BIOCHEMISTRY

Slow Thyroid Can Slow Child's Reading Ability

➤ CHILDREN WHO have trouble learning to read and are generally slow learners, getting along poorly in school, should have tests to see whether their thyroid glands are functioning properly.

This advice was given by Dr. Charles Posner of the Endocrine Clinic, Pasadena (Calif.) Dispensary, at the meeting of the American Association for the Advancement of Science's Pacific Division in Pasadena.

Scientists have long known that when the thyroid gland in the neck does not put out enough of its hormone, the mind is retarded and behavior affected.

Reading disability, Dr. Posner found, was a common complaint among 35 children studied over the past 10 years because they had thyroid glands that were under functioning.

Even with special tutoring, these children made very slow progress. They had a very short attention span, were easily distracted and were poor at getting the meanings of words and ideas. Being slow learners, they could not compete with their classmates and developed feelings of inferiority, frustration and resentment. Behavior problems developed.

When given thyroid extract to make up for the failure of their own glands to produce enough, they showed great improvement in understanding, remembering and reading.

Some gained one and one-half years in reading ability in one semester without any change in teaching methods, Mrs. E. M. Wittker, clinical psychologist in the Pasadena City Schools, found.

Many of these children who had been failing in all their subjects throughout their school life did very acceptable work within a relatively short time after starting the thyroid doses.

Science News Letter, July 2, 1955

TECHNOLOGY

Suction Principle May Revive Windmill

➤ THE WINDMILL may be staging a comeback as a source of power in its new form, the centrifugal suction mill. It promises to produce electrical energy at about two-thirds the cost of steam generation.

A 100-foot experimental prototype has been built at St. Albans, England, and success in preliminary trials was reported by the Enfield Cables Limited, London.

As the propeller turns in the wind, centrifugal force drives air out of ports at the extremities of the two hollow blades. This sucks air through the windmill body, driving an air turbine near ground level.

By replacing the conventional mechanical linkage with the cushion of the column of air, flexibility is obtained without clutches or gears.

The windmill is designed to turn 100 times a minute in winds of all speeds between 30 and 65 miles per hour. When winds are stronger than 30 m.p.h. the blade pitch automatically adjusts to keep rotation speed constant.

With winds of between 30 and 65 m.p.h., output in the mill is held at a rated 100 kilowatts. The blades are feathered and rotation ceases when winds become faster than 65 m.p.h. The blades are also free to come 18 degrees down wind and eight degrees up wind to relieve stresses due to gust conditions.

Owing to the advance in atomic energy, British Government interest in the use of wind power for electricity production in the United Kingdom is less than it was five years ago when the project was inaugurated. Meanwhile, however, global interest, particularly in under-developed regions, is growing.

The final location of this plant has not yet been decided, plans to install it in North Wales having been dropped owing to local objections.

Science News Letter, July 2, 1955

INVENTION

Balloon-Helicopter Pedaled Like Bicycle

➤ PEDALING AROUND the sky and stopping off in the "wild blue yonder" where you want to, to look at the earth below, may be possible with a combination balloon-helicopter invented by Charles K. Paul of Woodbridge, N. J.

Designed for rescue and observation work, the aircraft combines the slow movement and safety advantages of both types of airborne equipment. It might also prove useful to the commuter, sports fan and Sunday sight-seer.

To operate the craft, the pilot sits on the seat and pedals with his feet which, in turn, causes the helicopter blades mounted below the pilot to rotate. Once airborne, the pilot can literally stop along the way by rotating the balloon mounted above in the opposite direction of the propeller blades. This causes the craft to stand still.

The "flying machine" powered by human energy received patent No. 2,704,192.

Science News Letter, July 2, 1955

OPHTHALMOLOGY

Transplant Tendon To Uncross Eyes

➤ CHILDREN WITH the kind of cross eye condition, or squint, in which one eye does not focus with the other can be helped by an operation in which a tendon is transplanted. The condition is known medically as "paralytic squinte."

The new tendon pulls the off-focus eye back into focus. The operation was reported in detail by Dr. I. Lloyd Johnstone of Worcestershire, England, at the joint meeting of the British, Canadian and Ontario Medical Associations in Toronto.

Science News Letter, July 2, 1955

IN SCIEN

CHEMISTRY

Life Chemicals Found In Primitive Atmosphere

➤ AMINO ACIDS, the basic stuff of life, have been produced spontaneously by sending electric charges through an atmosphere resembling the air of the primitive earth.

If this experiment is a reasonable model of conditions found on a new-born planet, then an easy explanation of the formation of organic compounds on earth is at hand, Dr. Stanley Miller, organic chemist of Los Angeles, told the Botanical Society of America meeting with the American Association for the Advancement of Science's Pacific Division in Pasadena, Calif.

Following evidence that the young earth had an atmosphere mostly of methane, ammonia, water and hydrogen instead of the present one of carbon dioxide, nitrogen, oxygen and water, Dr. Miller set up a mixture of gases corresponding to this primitive atmosphere and subjected it to electric discharges for about a week.

Dr. Miller identified the amino acids glycine, alanine, beta-alanine and five others from the mixture. He also recovered glycolic, lactic, formic, acetic and propionic acids.

Aldehydes and hydrogen cyanide are formed in the electric discharge, Dr. Miller said. These compounds react with the water portion of the atmosphere to form amino and hydroxy nitriles, which are then hydrolyzed to the amino and hydroxy acids.

It would seem that a great many of these compounds formed would be those that are components of present living organisms, he said.

Science News Letter, July 2, 1955

STATISTICS

Fewer Wedding Bells For Next Five Years

➤ THE NUMBER of marriages each year in the United States has fallen off from its high of 2,291,000 in 1946 to a mere 1,484,000 in 1954. It is likely to continue at a low level until 1960, statisticians of the Metropolitan Life Insurance Company in New York have reported.

They give two reasons for the decline in marriages: 1. The unusually large number of marriages during and immediately after World War II, which reduced the ranks of those eligible to marry. 2. Decreased births during the 1930's, which thinned the population at ages where marriage rates are highest.

Marriages are dissolved by divorce or death at the rate of about 27 per 1,000 existing marriages.

Science News Letter, July 2, 1955

CE FIELDS

MEDICINE

Remove Pituitary to Aid Young Diabetics

➤ OPERATIONS IN which the pituitary gland in the head is removed have now been performed on six children with very severe diabetes, Drs. Laurance W. Kinsell, Lester Lawrence and Robert D. Weyand of the Samuel Merritt Hospital and the Highland-Alameda County Hospital, Oakland, Calif., have reported.

The young patients all had major eye and kidney diseases.

After the operation, all of the children could get along on much less insulin even when eating a relatively large amount of sweets and starches. The average insulin requirement was less than 15 units instead of over 60 units as it had been before the operation.

High blood pressure, that some of the children had, disappeared after the operation. Kidney function improved somewhat and red blood cell production improved in two of the patients.

All patients needed regular doses of insulin, thyroid extract, cortisone and male or female hormone, according to sex, the doctors reported at the joint meeting of the American Diabetes Association and the Endocrine Society in Atlantic City, N. J.

Science News Letter, July 2, 1955

PSYCHOLOGY

Every Large Family Has Its "Responsible One"

➤ PRACTICALLY EVERY large family has one child who is the "responsible one." Another among the children is usually outstanding as likable or popular. Then there is the "studious one," the "social butterfly," the "lone wolf," the irresponsible one, the "sickly one," and the spoiled "baby."

These eight different personality types were found to be commonly represented in large families. The types were brought to light by a study of 100 large families with a total of 879 living children.

The research was conducted under the auspices of the William T. Carter Foundation at the University of Pennsylvania.

Most of the families were brought up in small-town, village, or farm communities, but 24 had their homes in either New York, Philadelphia or Brooklyn.

The eight personality types were not found in every family studied. Some families do not have eight living children. Others may have two or more children of the same type.

Nearly every family has at least one child who is of the responsible type, however. This is usually the oldest son or the oldest daughter. This child may early take on the duties of wage-earner for the family or the maternal care of the younger children.

The popular, attractive child is most often the second child in the family or the one next younger than the responsible one. It is as though these children, finding the "little mother" or "family head" role already filled, seek recognition through their charms, by making themselves agreeable. The next children turn from the family to the community—they become social-minded and ambitious. Then come those who seek attention through their school achievement, sickness or dependence.

At least, this is the explanation offered by Drs. James H. S. Bossard and Eleanor Stoker Boll, in reporting the study to *Child Development* (March).

Science News Letter, July 2, 1955

ENTOMOLOGY

Imported Flies Used To Fight Cane Borers

➤ INSECTS ARE being used effectively as insecticides by southern farmers to help fight the destructive sugarcane borer.

Two species of parasitic flies, imported from Latin America, have shown promise in controlling the cane pest, the U. S. Department of Agriculture has reported. The parasitic flies, *Metagonistylum minense,* originally from the Amazon, and *Lixophaga diatraeae* from Cuba, instinctively deposit their eggs near the holes the cane borers made to enter the sugarcane stalks. Almost immediately, the eggs hatch and the young maggots enter the holes and devour the borers.

A year after the two species were released on one plantation, the Government entomologists reported, control of the borers was found to be 75% effective. They expect the parasites will give only partial control because the flies will be affected by abundance of borers and weather.

Science News Letter, July 2, 1955

ENTOMOLOGY

Larval Dragonflies Kill Small Fish

See Front Cover

➤ GAUDY, FAST on the wing and deadly to its prey, the dragonfly commands high respect in the insect world. It is highly predacious, and even in the aquatic nymph stage it is capable of killing small fish.

The dragonfly couple, shown on the cover of this week's SCIENCE NEWS LETTER, are in a rare moment of repose. Dragonflies are sturdy fliers, hunting and capturing their prey on the wing, and many of them lay their eggs while flying.

The eggs are laid in water. After about two weeks incubation, they hatch into nymphs and remain aquatic creatures until the adults emerge after metamorphosis.

Science News Letter, July 2, 1955

ENGINEERING

Auto Engine Deposits Force Octane Increase

➤ THE REASON auto engines need high octane fuel is the minute amount of deposit that forms in the combustion chamber during engine operation.

Insulating and thermal effects of the deposits cause a 40% to 60% increase in the octane requirement, two Du Pont engineers reported to the Fourth World Petroleum Congress in Rome.

Both fuel and oil are responsible for the deposits, and consequently for engine knock, they found. Change in the composition of newer oils can reduce the required octane rating from four to six numbers. At the same time, preignition is cut.

From 10% to 40% of this increase is the result of the deposit's physical volume, which adds to the compression ratio. A change of timing or location of ignition, brought about by surface ignition or preignition, also increases the engine's requirements for antiknock gasoline.

Reducing the high boiling fraction of fuel could lower preignition tendencies and octane requirements, J. J. Mikita and B. M. Sturgis of the company's petroleum laboratory found.

Science News Letter, July 2, 1955

PUBLIC SAFETY

Energy Pad on Auto Would Add Safety

➤ ADDING AN energy-absorbing pad to the front end of automobiles and strapping drivers and passengers down with safety belts may save thousands of lives, Prof. Elmer F. Bruhn of the Purdue University School of Aeronautical Engineering, Lafayette, Ind., has suggested.

Prof. Bruhn, an authority on airplane structure, is exploring what happens when cars crash. High-speed movies of crashes with model cars and dummy passengers reveal that being thrown forward when the car stops suddenly accounts for most crash injuries and deaths.

An energy-absorbing device on the front end of automobiles to control crash deceleration, and restraining belts to keep drivers and passengers from flying into the car structure would provide a sufficient margin of safety when crashes do occur, Prof. Bruhn believes.

Purdue's fleet of automobiles, used by staff members on university business, may soon sprout such safety devices, to test driver reaction to them and, in case of any crashes, to check their effectiveness in decreasing injury.

Prof. Bruhn also hopes to be able to stage real crashes with late model cars and volunteer drivers, in order to demonstrate conclusively that the safety devices he recommends will work effectively in cars, as they do in airplanes, which have much higher crash velocities.

Science News Letter, July 2, 1955