THE MONGOL: A NEW EXPLANATION.

(SUMMARY.)

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MY view that mongolism is caused by fœtal hyperthyroidism ceasing at birth, is based on the theory that if the known actions of hyperthyroidism on the embryos of animals, as proved by feeding experiments and otherwise, were at work on the human fœtus, the characteristic features of the mongol would be produced. Fœtal hyperthyroidism could not fail to cause abnormal endocrine interreaction, and it has been said that in every mongol some endocrine disturbance can be demonstrated. The action hyperthyroidism has on frog embryos, including the cutting out of the later stages of normal development and growth, and the action thyroxin has in retarding cell division and embryonic development, would explain the general arrest of growth and development of the mongol, including that of the skull and the brain. The same actions would also account for the coincident congenital anomalies, *e.g.*, congenital heart lesions, cleft palate, hypospadias, undescended and undeveloped testicles, primitive hands and feet, syndactyly of fingers and toes, atresia of anus, spina bifida, etc.; these are also manifestations of arrested development, and in favour of a common cause for the local and the general defects, are the facts that both are symmetrical, and that there is a parallelism between the amount of general physical defect, the number of anomalies, and the degree of amentia. Again, if the above retarding actions of thyroid on growth and development affected a part of the embryo when it was recapitulating a pre-human stage of its evolution, it is conceivable that resemblances to pre-human features might result which would explain the so-called "reversions." Sir Arthur Keith considers that the thyroid determined the special characteristics of the Mongolian skull and face, and, in like manner, thyroid might account for the brachycephalic skull and Mongolian features of the face in the mongol. Hyperthyroidism is the cause of exophthalmos in Graves's disease, and thyroid feeding has a similar effect in the frog embryo, and the mechanics of exophthalmos, with Moebius's

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sign, occurring during antenatal life and ceasing at birth, would account for the changes in and around the eyes of the mongol. These changes, *e.g.*, cataract, epicanthus, strabismus, slanting eyes, high arched eyebrows, large orbital fissures, etc., differ from arrests of development, and therefore require a different explanation; the nasal bones, too, show more than arrested development, for sometimes a nasal bone is found lying transversely, and articulating with bones on both sides of the middle line, as if mechanically displaced. The usual explanations given to account for the characteristic tongue of the mongol are not in conflict with a hyperthyroidic theory, but in my view the mongol's tongue results from participation of the tongue muscles in the general muscular hypotonus before mentioned; as elsewhere, the tongue muscles are lax and extensile, and tone being defective, the tongue gradually expands owing to oral suction; such an organ functions defectively, and this in turn gives rise to the constant sucking movements. The cause of adult hyperthyroidism is not understood, and so it must be with fœtal hyperthyroidism, but the incidence of mongolism in twins suggests the possibility that the placenta may be at fault, and it would be interesting to determine what effect feeding thyroid to pregnant mammals would have on the offspring. The varying degrees of departure from thyroid balance—that is to say states of hypothyroidism and hyperthyroidism—are, with one exception, readily recognizable at all ages. The exception, congenital hyperthyroidism, has never been described, and it may be asked, Why is this condition so obviously missing? Increasing degrees of congenital hypothyroidism bring about cretinoids, cretin imbeciles, cretin idiots, and physiological impossibilities; it is my thesis that increasing degrees of antenatal hyperthyroidism bring about respectively mongoloids, mongol imbeciles, mongol idiots, and physiological impossibilities.

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