PALEONTOLOGY

Ancient Reptile-Bird Glided Instead of Flew

➤ THE ARCHAEOPTERYX, famous part-reptile and part-bird extinct for 150 million years, did not fly but glided, the British Association for the Advancement of Science meeting in Oxford, England, was told by the director of the British Museum, Sir Gavin R. de Beer.

A re-examination of "the world's most precious, beautiful and interesting fossil," first described 90 years ago, shows that this famous intermediary between reptiles and birds did not have the muscles to allow vigorous and active flight. The creature glided rather than flew.

Ultraviolet light was used on the slab of Jurassic limestone encasing the famous fossil. Bones glow in this light while rock does not. Sir Gavin's inspection showed a poorly ossified sternum without a keel, which would have been present if there had been strong pactoral muscles.

The Archaeopteryx's brain under ultraviolet was found to be extremely small in size compared with modern birds, and did not have development necessary for control of real flight.

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ARCHAEOLOGY

Rare Gold Ornaments Found in Grave

➤ RESPLENDENT GOLD ornaments like those sought so avidly by the early Spanish explorers have now come into the hands of archaeologists.

These rare and spectacular treasures were found in a grave near Huarmey, about 160 miles north of Lima in Peru. They are described by Dr. Samuel K. Lothrop of the Peabody Museum, Cambridge, Mass., in *Archaeology* (Spring).

The grave dates from the Chimu period, 400 to 700 years ago, and contained the mummified remains of what was evidently a very important person. The presence in the grave of a gold slab used by goldsmiths for the rolling out of wax sheets for the "cire perdue" process indicates that the man buried there was himself a goldsmith and may have had a hand in making the metal objects buried with him.

Cire perdue casting is a technique still employed by jewelers and dentists that calls for knowledge and skill, and it must have been more difficult 700 years ago than it is now. Gold sheets can easily be trimmed with steel shears, but no one knows how Peruvians cut the metal before the invention of tempered bronze knives shortly before the conquest, Dr. Lothrop says.

The gold ornaments found attached to the mummy bundle and turning it into an effigy of the deceased are among the most complex and resplendent ever found, in Dr. Lothrop's judgment.

They consisted of a mask, a pair of elaborate ear ornaments, a large breast plate and a number of loose sequins. All these objects were of gold alloy and much more elaborate than any others known. They were made by joining over 600 individual pieces of gold, including more than 200 danglers, suspended on projecting wires soldered to the background.

The ancient Peruvian people were worshipers of the sun. Gold ornaments were treasured because gold flashes in sunlight.

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OCEANOGRAPHY

Navy Ships Find Northwest Passage

See Front Cover

➤ TWO UNITED STATES icebreakers have successfully plowed their way through the frozen ice of the Arctic to find the fabled Northwest Passage, a water route linking the Atlantic and the Pacific across the top of the world.

One of them, the USS Burton Island, is shown on the cover of this week's SCIENCE NEWS LETTER, as spotlights search for the best course through ice, which often was four to ten feet thick.

The Burton Island crushed its way through McClure Strait, while the other ship, the U. S. Coast Guard's Northwind, entered the strait from the Arctic Ocean, skirting along its southern edge.

Both ships are on a joint U. S.-Canadian expedition conducting oceanographic and hydrographic studies in that area. Scientists on the Burton Island collected sea water and ice for further analyses and tests.

The studies are part of the continuing research program designed to make the frozen wastes of the Arctic more accessible to military operations, thus strengthening one of the most vital links in our continental defenses.

Helicopters and "frogmen," Navy personnel who specialize in underwater demolition, were invaluable to the expedition. The helicopters helped to spot new routes through the ice, and also carried personnel ashore.

The frogmen helped to check the depth of ice fields, tested various explosives for blowing up ice, and tried out camera equipment designed for use in Arctic waters.

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MARINE BIOLOGY

Glands, Not Politics Turn Crayfish Red

➤ RED CRAYFISH have turned up in a scientific laboratory at the University of Missouri. Their color is glandular, not political. It resulted from doses of an adrenal gland extract which apparently destroyed the dark pigment that would have given them their usual black or gray color. The finding is reported by Drs. Max Goldman and Patrick H. Wells in *Science* (Aug. 27).

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IN SCIEN

GENERAL SCIENCE

Name-Publicity Now Determines Prestige

➤ PUBLICITY RECEIVED by a person has taken the place of hereditary rank, position, and money and power in determining prestige, Dr. Lyman Bryson, professor emeritus of education at Columbia University's Teachers College, pointed out at the Fourteenth Conference on Science, Philosophy and Religion held at Harvard University.

The predominant American prestige-symbol, he said, is the appearance of one's real or professional name in print, and its sound in broadcasts. This pervading evidence that one's name has arrived and that the pubic is taking notice is sought for and enjoyed as the fruit of achievement.

To have name-publicity by accident or personal favor is considered good luck, not bad, Dr. Bryson commented, and it plays a bright part in the dreams of youth.

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ENGINEERING

Unique Building Model Simulates Heat Factors

➤ TO TRANSLATE comfortable living and working conditions into efficient, economical design factors, a unique model of a building has been constructed by Harry Buchberg, a University of California at Los Angeles engineer.

The model can reproduce electrically the factors involved in the cooling and heating of a structure.

It does not look like a building, but is a mass of wires and electronic gadgets. By turning a few knobs, engineers can determine the influence of a multitude of complex factors on the thermal behavior of a structure.

The material or color of the roof or a wall may be changed with a twist of a knob. Insulation may be placed in the walls or above the ceiling. The sun and wind can be turned on and off at will. In fact, the 24-hour climate cycle of any location can be duplicated by the electrical model in 48 seconds.

Use of the device by individual home builders to solve thermal design problems would be a little too expensive, Mr. Buchberg said, but it would be economically feasible for large construction projects.

Ultimate aim of his study is to compile information that can be used simply by engineers and architects to solve heating and cooling problems. The work is being supported by the American Society of Heating and Ventilating Engineers.

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CE FIELDS

BIOCHEMISTRY

Drug Mixture Awakens Sleep-of-Death Victims

➤ DISCOVERY OF a double drug mixture to waken people from the sleep of death brought on by overdoses of barbiturate sleeping medicines is announced by Dr. F. H. Shaw and associates of Melbourne, Australia, in *Nature* (Aug. 28).

Already some 20 patients have been rescued by the mixture.

The two drugs are beta beta methyl ethyl glutarimide, known as NP 13 for short, and 2-4 diamino 5 phenyl thiazole.

NP 13 is an antagonist to barbiturates. The thiazole compound, discovered about two years ago, is an antagonist to morphine but only slightly antagonistic to barbiturates. When given with NP 13, the thiazole compound reinforces the action of the NP 13 and adds the additional safety factor of counteracting the convulsions that large doses of NP 13 can cause.

Important feature of NP 13 is the fact that it counteracts the depressed breathing brought on by barbiturates. In some cases when NP 13 was given to counteract barbiturate overdosage, the breathing rate was doubled for five to ten minutes after injection of NP 13.

Associated with Dr. Shaw in the discovery and testing of the new double drug mixture were Shirley E. Simon, N. Cass and A. Shulman of the University of Melbourne, and J. R. Anstee and Eva R. Nelson of Nicholas Ltd., Melbourne.

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ANTHROPOLOGY

Add Body Build Type to I.Q. Tests for Students

➤ STUDENTS APPLYING for entrance to universities may in future be rated by measurement of their body build, as well as by intelligence and aptitude tests and grades and examinations in various school subjects, Dr. R. W. Parnell of Oxford University, England, suggests in the *British Medical Journal* (Aug. 28).

Physical features, such as being big muscled or fat or lean, can promote or handicap the efficiency of the mental equipment to a surprising extent, he says.

Men with proportionately large bone and muscle development and, at a different extreme, fat men with very little muscle are found in American universities but not at Oxford, Dr. Parnell reports.

Among English university students he studied, "all-rounders," who both played games and did well in studies, had body builds just on the muscular side of the picture for all the body build types among the students.

The ones who did best in scholastic work, taking "first class honours," were mostly endomorphic ectomorphs, that is, men with a physique on long lines, but with a tendency to fat.

Ph.D's in science tended to be built on long lines, but with rather large bone and muscle development. Men of this build did outstandingly well at winning awards, such as prizes and scholarships, upon entrance to the university, but in their final examinations did least well.

These contradictory findings may mean that these men were "over-taught" at school, or were late in maturing and so did poorly in the free university atmosphere, or looked so bright and eager that they "hoodwinked" the men selecting candidates for university courses.

Performance not only in school but in industry, the armed forces and life itself may be predicted to some extent with the aid of body build typing, called somatyping, Dr. Parnell thinks. It may give information on academic failure and "the allied problem of mental disturbance."

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GENERAL SCIENCE

Urge Stopping Work Under Security System

➤ SCIENTISTS SHOULD refuse to work under the security system imposed by the government that resulted in the Oppenheimer case. (See SNL, July 10, p. 19, and June 26, p. 403.)

This work stoppage is advocated by Prof. O. Theodor Benfey, chemist of Haverford College, Haverford, Pa., in the *SSRS Newsletter* (Aug.), publication of the Society for Social Responsibility in Science.

There is great significance, in Dr. Benfey's opinion, in the fact that in the consideration of Dr. J. Robert Oppenheimer's security clearance by the Atomic Energy Commission only the lone scientist on the reviewing board and on the commission supported Oppenheimer.

"Everyone is now calling for a review of the security system," Dr. Benfey said. "But any scientist with a shred of insight could have predicted what would happen if scientists accepted the degree of secrecy now prevailing.

"They should have refused to work under the imposed conditions.

"Such a refusal would not have weakened the country; it would have led to an immediate review of the security system. But it would have required a certain amount of courage, the risk—not very great—of a few months of unemployment.

"Even now no one seems to be resigning. When will men learn that a country decays unless its citizens are willing to suffer for their convictions? Why should the government review the security system if it can get all the obedient servants it wants?"

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INVENTION

Buried Radioactive Ores Pictured by Camera

➤ AN X-RAY camera designed to snap pictures of radioactive ores buried deep in the earth has been awarded patent 2,688,095.

Uranium prospectors could use the device to photograph formations that Geiger counters detect. By studying the developed film, prospectors could get a better idea of the extent and richness of the ore.

Invented by John H. Andrews of La Mesa, Calif., the camera has a series of horizontal and vertical baffles to absorb all radiation not traveling parallel to the camera. Radiation passing through the baffles strikes a window of polystyrene or some other chemical that generates light when hit by radioactive particles.

Multiplier phototubes "see" the light flashes in the window and amplify them. They are passed on to a glow lamp in proportion to their brilliance. The glow lamp exposes the camera's film.

The camera is geared to scan the area under study. The glow lamp scans the film in synchronism so that the picture will make sense.

The camera works on X-rays, gamma rays and other radiations of extremely short wave lengths. It is able to picture ores of weaker intensity than present "pin hole" cameras can, thus widening the vistas for its users.

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NUTRITION

New Iodine Salt for Animals, Maybe Humans

➤ COWS AND other farm animals, and maybe humans as well, will get a new kind of iodized salt in the future if present tests prove successful.

Iodine is put into salt, for humans and other animals, to protect against goiter, the neck swelling that comes when the thyroid gland is not functioning right. The thyroid needs iodine for proper functioning.

Potassium iodide is the chemical now used to put iodine into salt and thus into people and animals that need it. However, potassium iodide is sometimes leached out of salt licks and animal feeds by moisture. Even that in table salt for human consumption may decompose, sometimes without moisture.

A copper iodine combination, cuprous iodide, is more stable and insoluble in water. Tests on laboratory animals at the Armour Research Foundation, Chicago, show this form of iodine is effective and safe, so it is being suggested for farm animals and livestock by Drs. Sidney Mittler and G. Harvey Benham.

Changing the iodine in table salt for humans will not come, however, until after exhaustive tests on animals. The iodine salt studies are being carried on under sponsorship of the Morton Salt Company.

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