

Pasteur Institute : Mansion House Fund.

Contributors

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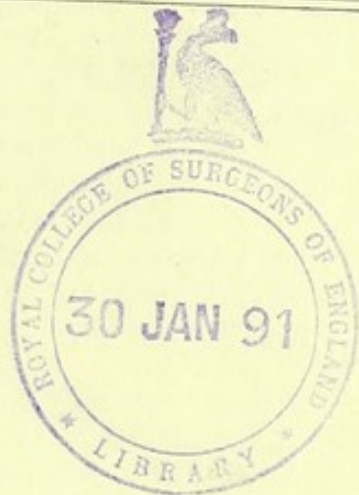




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PASTEUR INSTITUTE.

MANSION HOUSE FUND.



London:
JOHN BALE AND SONS,
87-89, GREAT TITCHFIELD STREET, OXFORD STREET, W.

—
1889.

QUESTIONS AND ANSWERS

PASTEUR INSTITUTE

MANUSCRIPT HOUSE FILE

Pasteur Institute Fund.

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Lord Mayor of London.

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HON. SEC.

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Protein Analysis

Introduction

Objectives

The purpose of this experiment is to determine the protein content of a sample using the Kjeldahl method.

Principle

The Kjeldahl method is a widely used technique for the determination of nitrogen in organic compounds. It involves the digestion of the sample with concentrated sulfuric acid to convert the nitrogen into ammonium ions. The ammonium ions are then distilled as ammonia gas, which is absorbed in a known volume of boric acid solution. The resulting borate complex is titrated with a standard acid solution to determine the amount of nitrogen present.

The nitrogen content is then converted to protein content using a conversion factor.

The conversion factor is typically 6.25 for most biological samples.

The protein content is expressed as a percentage of the dry weight of the sample.

The results of the experiment will be compared with the theoretical protein content of the sample.

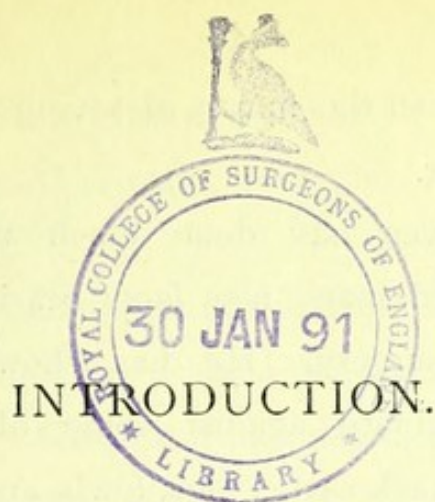
The accuracy of the method will be evaluated by comparing the results with those obtained by a standard method.

The following steps describe the procedure for the determination of protein content using the Kjeldahl method.

1. Weigh a precise amount of the sample (approximately 0.5 g) into a digestion flask.

2. Add a known volume of concentrated sulfuric acid to the flask.

3. Digest the sample in a boiling water bath for a fixed period of time.



THE nineteenth century, now quickly coming to an end, has been illustrated by the most wonderful discoveries in the mechanical, physical, and chemical sciences. Startling as these discoveries undoubtedly are, they excite less astonishment than the advances made in the healing art.

As long as it was supposed that putrefaction could arise spontaneously in dead material, it was tacitly assumed that it was impossible to prevent the occurrence of putrid changes, which usually occurred in wounds—changes followed by blood-poisoning and often by the death of the unfortunate patients. M. Pasteur was the first to show that something more than air was necessary to produce putrefaction, namely, small vegetable beings—micro-organisms, as they are called—which are the active agents in producing the decomposition of dead material. Our countryman, Sir Joseph Lister, applying Pasteur's researches to the art of surgery, proved that the horrible decomposition which used to take place in wounds, could be wholly prevented by appropriate precautionary measures. His antiseptic treatment, based on M. Pasteur's

researches, has been the means of saving many thousands of lives every year.

Pasteur, however, has done much more than this. He has discovered many new facts bearing on medicine and veterinary surgery. He has shown that it was possible to vaccinate against some of the infectious diseases which attack cattle, pigs, fowls and other animals. He did an incalculable amount of good when he discovered the micro-organism which attacks the silk worm. This disease, killing as it did millions of silk worms every year, was steadily bringing the French silk manufacturers to ruin. Pasteur showed them how that disease could be avoided, and saved the silk trade.

Pasteur then turned his attention to the subject of hydrophobia, and discovered a method by which it is now possible to prevent the breaking-out of the disease in human beings, even after that individual has been bitten by animals *proved to be rabid*.

The most accurate statistics published before the invention of Pasteur's treatment, show a mortality of at least 15 per cent. among people bitten by rabid animals. Pasteur has inoculated 6,950 persons. The average mortality amongst these amounted to less than 1 per cent. These facts are startling enough. It might be said, however, that the value of a mode of treatment must be measured not by the results it gives in the hands of its inventor, but by those which follow its application by independent persons. Since Pasteur's

discovery, similar institutes to that in Paris have been started all over the world, and the results have been truly astonishing.

At Odessa Dr. Gamaleïa inoculated 364 persons in 1888. The mortality amounted to 0.64 per cent.

At Moscow Dr. Gwozdreff inoculated 246 persons in 1888. Of these 1.60 per cent. died.

At Warsaw Dr. Bujwid inoculated 370 persons, all bitten by animals proved to be rabid. *Not one of these patients has died*, the last having been inoculated more than two years ago.

At Milan Dr. Baratier has inoculated 335 people, of whom only two have died; whilst at Palermo Dr. A. Celli has not lost a single person out of 109 persons who have undergone the anti-rabic treatment. At Naples, Constantinople, Havanna, and Rio de Janeiro the mortality amongst the inoculated people varies from 0 to 1.5 per cent.

The following fact is, perhaps, the most striking that has as yet been published. In the year 1887, 350 people were bitten in Paris by animals suffering from rabies; 306 were inoculated by M. Pasteur, and of these three died. On the other hand forty-four declined to be inoculated, and of these seven died. In other words the mortality was nearly fifteen times as great among the persons who declined treatment as amongst those who trusted their lives to M. Pasteur.

These facts are eloquent enough, and M. Pasteur is entitled to the thanks of suffering humanity for these remarkable results. Indeed the French Government, the Emperors

of Russia and Brazil, and the sovereigns of many other nations have conferred on Pasteur the highest honours of their respective countries. *England alone* had never thanked him for what he has done for humanity and for the 250 Britons who have been inoculated by him. I sincerely trust that this will not continue to be so for long. After satisfying myself by a prolonged visit to the Pasteur Institute of the efficacy of Pasteur's treatment, and of the almost complete painlessness for men and for the animals used, I determined on my return to England to raise a sum of money to be presented to the Paris Institute. Scientific and medical men not only approved of my suggestion, but many made a point of joining the committee. Their opinions may best be judged by reading the report of the meeting which took place at the Mansion House on July 1st, and the letters appended to this circular. H.R.H. the Prince of Wales—who, together with the H.R.H. the Princess of Wales, H.R.H. Prince Albert Victor, Princess Louise, Victoria and Maud of Wales—paid a visit to the Pasteur Institute during his stay in Paris, showed what great interest he took in the work in a letter to me, which was read at the meeting. He also sent a cheque for one hundred guineas as his donation to the Pasteur Fund.

A sum of at least £5,000 is required at once to make a suitable contribution to the Pasteur Institute in Paris, and to provide a fund for the sending over of poor patients unable to afford the expenses of a journey to Paris. I hope that this sum will shortly be found; and meanwhile I trust that

all those who may still be in doubt as to the efficacy of Pasteur's treatment will carefully study the evidence to be found in the speeches at the Mansion House meeting. I have not the slightest doubt that if they do so they will arrive at the conclusion that M. Pasteur has been a real benefactor of humanity.

I may add that during the past two months I have sent over to Paris seventeen poor persons who had been bitten by mad dogs. I paid their expenses out of the funds placed at my disposal by the public, and *they have been treated by M. Pasteur, as usual, free of charge.*

JAMES WHITEHEAD,

Lord Mayor.

THE MANSION HOUSE,
LONDON, E.C.,
1st September, 1889.

N.B.—*The mortality among non-inoculated people amounts to 15 per cent. at least.*

Statistics of the Anti-Rabic Institutes

IN FRANCE AND OTHER COUNTRIES.

Observer's Name.	Country.	No. of patients inoculated.	Mortality per cent.
Pasteur, 1885 and 1886	France	2682	1'34
" 1887	"	1778	1'12
" 1888	"	1626	'79
Bujwid, 1886-1887	Russia	297	3'73
" 1887-1888	"	370	Nil
" 1889	"	146	'68
Kraïouchkine	"	484	2'68
Gamaleia, 1886	"	324	3'39
" 1887	"	345	'58
" 1888	"	364	'64
Gwodreff, 1886	"	107	8'40
" 1887	"	280	1'27
Goldendach, 1888	"	431	1'82
Baratier, 1887-1888	Italy	335	.59
Celli, 1887-1888	"	109	Nil
Uffreduzzi, 1887-1888	"	531	1'88
Luigi di Blasi	"	343	1'17
Cantani	"	347	1'72
?	Turkey	34	Nil
Tamayo	Havana	170	'60

PASTEUR INSTITUTE.

MANSION HOUSE FUND.

A MEETING was held in the Egyptian Hall of the Mansion House on Monday afternoon, July 1st, "for the purpose of hearing statements from Sir James Paget and other representatives of scientific and medical opinion with regard to the recent increase of rabies in this country, and to the efficacy of the treatment discovered by M. Pasteur for the prevention of hydrophobia." The Lord Mayor presided. Among those present were the Duke of Northumberland, the Duke of Westminster, Sir John Lubbock, M.P., Sir James Paget, Sir Spencer Wells, Sir George Stokes, M.P., P.R.S., Sir R. N. Fowler, M.P., Sir W. Mac Cormac, Sir William Bowman, Sir Joseph Lister, Sir Henry Roscoe, M.P., Professor John Marshall, Professor Michael Foster, Rev. Prebendary Harry Jones, Rev. H. L. Paget (vicar of St. Pancras), Dr. Playfair, Captain W. H. James (London County Council), Colonel Howard Vincent, M.P., Dr. Farquharson, M.P., Dr. Lauder Brunton, Professor Ray Lankester, Professor Victor Horsley, Mr. Everett Millais, Mr. Ernest Hart, Dr. Fleming, C.B., Professor Roberts-Austen, Sir F. A. Abel, Dr. Sedgwick Sanders (Medical Officer of Health for the City), Sir J. Risdon Bennett, Dr. George Harley, Dr. Priestley, M. Pasteur, jun., Dr. Armand Ruffer, Dr. Bridgwater, Dr. Holman, Sir E. Sieveking, Professor Humphry, Dr. Wilks, Dr. Gladstone, Dr. Wakley, Mr. W. H. Cross (St. Bartholomew's Hospital), Mr. Brundenell Carter, Rev. E. C. Hawkins (rector of St. Bride's), Sir Frederick Perkins, Sir Trevor Lawrence, M.P., Dr. Dickson, R.N. (Her Majesty's Customs), Dr. Gordon-Brown (City Police), Colonel Sir Edmund Henderson, Dr. Vintras, Dr. Sydney

Jones, the Dean of Manchester, Mr. G. W. Osborn (London County Council), Mr. Cumming Macdona (president of the St. Bernard Dog Club), Professor Frankland, General Strachey, M. Blouet ("Max O'Rell"), and Professor Flower. The Lady Mayoress, Lady Henderson, and a number of other ladies were also present. The following expressed their inability to attend:—H.R.H. the Prince of Wales, &c., &c.

Professor RAY LANKESTER, at the commencement of the meeting, read letters from Sir Francis Knollys, on behalf of the Prince of Wales; the Duke of Westminster, the President of the Royal Society, Professor Huxley, the Scientific Grants Committee of the British Medical Association, the Society for the Advancement of Medicine by Research, Professor Tyndall, Sir Andrew Clark, Bart., Sir Henry Acland, M. Waddington, and the Association of Medical Officers of Health. The following is a copy of Sir Francis Knollys' letter* :—

Marlborough House, Pall-Mall,
June 29.

DEAR LORD MAYOR,—I am desired by the Prince of Wales to inform you that it affords him much pleasure to hear that you are calling a meeting at the Mansion House in support of the Pasteur Institute in Paris. A short time ago the Prince and Princess visited that Institute, and they not only heard from M. Pasteur a description of his anti-rabic treatment, which they found to be almost painless from beginning to end, but they witnessed the inoculations and inquired into the details of many of the cases. From what the Prince heard and saw, he convinced himself of the great value of M. Pasteur's labour in the cause of humanity, and of there being no doubt that his treatment has considerably diminished, though as yet it has not perhaps entirely averted, the risk of a dreadful death ensuing from the bite of a mad dog. More than 200 British subjects have been successfully and gratuitously treated by M. Pasteur during the last two and a half years, and the majority of them are poor people. His Royal Highness is persuaded that all will agree with him in thinking it is only right that England should show her desire to work hand-in-hand with France in this matter, and he trusts that the sum which you may be enabled to raise will show that the country is in earnest in the view it takes on this important question. He also approves of your suggestion that a portion of the fund should be set aside to pay for the necessarily somewhat considerable expenses which poor patients have to meet in living for a fortnight in Paris. For although the treatment is very simple, and does not interfere with the ordinary daily life of the patient, it has to be continued for fourteen days. The Prince, in conclusion, is anxious to express to you his satis-

* For the other letters see page 40.

faction that your Lordship is about to support a recommendation that all dogs at large in this country should be muzzled. If this were done throughout the kingdom for twelve months the painful disease of rabies, which he fears is now greatly on the increase amongst us, would be stamped out here, as it has practically been done in several other countries. His Royal Highness thinks that your meeting, which has his hearty approval, will meet with the success it so fully deserves.

Believe me,

Dear Lord Mayor,

Yours very truly,

FRANCIS KNOLLYS.

The LORD MAYOR then spoke as follows: My Lord Duke, my Lords, Ladies, and Gentlemen,—I need hardly tell you that since I consented to the holding of this meeting in the Egyptian Hall, I have been deluged with a large amount of literature and a very great number of letters, many of them anonymous, and a considerable proportion of them scurrilous. When I undertook the duty of associating myself with this movement, I was quite prepared for an amount of opposition; but I felt that it was a movement in the interests of my fellow men, and that I should be altogether unworthy of the office I fill if I were to shrink from the performance of my duty, simply because there was an unreasoning opposition to it. Amongst the opposition which has been shown to this movement, I think the most prominent and the most active part has been taken by what is called the London Anti-Vivisection Society, and the duty is imposed upon me of informing you that I have received a petition organised by that Society in opposition to the movement which we are met here to-day to further as far as we possibly can. Now the object of that Society is, I think, fairly defined in the last clause of the petition, and it is the only clause I will trouble you with, because, in point of fact, I do not think you would appreciate the arguments used any more than I do. The last clause is: "For the reasons above set forth, your memorialists therefore most earnestly protest against the establishment of a Pasteur Institute in England."

After showing up the character of the petition and the means by which most of the signatures had been obtained, the Lord Mayor proceeded as follows: Now this meeting was brought about in this way. Before I had the pleasure of visiting Paris about six weeks ago, I knew there had been considerable controversy in regard to the Pasteur system of treatment, and I was aware, because one can always tell

when one looks at the source from which the remarks come, that Pasteur had been very much vilified in this country. Therefore I decided, when I went over to Paris, to make some inquiries for myself. I visited the Pasteur Institute, not as a professional man, not as a scientific man, but purely and solely as a business man. M. Pasteur was exceedingly courteous, open, and frank. He threw his books open for my inspection without the slightest hesitation, and I saw the whole process—I found that everyone who came to his institute had to give, either personally or by his friends who might be with him, a full account of his own particular case, together with all details in regard to the dog by which he had been bitten. And I found, too, that each case is followed up after it has been disposed of at the Pasteur Institute until the patient is beyond the period of danger. M. Pasteur seems to have no reservation whatever. He will open his books freely, and if anyone goes there having a personal knowledge of any case that has been treated by him, he will be able to follow that case through the books and be able to satisfy himself that Pasteur's statement is exact and perfectly true. I was very anxious to ascertain all particulars in regard to the cases in the aggregate that had been treated at the institute. I have all the figures with me here, but as I understand Sir Henry Roscoe, who will address you later, is in possession of more recent facts than mine—in other words, my facts only come up to the end of May last year, while his come up to the end of May this year—I will leave these figures to be dealt with by him. But there is one point under this head to which I may refer, and it is this. I said to one of the assistants of Pasteur, who is now upon this platform (Mr. Ruffer), a graduate of Oxford, and who has had considerable opportunity of going into everything connected with the Pasteur system of treatment—I said to him when alone, confidentially, "Now, Mr. Ruffer, as between one man and another, are you perfectly satisfied in every respect that there is no danger in connection with this treatment of Pasteur?" He said, "My answer to that question is this—that every one of M. Pasteur's assistants in the hydrophobia department have themselves voluntarily undergone the whole treatment." So that if there was a doubt existing in the mind of those gentlemen, who have for years been in the establishment of M. Pasteur, I cannot help feeling that they at least would have

avoided inoculation by the system themselves. I have been very strongly urged during the last ten days or a fortnight, and perhaps I ought to say during the last month, to promote the establishment of a Pasteur Institute in this country. I declined for these reasons—I came to the conclusion that an institute was not needed in this country. I look at it as a man of business on economical grounds. If I assume there are probably not more than sixty cases where persons are bitten by mad dogs in this country in the course of a year, I shall be going, I hope, to the outside. And if for the purposes of my argument I assume that half the sixty are indigent people, whom it might be desirable to pay the expenses of sending over to Paris; and if I assume that £25 would be the cost of sending over a patient and attendant, and multiply that by thirty, I arrive at the figure of £750 a-year. It must be very clear to every one of you possessing any experience of such matters that the expenses of a similar institute in England would be a great deal more than £750 a year. Therefore, upon a purely business and economical ground, I come to the conclusion that it is much better to remain as we are and to provide funds for sending over poor persons than to establish an institute in this country. It may be I am altogether wrong, but, as I just told you, I am looking at it from a commercial and not from a medical or scientific point of view. But here is another reason, and I cannot help thinking this is a very weighty one. It seems to me that to establish an institute here would greatly tend to cause delay in the establishment of the stamping-out process. I shall not myself deal with the subject of stamping out, because a resolution will be proposed very shortly in regard to it, but I do hold that the great object and aim of those of us who live in Great Britain should be to bring such pressure to bear upon the Government and upon Parliament as will lead eventually to the stamping out of rabies and hydrophobia amongst us. Now there is just one other point to which, with your indulgence, I should like to allude. M. Pasteur has been charged over and over again with cruelty. I regret to say that in a conversation I had with a great judicial dignitary the other day, even he referred to him as a cruel man. He said he had a cruel face. I said to his lordship, "Have you seen him?" and he said, "No, I have not seen him; but I have seen his photograph." And this,

ladies and gentlemen, is how public opinion is very often made up. My experience of Pasteur is, and I have had the pleasure of a lengthened conversation with him, that he is a gentle, humane man. And who in the world having ordinary common sense can come to the conclusion that a man who has been partially paralysed for twenty years can have the slightest cruel sentiment or feeling in his composition? Then he is accused of cruelty to animals. I suppose that is in connection with the inoculation of dogs and rabbits. I will, therefore, read you one clause of a letter which M. Pasteur wrote me at the end of May. He says: "You have been able to assure yourself, my Lord Mayor, that every rabbit or other animal inoculated for madness is previously rendered insensible by chloroform, and at the moment the malady declares itself the animal does not show the slightest sign of pain. It is always by complete paralysis that the disease shows itself." It seems to me that that altogether disposes of the charge of cruelty so far as animals are concerned. Now, in conclusion, let me just say that I have looked at this matter purely as a business man. I cannot, as I have said before, claim for a moment to speak from a scientific or medical point of view, but I do believe this, after all I have seen and all I have read, that the Pasteur discovery is of incalculable value in serving the cause of humanity. And I believe it is regarded as unquestionable by every reasonable and unprejudiced man. I feel, too, that M. Pasteur has established a great claim upon this country. He has treated upwards of two hundred of our fellow countrymen as his patients entirely free of charge, and it seems to me that simple gratitude and simple justice demand that we in this country should give a very handsome contribution towards his institute. I hope that this sum will be raised. I hope too that a fund will be established for sending every poor person bitten in England over to Paris. I trust also that the result of this meeting will be what above all things we are aiming at—the eventual stamping out of rabies and hydrophobia in this country.

Sir JAMES PAGET, speaking as a delegate from the Royal Society, said he should confine himself to the subject of the resolution, which was as follows:—"That this meeting records its conviction that the efficacy of the anti-rabic treatment discovered by M. Pasteur is fully demonstrated." The best evidence for that conviction was in the comparison of the numbers of those bitten by rabid

dogs, who used to die before M. Pasteur's discovery, and of those who now die after being submitted to his plan of treatment. Now it was difficult at that time to make anything like an estimate of the number of persons bitten by dogs who became subjects of rabies. In some instances there were probably not more than five in the hundred of those bitten who suffered from the disease; in others fifteen, in others twenty; but in some cases, especially in those who were bitten on the hands and face and fully exposed parts, the proportion rose to as much as fifty or sixty in the hundred. In those that were bitten by wolves—as many were in Russia—it rose to eighty per cent. of the persons bitten, and fifty, sixty or eighty, if they showed symptoms of rabies, did certainly die. The reasons for these variations in number were plain enough. Many of those supposed to be rabid animals were not so; they were savage ill-conditioned dogs, but not subjects of the disease. All those suffering from the disease were not equally rabid; the virulence was not equally intense in all cases. All patients were not equally susceptible; some were bitten through their thick woollen clothes, and the virus was wiped off and not communicated; some had their lives saved by free excision or cauterisation of the wound. There was thus reason enough for having such a wide range of the number of deaths, but the fairest estimate that could be made, and which was not in the least too high, but if anything too low, showed, that taking the average of every 100 persons bitten by rabid dogs, fifteen would suffer from the disease and would die. To look now at the result of M. Pasteur's treatment: He began his work on rabies in the year 1885, in the month of July—so they celebrated very nearly the anniversary of the beginning of his treatment—and in these four years very nearly 7,000 persons had been treated at his Institut, and of that number 4,500 were certified as having been bitten by rabid dogs, either by the declaration of a veterinary surgeon, or the still more severe test of inoculations made from the dogs on animals susceptible of rabies. Of those 7,000 persons the number of deaths is not exactly certain, for some might have died of other diseases, and in many the treatment was conducted too late; but Professor Ray Lankester had taken great pains to ascertain the exact number, and he had stated that of the 7,000, seventy-one died. Other estimates were

made, and one was widely published, which stated it at 162, but that estimate included the names of all those who have died of the disease in other institutes besides those of M. Pasteur. He did not know what it would come to if those were removed, but what he wanted them to feel now was, that whether the number were rather less or rather more it would not affect the truth of the resolution that M. Pasteur's treatment was efficacious. Of the 7,000 bitten, if fifteen of each hundred died, there would have been as nearly as possible one thousand deaths. Look at the fact in that simple light; one thousand would have died; say that one hundred have died; the other 900 were as absolutely saved as if they had been snatched from drowning. Those persons were like the crew of a ship wrecked far away from land. Well; lifeboats failed sometimes to reach a wreck, they came too late, or were themselves wrecked. Still, angry charges of failure were not brought against them; they were still looked upon as among the most humane of institutions. Men reckoned the numbers they saved, not the numbers they failed to save. Pasteur had saved already at least 900 lives, and that by a treatment which is derived entirely from his own investigation.

But some would ask, has it had similar success in the hands of anyone else? Were they to rely upon M. Pasteur alone? Those who knew him would rely upon his word without any question. But it may be safely said that his treatment has met with the same success elsewhere. In the other institutions for the treatment of rabies, especially those in Russia, Warsaw, Odessa, and Moscow, numerous patients were treated, and patients who were most apt to suffer from the most severe forms. The last estimates showed that the mortality was a little over 1 per cent.: of the hundred bitten one died; he believed that of those who suffered from bites from rabid animals in Russia in former times fully fifty out of every 100 died.

It would indeed have been a marvellous thing if at the first essay the best possible means of using the treatment had been known. It had been improved since, and he would read the result of the last year's experience; it was published only ten days ago in the Proceedings of the Royal Academy of Sciences in Paris. Last year 1673 persons were treated. They were all certified to have been bitten by rabid dogs—they were either so certified

as suffering from rabies, or they were proved rabid by inoculation. Of the 1673 thirteen died; of those thirteen six died during treatment, making it, therefore, very sure that in them the treatment had been begun too late; and of the remaining seven four died so soon after that treatment that it might be suspected that in them also the treatment was begun too late. There were only three examples of what might be called complete failure. Thirteen deaths instead of the number that would have died before the treatment of M. Pasteur—about 250. Clearly, then, it had been proved as a distinct fact that M. Pasteur's treatment was efficacious. He would venture to ask whether we had in anything of the kind a treatment more efficacious than this. We may, indeed, speak of small-pox as reduced by vaccination to almost as small a mortality; but with that exception we could not adduce a single fact to show that we had anything surpassing M. Pasteur's treatment for rabies.

But he should not like them to suppose that this was only some chance discovery, and the only thing which M. Pasteur had done. He would, therefore, very briefly state that this was only one result of a long life of scientific inquiry, of which only a part had been devoted to the prevention of disease. That inquiry began by the researches on fermentation, and out of them directly sprang, by the admirable insight and energy of Sir Joseph Lister, the teaching and marvellous utility of antiseptic surgery. That was the direct issue of M. Pasteur's earliest work, and his work on fermentation led him to a clearer knowledge of what was to be understood by a virus when speaking of any virulent or infective disease. It made him to understand what a virus might be: that it might be a deadly ferment; that it might be possible so to attenuate, so to dilute it, so to make it comparatively powerless, that the disease might be given to an animal without risk of life. They all knew that a large number of infective diseases could be had only once; such as fevers and the like. Speaking generally, a man could have smallpox, scarlatina, or typhoid fever only once, and they knew that a mild attack of any of these diseases was in itself as great a preventive from a subsequent attack as anything could afford. So, thought M. Pasteur, if he could give to animals—if he could give to sheep and chickens—the disease from which they often died, in a mild harmless form, he should protect them from a fatal one; and so, twenty years ago, he began

his experiments on chickens to save them from the so-called chicken cholera, and then he extended them to cattle and sheep subject to charbon or anthrax, and then to swine subject to the kind of fever called rouget. Pasteur obtained the true virus, the true contagion, of each of these diseases, and he attenuated it down to a point in which he could communicate the disease without danger, and he had thus saved thousands of lives on an enormous scale. To mention only one example: since 1881 there had been 170,000 animals inoculated for charbon (anthrax), and the mortality from this disease of sheep in France was reduced from 10 per cent. to one per cent., and it was now customary for sheep insurance societies in France to put the same question concerning sheep, as in English insurance papers they asked with regard to vaccination, "Have you been vaccinated?" "Had they been inoculated for anthrax?" According to the answer so was the insurance.

Briefly he would say that the efficacy of M. Pasteur's treatment for the prevention of rabies was proved by the certain fact that several hundreds, who without that treatment would have died, had been saved from death; that results similar to those obtained in the Pasteur Institut had been obtained by similar treatment in other places; and that the principles of this treatment were in accordance with a great number of admitted scientific facts. There was one other evidence of its truth and value which might be asked for: Had it been universally accepted? The answer was "No;" and let, he said, that be emphatic, for there had never yet been a scientific and philanthropic truth of great moment that had met with universal acceptance. The opposition that M. Pasteur had received was almost a necessary confirmation of the positiveness of the truth that could be adduced from other sources. He would only add a few words on the personal character of M. Pasteur. All who knew him, knew him to be a thorough gentleman, a man of a kind and most humane temper, ever persevering in the pursuit of truth. For the last twenty years, under the disadvantages of paralysing illness, he had worked with the single object of learning truth and utilizing it. If they could flatter him, it would be by the contribution for which the Lord Mayor asked. Let them promote his Institute and declare their confidence in his work, and there was no personal honour which he could receive that could be compared with that.

Sir HENRY ROSCOE, in seconding the motion, said: I think I shall consult the convenience of this meeting by making my remarks very short, and by reading a letter which I have only just received from M. Pasteur:—

PARIS, *June 27, 1889.*

DEAR COLLEAGUE AND FRIEND,—I am obliged by your sending me a copy of the letter of invitation issued by the Lord Mayor for the meeting on July 1st. Its perusal has given me great pleasure. The questions relating to the prophylactic treatment of hydrophobia in persons who have been bitten, and the steps which ought to be taken to stamp out the disease, are discussed in a manner both exact and judicious. Seeing that hydrophobia has existed in England for a long time, and that medical science has failed to ward off the occurrence even of the premonitory symptoms, it is clear that the prophylactic method of treating this malady which I have discovered ought to be adopted in the case of every person bitten by a rabid animal. The treatment required by this method is painless during the whole of its course, and not disagreeable. In the early days of the application of this method, contradictions, such as invariably take place with every new discovery, were found to occur, and especially for the reason that it is not every bite of a rabid animal which gives rise to a fatal outburst of hydrophobia. Hence prejudiced people may pretend that all the successful cases of treatment were cases in which the natural contagion of the disease had not taken effect. This specious reasoning has gradually lost its force with the continually increasing number of persons treated. To-day, and speaking solely for the one anti-rabic laboratory of Paris, this total number exceeds 7,000, or exactly, up to May 31, 1889, 6,950. It is only by palpable and wilful misrepresentations that a number differing from the above, and differing by more than double, has been published by those who are systematic enemies of the method. In short, the general mortality applicable to the whole of the operations is 1 per cent., and if we subtract from the total number of deaths those of persons in whom the symptoms of hydrophobia appeared a few days after the treatment, that is to say, cases in which hydrophobia had burst out (often owing to delay in arrival) before the curative process was completed, the general mortality is reduced to 0.68 per cent. But let us for the present only consider the facts relating to the English subjects whom we have treated in Paris. Up to 31st May, 1889, their total number was 214. Of these there had been five unsuccessful cases after completion of the treatment, or a total mortality of 3.2 per cent., or more properly of 2.3 per cent. But the method of treatment has been continually undergoing improvement, so that in 1888 and 1889, on a total of 64 English persons bitten by mad dogs, and treated in Paris, not a single case has succumbed, although amongst these 64 there were ten individuals bitten on the head, and 54 bitten in the limbs, often to a very serious extent. I have already said that the Lord Mayor, in his invitation, has treated the subject in a judicious manner from the double point of view of prophylaxis after the bite, and of the extinction of the disease by administrative measures. It is also my own profound conviction that a rigorous observance of simple police regulations would altogether stamp out hydrophobia in a country like the British isles. Why am I so confident of this? Because, in spite of an old-fashioned and wide-

spread prejudice, to which even science itself has sometimes given a mistaken countenance, rabies is never spontaneous. It is caused, without a single exception, by the bite of an animal affected with the malady. It is needless to say that, in the beginning, there must have been a first case of hydrophobia. This is certain : but to try to solve this problem is to raise uselessly the question of the origin of life itself. It is sufficient for me here, in order to prove the truth of my assertion, to remind you that neither in Norway, nor in Sweden, nor in Australia, does rabies exist. And yet nothing would be easier than to introduce this terrible disease into these countries by importing a few mad dogs. Let England, which has exterminated its wolves, make a vigorous effort, and it will easily succeed in exterminating rabies. If firmly resolved to do so, your country may secure this great benefit in a few years. But until that has been accomplished, and in the present state of science, all persons bitten by mad dogs must of necessity have recourse to the anti-rabic treatment. Such, it seems to me, is a summary of the statement of the case by the Lord Mayor. The Pasteur Institute is profoundly touched by the movement in support of the meeting. The interest which his Royal Highness the Prince of Wales has evinced in the proposed manifestation, is of itself enough to secure its success.

Sir H. ROSCOE, M.P.

Allow me, &c.,

L. PASTEUR.

I venture to think, my Lord Mayor, that what has fallen from yourself and from the speakers, and after reading this letter of M. Pasteur, a very few remarks will be needed from me in seconding this resolution, which I do with very much pleasure. Sir James Paget has stated with truth, that the special investigation with which we are now concerned is only the last link in the long chain of important discoveries which M. Pasteur has made. To us who have watched and marvelled at the work he has already published, it comes not as sprung out of the air, but as the natural consequence of the working out of experiments carried on throughout a quarter of a century with the greatest exactitude, and with every possible precaution which physical or chemical science can suggest. As indicating the value to us in England of Pasteur's researches, allow me to call attention to one series of cases which we sent up from Lancashire not long ago, in the spring of this year. Ten little children were bitten by a mad dog in the town of St. Helens ; they were frightfully bitten, especially about the face and head, so much so, that when they arrived in Paris, they were sent off immediately under the care of a nurse and a surgeon. M. Pasteur hardly dared to believe that he would succeed in overcoming the poison which had already entered into their small bodies. These children were treated by the anti-rabic method, and now

their time of probation has passed ; they are perfectly well and free from danger. That is an instance—one of many instances—of what the Institut Pasteur has done for us, and is it not well that we should bestir ourselves, and does it not behove English people to come forward and show our appreciation of this great work of M. Pasteur, and assist the poor who are sent over to Paris to be treated ? Those who have visited the Institute, as I have had the pleasure of doing, and have observed the way in which M. Pasteur works—will agree with the words which fell from Sir James Paget just now, that Pasteur has a soft heart, and feels most deeply even the slightest pain given, whether to man or to animal, and it is almost beneath contempt that his name should be in any way mentioned in connection with want of feeling or cruelty. I have very great pleasure in seconding this resolution, and I trust that our meeting will be a great success, that we shall be able to send a considerable sum of money to M. Pasteur to assist him in his noble work.

Sir JOSEPH LISTER : My Lord Mayor, Ladies and Gentlemen,—After the full information that the meeting has already had from previous speakers, very few words are needed from me in support of this resolution. I would, in the first place, remark that it is a striking example of the generous philanthropy of M. Pasteur, of his complete unselfishness, that he has entered so warmly and earnestly into a proposal for stamping out the disease which, if successful, would make his own method, the product of so much thought and labour, entirely superfluous. Then I may say a word with regard to the work of the Commission appointed at the suggestion of Sir Henry Roscoe, to enquire into Pasteur's method. Though we had every confidence in Pasteur's word and scientific character, we felt it our duty to go into the matter very thoroughly. We put ourselves in communication with M. Pasteur, who treated us in every way with the utmost frankness, shewing us all the details of his procedure, and placing his records of cases freely at our disposal. We also had experiments instituted by our Secretary, Mr. Horsley, in confirmation or otherwise of Pasteur's alleged facts, and we found that the experiments which Mr. Horsley made confirmed, so far as they went, absolutely and on every point M. Pasteur's statements. There is another matter to which I should like to refer, viz., that M. Pasteur, in the course of his investigations, has discovered a method by which it may be certainly ascer-

tained whether a dog which has been killed after biting a person really was or was not mad. If nothing else had been done by M. Pasteur but this, he would deserve the thanks of the civilised world. I would conclude with one word as to the alleged cruelty to animals involved in Pasteur's treatment. No doubt, it seems at first sight a revolting idea that it should require the maintenance of a perpetual series of rabbits, to which this disease, hydrophobia, is communicated by a wound; but when we come to look into the matter in detail, we find in the first place that the actual operation upon the rabbit is performed under anæsthesia, so that the animal does not feel it in the least. In the second place the small wound which is inflicted is so treated that it does not inflame. It is of the very essence of the success of the procedure that the wound should not inflame, and the wound being free from inflammation, is absolutely painless; heals without causing the slightest suffering. In the third place, when the disease does come on in the rabbit, it is not in the raging form in which it occurs in the dog or in man; but is of the paralytic variety. The animal gradually loses power. For a man to feel he was gradually losing power in his limbs would, no doubt, be a dreadful thing, because he would reflect on it; but the animal not having the power of reflection, and the loss of power being in itself quite painless, the rabbit does not, I suppose, suffer in the least from the disease communicated to it. Thus when we come to look into the matter in detail, we find that the apparent horrible circumstances of the treatment of M. Pasteur, have no horrors at all; and therefore I earnestly hope that when these facts come to be generally known, the objection to this treatment, resting on a sentiment so absolutely baseless, will cease to have a hold upon the common sense of Englishmen.

The LORD MAYOR having put the motion, which was carried unanimously, said: We have already received, in anticipation of this meeting, a considerable number of subscriptions amounting to about £1,200, including H.R.H. the Prince of Wales, £100; the Duke of Westminster, £200; the Duke of Northumberland, £100; Sir Frederick Leighton, 10 guineas; the Misses Lawrence, £25; Sir Trevor Lawrence, M.P., £15; Professor Tyndall, £10; Mr. Jonathan Hutchinson, £5; Mr. Archibald Walker, 5 guineas; Mr. Bertram Currie, £100; Mr. Hazeltine, two of whose children were saved by M. Pasteur, £25; Stewart Hutchinson, £100;

Professor Erichsen, £25; Sir John Lubbock, £10; Mr. Romanes, £10; Professor Huxley, £5; Professor Ray Lankester, £5; Proprietors of the *Field*, 20 guineas; Sir Henry Acland, £5; Sir Henry Thompson, £10.

Sir JOHN LUBBOCK said: My Lord, Ladies, and Gentlemen, the resolution I have the honour in moving is "That this meeting desires to express the indebtedness of the people of Great Britain and Ireland to M. Pasteur, and the staff of the Institut Pasteur, for the generous aid afforded by them to over 200 of our fellow countrymen suffering from the bite of rabid dogs." I think we all feel that this resolution follows naturally the corollary that was just unanimously passed. When I was in Paris last year I had the opportunity, thanks to M. Pasteur's kindness, of visiting more than once the Institut and seeing the whole treatment. I feel, however, that, after what you, my Lord Mayor, have said, and what has fallen from Sir James Paget, Sir Henry Roscoe, and others, it is quite unnecessary for me to say anything with respect to the success of the treatment. There was one matter which I must confess I heard from M. Pasteur with some regret. He is not only, as you say, Sir, a very humane man, but also a person of great sensitiveness. I found that he was suffering considerably from the idea that there was an impression in this country that he was a man of a cruel and heartless nature. I naturally did what I could to re-assure him on that point, but I rejoice at this meeting, not merely on account of the material contribution which we shall send him, but because I know how very much he will value this expression on the part of our countrymen and countrywomen. I feel certain that more than, and independently of, any pecuniary aid he will receive from us, he will highly value this expression of the people of this country—the overwhelming expression of opinion from those who are best qualified to form one, how very much not only the cause of science, but the cause of humanity also, is indebted to M. Pasteur for his researches. To-day you are dealing more especially with the particulars of his investigations in the mode of treatment of those who are suffering from the most terrible disease to which human nature is liable—rabies. But we cannot forget how much we are indebted to the labours of M. Pasteur in other directions. We shall remember them in passing this resolution, although it has special reference to the particular case which has brought us here to-day

We are indebted to the Right Honourable the Lord Mayor for calling us together on this occasion, and I am very glad that we *have* an opportunity of testifying our gratitude to M. Pasteur especially. I know how very much he himself will appreciate this expression of the goodwill and gratitude of the people of Great Britain and Ireland.

The Reverend Prebendary HARRY JONES said: There have been, my Lord Mayor, many occasions in which a man has been called upon to return thanks for health under this roof, but I think on no possible occasion could the gratitude which has been felt be so profound as that which ought to be felt, when we show thanks for the preservation of a large number of our fellow-creatures from so horrible a death as that of hydrophobia. My Lord Mayor, we must not forget that when a patient is once bitten by unquestionably a rabid dog, he virtually is removed at once to a condemned cell, although he is no criminal. The criminal, indeed, always hopes for a reprieve; but the hope of deliverance is faint indeed in the case of anyone who is suffering in such a case without a crime. For it would be impossible to realise the mental pictures which must present themselves to a man who knows that he has been subjected to such a possible, horrible, and immediate future as may follow being bitten by a mad dog. We know we are told that it is impossible for him to know the effect at once. He is obliged to wait for a month, and it is just possible that an execution, the date of which is unknown and the arrival uncertain, may be put off for a year; but what a year! When the execution comes, we know that it is associated with and accompanied by some of the most hideous tortures it is possible to associate with the agony of dying. We are told now that science is exercising itself to mitigate the distress and pain of dissolution to the worst offenders, but hitherto, as we are informed, science has been wholly impotent in the case of those who have committed no offence. What must we think then, and what must be our gratitude to him who comes to us, not merely offering to assuage the sufferings which we feel, but who comes with a reprieve, bringing a message of deliverance to his fellow-creatures. And let it not be forgotten that he brings a message of deliverance to dogs themselves, for surely in the stamping out of rabies the dog himself (and I am a great lover of dogs) is delivered from the greatest scourge to which the dog may be exposed. It is not for me, pre-

tending to no scientific knowledge whatever, to dwell on the scientific aspect of this part of Mr. Pasteur's work, but I am sure I shall be allowed to say that I am convinced that in this case the gratitude which we feel is not marred in the least by any sense of jealousy. We are glad that this great work has had a beginning, and we are not jealous of the fact that it has had its beginning in the hand and heart of M. Pasteur. We all know that true science, like true religion, overrides and ignores all personalities. The spirit of inquiry never asks the nationality of the soul which it fills. But in this case we have got beyond the inquiry; we seem to have passed the threshold of investigation. We are not dealing with opinions, but with facts, and it is for these facts that I am now seconding this resolution, which is to convey to our neighbours across the Channel our deep gratitude for what we feel. I will only just say that in this matter we are not the greedy recipients of a benefit, for which we have given ourselves no trouble at all. But this point must not be forgotten, that our respective benefits which we have received are accompanied by the glad reflection that our use of the benefit has added to the proofs of its value, and enabled others more readily to enjoy them in their own case. We may be sure that the best side in any people is a common perception of good, and I am sure that the successful treatment of a large number of English sufferers by these French methods is not the least of those cords which can bind, and ought to bind, neighbours together.

Dr. HIME said it gave him very great pleasure indeed to be able to stand upon that platform in support of the resolution which had been read to the meeting. The people of England were represented there very forcibly indeed by a strong platform of able and scientific men and others to speak on their behalf. They were that day about to show their gratitude, he hoped not merely by a lively sense of favours to come, but in a more touching way by a strong expression of their feeling and by generous response to their appeals. The earliest occasion on which English people went over to Paris to derive benefit from Pasteur's treatment was, he believed, that of a number of people bitten in the town of Bradford. There were eleven persons bitten there by a mad dog, the result being that one person died of hydrophobia, and that was the only one of the party who did not go for treatment over to Paris. He himself

accompanied the others; all but one of whom were young children bitten in different ways, some in the face, on the hands, one in the eye, under conditions of the most extreme danger. All these children, he was glad to say, were still living and well. He had indirectly sent over thirty or forty others, every one of whom survived to this day. He had to express his gratitude to Pasteur for his extreme kindness to all this party, and more than that, to thank him for the preservation of his own life. Dr. Hime here referred to an unmistakable and uncontradictory proof that the protective method was in itself absolutely protective, a fact which was experimentally demonstrated by the facts adduced. But he would at the same time direct attention to the fact that Pasteur's work in hydrophobia was by no means his greatest or most fruitful, although undoubtedly that which had most attracted public notice. The whole question of the nature and propagation of infectious diseases, and of the modes of their prevention had been revolutionised by him, and light now was breaking where all had been darkness. He had opened up an horizon showing a boundless field of benefits alike to man and beast. Our appreciation of him had hitherto been slight. We had accepted without acknowledgment the advantages to be derived from his whole life-work. It was time the richest country in the world should at least give a pecuniary acknowledgment of his unparalleled generosity and kindness. And if we were wise we would liberally assist him to carry on his brilliant researches, in fields of research unfortunately closed to Englishmen in England. Had Pasteur lived in England his great work could never have been accomplished, and the world would have been by so much the sufferer. As to his generosity and kindness, the fact that he had gratuitously treated over 200 Englishmen was not a sign of want of liberality or want of kindness of heart. No one who had seen M. Pasteur in his laboratory, and the kindness and gentleness he showed towards children, would accuse him of want of kindness. He begged most heartily and sincerely to support the resolution put before the meeting.

The resolution was carried unanimously.

The LORD MAYOR said: I am happy to say that the son of M. Pasteur is on the platform here to-day. I hope he will convey to his father the expression of the feeling of this meeting. It is true that the numbers are not very

large, for the reason which I could very easily explain, and which probably some of you know, but I think I may say that the gathering in connection with such a subject as this is one of the most influential that has ever assembled in this city of London, and I hope M. Pasteur, jun., will convey that fact to his father at the time he conveys the resolution which has just been passed.

Professor MICHAEL FOSTER said: My Lord Mayor, you have just given an expression of opinion. In an English meeting in most places, and I take it to be especially so here, an expression of opinion is very naturally followed by an act known as putting the hand in the pocket, and the resolution which I have to propose follows even more necessarily upon the two former resolutions than did the second upon the first; it is, "That this meeting requests the Lord Mayor to start a fund for the double purpose of making a suitable donation to the Institut Pasteur and of providing for the expense of British subjects bitten by rabid animals, who are unable to pay the cost of a journey to Paris." Such a resolution, I take it, needs no speech from me in support of it, and I am glad of this, because I feel a certain delicacy in proposing the resolution which has been entrusted to my care. I have the honour to appear here as a representative, an unworthy representative, but an office-bearer of the Royal Society. May I say, my Lord Mayor, that that Royal Society, when agriculture is not being discussed, is called "The Royal Society," but our proper title is, "The Royal Society of London," and when the word London was first used in connection with that society, it meant the City of London. We were really born in the City of London and held our first meetings in the City of London, and although we now hold our meetings outside your jurisdiction we still feel your touch, and I assure you on behalf of our Fellows that our hearts leaped within us when we heard you had taken this work in hand. It is the duty of the Royal Society to perform a very limited task. We have no power to "do good," we are confined entirely to the improvement of natural knowledge, and we think that the improvement of natural knowledge is a power sometimes for evil, but mostly for good, and on this occasion certainly for good only. We regard ourselves simply as a prophet in the wilderness preparing for those who "do good." We cannot do good ourselves, and this is the practical appli-

cation of what I have said, that we have no funds at our disposal for any benevolent purposes; and therefore it is that the Royal Society does not appear as the Royal Society upon the list of donations. Nevertheless our hearts are with you, my Lord Mayor, and though we cannot subscribe as a body, many of our Fellows will, as many already have done, contribute largely to this great object. The resolution consists of two parts: in one we are asked to subscribe to the Pasteur Institut, and I may venture to say that that money will not be wasted, that it will not be wrapped in a napkin, but will be made use of to make still further discoveries, and still further enlarge our knowledge of these matters. We are asked in the other part to help the poor people who cannot afford to make the journey to Paris, and it is clear that not only the possibility of making the journey to Paris, but of making that journey at once, and of making it in comparative ease and comfort, is a matter of great necessity for the adequate cure of this terrible malady. I think, then, that it needs no further words of mine to press this resolution. May I, Mr. Lord Mayor, if I may go beyond my last, take this opportunity of expressing a private regret that such good reasons do exist why we should not be able to establish an Institut Pasteur in this country. I will not dwell on that, but may I venture to add this one reason to those you have already given. In France it is possible for every man of science to pursue his investigations without trammel and molestation. You, my Lord Mayor, are aware that in this country those who pursue a certain branch of science are put upon a criminal footing, and are allowed to pursue scientific investigation only upon "ticket of leave." Now these investigations upon rabies and other contagious diseases are investigations requiring the greatest care and perfect freedom in the investigator, and I think that an institute established in this country could not be adequately taken advantage of. I take it for granted that it would not do simply to establish in this country a merely mechanical shop, so to speak, for the mere repetition of inoculation. We are only beginning this great subject of inoculation; inquiry must go on, and unless an institute of that kind is kept sweet by the salt of investigation, it will be very apt to be a hindrance and not a help. I think with our present regulations the necessary inquiries which belong to this work are far better carried

out at Paris than they would be in London, and you will do well to give your money to Paris and not keep it for London.

Dr. T. LAUDER BRUNTON, in seconding this resolution, said: You have already heard from Sir James Paget that we may reckon that M. Pasteur has saved 900 lives, but this gives us a very small idea of what good he has really done. The saving of a life is but a small thing, and perhaps it is easier to convey an idea of what I mean by giving you an incident than by giving any number of general details. Some five or six years ago I was called to see a girl at Leytonstone who had been bitten by a dog three weeks previously. No one knew whether the dog was mad or not. Her father, her mother, and herself had gone out walking one Sunday afternoon; the dog came rushing along the road, sprung upon her and bit her upon the cheek, then rushed on, no one knowing from whence it came or whither it had gone. The wound was washed. It was hoped that the dog was not mad, but three weeks after she began to feel a little difficulty in swallowing, and next day she died of hydrophobia. There was no Pasteur Institut then; if there had been that girl might have gone across to Paris and been saved. That would have been a life saved, and M. Pasteur saved more than 900 lives. The death of that girl was but a small part of the mischief which was done by that dog—it blasted that home. Had the Institut Pasteur then been in existence that girl might have been living to cheer the declining years of her father and mother. Now, 900 lives saved means 900 homes, the happiness of which has not been wrecked, at least for the while, and in view of this I think we are justified in moving the resolution—"That this meeting requests the Lord Mayor to start a fund for the purpose of making a suitable donation to the Institut Pasteur." But it so happened that the father and mother of that girl were in a position to have sent her to the Institut Pasteur, had it existed at that time; but there are many others in this country who are not able to do that, and on behalf of the fathers and mothers, as well as of the children who are so likely to get bitten by rabid animals (like the ten who, as Dr. Hime has told us, were bitten all at once, and nine of whom survived under the treatment of M. Pasteur), I think I may second the latter part of this resolution—"That the meeting requests the Lord Mayor to start a fund for the purpose of providing for the expenses

of British subjects bitten by rabid animals who are unable to pay the cost of a journey to Paris."

Professor RAY LANKESTER in supporting the resolution said: At this hour of the meeting, and with so much still before us, I will detain you but a very short time, and the first thing which I should like to say in support of this resolution, and in reference to it, has to do with its history. The one individual in this country who, above all others, is the cause of this meeting, and has summoned it, so to speak, is the second chief magistrate of the land—Lord Chief Justice Coleridge. About five or six weeks ago from the Bench, the Lord Chief Justice spoke in what many of us think to have been a most unjustifiable—a most wrong—way of M. Pasteur, and we have been determined that the insult which Lord Coleridge thought proper to offer M. Pasteur, should be wiped out. I think that this meeting to-day will go far towards doing that. We have to thank Lord Coleridge for his assistance in this matter. I cannot imagine a more sad spectacle than that which is presented by those Englishmen and Englishwomen who accuse the French nation of cruelty—who accuse M. Pasteur of cruelty, when he offers them a cure and treatment for hydrophobia and dog bite, of which you have heard to-day. We have all heard of the poor dog that bites the hand that feeds it. The dog, under those circumstances, is not unfrequently found to be rabid. Some explanation of that kind may be adduced to excuse the attack of those who heap insult and contumacy upon their fellow-creatures who bring them benefits. It is the object of this meeting to show that this ingratitude is not a general feeling in this country—that it is the feeling of the noisy and clamorous few, but it is not the feeling of those who are capable of judging, and of those who have intelligence and education. When we find the Lord Mayor taking up this movement we have a guarantee that the great business men of the City are on our side. The Prince of Wales has come forward to lead, as he always does, the good sense and the good heart of the people of this country in joining in the movement; and we have with us the Duke of Westminster, the Lord Lieutenant of the County of London, who is well known for his tenderness to animals, and only two days ago was taking part in the annual meeting of the Society for the Prevention of Cruelty to Animals—an institution for which I wish to say I have the greatest respect and in which

I take the deepest interest. We have the Duke of Northumberland as a further representative of the aristocracy. We have the clergy on our side, and the intellect and intelligence of the land. I hope this demonstration, and the list of subscribers which will follow from it, will be a sufficient answer to those who pretend that there is a feeling of hostility to M. Pasteur and to his method. Fifty members of the House of Commons, who voted the other day on this subject against the privileges of physiologists, represent the proportion of our opponents—50 out of 660, or one-thirteenth of a gathering of average well-to-do Englishmen. There is one word more I should like to say with regard to the reasons for supporting the Pasteur Institute in Paris. Not only have we sent over 214 men, women and children, and hope to continue to do so in the future if unfortunately it becomes necessary ; but the laboratories of this great institution are open to our students. That is a point I should like expressly to lay stress on. My friend, Dr. Ruffer, of Oxford, is among those who have taken advantage of this welcome of M. Pasteur to his Institute with its magnificent resources, its great rooms with every opportunity for study, and instruments of all kinds provided. Investigators are received there free of charge, and welcomed with a request that they will join in the investigations carried on by the staff of the Institut Pasteur. While the Institut exists at a distance of only eight hours from London, I think it would be out of proportion and somewhat absurd for us to attempt to start a similar Institution in London by means of private subscriptions. But, I may say, I do look forward to the time when an institute of the kind for studying disease of parasitic or bacterial origin will be established in London in the only way in which it can be established—that is, under the auspices of the Government. We cannot by private subscription maintain an institution for scientific research. It cannot be done, it is simply out of the question ; it has been tried. Such discoveries as those of Pasteur can only be looked for by aid of grants from the public purse : these ought to be forthcoming, and I think that the time will come when they will be forthcoming. A final point which I have to bring before you, has reference to some remarks which I read to-day in an organ of the daily press, *The Daily News*. Mr. Colam, the secretary of the Dogs' Home, informed a reporter of *The Daily News* yesterday, that owing to the fact that at the Dogs'

Home they had not received an increased number of rabid dogs, he thought as Mr. Matthews, the Home Secretary, seemed to think, that the number of rabid dogs in London and in England is not on the increase. Now let me draw your attention to the simple facts as to the number of English persons who have been bitten by rabid dogs and been treated in Paris—going thither from this country during the three and a half years 1886, '87, '88, '89. In 1886, when there was a scare with regard to hydrophobia in England, and a muzzling of dogs in London—ineffective because it only extended to London—there were 88 cases; in 1887 there were 63; and in 1888, 24 cases. Now in the first six months of 1889 the records shew already 40 cases of persons bitten in England and treated in France. If that is not most distinct evidence that rabid dogs are on the increase in England, I do not know what could be.

Professor VICTOR HORSLEY moved the next resolution as follows:—"That this meeting, whilst recognizing the value of M. Pasteur's treatment, and taking steps to provide for the treatment of persons who may hereafter be bitten by rabid animals in this country, is of opinion that rabies might be stamped out in these islands, and invites the Government to introduce without delay a Bill for the simultaneous muzzling of all dogs throughout the British Islands, as provided in the measure drafted by the Society for the Prevention of Hydrophobia, and for the establishment of quarantine for a reasonable period of all dogs imported." He said: The tribute which this meeting has paid already to M. Pasteur, in his great achievements to discover a cure for rabies, precludes me from the necessity or advisability of alluding to his great work—in fact, I should like to state at the outset that I am here as a representative of the Society for the Prevention of Hydrophobia. The motto of this society is—"Prevention is better than cure;" and rising as it did in the midst of the last epidemic of rabies in this city, it has continued its work, and it sees in the near future the accomplishment of its object. The introduction of muzzling throughout the kingdom is the only sure means of eradicating the disease in this country. Those here present no doubt are aware of the prevalence of rabies among us; they are familiar with the fact, at any rate, that it has been known for a long time in these islands, but they are not perhaps in possession of the following data. In 1887 only *eight* counties were infected with the disease, whereas since

that period *thirty-four* counties had become infected. Perhaps they are hardly aware that the great cities of this country are the foci of the disease, and that the surrounding counties become infected from the cities; that whereas muzzling in 1885-86 stamped out rabies in London, nevertheless the disease flourished in the surrounding counties, and subsequently, of course, was re-introduced into London as soon as the muzzling regulations were left off. The experience of that epidemic, and the experience of the use of muzzling in Germany, and more so in Scandinavia, show that, unless it was coupled with proper quarantine measures for regulating the importation of dogs, it was perfectly useless in bringing about the complete extinction of rabies. A few words upon the opposition which may be raised to such a measure as the general adoption of muzzling throughout the kingdom may not be out of place. It occurs to me that the view of the opposition was that muzzling would be against the interest of the dog, and also against the interest of the dog-owner. Now as to the interest of the dog, we know absolutely that in the first place it will rid him of rabies, and in the second place it will undoubtedly lower the mortality from, if not extinguish, distemper, a malady of far greater moment to the dog tribe than rabies. We know that the muzzle can be easily adjusted with perfect humanity to the animal, so that the opposition on this ground seems to be futile. As regards the owners, the opposition however proceeds from two totally different points of view. People keep dogs both for pleasure and for use. I cannot believe that any one would wish to indulge his pleasure at the cost of lives of his fellow-creatures, and as regards the utility I may say that the Society for the Prevention of Hydrophobia long ago considered that question and actually framed a Bill, in which they introduced exemptions to meet the difficulty, and these very exemptions are sanctioned by the German Government—the Government which has been the most successful of recent years in stamping out the disease. Moreover by the time the disease was removed in 1886 the opposition against the muzzle had died out, and there could be no doubt—and we have Sir Charles Warren's testimony for it—that if it had been continued there would hardly have been a word raised against it. In the present year, in which we are threatened with an epidemic, it is the dog owners who have come forward in the first

instance to ask for the muzzle, and it is not merely the fad, as it is called, of a few scientific men.

Dr. FARQUHARSON, who seconded the resolution, said: We are, I know, unanimous in expressing our admiration of the scientific skill with which M. Pasteur has invented a cure for the most terrible and, up to this time, the most hopeless of all diseases; but I think you will agree with me in this, however good a cure may be, and however satisfactorily and quickly it may effect a cure of the disease, it is much better to make the cure unnecessary by removing the disease as to which the cure is to be operative. To come back to the old-fashioned saying, "Prevention is better than cure." We have heard to-day that M. Pasteur has expressed his own opinion as to the desirability of stamping out this disease. I am sure no one would rejoice more than himself if, to use a homely phrase, the shutters of this Institut Pasteur had to be put up because there was no more work for him to do. Some persons may feel a certain sentiment against the muzzling of dogs. It is, perhaps, a sad thing to shut up the mouth of a dog, but that dog may go mad, and in a moment of frenzy bite his dearest friend. In the interests of the dogs themselves, and in the interests of the owners, it is a desirable thing that we should try and stamp out—and we have heard to-day we can perfectly succeed in doing so—this disease at its outset. I hope this great and influential meeting will put some influence upon the Government to make them take such steps as they may think necessary to bring about this desirable result.

Captain JAMES said: I feel at this hour the most becoming quality in my speech will be that of brevity, but as I happen to be the Chairman of the Committee of the London County Council, which has the putting in motion of the Rabies Order, it may be well that I should put before you one or two facts in regard to the progress of this fell disease in the metropolis, carrying with them one or two powerful arguments, which I think it is almost impossible for any one to resist. When muzzling was in force in 1885-6 the result was very striking—the number of cases of rabies went down tremendously. Since then the order has not been in force, and we see an equally striking increase. For instance, in 1887 there were 112 cases of suspected dogs, that is to say, the year after the order was done away with there were 112 cases of suspected dogs, of

whom only ten suffered from rabies ; in 1889, in the half-year up to and including the 28th June only there were 111 cases of suspected dogs, of which thirty-four were certified by post-mortem examination to be suffering from rabies. The increase is most striking, and it is still more striking that it is not due to any exceptional circumstances, beyond the natural increase due to no check being put on the power of the dogs to propagate the disease. In January and February there were only six cases ; March to May, sixteen ; in the month of June, which has just passed, there were twelve proved cases in the metropolitan area. Now, the committee of which I have the honour to be the Chairman, has the power to put in force this order ; but I am sure all who have studied this question will agree that it is not much use to put it in force for the metropolitan area, unless it is made universal throughout the length and breadth of the land. I hope you will agree that we have evidently done what is our duty with this question. On the 6th June we addressed a letter to the Privy Council pointing out the advisability of enforcing the order throughout England. I understand that the Privy Council are considering the question. Their period of incubation is longer than is the development of the disease, I am sorry to say. We addressed another letter on the 29th, but we have as yet had no answer.

Mr. EVERETT MILLAIS said : This resolution has been so well proposed by my friend, Professor Horsley, that I think I cannot add anything further to it except one thing. He did not, in speaking of the Society for the Prevention of Hydrophobia, state that the principal dog owners, members of the Kennel Club, members of the large specialist clubs, sportsmen, and lovers of dogs in general were members of the Council. I do not think, therefore, that it can be possibly said that dog owners object to muzzling. I have great pleasure in supporting the resolution.

Sir GEORGE STOKES said : After the speeches that we have heard and the resolutions that have been accepted by this meeting, it is wholly unnecessary for me, especially at this late hour of the afternoon, to say anything in addition to what has been said already in order to commend to you the general subject for which we have met ; but it remains to create the machinery by which your wishes can best be carried out. It is necessary there should be a certain number of gentlemen who would busy themselves

more especially with the furtherance of these objects. I have further to propose to you a resolution—"That the following gentlemen be a committee, with power to add to their number, to co-operate with the Lord Mayor in giving effect to the resolutions passed, and that Professor Horsley be secretary. Sir James Paget, F.R.S.; Sir Henry Roscoe, F.R.S.; Sir Joseph Lister, F.R.S.; Professor Stokes, F.R.S.; Sir John Lubbock, M.P., F.R.S.; Rev. Harry Jones; Professor Michael Foster, F.R.S.; Professor Ray Lankester F.R.S.; Professor Horsley, F.R.S.; Mr. Ernest Hart; Mr. Bertram Currie; Mr. J. Romanes; Dr. Lauder Brunton, F.R.S.; Dr. Farquharson, M.P.; Dr. J. Pye Smith, F.R.S.; General Strachey, F.R.S.; Colonel Howard Vincent."

This was seconded by Sir William Bowman, and carried *nem. con.*

General STRACHEY, member of the Indian Council, moved the following resolution:—"That this meeting desires to convey its cordial thanks to the Lord Mayor, for the great interest he has evinced in this important movement and for presiding on this occasion." He said it only remained for him—on behalf not only of the scientific and professional persons who have advocated this movement, but equally on behalf of what he might call the constituency of this more learned body—to ask you to return your best thanks to the Lord Mayor for the great interest he has evinced, and for presiding on this occasion. It is hardly necessary for me to say a single word more than to notify your cordial acceptance of this proposal. You are all well aware that a movement of this sort cannot be started effectually, unless it is taken up by some person having authority, and you know as well as I do, there is no person in this great City of London who stands in a position of more authority, or is more respected than the Lord Mayor.

Mr. ERNEST HART, in seconding the resolution, said he had the honour to be there (together with Dr. Bridgwater, of Harrow, and Dr. Holman of Reigate) as a deputation from the Scientific Grants Committee of the British Medical Association of Medical Men, 13,000 in number, which desired that it should be understood that the words that had fallen from the representative men of science on the platform that day were heartily echoed by the medical profession generally. That great instructive and humane body of physicians, surgeons and general practitioners of

Great Britain were heartily in accord with this movement which the Lord Mayor had inaugurated, and he (Mr. Hart) was present on their behalf to ask the meeting now to thank the Lord Mayor for the ability, the courtesy, and the skill with which he had conducted the proceedings that day.

The resolution was carried with acclamation.

The LORD MAYOR, in reply, said : I desire to thank you for the resolution which you have passed so unanimously in my favour. In the course of the proceedings a resolution has been carried asking me to start a fund in connection with this movement. I need hardly tell you that I have anticipated your wishes ; the fund is already well set going, and when I state that the subscriptions received amount to three times the amount that has been contributed by Great Britain and Ireland during the last four or five years to the Pasteur Institute, I think you will see that there is cause for congratulation. So far as I am concerned, if those who feel with us in regard to the subject desire to show their gratitude to me, the best way they can do so is to send in very handsome subscriptions. I would like to remind those present that the Pasteur Institute in Paris is by no means carried on for the personal benefit of M. Pasteur—it is entirely a public institution under trustees, it is partly supported by the Government, and it is very largely supported by wealthy and benevolent persons in Paris, the chief of whom is a lady, the proprietress of the Bon Marché Drapery Store. I am very glad that this movement has been started in London. We are always pleased when, in connection with the Mansion House, we can give an opportunity for the institution of anything that is for the benefit of the public at large. Whatever other good work I may get credit for during my year of office I shall feel that the proceedings of this day will be one of the bright spots in my mayoralty. I shall have the conscious feeling in this instance, at least, that I have associated myself with a noble and humane cause.

The meeting then separated.

The following are among the numerous letters received.

FROM THE ROYAL SOCIETY.

Royal Society,
Burlington House,
June 26th, 1889.

MY LORD MAYOR,—The Council of the Royal Society, with the approval of the Fellows of the Society at their Meeting on Thursday last, have desired me to express to you the great pleasure with which they learn that your Lordship has called a Meeting at the Mansion House on July 1st, with the view of raising a fund to serve the double purpose of making some acknowledgment of the indebtedness of the people of this country to the Institut Pasteur, in which more than 200 cases of rabies among our fellow-countrymen have been gratuitously treated on M. Pasteur's system; and of defraying the expenses of the journey to Paris in the case of such of our poorer countrymen as may hereafter need treatment at the Institut.

The Royal Society, My Lord Mayor, take, I assure you, a warm interest in this recognition of M. Pasteur's services in carrying out so remarkable an extension of that "natural knowledge" which the Society was founded to develop.

To express their approval in a more formal manner, they have appointed the Officers of the Society, together with Sir James Paget, Sir Joseph Lister, Sir Henry Roscoe, and Professor Lankester, to be their representatives on the occasion of the meeting.

M. Pasteur has been for many years a Foreign Member of this Society. So long ago as 1874 he received the most distinguished mark of honour which the Society have in their power to bestow—the Copley Medal; and in the present year was invited to deliver before the Society the Croonian Lecture. The Council, on learning that the state of M. Pasteur's health would not allow him to undertake that duty, appointed M. Roux, his chief assistant, to deliver the lecture.

On the part of the Royal Society, I desire to assure your Lordship that, in affording the public of this country an opportunity of showing their appreciation of the great benefits accruing from the discoveries of M. Pasteur, you are giving valuable aid to the progress of science, and to the abatement of suffering and disease.

I have the honour to be,

My Lord Mayor,

Your obedient Servant,

G. G. STOKES,

President R.S.

The Right Hon. the Lord Mayor,
Mansion House, E.C.

FROM PROFESSOR HUXLEY, F.R.S.

Monte Generoso, Switzerland,
June 25th, 1889.

MY LORD MAYOR,—I greatly regret my inability to be present at the Meeting which is to be held under your Lordship's auspices in reference to M. Pasteur and his Institute.

The unremitting labours of that eminent Frenchman during the last half century have yielded rich harvests of new truths, and are models of exact and refined search. As such, they deserve and have received all the honours which those who are the best judges of their purely scientific merits are able to bestow.

But it so happens that these subtle and patient searchings out of the ways of the infinitely little,—of that swarming life where the creature that measures one-thousandth part of an inch is a giant,—have also yielded results of supreme practical importance. The path of M. Pasteur's investigations is strewn with gifts of vast monetary value to the silk trader, the brewer, and the wine merchant. And this being so, it might well be a proper and a graceful act on the part of the representatives of trade and commerce in its greatest centre to make some public recognition of M. Pasteur's services, even if there were nothing further to be said about them.

But there is much more to be said. M. Pasteur's direct and indirect contributions to our knowledge of the causes of diseased states, and of the means of preventing their occurrence, are not measurable by money-values, but by those of healthy life and diminished suffering to men. Medicine, surgery, and hygiene have all been powerfully affected by M. Pasteur's work, which has culminated in his method of treating Hydrophobia.

I cannot conceive that any competently instructed person can consider M. Pasteur's labours in this direction, without arriving at the conclusion, that if any man has earned the praise and honour of his fellows, he has. I find it no less difficult to imagine that our wealthy country should be other than ashamed to continue to allow its citizens to profit by the treatment, freely given at the Institute, without contributing to its support. Opposition to the proposals which your Lordship sanctions would be equally inconceivable, if it arose out of nothing but the facts of the case thus presented.

But the opposition which, as I see from the English papers, is threatened, has really, for the most part, nothing on earth to do either with M. Pasteur's merits or with the efficacy of his method of treating Hydrophobia. It proceeds partly from the fanatics of *laissez faire*, who think it better to rot and die than be kept whole and lively by State interference; partly from the blind opponents of properly conducted physiological experimentation, who prefer that men should suffer, rather than rabbits or dogs; and partly from those who, for other, but not less powerful motives, hate everything which contributes to prove the value of strictly scientific methods of inquiry in all those questions which affect the welfare of society.

I sincerely trust that the good sense of the Meeting over which your Lordship will preside, will preserve it from being influenced by these unworthy antagonisms; and that the just and benevolent enterprise you have undertaken may have a happy issue.

I am, my Lord Mayor,
Your obedient Servant,

The Right Hon. the Lord Mayor,
Mansion House, E.C.

THOMAS H. HUXLEY.

FROM THE BRITISH MEDICAL ASSOCIATION.

British Medical Association,
 General Secretary's Office,
 429, Strand, London, W.C.,
June 28th, 1889.

MY LORD MAYOR,—I have the pleasure to forward subjoined herewith copies of Resolutions passed at a Special Meeting of the Scientific Grants Committee of the British Medical Association held yesterday, the 27th instant, at the Offices of the Association.

I have the honour to be,
 Your Lordship's most Obedient Servant,
 FRANCIS FOWKE,
*General Secretary
 of the British Medical Association.*

To the Right Hon. the Lord Mayor,
 Mansion House, E.C.

RESOLVED :—"That this Committee desire to express their approval of the action taken by the Lord Mayor to make public and national recognition of the great work done by M. Pasteur in the prophylactic treatment of rabies and hydrophobia, and in the successful investigation of the causes and means of prevention of other diseases of men and animals. That the following gentlemen be appointed a deputation to attend the Meeting at the Mansion House on July 1st, and to support its objects :— Prof. Burdon Sanderson, Dr. Bridgewater, President of Council ; Dr. Holman, Treasurer of the Association ; and Mr. Ernest Hart."

RESOLVED :—"That temporary accommodation be afforded to the Secretaries of the Mansion House Pasteur Fund in the Offices of the British Medical Association."

RESOLVED :—"That it be a recommendation to the Council to make a grant of £100 to the Pasteur Fund opened by the Lord Mayor of London."

FROM J. E. ERICHSEN, F.R.S.

6, Cavendish Place,
 Cavendish Square, W.
June 27th, 1889.

MY LORD MAYOR,—I regret extremely that I shall not be able to attend the Meeting in aid of the Pasteur Institute, to be held at the Mansion House on July 1st, as I have to preside at a Council at University College on that day, at 3.30 p.m. I wish, however, to express my entire sympathy with the objects of the proposed meeting.

The researches of Pasteur on the influence of micro-organisms in the production of disease have led directly to vast and most important practical results in medicine and in surgery, in their application alike to man and the lower animals.

By the application of his discoveries to surgery, pain, as a consequence of operations and of injuries, has been practically abolished.

By their aid in medicine, the true nature of many diseases, heretofore obscure in their origin and characters, has been rendered clear.

Protective inoculation of some of the most terrible and fatal diseases to which the lower animals—more especially those that are domesticated—are subject, has led to the most humane and beneficent results.

If the discovery of means that extinguish suffering and that prevent and cure disease in man and the domesticated animals, constitute a claim to having advanced the cause of humanity, then, surely, Pasteur must be placed in the foremost rank of true humanitarians.

I have much pleasure in sending you a cheque for £25, in aid of the fund now being raised by you for the "Pasteur Institute."

I am, my Lord Mayor,
Very faithfully yours,
JOHN ERIC ERICHSEN.

To the Right Honourable
The Lord Mayor of London.

FROM THE ASSOCIATION FOR THE ADVANCEMENT OF MEDICINE
BY RESEARCH.

57, Wimpole Street, W.,
June 28th, 1889.

Sir,—I am desired to transmit to your Lordship the following Resolutions, which were passed at a Meeting of the Council of this Association held to-day at the Royal College of Physicians, Sir William Bowman, Bart., F.R.S., in the chair.

1. "That this Meeting recognises with gratitude the great services which M. Pasteur has rendered to mankind, particularly by his researches on Rabies and its preventive treatment."
2. "That the following gentlemen be a deputation from this Council to the Meeting at the Mansion House on Monday next, to give their most earnest support to the Lord Mayor, namely—

Sir WILLIAM BOWMAN, BART., F.R.S.
Sir EDWARD SIEVEKING, M.D., LL.D.
Professor HUMPHRY, M.D., F.R.S., F.R.C.S.
DR. WILKES, M.D., F.R.S., LL.D."

And I am directed to ask that your Lordship will kindly let seats be reserved for these four gentlemen on the platform at the Meeting.

I remain, Sir,
Your obedient Servant,
STEPHEN PAGET,
Secretary.

The Right Hon. the Lord Mayor,
Mansion House, E.C.

FROM PROFESSOR TYNDALL, F.R.S.

Hind Head House, Haselmere,
June 24th, 1889.

MY DEAR LORD MAYOR,—Personally, and through his publications, I have been in communication with M. Pasteur from a very early period of his scientific career.

In regard to "living ferments" and "living contagia," I have studied all his works, weighed the evidence on which his conclusions rested, and tested them by experiments of my own.

I consider these conclusions irrefragable. My belief in them remained unshaken at a time when many distinguished men—scientific and medical—in Europe and America doubted their validity.

I cannot attend the proposed Meeting on July 1st, but the movement has my entire sympathy and adhesion. Allow me to testify this by sending you a cheque for £10; were I a wealthier man I would make it ten times ten.

I am,
My Lord Mayor,
Yours very faithfully,
JOHN TYNDALL.

FROM SIR HENRY W. ACLAND, K.C.B., M.D.

Oxford,
June 28th, 1889.

MY LORD,—I have to thank your Lordship very sincerely for inviting me to the Pasteur meeting at the Mansion House on Monday next. I much regret my inability to attend, and therefore I venture to write these few lines to your Lordship.

Of the value and importance of M. Pasteur's labours and discoveries there can be no question in the minds of reasonable persons. Of M. Pasteur's self-denying and splendid career the civilised world is thoroughly convinced. I desire, therefore, to render my humble testimony to both these, with my fellow countrymen, under your Lordship's direction and guidance.

But I should not wish to express this sentiment in such a way as even to appear to imply that England herself cannot, if desirable, take part in this matter. I am still of opinion, as I have repeatedly stated in public and private for the last twenty years, that the University of Oxford should possess an Institute of General and Comparative Pathology, in which any circumstance whatever attending the causation, prevention, and treatment of diseases affecting the animal kingdom, could be carefully studied as a branch of Biology.

I further believe that such an institute or laboratory should be subsidised from national funds, because its work would be of national utility; and being situated in the centre of an agricultural district it would have obvious advantages for carrying on the necessary inquiries, while its position in the University would furnish a positive guarantee that nothing extravagant or uncalled for would be attempted.

Moreover, it is essential for the development of the higher medical education, and a necessary supplement to the Laboratories for Physical Science already existing here.

I still hope and believe that such an institute must soon be established—then work similar or analogous to that of M. Pasteur would be one of the matters that could be undertaken by it, if desirable.

I cannot, therefore, now give assent to any proposition which even seems to imply that such duties cannot and should not be carried out in England.

To M. Pasteur, on every ground, I wish to tender my homage and respect.

I have the honour to be, my Lord,
Your Lordship's faithful servant,
HENRY W. ACLAND

The Right Honourable the Lord Mayor.

FROM FRANK KERSLAKE, *Hon. Secretary to the Society for the Prevention of Hydrophobia.*

12, St. George's Square,
Primrose Hill, N.W.,
July 1st, 1889.

MY LORD MAYOR,—You may perhaps wonder why a humble individual like myself should address you upon the subject of to-day's meeting for the prevention of hydrophobia, but I have been connected with the work of the Society from the first day of its existence, and cannot help expressing my delight at the culmination of its efforts in the assistance which its proposals have to-day received at your lordship's hands. The Society has had an uphill struggle against ignorance, prejudice, and unscrupulousness; and its opponents, calling themselves ladies and gentlemen, have not been ashamed to attribute to the Society the most unworthy motives, while the fact has been that we have been fighting for the true welfare of both mankind and dogs. If our opponents were not so desperately thick-headed, and so blinded by prejudice, they could not fail to see that by proposing the *prevention* of hydrophobia we are the best opposers (in the true sense of the word) of what they call Pasteurism; because that which is prevented needs not to be cured. To-day will be an epoch in the history of the prevention of one of the most frightful of all maladies; and begging you to accept my tribute of respect and gratitude for the crowning part you have taken in the work,

Believe me to be,
My Lord Mayor,
Your lordship's very obedient servant,
FRANK KERSLAKE.

P.S.—I imagine that your lordship has seen some articles that have recently appeared upon the subject, but in case you have not, I venture to enclose our reprints of them.

FROM GEORGE J. GOSCHEN, JUNR.

Treasury Chambers, Whitehall, S.W.,
June 25th, 1889.

MY LORD,—I am directed by the Chancellor of the Exchequer to inform you that he will be happy to give a donation of £10 to the Pasteur Institute.

I am, my Lord,
Your obedient servant,
GEORGE J. GOSCHEN, JUNR.

FROM W. H. CORFIELD, M.A., M.D.Oxon., F.R.C.P.Lond.,
President of the Society of Medical Officers of Health.

19, Savile Row, London, W.,
June 29th, 1889.

MY LORD MAYOR,—On behalf of the Society of Medical Officers of Health, I have the honour to acknowledge the receipt of an invitation to the meeting summoned by your lordship for July 1st at the Mansion House to consider "The prevention of hydrophobia."

Although unable to attend the meeting, I am desired to express the cordial feelings of gratitude that the Society entertain towards M. Pasteur and his staff for the generous treatment afforded by them to our fellow countrymen in the past, and also to state that the Society would cordially support a "Bill for the simultaneous muzzling of all dogs throughout the British Islands, together with the establishment of quarantine for a reasonable period of all dogs imported" as the most effectual means of reducing to a minimum the number of rabid animals.

At the same time I am to express the Society's regret that for the treatment of persons bitten by rabid animals in the future the movement headed by your lordship contemplates raising a fund for the purpose of defraying the expense of transferring sufferers to Paris rather than for the establishment of an anti-rabic institution in the metropolis. The latter suggestion, which we understood originally emanated from your lordship, is looked upon with great favour by M. Pasteur himself in his answer (dated May 31st, 1889) to your lordship's letter, in which communication England and Belgium are represented as the only two civilised countries that have not yet established similar institutions.

I am further desired to suggest that at very small expense an anti-rabic laboratory might be grafted on to some existing institution, such as the "Brown Institute," where the advantages of anti-rabic inoculation could be demonstrated in the metropolis, and to state that such a scheme would be most cordially supported by the Society I represent.

I have the honour to be, my Lord Mayor,
Your obedient servant,
W. H. CORFIELD.

To the Right Hon. the Lord Mayor.

FROM ALF. S. NEWTON, *Sheriff of the County of London.*

Northwood, Chislehurst, Kent,
July 1st, 1889.

MY DEAR LORD MAYOR,—I have an official engagement for this afternoon which may prevent my attending the Pasteur meeting.

You know how entirely I am in sympathy with the object you have in view, towards which I beg to enclose you cheque for five guineas. The fund will certainly and speedily be raised.

Yours faithfully,
ALF. S. NEWTON.

FROM SIR ANDREW CLARK, BART., M.D., F.R.C.P., &c.

16, Cavendish Square, W.
June 29th, 1889.

MY DEAR PROFESSOR LANKESTER,—I much regret, and beg pardon for the delay which arose in replying to your letter about the Mansion House Meeting in favour of the Pasteur Institute. I would gladly have proposed the first resolution at the meeting or have rendered any other service which might have been thought better by your Committee, but I have to head a deputation to the Home Secretary concerning the Lunacy Bill on Monday afternoon, and it will be scarcely possible for me to get to the Mansion House before the meeting will be over.

I delayed my reply because it was rumoured that the Lunacy Bill was to be dropped, and that therefore the deputation would be cancelled, but having no official communication to this effect, the deputation stands for Monday.

I need scarcely add that I shall cordially support the objects of the meeting, that I think great honour is due to those who have initiated this movement, and that it will be a lasting disgrace to London if it is not carried to a successful issue.

Yours sincerely,
ANDREW CLARK.

FROM SIR HENRY THOMPSON, F.R.C.S.

35, Wimpole Street, W.,
June 29th, 1889.

MY LORD MAYOR,—I have much pleasure in asking you to accept ten guineas to the fund about to be raised in order to support the Pasteur Institute, the principle of treatment pursued there having my entire confidence and approval.

I cannot help expressing my regret that we have no similar institution in our own country.

I have the honour to be, my dear Lord Mayor,
Very faithfully yours,
HENRY THOMPSON

To the Right Honourable the Lord Mayor.

FROM RICHARD QUAIN, M.D., F.R.S.

67, Harley Street, W.,
June 29th, 1889.

MY DEAR LORD MAYOR,—I have the honour to acknowledge the receipt of your lordship's invitation to the meeting at the Mansion House on Monday next on the subject of the Prevention of Hydrophobia. I much regret that a pressing professional duty will render it impossible for me to be present. I feel it, however, my duty to say, that having been a member of the Commission appointed by the Government for the investigation of M. Pasteur's treatment of hydrophobia, I entirely agree with the views and the practice of M. Pasteur, and I earnestly hope that complete success may attend this generous effort to extend the benefit of M. Pasteur's treatment to our suffering fellow countrymen.

Your obedient servant,

RICHARD QUAIN, M.D., F.R.S.

To the Right Hon. the Lord Mayor.

N.B.—THE HON. SEC. WILL BE HAPPY TO ANSWER ANY
QUESTIONS CONCERNING THE PASTEUR INSTITUTE.

