

## *"Bechamp or Pasteur?"*\*\*

By BRO. LOUIS CLARK, O. P.



HOEMAKER, stick to your last!" Mr. E. Douglas Hume has previously written two little works which the Pall Mall Gazette and half a dozen other English periodicals assure us are "very gossipy and entertaining—really humorous." It is a pity that the author does not confine himself to the type of literature in which he seems to have met with a fair modicum of success. But no, Mr. Hume wishes at last to take up something more serious. And so we find him turning his attention to the field of biological history, where he exhumes once more and exhibits to the weary world the oft-buried calumnies against Louis Pasteur. "Béchamp or Pasteur?" is the title he gives to his latest work, assuring us in a substitute that it is nothing less than "a lost chapter in the History of Biology."

Mr. Hume has been singularly unfortunate in this choice of a subtitle. The evidence which he presents to us can be called "lost" only in the sense that it has been weighed, found wanting, and set aside. And that, not by the man of the street, but by the foremost scientific authorities of the world. For the many controversies raging around the work of Pasteur were fully aired before the scientific bodies of Europe, especially the French Academies, during his lifetime. That the evidence has been so completely disregarded by Pasteur's contemporaries speaks volumes against the quality and true worth of that evidence. So the "lost chapter" is after all a mere resurrection of slanders long ago laid away in lavender; and it can find a place in the History of Biology only if history be truly, as it has been cynically described, "a conspiracy against the truth."

For those who are acquainted with the work of Louis Pasteur, to name the list of Hume's charges is to refute them. Here are a few of them: Pasteur threw no light on the problem of fermentation. Whatever of value he did contribute to this

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\* *Bechamp or Pasteur? A Lost Chapter in the History of Biology*, by E. Douglas Hume. Pp. 284. Covici-McGee, Chicago; Simpkin, Marshall, Hamilton, Kent & Co., Ltd., London.

vexed question he plagiarized from Béchamp (pp. 18-46). He did not overthrow the theory of spontaneous generation; on the contrary, he was himself a believer in this theory (pp. 26 seq.) He did not discover the causes of silk worm diseases, then ravaging the nurseries of France, nor did he provide a remedy for them (pp. 89-107). His Germ Theory of Disease and his anti-rabies treatment, with all serum therapy which has followed from the principles he laid down, are absolutely worthless and even positively harmful (pp. 182-271).

To make such sweeping charges is to stultify oneself before the world of science. To attempt a detailed refutation of each of them in a brief review is equally foolish. Nor is there any need of such a detailed reply. There is no objection to Mr. Hume making any charges he can substantiate so long as he makes them in a gentlemanly manner and with at least a semblance of sincerity, and so long as in a supposedly scientific discussion he conducts himself with scientific impartiality and a spirit of fair play. But this is precisely what Mr. Hume has not done. And it is to this method of Mr. Hume's attack rather than to the charges he has made that every fair man must object with scornful indignation.

The entire effort of Mr. Hume is not so much an attempt to glorify Béchamp as an attempt to besmirch and belittle Pasteur. This attitude is not something the reviewer has read into the work; it is there in glaring coarseness from the first page to the last. At the very start there is an attempt to poison the wells. When M. Vallery-Radot, Pasteur's chief biographer, is cited, we are almost invariably reminded that he is Pasteur's son-in-law, and his testimony when favorable is frequently followed with some smirking clause—as "be this as it may, . . ." (p. 25)—questioning its veracity. Yet Hume wisely refrains from repeating anywhere his own acknowledgment in the introduction, that "to M. Edouard Gasser, the son-in-law of Professor Béchamp, great indebtedness must be expressed for particulars of the scientist's life and family" (p. vi).

The work abounds in petty personalities, certainly uncalled for in a supposedly scientific treatise. The characters of Béchamp and Pasteur, as portrayed by Hume, are constantly compared, always, of course, to Béchamp's immense advantage. Béchamp is painted throughout in glowing colors. He was

"never of a pushing temperament, he made no effort to seek out influential acquaintances and advertise his successes to them. . . . Self-glorification never occurred to him." (p. 6). He was a man standing "on an ethical plane elevated above his fellows." (p. 278). Pasteur, according to Hume, was a vain-glorious creature, fawning to the clergy (p. 13), flattering the Emperor (p. 11), commercializing science (p. 11), a liar, an ingrate, a genius indeed, but not of science,—a genius rather of advertising and self-exploitation. (p. 274). Even the physiognomist is called upon to "look here, upon this picture, and on this," and to testify to the world the superiority of Béchamp to Pasteur, as manifest in their very portraits (p. 10). Béchamp never stirred except from the loftiest motives; not one good motive is ascribed to Pasteur in the entire work, and motives are assigned for his every act. These irrelevant personalities reach their climax in a passage where Hume does not shrink from a sneering reference to Pasteur's physical infirmity: After the Franco-Prussian war "Pasteur rose from his sick-bed, semi-paralyzed, dragging one leg. . . . Who shall say if a clever opportunist thought these catastrophic events (of the recent war) likely to have a lethal effect on the memories of his contemporaries," and so to give Pasteur an opportunity for fresh plagiarisms? (p. 138). Who, indeed, but Hume?

How scientific all this is! And what an unbiased mind it shows in the man who assures us that truth is his object, and ventures to ask for "a patient and impartial consideration of the facts" he will bring forward (p. 2).

The book is equally full of glaring inconsistencies. Indeed, to the careful reader it needs no other refutation; succeeding pages constantly give the lie to what has gone before. Let us cite a few instances. Béchamp is the modest, unassuming scientist, working away in the quiet of his laboratory, without troubling to inform the world of his labors (pp. 6, 39, 51); but Béchamp is lauded, too, for the rapid succession with which Memoirs of his labors trod on each others heels (p. 98). Pasteur seems never to have left an effort of his unrecorded (p. 5); and, nevertheless, he is upbraided for his silence of more than a year during his work on the silk-worm (p. 98). Pasteur's system of taking seed only from moths free from corpuscles as a safeguard to *pébrine*, a disease of silk-worms, "was, as Béchamp



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pointed out, an absurdity" (p. 97); Béchamp states that "the best course will be to procure seed only that is not corpuscular" (p. 96). "Béchamp, seizing every spare moment for continued research, was too much occupied working to take much part in talking (p. 51); in "wordy warfare, Pasteur was no match for Béchamp" (p. 55). The list could be drawn out indefinitely, but enough has been given to indicate Hume's rare inconsistency and his utter incompetence for the task he has undertaken. For there is a proverb that men engaging in such pastimes must have good memories!

What on earth could have led Hume to include in a scientific treatise such bitter personalities and such puerile imbecilities? The answer to this is suggested by another phase of the book. Pasteur's religion seems very distasteful to Mr. Hume. He is pictured as a cringing, fawning satellite of Rome, bowing before priests and bishops for personal advancement; diplomatic, suave, and hypocritical. Béchamp, on the contrary, is the inexorable foe of all those who fence in belief with dogma, too sincere a lover of truth to "pretend that ignoramus (sc. the Bishops and Rectors of Lille University) knew more than he did of the workings of creation, and he made no attempt to defer to the bigoted clerics, since to do so would have savoured too much of bowing the knee to Baal" (pp. 12, 13, 158). Here, perhaps, is the light we have been waiting for. Mr. Hume's methods are strange and out of place in a scientific treatise; in the writing of a bigot they are nothing unusual and are perfectly at home. Now we see in a new light the closing sentence of the introduction, where "acknowledgment is gratefully made to the anonymous philanthropist whose generosity has brought about the publication of this book" (p. vi). Sheer paid propaganda, masquerading as a sincere quest for truth!

But perhaps it is time to look at a few of the "facts" Mr. Hume submits in proof of his thesis.

Dealing with the rival claims for priority in the explanation of fermentation, Hume appears at his best. He draws up in parallel columns a synopsis of Béchamp's and Pasteur's respective contributions, Béchamp's dated 1855-57, Pasteur's dated 1857. The arrangement is very impressive, and the facts and dates, as given by Hume, would certainly establish Béchamp's claim to priority. But can we take Hume's data? Let us see. Béchamp's claims, according to Hume himself, are based on the



reports to the French Academy of Science for February, 1855, and January, 1858. Note that the latter date is 1858, not 1857. Consult the report of 1855, and you will find that in it Béchamp says not one word that can be construed into an interpretation of fermentation. He merely decides, and quite erroneously, that cane sugar, dissolved in cold water, will of itself change to grape sugar. True, Béchamp noted the appearance of a fungous growth in his cane sugar solution, as many had done before him (p. 56); but he ascribed to it no role in the transformation. He did not so much as hint at the true explanation, that this mould, acting as a ferment, caused the change in the sugar solution. So Béchamp's claim to priority must rest on the report in January, 1858, of an experiment finished in December, 1857. But Pasteur's report had appeared in August and November of 1857. Where then is Béchamp's priority?

Realizing this weakness, perhaps, Hume falls back on denying the value of what Pasteur had done, the worth of which is universally admitted in the world of chemists. This Hume seeks to do by a neat subterfuge, turning our attention from fermentation to the problem of spontaneous generation, with the startling accusation that Pasteur himself believed in this theory which he is generally thought to have disproven. In support of his charge, Hume cites Pasteur's words that "lactic yeast takes birth spontaneously as easily as beer-yeast every time that the conditions are favorable." Then, with unexpected generosity, Hume proceeds: "But, in fairness, we must not overlook a note Pasteur added to the full edition of his Memoir;" and he appends in a French footnote Pasteur's explanation that he uses the term "spontaneous" as "an expression of fact, reserving completely the question of spontaneous generation." Having presented this footnote which he had insisted that in fairness we must not overlook," Hume proceeds to ignore it; and for the rest of his book he calls Pasteur a believer in spontaneous generation solely on the strength of that one misinterpreted phrase. Hume should know what Pasteur understood by "spontaneous" ferments, for Pasteur tells us very definitely: "The expression 'spontaneous ferment' may be applied to any ferment that appears in a fermentable liquid without having been purposely sown in it by the experimenter."<sup>1</sup> If Hume does not understand

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<sup>1</sup> Studies in Fermentation, p. 182.

the terminology used by Pasteur he ought at least to save his face by a discreet silence.

As a final bit of evidence, Hume cites the Encyclopaedia Britannica as witness that Pasteur's theory of fermentation has since been "considerably modified." Granted. And would Hume seriously have us believe that subsequent progress in scientific knowledge detracts in even the slightest degree from the glory of the man who first blazed the trail?

Hume next takes up the question of silk-worm diseases, treating it in much the same way. Impressive parallel columns are drawn up. But the impressiveness of the evidence melts away on close scrutiny and checking up of data. As usual, there are frequent self-contradictions.

The latter part of the book is devoted to a consideration of the Germ Theory of Disease and Vaccine and Serum Therapy. As long as these theories hold their ground, Hume realizes that Pasteur's name will be held in high esteem; so with courage worthy of a better cause he undertakes to demolish the theories. Here Hume is tilting at windmills which poor Don Quixote himself would have had sense enough to avoid. Refutation is not needed. We can well afford a pitying shake of the head, and, commending Hume to the mercy of scientists, pass on.

But first it may be well to call attention to two typical "Humerisms." On page 135 the author triumphantly convicts Pasteur of a flagrant contradiction. According to Hume, Pasteur taught that all disease is the result of the invasion of the human body by bacteria, and in the same breath maintained that "in a state of health" the human organism is immune to bacterial invasion. "How then," Hume gleefully asks, "could a healthy man ever become sick?" The question would indeed be in order if Pasteur taught what Hume puts into his mouth. But it so happens that the phrase "in a state of health" is a sheer figment of Hume's imagination. Pasteur's words, are "*dans les cas ordinaires*," that is, "in ordinary cases"; which is a very different thing, including as it does all factors that may lower the body's power of resistance, such as hunger, fatigue, change of temperature, accidental skin abrasions, etc. This weird translation manifests in Hume either ignorance of French or rank intellectual dishonesty. And as his whole bibliography is in French, ignorance of that language would be a fatal plea for Hume.

Again, Hume claims that in 1891 Lister, the father of modern surgery, retracted his earlier admission of indebtedness to Pasteur (p. 184). Yet at Pasteur's Jubilee in 1892 Lister publicly acknowledged to Pasteur: "You have raised the veil which for centuries has covered infectious diseases; you have discovered and demonstrated their microbial nature."<sup>2</sup> So the "retraction" is not very convincing.

On the subject of rabies, Hume is particularly rabid. In a series of breath-taking mental somersaults he tells us that hydrophobia is a complaint affecting the nervous system, hence a nervous disease, hence caused primarily by fear, and frequently brought on by mental illusions (page 217); that he seriously doubts if there be any such specific disease as rabies (p. 218); that the deaths from this disease have increased since the introduction of Pasteur's anti-rabies treatment (p. 226). Hume appears willing to accept that a death rate of sixteen per cent, for rabies is generally admitted. Yet Jordan<sup>3</sup> assures us that "30,000 individuals bitten by rabid animals have been treated at the Pasteur Institute in Paris, with a mortality of less than one per cent., and Doctor Keirle testifies to 1,300 cases treated in Baltimore with only three deaths."<sup>4</sup> This mortality rate of less than one per cent. is sustained by the *Encyclopaedia Britannica* and by figures recently furnished upon request by the United States Public Health Service and by the State of Maryland Department of Health. In choosing between these authorities and Mr. Hume, we do not hesitate.

Let the reader who would compare "Béchamp or Pasteur?" with a sane book by a sane scientist turn to Dr. S. J. Holmes' brief and excellent "Louis Pasteur."<sup>5</sup> Published since the appearance of Hume's libellous attack, it deems it unworthy even of the slightest reference. This may be taken as an index of the impression Hume is making on the scientific world.

Desirous of an opinion of Hume's work from one who had the privilege of intimate personal acquaintance with Pasteur, we sent a copy of the book to the late Dr. Ernest Laplace of Philadelphia. With an extract from his reply which, for the light it throws on

<sup>2</sup> Vallery-Radot, p. 449.

<sup>3</sup> General Bacteriology, 6th ed., p. 549.

<sup>4</sup> Studies in Rabies, p. 331.

<sup>5</sup> Louis Pasteur, by S. J. Holmes, Ph. D., Professor of Zoology in the University of California. Harcourt, Brace & Co., 1924.



Pasteur's character, we believe will interest our readers, this review may well be closed: "Being a daily witness of Pasteur's work for thirteen months, especially during his immortal research on hydrophobia, I can tell you at once that Hume has lost his time and has given vent to the vaporings of an unfair mind. It is well that such men as Hume must live in order to bring out the immortal work of Pasteur in bolder relief and disseminate it through discussion throughout the whole world. Pasteur was the most modest of men and also the most industrious. Last summer I spent some days in Arbois where Pasteur spent most of his time during his declining years. His Christian faith was so firm that he would be taken bodily from his carriage to his chair near the altar in the church rather than miss Mass on Sundays. This testimony was given to me by the coachman himself who is still living in Arbois, and is the proprietor of the hotel there. His name is Edouard Molliet, Arbois, France, now fifty-eight years of age."

We now take our leave of Mr. Hume. Let him stalk about as he will, parading the skeleton of long buried calumnies. He may acquire a bit of notoriety; he may even win his case with a few gullible souls. But so long as he writes as he has written, he cannot hope for a favorable hearing from men with eyes in their heads and a sense of fair play in their hearts.

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Editor's Note: On May 10, 1924, just five days before his unexpected death, Dr. Laplace wrote: "The impression I have gotten is that the author of the book is more interested in getting notoriety for himself by opposing such an illustrious scientist as Pasteur, than in establishing the truth in the history and development of science. It may be that at some future time I will in turn write a detailed account of the weakness of this whole matter." It will be always regretted that death intervened to deprive us of a detailed reply to Hume's calumny by this ardent and able disciple of Pasteur.