

The Microzymas.

By **ARTHUR THOMSON.**

FIRST, as to who Bechamp was. Pierre Jacques Antoine Bechamp was born on October 16, 1816, at Bassing, in Lorraine, and died in Paris in his 92nd year. We are told that in the year in which he died eight pages of the "Moniteur Scientifique" were required to set forth a list of his scientific works." Among other things he was an M.D., D.Sc., Professor of Medical Chemistry and Pharmacy at the Faculty of Medicine at Montpellier, Professor of Biological Chemistry and Dean of the Faculty of Medicine of Lille, Chevalier of the Legion of Honour.

In the words of Bechamp, "The cell is a collection of little beings, which have an independent life, a special natural history." The little beings have been given various names, such as "microzymas," by Bechamp, and later "microsomes" and "chromatin granules" by others. A modern investigator in France used the term "microzyma," and confirmed some of Bechamp's claims.

Early Discoveries.

I AM indebted to a remarkable book by E. Douglas Hume, called "Bechamp or Pasteur—a lost chapter in the History of Biology," for some matter appearing in this article, and from it I take the following, summarising early discoveries of Bechamp:—"First, he demonstrated that the atmosphere is filled with minute living organisms, capable of causing fermentation in any suitable medium which they chance to light upon, and that the

chance to light upon, and that the chemical change in the medium is effected by a ferment engendered by them, which ferment may well be compared to the gastric juice of the stomach. Secondly, he found in ordinary chalk, and afterwards in limestone, minute organisms capable of producing fermentative changes, and showed these to bear relation to the infinitesimal granulations he had observed in the cells and tissues of plants and animals. He proved these granulations, which he named microzymas, to have independent individuality and life, and claimed that they are the antecedents of cells, the up-builders of bodily forms, the real anatomical, incorruptible elements. Thirdly, he set forth that the organisms in the air, the so-called atmospheric germs, are simply either microzymas, or their evolutionary forms set free by disruption from their former vegetable or animal habitat, and that the 'little bodies' in the limestone and chalk are the survivors of the living forms of past ages. Fourthly, he claimed that, at this present time, microzymas constantly develop into the low type of living organisms that go by the name of bacteria."

In the mid 'sixties of last century Bechamp was joined by another worker, Professor Estor, physician and surgeon in the service of the hospital at Montpellier, "who, besides being in the full swing of practical work, was a man thoroughly accustomed to research, and abundantly versed in scientific theories." With large-hearted generosity and fairness Bechamp wrote that, "during the period from 1868 to 1876, all that concerns the microzymas of animal organs was common to both of us, and

organs was common to both of us, and I do not know how to distinguish between what is mine and what is Estor's."

Bacterial Evolution.

ONE of the most important claims of Bechamp was that microzymas under certain conditions develop or evolve into bacteria. This makes a rather sorry condition of the orthodox "germ theory." In his book Mr. Hume gives an account of a number of ob-

servations made by Bechamp and his associates from which I take the following:—

"A cyst, which required to be excised from a liver, provided a wonderful demonstration of the doctrine of bacterial evolution, for there were found in it microzymas in all stages of development, isolated, associated, elongated; in short, true bacteria. Dr. Lionville, one of Bechamp's medical pupils, had his interest greatly aroused, and demonstrated that the contents of a blister include microzymas, and that these evolve into bacteria.

"With extraordinary patience and industry, Professor Bechamp and his colleagues continued their medical researches, finding the microzymas in all healthy tissues, and microzymas, and many forms of bacteria in various phases of development in diseased tissues. Punctuating his clinical study by laboratory tests, the professor instituted many experiments, which space forbids our enumerating, to prove that the bacterial appearances were not due to external invasions.

"One day an accident provided an interesting contribution to the observations. A patient was brought to the hospital of the Medical University of Montpellier, suffering from the effects of an excessively violent blow upon the elbow. There was a compound comminutive fracture of the articular joints of the forepart of the arm; the elbow was largely open. Amputation was im-

of the forepart of the arm; the elbow was largely open. Amputation was imperative, and was performed between seven and eight hours after the accident. Immediately the amputated arm was carried to Dr. Estor's laboratory, where he and Dr. Bechamp examined it. The forearm presented a dry, black surface. Complete insensibility had set in before the operation. All the symptoms of gangrene were present. Under a high power of the microscope, microzymas were seen associated and in chaplets, but no actual bacteria. These were merely in process of formation. The changes brought about by the injury had progressed too rapidly to give them time to develop. This evidence against bacteria as the origin of the mortification was so convincing that Professor Estor at once exclaimed: 'Bacteria cannot be the cause of gangrene; they are the effects of it.'

"Here was the outstanding difference between the microzymian theory and its microbial version, which Pasteur and his followers were to be instrumental in promulgating. . . ."

Confirmed Claims.

IT may be put forth that modern research has not confirmed all of Bechamp's claims, such a one, for instance, as "we have seen microzymas of animal cells associate two by two, or in larger numbers, and extend themselves into bacteria." Mr. Hume writes: "But it must be remembered that other declarations of Bechamp's, strenuously combated, have since met with confirmation. Take, for instance, his claim that bacteria could change their forms, the rod-shape pass into the spheroid, &c. This was denied by Pasteur. None the less, after the passing of years, a worker at the very institute that bears the latter's name has confirmed Bechamp's statement. . . And more than this the statement that he saw microzymian evolution bring about the formation of primitive organisms is at the present time being confirmed by an acknowledged student of his, a Frenchman named Galippe. . . ."

SAID Bechamp: "Disease is born of

SAID Bechamp: "Disease is born of us and in us, and that is as it should be, because the life of man, and of every other creature, is no more delivered over to chance than the course of the stars.

"Life would be delivered over to chance if it depended upon primitive microbic germs created for destructive purposes."