REFERENCES

1. Zygmund, *Trigonometrical series*, chap. 5, p. 123.
2. Ibid., chap. 2, p. 32.

UNIVERSITY OF WISCONSIN

ON FIBRE SPACES. II

RALPH H. FOX

This paper is primarily concerned with fibre mappings[1] into an absolute neighborhood retract. Theorem[2] 3 is a converse of the covering homotopy theorem; it characterizes fibre mappings (into a compact ANR) as mappings for which the covering homotopy theorem holds. Theorem 4 is Borsuk's fibre theorem;[3] the proof[4] which I present here is new. It seems to me that this theorem is a promising tool in function-space theory. Also I think that it furnishes conclusive justification for the generality of the Hurewicz-Steenrod definition of a fibre space. In fact, a fibre space of the type constructed by Borsuk's theorem almost never has a compact base space and almost never has its fibres of the same topological type.

The common denominator of the proofs of Theorems 3 and 4 is a property which I call *local equiconnectivity*. Local equiconnectivity is a strengthened form of local contractibility and a weakened form of the absolute neighborhood retract property (Theorems 1 and 2). Definitions and notations are those of FS. I.[5]

Let Δ be the diagonal subset $\sum_{b\in B}(b, b)$ of $B\times B$. I shall call the space B *locally equiconnected* (or, to be specific, (U, V)-equiconnected) if there are neighborhoods U and V of Δ and a homotopy λ in B between the two projections of U which does not move the points of Δ and which is uniform[5] with respect to V. Precisely:

(1) $\lambda_t(b_0, b_1)$ is defined for all $(b_0, b_1)\in U$,

(2) $\lambda_0(b_0, b_1)=b_0$,

Received by the editors April 2, 1943.

[1] W. Hurewicz and N. Steenrod, Proc. Nat. Acad. Sci. U. S. A. vol. 27 (1941) p. 61.

[2] This theorem was announced in Hurewicz-Steenrod, op. cit. footnote 3.

[3] K. Borsuk, Fund. Math. vol. 28 (1937) p. 99.

[4] This proof was announced in the author's paper *On the deformation retraction of some function spaces* · · · , Ann. of Math. vol. 44 (1943) p. 52.

[5] $\bar{\pi}(x, b)=(\pi(x), b)$ as in R. H. Fox, *On fibre spaces*. I, Bull. Amer. Math. Soc. vol. 49 (1943) pp. 555–557.