ingly small, Mercury ought to be less. Yet their common ratio points a finger toward the common ratio of the maximum distances from the sun, which forces us to consider the inscribed orbit of the body which is 5773503.

But since Mercury alone exceeds at its maximum the usual number inscribed in the other circle (for it is not admissible for this planet to substitute 57 for 72) therefore the octahedron alone is certainly right, since its 4 equal straight sides give room for a larger circle than any other, its radius is 7071066, again, little less than the maximum whose value is 72, just as before 57 was a little less than 59, the usual value.

I look forward to a great truth, whose outlines and substance seem to me ready. Yet because the calculation of these bodies does not agree perfectly with the opinion of Copernicus and with his numbers, those more ignorant of astronomical matters may believe all these calculations to be deceiving me.

Science News Letter, November 15, 1930

ASTRONOMY

Kepler's Memory Honored At Tercentenary of Death

GERMAN astronomers and mathematicians are now being joined by their colleagues from other countries to honor the memory of one of the greatest of their predecessors—Johann Kepler. He was born in the little town of Wiel, near Stuttgart in Württemberg, on Dec. 27, 1571, and died at Ratisbon, in Bavaria, on Nov. 15, 1630, just three centuries ago. At the place of his death commemoration celebrations are being held, especially at a cenotaph which was erected there to his memory in 1803.

Kepler, whose name was recently included by George Bernard Shaw in a list of eight "universe makers" from Pythagoras to Einstein, was imperial mathematician to the Emperor Rudolph at Prague, for many years. He went there in 1600 to assist Tycho Brahe, the great Danish astronomer who had taken refuge under Rudolph's protection after a new king in Denmark had failed to continue his predecessor's interest in science. Tycho died a year after Kepler came, but in that year Tycho turned over to him the observations which enabled him to discover the laws of the motion of planets.

Personally, Kepler described himself as lank, lean and spare, and said that "for observations his eye was dull and for mechanical operations his hand was awkward." Therefore, it was especially fortunate that he fell heir to the observations of Tycho Brahe, who was one of the greatest astronomical observers of all time. Tycho's skill furnished the observations without which Kepler would have been helpless, while Kepler's mathematical perception enabled him to do things with them that would never have been possible for Tycho.

One of his chief characteristics was his great frankness. In his books he not only tells of his successful work, but also describes the errors that he committed before he saw the light.

Science News Letter, November 15, 1930

MEDICINE

Leprosy is Being Attacked By Chemical Warfare

Scientists Now Studying Tuberculosis Bacillus Given New Research Because of Similarity of Germs

SCIENTISTS have resorted to chemical warfare in what is hoped will be a decisive attack on one of mankind's much-dreaded foes, leprosy. As a beginning in their efforts to find an agent useful in fighting the disease, the chemists will make an intensive study of the germs that have been grown from cases of leprosy, in contrast to the recently studied germs of tuberculosis, for the leprosy germ belongs to the same family.

The same group that is studying the secrets of the tuberculosis bacillus has been asked by the Leonard Wood Memorial to undertake the study of leprosy. The research will be directed by the Medical Research Committee of the National Tuberculosis Association, of which Dr. William Charles White, of the U. S. National Institute of Health, is the chairman.

As in the recent attack on tuberculosis, hundreds of thousands of leprosy bacilli will be grown in the laboratories of the H. K. Mulford Co. These will be taken to the Sterling Chemical Laboratory of Yale University where they will be analysed under the direction of Prof. Treat B. Johnson. At the same time the clinical studies with leprosy patients will be carried on at the government institutions for the care of lepers and in those of the Leonard Wood Memorial.

The tuberculosis investigators and fighters have been called in to study leprosy because of certain similarities between the diseases. For instance, the germs causing the two diseases are members of the same family. They even grow in the same cells of the human body, the monocytes. The germs of tuberculosis, however, invade mainly certain parts of the body, such as the lungs, while the leprosy bacilli occur chiefly in the skin.

Some 15 or 20 strains of lepra bacilli have been cultivated from human cases, but until recently it has never been possible to produce leprosy in any animal by transferring any of these germs to the animal's body. The accomplishment of this feat has just been announced by Prof. K. Shiga of the Imperial Medical Faculty at Seoul, Korea. He claims to be able to produce leprosy in rats by injecting the lepra bacilli into rats whose powers of resistance were weakened by having lived on a diet lacking in vitamins.

Why vitamins protect against leprosy, if it is proved that they do, may be understood when scientists find out the chemical nature of the leprosy germs and also the chemical nature of the vitamins. At that time, also, a specific remedy for the disease may be found or developed. The only remedy used at present, chaulmoogra oil, has not fulfilled all the expectations held for it.

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