this sort was exercised, our initial optimism has given place to the realization that, in general, the average prolongation of life of leukemic patients is no greater with radiophosphorus than with the more conventional x-ray treatment.

Some initial striking success has been obtained with the use of radioactive iodine in the treatment of thyroid cancer. Since the thyroid picks up iodine preferentially, it seemed, by the same rationale that applied to phosphorus treatment, that thyroid cancer might be controlled by delivering the iodine radiation directly into the thyroid itself. But not all thyroid cancers take up iodine; indeed, the more vicious the cancer, the less likely it is to accumulate iodine. Nonetheless, a few cases have been controlled by iodine treatment, particularly patients who have had surgical thyroid removal, and who are still troubled by malignant transplants of small fractions of thyroid tissue at different places throughout the body. Such small amounts of malignant tissue have, on one case at least, been successfully controlled for a period of years. Thyroid cancer, however, is a relatively rare form of cancer, and the percentage of thyroid patients who respond to radioactive treatment is small. To sum up: The use of radioactive isotopes in the treatment of cancer has not yet proved itself on an appreciable scale, despite repeated efforts.

One other fashion in which radioactive isotopes may produce a great impact on cancer is in diagnosis. It has already been shown that breast cancers pick up appreciably more radioactive phosphorus than do surrounding sections of normal tissue, presumably because the tumorous tissue is growing so much faster than normal that it incorporates all of its structural elements very rapidly. If this abnormality in phosphorus uptake can be used to diagnose and to locate not only breast cancers, but other and more deep-seated lesions, then, indeed, it will have proved itself of great value in the treatment of cancer.

Until that time, realistic appraisal of the cancer problem brings us back to our starting point: The real contribution of physics to cancer lies in the joint prosecution, by the physicist, by the chemist, by the biologist, of basic research on the problems of growth.

NEWS and VIEWS

Optical Society

The winter meeting of the Optical Society of America, held at the Hotel Pennsylvania in New York City on March 4–6, may be best characterized in terms of the diversity of subjects covered in the fifty-six papers presented. Often scientific meetings have some central theme or outstanding series of papers which determines their flavor, but these Optical Society meetings seemed to cover the broad field of optics, and its many applications, in an unusually thorough fashion. That this was popular fare was attested by the registration of over 500, and the fact that each of the eight sessions was well attended, several of them reaching the "standing room only" state.

The first day's sessions were devoted to colorimetry and spectrophotometry. An invited, introductory paper by Arthur C. Hardy on the early history of recording spectrophotometry was followed by contributed papers which described the techniques employed in large laboratories such as those of the Eastman Kodak Company and the National Bureau of Standards, and papers recounting specific uses, for example the descriptions by S. Q. Duntley and E. A. Edwards of the spectrophotometry of living human skin and its application as a research tool in medicine.

The second day of the meeting featured two invited symposia, one on optical and spectroscopic methods of flame temperature measurements which described techniques of great importance in combustion research and engineering, and the other on the various optical problems associated with wind-tunnel studies and the interferometry and special photographic methods employed in studying supersonic flow. A contributed paper which proved to be of considerable general interest was the one in which Hans Mueller described his new operational theory of optics—a phenomenological theory that is based on empirical laws rather than the usual wave hypothesis. In the field of physiological optics, there was a description by Lorrin A. Riggs and E. P. Johnson of measurements of the electrical response of the retina to light flashes entering the human eye.

The third day of sessions was given over entirely to thirty contributed papers in the wide range from specific techniques of spectrochemical analysis through various items of infrared instrumentation to discussions of methods for the reduction of aberrations in optical systems.

S. S. B.

Harmonic Synthesizer-Analyzer

University of Texas physicists, under the direction of Dr. S. Leroy Brown, have constructed a mechanical harmonic synthesizer-analyzer for solving certain types of mathematical equations. Its principal uses are in: harmonic synthesis and analysis; solving high degree polynomials-complex and real roots; plotting Patterson diagrams for x-ray crystal analyses; impedance diagrams for electrical networks including electric wave filters; and plotting specific polynomials resulting from hyper-geometric series.