

"It is notable," Dr. Munro says, "that those craters with 'rays' are all classified as 'young,' with sharply defined edges and little evidence of more recent disturbance. This is as we should expect, for whether we consider volcanic or meteor impact activity, every movement of materials covers existing landscape

features including the rays, which, having little height, would be easily obscured and so observable only in connection with the later craters."

The present interpretation, therefore, adds one additional link in the now strong chain that many of the lunar craters are of meteoric origin.

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## PHYSIOLOGY

## Pituitary Gland Is Nature's Sculptor, Molding Human Face

**T**HE PITUITARY gland at the base of the brain, master of all endocrine glands of the body, has another role. It is Nature's sculptor which models the head, face and features of man. The mechanism by which the pituitary plays this newly-discovered "sculptor" role was disclosed by Dr. Hector Mortimer, of McGill University, at the meeting of the American College of Physicians.

Finding how the gland acts to change facial features will aid the endeavors of physicians to diagnose and treat disorders of the gland. Dentists will also be aided in their own problems of facial and palatal growth.

Scientists have for years studied the question of the mode of growth in the human face in an endeavor to solve the question of those changes which make the Mongoloid features so different from either the Negroid or those of the white race, the Caucasoid.

Since the time of the great English anatomist, John Hunter, it has been known that facial bones—the foundation of the features—change through infancy to full adulthood by a process of modeling. It is as if a sculptor had, with his thumb, removed human clay from one part to smear it on another. Hunter showed that this occurred by the simultaneous processes of resorption in one area and deposit in another.

While Hunter's observation of this process of bone growth and development was true, it gave no indication of the mechanism by which it happened. Today confirmation has been given his observation and the mechanism explained in the light of modern knowledge of the pituitary gland.

It is the pituitary gland which, elaborating hormones that control growth in all its aspects, plays the dominant role in this mechanism. Removal of the pitui-

tary in rats, Dr. Mortimer showed, stops entirely that differential part of growth which is called development—the process by which the small baby face of childhood becomes the large, well-grown, firm-jawed face of the adult man.

The essential process of resorption by which bone increases in size is made possible by the somatropic hormone from the pituitary, Dr. Mortimer said. This hormone lightly decalcifies the bony structure and expands its vascular bed. When the impulse to grow diminishes, consolidation takes place by a mechanism which is the reverse of that producing the expansion. In short, the flow of gain is followed by the ebb of consolidation.

Dr. Mortimer showed the process of expansion depends on the purified growth fraction of the anterior pituitary which today is labeled the somatropic hormone, and which is entirely free from any physiological effect on either thyroid, adrenal, or sex glands.

But the process of consolidation is less certain. It may occur, Dr. Mortimer indicated, through the intermediary action of the parathyroid glands in the neck, possibly as a result of stimulation of these glands by a parathyrotropic hormone also formed in the anterior pituitary. This latter hormone has not yet been identified but there is presumptive evidence for its existence which receives support from such scientists as Houssay of Buenos Aires and others, Dr. Mortimer said.

By the four types of characteristic cranial change which he demonstrated as occurring in over ninety per cent. of the pituitary cases in the University Clinic of the Royal Victoria Hospital, Montreal, Dr. Mortimer offered a new datum for the use of physicians treating glandular disorders and those specializing in the treatment of children.

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## ARCHAEOLOGY

## Germans Probe Old City Named in Book of Genesis

**E**RECH, named in the Biblical book of Genesis as one of the first cities built in the world by King Nimrod, mighty hunter, dates back to between 3000 and 4000 B.C., German archaeologists have discovered.

The seventh German expedition to Erech, or Uruk or Warka, as it is variously known, has been excavating since November at the Biblical city, and reports a successful season of discoveries. No less than 18 layers of ruins lie piled at the site near the Euphrates, in southern Mesopotamia.

The expedition has succeeded in tracing the complete course of the wall which encircled the ancient city five and one-half miles round. At least one-third of the huge area thus enclosed was taken up with "holy places."

The excavators are concentrating on layers dating from about 3000 to 4000 B.C. Tunnels driven under a temple tower of about 2300 B.C., revealed temple votive offerings and other relics belonging to cities of earlier periods.

Elsewhere in the city, a temple of about 321 to 64 B.C., the time of the Seleucid Empire, was found. Beneath this lay ruins of an older temple of great size, measuring about 350 feet by 262, and with walls almost 20 feet thick.

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## CHEMISTRY

## Isolation of Pure Vitamin A Near

**A** NEW world's chemical record for concentrating vitamin A, food constituent vital for normal growth, resistance to disease and general "pep" producer, was reported to the American Chemical Society.

Dr. Harry N. Holmes and his co-workers at Oberlin University described new developments in the advance toward the long sought goal of complete isolation of the vitamin in 100 per cent. purity.

While admitting the goal is not yet attained they reported the production of a fluid 14,000 times as concentrated as standard cod liver oil. This is a 40 per cent. gain over the previous world's record made in 1931 by Prof. P. Karrer of the University of Zurich, Switzerland. The Swiss concentrate was only 10,000 times as potent as the standard oil.

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