

# Pacific Journal of Mathematics

**ADDENDUM TO 'ON THE LERCH ZETA FUNCTION'**

TOM M. (MIKE) APOSTOL

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Professor L. Carlitz has been kind enough to point out that the functions  $\beta_n(a, \alpha)$  which were used in [1] to evaluate the Lerch zeta function  $\phi(x, a, s)$  for negative integer values of  $s$  have occurred elsewhere in the literature in other connections, for example in [2] and [3]. As Carlitz points out, formula (3.3) of [1] leads to the result

$$\alpha^m \beta_n(m, \alpha) - \beta_n(0, \alpha) = n \sum_{a=0}^{m-1} a^{n-1} \alpha^a$$

which, for integer values of the variable  $a$ , makes apparent the relation of the functions  $\beta_n(a, \alpha)$  with the Mirimanoff polynomials discussed by Vandiver in [3].

There is a misprint in the next to last equation on p.164 of [1]. The coefficient of  $a^2/2$  in the expression for  $\phi(x, a, -2)$  should read  $i \cot \pi x + 1$  instead of  $i \cot \pi x + 1/4$ .

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3. H. S. Vandiver, *An arithmetical theory of the Bernoulli numbers*, Trans. Amer. Math. Soc., **51** (1942), 506.
4. G. Frobenius, *Über die Bernoulli'schen Zahlen und die Euler'schen Polynome*, Sitzungsber. Akad. Wissensch. Berlin, **2** (1910), 826.

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