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ON A MINERAL ALLIED TO MONTMORILLONITE FROM EXETER, NEW SOUTH WALES.

By C. Anderson, M.A., B.Sc., Mineralogist.

This specimen was acquired by exchange with the Technical College, Goulburn, and, from information supplied by Mr. A. J. Sach, the Resident Master, we learn that it was obtained from a railway deviation cutting at Exeter, on the Sydney to Goulburn line. Mr. Sach informs us that, when found, the mineral was of a pronounced pink colour and very gelatinous. Presumably the colour has since faded and the mineral lost water.

The specimen is amorphous, clay-like and very soft, being easily marked by the thumb nail. Fracture subconchoidal to uneven. Lustre rather waxy. Colour white to delicate rose pink. Rather translucent. Soapy feel and earthy smell. Non plastic; adheres slightly to the tongue. Rapidly disintegrates in water, with slight evolution of air bubbles. Before the blowpipe it whitens, decrepitates slightly and fuses on the edges. With cobalt nitrate yields a blue colour. Gives much water in the closed tube. Slightly soluble in acids.

From its general characters the specimen is seen to belong to the kaolin division of minerals, agreeing pretty closely with *Montmorillonite*,[1] and this agreement is confirmed by the chemical analysis, the result of which is given below.

After twenty hours exposure over sulphuric acid the mineral lost 10·68 per cent, and after forty-six hours the loss increased to 10 74 per cent. At 100° C. a further loss of 1·16 was suffered. The weight was restored after eighteen hours in the balance case. It is difficult to decide with certainty whether this large loss is due to hygroscopic or to combined water, but, as certain hydrous silicates are known to lose water of combination in dry air, I

[1] Dana—System of Mineralogy, 6th Edit., 1892, p. 690.

think it advisable to enter this loosely held water in the analysis (1), whilst calculating the percentages on the basis of material dried at 100°C (2).

	(1)	(2)
H_2O at 100°C —	11·90	
H_2O at 100°C + (ignition)... ...	12·54	14·24
SiO_2	52·72	59·84
Al_2O_3	21·28	25·14
Fe_2O_3	·87	
MgO	trace	
CaO	1·44	1·63
Alkalies	traces	
	100·75	100·85

A direct determination of the total water by Penfield's method gave 24·44 per cent.

The formula corresponding to (1) is $Al_2O_3 . 4\,SiO_2 + 6H_2O$, three molecules of water being lost at 100°C, but, seeing that the material is amorphous and doubtless impure, too much reliance cannot be placed on the formula.