On almost geometric prime gernerating sequences

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In the research problem 1.75 of [1], sequences of the form $[q^n]$ for any real number $q > 1$ are considered with respect to their prime genrating properties. In particular, it is mentioned there that for $q = 1287/545$ the integer parts of the first 8 powers are 2, 5, 13, 31, 73, 173, 409, 967, each of which is prime, and it is asked for values of q with a longer chain of this sort. It turns out that for any q with $2 < q < 3$. i.e. if $p = 2$ is the very first prime of the corresponding sequence, 8 is the maximal length of such a chain. Moreover, it seems to be the case that for every starting prime p there is a chain of maximal length (cf. my sequence A094106 at [2], where for the first 24 primes those maximal lengths are actually determined). In my talk a number of other interesting properties of these sequences are studied, though proofs can be given usually only on heuristic grounds.

[1] Crandall R., Pomerance C.: *Prime Numbers - A Computational Perspective*, Springer, 2000

[2] : *Sloane's Online Encyclopedia of Integer Sequences*, http:// www.research.att.com/ njas/sequences/

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