 Whilst there are now numerous sociolinguistic studies investigating sound change, the majority of these use the 'apparent-time' method, where age is used as a proxy for time depth. Real-time studies, which consider speech samples recorded at different points in time, are much less common. This paper will present some results from a new real-time study of sound change in Glasgow dialect. The twentieth century witnessed substantial demographic, social and political changes which led to far greater social and geographical mobility, with implications for language change in traditional dialects (e.g. Milroy 1992). This paper considers the evidence for change in three aspects of the sound system, vowel quality, vowel duration, and postvocalic /r/: do these features show evidence of change consistent with shifts or norms in Anglo-English? Two sources of evidence are used. The first is a corpus of Glasgow dialect recordings covering effectively 100 years in real- and apparent-time. Recordings with time aligned orthographic transcripts are stored in an electronic, LaBB-CAT corpus, with automatic phonemic transcriptions and automatically generated segmentation of the waveform. The corpus consists of sociolinguistic interviews, oral history interviews, as well as other speech recordings such as extracts from broadcast media. The second is a handful of recordings which we believe to the amongst the earliest documenting Scottish English, from the Berliner Lautarchiv collection, made in German Prisoner of War camps in 1916/17, and now digitized at the British Library. The results for all three aspects show evidence of real-time change over the 20th century, but differently from shifts or norms in Anglo-English. For these changes at least, internal factors to the dialect appear to be more important in motivating sound change over time.