Figure 18. This photograph by Josephine Hamilton, published in *Radiology* in 1942 (vol 39, p 553), shows radioiodine uptake being recorded by a Geiger counter tube. The principle of this tube had been used by Rutherford and German physicist Hans Geiger (1882–1945) in 1908 while counting alpha particles to determine their charge, and, in 1928, Geiger and Walther Müller developed the sensitive tube that became ubiquitous in nuclear medicine.

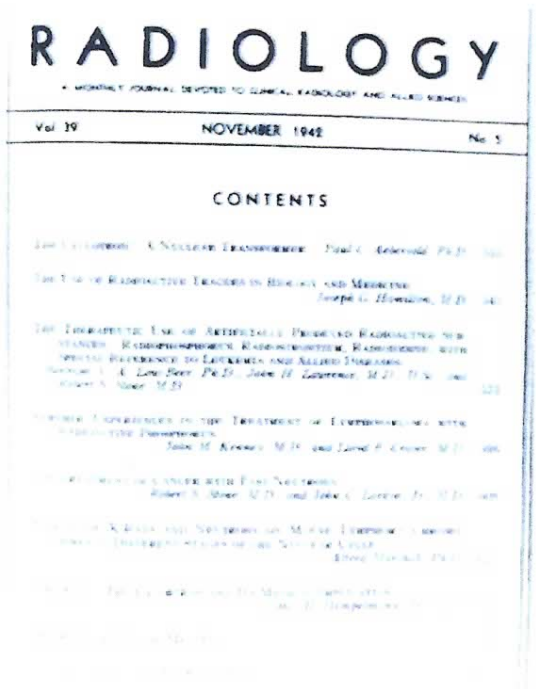
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Figure 19. Table of contents from the November 1942 issue of *Radiology* (vol 39), highlighting the cyclotron and the early application of radionuclides. Nuclear medicine had arrived.

thyroid function to be tracked for weeks instead of hours. Second, this was the first clinical study with iodine in humans (55). This combination led to the increased use of radioiodine and the expansion of the discipline of nuclear medicine (Fig 19).

By 1941, application of radioiodine to the treatment of thyroid disease in human subjects was undertaken by Saul Hertz and Arthur Roberts at MGH (56). Eventually, Robely Evans and Earle Chapman defined the single effective dose of radioactive iodine, used alone and with other therapy, for the treatment of thyroid disease (53,57). Nuclear medicine as a discipline had begun to establish itself, and, in September 1947, a symposium was held about the use of radioisotopes in biology and medicine. By 1956, more than 500,000 thyroid studies had been performed with I-131 (41).

■ CONCLUSION

The world in 1942 was radically different from Becquerel's and Roentgen's in 1895. Colossal advances had been made in every area of science. These advances had contributed to the beginnings of nuclear medicine. Yet, perhaps these advances are best characterized as a foundation or framework on which the modern discipline of nuclear medicine would flourish and expand. Indeed, subsequent decades have seen more progress in the field. By the 1940s, devel-