• *Local Section News*

North Central Section

S. C. Miksta, President, North Central Section, has just announced their meeting schedule for the coming year. At the Builders' Club, 228 N. LaSalle, Chicago, Ill.: October 3, 1963; November 20, 1963; January 22, 1964; and March 4, 1964.

A special Ladies' Night will be held May 13, 1964, at the Furniture Club of America, 666 Lake Shore Drive, Chicago.

Northeast Section

As previously announced, J. S. Showell, USDA, Exploratory Reactions Investigations, will be speaker at the first regular meeting of the Northeast Section, October 29, in the Della Robbia Room, Sheraton Moton Inn, 39th and Chestnut Streets, Philadelphia, Pa. A get-together is scheduled for 6:00 p.m., with dinner following at 7:00 p.m. Dr. Showell's talk is entitled, "Perchloric Acid Isomerization of Oleic Acid."

J. S. Showell

Dr. Showell received both B.S. and M.S. degrees from Cal Tech, doing some kinetic studies under Professor H. J. Lucas at the Institute. His Ph.D. was obtained at the University of Minnesota in 1951, under Professor L. I. Smith, doing synthetic studies on cyclopropanes. Post doctoral work was done at the University of Illinois under Professor C. S. Marvel until 1953, when he became assistant professor at Rutgers University, with areas of interest in physical organic and natural products. In 1955 he became a Sloan Foundation Fellow at Columbia University, working on the abnormal-Diels Alder reaction. He joined the Animal Fat Laboratory at the Eastern Regional Research Laboratory in 1957.

Following is an abstract of his presentation.

Carbonium ion additions to double bonds in a long chain occur by random addition, frequently accompanied by isomerization and carbon-to-carbon skeletal rearrangements with no single product predominating.

The reaction of concentrated sulfuric acid with oleic acid at 85C to form γ-Stearolactone represents a startling isomerization with a high degree of positional specificity. Preliminary reinvestigation of the sulfuric acid reaction showed that polymerization and oxidative processes predominate. In spite of the low yields and the complex method of isolation, this isomerization procedure has been used to prepare the γ-lactone because it is the only direct, one-step synthetic path.

As part of a systematic study of the syuthetic scope and mechanisms of reaction of strong acids with oleic acid and other olefinic materials, the reaction of 70% aqueous perchloric acid with oleic acid was initiated. The effect of selected reaction variables on the course of heterogeneous reaction was studied, such as rate of stirring, perchloric acid concentration, molar ratio of perchloric to oleic acid, and reaction time and temperature. The course of the reaction was followed using the characteristic infrared absorption of carbonyl bands of acid, ester and lactone functions appearing and disappearing during the various phases. This was coupled with countercurrent distribution, gas-liquid and thin-layer chromatography to determine conditions and the variety of intermediates formed.

γ-Stearolactone is formed in up to 80% yields in 10 hr at 85C, 2 hr at 100C, or 15 min at 115C by reaction of equimolar quantities of oleic acid and 70% perchloric acid. Isolation is simple and rapid, and high purity product is readily obtained.