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"Truth will come to light"
- Shakespeare

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BÉCHAMP OR PASTEUR?

A Lost Chapter in the History of Biology

INTRODUCTORY

CHAPTER I

ANTOINE BÉCHAMP

AT Villeneuve l'Étang, not far from Paris, on the 28th September, 1895, the death took place of a Frenchman who has been acclaimed as a rare luminary of science, a supreme benefactor of humanity. World-wide mourning, national honours, pompous funeral obsequies, lengthy newspaper articles, tributes public and private, attended the passing of Louis Pasteur. His life has been fully recorded; statues preserve his likeness; his name has been given to a system, and institutes that follow his methods have sprung into being all over the world. Never has Dame Fortune been more prodigal with bounties than in the case of this chemist who, without ever being a doctor, dared nothing less than to profess to revolutionise medicine. According to his own dictum, the testimony of subsequent centuries delivers the true verdict upon a scientist, and, adopting Pasteur's opinion as well as, in all humility, his audacity, we dare to take it upon ourselves to search that testimony.

What do we find?

Nothing less than a lost chapter in the history of biology, a chapter which it seems essential should be rediscovered and assigned to its proper place. For knowledge of it might tend, firstly, to alter the whole trend of modern medicine and, secondly, to prove the outstanding French genius of the nineteenth century to have been actually another than Louis Pasteur!

For indeed this astonishing chapter denies the prevalent belief that Pasteur was the first to explain the mystery of fermentation, the cause of the diseases of silk-worms, and the cause of vinous fermentation; moreover, it shows that his theories of micro-organisms differed in basic essentials from those of the observer

who seems to have been the real originator of the discoveries to which Pasteur has always laid claim. And so, since Truth is our object, we venture to ask for patient and impartial consideration of the facts that we bring forward in regard to the life-work of two French scientists, one of whom is barely known to the present generation, though much of its knowledge has been derived from him, while the name of the other has become a household word.

Twelve and a half years after the death of Pasteur, on 15th April, 1908, there passed away in a modest dwelling in the student quarter of Paris an old man in his ninety-second year. His funeral was attended by a platoon of soldiers, for the nonagenarian, Professor Pierre Jacques Antoine Béchamp, had a right to this honour, as he had been a Chevalier of the Legion of Honour. Otherwise the quiet obsequies were attended only by the dead man's two daughters-in-law, several of his grandsons, a few of his old friends and an American admirer.¹ No pomp and circumstance in the last ceremonies indicated the passing of a great scientist, but, after all, it was far from the first time that a man's contemporaries had neglected his worth. Rather more than a century earlier another Antoine, whose surname was Lavoisier, had been done to death by his countrymen, with the comment: "The Republic has no need of *savants*!" And now, with scant public notice, was laid in its last resting-place the body of perhaps an even greater scientist than the great Lavoisier, since this other Antoine, whose surname was Béchamp, seems to have been the first clear exponent of fermentative mysteries and the pioneer of authentic discovery in the realm of "the immeasurably small."

In the year in which he died eight pages of the *Moniteur Scientifique* were required to set forth a list of his scientific works. The mere mention of his titles may suggest an idea of the stupendous labours of his long and arduous career. They were as follows:

Master of Pharmacy.
 Doctor of Science.
 Doctor of Medicine.
 Professor of Medical Chemistry and Pharmacy at the Faculty of Medicine at Montpellier.
 Fellow and Professor of Physics and of Toxicology at the Higher School of Pharmacy at Strasbourg and Professor of Chemistry of the same town.

¹ Dr. Montague R. Levenson.

Corresponding Member of the Imperial Academy of Medicine of France and of the Society of Pharmacy of Paris.

Member of the Agricultural Society of Hérault and of the Linnæan Society of the Department of Maine et Loire.

Gold Medallist of the Industrial Society of Mulhouse for the discovery of a cheap process for the manufacture of aniline and of many colours derived from this substance.

Silver Medallist of the Committee of Historic Works and of Learned Societies for works upon the production of wine.

Professor of Biological Chemistry and Dean of the Faculty of Medicine of Lille.

Honorary Titles

Officer of Public Instruction.

Chevalier of the Legion of Honour.

Commander of the Rose of Brazil.

Long though his life was, considerably outstretching the rather arbitrary limit of the Psalmist, it can only seem incredibly short when compared with a list of discoveries phenomenal for the life-span of one man. And as the history of the foundations of biology as well as the work of Louis Pasteur are both intricately connected with this extended career of usefulness, we will try to sketch a faint outline of the life-story of Pierre Jacques Antoine Béchamp.

He was born during the epoch that had just witnessed the finish of the Napoleonic wars, for it was on 16th October, 1816, that he first saw light at Basing, in Lorraine, where his father owned a flour mill. The boy was only eleven when a change in his life occurred. His mother's brother, who held the post of French Consul at Bucharest, paid the Béchamps a visit and was struck by the intelligence and aptitude of young Antoine. He grew anxious to give him better opportunities than he would be likely to meet with in his quiet country home. We have not heard much of Antoine's mother; but when we find that his parents unselfishly allowed him, for his own good, to be taken away from them at the early age of eleven we may be fairly certain that she was a clever, far-seeing woman, who might perhaps support Schopenhauer's theory that a man's mother is of more importance to him than his father in the transmission of brains! Be that as it may, when the uncle's visit ended the small nephew went with him, and the two undertook together the long and, in those days, very wearisome coach journey from Nancy to Bucharest.

It thus came about that Antoine saw much of the world and

gained a thorough knowledge of a fresh language, advantages that strengthened and developed his alert intellect. Unfortunately, his kind relative died after a few years and the boy was left to face the battle of life alone. Friends came to his help, and placed him as assistant to a chemist, who allowed him to attend classes at the University, where his brilliant genius made all learning easy; and in 1833, without any difficulty, he obtained a diploma in pharmacy. In his youthful proficiency he presents a contrast to Pasteur, who in his schooldays was pronounced to be only an average pupil, and later by an examiner to be mediocre in chemistry.

Antoine was still under twenty when he returned to his native land and, after visiting his parents, started work at a chemist's in Strasbourg, which city at that time, with the rest of Alsace and Lorraine, formed part of France. His extraordinary powers of work were soon made manifest. Much of his spare time was devoted to the study of his own language, in which he acquired the polish of style that was to stand him in good stead in his future lectures and literary labours. All the while he continued his University course at the Academy of Strasbourg, until he became qualified as a chemist. On obtaining his degree he set up independently at Benfeld in Alsace, where he met and married Mlle. Clémentine Mertian, the daughter of a retired tobacco and beet-sugar merchant, who made him a capable wife. Science claimed so much of her husband's time that the training of their four children and the whole management of the household were left almost entirely to Mme. Béchamp.

Soon after the marriage Antoine returned to Strasbourg to set up as a chemist; but this work did not nearly satisfy his vigorous energy, and he now prepared himself to occupy a Professor's chair. He soon realised his aim. In a short time he acquired the diplomas of Bachelor of Science and Letters and of Doctor of Medicine, and was nominated Professor at the School of Pharmacy in the Faculty of Science, where for a time he took the place of his colleague Pasteur.

These notable rivals both worked in the full flush of early enthusiasm in the capital of Alsace. But a difference already marked their methods. Pasteur seems never to have left an effort of his unrecorded; every idea as to the tartaric and racemic acids, about which he was then busied, appears to have been confided to others; letters detailed his endeavours; his invaluable patron, the scientist Biot, was especially taken into his confidence, while

his approaching honour and glory were never allowed to absorb themselves from his friends' minds. He wrote to Chappuis that, on account of his hard work, he was "often scolded by Mme. Pasteur, but I console her by telling her that I shall lead her to fame."¹

From the start Antoine Béchamp was utterly indifferent to personal ambition. Never of a pushing temperament, he made no effort to seek out influential acquaintances and advertise his successes to them. Self-oblivious, he was entirely concentrated upon nature and its mysteries, never resting till something of these should be revealed. Self-glorification never occurred to him, and while the doings of Pasteur were being made public property Béchamp, shut in his quiet laboratory, was immersed in discoveries, which were simply published later in scientific records without being heralded by self-advertisement.

The work that he accomplished at Strasbourg was prolific in benefits for France in particular and for the world at large. It was there that his studies led him to the discovery of a new and cheap method of producing aniline, which up to 1854 had been so costly as to be useless for commercial purposes. The German chemist August Wilhelm von Hofmann, who for many years carried on work in England, after investigating the results of earlier discoveries, produced aniline by subjecting a mixture of nitro-benzene and alcohol to the reducing action of hydrochloric acid and zinc. Béchamp, in 1852, showed that the use of alcohol was unnecessary and that zinc could be replaced by iron filings, also that either acetic or hydrochloric acid may be used.² By thus simplifying and cheapening the process he conferred an enormous benefit on the chemical industry, for the cost of aniline fell at once to 20 francs and later to 15 francs a kilogramme; while, moreover, his invention has continued in use to the present day: it is still the foundation of the modern method of manufacture in the great aniline dye industry, which has been all too much appropriated by Germany. The *Maison Renard*, of Lyons, hearing of Béchamp's discovery, applied to him and with his help succeeded in a cheap production of fuchsin, otherwise magenta, and its varieties. The only return made to Béchamp, however, was the award, ten years or so later, of a gold medal from the Industrial Society of Mulhouse. Neither does any recognition

¹ *The Life of Pasteur*, by René Vallery-Radot, p. 58 (Pop. Ed.).

² Confirmed in Richter's *Organic Chemistry* and in Thorpe's *Dictionary of Applied Chemistry* (1921).

seem to have been made to him for his discovery of a compound of arsenic acid and aniline, which, under the name of atoxyl, is used in the treatment of skin diseases and of sleeping sickness.

Another work of his that was to prove especially prolific in results was his application of polarimetric measurements to his observations on the soluble ferments. The polarimeter, the instrument in which light is polarised or made to vibrate in one plane by means of one Nicol prism and examined by means of a second Nicol prism, was utilised by him in experiments, the general results of which were that he was enabled before any other worker to define and isolate a number of ferments to which he was also the first to give the name of *zymases*. In dealing with this work later on we shall show how his discovery, even to its nomenclature, has been attributed to somebody else.¹

So interminable were Béchamp's labours, so numerous his discoveries, that it is hard to know which to single out. He studied the monobasic acids and their ethers, and invented a method of preparing the chlorides of acid radicles by means of the derivatives of phosphorus. He made researches upon lignin, the characteristic constituent of the cell walls of wood cells, and showed clearly the difference between the substituted organic nitro-compounds, like ethyl nitrite and the nitro-paraffins. As we shall see subsequently, he was the first really to establish the occurrence in, and distribution by, the atmosphere of micro-organisms, such as yeast, and to explain the direct agent in fermentation to be the soluble ferment secreted by the cells of yeast and other such moulds. Cleverest of chemists and microscopists, he was also a naturalist and a doctor, and gradually his chemical work led him on to his astonishing biological discoveries. The explanation of the formation of urea by the oxidation of albuminoid matters and his clear demonstrations of the specificity of the latter formed only part of the strenuous labours that led to his opinion that the "molecular granulations" of the cells assist in fermentation, that some are autonomous entities, the living principle, vegetable and animal, the originators of bodily processes, the factors of pathological conditions, the agents of decomposition, while, incidentally, he believed them to be capable of evolving into bacteria.

These conclusions may not all yet be adopted, but as so many of Béchamp's other teachings have come, by the independent work of some and the plagiarisms of others, to be generally

¹ See pp. 74, 75, 162.

accepted, it would seem, to say the least of it, possible that his amazing conception of Nature's biological processes may advance further discovery and we wish to ensure the recognition of its legitimate parentage.

He showed that the cell must no longer be regarded in accordance with Virchow's view as the unit of life, since it is built up by the cell-granules within it. He it was, it seems, who first drew attention to the union of these same cell-granules, which he called "microzymas," and to the rod-like groupings that result, which now go by the name of chromosomes. He laid great stress upon the immeasurable minuteness of his microzymas, and from his teaching we can well infer his agreement in the belief that myriads must be ultra-microscopic, although he had far too exact a mind to descant in modern airy fashion upon matters that are purely conjectural. Where he exhibited his practical genius was that, instead of drawing fancy pictures of primeval developments of chromatin, he endeavoured to trace the actual building up of cells from the "molecular granulations," that is, micro-somes, or microzymas. It was never his method to draw conclusions except from a sure experimental basis.

It was while Béchamp was undertaking his researches upon fermentation, at the very time that he was engaged upon what will prove to be part of what he named his "Beacon Experiment," that he was called from Strasbourg to Montpellier to occupy the Chair of Medical Chemistry and Pharmacy at that famous University.

The period that followed seems likely to have been the happiest of his life. Filling an important position, he carried out his duties with the utmost distinction, his demonstrations before students gaining great renown. He had already made and was further developing extraordinary discoveries which were arresting attention both in and beyond France. These gained him the devoted friendship of his admirer and future collaborator, Professor Estor, a physiologist and histologist, who combined the duties of physician and surgeon at the Montpellier Hospital. Béchamp, also, had the advantage of medical training, and though he never practised as a doctor his pathological studies were continuous and he was daily in touch with the work of physicians and surgeons, such as Courty, besides Estor, and himself took full advantage of the experience to be obtained in hospital wards. His and Estor's more theoretical studies were checked and enlarged by their intimacy with the vast experiments that Nature carries out in

disease. Both men were accustomed to the strictness of the experimental methods of Lavoisier, and their clinical and laboratory work moved side by side, the one confirming and establishing the other.

Without ever neglecting his professorial duties, sufficiently arduous to absorb the whole time of an ordinary mortal, Béchamp yet laboured incessantly, both by himself and with Professor Estor, at the problems that his researches were developing. A little band of pupils gathered about them, helping them, while far into the night constantly worked the two enthusiasts, often, as Béchamp tells us,¹ quite awestruck by the wonderful confirmation of their ideas and verification of their theories. Such toil could only be continued by one possessed of Professor Béchamp's exuberant health and vitality, and it possibly told upon Professor Estor, whose early death was attributed partly to his disappointment that the popular germ-theory of disease, in all its crudity, should have seized public attention instead of the great microzymian doctrine of the building up of all organised matter from the microzymas, or "molecular granulations" of cells.

His incessant work, which kept him much apart from his family, was the only hindrance to Béchamp's enjoyment of a happy domestic life. An excellent husband and father, he was always thoughtful for others, and in all his dealings was as kind as he was firm. His lectures were made delightful by his easy eloquence and perfect enunciation, no less than by the clearness of his reasoning; while his social manner possessed the grace and courtliness that are typical of the polished inhabitants of *la belle France*. Well above medium height, his clear eye and ruddy complexion gave unstinted proof of the perfect sanity of mind and body that he was blessed with throughout the whole course of his long life. His powerful forehead testified to the strength of his intellect, while his nose was of the large aquiline type that so usually accompanies creative force and energy. His hair was brown, and his forceful eyebrows were strongly marked above the large eyes of an idealist, a dreamer of dreams, which in his case were so often realised.

To the physiognomist, a comparison of the looks of the rivals, Béchamp and Pasteur, gives a key to their respective scientific attitudes. Alert determination is the chief characteristic of Pasteur's features; intellectual idealism of Béchamp's. Pasteur approached science from the commercial, that is to say, the

¹ *La Théorie du Microzyma*, par A. Béchamp, p. 122.

utilitarian standpoint, no less self-advantageous because professedly to benefit the world. Béchamp had ever the artist's outlook. His thirst was for knowledge, independent of profit; his longing to penetrate the unexplored realm of Nature's secrets; the outer world was forgotten while, pace by pace, he followed in the footsteps of truth. It never occurred to him to indite compliments to influential acquaintances and announce at the same time the dawning of a new idea. The lessons he learned in his quests he duly noted and communicated to the French Academy of Science and at first ignored the fact that his observations were pirated. When finally his silence changed to protest, we shall see, as we proceed, that his patience had been stretched to snapping point. Himself so exact in his recognition of every crumb of knowledge owed to another, he could only feel contempt for pilferers of other men's ideas, while his exuberant vigour and energy fired him with uncompromising opposition to those who, not content with reaping where he had sown, trampled with their distortions upon a harvest that might have been so abundant in results.

It was during the years spent at Montpellier that his open rupture came with Pasteur, on account, as we shall see farther on, of the latter's appropriation of Béchamp's explanation of the causes of the two diseases that were then devastating silk-worms and ruining the French silk industry. Though there was no escaping the fact that Pasteur's opinions on the subject had been erroneous until Béchamp had provided the proper solution, no voices were raised in condemnation of the former's methods. He had already gained the ear of the public and acquired Imperial patronage. In all ages the man of influence is a hard one to cross swords with, as Béchamp was to find.

But at Montpellier he had not yet drained the cup of life's bitterness. Hope still swelled high for the future, especially when, as time passed, a new assistant rose up, and Béchamp's elder son, Joseph, became a sharer in his work. This young man, whose lovable character made him a general favourite, took at an early age his degree in science, including chemistry, besides qualifying as a doctor. It seemed certain that he would some day succeed his father at the University.

But for France a sad day was dawning and for Béchamp a disastrous change in his career. The year 1870 came with the descent of the Prussians and the humiliation of the fair land of France. Those districts of Alsace and Lorraine, the home of

Béchamp's young boyhood and early manhood, were torn away, their populace left lamenting: "Though our speech may be German, our hearts are French!" France, stricken, was far from crushed. A longing stirred to show that, though despoiled of territory, she could yet dominate in the world of thought. So it came about that, as an intellectual stimulus, Universities were founded in different places under ecclesiastical patronage. It was hoped that the Church of Rome might hold sway over mental activities. Lille was one of such centres, and about the year 1874 Béchamp was importuned to take the post there of Dean of the Free Faculty of Medicine. Some wise friends advised him not to leave Montpellier; but, on the other side, he was bombarded with entreaties to take up work at Lille. Finally, and entirely from patriotic motives, he allowed himself to be persuaded to leave his dear University of Montpellier, teeming with happy memories of successful work. His altruistic wish to benefit at one and the same time France and science brought about his acquiescence in the change. He moved to the north with his son Joseph, the latter having been appointed Professor of Toxicology at Lille.

All might have gone well had it not been for the clerical directors of the house of learning. These failed to understand the trend of Béchamp's teaching. They were apprehensive of the novelty of views that in actuality were lamps to religious faith by illuminating the mysteries of creation. Still in the dark as to these, the anxious prelates protested against the Professor's exposition of the microzymas, the infinitesimal cellular granules now known as microsomes, or microzymes, which he considered to be the formative agents of the cells that compose all forms, animal and vegetable. It was tragic that his stupendous conception of Nature's processes should have been regarded not as a torch of enlightenment but rather as a dangerous fuse to start a conflagration. In Béchamp was seen a man who dared to investigate Nature's methods instead of complacently resigning them to hackneyed formulæ.

Pasteur seems never to have fallen foul of the ecclesiastical authorities; partly, perhaps, because he did not come into the same close contact, but more probably because, with his worldly wisdom, he was content to profess leadership in science and discipleship in religion; besides, had he not also gained influential patronage? Béchamp's deep insight had taught him the connection between science and religion—the one a search after truth, and the other the effort to live up to individual belief. His

faith had widened to a breadth incomprehensible to those who even suggested the appointment of a Commission to recommend the placing on the Roman *Index* of his book *Les Microzymas*, which culminates in the acclamation of GOD as the Supreme Source. Béchamp's teachings are in direct opposition to materialistic views. But his opponents had not the insight to see that the Creator is best demonstrated by the marvels of Creation, or appreciate the truth taught by Ananias, Azarias and Misael in calling upon the Lord to be praised through His Works!

Impatient of petty bickerings, like most men of large intellect, Béchamp found himself more and more at a disadvantage in surroundings where he was misinterpreted and misunderstood. Neither were these his only worries. He was suffering from the jealousy he had inspired in Pasteur, and was smarting from the latter's public attack upon him at the International Medical Congress in London, which they had both attended in the year 1881. Such behaviour on the part of a compatriot before a foreign audience had seared the sensitive spirit of Béchamp and decided him to reply to Pasteur's plagiarisms. As he writes in the Preface to *Les Microzymas*:¹ "The hour to speak has come!"

Another hour was soon to strike for him. After enduring for about eleven years the prejudices and persecutions of the Bishops and Rectors of Lille he felt unable to continue to submit to the restraints placed upon his work. No cause of complaint could be upheld against him; the charge of materialism in his views could not be supported; but rather than have his life-work continually hampered, the Professor regretfully decided to send in his resignation, and his son Joseph, for his father's sake, felt impelled to do the same. Thus father and son, the shining lights of Lille's educational circle, found their official careers cut short and experienced that bitterness of spirit understood only by those whose chief lode-star has been their work.

The younger Béchamp during his stay at Lille had married a Mlle. Josephine Lang from Havre, and, owing to this new connection, the Béchamp family moved to the seaboard town and set up in business as chemists. A scientific laboratory enabled the two strenuous workers to undertake medical analyses and continue their research.

But again the hand of Fate dealt heavily with Antoine Béchamp. His son Joseph, well known as a clever chemist, was constantly employed in making chemical assays, which work

¹ p. 8.

occasionally took him out to sea. On one of these expeditions he caught a severe chill: double pneumonia set in, and in a few days ended his comparatively short and most promising life of forty-four years.

It was Antoine Béchamp's sad lot to outlive his wife and his four children. Quite against his wish, his younger daughter had been persuaded into taking the veil, and conventual severities brought about her death at an early age. His elder daughter had married, at Montpellier in 1872, M. Edouard Gasser, who owned vineyards in Remigny, and left five children, one daughter and four sons, one of whom was at an early age carried off by typhus, while the other three lived to do service for France in World War I.

Joseph Béchamp left six children, four daughters and two sons, one of whom died young. The other had no taste for science, and disposed of his father's pharmacy and laboratory. He died a bachelor in 1915.

Antoine Béchamp's younger son, Donat, who died in 1902, married a Mlle. Marguerite Delarue, and left three sons, the two younger of whom were destined to lay down their lives in the Great War. The eldest, then a doctor in the Russian Army, narrowly escaped death by drowning through the sinking of the hospital ship *Portugal* by a German submarine. Sole living male representative of his grandfather, he is said to inherit the same genius. Without the least effort he has taken diplomas in medicine, chemistry and microscopy, and with the same facility has qualified in music and drawing, the arts being as easy to him as the sciences.

We will now return to Antoine Béchamp at the point where we left him at Havre, suddenly bereft of the gifted son on whom not only his family affections but his scientific hopes were placed. Antoine Béchamp was indeed experiencing the rigorous discipline of which the Chinese philosopher Mencius thus speaks: "When Heaven demands of a man a great work in this world, it makes his heart ache, his muscles weary, his stomach void and his mind disappointed; for these experiences expand his heart to love the whole world and strengthen his will to battle on where others fall by the way."

Havre had become a place of sorrowful memories, and Professor Béchamp was glad to move to Paris. Here he could continue his biological work in the laboratory of the Sorbonne, generously put at his disposal by his old colleague, M. Friedel,

who with another old friend, M. Fremy, had never ceased to deplore his patriotic unselfishness in abandoning his great work at Montpellier. Up to 1899, that is to say, until he was eighty-three years of age, this grand old man of science never ceased his daily labours in the laboratory. After that time, though no longer able to continue these, he worked no less diligently to within a few days of his death, collecting and arranging the literary results of his long years of toil, while he continued to follow and criticise the course of modern science. Up to the very end his brilliant intellect was undimmed. Patriarchal in dignity, he was always ready to discuss old and new theories and explain his own scientific ideas. Though sorrow and disappointment had robbed him of his natural cheerfulness, he was in no sense embittered by the want of popular recognition. He felt that his work would stand the test of investigation, that gradually his teaching would be proved true and that the verdict of coming centuries could not fail to raise him to his proper place. Even more indifferent was he to the lack of riches. For him labour was its own reward and success dependent upon the value of the results of work and not upon pecuniary profit, which as often as not falls to the share of plagiarists, at the expense of men of real worth.

And so, in 1908, came the April day when, worn out by labour, Antoine Béchamp could no more rise from the bed in his room where, on the walls, four crucifixes testified to self-sacrifice as the ladder by which mankind scales upwards. His belief was proved, to quote his own words,¹ in Him, "whom the founders of science, the greatest geniuses that are honoured by humanity from Moses to our own day, have named by the name—God!" "My faith!" was one of his last whispered utterances as his life ebbed away; and of faith he was well qualified to speak, he who had delved so deeply into Nature's marvels and the mysteries of the invisible world! Calm and confident to the end, his trust was immovable. Well does the *Moniteur Scientifique* prophesy that time will do justice to his discoveries and that, the living actors once passed from the stage and impartial judgment brought into play, Béchamp's genius will be revealed to the world.

He taught that which was marvellous and complex, like all Nature's workings, and public ignorance snatched instead at what was simple and crude. But error, having the canker of destruc-

¹ *Les Microzymas*, par A. Béchamp, p. 926.

tion within itself, falls to pieces by degrees. Already the need arises for a saner solution of disease than the mere onslaughts of venomous microbes and a fuller explanation of the processes of biological upbuilding and disruption, of life and death. And to whom could the world go better than, as we shall see, to the inspirer of what was correct in Pasteur's teaching, the true revealer of the mystery of fermentation, the exponent of the rôle of invisible organisms, the chemist, naturalist, biologist and physician, Professor Pierre Jacques Antoine Béchamp?