tex to a slightly greater extent than we did for the human cortex. Therefore, the actual difference between the indices should be even higher than that given. In order to find out the size of the error with which we were dealing, we also counted in the whale only such nerve cells as contained nucleoli. The glia/nerve cell index obtained in this manner was 5.86.

It is interesting to note that the index for the whale was consistently lower in the second cortical layer. This layer is also more cellular than the rest of the cortex, and it is possible that these two characteristics are correlated. The differences between the indices of the three regions of the whale cortex may represent consistent regional variations, or be only an accidental finding. This problem requires further investigation. We did not intend to establish absolute values, but only to compare the index for man with that for the whale.

Thus our results indicate that the increase in the number of glia cells per nerve cell is not correlated with the phylogenetic development, but with brain size. The significance of this increase is not known, but it may be suggested that it is related to the increase in the size of the nerve cells, which have longer processes and require more assistance from the supportive tissue to meet their metabolic needs. It may be of great interest for the understanding of the physiology of glia cells to determine whether one particular type of glia cell is involved in this increase.

A. Hawkins
J. Olszewski
Department of Pathology, College of Medicine, University of Saskatchewan, Saskatoon

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1 April 1957

Lack of Congenital Malformations in Normal Human Pregnancies after Transabdominal Amniocentesis

Recently considerable interest has been shown in studying human amniotic fluid. There are many references scattered throughout the literature which suggest that analysis of amniotic fluid may be of diagnostic value. Amniotic fluid may be considered as an additional body fluid compartment in the pregnant mother. Theoretically, amniotic fluid should reflect physiologic and pathologic conditions of the fetus or maternal host, or both, just as whole blood, plasma, urine, and cerebrospinal fluid indicate pathologic conditions in the nonpregnant host.

Table 1. Experience with transabdominal amniocentesis in 50 normal patients.

Gestation (wk)	Patients (No.)	Taps	
		Successful	Unsuccessful
20–24	5	5	0
24–28	8	8	0
28–32	13	12	1
32–36	13	11	2
36–40	11	10	1
Total	50	46	4

One reason amniotic fluid has not been studied extensively throughout various stages of gestation in human beings is that most physicians and investigators do not realize how easily and safely it can be obtained. Rivett (*1*) discussed the theoretical complications of transabdominal amniocentesis in human beings. More recently, Trasler and her associates (*2*) reported experimental evidence of congenital malformations in mice following puncture of the amniotic sac. They suggested that the procedure may produce similar congenital malformations in human beings.

The purpose of this report is to describe our results with 50 transabdominal amniocenteses in normal human beings during the last two trimesters of pregnancy. An 18-gage spinal needle with a trochar was used for these tests. From 15 to 25 ml of fluid was withdrawn when possible. Table 1 lists the patients by weeks of gestation and indicates the results obtained. There were 46 successful and four unsuccessful taps. The only maternal complications immediately following amniocentesis were two patients who developed infections of the urinary tract. We attribute these to faulty sterile technique in preoperative catheterization. None of the patients had premature labor precipitated by the procedure. All of the abdominal wounds healed without infection.

Each mother was followed during her prenatal course, delivery, and postnatal course. The placenta and fetus were carefully examined for evidence of trauma or other abnormalities which might have resulted from puncture of the amniotic sac. All the placentas appeared normal. The infants were all perfectly formed and were without external signs of congenital malformations. No evidence of fetal trauma was found.

The only complication was one primagravida who developed acute preeclampsia 5 weeks after amniocentesis. She experienced a complete placental separation during the thirty-fourth week of pregnancy, and the infant was stillborn. The stillborn infant had no anatomic abnormalities or evidences of trauma. Because this complication occurred such a long time after transabdominal amniocentesis, we do not feel that the procedure was a causative factor.

In our experience, transabdominal amniocentesis is a safe and easy way to obtain amniotic fluid in normal human beings during the last two trimesters of pregnancy. There was no evidence of maternal or fetal trauma. In contrast to the high incidence of congenital malformations produced by amniotomy in mice, we found no congenital malformations in human beings following transabdominal amniocentesis. Perhaps these differences are related to the stage of pregnancy when amniocentesis is performed and the ratio of fetal volume to amniotic fluid volume in various species.

Henry M. Parrish*
Frank R. Lock
Mary E. Rountree
Department of Obstetrics and Gynecology, Bowman Gray School of Medicine of Wake Forest College, Winston-Salem, North Carolina

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* American Cancer Society fellow in epidemiology and biometry, Department of Public Health, Yale University School of Medicine, New Haven, Conn.

5 April 1957

Monitoring of Low-Frequency Phenomena

Many physical phenomena occur at frequencies which are generally so low that they require visual attention during monitoring or recording. Whether such phenomena are detected through their concomitant electric activity [for example, electric activity of the heart (ECG) or brain (EEG)] or through the use of electric transducers (for example, for measuring blood pressure or other fluctuating pressures), audio monitoring frees the visual attention of the experimenter for the observation of other phenomena or for the performance of other tasks. The experimenter is given a constant indication of the experiment and may be confident that he will hear any changes as soon as they happen.

A transistor regenerative oscillator was adapted from an experimental model (*1*) to convert subaudible frequencies into audio frequencies. Other transistor oscillators have been described (*2*) which could be similarly adapted. The frequency of oscillation of the oscillator varies inversely with the supply voltage.