New and Interesting Facts from Science and Life

Has SCIENCE at LAST LOCATED the SEAT of LOVE?

"PITUITARY BODY" Now SAID to RULE and DIRECT the AFFECTIONS

WHERE in the human body the seat of love is located has always been a mystery to scientists and a subject of conjecture. But no longer will this be the case, if the conclusions reached by Dr. J. S. Lankford of San Antonio, Tex., are accepted as facts. In an address before the San Antonio Scientific Society Dr. Lackford clearly indicates, as quoted in the New York Medical Journal, that the pituitary body, that little known object which is described as being like a bud on the base of the brain, because of the many functions of the most vital importance he ascribes to it, very likely may be the soul's dwelling place, as well as the point of origin of love and all human emotions. There can be no misunderstanding of Dr. Lankford's statement regarding this, for he says:

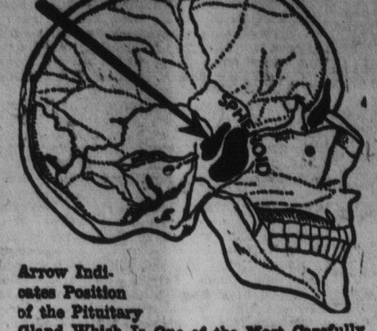
"The pituitary body, the somatic brain, rules and directs the activities of all the other organs through nerve control and through a powerful secretion of its own. It is the sensitive centre of the vegetative nervous system, the counting house and distributor of nerve impulses directing and regulating the function of all the other organs; the centre of all sensation including pain, the seat of every emotion; the link between the mind brain and that other mind of organic life, the vegetable nervous system. After adolescense, around this tiny organ situated at the base of the brain, play the sweet fancies and the masterful passions upon which hinge the perpetuation of the race.

"These are some of the things done by the ductless glands and the vegetative nervous system, but there is much to learn. We must conclude that here is the vital centre of life, action, health, disease, weakness, power. May we not even believe that we have here a very complete electric system, which, when operating normally is in harmony with the laws of vibration in a dimension yet undiscovered? Certain it is that most of man's diseases and imperfections in development are due to disturbed function of the ductless glands and the vegetative nervous system."

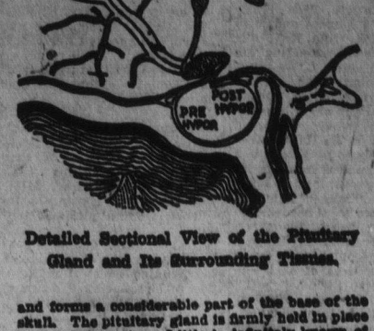
Just what is it like—this wonderful tiny body which Dr. Lankford concludes is the master organ of the body and very seat of youth and age, life and death, health, disease, weakness and power?

The pituitary body, also called the hypophysis, is one of the most carefully protected and deeply hidden organs of the human body. It is of an ovoid form, a reddish-gray color, and consists of two lobes, inseparable, but very distinct in structure. The rear part, which is the smaller, and is called the post-hypophysis, is composed of nerve cells and blood vessels; the fore part, called the prehypophysis, is distinctly glandular.

The development of this body in the embryo is said to be no less remarkable, for the two parts



Arrow Indicates Position of the Pituitary Gland Which Is One of the Most Carefully Protected Organs of the Human Body.



Detailed Sectional View of the Pituitary Gland and Its Surrounding Tissues.

begin as folds from the surface, on the opposite sides of the body, and these folds grow until they meet.

Surgeons say that when the pituitary body is diseased and has to be operated upon, it can be reached only by going up the nostrils and through the sphenoid bone at the very top and back of the pharynx, which is a very delicate operation.

The pituitary is lodged in a depression of the middle portion of the sphenoid bone, which is shaped like a butterfly with outstretched wings and forms a considerable part of the base of the skull. The pituitary gland is firmly held in place by the dura mater. Little is definitely known of its function, but the results of various experiments justify the belief that the secretion of both the anterior and posterior lobes has an important influence upon metabolism. The secretion of the anterior lobe is connected with growth, particularly of the skeleton. The secretion of the posterior lobe has a specific effect upon the organs of circulation and is connected in some way with the metabolism of carbohydrates. There seems to be an inter-relation betwen the hypophysis, and the pancreas, adrenals and thyroid.

Gigantism, or excessive growth, and dwarfism, or underdevelopment, are thought to be due to abnormal conditions of this gland in early life. In later life abnormal conditions are attained with enlargement of the bones of the extremities and the features of the face, a condition known as acromegaly.

After pointing out how the brain of intellect and the somatic brain, the pituitary body, are in the closest sympathy, Dr. Lankford describes the nervous system which, he says, is divided into two parts, the sensorimotor system and the vegetative neuron system.

"The second great division chiefly concerns us," he says. "The vegetative nervous system consists of two great divisions, the autonomic and the sympathetic. The fibres of the autonomic arise from the brain, the medulla, and the sacral portion of the spinal cord, and supply in part the eyes, the vasodilators of the head, the bronchial tubes, the heart, the esophagus, the stomach, the pancreas, and the intestines; these that arise from the sacral portion of the cord supply the lower bowel, bladder, etc.

"The sympathetic is composed of a cord and a chain of ganglia on each side of the spinal column and three main branches. The first supplies the cranial cavity, the organs of the thorax, the heart, aorta, lungs, ecophagus, the abdominal viscera, and the mesentery. The second supplies the periphery and connects with important cardiac branches in the abdominal cavity, the great splanchnic nerve furnishing the gastro-intestinal tract and appendages. The third intimately connects the sympathetic ganglia with the anterior spinal roots linking the sympathetic with the spinal cord and brain.

"These two divisions of the vegetative nervous system are entirely separate and they are antagonistic in action. It is through this antagonism that a perfect balance is maintained in the work of all the organs of the body and this is achieved mainly by means of the internal secretions. Health and life itself depend upon this perfect correlated action."

Dr. Lankford says that his main purpose is to emphasize the great function of all, that is the co-operative work between the vegetative nervous system and the most wonderful part of the human organism, the ductless glands.

"The very seat of youth and age, life and death," declares Dr. Lankford, "is located in this system of organs of internal secretion. A man is said to be as old as his arteries. He is indeed as young as his oldest ductless gland. This system of endocrine glands consists of the pituitary, the thyroparothyroids, the suprarenals, the pancreas, the thymus, the pineal and probably the spleen in part of its function at least, and possibly some others, all under the control of the master organ, the pituitary body."

How AVIATORS, Clothed in ELECTRICALLY WARMED SUITS, DEFY the Intense COLD of Great ALTITUDES

B-R-R-R! It was cold—so cold that the watch of a sentry in the allies' camp had stopped. He pointed commiseratingly at the aviator who was soaring aloft in the driving snow storm.

Position of the Thermostat Is Shown Outlined in White.

The Suit Is Provided with Three Circuits or Coils Wrapped in the Fabric of the Cloth.

"That fellow's going to suffer more than we are," he remarked to a companion, "going way up among the clouds."

The sentry's sympathy did not seem out of place in view of the fact that at high altitudes (8000 to 20,000 feet) the temperatures are freezing, even in mid-summer, and that some aviators who fight at 20,000 feet are as cold as the men who reach the North pole. But, as a matter of fact, the airman was probably much more comfortable than the soldiers on the ground below him.

The aviator today can defy the cold of great altitudes, for they are snugly clothed in an electrically-heated garment. Electrically-heated shoes keep his feet warm, and he wears an electrically-heated hood and gloves.

The garment, as described in Popular Science Monthly, is provided with three circuits or coils wrapped in the fabric of the cloth. They encircle the aviator's body. These circuits, which are parallel with one another, are distributed so that all parts of the garment are heated when they are connected up, a corresponding warmth being produced in the shoes, hood and gloves. The windings extend through a switch mounted on a thermostat made to expand under heat. In the insoles for the flying man's shoes as well as in the gloves and hood wires are connected with the windings of the garment. Current from a storage battery is supplied by adjusting a contact screw.

After a time the temperature of the garment rises to such a point that the thermostat begins to expand. This operates the switch and as a result the contact point of one of the coils in the garment is drawn away from a contact point connected with the main circuit, cutting off the current. Further expansion of the thermostat cuts off the circuit of another coil in the same way, and as the temperature continues to increase the heating power of the third winding is taken away. Then the temperature of the garment begins to lower again, permitting the circuits to be reconnected. Thus the temperature of the cold dispeller is automatically regulated. The thermostat mechanism is enclosed in a casing and placed where the temperature of the garment causes it to operate.

To AVOID SUNSTROKE

AVOID becoming greatly fatigued and you won't suffer an attack of sunstroke. If you take little periods of rest and breathe properly as you rest you will have a sovereign protection against the sun's rays.

All this is the latest medical wisdom from France. Dr. Jules Amar, at a session of the French Academy of Science in Paris, uttered in effect these statements. His conclusions, he said, were based upon extensive studies made of able-bodied men working under severe heat conditions. The men included farm laborers, soldiers, sailors and others whose outdoor occupations require at times intense physical application in the hot sunshine. The ages of the subjects ranged from 20 to 40 years. None of the men were users of alcoholic beverages.

Primarily, Dr. Amar found that fatigue is the fundamental cause of sunstroke; that toxins are in the system, and that the skin, unable to eliminate them, becomes dry and hot. Presently the victim loses consciousness. His breathing becomes heavy and death may follow if he is not immediately treated.

The task placed upon the sweat glands in eliminating the poisons has proved too great. Also, there is every evidence that the patient has not been receiving his normal air supply. This means low oxygenation of the blood, and lack of oxygen means a rapid piling up of fatigue toxins.

When a man is engaged in hard physical labor on a warm day he is not breathing normally. The strain of his effort may reduce the ordinary intake of breath to from 75 to 70 per cent. of normal. One must consider, too, the fact that heated air has undergone expansion, so that, per cubic inch, there is less oxygen in each breath intake than there is at a lower temperature.

It is an established scientific fact that toxins in cold air are nowhere as fatiguing as in warm air. It is also a well known fact that if air be kept in circulation, even though warm and not fresh, it causes but little discomfort. Obviously men working under a sultry sky, with no breeze blowing, are subject to an attack of sunstroke.

The clothing worn loose around the neck and chest, permitting circulation of the blood, is a helpful preventive. This has long been recognized by physicians, for in prescribing treatment for sunstroke the order is invariably to loosen the clothing. As a means of preventing undue fatigue, it is recommended that workers stop every now and then and inhale deeply. This will offset the diminished oxygen supply that has resulted by severe muscular effort. The head should be thrown backward with the mouth open.

Periods of rest should be set apart at regular intervals, too, to permit the system to gain all the advantages of refuge from the direct rays of the sun, to obtain repose for the body and to bring about a resumption of normal lung activity.

The immediate remedy, if it is necessary to apply restoratives to a stricken man until the doctor comes, is first loosen the clothing, get the victim to a shady place, fan or otherwise keep the air circulating about his head and freely apply cold water to his head and neck.

Double Role FAT Plays in BUILDING Up the BODY

THE organic materials form the chief part of our food. The hydrocarbons, including the sugars and starches, are transformed into glucose in the organism, and are consumed in manual labor and for heating the body. When ascribed in a too large quantity they are transformed into glycogen in the liver and into fat, which is deposited as a reserve in the tissues. There is some hydrocarbon in all our foods.

The fats, butter, oil, lard, etc., play a double part in the economy of the body. Just as the hydrocarbons may be transformed into fats, the fats may supplement them in producing work and heat. Moreover, the fats are found in all our tissues, in every cell, for they are indispensable to the maintaining of the equilibrium of the body.

The albumens are the nitrogenous elements in our food, and are best recognized in lean meat, the white of eggs, the casein of milk, the gluten of bread, etc. The important thing to have in mind is that while it is possible to compensate for fats by hydrocarbons, and vice versa, there is no substitute for the albumens. Gelatine, for instance, may yield nitrogen, but it cannot in any degree supply our need of albumens.

In figuring out what we should eat it ought to be remembered that all of the food swallowed is not utilized by the organism and that some of it is thrown off unchanged. As a rule animal foods are more assimilable than vegetables, as it demonstrated by the following figures:

	Carbo-hydrates.	Fats.	Albumens.
Utilization of foods.			
Animal (meat, eggs, etc.)...	98%	85%	97%
Vegetables (and fruits)....	97%	90%	85%
Mixed regimen	97%	95%	92%

An average man in absolute repose uses up about 2000 calories a day. If he work moderately he uses up 2400 calories; if he work hard 3500 calories. No one should make the mistake, however, of trying to live solely on that food richest in calories, for man requires a mixed diet to keep the balance of the organism. It will not do to say that one gram of albumen yields only four calories, while a gram of fat yields nine calories and, therefore, a man should be fed on fat alone. Besides the albumens are needed for repair purposes as well as energy.

Nature and custom have established more or less sane regimens for men and women and it is not wise to diverge too far from them, unless we know precisely why and have weighed all questions, such as digestibility, general and specific energy value and the other elements which must be considered, especially in war times when all are subject to extraordinary stests, both of mind and body.

SUNDAY as DAY of BATTLES

SOME of the fiercest engagements of the present war have been fought on Sunday, the so-called day of rest, for the Hun, with all his cant, seems to like that day for a bombing raid on some defenceless town, as well as for much bigger operations at the front, possibly on account of the old adage about the better the day the better the deed, says London Answers.

The fiercest of the battles in the Wars of the Roses was actually fought on Palm Sunday. There was the battle of Towton in 1461, and 10 years later the battle of Barnet was fought on Easter Sunday. Ramillies was fought on Whit-Sunday, 1706.

What is known as "the glorious First of June," the big naval battle won by Howe, was on a Sunday; the "soldiers'" battle of Inkerman also, while the Indian mutiny actually broke out on a Sunday.

The battle of Bull Run in the American civil war was fought on Sunday, while the Peninsular war saw its last general action at Toulouse on a Sunday.

It was on Sunday evening that Wellington issued that famous order: "Ciudad Rodrigo must be carried by assault this evening."

A glad Sunday for the British empire was that "loud Sabbath," when Wellington defeated Napoleon at Waterloo in the attempt on the part of one man to dominate the world.

"HORSEPOWER" of a BABY

AN apparatus which causes a baby to record its own horsepower has been devised by Dr. John R. Murlin of Cornell University Medical College. Horsepower is used in this sense merely as the expression of a unit of energy. Dr. Murlin devised this apparatus for use in the study of the energy requirement of the new-born child.

A baby unconsciously writes the story of its energy by means of its pulse and its breathing. A small cuff is attached to the left leg of the infant above the knee. From this cuff a tube leads to a glass connection, passing through the wall of the incubator and finally to a T-tube on the top of the incubator. One limb of this tube passes to an air pump and the other to another T-tube. To the second T-tube a mercury pressure gage (manometer) is connected by one limb and a pressure-bottle to the other. From this bottle a transmission-tube leads to a recording drum. Thus with each pulse the baby makes a record.

Oddly enough, the fattest baby produced the smallest degree of horsepower. While sleeping the babies produced an average of .004 of a horsepower. It was determined that the normal hour production of recently fed, sleeping babies between 2 months and 1 year of age is .09 horsepower.

A "TALKING GLOVE" for the DEAF and BLIND

HOW are the thousands of soldiers, blinded and made deaf in this war, going to emerge from their darkness and silence and keep in touch with the world about them? Already this problem has been solved by very simple means—the use of a touch alphabet system with a so-called "Talking Glove."

The basic principles of such a system are described as follows in Popular Science Monthly: (1) The arranging of the letters of the alphabet upon the hand in such an orderly manner that they may readily be memorized by the deaf or deaf-and-blind person. (2) The marking of these letters with indelible ink upon a white glove, so that any "speaker" even though unfamiliar with the glove can touch the marked letters, as he would the keys of a typewriter, and thus carry on a conversation.

Dr. William Terry of Anacosta, Ch., has invented a system which is being widely adopted.

Dr. Terry lost his hearing as the result of the strain and exposure incident to his duties as a surgeon in the civil war, but continued in the active practice of his profession for nearly 40 years thereafter, until at the age of 80 he became totally blind also.

No stronger evidence of the value of "Talking Gloves" could be found than the experience of two other deaf and blind men, each of whom worked out and used a touch alphabet for many years. Morrison Heady of Louisville, Ky., used a talking glove while he was between the ages of 40 and 50 years, frequently wearing it on the street, so that children could talk with him.

Henry G. Stephens of Stratford, Ch., whose loss of sight and hearing was the result of three years

Left—The Lettered Fingers of the "Talking Glove." Right—"Hearing" the Current News.

of brave service in the civil war, used a glove for 50 years. A knowledge of the Terry system is being spread among those in England, France, Belgium, Canada and the United States who are aiding men injured in the war, accounts having already been published in English and French, and also in raised type.

How the MONKEY Uses His FEET as HANDS

THE next time you go to the zoo watch how the monkeys use their hands. Notice that that they do not use their fingers as human beings do, but seize things with their fists.

While the higher monkeys, such as gorillas and chimpanzees may be taught to use their fingers, they never learn to use them as easily as do human beings.

The monkey is primarily a tree dweller. It lives in forests and swings from tree to tree, using its hands as hooks with which it grasps the branches. The thumb is not brought into play. For that reason, naturalists explain, some South American monkeys have lost the thumb through disuse; all that is left of it is indicated by a little lump under the skin.

In the higher monkeys the wrist is built like man's. It has the same number of bones, but the monkey has never used his wrist, and so it has lost the flexibility. The monkey can use its feet to better advantage than its hands.

Man, on the other hand, has used his feet so long simply for the purpose of walking that he would experience considerable difficulty in using them as he uses his hands. Yet, it is amazing how quickly a man can learn to use his toes as he does his fingers. If you don't believe this, just try to write with your toes. At first the letters will be very huge and awkward. But with a little practice you will find that you can write with your foot more easily than with your left hand, for you are naturally right-handed. It is an attractive exercise with which to while away an hour.