NOTES

Association Francaise de Calcul

The editors have been informed of the founding of the Association Francaise de Calcul. The first President is the well known astronomer Andre Danjon, of the French Academy of Sciences.

The Association intends to develop all aspects of numerical analysis, computing and associated fields; its members will include people interested in these topics from any profession—engineers, economists, statisticians and so on.

The address of the new Association is:

Association Francaise de Calcul
Institut d'Astrophysique
98 bis, Boulevard Argo
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C. B. T.

Milton Abramowitz (1915–1958)

Dr. Milton Abramowitz, head of the Computation Laboratory of the Applied Mathematics Division at the National Bureau of Standards, died suddenly of a heart attack at his home on Saturday, July 5.

Dr. Abramowitz was a valued younger scientist of the Bureau. Starting in 1938 as an original member of the Technical Planning Staff of the New York Mathematical Tables Project, the scientific program of which was under the direction of the Bureau, he moved upward to become in 1954 the Chief of the Bureau's Computation Laboratory. In addition to the supervision of the Laboratory's computation facilities, he directed the preparation of mathematical tables and performed research in numerical analysis and mathematical physics. Among his many accomplishments, he is known for his significant contribution to the planning and preparation of the well-known volumes of basic mathematical tables published in the Mathematical Tables Series of the original New York group and in the Applied Mathematics Series of the Bureau, and most recently for his editorship of a comprehensive *Handbook of Mathematical Functions*, which the Bureau is preparing under the sponsorship of the National Science Foundation.

Born in Brooklyn, New York in 1915, Dr. Abramowitz received his B.A. in mathematics in 1937, and his M.A. in 1940, both from Brooklyn College. He earned his Ph.D. from New York University in 1948.

Dr. Abramowitz received the Gold Medal in mathematics from Brooklyn College in 1933, and was awarded the Meritorious Civilian Service Award from the U. S. Navy in 1945. He was a member of the American Mathematics Society, and the Washington Academy of Sciences.

Horace Scudder Uhler

1872–1956

By J. W. Wrench

The art of highly accurate computation lost one of its most gifted exponents and practitioners when Professor Horace S. Uhler died in Meriden, Connecticut on December 6, 1956, following a brief illness.

Professor Uhler was born in Baltimore, Maryland on August 5, 1872, and, following his education as a physicist, he spent all his adult life in the academic world. He received a baccalaureate degree from Johns Hopkins University in 1894, following which he was an instructor in the Academy of Northwestern University, laboratory director at the University School in Baltimore, and graduate student and fellow at Johns Hopkins, where he received his doctorate in 1905.

The following year he served as Carnegie assistant in physical chemistry at Johns Hopkins University, whence he was appointed instructor in physics at Yale College, Yale University. This was the beginning of an association that was to extend throughout the rest of his life, except for an interlude, 1925–26, when he was the director of the department of physics at Gettysburg College. In 1937 he received an honorary master's degree from Yale University, and concurrently he was elevated to the rank of professor of physics.

The title of Professor Emeritus of Physics was officially conferred on Professor Uhler on the occasion of his retirement in 1941. Enlistment of many of the younger members of the faculty during the second World War led to his service as a special lecturer in physics for a period of two years. After returning to retirement in 1943, he devoted all his energies to his avocation, mathematical computation, which to a progressive extent had occupied his attention during the preceding half-dozen years.

He was pre-eminent in the field of elaborate computation because of his scrupulous attention to each detail and because of his extraordinary efforts to insure the impeccable quality of his published results. Professor D. H. Lehmer once referred to Uhler's "indefatigable perspicacity" in describing his practice of subjecting all his publications to the most careful scrutiny. This habit led to the occasional discomfort of editors who did not always meet his typographical standards of perfection!

Uhler's numerical research focused principally on factorials and their reciprocals, natural logarithms, and Mersenne numbers, the computations being performed by means of electrically operated desk calculators.

His exact values of factorials, which appeared in a succession of publications, and his elaborate table of reciprocals of factorials to 475D remain unrivalled to the present time. A definitive compilation of radix logarithms is his 137D table of such data, privately published in 1942. Supplementary material is available in a series of papers giving approximations (ranging from 155D to 330D) to the natural logarithms of small primes, as well as to the modulus of the common system of logarithms and to π.

At the suggestion of Professor R. C. Archibald he began in 1944 the pioneer investigation of the primality of the six remaining Mersenne numbers $2^p - 1$, corresponding to $p = 157, 167, 193, 199, 227,$ and 229, for which no identification was then available. His numerical proofs that these integers are all composite were confirmed by subsequent calculations performed on the National Bureau of Standards Western Automatic Computer (SWAC).

A sequel to this investigation was the computation of the first seventeen perfect numbers, following the identification by SWAC of all Mersenne primes for exponents p not exceeding 2303.

A chronological list of Professor Uhler's significant mathematical publications is appended. Copies of certain unpublished manuscripts have been deposited in

the library of Brown University. These include a table of factorials of all integers from 201 to 300, inclusive, and a table of factorials decomposed into prime factors for consecutive integer arguments ranging from 1001 to 3400, inclusive. The latter constitutes an elaborate extension of a table of M. Alliaume published in 1928.

In addition to his numerous papers in mathematics, Professor Uhler contributed a number of papers in the fields of geometrical optics, spectroscopy, and x-rays.

He was a charter member of the Mathematical Association of America, a member of the American Mathematical Society, the London Mathematical Society, the Optical Society of America, a life member of the Société Française de Physique, and a fellow of the American Association for the Advancement of Science, and the American Physical Society. He was a former associate editor of the *American Mathematical Monthly*, the *Physical Review*, the *American Journal of Science*, and the *Journal of the Optical Society of America*.

A portrait of Professor Uhler, accompanied by biographical and bibliographical information, appears in the book *Mathematical Table Makers*, by R. C. Archibald, published by *Scripta Mathematica*, New York, New York, 1948.

The indelible impression left on the memory of the writer, who enjoyed Professor Uhler's friendship for the past two decades, was that of a genuine scholar of broad interests and attainments, who set for himself the highest standards of clarity and accuracy in his research.

1. "On the numerical value of i^i," *American Mathematical Monthly*, v. 28, 1921, p. 114–116.
2. "A new table of reciprocals of factorials and some derived numbers," Conn. Acad. of Arts and Science, *Trans.*, v. 32, 1937, p. 381–434.
3. "Log π and other basic constants," Nat. Acad. Sci., *Proc.*, v. 24, 1938, p. 23–30. [See also *MTAC*, v. 1, 1943, RMT **95**, p. 55.]
4. "Recalculation and extension of the modulus and of the logarithms of 2, 3, 5, 7, and 17," National Acad. Sci., *Proc.*, v. 26, 1940, p. 205–212. [See *MTAC*, v. 1, 1943, RMT **96**, p. 56.]
5. "The coefficients of Stirling's series for log $T(x)$," Nat. Acad. Sci., *Proc.*, v. 28, 1942, p. 59–62. [See *MTAC*, v. 1, 1943, RMT **97**, p. 56.]
6. *Original Tables to 137 Decimal Places of Natural Logarithms for Factors of the Form* $1 \pm n \cdot 10^{-p}$, *Enhanced by Auxiliary Tables of Logarithms of Small Integers*, New Haven, Conn., 1942, 120 p. [See *MTAC*, v. 1, 1943, RMT **86**, p. 20.]
7. "Natural logarithms of small prime numbers," Nat. Acad. Sci., *Proc.*, v. 29, 1943, p. 319–325. [See *MTAC*, v. 1, 1944, RMT **139**, p. 177.]
8. *Exact Values of the First 200 Factorials*, New Haven, Conn., 1944, 24 p. [See *MTAC*, v. 1, 1944, RMT **158**, p. 312.]
9. "First proof that the Mersenne number M_{157} is composite," Nat. Acad. Sci., *Proc.*, v. 30, 1944, p. 314–316.
10. "Note on the Mersenne numbers M_{157} and M_{167}," Amer. Math. Soc., *Bull.*, v. 52, 1946. p. 178.
11. "Special values of $e^{k\pi}$, cosh $k\pi$, and sinh $k\pi$ to 136 figures," Nat. Acad. Sci., *Proc.*, v. 33, 1947, p. 34–41.
12. "Huge numbers," Note **66**, *MTAC*, v. 2, 1947, p. 224–225.
13. "On Mersenne's number M_{227} and cognate data," Amer. Math. Soc., *Bull.*, v. 54, 1948, p. 378–380.
14. "On all of Mersenne's numbers, particularly M_{193}," Nat. Acad. Sci., *Proc.*, v. 34, 1948, p. 102–103.
15. "The magnitude of higher terms of the Lucasian sequence 4, 14, 194 $\cdots$," *MTAC*, v. 3, 1948, RMT **89**, p. 142–143.
16. "Twenty exact factorials between 304! and 401!," Nat. Acad. Sci., *Proc.*, v. 34, 1948, p. 407–412.
17. "A mathematician's tribute to the State of Israel," *Scripta Math.*, v. 14, 1948, p. 281–283,
18. "The Arabian Nights' factorial and the weighted-mean factorial," *Scripta Math.*, v. 15. 1949, p. 94–96.
19. "Table of exact values of high powers of 2," *Scripta Math.*, v. 15, 1949, p. 247–251.
20. "Miscellaneous hints for and experiences in computation," *Scripta Math.*, v. 16, 1950, p. 31–42.
21. "A new constant property of the parabola," *Scripta Math.*, v. 16, 1950, p. 161–167.

22. "A colossal primitive Pythagorean triangle," *Amer. Math. Mon.*, v. 57, 1950, p. 331–332.

23. "Many-figure approximations to $\sqrt{2}$, and distribution of digits in $\sqrt{2}$ and $1/\sqrt{2}$," Nat. Acad. Sci., *Proc.*, v. 37, 1951, p. 63–67.

24. "Approximations exceeding 1300 decimals for $\sqrt{3}$, $1/\sqrt{3}$, $\sin\left(\dfrac{\pi}{3}\right)$, and distribution of digits in them," Nat. Acad. Sci., *Proc.*, v. 37, 1951, p. 443–447.

25. "Many figure values of the logarithms of the year of destiny and other constants," *Scripta Math.*, v. 17, 1951, p. 202–208.

26. "Sequel to the note on the parabola," *Scripta Math.*, v. 18, 1952, p. 35–38.

27. "A brief history of the investigations of Mersenne numbers and the latest immense primes," *Scripta Math.*, v. 18, 1952, p. 122–131.

28. "Many-figure approximations for $3\sqrt{2}$, $3\sqrt{3}$, $3\sqrt{4}$, and $3\sqrt{9}$ with χ^2 data," *Scripta Math.*, v. 18, 1952, p. 173–176.

29. "A mathematical copying camera," *Scripta Math.*, v. 19, 1953, p. 40–44.

30. "Humorous epithets as applied to the calculation of $\sqrt{2}$," *Scripta Math.*, v. 19, 1953, p. 78–79.

31. "On the 16th and 17th perfect numbers," *Scripta Math.*, v. 19, 1953, p. 128–131.

32. "Omnibus checking of the 61-place table of denary logarithms compiled by Peters and Stein, by Callet, and by Parkhurst," Nat. Acad. Sci., *Proc.*, v. 39, 1953, p. 533–537.

33. "Exact location of the 10^mth digit in the consecutively written sequence of the natural numbers 1, 2, 3, 4, $\cdots$," *Scripta Math.*, v. 19, 1953, p. 201–204.

34. "Hamartiexéresis as applied to tables involving logarithms," Nat. Acad. Sci., *Proc.*, v. 40, 1954, p. 728–731.

35. "Full values of the first seventeen perfect numbers," *Scripta Math.*, v. 20, 1954, p. 240. (Typographical errors appear in v_5, v_{11}, and v_{12}.)

36. "Nine exact factorials between 449! and 751!," *Scripta Math.*, v. 21, 1955, p. 138–145.

37. "Exact values of 996! and 1000! with skeleton tables of antecedent constants," *Scripta Math.*, v. 21, 1955, p. 261–268.