that these were a herder's sacrifice. Instead of sacrificing the animals themselves he substituted the images. The animal represented undoubtedly resembles the llama. It is quite different from the mountain sheep or any other animal corresponding in size, and has a long neck. If it is true that they possessed a domestic animal of this species, either the people were of very great antiquity or there was a species of llama in North America at a much more recent date than scientific men suppose. It is a matter, too, of extraordinary interest and significance, if these people had the same domestic animal as that found among the Peruvians when the Spaniards first came to this country. If they had such a domestic animal they undoubtedly took its fleece for clothing, and had woollen as well as cotton fabrics. Some of the earlier Spanish explorers speak of woollen cloth in the possession of the Pueblo Indians. If there is truth in that, then it is more than probable that these people possessed a domestic animal of the llama species probably as large as a good-size sheep.

These people had access to the Gulf of California. This is proved by the discovery of shells in the ruins which have been identified as belonging to the Pacific coast. Though at a considerable distance, they probably had communication with the sea-coast and obtained shells by bartering with other Indians. Of some of these shells skilfully carved ornaments are made. Mr. Cushing found a frog carved from a shell, the back being inlaid with turquoise. The inlaying had been done by cutting little square holes in the shell and fitting pieces of turquoise to them. A native species of lac was used in cementing the pieces. This lac was used also in basket-work. They made carved bracelets, earrings, and finger rings, and various ornaments inlaid in the manner described.

The petrographs did not throw much light on the manner of dress that prevailed, as they showed only the costume worn at certain ceremonials, — a long gown extending down almost to the feet. Near the skeleton of an old war-chief was found a fragment of a gown that must have been richly embroidered in various colors. It was badly decayed, but there was enough left to show that it was an embroided garment.

"The antiquity of these ruins is not settled," said Dr. Wortman. "It has been maintained by respectable authorities that these ruins were occupied within the historic period. I don't think that can be possible. Historic evidence is decidedly against it. We have some records of the earliest Spanish explorers bearing on that point." Dr. Wortman stopped here briefly to summarize the history of the explorations of Cabesa de Vaca, prior to 1530, and of his immediate successors, Father Nisa and Coronado. Coronado's route, he said, to Casa Grande could be easily traced. There he found the ruin now standing, and gave a description of it by which it could be recognized to-day. "If it be true," said the doctor, "that Casa Grande, or Chichillecato, the Red House, a ruin still standing three stories high, twenty-five or thirty miles from Los Muertos, was in ruins when the Spaniards came there, as the records of Coronado's expedition in 1540 plainly indicate, assuredly these houses that Mr. Cushing is excavating, now practically levelled to the ground, had disappeared long prior to that period. In all the excavations Mr. Cushing has made, in the thousands of specimens collected, not a single specimen has been found that would give evidence of contact with whites. My own opinion is that the ruins are pre-Columbian, and if I were going to give a guess I would say they are not less than a thousand years old. The size of the mesquite trees growing from the mounds, indicates a great age."

"Considering all the evidence," said Dr. Wortman, "I have no doubt that when these ruined towns were inhabited, this valley, many miles in extent, was a fertile region, occupied by a thrifty people. They raised cotton, corn, and tobacco. Fragments of cotton have been dug up, tobacco has been found in their sacred cigarettes, and charred corn-cobs also remain to give evidence as to the agricultural products of the valley. As to the population, allowing even a greater number of acres to the man than is now cultivated by the Pima Indians, who, besides supplying their own wants, raise a large quantity of wheat to sell, allowing, say from five to eight acres to a man, the population of the valley must have been at least 200,000, if, as I believe, all their towns were simultaneously occupied. There are evidences that the Zuñis of to-day are a remnant of these people.

The osteology of the people has not yet been thoroughly studied. The skeletons collected will be compared here at the Medical Museum, and the careful study of them will undoubtedly throw much light on the relations of these people to historic people. The heads were short, or, in other words, the people were brachy-cephalic. They were small in stature. The general indications are that they are related to the Zuñis, and they are not unlike the Aztecs and Peruvians. Among the skulls I have found frequently the Inca bone or *Os Inca*, the extra bone in the back part of the skull, which received its name because it was a common thing among the Incas. These indications, with other evidences, suggest many interesting inquiries. It may have been that from this ancient civilization sprang that of Central America and of the Peruvians. A portion of the people may have migrated south, taking the llama with them, while others went north and founded the later Pueblo civilizations."

THE IMPARTIAL STUDY OF POLITICS.

SINCE Burke vindicated in such a memorable manner the party-system in politics, it has taken an extension which probably he never dreamed of. It is a curious speculation what estimate he would have formed of those larger developments of his principle which the nineteenth century has witnessed; for, indeed, there is a great distance between his cautious assertion that 'no men can act with effect who do not act in concert,' and some modern applications of the doctrine of concerted action. We cannot prevent or avoid parties. But let us, at least, be alive to the dangers that attend them. They act upon our habits of thought. They accustom us to consider public questions in a spirit as unfavorable as possible to the discovery of truth. They produce a kind of epidemic lunacy, such as history sometimes exhibits to us in nations that are on the eve of great disasters.

Some efforts have lately been made in England, similar to those now making in this country, to which we referred last week, to grapple with the specific evil of this mental disease produced by party spirit. These efforts have chiefly proceeded from the universities, and have been more or less connected with the movement of university extension. The Social and Political Educational League lately held a meeting, to which Prof. J. R. Seeley communicated an address he had delivered two years ago to a similar society, the Cardiff Association for the Impartial Study of Political Questions. This address we reproduce from the *Contemporary Review*. It was made to an English audience, but has much in it to make clear the problem to those of us in America who are interested in the scientific study of political questions.

The impartial study of political questions! If political questions — that is, questions of the public well-being — are all-important, if an interest in them is among Englishmen universal, it might seem scarcely necessary for you to found a society, or for me to deliver an address, in behalf of the impartial study of them. For surely all honest, serious study tries at least to be impartial. Surely there can be no more obvious cause of error than partiality. The judge, when he addresses the jury, warns them against yielding to bias or prejudice; the scientific man, in his researches, is especially on his guard against that tendency to a foregone conclusion which spoils all investigation and reduces it to a mockery. Surely there can be no exception to the rule that study should be impartial; surely there cannot be subjects in the study of which partiality is to be recommended or not to be condemned.

Yet somehow this undertaking of yours, that you will study political questions impartially, sounds strange and startling, and you seem to feel it so yourselves. Perhaps what is strange is that politics should be regarded and spoken of as a matter of study at all. Yes. Let us frankly admit that we may naturally be a little startled, a little alarmed, to hear politics classed off-hand, as we might class arithmetic or geography, among subjects of study. Politics concern our greatest interests, and therefore excite our warmest feelings; not among studies, not among sciences, we class them more naturally among higher things, by the side of religion, honor, morality. To be a politician is to be warm, eager,

earnest, devoted: the virtue of a politician is to be staunch and zealous in the cause he attaches himself to; and that sort of cold indifference which seems implied in impartiality appears not only not a duty, but actually a sin, in politics.

You do not mean, I am sure, when you undertake to be impartial, that you will for the future cease to be earnest and eager politicians; that you will renounce all strong, clear, sharply cut opinions; or even that you will for the future regard the strife of political parties with indifference, as if it no longer concerned you, much less with contempt, as if you were raised above it. And yet how can this be? How can you be impartial and partial at the same time? How can you at once maintain the passionless objectivity that befits the student, and the ardor, the unflinching decision, without which a politician is good for nothing?

There is no real difficulty here, and yet there is so much apparent difficulty that it is worth while to dwell for a moment upon the point. By partiality we do not mean strong and decided opinions. Of course, when you hear very unsparing and rancorous language used, very uncompromising courses recommended, you may suppose that you are among strong partisans; that is, partial people. But it is not necessarily the case. Opinions formed with perfect impartiality may be strong and uncompromising. The strongest opinions are often the most impartial, even when such opinions are most strongly and passionately expressed. I was surprised, the other day, to hear a friend say of M. Taine's book on the French Revolution that it was evidently partial. He said so because M. Taine has taken a very unfavorable view of the Jacobin party, and has spoken of them in very unsparing language. But does this, by itself, prove him to be partial? If so, what are we to do when we have to deal with great crimes and great criminals? Are we not to describe them as they are? Partiality means a deviation from the truth. When, then, the truth is extreme, terrible, monstrous, — and this is sometimes the case, — partiality would be shown, not by strong, but by weak language. If the Jacobins really were the monsters M. Taine believes them to have been, it was impartiality, not partiality, to describe them as he has done. Everything depends on the fact, on the evidence. Now my friend put the question of fact entirely on one side. He inferred the partiality of M. Taine immediately from the warmth of his language. What struck me was that he did not profess to have examined the evidence and found the charges brought against the Jacobins groundless. He only argued: The picture is extreme, therefore it must be partial. M. Taine writes with strong indignation, therefore we are not to trust him.

Now, I say, indignation, strong feeling, is not necessarily partiality, and therefore strong language is no proof of partiality. Partiality is the sacrifice of truth to a party. In order, therefore, to convict a writer of partiality, you must show that he was connected with a party at the time when he made his investigation, and that this has prevented him from discerning the facts or estimating them accurately. And yet M. Taine tells us that when he formed his estimate of the French Revolution he had no party connection. All the passion he now shows has been aroused in him, so he says, by the study of the facts, and therefore it cannot have prevented him from studying them properly. Nor does it now prevent him from seeing them; on the contrary, he feels it precisely because he sees them so clearly. Of course, my friend had a perfect right to arrive at a different conclusion. But, even supposing M. Taine to have made a great mistake about the Jacobin party, he would not, I think, be fairly chargeable with partiality. For partiality does not merely mean error or exaggeration; it means specifically that kind of error or exaggeration which is produced by judging of things under a fixed prejudice, under a party bias.

This, at any rate, is what you mean when you undertake to study politics impartially. You mean merely that you will consider the facts without bias. You do not undertake that when you have considered them, no strong feeling or passion shall arise in your mind. You will not begin your studies with a political bias, but you do not undertake that your studies shall not give you a strong political bias. Nay, your object is to acquire a firm political creed. And what reason is there to think that this creed, when you have found it, will not be as sharply cut and positive as those old party creeds which you refuse to regard as authoritative? There is nothing in the impartiality you aim at which is inconsistent with the strongest feeling or the most decisive action.

In a country like this, where party passion has been so much indulged and has burned so hotly, the opinion, the political creed, of most people has been imposed upon them like the religion in which they were born. They have lived in it as an atmosphere of which they were scarcely conscious; or, if they have become aware that questions have another side, that opinions different from their own are tenable and even plausible, they have soon found that it was not so easy for them to change their atmosphere; that they broke ties, disappointed hopes, suffered inconvenience, perhaps incurred serious loss, when they tried to establish an independent political position for themselves. You do not, I suppose, complain of this. You recognize that political activity imposes a certain amount of restraint upon individual opinion. I, for my part, should go as far as most people in admitting that there must be compromise, that there must be party-subordination, that we must sometimes waive a conviction, sometimes stifle a misgiving. Practical life has exigencies which the theorist is slow to admit. It would be so delightful if we could always act simply in accordance with our convictions. But, alas! it happens sometimes — nay, my historical studies lead me to think it most commonly happens — that men have to act on the spur of the moment, and must act with decision, when they are tolerably well aware that they have no solid opinion. Through the greater part of history, it seems to me, political action has been a leap in the dark. And yet the leap had to be taken. The problem has generally been, not, What is it right to do? but, Granted we do not know what is right, yet since we must do something, what will it be safest on the whole for us to do? In such circumstances the best course of action is but a make-shift, and a rude organization is prepared to regulate it. We select a leader in whom we hope we may confide, we rally round him and surrender our opinions to his. He shapes for us a creed to which we resolve to adhere, and which we try to regard as true enough for practical purposes. And then it becomes a virtue to be loyal to our party, and soon to be too nice about the party-creed, to indulge in independent thought or in impartiality, — all this begins to seem unpractical, perverse, fatal to party discipline, tending to confusion. Is not this unavoidable? Must we not make the best of it?

But now when such party-discipline is maintained for several generations together, the alloy of falsehood that was there from the beginning accumulates, until the quantity of it becomes prodigious. In the end, the heady, drugged liquor that we drink mounts to the brain; the fog of falsehood that settles over us, fed continually by speeches in Parliament, speeches at the hustings, speeches and leading articles everywhere, begins to blot out the very heavens, till we stagger, blinded and choking, in an atmosphere composed of the lies of many generations, which lie in layers one above another, where no breath of fresh thought has been suffered to disturb them. It is then that we begin, if we are wise, to say to each other, 'Come and let us make an impartial study of political questions.'

Surely such a crisis has now come upon us. The portentous disruption that we have just witnessed must surely give rise to a certain amount of political scepticism, must lead us to revise our method, and look with some little suspicion into the logic by which we have been in the habit of ascertaining political truth. Misgivings were hushed in the triumphant years when Liberalism marched from victory to victory. An observer, indeed, might find it hard to grasp the theory of the thing. By what process a new crop of liberal doctrines always sprang up when Liberalism seemed exhausted by success, how the new doctrines were so easily proved to be truly liberal even when they appeared inconsistent with the old, whether there was any limit to the power of developing new doctrines, similar to that which Father Newman attributed to the Catholic Church, with which Liberalism was credited, — these and a hundred other doubts occurred to the observer, but the party was not troubled by them. For why? The party was successful. The prodigious agreement and enthusiasm with which each new discovery was welcomed, the prodigious success which attended each new development, seemed like signs of a divine inspiration, and Liberalism, like Catholicism, — from which indeed it borrowed much, — overwhelmed opposition by an appearance of

unanimity, universality, and certainty. But this dream of unanimity is now surely dissolved. Under the name of Liberalism we see now what different, hostile views were confused together. The Utopia of a world governed by a consensus among all rational civilized people, where force would be scarcely needed except to control a few obstinately perverse representatives of the older state of things, surely this is gone. And if so, all the difficulty, all the bewilderment, comes back upon us. We must seek some other note of truth, now that the old Catholic one, — *quod semper, quod ubique, quod ab omnibus*, — in its modern paraphrase, the agreement of the civilized world, has failed us. What can we do then? What else in political questions but what we do in questions of another kind? If we would know the truth about a subject, we study it. If, then, we would know the truth about politics, let us devote ourselves to the impartial study of political questions.

For, after all, politics may be looked at in another, in quite a different way. Instead of an arena of contest, in which Tories, Whigs, and Radicals are marshalled against each other, in which the same old watchwords are eternally repeated, the same reckless popular arguments continually furbished up anew, — an arena, in short, of action and adventure, — we may speak of politics as a department of study, if not of science. We may talk of political science, or political philosophy. There is no difference of opinion about this. All parties have what they call their principles, profess to assert certain political truths, refer to great writers who are supposed to have established the doctrines which it is their business to reduce to practice. These principles, these doctrines, must clearly be matter of study. If they are erroneous, the party that founds on them must needs go wrong; so too if they have been misconceived or misapplied. How is it, then, that we hear so little of politics as a matter of study? How is it that they are not taught in schools or at universities?

Well, this is the way of the world. It is the fate of all great doctrines which have momentous practical applications to be lost in their applications, to fall into the hands of practical men who troubled themselves but little about their abstract truth, and think exclusively of making them prevail, and themselves prevail with them. Of the immense crowd that in a country like this take part in politics, only an individual here and there has any taste for the theoretic side of them. To the majority the principles are mere solemn platitudes which give dignity and respectability to the pursuit. For them the real business begins when the personal element enters, when elections take place, when A wins and B loses; or when an institution is attacked and a grand fray takes place, exciting all the emotions of battle and ending in a distribution of spoils. Not that they could do without the principles. No; half the pleasure of the fray consists in the proud sense of fighting for something great and high. They like immensely to feel themselves champions of the truth, crusaders. But their own business is with the fighting; the principles they take more or less on trust. Some one else, no doubt, has inquired and philosophized; they are content with the results. A grand war-cry is the main thing; this, and a short argument to save appearances, will suffice for the theoretical part. And so they plunge into the fray, not suspecting that in many cases the measure they support does not really embody the principle they profess, that sometimes the so-called principle is a mere ambiguity which sounds so grand just because it is hollow, and that sometimes when it is most solemn and most impressive it is nevertheless entirely untrue.

I wish people could understand that it is not enough to have principles, — they must have true principles. We talk sometimes as if principles were grand things in themselves: we admire great historical struggles, on the ground that it is a proof of a noble energy when people are found ready to make sacrifices for principle. Better, no doubt, is energy than mere stagnant indifference; but I often think we forget, or do not sufficiently consider, how great is the instinctive, almost automatic love of fighting in the human animal. Sacrifices for principle! Well, but was the principle true? Did the combatant, before he entered the fray, ponder conscientiously, methodically, the principle on which he acted? Did he impartially consider the question? For if not, and this is the commoner case, the struggle, war, or revolution was not really for principle: it was only an outbreak of the combativeness which is our besetting sin, and principle was not really the motive of it, but only the pretext. History is full of these sham wars of principle, of which the main result is to bring the principle itself into discredit. In religion and in politics the noblest doctrines gradually lose their sacredness through being turned into the war-cries of hypocritical parties, — parties which professed to have been moved by these principles to take up arms, when in fact they took up arms for the fun of it, and then sheltered themselves under the principle.

No one has any right to talk of principles, either in politics or any other great subject, who has not made a methodical study of the subject. Principles of this sort do not come to us by inspiration. At this time in the world's history, when on every subject such stores of information have been collected, when method has been so carefully considered, and so many false methods have been exposed and renounced, we must cease to confound principles with party cries, or to imagine that any high-flown sentiment or jingling phrase is true enough to fight for or good enough to hold a party together. We must be serious. In other departments we have long been impatient of hollow phrases. In scientific investigation, for instance, the phrase, the swelling oracular maxim, is utterly discredited; it is scouted as mediæval, as belonging to an obsolete system. Principles of quite a different sort reign now in that department, — principles slowly arrived at, provisionally admitted, until a prodigious weight of experience confirms them, and if accepted at last, liable even then to disappear in further developments and higher generalizations. But it is still quite otherwise in the political world. There it seems that no corresponding advance has been made. There the old watchwords still reign; there the old, vague, blustering terms — liberty, equality, and the rest of them — and the old maxims, traditional commonplaces of party rhetoric, live on in a world where all else is changed. Surely, in these days we want words less pompous and more carefully defined, principles better tested and better suited to the modes of thinking of the age.

I do not know but that you may be disposed to regard me as something of a sceptic in politics. Not so, if it is scepticism to doubt whether truth in politics can possibly be attained, for I have more belief than most people in the possibility of giving precision and certainty to our knowledge in this department. But I am a great sceptic about the current political system. For, in the midst of all our party divisions, there has grown up a sort of accepted political creed, a doctrine which is held to be almost beyond controversy, the settled result of civilization and progress. It is supposed that all enlightened men are agreed upon this doctrine, and that by it all the principal questions of government are settled, so that really not much now remains open to question. I am indeed a great sceptic about this supposed creed of civilization. I believe it will not bear examination, and that scarcely any article in it is final. I believe that of those principles upon which all enlightened men are suposed to be agreed, many are not even true. That imposing semblance of a final agreement, in which before long all controversy will be merged, appears to me a complete illusion, an illusion of a very ordinary kind. The appearance of agreement is only the result of vagueness in the use of language; the fabric looks solid only because we are not allowed to come very near it; the propositions sound satisfactory only because they have never yet been analyzed.

How, indeed, *can* this system be true? Where, how, and by whom was it framed? It did not grow out of an impartial study of political questions. It sprang up in the midst of party controversy, in minds heated with opposition and contending for interests. Party conflict may be necessary, and for certain purposes good, but it is not a school for the discovery of truth. To discover truth requires impartiality first; next, contempt for mere popular success; then continuous, patient, often difficult trains of reasoning. All these are necessarily wanting in the party-strife, where votes must be obtained at whatever cost, and where it is vain to urge any thing, however essential to the demonstration, which is not popular, immediately intelligible, obvious to the meanest capacity. In those conflicts truth may be propagated, when it has been discovered by other means; but it can be neither discovered nor proved, and the most splendid triumph at the polling-booths leaves the question of truth precisely where it was. We could imagine a great and final system

of political truth springing up among us, if it were the work of political philosophers improving their methods and concentrating their efforts as philosophers have done in other departments, but it is not represented as having sprung up mainly in this way. By great party-conflicts, by acts of Parliament, which have settled great questions practically for us, it is supposed that in some way truth has been discovered or at least proved, as if the ballot-box could be an organ of scientific discovery. Though I use so many words, I do but say perhaps a little more strongly and decidedly what you affirm by the act of founding this society. You say we should study political questions impartially. I say we must put politics on a new basis, — on a basis of systematic and reasoned truth. We must have, not Whig and Tory principles, handed down to us from the party-conflicts of other times and enshrined in the rhetoric of ancient party-leaders, but principles of political science as taught by great thinkers and writers. Those great writers, whom we name with reverence, yet scarcely read, and seldom practically follow in our politics, must come now to the front, must take henceforth the lead. We must have masters whose style is calm, whose terms are precise, whose statements are duly qualified, who see both sides of a question, and who know the history of the past, — the Tocquevilles and the Mills, — and we must make up our minds that if any thing like agreement is ever to be reached on political subjects, it will not be by any amount of party agitation, or by any number of victories at the poll, but by a sufficient supply of such teachers, and by due docility in those who learn from them.

In other words, politics must become a branch of study, a matter of teaching and learning. But here, perhaps, I may seem to expect too much, and you may doubt whether your society can attempt a study which I represent as so scientific. You begin well by securing help from all the political parties. This, of course, is indispensable; and if you make due progress, the time will come when at your meetings you will have become so accustomed and so attached to the free scientific way of handling the subject, that you will almost forget the existence of those parties. I think you are right too, if, as I hear, you have decided not to proceed to a division at the termination of a debate. I like this, and think it is perhaps more important than some might suppose. Your object is to find the truth. Now a majority may be a very respectable thing, but it has no function in the investigation of truth. This is perhaps hardly a truism, if I may judge from the prevalent way of speaking. How often is some great act of Parliament, some reform bill, spoken of as if it had established a principle, as if in some marvellous way it had made something true and right which was not so before. But in the pursuit of truth the number of votes is of no sort of importance. It is so wholly indifferent which side has the majority that you can infer nothing whatever from it. A majority has, it seems to me, no particular inclination to take the right side, but also it has no particular leaning towards the wrong. It belongs to political action, and has no place in political study.

So far, then, it appears that you have made excellent arrangements for a political debating society. But allow me, first, to warn you against resting content with a mere debating society; and, secondly, to suggest the possibility that your present plan may not prove sufficient to meet all your wishes, and may call for additions and further developments.

First, a debating society, whether impartial or not, is still a society simply for making speeches. In the debating societies that I have known, speech-making has been an end and not merely a means, — nay, it has been almost the principal end. The main object which the members have had in view has been to acquire the power of expressing themselves in public with freedom and effect. No doubt, in any good debating society, the matter as well as the form of the speeches is considered; but distinctive excellence will appear chiefly in the form. Now what is it that you mean to encourage, just thinking on political subjects, or merely smart speaking? Do we want a new society for the purpose of training a few more of those talking-machines of which we have so many already, of encouraging that fluency in political platitudes which our party system itself encourages too fatally? I have assumed throughout this address that your object is precisely opposite, that you wish to acquire a firm grasp of principles, to lay a foundation of political knowledge in precise definition, luminous classification, trustworthy generalization, authentic information. This you hope to do by the co-operative method, by a society, by meetings. I would ask you to consider carefully the regulations which will determine the character of your debates. Bear in mind that clearness of thought has one eternal enemy, — rhetoric. It is difficult to encourage eloquence and to encourage justness of thought at the same time and by the same methods. Your regulations ought to put some restraint upon the flow of rhetoric, to reduce as much as possible the temptations to display. Perhaps, for example, if you have some meetings where the audience is large, you might arrange to have other meetings smaller and more select. You might try to introduce dialectical discussion, which should proceed by rapid question and answer, objection and reply, and where the members should speak sitting. As your object is to assimilate political as much as possible to scientific discussion, you should study to borrow the forms of scientific discussion. Parliamentary forms, I think, should be avoided. Written papers should be encouraged, since writing almost imposes serious reflexion. It will be of no avail to eschew partiality, if you allow yourselves to fall into the snare of rhetoric. Tinsel phrases, the childish delight in uttering solemn periods and hearing the sound of applause, bias the mind not less powerfully than party connection.

Another difficulty occurs to me. You intend to discuss political questions. But is it so easy to decide what questions are political and what are not? Is it so easy to fix the limits of the political sphere? That question becomes urgent as soon as you begin to regard the subject seriously. Of course, if you are contented with delivering a series of set speeches which shall be greeted with applause, or if you intend merely to repeat the old story how the Whigs or the Tories have been always right and their opponents always wrong, the difficulty will not trouble you. But if you really entertain the notion of discovering truth, if you intend to investigate political questions seriously and renouncing all foregone conclusions, you cannot but soon make the remark how difficult it is to separate political questions from others which are not usually called political. If there is a science of politics at all, it must needs be almost the most complicated of all sciences. It deals with that curious phenomenon called the State, which is a kind of organism composed of human beings. The lives of individual men, even the greatest men, are included in the life of the State: almost everything indeed is included in it. Does not the very thought of studying such a vast comprehensive phenomenon, and of discovering the laws that govern it, give rise to a feeling of bewilderment? Does it not strike you that this study must rest upon other studies, that this science must presume the results of other sciences, and therefore that it cannot properly be studied by itself? Let me illustrate this by one or two examples. I will take almost at hazard some of the questions which are most likely to occupy you. I see on your list the question of free and fair trade. You will not doubt that this question is political: it is proved to be so by the plainest of all tests, for it decides votes at the hustings. But it is equally evident that the question belongs to political economy. The freedom of trade has formed the main topic of economists since the 'Wealth of Nations' was published. Here then politics run into political economy. If you seriously mean to form an opinion on this political question, how can you evade the economical question that lies under it?

Or take the Irish question, which has convulsed the nation so recently. That, if any question, is political. But in the discussion of it, what sort of argument is used? It is said that the act of union, by which the Dublin Parliament was brought to an end, was passed by corrupt means, that it did not receive the assent of the Irish people; and so on, and so on. Well, are these statements true, or are they not true? This is evidently a historical question. To answer it you must consult the record of occurrences which took place at the close of the last century. In other words, you must travel out of politics proper into history. Does not this example show you how far you run the risk of being led, what complicated inquiries await you? Indeed, it seems to me that that immense and pregnant question which was so suddenly brought before us, the question of home rule, involves the greatest of those principles which political thinkers, using a historical method and availing themselves of that vast supply of trustworthy historical information

which till a very recent time was wanting, have established. But have these principles been mastered as yet by our population? I think not. Our political commonplaces, those so-called principles the announcement of which sets all throats shouting and all hands clapping, are in a great degree exploded in the schools. In the schools the historical has supplanted the *à priori* method, whereas the party-world still lives in the dregs of eighteenth-century Liberalism. That impartial view at which you aim is, in fact, a historical view. When the party-scales fall from our eyes, what we see before us is simply history. "The thing which hath been is the thing which will be." Would you know what is wise and right in politics, you must consult experience. In politics, as in other departments, wisdom consists in the knowledge of the laws that govern the phenomena, and these laws can only be discovered by the observation of facts. Now, in the political department we call the observation of facts, history. If this is so, how can we avoid the conclusion that such a study of politics as you meditate cannot be separated from the study of history?

You will allow me, I am sure, thus frankly to point out the difficulties with which you will have to contend. It may prove that a more complicated machinery than you have planned is necessary in order to carry your purpose worthily into effect. And in that case it is, of course, possible that you may find on trial that you have undertaken more than you can perform in a manner thoroughly satisfactory. Even so your society might still be infinitely useful. Its discussions might be suggestive, even if they should not be exhaustive; they might give much, even if they should leave you hungering for more.

On the other hand, you may find yourselves able to give to your society that further development which the plan of it seems to me likely to require. What, in one word, is this further development? To discussion, it seems to me, you may wish to add methodical teaching, and to politics you may wish to add political economy and history. These, indeed, are vast additions; they would convert your debating society into something which we should describe by quite another name, into a sort of institute or college of the political sciences. You may not be prepared, and perhaps even it would not be wise, to look so far forward, to undertake so much at once, or even to indulge the thought of ever undertaking so much. But in a solemn commencement like this, it is impossible not to speculate, at least for a moment, to what height the seed now sown may conceivably grow. In an inaugural address, allow me to adopt for a moment the tone of an augur. It is now seventeen years since, in the Senate House of the University of Cambridge, I delivered a lecture on the teaching of politics. Ever since that time, but especially during the last ten years, I have observed in different parts of the country how the idea of regarding politics as a matter of teaching makes way, and how the demand for political teaching grows. The movement here connects itself in my mind with many similar movements which I have had the opportunity of observing, and therefore I think I can foresee the course it is likely to take. Now observe that if you find difficulties in realizing what you wish, you may get help. You want better knowledge, and you may possibly find, as I have said, the subject too vast for you to grapple with unaided. You may come to think that you want the help of economists and historians, if not of other classes of learned men. Your discussions may leave you craving for something more systematic; they may suggest doubts which you would like to refer to investigators of authority. If so, do not forget that the old universities are now very different from what they used to be. Whatever knowledge, whatever insight can be found there, is very much at your service. If in former times their studies were too little practical, had too little bearing upon the questions which agitate the world, this can scarcely be said now. If in former times the scholars of the universities were wrapped up in monastic seclusion and took little interest in the topics of the day, this again can scarcely be said now. But you are not likely to forget this, for I understand the university extension lecturers have visited this neighborhood. Possibly, however, it has not occurred to you that the two schemes, university extension and this Society for the Impartial Study of Political Questions, belong to and have an affinity with each other. We have at Cambridge economists, and we have also historians who do not shun the actual times in which we are all living. In the extension scheme, and other similar schemes, we have a machinery by which these academic teachers are brought easily within reach of those who in great towns like this feel the want of academic teaching. I do not overrate the value of this kind of help. The time was, no doubt, when such scholastic politics would have been regarded with contempt, and I do not suppose that even now you are accustomed to expect much light upon practical questions from the collegians of Cambridge and Oxford. Nevertheless, I think you have found out already that they have something to give, and if you will only persist in appealing for their help, I believe you will be more and more satisfied with the result. The demand will create the supply. They will find out what you want, and gradually they will prepare themselves to give it. Here, then, is my suggestion. You seem to recognize already that you will need help of some kind. You have asked distinguished men, some of them strangers, to deliver lectures which are to be introductory to your discussions. I say, then, for the future, when you want such lecturers, go for them sometimes to the universities. And if you find, as you may do, that, on such a subject as free trade, for instance, a single lecture, or a pair of lectures, one on each side, is not sufficient, and rather disturbs your mind than quiets it; if you begin to see whole sciences and systems of thought lying under those political questions which you have undertaken to study impartially, then, I say, call the extension lecturers back to Cardiff, and supplement your debates by courses of lectures and by standing classes in political economy and in history.

You see, no doubt, what I aim at. What leads me to take an interest in your enterprise, what has caused me to accept with pleasure your invitation to deliver this address, is that I have recognized here another wave in the great tide of which I have for many years watched the advance. It is our part at the universities to give coherence, connection, and system to the thinking of the nation. I see everywhere how the nation begins to strive more than in past times towards such coherence. I am glad also to see how it learns the habit of looking to the universities for help in this strife, and how rapidly the universities are acquiring the habit and the skill to render such help; and I look forward to the time when the English universities will extend their action over the whole community by creating a vast order of high-class popular teachers, who shall lend their aid everywhere in the impartial study of great questions, political or other, and so play a part in the guidance of the national mind such as has never been played by universities in any other country. It is in this hope, and as a step to the fulfilment of it, that I inaugurate and wish all success to your society.

ELECTRICAL SCIENCE.

The Solution of Municipal Rapid Transit.

THE paper read by Mr. F. J. Sprague before the Institute of Electrical Engineers, on municipal rapid transit, is both valuable and timely. In the first part of the paper the inadequacy of the almost universal system of horse-car traction is pointed out, and a comparison is made between horses, cables, and electricity. Taking up horses, Mr. Sprague says: "Two distinct methods are recognized among street-car men in the handling of their stable equipments. In one the stock of horses is kept as low as possible: they are worked hard, making fourteen or fifteen miles a day, and the depreciation is heavy. In the other the stable equipment is increased, the horses are kept in excellent condition, their average daily duty is reduced to ten or twelve miles, and the depreciation is lessened." As an example of the equipment required, on the Fourth Avenue line in New York, run on the latter plan, the car day is eleven hours, and eight horses make about five trips, aggregating about fifty miles. To the number of horses is added ten per cent for illness, and ten per cent for emergencies; that is nearly ten horses for a car, making fifty miles a day. The average cost of motive power per car day throughout the United States is about four dollars, counting the cost of only those horses that are actually on duty. The cost per day per horse in New York is on the average fifty-four cents, and the cost for motive power per car mile ten cents.

The cable system has been successfully used where there are heavy grades and a great deal of traffic. In this system a cable is