4 [9].—RICHARD P. BRENT, *Tables Concerning Irregularities in the Distribution of Primes and Twin Primes,* Computer Centre, Australian National University, Canberra, 1974, 11 computer sheets deposited in the UMT file.

These are the tables referred to repeatedly in Brent's paper [1]. The numbers $\pi(n)$, $\pi_2(n)$ and $B^*(n)$ and

$$r_i(n),\ s_i(n),\ R_i(n, n'),\ \rho_i(n, n')$$

for $i = 1, 2, 3$ are defined in [1]. They are listed in Table 1 for 533 values of n:

$$10^4\ (10^4)\ 10^6\ (10^5)\ 10^7\ (10^6)\ 10^8\ (10^7)\ 10^9\ (10^8)\ 10^{10}\ (10^9)\ 83 \cdot 10^9.$$

Table 2 (1 page long) lists n, $\pi_2(n)$, $B(n)$, and $B^*(n)$ with some auxiliary functions for

$$10^5\ (10^5)\ 10^6\ (10^6)\ 10^7\ (10^7)\ 10^8\ (10^8)\ 10^9\ (10^9)\ 10^{10}\ (10^{10})\ 8 \cdot 10^{10}:$$

The author indicates that he has much more detailed tables and is continuing to 10^{11}.

Section 3 of [1] ends with the same conclusion given earlier in our [2]: that the unpredictable fluctuations of $\pi_2(n)$ around the Hardy-Littlewood approximation makes it difficult to compute Brun's constant accurately. But his Fig. 3 allows for a posteriori judgment; although we do not know where $s_3(n)$ is going, we know where it's been! We see that Fröberg's low value at $\log_{10}n = 6.02$, our high value at $\log_{10}n = 7.51$ and Bohman's low value at $\log_{10}n = 9.30$ all correlate (inversely) with the peaks and valleys of Fig. 3. In fact, Fig. 3 between $\log_{10}n = 6.63$ and 7.19 gives a crude, distorted, upside-down version of our Fig. 1 [2] and $\log_{10}n$ between 7.19 and 7.51 continues with our Fig. 2. Thus, for Brun's constant, it does appear that $n = 8 \cdot 10^{10}$ is a good time to quit since $s_3(n)$ is then very small.

Concerning the negative peaks in Brent's Fig. 1 at $\log_{10}n = 8.04$ and 8.25, it would be nice to know when they are exceeded. As Brent is aware, if a likely n were known that is not too large, one could restart his tables of $r_i(n)$ and $s_i(n)$ for $i =$ 1, 2 by computing a fiducial mark $\pi(n)$ by Lehmer's method.

D. S.

1. RICHARD P. BRENT, "Irregularities in the distribution of primes and twin primes," *Math. Comp.*, v. 29, 1975, pp. 43–56 (this issue).

2. DANIEL SHANKS & JOHN W. WRENCH, JR., "Brun's constant," *Math. Comp.*, v. 28, 1974, pp. 293–299; "Corrigendum", *ibid*, p. 1183.

5 [9].—CARL-ERIK FRÖBERG, *Kummer's Förmodan,* Lund University, 1973, 133 pages of computer output deposited in the UMT file.

The Kummer Sum

$$S_p = \sum_{n=0}^{p-1} \exp(2\pi i n^3/p) = 1 + 2 \sum_{n=1}^{(p-1)/2} \cos(2\pi n^3/p) \tag{1}$$