(r.m.s.) deviation of the individual distances from the mean is $0.007 \AA$. The r.m.s. deviation of the O-Cr-O angles from $109.5^{\circ}$ is $0.9^{\circ}$. The corrected $\mathrm{O} \cdots \mathrm{O}$ distances have a r.m.s. deviation of $0.016 \AA$ from their mean of $2.707 \AA$.

Both ammonium tetrahedra are regular within the e.s.d.'s. The average $\mathrm{N}-\mathrm{H}$ distance is $0.91 \AA$ with an $0.04 \AA$ r.m.s. deviation. These ions are oriented as shown in Fig. 1 to form the maximum number of nearly-equal hydrogen bonds with the surrounding oxygen atoms. The 8 oxygen atoms surrounding $N(1)$ belong to 6 different chromate tetrahedra, while the 8 oxygen atoms about $\mathrm{N}(2)$ belong to 5 different tetrahedra. Each chromate group makes 16 $\mathrm{O} \cdots \mathrm{N}$ contacts with 11 adjacent $\mathrm{NH}_{4}{ }^{+}$ions and there are $22 \mathrm{O} \cdots \mathrm{O}$ contacts between $3 \cdot 12$ and $3 \cdot 98 \AA$ in length to other chromate groups. The uncorrected $\mathrm{N}-\mathrm{H}$ distances and $\mathrm{H}-\mathrm{N}-\mathrm{H}$ angles are given in Table 4.

The n.m.r. results indicate that both ammonium ions are undergoing some rotational motion, as the proton resonance line-width is only 4.8 gauss, as compared with 12-15 gauss for a stationary $\mathrm{NH}_{4}{ }^{+}$ion (Gutowsky \& Pake, 1948). The type of rotational motion is evidently one of rapid re-orientation with the ions spending only a small portion of time in transitions, since otherwise the hydrogen atoms would not have shown up in the difference electron density synthesis, nor could their positions have been refined by the l.s. program.

The authors' thanks are due to Mrs L.A. Wood (née Beattie), formerly of Glasgow University Chemistry Department, for operating the linear diffractometer, and to Dr C.V.Stager of McMaster University Physics Department for performing the n.m.r. experiment. In addition, one of us (J.S.S.) would like to thank the University of Glasgow and the National Research Council of Canada for fellowships awarded during the course of this research.


Fig. 1. Projection of the structure down the $\mathbf{b}$ axis. The open circles represent oxygen atoms. The broken lines indicate the $8 \mathrm{~N} \cdots \mathrm{O}$ distances for each nitrogen atom.

## References

Bujor, D. I. (1931). Z. Kristallogr. 78, 1.
Bujor, D. I. (1944). Z. Kristallogr. 105, 364.
Cruickshank, D. W.J. (1961). Acta Cryst. 14, 896.
Davis, M. F. \& Whitaker, A. (1966). Acta Cryst. 21, 822. Gatehouse, B. M. \& Leverett, P. (1969). J. Chem. Soc. (A), 1857.

Gutowsky, H. S. \& Pake, G. E. (1948). J. Chem. Phys. 16, 1164.

International Tables for X-ray Crystallography (1962). Vol. III. Birmingham: Kynoch Press.

Larson, A. C. (1967). Acta Cryst. 23, 664.
Stephens, J. S. \& Cruickshank, D. W. J. (1969). Acta Cryst. A 25, S106.
Zachariasen, W. H. (1963). Acta Cryst. 16, 1139.

Acta Cryst. (1970). B26, 439
Erratum: The structure of bis- $\pi$-cyclopentadienyl(toluene-3,4-dithiolato)molybdenum. By J.R.Knox and C.K.
Prout, Chemical Crystallography Laboratory, South Parks Road, Oxford, England
(Received 13 January 1970)
A correction to Acta Cryst. (1969), B25, 2013.

In Table 1 of the title paper (Knox \& Prout, 1969) the fifth line from the bottom should read:

$$
\mathrm{C}(13) \quad 4509(19) \quad 2189(14) \quad 8518(24) \quad 871(69)
$$

## Reference

Knox, J. R. \& Prout, C. K. (1969). Acta Cryst. B25, 2013.

