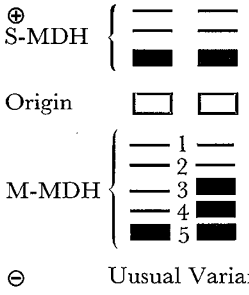

22 *Developmental Noise and Congenital Malformation.* MORTON S. ADAMS* and JERRY D. NISWANDER*, Nat. Inst. of Health, Bethesda, Md. (introduced by Robert W. Miller).

The causes of non-directional asymmetry of paired organs has been referred to as developmental 'noise' (WADDINGTON, C. H.: *The Strategy of the genes* [Allen and Unwin 1957]). Thus the level of asymmetry is inversely correlated to the degree of developmental stability.

We report here a greater asymmetry in the atd angle of the palmer dermatoglyphics and the maximum buccal-lingual diameter of the lower first molars of children affected with familial cleft lip±cleft palate. This increased asymmetry was not present in the normal sibs or parents of the affected children. Neither was it present in propositi and families of sporadic cleft lip±cleft palate or isolated cleft palate. Sufficient data are not available to determine the asymmetry of familial cleft palate without cleft lip. A total of 88 families with at least one member affected with an oral cleft and 82 families with no cleft history were examined.

The action of polygenes with a quasi-continuous distribution may be consistent with this new observation. Consideration of such mechanisms may offer some explanation for the diversity of results from investigations seeking to identify characteristic dermatoglyphic and dental anomalies in patients with congenital malformations. (SPR)

23 *Studies of the Biochemical Basis of Kinky Hair Disease.* JOSEPH H. FRENCH* and EARL S. SHERARD*, Montefiore Hospital and Medical Ctr. and Albert Einstein Col. of Med., New York, N.Y. (introduced by Laurence Finberg).

Kinky Hair Disease, first described by MENKES in 1962 as an X-linked recessive neurodegenerative disorder, may represent an abnormality of lipid metabolism. Studies have been carried out on a 16-month-old male patient showing the clinical features of: 1. scant, pale, lacklustre, kinky hair which microscopically revealed twisting about their axes (pili torti), a rather even almost sine wave variability in the diameter of the hair shaft (monilethrix) and many broken hair shafts (trichorrhexis nodosa); 2. slow growth and weight gain from birth; 3. micrognathia and high arched palate; 4. a clear history of marked decline in mental development; 5. onset of severe focal and generalized major and minor motor seizures; 6. spasticity with quadriparesis, clenched fists, opisthotonos and scissoring.

Biochemical studies show: 1. a depressed tocopherol content of the serum; 2. a normal amino acid composition of the hair, serum and urine; 3. an abnormal pattern of autofluorescence of the hair. Other patients at autopsy have shown this same abnormal fluorescence of their Purkinje cell axons. Together with previously described alterations in the lipid composition of the brain (O'BRIEN, 1966), these findings support the hypothesis of an alteration in lipoperoxidation of lipid molecules. (SPR)

24 *Cerebro-Hepato-Renal Syndrome. A Newly Recognized Familial Disorder.* EBERHARD PASSARGE*, Dept. of Pediat., Col. of Med., Univ. of Cincinnati, Cincinnati, O. (introduced by Josef Warkany).

A familial disorder, consisting of congenital abnormalities of the central nervous system, the liver, and kidneys has been observed. The predominant features of the disorder are severe, generalized hypotonia; a characteristic, narrow face with hypertelorism, epicanthic folds, prominent forehead, and open metopic suture; hepatomegly with development of jaundice and hypoprothrombinemia; and cortical renal cysts. Less constant findings include moderately low birth weight, brain maldevelopment, minor skeletal defects, cardiac maldevelopment, and possibly eye and genital anomalies. These children died in infancy.

Five sisters with this disorder have been studied and are compared with two similar pairs of sibs reported by BOWEN, LEE, ZELLWEGER and LINDENBERG (Bull. Johns Hopk. Hosp. *114:* 402 [1964]) and SMITH, OPITZ and INHORN (J. Pediat. *67:* 617 [1965]). The clinical and pathological findings in these 9 patients suggest that this disorder constitutes a clinical entity, for which, in view of the unknown pathogenesis, the descriptive term cerebro-hepato-renal syndrome is proposed. No detectable chromosomal or metabolic abnormality, or an exogenous causative factor has been detected.

The 5 affected individuals, of normal, nonconsanguineous parents of Alsacian extraction, had a mean birth weight of 2493 g at 37–40 weeks gestation and died at 4, 2, 14, 1/7 and 20 weeks respectively. They had 8 normal sibs (5 males, 3 females).

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25 *Ahaptoglobinemia in Puerto Rican Newborns.* JOSÉ MIGUEL GARCÍA-CASTRO* and HOWARD M. CANN, Stanford Univ. Sch. of Med., Palo Alto, Cal.

Although the frequency of ahaptoglobinemia in the newborn has been determined in Caucasians, little is known about the frequency of this condition in other populations. We are studying ahaptoglobinemia in cord blood specimens from 314 infants born in Puerto Rico, a sample from a heterogeneous population: Caucasian, Negro and mulatto. The frequency of ahaptoglobinemia, as defined by lack of a haptoglobin pattern on starch gel electrophoresis, was found to be 0.777 in 94 samples of the Puerto Rican newborn group studied to date. When this result was compared to the frequencies found in an American-USA (0.873), two southern Italian (0.809 and 0.800) and two Scandinavian (0.767 and 0.900) newborn populations, significant heterogeneity was found in the data ($X^2_{(5)} = 16.612$). Data from the American (USA) and one of the Scandinavian populations account for the heterogeneity; our data do not differ from those of the remaining three Caucasian populations. Ahaptoglobinemia in the Puerto Rican sample was analyzed by studying the effects of several variables. The frequency of ahaptoglobinemia was not affected by sex of the child, birth weight and race of the mother. Parity did not