ON IRREDUCIBLE CONTINUOUS CURVES

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This paper deals with the existence of continuous curves containing compact and closed point sets and with certain properties of continuous curves which are irreducible continua about point sets in spaces which are not necessarily metric. Previous results on these topics have been almost entirely for metric spaces. Thus Gehman[1] proved for the plane that, given a compact continuum, there exists a compact continuous curve, which is the sum of a countable number of arcs plus its limit points, containing it. Whyburn and Ayres[2] extended this to a space of a continuous curve in n dimensions, and Zippin[3] indicated that their argument might be modified to give the following: If T is a closed and compact subset of a complete metric continuous curve S, there exists a compact continuous curve which is a subset of S and contains T. Zippin[4] proved that, given a complete metric continuous curve S and a compact, closed, one-dimensional subset, T, of S, such that every component of T is a continuous curve, and no more than a finite number of components of T are of diameter greater than any positive number, there exists a compact continuous curve which is a subset of S and an irreducible continuum about T. Miss Miller[5] proved that if, in a connected space satisfying Axioms $0-2$ of R. L. Moore's *Foundations of point set theory*,[6] T be a compact and closed point set, there exists a compact continuum containing T.

The concept of a continuum irreducible about a subset of itself was first introduced by Wilson.[7] Most of the past work on continuous curves which are irreducible continua about point sets has been done

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[1] H. M. Gehman, *Concerning the subsets of a plane continuous curve*, Ann. of Math. (2) vol. 27 (1926) p. 30.

[2] G. T. Whyburn and W. L. Ayres, *On continuous curves in n dimensions*, Bull. Amer. Math Soc. vol 34 (1928) p. 350.

[3] L. Zippin, *On continuous curves irreducible about subsets*, Fund. Math. vol. 20 (1933) pp. 197–205.

[4] L. Zippin, loc. cit.

[5] H. C. Miller, *A theorem concerning closed and compact point sets which lie in connected domains*, Bull. Amer. Math. Soc. vol. 46 (1940) p. 848.

[6] R. L. Moore, *Foundations of point set theory*, Amer. Math. Soc. Colloquium Publications vol. 13, New York, 1932.

[7] W. A. Wilson, *On the oscillation of a continuum at a point*, Trans. Amer. Math. Soc. vol. 27 (1925) p. 433.