absences indicate that the space group is *Pnma* or *Pn*2_1*a*. An approximate density of 3·62 g.cm.$^{-3}$, obtained by pycnometry, corresponds to four formula weights per unit cell (calculated density: 3·76 g.cm.$^{-3}$).

Table 1. *Unit-cell and space-group data*

	$LiBrO_3$	$NaIO_3$
a	5·99 ± 0·02 Å	6·37
b	7·86 ± 0·02	8·11
c	5·06 ± 0·02	5·74
Z	4	4
Space group	*Pnma* or *Pn*2_1*a*	*Pnma*

The crystal structure of sodium iodate has been reported by MacGillavry & Van Eck (1943) and by Náray-Szabó & Neugebauer (1947). The unit-cell and space-group data for $NaIO_3$, taken from these papers, is included in Table 1 to indicate its similarity to $LiBrO_3$. For the purpose of this comparison the axes of $NaIO_3$ have been renamed, bringing them into the standard setting. Although the diffraction symmetry is the same for both compounds, the optical goniometric determination of the point group of $NaIO_3$ (Eakle, 1896) allowed a unique space-group assignment to be made. A survey of the reflections of $LiBrO_3$ reveals that the *hkl* intensities are generally weak if $h+l$ is odd or *k* is odd, a relationship also observed in the case of $NaIO_3$. The two compounds are probably isomorphous.

The powder pattern of $LiBrO_3$, obtained with a Norelco diffractometer and Cu *K*α radiation, is presented along with the calculated spacings in Table 2.

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Table 2. *Powder pattern of* $LiBrO_3$

hkl	*I*	d_o (Å)	d_c (Å)	*hkl*	*I*	d_o (Å)	d_c (Å)	*hkl*	*I*	d_o (Å)	d_c (Å)
011	1	4·26	4·26	221	3	2·153	2·155	113	1	1·588	1·590
020	28	3·92	3·93	022	8	2·124	2·127	232	5	1·551	1·555
101	100	3·86	3·87	040	6	1·961	1·965	331	7	1·514	1·515
111	25	3·47	3·47	202	28	1·930	1·933	400	12	1·500	1·498
200	16	2·99	3·00	212	5	1·875	1·877	410	3	1·472	1·471
210	33	2·796	2·799	301	5	1·856	1·857	420	1	1·400	1·399
121	47	2·754	2·756	231	1	1·836	1·837	250	5	1·390	1·392
002	36	2·527	2·530	311	8	1·807	1·808	133	6	1·378	1·380
211	1	2·448	2·449	141	14	1·749	1·752	341	2	1·349	1·350
220	26	2·376	2·382	222	9	1·733	1·734	060	2	1·308	1·310
031	8	2·327	2·327	321	33	1·678	1·679	430	3	1·300	1·300
102			2·331	240	6	1·640	1·643	152			1·303
112	6	2·230	2·234	103	3	1·622	1·624	402	8	1·290	1·289

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The crystal structure of hexacyanochromate(III) of divalent cations.

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The hexacyanochromates(III) of divalent cations with formula $Me_3^{II}[Cr(CN)_6]_2.6H_2O$ has been prepared and studied by X-ray powder analysis (Cu *K*α radiation, $\lambda = 1{\cdot}5418$ Å), as a continuation of a programme of researches on complex hexacyanides.

These compounds are isostructural with the hexacyanoferrates(III), -cobaltates(III), -rhodiates(III) (Ferrari & Tani, 1960) and -iridates(III) (Ferrari, Tani & Morisi, 1961) of divalent cations (space group O_h^5-$Fm3m$ or T_d^2-$F\bar{4}3m$, $Z=2$).

The unit-cell constants are:

$Mn_3[Cr(CN)_6]_2.6H_2O$,	$a = 10{\cdot}836 \pm 0{\cdot}036$ Å,	$d_c = 1{\cdot}798$
$Fe_3\,[Cr(CN)_6]_2.6H_2O$,	$a = 10{\cdot}426 \pm 0{\cdot}031$ Å,	$d_c = 2{\cdot}026$
$Co_3\,[Cr(CN)_6]_2.6H_2O$,	$a = 10{\cdot}362 \pm 0{\cdot}012$ Å,	$d_c = 2{\cdot}092$
$Ni_3\,[Cr(CN)_6]_2.6H_2O$,	$a = 10{\cdot}352 \pm 0{\cdot}014$ Å,	$d_c = 2{\cdot}096$
$Cu_3\,[Cr(CN)_6]_2.6H_2O$,	$a = 10{\cdot}325 \pm 0{\cdot}020$ Å,	$d_c = 2{\cdot}156$
$Zn_3\,[Cr(CN)_6]_2.6H_2O$,	$a = 10{\cdot}601 \pm 0{\cdot}047$ Å,	$d_c = 2{\cdot}007$
$Cd_3\,[Cr(CN)_6]_2.6H_2O$,	$a = 10{\cdot}953 \pm 0{\cdot}030$ Å,	$d_c = 2{\cdot}176$

The unit-cell constants decrease from Mn to Cu, then increase as observed in the previous series.

The different numbers of molecules of water in the different series are accounted for by their zeolitic character; in all these compounds, water can be eliminated without any change in the structure.

The series of hexacyanomanganates(III) is now under study, but their preparation is rather difficult owing to their instability. Nevertheless it is possible to foresee that the size of the $[Mn(CN)_6]^{3-}$ ion is between that of $[Cr(CN)_6]^{3-}$ and $[Fe(CN)_6]^{3-}$, the size of these ions decreasing with increase of the atomic weight of the metal atom.

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