Zbl 312.10003
Erdős, Paul
On abundant-like numbers. (In English)
Can. Math. Bull. 17, 599-602 (1974).

Let $2 - p_1 < p_2 < \dots$ be the sequence of primes. Denote by $n_k^{(c)}$ the smallest integer for which p_k is the smallest prime divisor of $n_k^{(c)}$ and $\sigma(n_k^{(c)} \geq cn_k^{(c)}$ where $\sigma(n)$ denotes the sum of the divisors of n. From the reviewer's solution of a problem proposed by the author [Canadian math. Bull. 16, 144 (1973)] it follows that there are only a finite number of squarefree integers which are $n_k^{(c)}$'s for some $c \geq 2$ (maybe only the integer 6). The author now proves that $n_k^{(2)}$ is cubefree for all sufficiently large k. The proof depends on a method developed by Ramanujan. The situation for $1 < c < 2$ is much more complicated. It is shown e.g. that the sets of numbers c for which $n_k^{(c)}$ is infinitely often squarefree resp. not squarefree are both dense in (1,2).

J.H.van Lint

Classification:
11A05 Multiplicative structure of the integers
11A25 Arithmetic functions, etc.