

The London Mathematical Society.

A FEW months since it was announced in your columns that the Society had directed an index to the first thirty volumes of the *Proceedings*, and a complete list of members, to be drawn up by the secretaries. These have now been issued to members: the general public can have them from the publisher (F. Hodgson, 86 Farringdon Street) at the respective prices, 2s. 6d. and 6d. A free distribution of 1000 copies of the first part of the index, which comprises an arrangement of the papers in alphabetical order of authors' names, has been commenced, and upwards of 500 copies have been sent out. In the course of the existence of the Society some 440 persons have been recorded on the roll. This is not a great number, and some younger societies have shown greater vitality. Perhaps this issue may lead to the Society becoming more widely known.

R. TUCKER.

London Mathematical Society, July 23.

The Consultative Committee and Technical Education.

THE Council of the Association of Technical Institutions has had under consideration the "Draft Order in Council" constituting the Consultative Committee of the Board of Education.

It welcomes the appointment of the Vice-President of the Association, Mr. Henry Hobhouse, M.P., as a member of the Consultative Committee, and as a representative of agricultural education and of technical education in rural districts. But it views with astonishment and regret the fact that technical education in the great towns of the United Kingdom is wholly unrepresented, although there are upon the Consultative Committee two representatives of elementary education in the persons of the Dean of Manchester and Mr. Ernest Gray, M.P., three heads of secondary schools, viz. Mrs. Bryant, Dr. Gow and the Hon. and Rev. Edward Lyttelton, as well as a large number of persons intimately acquainted with literary education.

It seems to the Council a matter of the greatest national importance that there should be upon the body which is to advise the Board of Education an adequate number of persons who are well acquainted with the applications of scientific knowledge to industries and commerce, and with the best methods of giving such technical training in this country as shall enable us to meet successfully foreign competition.

In view, therefore, of the very serious damage which may be done to technical education, and thereby to the trade and commerce of the country, if the Committee to which the Board of Education will look for advice is composed of persons without adequate knowledge of the matters to which I have referred, I venture to ask you to allow me, through your columns, to draw the attention of Members of Parliament, manufacturers, and merchants to this subject, in the hope that they may take steps to secure that the constitution of the Consultative Committee may be modified in such a way that due provision may be made for the presence of persons possessing special knowledge of trade, manufactures, and technical education.

Merchant Venturers' Technical College, Bristol, July 21. J. WERTHEIMER.
(Hon. Sec.)

THE CENTENARY OF THE ROYAL COLLEGE OF SURGEONS OF ENGLAND.

THE Royal College of Surgeons of England celebrates its centenary on July 25-27. The actual month of course in which George III. founded the College by Royal Charter was March, 1800, but in the spring of 1900 it would have been impossible adequately to marshal the forces of English surgery. Sir William MacCormac and Mr. Frederick Treves, to name no others, were, if we remember rightly, still in South Africa. The belated birthday of the College is to be fitly commemorated by a grand degree-giving, at which a number of representative European and American surgeons will receive the newly-created distinction of Hon. F.R.C.S. H.R.H. the Prince of Wales has already been presented with the diploma of Honorary Fellowship, a deputation from the College having waited on him on July 24. The form of words used in the Royal diploma is the same as that employed in all cases. "Know all men by these presents, that we, the Royal College of Surgeons of England, do hereby admit his Royal Highness Albert

Edward, Prince of Wales, an Honorary Fellow of the College."

Besides the degree-giving there will be a *conversazione*, a grand banquet, a Presidential address of welcome, which will deal at length with the history of the surgeon's art, and a reception at the Mansion House. But all such august ceremonial should be regarded neither as an end in itself, nor as specially typical of the progress of surgical education.

The centenary of the Royal College of Surgeons marks, in fact, not so much the hundred and first birthday of a noble institution as the audit-day of English surgery. It is as such that it should be regarded by all thoughtful men. How stands the surgical art of to-day in comparison to that of the opening years of the century? The question requires no long answer: it is not necessary to deal at length with the profound revolution, wrought since the days of Hunter, in surgery, whether intra-cranial, intra-thoracic, or abdominal. It suffices to mention only anæsthesia and antiseptics. In the year 1800 these two great agencies for good were unknown—the surgeon had to arm himself for his task after the manner of a skilled slaughterer, and Death, as often as not, stalked at his elbow through the hospital wards or to the rich man's bedside.

At the beginning of the century, too, science was everywhere in its infancy. The surgeons, though they had ceased to rank with manicurists and barbers, were often little better than bone-setters. They dreaded operations—considered them a confession of weakness, and this through a general ignorance of how safely to operate. Medical etiquette, in those old days, was an affair of various interpretation: quackery preyed unreprieved on the general ignorance. To-day surgery has become, as far as may be, scientific. The modern medical man is trained as a man of science; he is in England also subject to perhaps the severest code of honour known to history. The scientific spirit has so far permeated the public mind that even modern quackery is compelled to pose in the garb of research based on the inductive method. Graham, Buzaglio, and the inventor of the "metallic tractors" appealed in the year 1800 to just such confused instincts as possess the affrighted victims of the savage medicine-men described by Messrs. Spencer and Gillen. To-day the clever impostor takes in vain the sacred name of science, or if he make his appeal to the religious instinct, he is careful to do so almost as philosophically as a Brahmin or a Buddhist.

The progress of social relations is spoken of by jurists as one from status to contract; the progress of the medical sciences might as fitly be described as from fetich to reason.

In this progress the Royal College of Surgeons has been no unimportant factor. The very conservatism of that great society has been a source of strength. In countries where leading institutions are less tenacious of privilege, less rigidly decorous, the interests they protect tend incessantly to degenerate for lack of ideals, of ethics, and of breeding. The names of countries, especially young ones, will occur to the philosophic, where the medical profession suffers continuously from the un-academic spirit of its academies. Yet there can be no doubt that the conservatism of the College was at one time excessive.

This will be at once apparent to the readers of Sir William MacCormac's centennial address on the "History of Surgery and Surgeons." As a succedaneum to his text, sixty-one carefully prepared biographies of his predecessors in office have been published. Of these presidents certain of the earlier ones constitute an object-lesson in oligarchy and the art and craft of office-holding. Charles Hawkins, first Master of the College in 1800, had for years—since 1790—been Master of the

old civic Corporation of Surgeons. Indeed, it died, through inadvertence, under his rule. He belonged to an office-holding race. His father, Sir Caesar Hawkins, the first baronet, and his uncle, Quennell Hawkins, both St. George's men, where office was bought for large sums of money paid to seniors, had been Serjeant Surgeons to George II., and as such were liable to accompany him on his campaigns. Whether they did so is doubtful; it was Ranby who attended the gallant little king at Dettingen. Charles Hawkins enjoyed the honours of the same office, which take us back in thought to Homer's Machaon and Podalirius, and to the Sanskrit word "Shalya," "an arrow-head," or "surgery." But beyond this we know very little of Charles Hawkins. There are others like unto him whom we need not specify. The "Dictionary of National Biography" knows them not. Their peculiarity was silence, "the fool's best friend." Conjointly they published nothing; an aversion to intellectual exertion seems to have distinguished them. But we can imagine them at least as strict upholders of dignified routine, as courtiers, as men of the world. The delightful eighteenth century died very hard in England—in Latin countries it is not dead yet—and these old gentlemen, with their powdered hair and voluminous cambric cravats, seemed to carry on the tradition of an ample age, where a fine face, a white hand, and a capacity for classical quotation fitted an average great man for any sort of position from the Papal chair to the presidency of the English College of Surgeons. Others there were, however, even in the early days of the College history, who struck a different note. Such were the terrible Abernethy, a man driven into savagery of manner by his innate sense of justice, which abhorred the quacks of his day and generation and their self-indulgent victims, suffering from avoidable ills, chiefly due to the effects of over-feeding and the "*alcoolisme des gens de bon ton*." Such also the variable Lawrence, an early Darwinian, a passionate reformer and reform journalist, in association with the famous Wakley, an eloquent orator, and, in the end, a conservative College Councillor of the strictest.

In the College Library and Council Room during the centenary celebrations, an exhibition is being held of portraits, busts, relics and manuscripts illustrative of the history of the College, and this in itself bears witness to the changes which a hundred years can bring forth. Among the exhibits never, we believe, shown before, but now sanctioned by the lapse of long years, are papers of importance from the Owen collection. Here, for instance, is the Curator Clift's determined evidence against Sir Everard Home, Bart., who plagiarised from Hunter's papers and then destroyed them. In one exhibited letter Clift quotes Sir Everard's words, "all gone, every Jack of them," in reference to Hunter's descriptions of cases and specimens. This is not the place to discuss the Home—Hunter controversy, which has long ago been given over by the experts, but we may be allowed a postscript. The question between Hunter and Home should be judged from the point of view of 1820. Home was an old-fashioned Scotsman of a proud and ancient stock. Hunter came of a race of "bonnet-lairds." Home looked indulgently down on his brother-in-law, Hunter. These family sentiments are almost incomprehensible to an Englishman, but they rage even in the Scotland of to-day. Home thought he might fairly make use of his humbler connection's notes. He was no academic—had no scholarly regard for literary *meum* and *tuum*. How few have even to-day? Hunter's notes, on the other hand, to judge by the remaining specimens of them, were extraordinarily rough and often illiterate, though at all times they betray the great and ardent mind fretting and hurrying under inadequate powers of expression. William Clift also, John Hunter's amanuensis and subsequent defender, has been described

by one who knew him well as a typical Cornishman, extremely garrulous, prone to repeat himself. There is in the College Library a "solander," *alias* box, full to the brim almost of Clift's repeated indictments against Home. The thing suggests "*idée fixe*."

Still, though Home acted according to the lights of his day and his order, he committed a crime of magnitude, and owing thereto the history of the great Hunterian Museum since 1800 has been necessarily one of re-construction. Clift began re-writing the Catalogue as it were from memory. He had worked so long with the great John Hunter that he knew how the master would have again spoken of numbers of specimens of which Home had burnt the descriptions. Richard Owen, Clift's son-in-law, was to Clift very much what Clift had been to Hunter. The young man worked ardently under his directions, sometimes aided by Benjamin Brodie, in his youth a zealous comparative anatomist. In one of his Museum Reports Richard Owen yearns for the days when Clift, and he, and a very few others, including Everard Home, worked incessantly in the Museum-room, undisturbed by the visits of students and sight-seers.

The public were indeed discouraged from visiting Hunter's collections, not in any gross spirit of obscurantism, but half-unconsciously, half-hieratically, much as a modern undergraduate reading for a Pass degree is kept at arm's length by the learned Don who is the College librarian. In 1833 Earle, lecturing on the urinary apparatus, gave vent to one of those petulant outbursts which are more illuminating than pages of studied prose. The passage, now often quoted, appears in the *Lancet* of the period, and is a bitter satire on the uncatalogued and dusty condition of the then Museum. Earle, it seems, had searched in vain for hours for pathological specimens with which to illustrate his remarks. The whole amusing tirade, if we remember rightly, was discreetly suppressed by him in his republished lecture.

At the present moment the great Museum—and the Library, too, for that matter—can be read like a book. One of the most notable publications of the centenary is the first portion of the "Physiological Catalogue," which, with its finely executed plates, will remain an enduring monument to the graphic skill and scientific acquirements of the Conservator and his staff.

The Museum, the Library, and the College owe their being, as it were, to John Hunter; but their emergence from the coma of the first three decades of the century is in great measure due to Sir Richard Owen. It is notable that the moment he begins to lecture in 1835, Wardrop's grumbling commentary in the *Lancet* undergoes a change. It seems at first as though the serious young Conservator was not understood. What did he aim at? why should he do so well where others had wrought so indolently? Then gradually the *Lancet* critics change their tone, and bless where before they had cursed.

A lecture by Owen became in time one of the great social and intellectual functions of the London world. Science was not then so specialised as it is to-day, nor perhaps so divorced from the interests of the literary. Bishops presided over the British Association; hereditary peers over the Royal Society; the Prince Consort took an interest in microscopy; the poets had not yet become decadent or æsthetic; the Tractarian movement had not yet replunged the world of women in the ages of faith. The public mind, indeed, would seem to have been more liberal than now. To this mind—alert, interested, deeply curious—Owen addressed himself with zeal. It is singular to note, at this distance of time, that his lecture would end with a debate, in which the Dean of St. Paul's would heckle the professor.

The College Lectures became still more important when Huxley succeeded to the chair Owen had once occupied. Owen retired in 1855, after delivering a course

on "The Structure and Habits of Extinct Vertebrate Animals." He had prepared a course for 1856, when, however, lectures were suspended. The Council, it seems, had carped at the long duration of Owen's catalogue-making, and Owen had addressed to them an eloquent *apologia* for his seeming delays. Hence, perhaps, Owen's retirement. In 1863 Thomas Henry Huxley began to lecture, his first course dealing with "The Structure and Development of the Vertebrate Skeleton." His first lecture was devoted to the glyptodon with much-broken carapace, now in the Museum. He continued to deliver a long annual course till succeeded by Flower in 1869. The late Sir William Flower's tenure of the chair, which he shared with the great but somewhat neglected William Kitchen Parker, brings us down to comparatively recent times.

It is as a lecturing body that the College should prove most interesting to the world of Science at large. The names of Owen and the greater Huxley link it with the grand world of Cuvier and Darwin. We might write at length of the beneficent work of the College in pathological anatomy, or serum-therapeutics, a work all the more praiseworthy because it has been sedulously and quietly carried on in despite of the clamours of a stupid section of the public. Of the College examinations it would also be possible to say much. As recently, it should be remembered, as 1860 a doctor could qualify without passing a written examination in medicine. Now, of course, it is scarcely possible, in view of the examinations of the Conjoint Board of the Colleges of Physicians and Surgeons, for any impudent dunderhead to launch himself in practice, and to pocket the fees of a public always a little in love with quackery and mystification. Of the College as a guardian of medical ethics and etiquette, a volume might be written. A hundred years ago the doctor was always satirised by all classes of writers as unscrupulous. Now that charge is only occasionally brought against him by the illiterate, who count for nothing in the long run. That this immense change has been effected is mainly due to the College. And here it is only fair, just reference having been made to the College Museum and Library, to mention the College Office. A long line of secretaries, from Okey Belfour to Mr. Trimmer and Mr. Cowell, have patiently and vigilantly guarded the surgical point of honour. If ever a black sheep has been driven out of the surgical flock it is the College Office that has weighed his demerits and impeached him in the first instance. And this not without deliberation, or, as it was once called, "prayer and fasting." On the other hand, if ever a practitioner has been wrongly accused of malpractice, or unprofessional conduct, it is the College Office that has been at the root of his rehabilitation.

To resume and to conclude—and with the thermometer at 87° it is as well to do so—the surgeon of 1900 is not as his far-off brother of 1800, and the College, in no small degree, has been responsible for the laudable and tremendous transformation. Mere literary men in England have no Academy at their head so drastic and salutary as the College to which surgeons can look up. The doctor in 1800 used occasionally to stipulate, when dealing with workhouse authorities, that he should not be required to treat fever cases. Fever, by the by, in the undrained London of the years prior to Sir John Simon's reforms, was a common cause of death among even the well-to-do. Now, to quote the sestet of an unpublished sonnet,

"To-day skill'd Science runs where bullets hail,
Or cholera's rife, for love of suffering man,—
At the laboratory-table seeks
Plague's grim bacillus, and, if need be, can
Die as did Müller. Nor shall heroes fail:
From Hunter on to Lister their fame speaks!"

VICTOR PLARR.

ELECTRICAL POWER DISTRIBUTION.

IN a lecture on "Electricity as a Motive Power," delivered to the working men of Sheffield, August 23, 1879, the following question was asked: "And why not now? Why should not the mountain air that has given you workmen of Hallamshire in past times your sinew, your independence of character, blow over your grindstone again? Why should not division of labour be carried to its end, and power be brought to you instead of you to the power? Let us hope then that in the next century electricity may undo whatever harm steam may have done during the present, and that the future workmen of Sheffield, instead of breathing the necessarily impure air of crowded factories, may find himself again on the hill-side, but with electric energy laid on at his command."

The present year sees the dawn of the realisation of this idea of twenty-one years ago. For soon it will no longer be: "If," as I said on that occasion, "a workman could have transmitted to him, just at the time he might require it, a small amount of energy at, say, one halfpenny per hour per horsepower—which would be three or four times the actual cost of production with a very large steam engine—and if he could turn off the power like gas when he did not want it, how many of the smaller workmen of Sheffield would be glad to avail themselves of such a facility?"

To enable such a scheme to be carried out in this country, four Electric Power Distribution Bills have this year been brought before Parliament—one for the county of Durham, one for Tyneside, one for Lancashire, and one for South Wales. And in advocating their second reading on March 1, the President of the Board of Trade expressed the opinion that "the question which the House has to decide is a very important one, perhaps one of the most important ones that have come before the House by means of a private Bill for many years." For he pointed out that "the electrical enterprise of this country is in an exceedingly backward condition," and that:—"It may almost be said that there are villages in North America which are in possession of advantages in connection with electricity which some of our largest towns do not possess."

This opinion was shared by Sir James Kitson and the Committee of the House over which he presided. For from May 3 to well into this month, July, they sat deliberating as to whether, and under what conditions, permission should be given for electric energy to be distributed over nearly 3000 square miles of Great Britain.

A vast amount of evidence was taken regarding the effect on British industry, on the cost of producing manufactured products, and as to the growing up of new factories, and even of new trades, that might come into existence through a general distribution of electric energy. Employer after employer came forward and spoke of his individual need for electrical energy to work scattered tools in his factory, to ventilate and pump his mines, as well as to cut and haul his coal.

"Cheap power is the panacea for the evil effects of foreign competition" was urged again and again by the long stream of manufacturers who occupied the witness box for weeks. The advocates of this cheap power were marshalled in groups like bands of warriors, and, from the various classes of witnesses champions were selected who bombarded the Committee with proofs of the paramount importance of their cause, and overwhelmed the members when they struggled to grasp the arithmetic of "load factors," and begged to know how many Board of Trade units there might be in a horse-power.

At first we recognised many provincial dialects among the crowd in the Committee Room, but when it began to be realised that the inquiry would occupy more weeks than it was at first thought it would need days, the