102. G. W. Whitehead: *On families of continuous vector fields over spheres.*

Let \( f(n) \) be the maximum number of everywhere independent continuous fields of tangent vectors that can exist on the \( n \)-sphere \( S^n \). It is well known that \( f(2n) = 0, f(2n+1) \geq 1, f(4n+3) \geq 3, \) and \( f(8n+7) \geq 7. \) It has been proved independently by B. Eckmann (Comment. Math. Helv. vol. 15 (1942) pp. 1-26) and the author (Ann. of Math. vol. 43 (1942) pp. 132-146) that \( f(4n+1) = 1. \) In this paper it is shown that \( f(8n+3) = 3. \) It follows from this and results of N. E. Steenrod (Ann. of Math. vol. 45 (1944) pp. 294-311) that if \( m > k \) and \( k = 2n, 4n+1, \) or \( 8n+3, \) with \( n > 0, \) then \( S^m \) is not a \( k \)-sphere bundle over any complex \( B. \) (Received December 10, 1945.)

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**NEW PUBLICATIONS**
