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- ¹ Ruffini, R., and Wheeler, J. A., *Relativistic Cosmology and Space Platforms* (ESRO, Interlaken, 1969).
- ² Schreier, E., Levinson, R., Gursky, H., Kellogg, E., Tananbaum, H., and Giacconi, R., *Astrophys. J. Lett.*, **172**, L79 (1969).
- ³ Webster, B. L., and Murdin, P., *Nature*, **235**, 37 (1972).
- ⁴ Bolton, C. T., *Nature*, **235**, 271 (1972).
- ⁵ Hiltner, W. A., Werner, J., and Osmer, P., *Astrophys. J. Lett.*, **175**, L19 (1972).
- ⁶ Trimble, V., and Thorne, K. S., *Astrophys. J.*, **156**, 1013 (1969).
- ⁷ Giacconi, R., Murray, S., Gursky, H., Kellogg, E., Schreier, E., and Tananbaum, H., *Astrophys. J. Lett.* (in the press).
- ⁸ Batten, A. H., *Pub. Dom. Astrophys. Obs.*, **8**, 119 (1968).
- ⁹ Allen, C. W., *Astrophysical Quantities* (Athlone, London, 1963).

Optical Candidate for GX 5-1

A FAINT radio source has been detected within the error box of the X-ray source GX 5-1 (=2ASE 1757-25=Sgr 5) by Braes *et al.*¹ This radio source is located 6 ± 3 arc s from the star designated number 3 by Kunkel *et al.*² and because the colours of star 3 quoted by these authors are those of a reddened early B star, Braes *et al.* suggest that the system may be similar to Cygnus X-1 (=HD 226868).

To investigate this possibility, five spectrograms at 55 and 155 Å mm⁻¹ were obtained on different nights, including one and two night separations, with the Radcliffe image tube spectrograph incorporating a spectacon. The star has the spectrum of a normal AO V dwarf with a radial velocity range less than 40 km s⁻¹ set by the errors. No emission lines have been detected in any of the spectra. The spectral type is, in fact, consistent with revised photometry: $V=11.80$, $B-V=+0.18$, $U-B=+0.12$ (Kunkel, private communication, replacing values in Kunkel *et al.*²). Thus this star is not similar to HD 226868 and has no property to make it an obvious candidate for the X-ray source.

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- ¹ Braes, L. L. E., Miley, G. K., and Schoenmaker, A. A., *Nature*, **236**, 392 (1972).
- ² Kunkel, W., Osmer, P., Smith, M., Hoag, A., Schroeder, D., and Hiltner, W. A., *Astrophys. J. Lett.*, **161**, L169 (1970).

Optical Candidate for SMC X-1

THE one known discrete X-ray source in the Small Magellanic Cloud, SMC X-1, has been shown to be a binary system with eclipses of the X-ray component occurring every 3.8927 day¹. We wish to point out that there are two relatively bright stars within the X-ray 90% region. One of these, which we shall call star A, seems to be a foreground F star; the other, Sanduleak² number 160 (Sk 160), is an early B supergiant which, by analogy with HD 226868 (refs. 3, 4), may be emitting the X-rays.

Positions from the Mount Stromlo SMC charts and photoelectric magnitudes measured at Radcliffe for the two stars are:

Star A, 01 h 16.2 min, $-73^{\circ} 34.0'$ (1975);
 $V=12.15$, $B-V=+0.59$, $U-B=-0.02$
Sk 160, 01 h 16.4 min, $-73^{\circ} 34.6'$ (1975);
 $V=13.27$, $B-V=-0.14$, $U-B=-0.98$

A Carnegie image tube spectrogram of star A shows it to be a low velocity, galactic F star, with the colours of a subdwarf. Sk 160 has been classified as BO I from a spectrogram taken in 1967 with the two prism spectrograph. The photometry is consistent with this classification, a reddening of 0.1 mag and an absolute magnitude of -6.4 (adopting a true distance modulus of 19.35). Emission at H α is suspected. We have obtained Carnegie image tube spectra at 55 Å mm⁻¹ of Sk 160 on six nights, including four consecutive ones. The investigation is still in progress, but it is worth reporting at this time that the radial velocity is consistent with Cloud membership and that four day periodicity in the radial velocity has not been positively detected; if present, this does not have a very large range. (If SMC X-1 and Sk 160 are indeed identical, this would mean that the secondary component has a mass less than about $1.5 M_{\odot}$).

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- ¹ Schreier, E., Giacconi, R., Gursky, H., Kellogg, E., and Tananbaum, H., *Astrophys. J. Lett.* (in the press).
- ² Sanduleak, N., *Astron. J.*, **73**, 246 (1968).
- ³ Webster, B. L., and Murdin, P., *Nature*, **235**, 37 (1972).
- ⁴ Bolton, C. T., *Nature*, **235**, 271 (1972).

Tertiary Acid Magmatism in NE Ireland

WITHIN the Tertiary basalt pile of Northern Ireland, small outcrops of rhyolite occur along a NNW-SSE zone¹. Comparison has been made with the nearby Tertiary granites of the Mourne Mountains²; and the relative ages^{3,4} and geochemical similarities^{5,6} of these two acid suites have been disputed.

We have made trace element determinations on all known rhyolites in Northern Ireland and compared these with extensive data on the granitic rocks of the Mourne region³. The concentration ranges of certain trace elements (Li, Rb, Sr, Ba, Zr, Pb, Th) are similar for the two suites, and the results provide evidence for differentiation of Tertiary acid magmas in NE Ireland (our unpublished data). The most fractionated members of each are characterized by extreme enrichment in rubidium, enrichment in lithium, lead and thorium, very low K/Rb, depletion in zirconium, and extreme depletion in strontium and barium. The Mourne granites are known to be highly fractionated rocks⁷, but a similar degree of fractionation in some Antrim rhyolites has not been recorded previously—probably because of incomplete sampling.

R. D. Beckinsale (personal communication) has measured an age of 57 m.y. for the Mourne granites (mean of 3 K-Ar determinations on biotites, range 55.7 ± 1.9 to 59.2 ± 2.6 m.y.). This differs considerably from the earlier K-Ar result of 75 ± 7 m.y. (ref. 4). K-Ar measurements on whole rocks from the complete Antrim basalt pile⁸ indicate a minimum age of 50-55 m.y., and it now seems probable that the Mourne granites and the rhyolites were contemporaneous.

The revised age dates on Northern Ireland rocks are relevant to the recent application of the "mantle plumes" hypothesis to the British Tertiary⁹. Evidence for the formation of igneous rocks during the spreading of a lithospheric plate over a stationary mantle "hotspot" depends upon demonstrating progressive age differences between the rocks of related areas. The Northern Ireland age deter-