

THE PITUITARY

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The pituitary has been called the leader of the endocrine orchestra. It is situated deep in the base of the brain and in size is no bigger than a pea. It consists of two lobes—an anterior lobe developed from the primitive pharynx, and a posterior lobe developed from the floor of the third ventricle.

The old anatomists, who had a genius for nomenclature, christened the bony structure in which the gland lies the sella turcica, or Turkish saddle, and we were taught to think of it as lying in a kind of old-fashioned four-poster bedstead, the front called the anterior clinoid processes and the rear the posterior clinoid processes. Between the anterior and posterior lobes of the pituitary is a thin slice, known as the Pars intermedia.

From the anterior lobe we get several hormones, such as Prolan "A" and Prolan "B", which have to do with the ripening of the follicles responsible for the menstrual cycle in the female. There is also a growth promoting hormone, a lactogenic hormone, one influencing the thyroid and another the adrenal glands.

There is a great deal of research going forward on this last hormone, which is called ACTH, or the adrenocorticotrophic hormone. This is one of the early trigger substances in the biosynthesis of the corticosteroids, made from the other substance of the adrenal glands. All these cortisone-like substances are related chemically to bile salts, or cholesterol.

FLUID BALANCE REGULATORS

From the posterior lobe of the pituitary we get at least three hormones. One is responsible for contraction of the uterus, or womb. A second is responsible for a rise in blood pressure. These are called respectively oxytocin and vasopressin. There is a third, ADH, the antidiuretic hormone, which is one of the continuous regulators of fluid balance. If this hormone is defec-

tive we get diabetes insipidus, a rare disease, which has no relationship to diabetes mellitus.

Of the diseases associated with the pituitary, the best known is acromegaly, a chronic disease characterised by an excessive growth of the bones in the face and extremities. If the bone changes occur before the bones have stopped growing and they continue to grow we have a giant. Acromegaly is thought to be caused by over-secretion from the anterior lobe.

Another disease is Cushing's Syndrome, where the patient becomes fat, but has stunted growth with hair in the wrong places. If the pituitary is not functioning we get a wasting disease, called Simmond's disease, or Frohlich's Syndrome, which is also characterised by fatness.

Like the other ductless glands the pituitary has a good vascular supply of blood by which the hormones are carried. Four blood sinuses form a square, at each corner of which is a clinoid process. The pituitary body lies like a pea in the middle of the bed. If the gland should enlarge by tumour it may push the floor downwards or bulge the roof upwards into the third ventricle. The floor is made of thin bone and beneath it is the sphenoidal air sinus.

Anatomists say that the sinuses, or air spaces, occur in the head to lighten the bones and to add resonance to the voice. Everyone has a frontal air sinus above each eye and the antrum sinus on each side of the nose. The intimate connection of a deep-seated gland like the pituitary, with the outside air, gives rise to speculation that perhaps the wonderful chemical apparatus of the pituitary is influenced by oxidation. Perhaps the oxygen in the air affects the through-put of hormone in the gland.

In *Time Magazine*, of June 25th, 1951, it was reported from San Antonio that two business men had installed slot machines in the city, which advertised a hang-over remedy for 25 cents. This was a cone of pure oxygen which the customer held to his nose and felt better for it. Fresh air must also have some effect on the growth hormone, because children grow better in the country.

I said at the beginning of this article that the pituitary body

is usually no bigger than a pea. Professor John Hunter, the great Glasgow anatomist, when he dissected the brain of an Irish giant, Charles O'Brien, found the pituitary bigger than a hen's egg and out of all proportion to the gray matter in the brain. That is why criminal lunatics are often out-sized giants, difficult to control.

FINE CHEMICAL BALANCE

More and more, biochemists are coming to realise that the interaction, or fine chemical balance, in the ductless glands is the factor chiefly concerned in maintaining the body in health. If we consider a new drug like mescaline, which gives rise to hallucinations, we can understand a little how it works if we concede that perhaps mescaline inherits the methylation of adrenaline and raises the concentration.

It is possible that the Indian drug reserpine causes depression by lowering the concentration; and on the same theory we would argue that chlorpromazine tranquillises by antagonising adrenaline or noradrenaline.

All those speculations should confirm any reflective person in the theory, first put forward by Hahnemann, that disease is disharmony, and that most of this disharmony is of a chemical nature. If we could finish by venturing a prophecy, it is that the problem of cancer will not be solved by the surgeon or the physicist, with his deep radiation or cobalt "bombs", but by the biochemist when he reaches a fuller understanding of the interaction of the hormones of the pituitary, the adrenals, the thyroid, and the pancreas. It is of little use talking of organ remedies for any single organ in the body when they are related chemically to each other.

—*Homœopathy*, Nov. '58.