On rings stable under derivations

Abstract:

Let \( z \) be an algebraic function of \( n \) variables and \( A(z) \) the algebra generated by all variables and all partial derivatives of \( z \) (of all orders). If \( z \) is a polynomial then \( A(z) \) is just a polynomial algebra, but when \( z \) is not a polynomial then it is not clear what is the structure of this algebra. I'll report on known cases and formulate a conjecture.