his head—of work and dress very extraordinary, and altogether different from that of these realms. And connected with this room there are also corridors very well worked of stone with very large pillars which are so strong that they are still standing; and for over four and even six leagues around the proud edifices there is a great amount of worked stone; from which it appears that there were in these parts a people of great intelligence, industry, and courage, and great cities, which long ages swallowed up or turned into what our Spaniards found when they made the discovery."

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PUBLIC HEALTH

Black Rat Horde Menaces England With Black Death

BLACK rats can at any moment loose the Black Death upon England. All that is needed is for one plague-infected rat to elude the anti-rat precautions in the Port of London and make its landing from some ship from an oriental city where the bubonic plague is still common.

This warning was issued by M. A. C. Hinton, deputy keeper in zoology of the British Museum and one of the world's leading authorities on rats.

Black rats, Mr. Hinton declared, now swarm in London. They have largely supplanted the brown or Norway rats, which were formerly the dominant species in the rodent population. This change was attributed by Mr. Hinton to the development of modern buildings, which with their open skylights and their network of cables are ideal homes for the black rat, which was formerly a tree-dwelling species. The brown rat, a denizen of the sewers, is pretty effectually excluded from the buildings of present-day London. Man has thereby unwittingly aided a deadly enemy, for the fleas harbored by the black rat carry bubonic plague from rat to rat, and finally from rat to man.

Mr. Hinton strongly advocated a government campaign to eradicate rats and to make buildings really rat-proof. Such a drive, he said, would be like taking out an insurance policy on the whole nation.

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Sand flies, which bite so viciously, are best controlled by destroying their breeding places, says the Department of Agriculture.

PHYSICS

New Physics Troubled by Confusion in Nomenclature

Electron, With Its Negative Charge, Seems Misnomer Since Discovery of Its Opposite Twin, the Positron

PHYSICISTS are engaged in a family row over what the babies should be named. The botanists no longer stand alone as a scientific tribe that fights over names and classification. But the physicists can blame no one but themselves for having brought confusion into their speech. It all arose from their tremendous activity within the last two years of prying out several new particles from the chemical entity of matter, the atom.

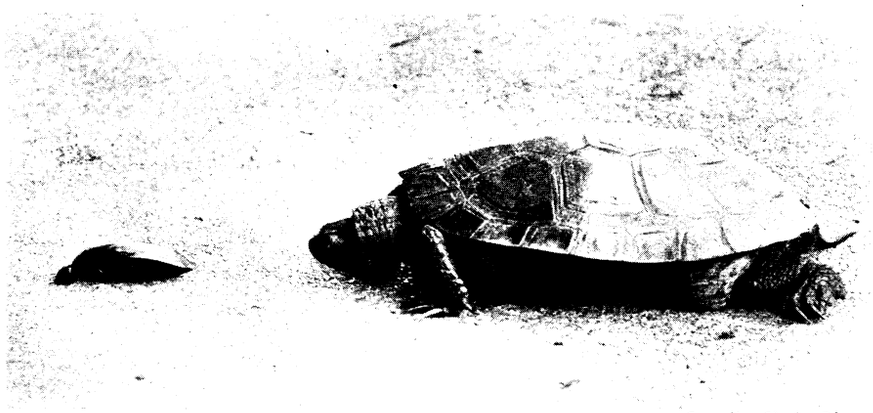
Now that they have isolated these particles and have proved their existence they are in a quandary over what to christen them. The one that is stirring up the biggest argument is the new unit of positive electricity, found by Dr. Carl D. Anderson at the California Institute of Technology just a year ago. It appears to have the same electrical charge and mass as the electron, the unit of negative electricity, which has been known for many years.

Dr. Anderson has suggested that the new positive particle be called the "positron" and the old electron be rechristened to "negatron." This was to avoid confusion with the name "electron" that was originally devoid of significance regarding polarity.

Immediately many scientists objected to the rechristening and also to the disregard of mythology inherent in the word "positron." Prof. Herbert Dingle of Imperial College of Science and Technology in South Kensington, England, suggested the name "orestron" for the new positive particle. This is mythologically correct for Orestes was the brother of Electra.

The English physicists had in the meantime contributed to the confusion, but not in such a serious manner. The discovery of the positive particle had been made from an examination of curved tracks made by cosmic rays in plowing through a box filled with water vapor and placed between the poles of a magnet. Some of the tracks were bent in the wrong way. This could be explained only by having a new positive particle. But the sporting Englishmen immediately thought of cricket and the peculiar hops that the ball takes on bouncing in front of the wicket. These are called "googlies," so the new tracks and thus the particles became "googlies" also, in English laboratory slang.

A similar argument has arisen about the names to be given to the two varities of hydrogen. The strict way of



Cornelia Clarke Photo.

LEADEN-FOOTED CHASE

Only a turtle pursuing a beetle; but isn't there something in this scene that is reminiscent of those nightmare dreams wherein you find yourself pursued by a monster, and discover that your feet are made of lead and can barely be moved; or (shifting to the turtle's viewpoint) where you are striving after a keenly desired and nearly attained goal, only to find yourself struggling against the same unconquerable lethargy?

classifying them as hydrogen isotope of mass one and hydrogen isotope of mass two are much too lengthy for common usage. Prof. Harold C. Urey of Columbia University, on behalf of the discoverers of heavy weight hydrogen proposed the names "protium" and "deuterium," but Prof. Gilbert N. Lewis and Ernest O. Lawrence of the University of California call the heart or nucleus of the heavy hydrogen atom "deuton," as contrasted to the common name for the heart of the light hydrogen, "proton."

Prof. William D. Harkins of the University of Chicago has taken the "neutron," that electrically uncharged particle of mass equal to the proton, discovered last year by Dr. James Chadwick in Cambridge, England, and has considered that all the "neutrons" in the universe make up a new chemical element of atomic number zero. For this element he proposed the name "neuton."

The person who should be considered in all this naming is the poor scientific student of the future who will have to remember all these strange names. Since so few pure scientists are tremendously interested in the mythology behind the names the suggestion that they should be called by descriptive names that will bring their properties to mind is certainly worth considering.

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SEISMOLOGY

Fiji Island Region Gets Heavy Quake

A HEAVY earthquake shook the Pacific Ocean floor near the Fiji Islands on Wednesday, Sept. 6, scientists of the U. S. Coast and Geodetic Survey reported after examining data collected telegraphically by Science Service. The quake began at 5:08 p. m., eastern standard time. Its epicenter, or point of greatest movement, was in approximately 18 degrees north latitude, 180 degrees west longitude.

Seismograph stations reporting to Science Service were those of the Dominion Observatory, Ottawa; the University of California, Berkeley, Calif.; the Seismological Laboratory, Pasadena, Calif.; Fordham University, New York City; and the stations of the U. S. Coast and Geodetic Survey at Tucson, Ariz., and Ukiah, Calif.

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CHEMISTRY

Solids Near Absolute Zero Yield Secrets Through Spectra

At Extremely Low Temperatures, Vibrations of Particles No Longer Cause Serious Distortions

THE Langmuir Medal, awarded annually for outstanding research in chemistry, is to be presented to Dr. Frank H. Spedding of the University of California. Dr. Spedding delivered the Langmuir Award Address on "Energy Levels in Solids" before the Chicago meeting of the American Chemical Society.

White light shining through thin films of solid matter and being absorbed in characteristic ways by the atoms in the solid has proved to be a powerful tool in understanding and evaluating the physical properties of matter. Dr. Spedding told how these color pictures could be obtained and how they could be interpreted to give an enormous fund of information about solids.

White light is composed of all wave lengths or frequencies. When it is shone through a substance some of these frequencies are absorbed in the substance because the constituent atoms are free to vibrate with just these frequencies. The light coming through the substance when spread out into a color picture or spectrum is lacking in some colors or has dark sections spread through it.

By observing these dark sections chemists are able to tell just what frequencies the atoms in the substance are capable of absorbing. From this information they can calculate such physical and chemical properties as how much heat is necessary to raise its temperature, the attraction in a magnetic field, how strongly the atoms are bound together, and so forth.

These "absorption spectra" of solids at ordinary temperatures usually have very broad dark sections because the absorbing atoms are disturbed by the electric and magnetic effects of their neighbors. At high temperatures, Dr. Spedding said, the atoms are vibrating and the distortions are of all degrees. Since the light observed is from billions of atoms, light of many frequencies is absorbed and broad bands occur in the spectra.

However, if the solid is cooled to the enormous frigidity of nearly absolute zero, minus 451 degrees Fahrenheit, the atoms in the frozen solid no longer vibrate and so the deformation of all the atoms is the same. Then only certain frequencies of the incident light will be absorbed and sharp dark lines will appear in the absorption spectra. From the position of these sharp lines chemists can calculate physical and chemical properties of the solid.

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ORNITHOLOGY

Bird Lover Sacrifices Savings for Sanctuary

STAKING his whole life savings for the preservation of a bird sanctuary is the heroic sacrifice made by a retired teacher, R. B. Burrowes, formerly of the Liverpool Technical College. Finding that the Dungeness Promontory, the only remaining natural and undisturbed area of any size on the southeast coast of Great Britain, was about to be exploited by building contractors, Mr. Burrowes sold and mortgaged everything he possessed to raise the sum of £5,585 (approximately $25,150 at present exchange rates) necessary to obtain an option on the area.

A committee is now endeavoring to raise funds to give back at least £1,740, which will recover for Mr. Burrowes certain securities deposited at a bank as collateral for a loan. He will still be out of pocket to the extent of £3,845 pounds, but is content to accept this loss for the satisfaction of knowing that he has kept the birds' homes safe. In the meantime he is living on the slender annual penson of £138—about $600.

The committee, which announces its quest in *Science*, states that contributions may be sent to the Manager, Lloyds Bank, Canterbury, England.

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