equivalent reflections were measured on a Supper manual single crystal diffractometer, using MoKα radiation. A cleavage fragment in the shape of a cube (0.08 mm) was used. The structure was solved by three-dimensional Patterson synthesis and refined by full matrix least squares method. Occupancy factors for the cations are also included as least squares variables. The final agreement index R is 0.050.

In carletonite the SiO_4 tetrahedra share three of their four oxygen atoms to form sheets consisting of 4 and 8-membered rings, similar to the sheeets in apophyllite. However, the structure of carletonite is unique in that pairs of such sheets are cross-linked by half of the oxygen atoms not shared in the single sheets, forming "double sheets" of the composition Si_8O_{18}. Thus half of the SiO_4 tetrahedra share all four oxygen atoms and the other half share only three. K, Na, Ca atoms and the CO_3 groups are sandwiched between the "double sheets". The ideal composition of carletonite is established as $KNa_4Ca_4Si_8O_{18}(CO_3)_4(OH,F)\cdot H_2O$ in contrast to that calculated from the analytical data, $(K,Na,Ca)_8Si_8O_{18}(CO_3,OH,F)_4\cdot H_2O$. The mineral is non-stoichiometric, being deficient in Na (~13 atomic %), Ca (~6.5%), K (~13%), CO_3 (~9%) and (OH,F) (~30%). The least squares occupancy factors agree with the analytical values within 5%.

CRYSTAL STRUCTURE OF A NEW MINERAL, SÖHNGEITE

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Söhngeite, $8[Ga(OH)_3]$, a recently discovered mineral from the second oxidized zone at the Tsumeb Mine, South West Africa, has a rather unusual crystal structure. The unit cell, though dimensionally orthorhombic $a=7.4865$, $b=7.4379$, $c=7.4963$ Å, displays strong pseudo-cubic symmetry (*Pn3n*). There is also a pronounced pseudo-cubic subcell with $a=3.74$ Å (*Pm3m*).

The *Pn3n* cell has been refined to $R=0.16$ with Ga in 8(*c*) and OH in 24(*h*) ($x=0.0877$). The isotropic B of the oxygen, however, diverges to very large values and the shortest O-O bond approaches 1.55 Å. A similar situation pertains in the centric orthorhombic derivative of this cell (*Pmnm*).

The correct space group is $Pmn2_1$ with an almost centric arrangement of Ga in 4(*b*) general positions, very slightly displaced about $\frac{1}{4}, \frac{1}{4}, \frac{1}{4}$, and $\frac{1}{4}, \frac{1}{4}, \frac{3}{4}$. The oxygen atoms form distorted octahedra about the gallium, which octahedra share corners to form an infinite framework. Two of the oxygen atoms lie near $z=0, \frac{1}{2}$, the other four atoms forming a rough plane centered on $z=0.30$. The present R index is 0.09 for 213 observed planes.

CRYSTAL GROWTH OF $CaWO_4$ AND $Nd_2(CO_3)_3\cdot 8H_2O$ BY SILICA GEL TECHNIQUE

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Spherulites (up to 2mm in diameter) and single crystals of $CaWO_4$ have been synthesized at ambient conditions by reacting $CaCl_2\cdot 2H_2O$ and $NaWO_4\cdot 2H_2O$ within acetic acid-$Na_2SiO_3\cdot 9H_2O$ gels. High calcium concentrations favored the growth of clear spherulites, whereas high tungstate concentrations resulted in almost opaque spherulites. The clear, highly translucent spherulites consisted of radiating single crystals. On the other hand, the nearly opaque $CaWO_4$ spherulites seemed to have formed by both radiating single crystals (in the inner part), and concentric banding or an agglomeration process in the outer half. After withdrawal from the gel, most of the spherulites developed crack patterns which, in general, divided the spherulites into halves or quarters. The addition of NH_4Cl to