makes its wood unfit for shaping into the flat-sided bats used in the great British sport.

The disease is due to a swarming bacterium, which was described before the meeting of the British Association for the Advancement of Science by Dr. W. J. Dowson, specialist in fungi at Cambridge University. The cause of the disease had been identified by an earlier worker, and Dr. Dowson confirmed his results, against which doubts had been raised later.

Watermark disease afflicts 25,000 cricket-bat willows in one English willow-raising region alone, Dr. Dowson said. The dead trees, left standing, spread the epidemic among those still living.

When watermark disease attacks a willow, the leaves wither and turn brown prematurely, and then drop off. Volunteer shoots sprout from the living tissue below the dead wood. After two or three years, the tree dies completely, and a bacterial ooze comes out of chance small wounds.

The wood has a water-soaked appearance, and is darkly marked in streaks and patches. Masses of bacteria are crowded in its water-conducting vessels. It is utterly unfit for use.

Science News Letter, September 21, 1935

ASTRONOMY

New Asteroid Takes 7 Years For Journey Around the Sun

DEFINITELY an asteroid, but a most peculiar one, is astronomy's verdict on the strange celestial object imaged on a photographic plate at the Mount Wilson Observatory, California. The photographic record of its appearance was discovered by Dr. Edwin P. Hubble, and measured by Dr. Seth B. Nicholson.

The newly discovered asteroid is remarkable for two things: the large eccentricity and the high angle of its orbit, which has just been calculated independently by two astronomers, Prof. Harlow Shapley, director of the Harvard College Observatory, informed Science Service. One of the computations was made by L. E. Cunningham, of Harvard, and the other by Dr. Paul Herget of the University of California. Both were reported to the clearing-house for astronomical information maintained at the Harvard College Observatory.

These two preliminary orbit-calculations show the new asteroid to have a period of revolution around the sun of seven years. The orbit is a long ellipse, with the sun well to one side of center. It is, moreover, inclined at an angle of forty degrees to the ecliptic, or path of the planets. Its position, far outside the zodiacal belt in which the great majority of asteroids move, first attracted attention to it as something really unusual.

At present the asteroid, which is too small to be seen without a telescope, is in the constellation Cassiopeia. Cassiopeia is a W-shaped group of stars in the northern sky, on the opposite side of the Pole Star from the Great Dipper.

Additional observations have been made at Harvard College Observatory, which will permit the more accurate determination of the orbit.

Science News Letter, September 21, 1935

MEDICINE

Claims Electricity Better Than Malaria for Fever Treatment

ELECTRICAL methods of inducing fever are better than malaria for the treatment of the mental disease resulting from syphilitic infection, Dr. Ralph H. Kuhns of the University of Illinois College of Medicine told members of the American Congress of Physical Therapy.

Dr. Kuhns based his opinion on experience with both forms of treatment of dementia paralytica in the state hospitals of Illinois.

Most important for the success of fever treatment, regardless of the method used to induce the fever, is starting the treatment early before serious mental deterioration has set in, Dr. Kuhns emphasized.

"In producing remissions and possible cures in many patients who were formerly given up as hopeless, we have effected a tremendous saving for the taxpayers of the state of Illinois, in addition to ameliorating the ravages of this dread disease," he said.

One of his objections to infecting the patients with malaria in order to produce the curative fever is the high death rate among patients treated with malaria. In the Elgin State Hospital this was 12 per cent., higher than for any other form of treatment. In addition to the danger to the patient, there is the possible danger of introducing malaria into the rest of the hospital population or possibly into the community outside the hospital. Dr. Kuhns quoted a recent statement of Dr. H. J. Shaughnessy, of the Illinois state health department, calling attention to this danger.

Of the various electrical methods of inducing high curative fever in the patients, Dr. Kuhns reported that he and his associates found the electric blanket safest and simplest. The blanket is about six feet square and is plugged by a connecting cord into an electric socket in the wall. The patient is first wrapped in blankets and then covered by the electrically heated blanket.

Three hundred patients have been treated by this method during the last five years at the Elgin State Hospital and the State Psychopathic Institute. Nearly three-fourths of these were definitely improved, one-tenth remained stationary, 7 per cent. deteriorated and 11 per cent. died. Nearly one-third of the improved patients were discharged by the Elgin State Hospital and 14 per cent. are now on parole.

Science News Letter, September 21, 1935

GENERAL SCIENCE

Plea for Linguistic Mercy Made to Soviet Scientists

RUSSIAN language, in its baffling Cyrillic alphabet, is too much of a hurdle for Western scientists who need to know what is in Russian scientific publications; wherefore Russian researchers are asked if they will not kindly announce their discoveries in English, German or French, by Prof. Horace Elmer Wood, 2d, of Dana College, Newark, N. J. (*Science*, Aug. 30).

The older scientific literature of Russia, Prof. Wood states, was usually published in one of the three languages most widely used among scientists. But even before the War and the Revolution, beginning about with the present century, Russian scientists began printing in their own vernacular, often giving exceedingly

sketchy abstracts in one of the Western languages. This has resulted in a mutual walling-off between science within and outside of Russia, to the mutual disadvantage of both sides.

Russian scientists, Prof. Wood admits, could quite logically demand that outsiders learn their language; but as a practical thing it does not look at all probable that they will do so. Besides, if they did, he points out further, there is a growing scientific literature in Japanese, Finnish, and other languages impossible for the average European or American to read.

Since Latin, once the "lingua franca" of scholars, has long since been abandoned, Prof. Wood expresses the hope that his colleagues in the Soviet realm will be willing to make more use of one of the three commonly accepted international languages of science.

Science News Letter, September 21, 1935

PHYSIOLOGY

Map of Ear's Membrane Shows Parts "Tuned" to Each Pitch

Experiments With Guinea Pigs Demonstrate Selective Nature of Membrane; Low Notes Crowded at One End

ROSA PONSELLE'S notes do not sound the same to you as Lawrence Tibbett's. Of course not.

But just how do you tell them apart?

What is there in your hearing apparatus that tells you, now a soprano is singing, now a tenor?

Controversy on the old question of just how your ear or your brain sorts out sounds of different pitch and makes you distinguish between them was renewed at the meeting of the American Psychological Association. Agreement has been reached on some points, however.

The ear itself is the sorting mechanism, according to one viewpoint, presented by Dr. Elmer Culler of the University of Illinois and Dr. S. S. Stevens of Harvard. The membrane of the ear is so "tuned" that only one part of it will be set in vibration by a note of any particular frequency. In this it acts like a set of radio receivers, each tuned to pick up a different wavelength.

New evidence for this theory was shown to scientists at the meeting, in the form of actual maps prepared by these investigators, working independently, to show just where on the membrane different notes are picked up. At one end of the membrane, which is curled up in the ear like a snail in its shell, are the "receivers" for a wide range of the lower notes. All the notes of the human voice and those up to 2000 cycles are bunched in one half of the membrane, it was found.

The survey for Dr. Culler's map was made by applying each of 23 frequencies throughout the auditory range to one place after another on the membrane, until, by "listening in," the area of greatest response was located. Dr. Stevens used guinea pigs which had injuries to different parts of the membrane. He carefully noted which tones the animals could not hear. In general, the two independently prepared maps agreed with each other and with theoretical maps of the human ear based on keenness of hearing for different pitches.

Of another school of thought are the Princeton scientists, Drs. Charles W. Bray and Ernest Glen Wever, and Dr. George P. Horton of the University of Washington. A very loud tone is not picked up by any single area of the membrane but sets the greater part of it in vibration, in the opinion of these investigators.

When animals hear a single very loud pure tone until their ears are so tired that they are temporarily deafened, the deafness is not just for the tone which tired them but for all tones in general, indicating that the mechanism for picking up one note is not distinct from that for hearing other tones, Dr. Bray said.

Probably the difference in intensity of the tones studied accounts for why his results differ from those of the Illinois and Harvard scientists, he explained. For moderately loud tones, the place theory seems adequate and there is no dispute, he said.

Science News Letter, September 21, 1935

CONSERVATION

Hawaii Strives to Save Almost Extinct Wild Goose

HAWAII has a wild goose, called "nene" by the natives, which is among the rarest of birds. It is obviously closely related to the Canadian wild goose of North America but has been isolated for so long that it has developed into a breed that is distinct with its own peculiarities.

Nene at one time were abundant in Hawaii but as the country settled up they gradually approached extinction. Finally but a few remained in a domesticated state at two ranches high up in the mountains. It was then that the territorial fish and game authorities stepped in, secured a number of nene, and propagated them at their farm. Now there are some three score in the flock and careful provision has been made to prevent extermination of the species.

Science News Letter, September 21, 1935

THE RETURN OF NENE