

Section of the History of Medicine

President—A. P. CAWADIAS, O.B.E., M.D.

[January 11, 1959]

F. J. V. Broussais (1772–1838) : His Life and Doctrines –

By J. D. ROLLESTON, M.D.

OF the many illustrious medical men who flourished in the first half of the last century, none obtained greater eminence during his life-time, though his doctrines became obsolete before his death, than François Jean Victor Broussais, the centenary of whose death on November 17, 1838, has recently been celebrated by several interesting articles in the French medical press (Babonneix, Bonnette, Gallois, Genty, Huet, Larcher, and Lemée). He was born on December 17, 1772, the only son of a local doctor, at Pleurtuit, a village near St. Malo, where the centenary was celebrated on September 11 by a distinguished assembly including the great-grandson of Broussais, ex-deputy for Algiers, aged 83 (Bonnette).

He was educated at the neighbouring town of Dinan, where he was a fellow student of Chateaubriand, who relates in the *Mémoires d'outre-tombe* (1819, 1, 190) that while bathing there he was bitten by some ungrateful leeches which could not foresee his future. He took part in the war of La Vendée in which he contracted a severe attack of dysentery. On recovery he joined the Hospice Maritime at St. Malo as an *officier de santé*, a qualification now extinct, and shortly afterwards took up a similar appointment at Brest. During this time he served as a surgeon-major on board two privateers in the war with England and gained a considerable sum in prize money. Like Bretonneau, fifteen years later, he did not remain content with the modest title of *officier de santé*, and in 1799 went to Paris to complete his education, his chief teachers there being Pinel, Bichat, and Cabanis. After four years' study he obtained the doctorate of medicine with a thesis on hectic fever, which he dedicated to Pinel.

After two years' struggle with poverty as a private practitioner in Paris during which his total earnings were only 1,200 francs (Larcher), he accepted the proposal of Desgenettes that he should join the army, and during the next five years as an assistant surgeon took part in the Napoleonic campaigns in Belgium, Holland, Germany, Austria, and Italy. In 1808 he returned to Paris, and in the same year brought out his first important work entitled *Histoire des phlegmasies ou inflammations chroniques fondée sur de nouvelles observations de clinique et d'anatomie pathologique*, which he sold to a publisher for 800 francs. This work contained an account of inflammations in general followed by a description of inflammations of the lungs, including pulmonary tuberculosis, inflammations of the brain and inflammations of the abdominal viscera, accompanied by clinical records and post-mortem examinations of personal cases. The work did not attract much attention at first, but subsequently four more editions were published, the last in 1838, the year of his death.

At the end of 1809 he joined the army in Spain where he remained in the capacity of principal medical officer until 1814, when he returned to Paris. He was appointed the same year second medical officer and professor at the Val-de-Grâce Military Hospital, where six years later he became principal medical officer and senior professor in succession to Desgenettes. In 1816 appeared his most celebrated work entitled *Examen des doctrines médicales et des systèmes de nosologie, précédé de propositions renfermant la substance de la médecine physiologique*, which caused an

immense sensation in the medical world at that time. In this work after 468 aphorisms in which he set forth the doctrines of the physiological school, he dealt successively and for the most part unfavourably, with the work of Hippocrates, Galen, Celsus, Paracelsus, van Helmont, Boerhaave, Sydenham, Morgagni and Brown, medicine in Germany, England, and Spain, and contemporary medicine in Paris with special reference to Pinel, Laennec, Louis, Andral, Rochoux, Lallemand, and Bouillaud. In 1822 he founded a monthly journal entitled *Les Annales de la Médecine Physiologique* for the exposition of his doctrines, and continued to edit it until 1834 when owing to his appointment as professor in the Paris medical faculty he found it no longer necessary, and he invited his friends to contribute articles to the *Journal hebdomadaire des progrès des sciences et institutions médicales en Europe*, which was edited by Bouillaud, Forget, and Vidal.

In 1823 he became one of the first members of the Académie de Médecine which was founded in that year. Five years later he published his last important work entitled *De l'irritation et de la folie, ouvrage dans lequel les rapports du physique et du moral sont établis sur les bases de la médecine physiologique*, in which he endeavoured to substitute physiology for psychology in the study of intellectual and moral actions. The work was composed of two parts. In the first he discussed irritation in relation to health and disease with an enumeration of the various cerebral phenomena from the phrenological point of view; the second part contained a study of insanity according to the physiological doctrine and as a result of the phenomena of irritation. He had at this time, like his friend Bouillaud, become an enthusiastic supporter of the doctrine of Gall, and had been elected president of the Société de Phrénologie. Dubois (d'Amiens), the perpetual secretary of the Académie de Médecine, in an *éloge* of Broussais delivered ten years after his death, relates that the police had to interfere owing to the excitement caused by a rumour that he was going to deny the existence of God and the spirituality of the soul in his lectures on phrenology which attracted a huge crowd of students and society people, and the course was suspended. A compromise, however, was reached, and the authorities allowed him to continue his lectures in a room specially hired by his audience, where he asserted that he believed in God not like the ordinary man, from the bottom of his heart, but as a phrenologist should, with the anterior part of his brain. As regards the soul he was more recalcitrant, and declared that he could not undertake to defend it against the inductions of phrenology.

In 1831, owing to the support of his friend and patient, Casimir Périer, the president of the Council, he was appointed to a chair in the Paris Faculty of Medicine of general pathology and therapeutics that was specially created for him with a salary of 7,000 francs, and henceforth gave up his lectures at the Val-de-Grâce Hospital.

The cholera epidemic of 1832, to which he devoted a small monograph, gave him the opportunity of treating this disease, of which he had a large number of cases under his care at the Val-de-Grâce Hospital, by the antiphlogistic method, and his results, according to Reis, were certainly not more unsuccessful than those obtained in other hospitals at that time.

- In his later years Broussais lost much of the enthusiastic support which he had enjoyed in the earlier stages of his career, as is indicated by the following description of him by Oliver Wendell Holmes in the thirties of last century :—

“ Broussais was in those days like an old volcano which has pretty nearly used up its fire and brimstone, but is still boiling and bubbling in its interior and now and then sends up a spirt of lava and a volley of pebbles. His theories of irritation and inflammation as the cause of disease, and the practice which sprang from them, ran over the fields of medicine like flame over the grass of the prairies. The way in which that knotty-featured, savage old man would bring out the word *irritation* with rattling and rolling reduplication of the resonant letter *r*—might have taught a lesson in articulation to Salvini. But Broussais' theories languished and well-nigh became obsolete, and this no doubt added vehemence to his defence of his cherished dogmas.”

On the other hand a very different account is given as follows by Broussais' son, Casimir, and probably refers to a later period than that described by Holmes :

" One still remembers the course which Broussais delivered in 1836 in a lecture room given to him by his pupils who were too numerous for that of the Faculty of Medicine where the course had begun. Here the power of the orator was marvellously revealed. One saw again the spectacle of the literary and philosophic contests of the middle ages when the crowd of disciples thronged the buildings and squares to hear Abélard or St. Thomas Aquinas. . . . All his lectures were a series of triumphs and to perpetuate recollection of them his countless pupils had a gold medal struck with his portrait on one side and on the other the words *A l'illustre auteur de la Médecine Physiologique et du Cours de Phrénologie, ses disciples reconnaissants*. This fact is the best reply to those who do not hesitate to print that the orator's verve was exhausted in the last years of his life."

His death, which took place at his country house at Vitry on November 17, 1838, was due to carcinoma of the rectum which had been treated by Amussat, an eminent



F. J. V. BROUSSAIS.

contemporary surgeon, who gives a detailed account of the treatment by dilatation with bougies, cauterization with silver nitrate stick and ligature and excision of portions of the tumour. The autopsy was performed by Levailant and Foucart in the presence of Amussat, Bouillaud, Orfila, Casimir Broussais, and others.

Shortly before his death he had been engaged in preparing a reply to Jouffroy's attack on phrenology in the Académie de Médecine as well as in finishing a new edition of his work on *Irritation and Insanity* which appeared in 1839, under the editorship of his son Casimir Broussais. There was a rumour, probably due to the suddenness of his death, that he had been poisoned, but there do not seem to have

been any grounds for such a suspicion, and it appears to have speedily subsided (*London Med. Gaz.*, 1938-9, 23, 344). He received a magnificent funeral at which Orfila, Boissy D'Anglas, and Droz were the pall-bearers. On arrival of the procession from his house at the Val-de-Grâce Hospital the students unharnessed the horses and dragged the hearse themselves to the cemetery of Père-la-Chaise where the speeches at the graveside were delivered by Bouillaud in the name of the Faculty of Medicine, Droz and Arago for the Institut de France, and Larrey *fils* for the Corps of the *Officiers de Santé* of which Broussais was a member. The French Government paid homage to his memory by the following message of condolence sent to his widow by the Minister of War: "Your illustrious husband leaves an immense gap among his colleagues and in the army a memory which will never die" (Dubois). On August 21, 1841, nearly three years after his death, a statue was unveiled in the courtyard of the Val-de-Grâce Hospital in which Broussais is represented in a sitting attitude trampling on the works of his predecessors whom he had so violently attacked.

Broussais was the recipient of many honours, both in France and in foreign countries. Bouillaud in his funeral oration applied to him what had been said of Boerhaave, that a letter from China addressed to "Broussais, Europe", would have found its destination. Besides being a Commander of the Legion of Honour and member of the Académie des Sciences Morales et Politiques, he was corresponding member of the Linnæan Society of Bordeaux, the Society of Emulation of Liège, the Societies of Medicine of Brussels and Breda, Honorary Associate of the Medico-Chirurgical Society of Cadiz and the Royal Academy of Medicine of Madrid and corresponding member of the Medical Societies of New Orleans and Philadelphia. The high esteem which Broussais enjoyed in foreign countries is also shown by the fact that several of his works were translated into English (*Histoire des phlegmasies chroniques. Traité de physiologie appliquée à la pathologie. Catéchisme de la médecine physiologique. Du cholera morbus épidémique*); Spanish (*Traité des phlegmasies chroniques, Examen des doctrines médicales. Catéchisme de la médecine physiologique*); and Dutch (*Du choléra morbus épidémique*).

The anonymous writer of his obituary notice in the *London Medical Gazette* of November 24, 1838, wrote of him as follows:—

"The author of the examination of medical doctrines—the founder of physiological medicine—the ardent defender of inflammation and leeches—has by the power of his systematical genius, by the energy of his convictions, by the vivacity and even violence of his controversy shaken medical theories to their foundation. During upwards of ten years he (the professor of the military hospital of Val-de-Grâce) had to maintain the most animated discussions. . . . Like all great reformers and founders of systems M. Broussais has done good and evil. Impartial history will apportion the share of each, but from this day we may safely enrol the name of Broussais among the glories of France."

Except to those specially interested in the history of medicine, the work and even the name of Broussais appear to be now almost unknown to medical men in this country where there is no hospital or street, as in Paris, which has been called after him. Over eighty years ago, however, his name appeared in the eighth edition of the *Encyclopædia Britannica* to which Laennec and Bretonneau, far greater figures in the history of medicine, were not admitted until the fourteenth edition published in 1929. It may also be noted that George Eliot in *Middlemarch* (published in 1873) makes the bright young Dr. Lydgate a former student of Broussais during his residence in Paris. Broussais, on his part, had little sympathy for the English, and regarded all the doctors in this country as old-fashioned, because they did not embrace his doctrines.

"The English", he exclaimed, "complain according to Lady Morgan of their short lives, but they should change their régime, they should stop gorging themselves with tea, alcohol and too substantial food; their doctors should abstain from purging them at every moment, instead of evacuating them by enormous phlebotomies which concentrate all the irritation in the alimentary canal a moment later, they should confine themselves to combating the inflammation by a few

capillary hæmorrhages, and one would no longer see in their country such a large amount of engorgements, spleen, hypochondria, melancholy and dropsy which shorten the lives of the youngest and most robust. It is chronic enteritis, that unrecognized and badly treated disease, which depopulates England" (Reis).

In his chapter on the state of medicine in England (*Examen des doctrines médicales*, 3rd ed., 1829, iii, 176) Broussais stigmatizes the English medical practitioners as ontologists and accuses them of ignoring the effects of drugs and diet. Moreover, he said, they bleed to excess, then give calomel, always neglect diet, and cause hyper-irritation of the gastric tract by ordering stimulants.

Broussais was a man of untiring energy, as was shown by his numerous activities as professor, writer, and consultant. He possessed a remarkable memory which enabled him to recite whole pages of Sydenham, and he knew by heart an enormous number of French and Latin verses. Contrary to what has been alleged by some of his critics, he was steeped in classical learning and was fond of literature and art (Montègre). According to De Montègre, who was his private secretary for several years, and therefore well qualified to speak on the subject, though liable to attacks of anger, especially in meeting with opposition to his views,¹ he was naturally tender hearted, and was devoted to animals.

Broussais is best known as the founder of so-called "physiological medicine", in the history of which Saucerotte describes three distinct stages. In the first (1816-21) Broussais attacked the doctrine of the essentiality of fevers and developed his doctrine of acute and chronic inflammations. This was the period in which he was struggling to gain recognition. In the second stage (1821-28), which Saucerotte calls the period of organization, Broussais had won acceptance of his views and become chief of the physiological school, while the last stage was marked by an increasingly complete discredit of his doctrines. Broussais called his system "physiological medicine" because he wished to attach more importance to disorders of function than to anatomical changes. According to Faber, Broussais was the disciple of Bichat in so far as he sought to locate diseases in separate organs, though he deprecated the tendency to draw up definite clinical pictures of disease and to assign a typical course to each disease. All diseases, according to him, were due to irritability of the tissues and were aggravated by the action of therapeutic agents which exaggerated this property. He was far from underestimating the importance of local lesions in disease, but he regarded them not as the effect but as the cause to which all the symptoms were due, he representing as they did "the cry of the suffering organ", which in all cases was the same, viz. the stomach and intestines. Diatheses to Broussais were "imaginary entities and ridiculous ontologies". Fevers did not exist, but were merely "febrile movements", symptomatic of gastro-enteritis. There were no specific diseases. Cancer, syphilis, and tuberculosis were merely the end-result of chronic and often neglected inflammation of the alimentary tract. Malaria was simply a periodic gastro-enteritis.

As I pointed out in my paper on Bretonneau read before this Section over fourteen years ago, the doctrine of specificity is now so well established that it is one of the commonplaces of medicine, but it should be remembered that it is only comparatively recently that it has become so. Broussais was bitterly opposed to this doctrine and stigmatized as "ontologists" those who studied medicine from this point of view, and attempted to draw up definite clinical pictures of each disease. As, in his opinion, inflammation dominated pathology, he urged that an attempt should be

¹ The following story is told by Fée of his interview with a sick officer at Xeres who had transgressed the orders concerning his diet. "He stopped at the threshold, his face inflamed with rage, and striding up to the bed cried out in his loudest voice 'You have brought it on yourself, wretched man! Very well, you will die', and turning to those in attendance added 'We will dissect him, Gentlemen'. The patient shuddered, stammered out a few words and promised to be good, unhappily too late. He died a few days later, and when Broussais saw him in the post-mortem room he addressed the corpse with the words 'I told you so', followed by a profound sigh."

made to prevent or at least combat it by an antiphlogistic regimen consisting in debilitants, revulsives, and more or less diffusible tonics. Debilitants, which he regarded as the most important, included a low diet, emollient drinks, and most of all general or local bleeding, especially by leeches. Emetics, purgatives, alcohol and mercury, he declared, excited the mucous membrane of the stomach and should be entirely discarded. Owing to his refusal to regard any disease as specific, he considered quinine as no more indispensable for malaria than mercury for syphilis or ipecacuanha for dysentery. The simplicity of the method and the forcible written and spoken language in which Broussais indulged gained him many adherents, and for nearly fifteen years physiological medicine was the predominant doctrine in Paris.

Triaire remarks that in 1820 medicine, as the result of Broussais' teaching, underwent a revolution which could only be compared to that produced by other reformers in the social and political world at the end of the eighteenth century. Broussais overthrew the system of Pinel and on its ruins constructed a system which Triaire says was as seductive in its simplicity as it was exaggerated in its exclusiveness and dangerous in its consequences. Reis remarks that the revolution caused by Broussais found followers even in America, but it was chiefly among the Latin races of France, Italy and Spain that his doctrine was welcomed. According to Garrison, Broussais' doctrine of irritation was taken up in Germany by Roeschlaub and occasioned a pale temporary reflex in the writings of Benjamin Travers, Pridgin Teale, and other English physicians of the period who ascribed many diseases to "spinal irritation".

A formidable opposition soon arose of which the chief representatives were Bayle, Laennec, Bretonneau, Andral, and Louis. "What name", says an anonymous author of Broussais' obituary notice (*Gaz. méd. de Paris*, 1838, 6, 737), "has been more frequently uttered in one place with cries of admiration and in another with accents of hatred and disdain?"

Andral in particular, as E. Chauffard points out, his successor in the chair of general pathology and therapeutics, proved by morbid anatomy that all medicine was not contained in the word "inflammation", and that there were many organic lesions in the tissues that were not due to this cause. Moreover he found by post-mortem examination that in a large number of diseases there was no evidence of gastro-enteritis and that its existence had been assumed quite gratuitously. As the result of Andral's teaching medical opinion swung so much in the opposite direction to that of the physiological school that apart from the condition caused by corrosive poisons, the occurrence of gastritis, as Trousseau points out, was disputed even in Broussais' lifetime.

I have remarked elsewhere (1912) that a similar change in medical opinion took place about this time with regard to the incidence of gangrenous sore throat. Prior to the establishment of diphtheria as a specific disease by Bretonneau in 1826, the frequency of gangrenous angina was considerably overestimated, a large proportion of the cases so described being either examples of malignant diphtheria or, less frequently, severe forms of scarlet fever in which the rash had been overlooked or indeed non-existent. The influence of Bretonneau's teaching was so great that for many subsequent years the existence of gangrenous-sore throat was denied, although a few eminent writers, Trousseau in particular, endeavoured to distinguish it as an independent condition.

The principal cause of the decline of Broussais' doctrines, as Reveillé-Parise points out, was that clinical experience did not confirm its claims. In spite of bleeding and low diet, cures were not obtained and convalescence was protracted owing to the exhaustion caused as much by starvation as by the disease itself. The physiological doctrine, as the anonymous French critic already quoted observed, was an exceedingly feeble conception, the success of which was partly due to the extreme simplicity of its principles and the apparent facility with which it was introduced into practice. Its

greatest merit, says this critic, was its liberal and reforming character. According to Broussais, to embrace his doctrines was to perform an act of liberation, while to combat it was to range oneself under the banner of obscurantism, Jesuitism, and the retrograde party.

The opposition between Broussais and his opponents was no doubt envenomed by a difference in their religious views, Laennec and Récamier, two of his principal opponents, being devout Roman Catholics while Broussais was a free thinker. In this connexion it may be noted that in his recent study of Récamier, Dr. Louis Sauvé, who is obviously *très bien pensant*, writes with some bitterness about the enthusiasm shown at the present day in France for the "médiocre Broussais".

The strength of Broussais' conviction of the value of bleeding, in which he believed as firmly as Guy Patin did two centuries before, is shown by the fact that when suffering from indigestion he had himself bled six times to the amount of 20 oz., and had 15 applications of 50 to 60 leeches in the course of eighteen days in addition to *diète absolue* (Fosseyeux). As the result of Broussais' teaching, bleeding was not confined to fevers but was used for constitutional diseases as well. So popular indeed did the use of leeches become that a large number of persons employed them without consulting a doctor at all (Reis), and leeches became so fashionable that the trimmings on ladies' dresses were made to resemble them (Genty). The demand for leeches was so great that the supply in France became exhausted and importation of them from abroad took place on an enormous scale. According to Reis, English merchants profiting by the vogue which leeches enjoyed in countries other than their own, sought for them in Belgium, Holland, and Germany, and transported them to India and America where they were sold at prices ranging from 3 francs to a guinea each. Broussais practised bleeding not only on man but also on animals. On one occasion his friend Monnerey, on being shown some fighting cocks which Broussais had got from England at great expense, asked him to account for their wretched appearance. Their crests had lost their colour, and they could hardly stand upright. "I can't understand it", said Broussais, "for I bleed them every week" (Babonneix). The extravagant use of leeches in therapeutics, though it survived longer than the other parts of Broussais' doctrines, especially in the hands of Bouillaud, who, as I have shown in my paper on that physician (1931), was also a *grand saigneur*, fell into disfavour as the result of the teaching of Louis and Chomel in France, Marshall Hall in England, and Skoda in Vienna.

M. D. E. H. Chauffard has drawn attention to the close resemblance between Broussais and another would-be medical reformer, John Brown. In the first place both showed a partiality for words which had seldom been used before, such as "medical doctrine", "entity", "phlegmasia", "gastritis", and "enteritis". Secondly, Brown expressed opinions diametrically opposed to those of his illustrious predecessors and contemporaries such as Sydenham, Boerhaave, Stahl, and his own benefactor Cullen, with a harshness which at once gained the admiration of the masses. Broussais behaved in a similar manner to his predecessors and contemporaries, especially Pinel, Laennec and Louis. Thirdly, both reformers demanded a passive submission from their disciples in a manner which at once recalls the totalitarian spirit rampant in Europe to-day. Fourthly, both have been accused, especially Broussais, of literary dishonesty shown by plagiarisms from Haller, Baglivi, Bordieu and Bichat. On the other hand, while Brown maintained that 97% of patients owed their illness to asthenia and required stimulation, Broussais declared that 97% were sthenic and needed diminution of excitability, which made Laffont-Gouzy say that Broussais' "physiologism" was only "Brownism" turned inside out. According to Reis, who was his clinical assistant for eighteen months, Broussais was much less exclusive at the bedside than he was in his writings or his lectures. Similar evidence is afforded by the young Trousseau, who in one of his letters to Bretonneau (Triaire, 1, 544) relates that Broussais had six typhoid patients under his care who were all treated

in the same way and all recovered. "Do Broussais the justice of believing", Trousseau continues, "that if as a theorist he is a brute (*animal*), as a physician in serious diseases he knows how to look after his patients." On the other hand, as Trousseau relates, Husson, one of the most devoted partisans of the physiological doctrine, lost two thirds of his typhoid patients by too strict an application of the antiphlogistic régime. Less harm indeed was done by Broussais himself than by his fanatical pupils who discarded the use of such valuable specifics as cinchona for the treatment of malaria and ipecacuanha for dysentery.

In Broussais' favour it has been urged that his works possess originality.

"No one", says the anonymous French critic already mentioned, "has better justified the maxim that the style is the man. One must not look for any literary elaboration or refinement. Even in his last works there was something crude and unfinished. Though an accomplished writer, his language showed a lack of delicacy. On the other hand, apart from the philosophic reflexions which appear in his work on *Irritation and Insanity* and which are quite unintelligible, his writings possess a remarkable lucidity. . . . No one did more to discredit vague and obscure systems and the pedantic and hollow phraseology of the old schools and to regard precision of language as synonymous with that of ideas."

"In conclusion" the critic remarks that "it was not his special theories nor his therapeutic principles which we recommend, but merely the spirit of independence and examination which he introduced into the Paris school, and of which he was the first victim."

Poullain, one of his assistants, though at first attracted by the antiphlogistic doctrine, afterwards saw that it had few advantages over former methods, and that it had often fatal results. He admitted, however, that Broussais never starved his patients, as was asserted by some malevolent critics, though this was done by the "ultra-physiologists", who claimed to be his partisans, but was always ready to satisfy the demands of those who asked for food.

Among recent authorities who have a word to say on Broussais' behalf should be mentioned the late Professor Joseph Grasset of Montpellier, who writes:—

"After Bayle and Laennec one must mention Broussais, who was an extremely energetic worker in the building up of morbid anatomy. His exaggerated expressions, the violence of his polemics, were merely the defects of his qualities, the dangers of his system which were aggravated by his pupils, should not let us forget his real work and the impulse which he gave to pathological research. One may say that in many aspects his *History of Chronic Phlegmasias* has rendered an immense service to medicine."

J. B. Fonssagrives, another eminent physician of Montpellier, remarks that in spite of his erroneous doctrine of gastritis, Broussais, by substituting the doctrine of local irritation for diatheses, replaced the abstract by the concrete and gave a character of precision to practical medicine which had hitherto been lacking.

Lastly it may be said in defence of Broussais, that possessing as he did all the qualities of an apostle he derived no pecuniary advantages from his doctrines, and he died, if not poor, at least with only a very moderate fortune (Maljean).

REFERENCES

- AMUSSAT, J. Z. (1838), *Gaz. méd. de Paris*, **6**, 769.
 ANDRAL, G. (1829), "Précis d'anatomie pathologique".
 Id. (1839), *Clin. méd.*, **2**, 3. Paris.
 BABONNEIX, L. (1938), *Gaz. d. hôp.*, **111**, 1221.
 BONNETTE, F. (1938), *ibid.*, **111**, 1344.
 BOUILLAUD (1838), *ibid.*, **12**, 565.
 BOYER, L. (1870), "Dict. encycl. sc. méd.". (Dechambre), s. v. Broussais. Paris.
 BROUSSAIS, C. (1839), Preface to "De l'Irritation et de la Folie". 2nd ed.
 CHAUFFARD, E. (1877), "Andral. La médecine française de 1820 à 1830".
 CHAUFFARD, M. D. E. H. (1839), *Gaz. d. hôp.*, **12**, 13.
 DUBOIS, F. (1849), *Mém. Acad. Nat. de méd.*, **14**, 1.
 FABER, K. (1923), "Nosography in modern internal medicine". New York.

- FÉE, A. L. A. (1856), "Souvenirs de la guerre d'Espagne", p. 310.
- FONSSAGRIVES, J. B. (1861), "Hygiène alimentaire des malades". Introd. xxxviii. Paris.
- FOSSEYEUX, M. (1930), "Il y a cent ans. Paris médical en 1830". Paris.
- GALLOIS, P. (1938), *Hippocrate*, 6, 406.
- GARRISON, F. H. (1929), "An Introduction to the History of Medicine". 4th ed., p. 410.
- GENTY, G. (1938), *Progrès méd.*, Suppl. illustré, April 2, 65, p. 30.
- GRASSET, J. (1911), "Idées médicales", p. 310. —
- HOLMES, O. W. (1883), "Medical Essays". 2nd ed., p. 429.
- HUET, J. (1938), *Thèse de Paris*, No. 556. "Broussais. Sa Vie et son Œuvre."
- LARCHER (1938), *Progrès méd.*, Suppl. illustré, April 2, 65, p. 25.
- LEMÉE, P. (1938), *Paris méd.*, Partie paraméd., December 10, ii, 28.
- MALJEAN (1927), *Chron. méd.*, 34, 99, 131.
- MONTÈGRE, H. DE (1829), "Notice historique sur la vie, les travaux, les opinions médicales et philosophiques de F. J. V. Broussais". Paris.
- POULLAIN, J. B. I. (1826), *Thèse de Paris* No. 54. Des médecins physiologistes, et de leur doctrine.
- REIS, P. (1864), "Etude sur Broussais et sur son œuvre".
- REVEILLÉ-PARISE (1839), *Gaz. méd. de Paris*, 7, 353.
- ROLLESTON, J. D. (1912), *Antiseptic*, 9, 533.
- Id. (1924), *Proc. Roy. Soc. Med.*, 18, Sect. Hist. Med., 1. —
- Id. (1931), *ibid.*, 24, 1253 (Sect. Hist. of Med., 37). —
- SAUCEROTTE, C. (1855), "Nouvelle biographie générale", 7, 536.
- SAUVÉ, L. (1938), "Le docteur Récamier (1774-1852)". Paris.
- TRIAIRE, P. (1892), "Bretonneau et ses correspondants", 2, 200. Paris.
- TROUSSEAU, A. (1862), *Clin. Méd. de l'Hôtel Dieu de Paris*, 2, 393.