affect the frequency of ahaptoglobinemia, a finding which argues against an isoimmune process as the cause of this condition in the newborn. Finally, no association was found between the frequency of ahaptoglobinemia and the ABO or Rh (D) phenotypes of the infants. These data permit us to tentatively conclude that the frequency of ahaptoglobinemia in the newborn is stable in various populations. Moreover, the data support the contention that ahaptoglobinemia of the newborn represents impaired or absent synthesis of functional haptoglobin. (SPR)

26 *Deletion of Chromosome No. 18 (Long Arm). A New Syndrome.* WLADIMIR WERTELECKI*, ANNE M. SCHINDLER* and PARK S. GERALD, Children's Hospital Medical Center, Boston, Mass.

Four unrelated examples of partial deletion of the long arm of chromosome No. 18 have been briefly reported by us (Lancet *ii:* 641 [1966]). These patients have now been studied in detail.

The typical features of this syndrome are mental retardation, short stature, impaired hearing with atretic or narrow ear canals, prominent antihelix, mild microcephaly, typical facies manifested by prominent forehead—perioral areas and deep set eyes, proximal implantation of the thumbs, increased number of whorl fingerprint patterns, hypotonia, vertical tali, fundoscopic anomalies and asymptomatic congenital heart anomalies.

Relatives of three of the patients had normal chromosomes. The father and two siblings of the fourth patient had one metacentric No. 18, interpreted as a pericentric inversion. The deletion in this last patient probably arose by a crossover in the father between the metacentric and the normal No. 18 ('aneusomy by recombination').

These four patients represent partial monosomy No. 18 but nonetheless the findings are not obviously the antithesis of the trisomy 18 syndrome.

The retardation and morbidity associated with this chromosome disorder are less severe than those found with the usual autosomal trisomies. Since survival does not seem to be affected by this disorder, these patients will likely be found among older children. (SPR)

27 *Abnormal Organ and Cellular Growth with Various Chromosomal Disorders.* RICHARD L. NAEYE*, Univ. Vermont, Coll. of Med., Burlington, Vt. (introduced by Jerold Lucey).

It is known that newborns with a variety of chromosomal disorders are subnormal in weight for gestational age at birth but their growth disturbance has received little attention, major consideration having been directed toward the characteristic organ and body malformations. The present study was designed to explore the prenatal growth disturbance in such infants. Using line sampling, planimetry and other quantitative, histologic methods, this intrauterine growth disturbance was found due to a subnormal number of cells in many body organs in six neonates with trisomy D_1, eight with trisomy E and 21 newborn mongoloid infants. Each of the three trisomic disorders appears to have a rather characteristic growth pattern in individual organs. The spleen, kidneys, and adrenals are relatively enlarged in infants with trisomy D_1, a pattern not found in neonates with a wide variety of other disorders associated with intrauterine growth retardation. Newborns with trisomy E have relatively large hearts while spleen, adrenals, and thymus are small for body weight. Newborn mongoloid infants have relatively large hearts and spleens while their livers, kidneys, adrenals and thymus glands are small for body weight. Disparate growth of individual cell lines in the various organs is responsible for these abnormalities in growth. Both a slowed rate of cell multiplication and a shortened lifespan of some cells may contribute to the growth disorders. (SPR)

28 *Long-term Administration of 5-Hydroxytryptophan in Down's Syndrome.* MARY BAZELON*, RICHMOND S. PAINE* and VALERIE COWIE*, Children's Hospital of the D.C., Washington D.C., and Medical Research Council Psychiatric Genetics Unit, London, England (introduced by Robert H. Parrott).

Patients with trisomy-21 Down's syndrome have been demonstrated to have a depression of whole blood 5-hydroxytryptamine (serotonin) (5HT). In older mongol children 5HT levels are usually around 50 % of normal while in the newborn a wide variation of levels from normal to as low as 10 % can be demonstrated. Fourteen hypotonic babies with trisomy-21 have been given 5-hydroxytryptophan (5HTP) in an attempt to raise the whole blood 5HT. Oral 5HTP was begun in early infancy and has been continued since then in each patient. The level of 5HT in whole blood and 5-hydroxyindoleacetic acid (5HIAA) in the urine was monitored. Serial neurological examinations were recorded by motion picture and on forms identical with those of the M.R.C. Psychiatric Genetic Unit's study of 73 trisomic mongols (all those ascertained within one geographical area in a year).

In all patients, after an initial period of fluctuation, the level of whole blood 5HT was maintained at normal or near-normal values and 5HIAA in the urine rose to high- or above-normal values. Following an increase in whole blood 5HT levels, an improvement in muscular tone was noted, often within 24 hours (motion picture demonstration). This improvement was consistently demonstrated compared to the M.R.C. group. No child has remained severely hypotonic. The effects of overdosage are projectile vomiting, diarrhea, opisthotonos and rigidity, motor restlessness and hypertension. Turning over at an earlier age than normal appears to be due to a combination of rigidity and motor restlessness. It can be stopped by reducing the dose. The children in this series are too young for any statement to be made about developmental milestones. No implications as to intelligence are warranted. (APS)

29 *The Distribution of Chromosome Aberrations in Time: Chromosome Studies in Newborn and Spontaneous Abortion Populations.* E. PERGAMENT* and T. KADOTANI*, Dept. of Pediatrics, Michael Reese Hosp., Chicago Med. School, Chicago, Ill. (introduced by J. Metcoff).

In a 36 month period involving 9000 newborns, three clusterings of autosomal chromosomal trisomies were recognized. Using the last menstrual period for estimating time of conception, the first cluster extended from October through December, 1963, and included 3 cases; the second cluster, June and July, 1964, 3 cases; and the third cluster, December, 1964 through June 1965, 5 cases. In the remaining 24 months, only 2 other cases were observed. Retrospective studies for the first cluster revealed: 1. 8 additional trisomies in nearby Chicago hospitals; 2. a significant increase in the number of stillbirths and conceptions that expired with