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THERMOLUMINESCENCE DATING OF SURFACE LITHIC ARTEFACTS FROM THE CHACABUCO VALLEY, CHILEAN PATAGONIA*

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This work presents several thermoluminescence (TL) dates of six archaeological sites located in the Andean valley of the Chacabuco River, central Patagonia. We discuss the advantages of this method to assess the chronology of human occupations, employing samples of lithic artefacts with evidence of fire exposure from surface contexts in the area. We compare the results with stratigraphic archaeological dating by ^{14}C. We discuss these results in the context of previously formulated hypotheses on the past behaviour of the human population in this area.

KEYWORDS: THERMOLUMINESCENCE, LITHIC ARTEFACTS, SURFACE RECORD, HUNTER–GATHERERS, PATAGONIA

INTRODUCTION

'I fell into a burnin' ring of fire . . .'
Johnny Cash

Although luminescence techniques are experiencing a vigorous development in the dating of sediments, monuments and other materials, this is mostly in the form of OSL (optically stimulated luminescence). Thermoluminescence (TL) has been principally focused on the dating of ceramics (e.g., Aitken 1985; Roberts 1998; Wintle 2008). This has also been the case for Chilean archaeological studies (e.g., Castro *et al*. 1979; Concha *et al*. 1980; Román *et al*. 1983; Berenguer *et al*. 1986; Deza and Román 1986; Planella *et al*. 1991; Falabella *et al*. 1993). In principle, however, it can be used with any material that contains quartz or feldspar previously heated to near 500°C, not only fired clay, but also bones (e.g., Jasinka and Niewiadomsky 1970; Chapman *et al*. 1979; Deza and Román 1991) or hearth quartz-containing stones (see Wintle 2008). This application has been extensively demonstrated in the dating of subsurface heated flints in Europe (Wintle and Aitken 1977; Valladas 1978; Huxtable 1981; among many others),

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