retardates from the diagnostic category "undifferentiated" or "congenital cerebral deficiency" (*3*) who were not suffering from any known metabolic disturbances. All subjects were on the same institutional diet and other environmental conditions were similar. None were receiving any medication known to affect serum uric acid. Uric acid in the serum was determined by the method of Eichhorn *et al.* (*4*). Optical density was measured at 640 mμ in a Bausch and Lomb Spectronic 20 exactly 10 minutes after the addition of phosphotungstic acid. The results of duplicate determinations on each serum are shown in Table 1. The maximum difference between any duplicate values was 0.20 mg/100 ml, and the average difference was 0.06 mg/100 ml. The average serum uric acid level in the mongoloids was 6.36 mg/100 ml, which is significantly higher ($P < .01$) than the average level of 5.06 mg/100 ml in the other retardates (*2*).

Sobel *et al.* (*5*) were unable to find significant differences in serum uric acid levels of mongoloids and normal controls. However, their study included only 15 mongoloids and 18 normal controls and did not include other institutionalized retardates receiving the same diet as the mongoloids.

In considering the significance of the increase in serum uric acid observed in our mongoloids, a number of previous reports may be relevant. There is an increased frequency of leukemia in mongolism (*6*). Leukemia is characterized by altered leukopoiesis, which leads to shifts in differential counts of white blood cells. In leukemia there is also an increase in serum uric acid level, perhaps because of the augmented nuclear metabolism resulting from the formation and destruction of leukocytes (*7*).

W. Kluge (*8*) reported a left shift in leukocyte differential counts in mongolism. Elevation of beta-amino-isobutyric acid, another nitrogen-base catabolic product, in the urine of leukemics (*9*) and mongoloids (*10*) has been reported, although the latter finding was not corroborated in another study (*11*). In mongolism there is trisomy, or effective trisomy of chromosome 21 (*12*), and in some leukemia cases, a chromosomal abnormality in the leukocytes involving a small acrocentric chromosome, possibly number 21, has been observed (*13*). On the basis of these observations one might speculate that in mongolism there is a common denominator accounting for the increased serum uric acid, left shift in leukocyte count, and increased frequency of leukemia and that this common denominator results from trisomy of chromosome 21.

There may be increased formation of uric acid or decreased uricolysis in mongolism. Since maldevelopment of many organs of the mongoloid is common, a decreased renal efficiency in excretion of uric acid is also a possibility. The fact that the increase in serum uric acid is slight, and noticeable only when average levels of groups are compared, may be related to the apparent etiologic mechanism in mongolism (trisomy of chromosome 21) which is not an "all or none" defect such as occurs when single genes are deficient. We are now investigating the possible causes and the significance of this biochemical abnormality in mongolism (*14*).

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2. Statistical evaluation by analysis of variance and *F* tests was carried out by S. R. Miles, research statistician, Purdue University.
3. The newer term "congenital cerebral mental deficiency" replaces the older term "undifferentiated." See "Manual on Terminology and Classification in Mental Retardation," Monograph Supplement to *Am. J. Mental Deficiency* (Sept. 1959).
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Ovulation, Implantation, and Fetal Sex Ratio in Impala

Abstract. Impala embryos implant in the right uterine horn regardless of whether ovulation has occurred from the right or left ovary.

Impala (*Aepyceros melampus*) were collected in the Southern Rhodesia lowveld on the adjacent Doddieburn and Manyoli ranches of Henderson and Sons (Pvt.) (Ltd.). These ranches are located approximately 120 miles south of Bulawayo (21°S., 29°E.).

All 58 pregnant females whose reproductive tracts were collected had their single young in the right horn of the uterus. In this respect, impala are like Uganda kob (*Adenota kob*) (*1*). In addition, three parous nonpregnant uteri had their right horns stretched more than the left. Nine virgin uteri, all that had these data recorded for them, had right uterine horns which were noticeably longer or larger than the left horns.

Ovulation occurred from both ovaries as evidenced by gross examination for corpora lutea: 28 recent ovulations from the left ovary and 27 from the right. No signs of egg wastage or of embryo resorption were observed.

Twenty-five males and thirty-four females occurred among the embryos that were old enough for sex to be determined macroscopically. This is not significantly different from a 1 : 1 sex ratio.

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1. H. K. Buechner, *Nature* **190**, 738 (1961).
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