Chapter 3

DECOMPOSABLE AND INDECOMPOSABLE CONTINUA

3.1 Decomposable continua (also hereditary)

3.2 Indecomposable continua (also hereditary)

(a) Lakes of Wada

(b) Knaster type continua; Brouwer-Janiszewski-Knaster (buckethandle) continuum

(c) Other simple examples

(d) The pseudo-arc

3.2.1 Knaster continua

By a *Knaster continuum* is meant a continuum homeomorphic to the inverse limit $\varprojlim(I_n, f_n)$ of a sequence of unit intervals $I_n = I$ with open, non-homeomorphic bonding maps f_n. Denote by $\mathcal{K}$ the class of all Knaster continua.

The most popular examples of Knaster continua is the *buckethandle* (sometimes called by dynamists the *horseshoe*) B_1, where $f_n(t) = 1 - |2t - 1|$, and the *double buckethandle* B_2 with

$$f_n(t) = \begin{cases} 3t & \text{if } 0 \le t \le \frac{1}{3}, \\ 2 - 3t & \text{if } \frac{1}{3} \le t \le \frac{2}{3}, \\ 3t - 2 & \text{if } \frac{2}{3} \le t \le 1. \end{cases}$$