BRIEFS FROM THE LITERATURE

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FOREIGN RESIDENTS House officers who come from non-English speaking countries are frequently handicapped in their training by the language barrier. They become discouraged with their reception, with the type of residencies they are offered, and they return home dissatisfied with American training institutions where they have often been treated as second class citizens. Many residency directors who have worked with foreign residents have experienced difficulties in selecting them, in teaching them after their arrival, and in getting them to carry out directions. Both the foreign residents and the training institutions often do not realize that a big part of the problem is language. In order to assure themselves that applicants from non-English speaking countries are competent in English, residency directors may ask that applicants take standardized English examinations (such as those by Dr. Robert Lado of Michigan University and A. L. Davis of American University in Washington) now available in testing centers in many American universities and in U. S. embassies and information centers around the world. (Also, the examination of the Educational Council for Foreign Medical Graduates includes an English comprehension examination.) If a residency director would carefully review the results of these examinations and secure the advice of language teachers and testing directors, he could with confidence discourage the foreign resident who is poor in English.

What advice should be given to a prospective house officer qualified in other respects but deficient in English? Certainly a few months spent in an intensive English course will be worth years of haphazard efforts abroad—or worse, in American hospital situations. The English course should be linguistically sound: its materials should be based on a careful comparison of the *sound* system and *structural* system of his native language and the target language (English). Intensive courses are offered at Michigan University, Geogetown University, Columbia University, New York University, and American University. Many American universities offer special courses in English as a foreign language throughout the year which would be of assistance to foreign physicians who, already embarked in hospital training, still need to acquire fluency. However, the trainee whose English is very weak should abandon hospital training and concentrate full time on English.

Unfortunately, there are few good texts available for the student who wishes to teach himself. Since all linguistic materials emphasize the aural-oral approach, the student should have a teacher who has native or near native, control of the language. In the absence of a teacher, he should make every effort to find recordings to supplement his reading. (Further details on tests, courses, texts, records, and information sources are in the authors' reprint available from the Division of Anesthesiology, University of Utah.) (*Slager, W. R., and Ballinger, C. M.: Language Problems of Foreign Physicians, Resident Physician 4: 102 (Feb.) and 156 (March) 1958.*)

RETICULAR SYSTEM The reticular core is a continuous meshwork of nerve cells and fibers extending from the corpus striatum throughout the brain stem and spinal cord. The brain stem process has both up and downstream effects. Most investigators indicate that muscle relaxants

and prostigmine do not affect the electroencephalogram; however, evidence is presented that *d*-tubocurarine may cause cerebral cortical blockade. During the early administration of ether, 80 per cent nitrous oxide, or 33 per cent cyclopropane, a fast cortical phase is said to develop as a result of an excitatory influence upon the reticular core. Both arousal and recruiting responses are abolished. Evoked midbrain potentials are suppressed earlier than thalamic relay potentials. The comparative efficacies of these anesthetics in suppressing the potentials correspond with clinical impressions of their potency. One effect of small doses is to produce a functional block of ascending impulses in the reticular core. They may even operate on the thalamic relay nuclei. In hypoxic studies, an activation stage precedes the final electrical silence of terminal anoxia. No activation stage occurs, however, after carotid chemoreceptor elimination; therefore, the direct effect of hypoxia on the brain stem is purely depressive. Intense hypercapnia produces prolonged activation which disappears after retromammillary transection but is not influenced by elimination of chemoreceptors or by prebulbar section. Thus hypercapnia seems to activate the ascending reticular activating system directly. (*O'Leary, J. L., and Coben, L. A.: Reticular Core—1957, Physiol. Rev. 38: 213 (April) 1958.*)

WATER REABSORPTION The decrease in urine volume after injection of antidiuretic hormone (ADH) to a hydrated mammal has long been known. One hypothesis derived from clearance studies suggests the following sequence: (a) an active reabsorption of sodium in the proximal tubule with passive reabsorption of water in maintenance of the isosmotic state; (b) further active reabsorption of a fixed amount of sodium and water in the distal tubule, maintaining isosmoticity only in the presence of a maximum dose of ADH but resulting in hypotonic urine with smaller doses, and (c) an active reabsorption of a fixed quantity of water in a more distal segment, possibly the collecting duct.

The counter-current theory involves the concept of a steady state where the fluid entering the descending limb of the loop of Henle is more and more concentrated toward the hairpin bend and rediluted on its way up the ascending limb. These gradients may be brought about by some active cellular transport mechanism either by drawing water from the descending to the ascending limb or transporting solutes in the opposite direction—or both. The collecting ducts, passing through this hypertonic environment lose water from their lumens. ADH is thought to function in the establishment of the counter current system by changing the permeability to water in the descending limb of Henle's loop, the distal convoluted tubules and the collecting tubules. (*Thorn, N. A.: Mammalian Antidiuretic Hormone, Physiol. Rev. 38: 169 (April) 1958.*

UREA EXCRETION The classic mechanism for renal excretion of urea in mammals was thought to consist of glomerular filtration and a passive back diffusion in the tubules. Tubular regulation or secretory mechanisms were not believed to be involved. However, recent evidence suggests that, in man, the urea clearance varies with the dietary protein content. The maximum difference in clearance between on normal and low protein intake is found at low urine flows. The urea clearance can increase rapidly and selectively following nitrogen ingestion during the low protein regime. These variations occur even though the glomerular filtration rate does not change and thus must be due to tubular rather than glomerular regulation. Other observations which lend themselves to the same interpretation are the change in the concentrating power of the kidney when nitrogen intake is altered, and the effect of the pathological reduction in glomerular filtration rate on urea clearance. An explanation of urea transport invoking the counter-current hypothesis is presented. (*Schmidt-Nielsen, B.: Urea Excretion in Mammals, Physiol. Rev. 38: 139 (April) 1958.*)

PULMONARY FUNCTION Studies were made on 23 adult tuberculous patients before and after pulmonary resection. Vital capacity and total capacity were reduced in almost all cases. Average residual volume was unchanged in those having one