and quickly abandoned them. Settlers including John Marshall at Con. 1, Lot 10, or James Tygert and John Boyd located in Con.3, Lot 12, vaceted their lots, never to return - lots that strike one as being suitable only as gravel pits.

The frequency distribution of farm soil quality, with Class I, II, and III good to fair quality soils and Class IV, V, and VI fair quality to non-agricultural soils, is illustrated in Figure 4.18. It is interesting to note that, regardless of settlers leaving and newcomers arriving, the number of settlers in a particular soil quality group appears to have been consistent from 1821 through 1825, possibly reflecting the generally high persistence rates.

Land clearance rates to the end of 1825 exhibited slow, but steady progress (Figure 4.19). Figure 4.19 demonstrates the close relationship between population density and land cleared (%) through 1841, with the notable exception of 1826-27 and the sudden arrival of the Robinson immigrants. Ball (1977) remarked that, for the first three to five years, the pioneer farmer's main task was clearing land and erecting necessary buildings and fences - his main job was creating rather than running the farm.

Cleared land as a percentage of occupied land increased from 3.37% in 1821 to 7.06% in 1825 (Figure 4.20). Figure 4.20 also reveals that, even as the percentage of occupied land was decreasing, the percentage of cleared land was increasing as the persistent settlers set about clearing their lots.

On an individual basis, Emily settlers had cleared an

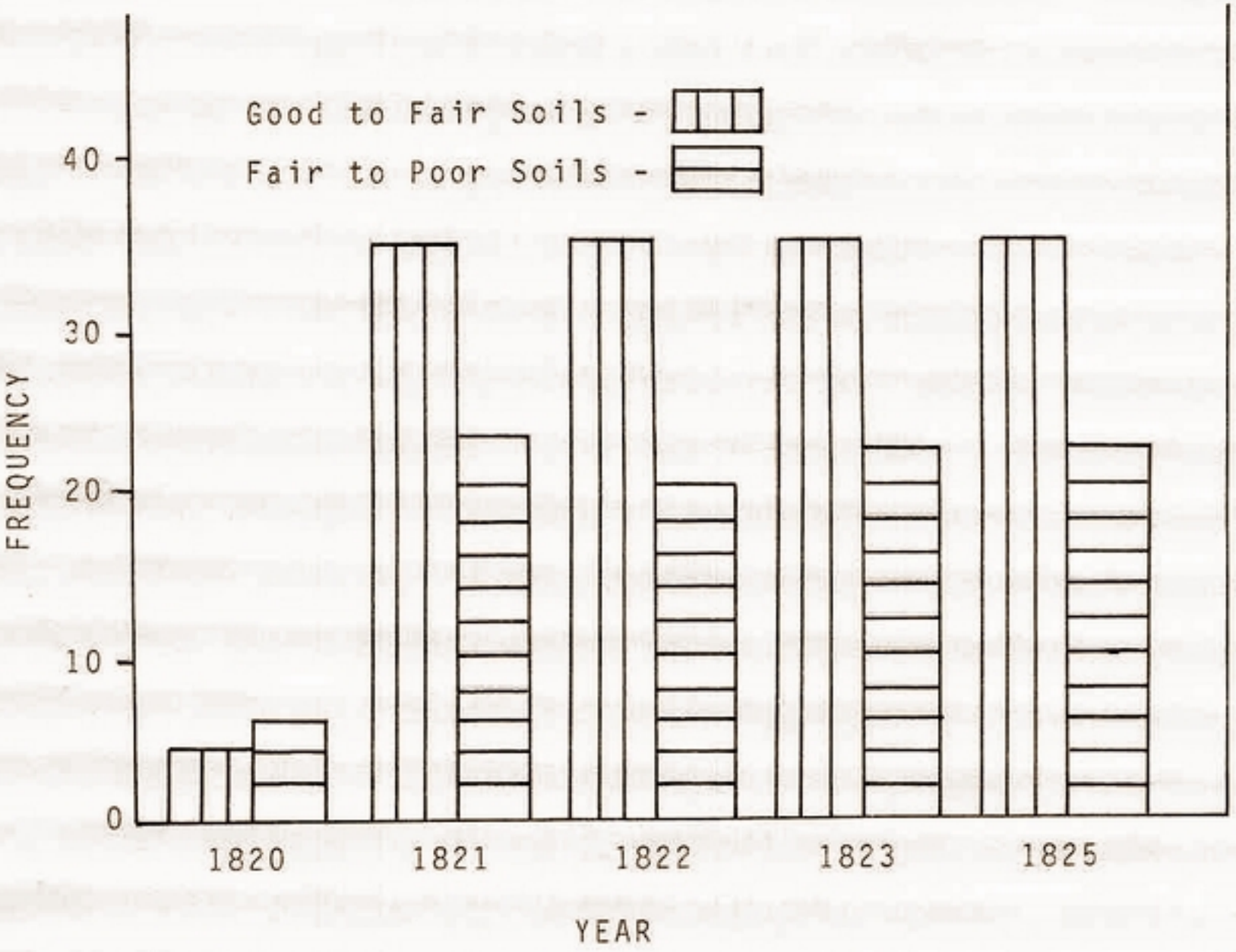

Figure 4.18 : Frequency Histogram of Farm Soil Type - Occupied Farms 1820-1825

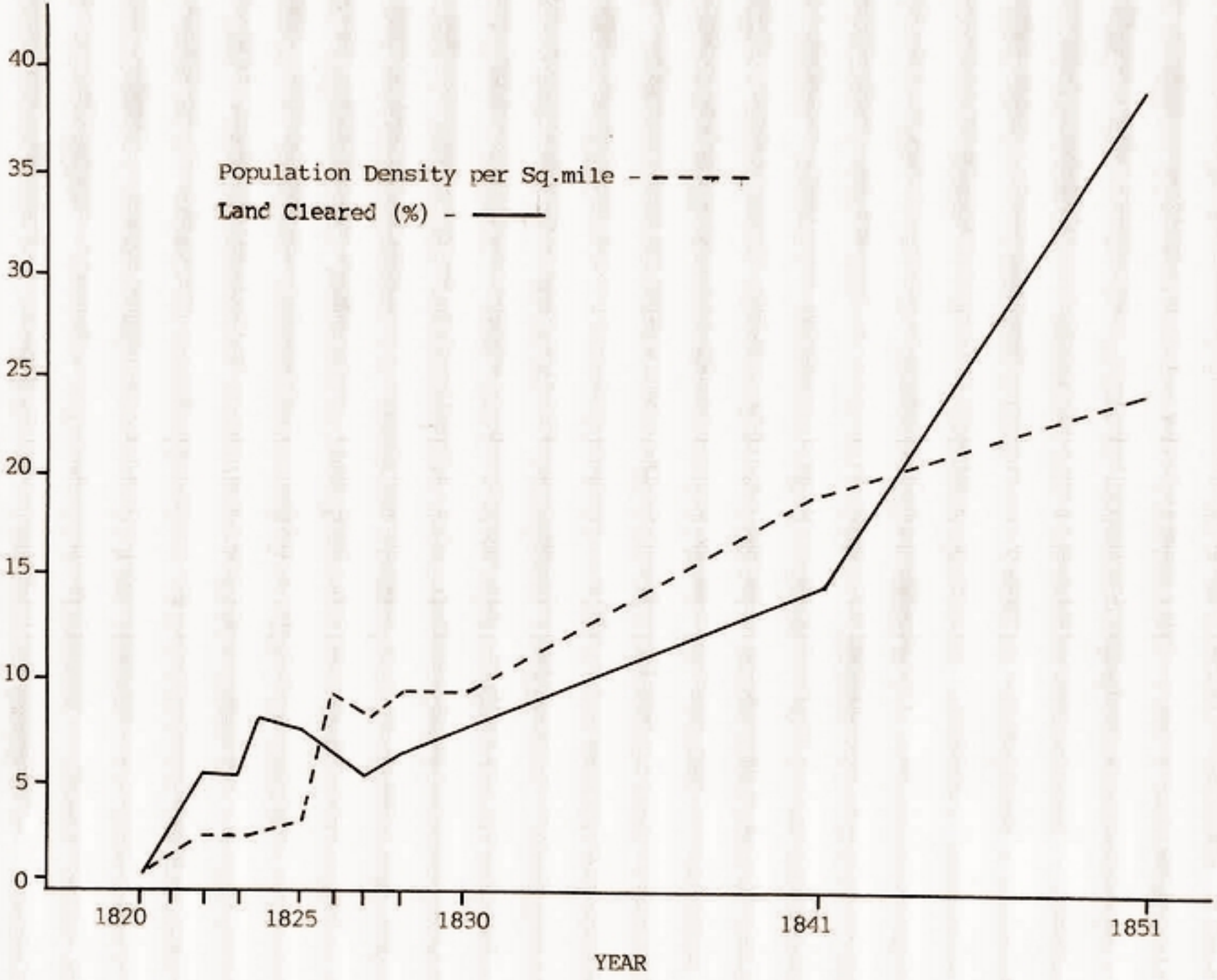

Figure 4.19 : Population Density and Land Cleared 1820-1851

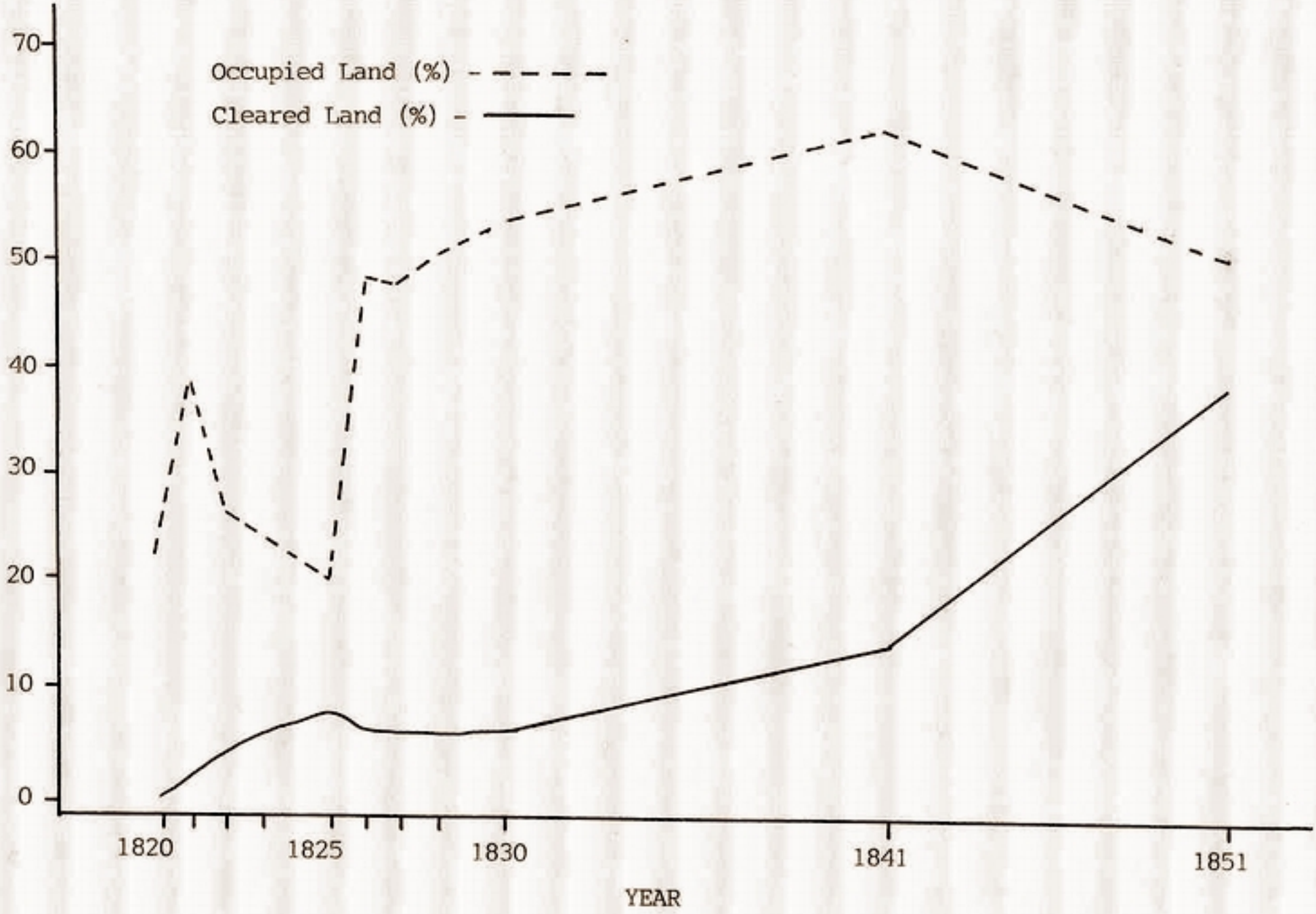

Figure 4.20 : Percentage Occupied and Percentage Cleared 1820-1851

average of five acres in 1825, compared to slightly more than two acres in 1821 (Figure 4.21). Russell (1989) noted that the speed at which forest could be turned into farmland largely determined how quickly pioneer farmers could prosper. In Russell's (1989) examination of Upper Canada clearing rates, he calculated a Newcastle District mean clearing rate of 1.6 acres per year between 1822 and 1827, but Russell cautioned that the stated amounts of cleared land should be taken as severely conservative estimates rather than completely accurate reports.

The first settlers of Emily Township cleared an average of 1.4 acres per year between 1821 and 1825, which compares well with the District figures. In 1822, the mean clearing rate was 1.7 acres per year, with a mode of twelve settlers clearing 1.5 acres per year. In 1823, the mean clearing rate had fallen slightly to 1.2 acres per year, with twenty-six settlers clearing between 0.7 and 1.3 acres per year. Eight settlers were clearing land at a rate of 2.5 to 3.0 acres per year, with Henry Best at Con. 1, Lot 13 clearing land at a rate of 5.0 acres per year. By the end of 1825, the mean clearing rate was 1.3 acres per year, with thirty-three settlers clearing one acre or less per year. The two top land clearers of four and five acres per year were John Hawe at Con.3, Lot 1, and Henry Moore at Con.1, Lot 22, both of whom settled in 1825 but were mysteriously gone from their lots by 1826.

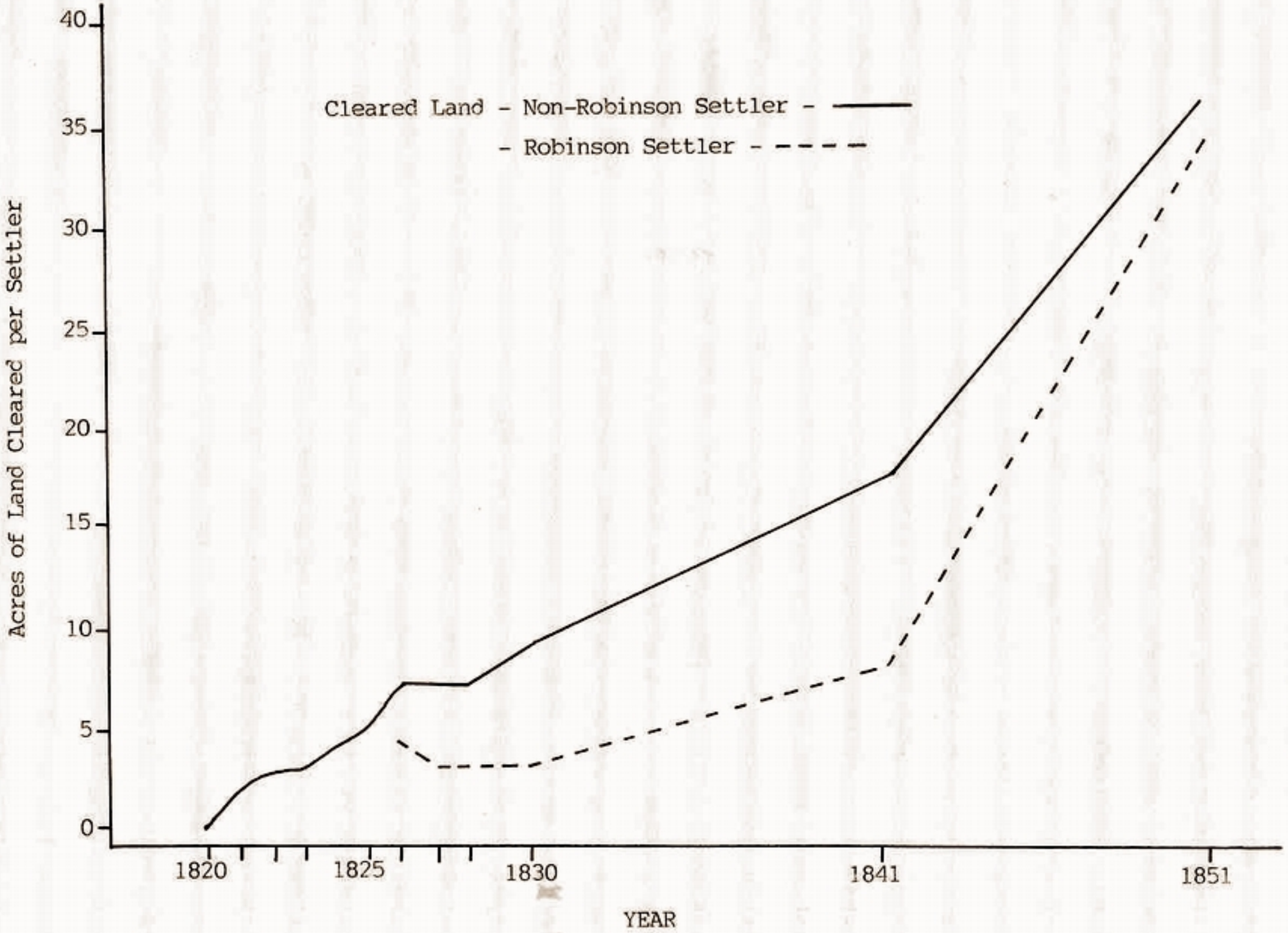

Figure 4.21 : Emily Township Land Clearance 1820-1851

4.3 Tests For Association 1821-1825

The results of chi-square statistical tests of association are summarized in Table 4.3. The chi-square statistic is based on a comparison of observed frequencies with expected frequencies, with the null hypothesis stating that the two variables are unrelated. In general, large chi-square values occur when the sample results differ from those predicted by the null hypothesis (Norušis 1988,p.237). The tabulation shows that the measure of a successful settler - land cleared - is significantly associated with time settled for each year, giving credence to hypothesis I, that settler persistence and successful farmers are closely linked. The results indicate that, for the years 1821 to 1825, the settlers who had cleared the greatest percentage of their lands tended to be those who were longest settled.

Successful settlers were significantly identified with family size for the years 1821, 1822, and 1825, with those having larger families clearing a greater portion of their farms. The presence of oxen on a farm was found to be significantly associated with successful farms in 1822 and 1823.

The results of linear correlation analysis are presented in Table 4.4. The Pearson correlation coefficient provides a statistical measure of the strength and direction of a relationship between two variables, with a value of -1.0 indicating a perfect inverse relationship, while a value of 1.0 indicates a perfect direct relationship (Ebdon 1985, p.90). Successful settlers, based on land cleared (%) are

Table 4.3 Summary of Chi-Square Tests 1821-1825

Variable	Time Settled	Family Size	Farm Size	Oxen	Soil Type
Land Cleared (%)	1821* 1822 1823 1825	1821 1822* 1825	1822	1822* 1823	1821*
Time Settled			1821 1822		

Note: Year denotes census year pairs of variables tested and found to be significant at 0.05 level.
* - indicates significance at 0.10 level.

Soil Type - Class I, II, III, vs. Class IV, V, VI Soils.

Table 4.4 Significant Linear Correlations 1822-1825

Variables Tested	1822	1823	1825
Clear Land (%)/ Time Settled	.4325	.5128	.3775
Clear Land (%)/ Livestock	.3422*	.4994	.4187
Clear Land (%)/ Oxen	.3767	.3892	----
Clear Land (%)/ Clearing Rate	.7183	.6775	.5269
Time Settled/ Livestock	.3988	.4754	.3559
Clearing Rate/ Farm Size	.3583	.4600	.3361
Farm Density/ Family Size	----	-.5638	-.4955

Note: Variables Significant at 0.01 level
* - Variables Significant at 0.05 level.

significantly associated with time settled, clearing rates, livestock and oxen. All have positive relationships, with

land cleared (%) increasing as the value of the associated variables increases. This, particularly the relationship between land cleared (%) with time settled and livestock, further supports hypothesis I, that successful farmers tended to be persisters.

Several other relationships are notable, including the significant association between clearing rates and farm size, larger farms tending to have higher clearing rates. Farm density and family size are also associated in 1823 and 1825. The negative relationship suggests that, as family size increases, the number of acres cleared per family member decreases, perhaps because young children were unable to contribute to the land clearing effort.

At the end of 1825 the settlement pattern can best be described as a patchwork, with settlement confined to the first five concessions. Ninety per cent of the available land in the first six concessions (excluding reserves) had been granted, but only a fifth or so was occupied. Close to 2000 acres of land that had once been settled had since been abandoned. The isolation of the township from lakeshore ports, lack of roads, and the absence of mills and stores all were factors hampering progress - a complaint common to every frontier township in Newcastle District (Pammett 1974,p.22).

4.4 The Arrival of the Robinson Emigrants - 1825

The Robinson emigrants arrived in Emily late in 1825, and their appearance soon altered the stagnant settlement pattern of previous years. The immigrants were allocated