tangular hyperbola(4) would fit this picture but other observations(7) show that excretion does increase with increasing serum levels, reaching values of 50-70 units/min. in patients with acute pancreatitis.

It was noted that 6 of the group subjected to water diuresis had sub-normal serum amylase levels at the time blood samples were drawn. The mean serum amylase level for the whole group was 68 as compared to 99 for the group with low urine flows. While it is not suggested that the diuresis was responsible for the low serum amylase levels, the fact that low levels did prevail may be the reason that clearances were higher in this group than in the one with low urine flows. Clearance values would be greater at subnormal serum levels if amylase excretion remained essentially unchanged.

The data in these experiments again seem to indicate that amylase is filtered by the glomeruli but not reabsorbed in the tubules. No indication of a threshold is seen and clearance values do not increase with increasing serum levels as would be the case if reabsorption were at all appreciable. If there is no reabsorption of amylase, one would then not expect increasing urine flow, at which time there is a decreased reabsorption of water, to influence amylase excretion or clearance.

Summary. 1. Amylase clearance increases only slightly during water diuresis. 2. Amylase excretion remains constant during water diuresis.

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A Freely Rotating Adapter for Cardiac Catheterization. (23214)

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The rotation of a cardiac catheter for the purpose of directing the tip to a desired position frequently results in marked torsion and occasional breakage of the proximal end of the catheter and, at times, spontaneous disconnection of the catheter from the stopcock. Either the deliberate separation of the catheter to release the torsion, or spontaneous disconnection, may allow air to enter the system, disrupt the continuous flow of anti-coagulant fluid, and prevent proper pressure recording.

Methods. To facilitate free and continued manipulation of the cardiac catheter without allowing separation of the infustion apparatus, a Luer-Lok adapter with a sleeve allowing free rotation in either direction has been developed. The adapter is made of nickel or chrome plated brass with a rotating Luer-Lok section connected to the catheter (Fig. 1). The external rotating ring is larger than the rest of the adapter to allow for better gripping (Fig. 2A). The adapter can be unthreaded for more efficient cleaning and also to release tension of the inner rotating ring if it becomes too stiff (Fig. 2B and Fig. 3). The opposite end of the adapter is a conventional female unit (Fig. 2C). The inner bore is .073″ diameter. The O ring is rubber† and has a temperature range of −40 to +300°F. The durometer of this ring is 70 shore "A" (±5). The O ring is the inner part of the larger rotating metal ring. Fig. 3 shows cross sectional details. The adapter and the stopcock have been also made into one unit using a standard B-D 5031 MS type 3 way stopcock with an inner bore of .073″

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† Purchased from Precision Rubber Products Corp.

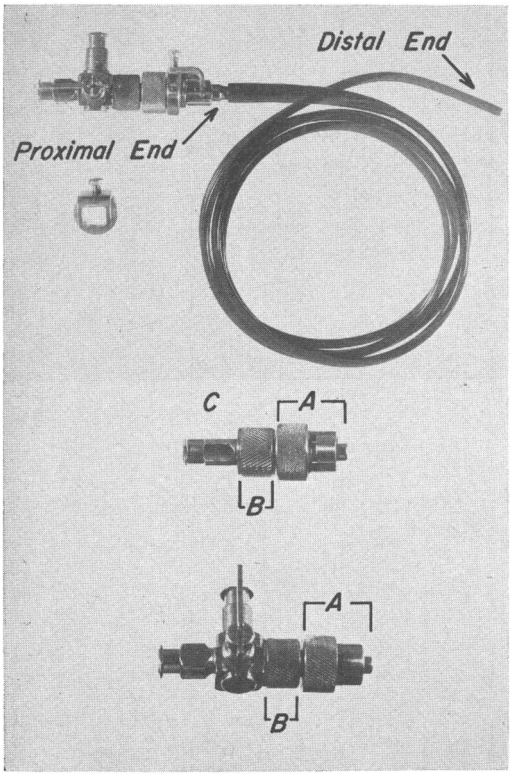

FIG. 1 (top). Catheter attached and locked to rotating adapter stopcock unit. Profile view of clamp.
FIG. 2 (bottom). External view of rotating adapter units.

in diameter (Fig. 2, 3). With the usual catheters of larger diameters, rotation at site of cutdown is transmitted with enough torsion to the proximal end that the adapter may rotate spontaneously and therefore release tension automatically. With smaller catheters or less rigid catheters the adapter can be used either to prevent or relieve torsion: The former by rotating the catheter at the site of the cutdown simultaneously with the adapter, or the latter by rotating the adapter after rotation of the catheter. This adapter unit provides no advantage when double lumen catheters are employed.

Because the catheter is attached to the Luer-Lok of the adapter with a clockwise twist, a counter-clockwise rotation theoretically may detach the catheter from the adapter, although, in our experience during catheterization, this has not occurred. To avoid this potential complication, a small clamp has been devised which holds the 2 units together during rotation. The clamp is

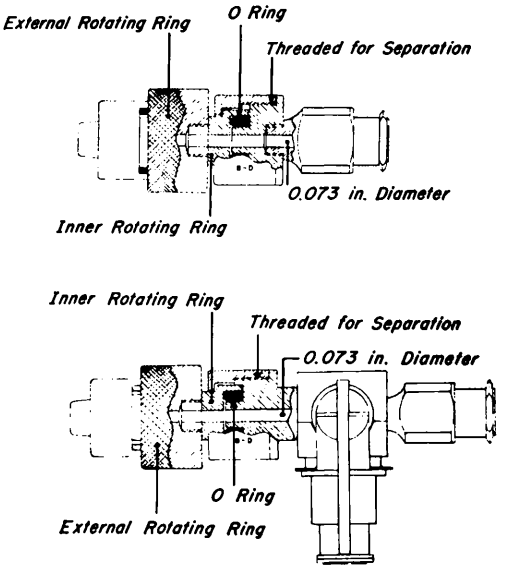

FIG. 3. Cross-section blueprints of rotating adapter and rotating adapter stopcock unit.

a chrome plated brass 2 pronged bar attached to a ring with a thumbscrew. The ring fits over the adapter; the prongs fit over the catheter hub. One can lock the 2 units together by tightening the ring thumbscrew (Fig. 1).

The rotating adapter has functioned satisfactorily and remained leakproof after frequent sterilizations, autoclavings, innumerable rotations and subjected to tests with greater negative and positive pressures than are encountered during catheterizations. It may have wider application wherever one desires tubing to have free rotation without torsion.

Summary. A freely rotating adapter and clamp for the connection of the cardiac catheter to recording and perfusion apparatus is described.‡

‡ Since this manuscript was submitted, a paper by Gerish, R. A., and Dodrill, D. F., *Harper Hosp. Bull.*, 1952, v10, 133, describing a rotating syringe was called to the author's attention. However, it is felt that the present rotating adapter represents a distinct improvement over this device.

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