permits careful control of the chemical constitution of the perfusate. However, after many attempts the procedure was abandoned as impractical because of the very low rates of urine formation and the presence of protein in urine formed by the isolated perfused kidney. Clearance studies were used to establish standard rates of tubular excretion, but the effectiveness of this procedure was found to be limited because of the difficulty in controlling extra-renal effects of metabolic inhibitors and pharmacologically active agents. *In vitro* procedures utilizing thin kidney slices showed the most promise, and plans for next summer call for intensified studies of active transport of the compounds employing Warburg techniques.

Studies on the excretion of naturally occurring nitrogenous end products disclosed that creatine transport is a much more active process than that involving either creatinine or trimethylamine oxide. Normal excretory rates were determined, but to date only preliminary observations have been made on the nature of those biochemical and enzymatic events which underlie transport of these weak bases.

Incidental observations disclosed the relative specificity of renal blockade whether induced *in vitro* by high phenol red concentrations or by a medium containing high potassium and no calcium, in that these conditions did not depress oxygen uptake by kidney slices. The acetylation of p-aminohippuric acid by dogfish kidneys was again noted, and clearances were measured with high plasma PAH concentrations to complement earlier studies made at low levels.

Auditory and Visual Communication in the Herring Gull, Larus argentatus

Hubert and Mable Frings, Beverly Cox, and Lorraine Peissner Pennsylvania State University

Field studies on herring gulls, utilizing recorded calls played back to the birds, allow the designation of at least four principal calls of adult birds: (1) food-finding call; (2) crowing or trumpeting; (3) alarm call; (4) an unnamed call, easily characterized when heard. There may also be a "departing call', like that reported for insects. The food-finding call was used to attract gulls from some distance and, by thus separating auditory and visual communicative mechanisms, to study the food-finding behavior. The alarm call has a powerful repellent effect on gulls and may prove to be useful where it is desired to drive them away. The young gulls apparently develop full vocal ability at about three years of age. Before that, they have only high pitched squeaks and rattles. The great blackbacked gull, *Larus marinus*, has a similar series of calls, pitched about one octave lower than those of the herring gull. Each species reacts to the calls of the other. Laughing gulls, *Larus atricilla*, in New Jersey also react to alarm calls of herring gulls recorded in Maine.