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seeded and stirred gently. The crystalline hydrochloride is soluble in methanol at 25° C to the extent of 45 mg per ml, whereas the amorphous hydrochloride is soluble in excess of 1 g per ml. The crystalline product contains methanol, which is lost on heating at 100° C. The X-ray diffraction pattern of the methanol-free product exhibits major peaks at the spacings 3.75 A; 4.50 A (max); 4.90 A; 5.25 A; 8.85 A. *Analysis.* (Dried at 100° C.) Calculated for $C_{22}H_{42}O_{12}N_7 \cdot 3HCl$: C, 36.34; H, 6.39; N, 14.12; Cl, 15.33. Found: C, 36.21; H, 6.73; N, 13.89; Cl, 15.10. $[\alpha]^{25}_{D} = -95°$. Concentration = 1.

Microscopic examination of a sample dried at room temperature shows the following characteristics: *indices of refraction,* $\alpha = 1.522 \pm 0.002$; $\beta = 1.548 \pm 0.002$; $\gamma = 1.566 \pm 0.002$; *birefringence* -0.008; *axial angle,* 2V (calculated) 80°; *extinction* parallel; *sign of elongation* positive; *pleochromism* absent.

In general, the pharmacological properties of the crystalline salts are similar to those of the highly purified amorphous salts. However, certain impurities usually present in the amorphous salts are removed by the crystallization procedures, and consequently the batch-to-batch variation in the pharmacological response to the drugs observed in amorphous preparations has been eliminated in the crystalline salts (*2*).

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Special Sample Tray for the Continuous Gas-Flow Type Counter Tube[1]

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Because of recent interest in the continuous gas-flow type of counter tubes, an improvement in the sample tray for such a counter is presented. In order to reduce the length of time required to flush the counting chamber with gas, a modification of the counter was made to permit preflushing of the next sample to be counted while one sample is being counted.

The improved sample tray consists of a circular metal disk containing three receptacles for samples. These receptacles are symmetrically arranged so that while one is in the counting space, the second is in the preflush position, and the third is open to the atmosphere for sample

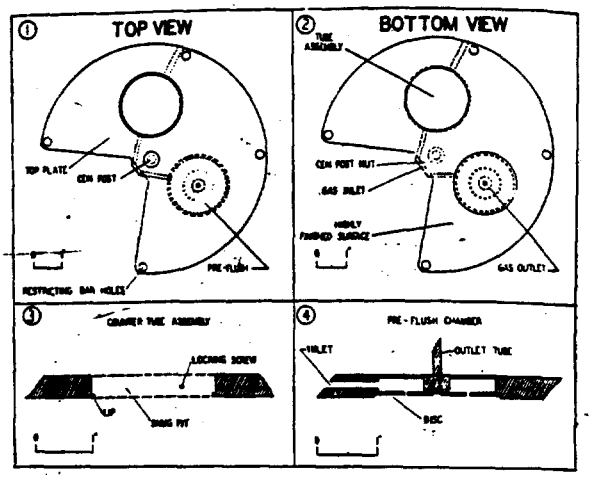

Fig. 1. Views showing the top stationary plate. The counter is fixed to one circular opening (inserts 1, 2, and 3). The gas flows into the chamber of the counter, into the gas inlet and then into the "attic" of the preflush chamber (inserts 1, 2, and 4), which is constructed to permit equal distribution of the gas before it escapes into the atmosphere through the outlet tube.

changing. The flushing gas first enters the chamber of the counter, flows over the sample being counted, and then enters the preflush chamber, where the next sample to be counted is flushed, after which the gas is allowed to escape into the atmosphere. The construction permits rotation of the circular disk to allow a change in position of the samples. This chamber is overlaid with small lead cubes of sufficient thickness to prevent the sample in the preflush chamber from influencing the background count. If elements with high energy gamma emission are being studied, so that adequate lead shielding is impossible,

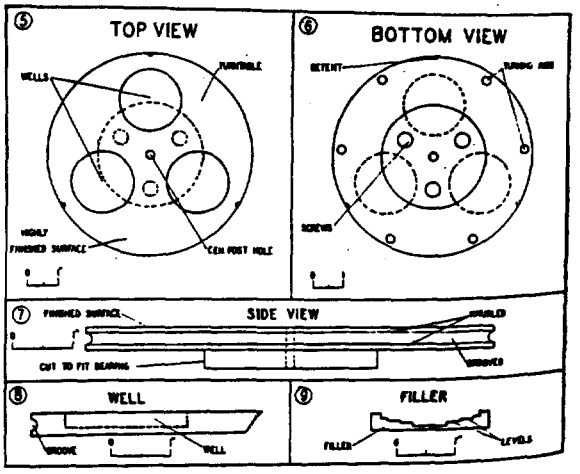

Fig. 2. Views of the turntable or sample tray with the 3 sample receptacles. This rides on a thrust ballbearing (Aetna E 45, 3½-in inside diameter, 5-7/23-in outside diameter, 1-in thickness). Insert 9 shows a brass filler which is placed in each receptacle. The fillers are cut to fit the sample trays or disks to insure their constant geometrical relationship.

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[2] The authors acknowledge with gratitude the excellent work of Mr. Ralph Millet, the instrument technician of the laboratory.

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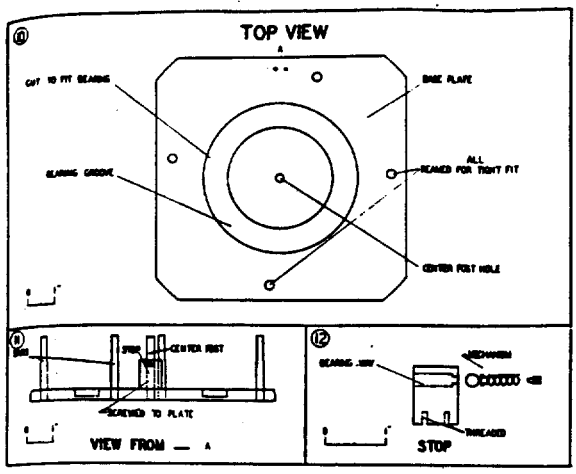

FIG. 3. Views of the base plate upon which the thrust bearing rests and to which is fixed the top plate shown in Fig. 1. The bars on pins (insert 11) are friction-fixed into this base plate but fit loosely into the top plate; the top plate is thus prevented from turning when the turntable or sample receptacle tray is rotated, but at the same time the top plate is permitted to ride freely upon and to seal the top of the turntable. The bearing surfaces between the top plate and sample tray are coated with a thick grease. A seal is further insured by the weight of the counter, top plate, and center post, which compresses a rubber washer against the center of the top plate, pressing it toward the bottom one.

then the preflushing feature is not used. Under such circumstances, the sample is rotated clockwise into the counter; sufficient time is then allowed for flushing and a count is obtained. The sample tray is rotated counterclockwise, so that its receptacle is brought to the outside for changing of samples.

Details of construction of the sample tray and its operation are evident from the illustrations. The plan may be modified to include automatic features.

Male Frogs and Toads as Test Animals for Early Pregnancy and Certain Related Conditions

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Very recently a large amount of evidence has been accumulated to show that males of Salientia can be unequivocally used to test for early human pregnancy (*1–5*). Mainini (*3*) has demonstrated for the first time, that in the males of the South American toad, *Bufo arenarum*, there occurs within 3 hr following injection a release of spermatozoa into the urinary bladder as a result of gonad-stimulating substances in the human pregnancy urine. Wiltberger and Miller (*5*) have confirmed, in the main, and extended Mainini's observations by using the common American leopard frog, *Rana pipiens*. Lima and Pereira (*2*) have also confirmed Mainini's test by using another toad, *Bufo marinus*. Again, while supporting claims made for this test by the above-mentioned workers, Haines (*1*), who used *B. arenarum*, which he received from the originator of the test, observes, "It remains to be seen whether *Bufo bufo* or *Rana temporaria* will be equally suitable." We have also been able to obtain a similar result by using the males of ordinary salientians that are easily available in Calcutta, namely, *Bufo melanostictus*, *B. stomaticus*, and *Rana tigerina*. Only a few specimens of each of the latter two species were employed for the confirmation of the results obtained in the former, which, however, was used chiefly during the course of our investigation.

In a series of urine tests run during the months of July to September, we obtained only positive results from the first and mid-trimester of pregnancy (Table 1). There was not even a single case of a false negative. Urine tested from the last trimester, however, gave 3 false negatives. This may be due to a low level of gonad-stimulating substances in the urine. Furthermore, both positive and negative tests were obtained from

TABLE 1

URINE TESTS FOR PREGNANCY AND OTHER CONDITIONS

Samples of urine	+	−	Total
Pregnancy—early (up to 90 days) ..	29	0	29
" —mid (from 91–180 days)	11	0	11
" —late (after 180 days) ..	26	3	29
Nonpregnancy	0	14	14
Sterility	0	14	14
Male	0	4	4
Pathological (abortions, mole, etc.)..	9	20	29
Total	75	55	130

some individuals with related pathological conditions, such as hydatiform moles, superinvolutions, abortions, etc. The results of such tests tend to throw some light on the clinical aspects. Neither the control animals (the experimental animals also served as controls; their urine was examined for spermatozoa before they were injected with human urine), nor those injected with urines from nonpregnant or sterile women, or men, ever released spermatozoa.

The technique employed in our series of tests is as simple as that of previous workers (*3, 5, 4*). In spite of our best efforts we could not secure early morning (overnight) urine, except for a few samples. The tests were based chiefly upon urines collected during late mornings and evenings, the identification not being known to us until after the tests. Our findings were afterwards clinically confirmed. Although a fresh toad was used for each urine test, a similar result could also be obtained from the same experimental animal after an interval of 4 to 7 days. One such animal could thus be re-used with success at least four times before it expired. A 5-cc dose of urine was uniformly administered, but if the test turned out to be negative, an additional dosage of 5 cc was administered 2 hr after the first injection, in order to corroborate the first result. In most cases a negative result was obtained even with a double dosage; only three

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