

## we hear that

rick to associate professors. **Kenneth A. Duff**, formerly of Ford Scientific Laboratory and **Gerald L. Dunifer**, formerly of Bell Telephone Laboratories have joined the physics staff as assistant professors.

**Alexander Abashian**, formerly of the University of Illinois at Urbana, has

been appointed program director for elementary-particle physics in the National Science Foundation's physics section. He replaces J. Howard McMullen, who has retired.

The new director of the systems planning center at Bell Telephone Laboratories is **Merle M. Irvine**, who has been with Bell Labs since 1955.

## obituaries

### John Q. Stewart

John Quincy Stewart died on 19 March after a brief illness. He was 77 years old.

Stewart spent most of his professional life on the faculty of the department of astronomy at Princeton University. He received his higher education

the design of the first electronically synthesized human voice.

At Princeton his interests spanned a wide range, from astrophysics and meteorology to social physics, focussing in later years upon the latter. He observed five total eclipses of the sun.

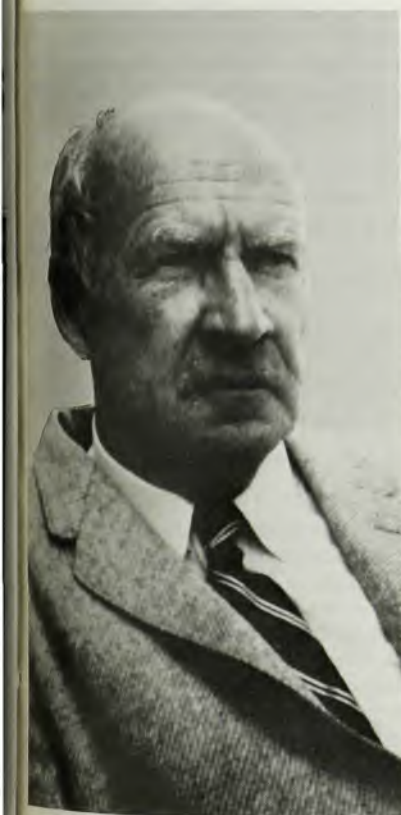
His work in social physics was spurred by a lifelong conviction that physical laws, so long successful in predicting phenomena in their own field, should have applicability in the social sciences. About 1940 he introduced the concept of "potentials of population" (analogous to electrostatic potential), given by the number of people in a city or state divided by the distance of these people from an observing point, as a measure of the influence of populations at a distance. He showed that such diverse quantities as the number of students attending Princeton University from different states and the flow of checks through a particular bank were proportional to this quantity. Other applications followed, and the work expanded to include psychological as well as geographic and economic concepts. He had a number of close associates in this work, notably William Warntz, now at the University of Western Ontario, and James D. Hamilton of Montreal, Canada.

After retirement from Princeton in 1963, Stewart moved to Sedona, Arizona, and in 1966 he was appointed professor of the metaphysics of science at Prescott College in Arizona. There he organized a seminar, "Unified Knowledge," covering his interest in the social field. The work continued until shortly before his death.

Stewart wrote numerous papers in physics, astronomy and social physics, and was the author or coauthor of three books. He was a fellow of the American Physical Society and of the American Association for the Advancement of Science, and an honorary fellow of the American Geographical Society.

JOHN W. STEWART

University of Virginia, Charlottesville □



STEWART

there as well, obtaining the BS in 1915 and the PhD in physics in 1919. His dissertation was a classic study of the gyromagnetic ratio for electrons. During 1918-19 he served in France with the US Army Engineers in a sound-ranging unit. Before joining the Princeton faculty in 1921, he spent two years with the American Telephone and Telegraph Company in New York working on

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