

# ABSTRACTS

## ANTHROPOLOGY AND GROWTH

By T. Wingate Todd

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Physical anthropology has amassed considerable evidence discrediting the belief that adult body form is determined solely by heredity. Although growth tends to follow a hereditary pattern, it is enhanced, dwarfed, or warped by environment.

An organ must develop to a certain size before it is functionally adequate. Thereafter its growth is proportional to the increase in bodily dimensions. Different parts of the body have different periods of maximum growth to functional adequacy. Hence defects in adult body form will be centered in those parts which should have undergone a maximum growth during an unfavorable period, such as infection or improper diet. During the first five years of life the face develops most rapidly in antero-posterior and transverse dimensions, during later childhood in vertical dimensions, and at puberty in jaw size. Native-born children of immigrants differ from their parents and the foreign-born children chiefly in transverse facial dimensions due to their better diet in infancy (Boas). Before the sixth year maximum cranial and cerebral development occurs. Adverse environment before this age can cause simple-mindedness. Idiocy is, however, due to primary cerebral defect. Before the fourth year the eye reaches adult size. Defects in vision should, therefore, be corrected earlier than is customary.

To determine adequately the physical development of a child more than a mere measurement of stature is necessary. The legs grow most rapidly during childhood, the trunk, during adolescence. Separate measurements of such areas of maximum growth give a better indication of progress. X-ray films are of value, also, not only in determining such growth foci but in studying their progressive maturation. Measurements show that the rapid increase in stature before puberty is decreased thereafter. X-rays of the growing ends of bones show that a slow maturation process is speeded up immensely at that time. Correlation of radiological studies with physical measurements may elucidate puzzles which the teacher, the physical instructor and the clinician cannot explain, of children who present problems in social maladjustment, emotional vagaries or slow advance in studies, problems of fatigue, of deficient

heart action, of poor muscle tone. The child of a certain age in years may be of another age in stature and physical appearance, and of still a different age in degree of bony and mental development.

CHESTER STEWART, '38.

(The above article is a review of information from various sources, but chiefly from quantitative studies, by means of half a million X-ray films, of 4,000 children, examined during the last 15 years by Dr. Todd at Western Reserve University—C.B.S.)

## THE USE OF A BLOOD COAGULANT EXTRACT FROM THE HUMAN PLACENTA IN THE TREATMENT OF HEMOPHILIA.

R. Cannon Eley, M.D., Arda Alden Green, M.D., and Charles F. McKhann, M.D.  
Journal of Pediatrics, February 1936,  
Vol. 8, No. 2.

These authors have obtained favorable results in the treatment of hemophilia with human placenta extract. Their series of patients was small, 15 patients, plus a control group. They emphasize the distinction between this blood coagulant fraction of the human placenta, which is a definite protein derived from the placental tissues, and the antibody solution used for prevention or modification of measles, which may be prepared from placental serum as well as from repeated saline extractions of the organ.

This extract, when added to drawn, fresh citrated blood, shortened the coagulation time. It has been noted that tissue coagulants possess some degree of specificity for the species from which they are derived. Observations on the coagulation time of both venous and capillary blood were made in rabbits by the intraperitoneal injection of 1 c. c. amounts of the extract. The results showed that there was a prompt reduction in the coagulation time of the blood of rabbits as obtained from the heart and as obtained by pricking the ear. The reduction persisted for periods varying between 48 and 72 hours. Intravenous injection is lethal while subcutaneous, intramuscular or intraperitoneal injections shortened the coagulation time.

When in vitro comparisons were made between the blood of normal individuals and the blood from patients with hemophilia, it was found that the blood of the latter group coagulated just as rapidly and effectively as that from the normal

group. Oral administration was adopted, except for those patients who failed to show any response; these received intramuscular injections. The dosage and frequency varies with each patient. In these studies 5 c. c. was given orally, and if there was no response the amount was gradually increased by 5 c. c. until as much as 10 to 15 c. c. two or three times in one day. Should the patient prove refractive to oral treatment, 5 c. c. to 10 c. c. are then given intramuscularly. The duration of the effect of the extract, varies with the individual patient. Therefore, the coagulation time of both the venous and capillary blood should be noted each day, and the time at which the coagulation time tends to return to its former level can be determined. Eleven of the fifteen children with hemophilia showed a satisfactory response, as evidenced by a reduction of the coagulation time to within ten minutes, which was taken as the upper limit of normal. In the other four cases there was a reduction in the coagulation time, but the end point was not sufficiently low to consider the effect satisfactory. This variable response was thought to be due to a delayed emptying of the stomach or the result of poor absorption of the extract from the gastrointestinal tract.

With regard to the length of time the extract can be administered, two cases are cited where the ingestion of the extract at proper intervals has permitted the child to lead a normal, active life, despite minor cuts and abrasions which previously had been incapacitating. The authors add, however, that before drawing too definite conclusions on this point, it will be necessary to study a large series of cases.

Blood coagulant extract is effective when applied locally both in hemophiliacs and normal individuals following traumatic injuries and certain postoperative hemorrhages, notably following tonsillectomy and adenoidectomy.

Whereas animal tissue extracts have shortened the coagulation time of the blood of patients with hemophilia for very brief periods, human placental extracts have reduced the clotting time of both venous and capillary blood for periods varying from 48 hours to as long as 9 days.

CARL PEARLMAN, '37.

#### THE PRINCIPLES THAT SHOULD UNDERLIE ALL OPERATIONS FOR PROLAPSE

VICTOR BONNEY

J. of Obstet. and Gyn. of B. E.

October, 1934.

Prolapse is a purely vaginal phenomenon, in the causation of which the uterus

does not play any direct part, but acts more or less as a deterrent.

The following prevent prolapse from occurring:

#### A.—Supporting mechanism of Vagina

1. Lower 1/3 of vagina is fixed to margins of levator ani muscles and fascia in relation to them.
2. Upper 2/3 supported by cardinal ligaments, sub-vesical fascia, bladder, rectum, two lateral masses of fibrofatty tissue.
3. Genital canal forms a curve with concavity forward, maintained by: cardinal ligaments, levator ani, and perineal body.

#### B.—Effect of Intra Abdominal Pressure

1. Increased abdominal pressure forces more coils of intestine into utero-sacral space, "Natural Hernial Sac" thereby exercising pressure on back of upper part of vagina, and uterus; and by medium of loose tissue behind cardinal ligaments, with the result that the whole "pelvic shelf" is pushed forwards, toughened and slightly raised.

#### C.—Supporting Mechanism of Uterus

1. Upper fibres of cardinal ligaments, i.e. utero-sacral ligaments.
2. Pubo-cervical fascia fixing cervix only.
3. Broad ligament steadying.
4. Thick wall of uterus.

#### CAUSES OF PROLAPSE

1. Childbirth causing enlarged calibre of vagina without corresponding increase in thickness of wall. Treatment: (a) Reduction of lumen by cutting away more or less of vaginal wall (only in old subjects). (b) Increase of vaginal wall by the interposition operation in which body of interposed uterus can be regarded as greatly thickening of anterior wall.

2. Yielding of cardinal ligaments, producing retroversion of vagina. Treatment: Ventral fixation of uterus.

3. Laxity of levator diaphragm, fascia in relation to it and loss of perineal body and loss of constricting power of levator ani. Treatment: Repair of pelvic diaphragm, perineal body and restoration of normal "bottle-neck" shape of lower end of vagina.

4. Intra-abdominal pressure when exerted on posterior vaginal wall and rectum leads to rectocele; or if combined

with retroversion large proportion of intestine will lie between pubis and uterus. Treatment: any operation for prolapse which leaves the axis of effect of intra-abdominal pressure still wrongly directed is faulty, or if due to excessive pressure in normal direction, suture bowel to back of uterus.

#### Position of Initial Bulge

##### A.—Anterior wall of vagina.

1. That part corresponding to base of bladder leading to cystocele.
2. Extreme lower part producing deformity with accompanying stress incontinence of urine.

##### B.—Vaginal Vault.

1. Whole vault bulges in.
2. Only anterior part of vault.
3. Only posterior part of vault. When bulge takes place and enlarges, it tends to drag vaginal wall into its area. If supporting tissue gives way, the bulge will spread till whole vagina becomes extroverted.

No operative treatment is ideal which does not take into account and rectify or abrogate all factors responsible for the deformity, and therefore no one procedure is a panacea for all cases.

D. J. TONNING, '38.

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## Your Emblem

On the cover of this *Journal* there is depicted a hand bearing a pine cone—the emblem of the Dalhousie Medical School. Until 1924, the School had no official emblem. In that year, The Students' Medical Society appointed Dr. H. L. Scammell, who was then a student, to search for some unique, suitable emblem. His choice, the pine cone, was approved and adopted by the Society.

The pine cone is the most ancient symbol of the healing art in existence. Among the ancient Egyptians it was regarded as an important healing agent, and supposed to be endowed as well with magical properties. The Greeks adopted the symbol from the Egyptians, and some statues of Aesculapius represent him as holding a pine cone in his left hand, with the serpent entwined around a rod in his right hand.

E. M.

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### NOTICE

The *Dalhousie Year Book* for 1935-1936 will soon make its appearance on the campus. From reports received, it promises to eclipse all expectations. Be sure *You* own one. For a history of Dalhousie's activities during the past year and for other topics of general interest which it will contain, buy this year's edition of "Pharos". Contact Henry C. Reardon, the business manager, immediately for a reserved copy.