Cramer, Mark James, D.M.A. Effects of Materials on the Acoustic Properties of Clarinet Barrels. (2015)

Directed by Drs. Kelly J. Burke and Sandra Teglas. 114 pp.

1. Solo Recital: Saturday, February 23, 2013, 7:30 p.m., Recital Hall. *Canzonetta, Op. 19* (Gabriel Pierné); *Cantilène* (Louis Cahuzac); *Introduction et Rondo, Op. 72* (Charles-Marie Widor); *Sonata for Solo Clarinet, Op. 41* (Miklós Rózsa); *Tango Études Nos. 3 and 4* (Astor Piazzolla); *Fantasia di La Traviata, Op. 45* (Donato Lovreglio).
2. Solo Recital: Saturday, October 26, 2013, 7:30 p.m., Recital Hall. *Fantasia da Concerto su motivi del Rigoletto* (Luigi Bassi); *Sonata for Clarinet Solo* (Edison Denisov); *Sonata for Clarinet and Piano in Eb Major, Op. 120, No. 2* (Johannes Brahms); *Hillandale Waltzes* (Victor Babin).
3. Solo Recital: Friday, April 24, 2015, 3:30 p.m., Recital Hall. *Grand Duo Concertant in Eb Major, Op. 48* (Carl Maria von Weber); *Concerto for Clarinet Solo* (Valentino Bucchi); *Histoire du Tango* (Astor Piazzolla); *Concerto for Clarinet* (Artie Shaw).
4. D.M.A. Research Project. EFFECTS OF MATERIALS ON THE ACOUSTIC PROPERTIES OF CLARINET BARRELS, (2015). This project was intended to provide empirical data to determine if materials (e.g. Cocobolo, Mopane, Grenadilla, Delrin, and Purpleheart) used to make clarinet barrels have an effect on sound quality and response. The following questions were addressed in this study: For clarinet barrels, do different types of exotic hardwoods and plastics have a measurable effect on the sound qualities (timbre) of the clarinet? Do different materials used to manufacture clarinet barrels have a measurable effect on the response (immediacy of tone and vibration to the player) of the instrument? Do different materials have a measurable impact on the intensity (volume/projection) of the clarinet? Will participants have a preference for specific materials tested? Results indicated that 25% of participants chose Mopane, 25% of participants chose Grenadilla, 25% of participants chose Delrin, and 25% of participants chose Purpleheart, meaning no material was preferred by a majority of the participants. No participant chose Cocobolo. Though there were commonalities among recordings of each material, the findings were not substantial enough to determine true differences in timbre, response to articulation, or intensity.