The main table here lists $q(n)$, $r(n)$, $\lambda(n)$, and $p(n)$ for $n = 1(1)150$. The last is the well-known partition function. The first is defined to be the number of partitions of n into *prime* parts. It is generated, of course, by

$$\sum_{n=0}^{\infty} q(n)x^n = [(1 - x^2)(1 - x^3)(1 - x^5)(1 - x^7)(1 - x^{11}) \cdots]^{-1}.$$

Similarly, $r(n)$ is the number of partitions of n into *composites* and *unity*. Finally, $\lambda(n)$ is defined so as to take up the slack:

$$q(n) + r(n) + \lambda(n) = p(n).$$

A number of other notes in the same issue as this paper deal with these same functions and their generalizations.

The most interesting is $q(n)$, but this is not at all new. In [1] O. P. Gupta and S. Luthra give a longer table of this same function for $n = 1(1)300$. There is no reference to this earlier table here. The tables agree.

The obvious question is: How fast does $q(n)$ grow? One sees at once that $q(n)$ has a bit more than one-half the digits possessed by $p(n)$, and then that $q(n)/\sqrt{p(n)}$ appears to grow slowly with n. If one now examines $\log q(n)/\log p(n)$, one finds that this ratio is about $\frac{1}{2}$; it grows slowly, and *reaches a maximum* of 0.5572 at $n = 120$. Henceforth, the ratio very slowly decreases.

There is another function usually called $q(n)$, cf. [2]. Let us call it $Q(n)$ here. This is the number of partitions into *odd* parts. One knows theoretically that

$$\log Q(n)/\log p(n) \sim 1/\sqrt{2} = 0.7071.$$

As Morris Newman pointed out to me, this is consistent with the foregoing, since there are fewer primes than odd numbers, and therefore $Q(n)$ grows faster. As he also points out, the theory of $q(n)$ was given by Hardy and Ramanujan [3]. This gives

$$\log q(n)/\log p(n) \sim (2/\log n)^{1/2}$$

and explains the slow decrease that occurs after $n = 120$. In fact, after $n > e^8 \approx 3000$, $q(n)/\sqrt{p(n)}$ will no longer increase, but decrease slowly to 0.

D. S.

1. O. P. GUPTA & S. LUTHRA, "Partition into primes," *Proc. Nat. Inst. Sci. India*, v. 21, 1955, pp. 181–184.
2. M. ABRAMOWITZ & I. A. STEGUN, editors, *Handbook of Mathematical Functions*, Dover, New York, 1965; Section 24, "Combinatorial analysis" (see 24.2.1, 24.2.2, Table 24.5).
3. G. H. HARDY & S. RAMANUJAN, "Asymptotic formulae for the distribution of integers of various types," *Proc. London Math. Soc.*, (2), v. 16, 1917, pp. 112–132; see Eq. (5.281).

39[9].—RICHARD B. LAKEIN & SIGEKATU KURODA, *Tables of Class Numbers $h(-p)$ for Fields $Q(\sqrt{-p})$, $p \leqq 465071$*, University of Maryland, College Park, Md., November 1965, copy deposited in the UMT file.

The main table, which consists of 76 Xeroxed computer sheets, contains the class numbers $h(-p)$ for the first $19 \cdot 2^{10} = 19456$ primes of the form $4k + 3$, the largest of which is 465071. This table therefore goes much further than those of Ordman [1] and Newman [2], which have already been reviewed, although they were computed well after the present table.

The format is very unusual: the primes p and class number $h(-p)$ are listed on alternate pages. Every other page contains 512 primes in 16 columns and 32 rows, which are identified by numbers written in the base 32. One determines $h(-p)$ by using the same base 32 coordinates (on the next sheet) as those which identify p. Although the senior author had a rationale for such a curious format, we need not go into it; suffice it to say that it is usable.

We may now redo the lists in our previous two reviews and give definitive tables of the first and last p having $h(-p) = n$, $n = 1(2)49$, both for $p \equiv 7 \pmod 8$ and $p \equiv 3 \pmod 8$. It is very likely that the last examples listed are the largest that exist. But we cannot go further than $n = 49$ here, since several $h(-p) = 51$ exist with $p > 465071$. We also list the corresponding Dirichlet functions $L(1, \chi)$, cf. [3].

$\Delta = 8k + 7$

$h(-\Delta)$	first Δ	$L(1, \chi)$	last Δ	$L(1, \chi)$
1	7	1.18741	7	1.18741
3	23	1.96520	31	1.69274
5	47	2.29124	127	1.39386
7	71	2.60987	487	0.99651
9	199	2.00431	1423	0.74953
11	167	2.67414	1303	0.95735
13	191	2.95513	2143	0.88223
15	239	3.04819	2647	0.91593
17	383	2.72897	4447	0.80088
19	311	3.38472	5527	0.80289
21	431	3.17783	5647	0.87793
23	647	2.84070	6703	0.88256
25	479	3.58858	5503	1.05874
27	983	2.70543	11383	0.79503
29	887	3.05905	8863	0.96774
31	719	3.63201	13687	0.83245
33	839	3.57917	13183	0.90294
35	1031	3.42443	12007	1.00346
37	1487	3.01437	22807	0.76969
39	1439	3.22986	18127	0.91002
41	1151	3.79661	21487	0.87871
43	1847	3.14329	22303	0.90456
45	1319	3.89260	29863	0.81808
47	3023	2.68552	25303	0.92824
49	1511	3.96017	27127	0.93464

$\Delta = 8k + 3$

$h(-\Delta)$	first Δ	$L(1, \chi)$	last Δ	$L(1, \chi)$
1	3	0.60460	163	0.24607
3	59	1.22700	907	0.31294
5	131	1.37241	2683	0.30326

7	251	1.38807	5923	0.28574
9	419	1.38129	10627	0.27428
11	659	1.34617	15667	0.27609
13	1019	1.27940	20563	0.28481
15	971	1.51228	34483	0.25377
17	1091	1.61691	37123	0.27719
19	2099	1.30286	38707	0.30340
21	1931	1.50134	61483	0.26607
23	1811	1.69792	90787	0.23981
25	3851	1.26562	93307	0.25712
27	3299	1.47680	103387	0.26380
29	2939	1.68054	166147	0.22351
31	3251	1.70806	133387	0.26666
33	4091	1.62087	222643	0.21971
35	4259	1.68486	210907	0.23943
37	8147	1.28781	158923	0.29158
39	5099	1.71582	253507	0.24334
41	9467	1.32382	296587	0.23651
43	6299	1.70209	300787	0.24631
45	6971	1.69323	308323	0.25460
47	8291	1.62160	375523	0.24095
49	8819	1.63922	393187	0.24550

A second table deposited is listed on 9 pairs of sheets in the same format. This is a subtable, which includes only those p having

$$m^2 | h(-p) \qquad (m > 1).$$

It therefore includes all p having $h(-p) = 9, 25, 27, 45$, and 49, together with (incomplete) sets of p having $h(-p) = 63, 75$, etc. As indicated in our previous reviews, [1], [2], the desire to examine all 25's and 27's was the motivation for computing those tables. By examining the present table, I find, for example, that the two fields $Q(\sqrt{-p})$ have $h(-p) = 81$ for $p = 430411$ and 298483 (among many others). But these two have a class group $C(9) \times C(9)$, an elegant, but very unusual structure. I can now add these to $p = 134059$, that has the same group, which I found earlier.

D. S.

1. UMT **29**, *Math. Comp.*, v. 23, 1969, p. 458.
2. UMT **50**, *Math. Comp.*, v. 23, 1969, p. 683.
3. D. H. Lehmer et al., "Integer sequences having prescribed quadratic character," *Math. Comp.*, v. 24, 1970, pp. 433–451.

40[9].—Elvin J. Lee, *The Discovery of Amicable Numbers*, a 28-page history together with a computer-listed table of the 977 pairs of amicable numbers then known, Oak Ridge National Laboratory, Oak Ridge, Tenn., June 4, 1969, deposited in the UMT file.

Although this version is deposited in the Unpublished Mathematical Tables file, a revision will in fact be published, perhaps in several parts, in the *Journal of Recreational Mathematics*.