of Shannon, Jolliffe and Smith[9] that, in the dog, a change in the diet alters the value of A, would be easily accounted for by the above hypothesis. As a matter of fact, since the case of xylose is only a particular instance of the general utilization of sugar, we see that when the coefficient of utilization of glucose is large, as in normal people, the value of A is practically zero, but when the utilization of glucose diminishes, as in diabetes, the value of A becomes positive and quite large.

The excretion constant, being subordinated to the more general phenomenon of disposal, in a large sense, loses part of its significance in renal physiology in the case of substances which, like creatinine and xylose, are in part utilized in the body and in part excreted.

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A Case of Myeloid Leukemia Treated with Luminal and Amidopyrine.

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On September 15, 1933, a male negro 37 years old was admitted to the medical service with the diagnosis of myeloid leukemia. His leucocyte count was 267,000 per cu. mm. and his spleen came to the level of the umbilicus.

Four treatments by splenic irradiation in doses of 145 r, beginning October 6, brought the count down to 156,000. This effect was transitory; on November 21 the count was 269,000 and there was no reduction in the size of the spleen.

From November 21 to March 7, 1934, the patient was given subcutaneous injections of his own leucocytes, each injection consisting of the cells recovered from 10 cc. of his blood taken in citrated salt solution the day before injection. This treatment, based on an encouraging report by Lindstrom[1] and previously used by one of us (M.C.T.) with apparent benefit in 2 unpublished cases, was without avail in the case here reported, the count continuing to rise until, on March 7, it was 500,000 with the spleen as large as before.

Beginning March 8 four small doses of X-ray irradiation (72 r)

[9] Shannon, J. A., Jolliffe, N., and Smith, H., *Am. J. Physiol.*, 1932, **101**, 625.

[1] Lindstrom, G., *Arch. du mal du coeur*, 1921, **14**, 145.

were given over the chest and long bones. The irradiation of March 30 was immediately preceded by the last of the leucocyte injections, the rays being directed to the injected area. Under this treatment the count declined to 160,000 but on March 31 it had risen to 294,000. The last X-ray treatment was given April 6.

At this time reports were appearing of cases of granulopenia apparently due to the use of luminal and amidopyrine and it occurred to us that this combination of drugs might be of value in the treatment of myeloid leukemia, with its enormous increase of cells of the granular type. Accordingly we gave our patient a total of 6 grains of luminal and 20 grains of amidopyrine in 4 doses from April 11 to April 13. We repeated these drugs in the same quantities beginning May 2 and again beginning May 9. Beginning May 14 we gave 6 grains of luminal and 20 grains of amidopyrine daily for 4 days.

No untoward symptoms have appeared. Clinically the patient has improved. He has gained 4 pounds in weight in spite of great reduction of the spleen which, not noticeably affected by previous therapy, was observed on April 16 to be only one-fourth its former size. There is no edema. The spleen is now barely palpable below the ribs and percussion indicates that the upper border is not above the normal position.

The leucocyte count subsequent to beginning treatment with luminal and amidopyrine has been as follows: April 13, 104,800; April 20, 188,800; April 27, 75,000; May 6, 67,600; May 14, 66,900; May 16, 64,500; May 17, 66,500. Treatment was discontinued May 17. Since that date the leucocyte count has been as follows: May 19, 80,000; May 25, 17,900; May 29, 20,200; June 2, 22,900; June 6, 23,050; June 12, 25,550.

As the count fell it was seen that the cells most affected were the myeloblasts and the myelocytes the percentage of which, in stained slides, decreased with a corresponding percentage increase of the less immature and the normal polymorphonuclear neutrophiles.

Whether luminal and amidopyrine in dosage yet to be determined may be useful in myeloid leukemia is merely suggested by this case. That they may have some effect is not unlikely, owing to their close relation to benzol.

The authors of recent articles have observed that luminal and amidopyrine and the like can hardly be the sole cause of granulopenia in the cases connected with the taking of those drugs and that an individual peculiarity must be concerned. Reports from mental

hospitals where these drugs have been given for years should be of value on this point.

It may be that only in exceptional cases of myeloid leukemia would luminal and amidopyrine have the effects we have seen in our patient. On the other hand a series of cases may disclose some peculiarity of the same order in the victims of myeloid leukemia and in those apparently normal persons who are so remarkably affected by the drugs under consideration.

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Effect of Urine of Castrate Women on the Female Guinea Pig.

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The failure of pregnancy urine to produce morphological changes in the ovaries of guinea pigs similar to those produced in rats has been recognized by Jares,[1] and Selye *et al.*[2] In view of the recent discovery that the hormone in the urine of castrate women is different from that in pregnancy urine when tested on hypophysectomized female rats (Leonard and Smith[3]), it seemed of interest to compare their effects on the female guinea pig.

Five guinea pigs ranging from 120 to 250 gm. in weight were injected subcutaneously for 5 to 8 days with an extract of urine of a castrate woman.* The amounts used, based on the equivalents of whole urine, varied from 150 cc. to 400 cc. For controls, either one ovary was removed before treatment was begun (3 cases) or comparisons were made with the ovaries of uninjected pigs of similar size. (2 cases.) Two other guinea pigs were treated with 100 R.U. and 500 R.U. of pregnancy urine extract. The ovaries, thyroids, adrenals and uterus were weighed at autopsy and the ovaries were sectioned for further study.

In all cases, the ovaries of the animals receiving the urine of castrate women increased in size and showed very marked follicular development. For example, in 3 young guinea pigs, the control

[1] Jares, *Anat. Rec.*, 1931, **49**, 185.

[2] Selye *et al.*, PROC. SOC. EXP. BIOL. AND MED., 1933, **30**, 780.

[3] Leonard and Smith, PROC. SOC. EXP. BIOL. AND MED., 1933, **31**, 283.

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