Zbl 100.27201
Erdős, Pál
Remarks on two problems. (In Hungarian. RU, English summary)
Mat. Lapok 11, 26-32 (1960). [0025-519X]

Using the elementary estimate $\pi(x) > cx/\log x$ first the existence of an absolute constant C is proved such that for every sufficiently large n there is an $m < n$ with the property that $d(m) > \prod d(m+i)d(m-1)(1 \leq i < C\log n/\log\log n)^2)$. The author remarks that there is a sufficiently large constant C such that $d(n) < \prod d(n+i)$ $(1 \leq i < C\log n/\log\log n \log\log\log n)$. Given a sufficiently large n let $k = c(\log n)^{1/2}\log\log n$ where c is a suitable absolute constant and let $i_1, ..., i_k$ be any permutation of $1, ..., k$. Then there is an m, not exceeding n such that $d(m+i_1) < \cdots < d(m+i_k)$. Finally let $f(n)$ be the largest natural number such that $V(n) < \cdots < V(n+f(n))$. By utilizing the prime number theorem it is proved that $\limsup f(n)\log\log n/\log n\frac{1}{2}$.

I.S.Gál

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11N64 Characterization of arithmetic functions