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J. W. T. Youngs

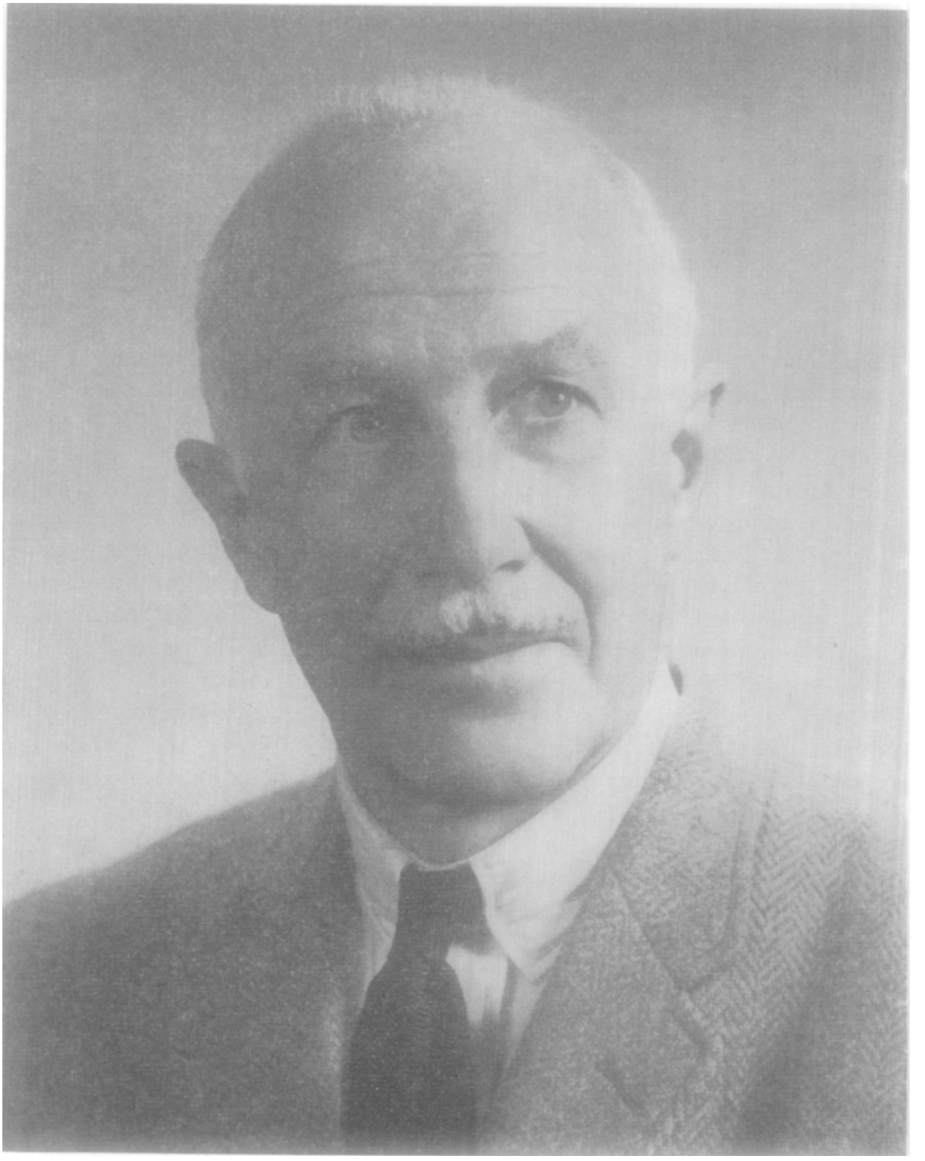
1910–1970

A member of the Editorial Board of this journal, Dr. John William Theodore Youngs died on July 20, 1970, at his home in Santa Cruz, California.

The son of a missionary, Ted Youngs was born August 21, 1910, in Balispur, India. He came to the United States as a child, studied here, and was graduated from Wheaton College in Illinois. He received his doctorate in mathematics at Ohio State University in 1934. Since the depression was a hard time for finding a job in a University, he taught at Stony Brook School, a secondary school in New York, for three years before returning to Ohio State University as an Instructor. In 1941 he moved to Purdue, where he stayed until 1946, except for the year spent with the USAF in England. He was offered an associate professorship by Indiana University, moved there in the Fall of 1946, and remained there for 18 years—for the last eight of these serving as Chairman. During this period Ted was a Guggenheim fellow, and a consultant to Sandia, Rand, and the Institute for Defense Analysis. He was also a Trustee of the Carver Research Foundation Institute at Tuskegee. In 1964 Ted Youngs came to Santa Cruz as one of the first faculty members at this beautiful new campus of the University of California.

Ted's work and interests in mathematics covered a wide range, beginning with research in analysis and topology. In the last ten years of his life he devoted his efforts to graph theory. He was particularly good at working together with others and as a young man was undoubtedly influenced by working alongside the famous Hungarian mathematician Tibor Radó. In later years many younger mathematicians in turn profited from working with Ted.

When Ted was a student the subject of topology was just developing and showing its power to answer old questions. It was natural that he should want to start his career in this active and competitive field. Though he obtained many important results in succeeding years, some of his best work was concerned with the abstract concept of a surface. While, at first sight, it is perhaps intuitively clear what is meant by a surface and its area, a deeper study soon showed that the question was subtle and anything but intuitive. In a series of papers in the late 1940's and early



JOHN WILLIAM THEODORE YOUNGS

1950's Ted completely settled the outstanding problems connected with this question.

In his last years he worked on the Map Color Problem for orientable and non-orientable surfaces. The problem is to determine the chromatic number of a surface of genus $p \neq 0$. Its final solution gave him very great and well-deserved pleasure. This problem is very closely related to the Thread Problem, namely, the determination of the genus of the complete graph K_n. In fact, a solution of the second problem leads immediately to a solution of the first. The problem was posed in 1890 by P. J. Heawood and remained unsolved until several breakthroughs beginning in the 1950's. By 1966 the Thread Problem was solved for all $n \not\equiv 2, 8, 11 \pmod{12}$ by Ted and others.

In the academic year 1967–68 Ted invited me to work with him on these three unsolved cases at Santa Cruz. Several mathematicians including myself thought: How can such a combinatorial problem be solved by two, if it is too difficult for one? However, after seeing the difficulties, our joint efforts led to the new ideas needed in order to complete these remaining cases.

I can only say that working together proved to be extremely profitable and enjoyable for the both of us. Ted's enthusiasm, his knowledge, and his dedication to this problem as well as to mathematics, in general, were admirable. The solutions were published in this journal recently for all twelve cases.

During the last two years Ted's main task had been to clarify, explain, and simplify this work on Heawood's Map Color Theorem.

G. Ringel

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