cdot\text{HCl})\cdot\text{HgCl}_2$  separates in long, white needles; whilst if crystallised from water, nodular masses of white needles of a *substance* of the composition  $\text{C}_2\text{N}_4\text{H}_6\cdot\text{HCl}\cdot\text{HgCl}_2$  separate.

W. J. P.

**Synthesis of Hydroxy-aromatic Bases.** By M. NENCKI (*Ber.*, 27, 1969—1979).—The condensation products of chloracetopyrogallol or chloracetocatechol and quinoline are readily decomposed by alkalis; the corresponding derivatives of isoquinoline, however, are more

stable. *Catecholglycoisoquinoline*,  $\text{OH}\cdot\text{C}_6\text{H}_3 < \begin{matrix} \text{CO}\cdot\text{CH}_2 \\ \text{O}-\text{NC}_6\text{H}_7 \end{matrix} + 2\text{H}_2\text{O}$ ,

is prepared from the chloride (see below) by the action of alkalis or ammonia, and forms glittering, orange-coloured crystals which darken on drying; the base gives a red coloration with highly dilute ferric