Galvanic Electricity.—An interesting lecture on Voltaic Electricity, was recently delivered to a numerous audience, at the Islington Literary and Scientific Institution, by Henry M. Noad, Esq., the eminent electrician and chemist. The lecturer commenced by alluding to the absurd anecdotes, which were found in every English and French writer on physics, respecting the discovery of this species of electricity—that a pupil of Galvani, while operating on the electric machine, accidentally brought a scalpel in contact with the nerve of a frog's thigh, which he noticed was immediately thrown into violent convulsions, and that the master followed up the experiment, fancying he had discovered some new principle in connection with animal vitality. This was attributing to Galvani an ignorance which he certainly did not deserve; Matteucci had practised on animal electricity long before, and Galvani, who had been studying the subject for 10 or 12 years previous to this period, was well acquainted with its principles, and all his discoveries were the result of practice, close observation, and inductive philosophy. Volta, an Italian chemist, followed up the experiments, and made many valuable discoveries. It was then shown that the development of a current of electricity could be effected without metals, a voltaic pile of flesh might be constructed which would engender a current, although certainly a weak one. There was, the lecturer believed, not an electrician in this country who did not attribute the effects of the battery to chemical action, while the German philosophy was that it was only a natural result, arising from the contact of two dissimilar metals. Mr. Noad then proceeded to describe the several batteries of Smee, Daniells and Grove, the first of which was called the chemico-mechanical battery; Daniell's was the most constant, while that of Prof. Grove gave the largest amount of power, and was decidedly economical, from there being no electrical action except when the circuit was complete. A variety of experiments followed, showing the heating, chemical and magnetic powers; which were performed with a Grove battery of 24 pairs, the decomposition of water, iodide of potassium, chloride of sodium, and sulphate of soda; the combustion of gold, silver, copper and iron; the electric light, and the usual apparatus for showing the extraordinary magnetic powers of a current of galvanic electricity, was exhibited. A pretty experiment was shown with a handful of nails, which being placed on a tray of card board, on the upper surface of the soft iron bars, surrounded by wire, on making the circuit could be moulded about in any direction, and an arch was formed of them, which on breaking contact, immediately fell to pieces. Mr. Noad also explained that in the most trivial actions of every day life, enormous currents of electricity were evolved; no cook could perform an operation in the culinary department, nor a joint of meat be cut, but this result took place. This was illustrated by a saucepan of milk being heated by a spirit lamp, and a wire from one pole of a galvanometer fastened to the handle; the wire from the other pole was attached to a silver spoon, and the moment the milk was stirred in the slightest degree, the needle was instantaneously and powerfully deflected. The entire lecture was a very lucid explanation of the principal details of what is at present known in this interesting science, and appeared evidently to be well appreciated by an attentive audience.

Conductability of Minerals for Voltaic Electricity.—From some researches into the conductability of minerals by M. Elie Wartmann, Professor of Natural Philosophy in the Academy of Geneva, some curious facts present themselves, and on an examination of 319 species which were submitted to direct examination by the author, the comparison of the results with those of previous experimenters shows in general a satisfactory coincidence. Where divergencies present themselves, they are to be referred to the variety of structure resulting from difference of locality, and to the fact of having employed voltaic instead of frictional electricity. The purity of the mineral operated on, exercises a great influence on its conductability and the author, therefore, always employed well-defined crystals; the conducting powers of sulphuret of antimony, native and artificial, have been confirmed by the experiments of MM. Riess, Karsten, Munck, and Professor Faraday. The author found native crystals of realgar good conductors, while M. Hausmann estimates them as semi-conductors, and Pelletier among the insulators. Sulphuret of zinc is a conductor or an insulator, as it is prepared in the dry or humid manner: black sulphuret of mercury conducts well, while red cinnabar is a perfect insulator. The other sulphurets exhibit the same peculiarities. In conducting these experiments, numerous difficulties presented themselves, and curious variations occurred in examining the same mineral; he found some crystals perfect conductors, and others, of the same appearance, which arrested the most intense currents, until, by the continuous friction, the surface was abraded. Some beautiful crystals of oxide of tin proved conductors along their edges, and in places on their facets, but everywhere else insulators; while the variable adherence of the surfaces of cleavage sometimes modifies the conducting power in the most capricious manner. The deductions arrived at from these experiments are,—that the conducting minerals belong to five primitive crystalline types; that minerals present all intermediate degrees between perfect conductability and perfect insulating power; that all native metals and their alloys are conductors; that among metallic oxides much difference exists, those opake and lustrous generally better conductors than others; metallic sulphurets the same; the chlorides partly conductors and partly insulators; salts the same, the majority being insulators; that the molecular state determines the character; diamond insulates, graphite conducts well; that among minerals of vegetable origin, the more perfect the carbonization the better the conducting power; and that among the conducting minerals which do not crystallize regularly, some present differences of conductability, when the direction of the current through the mass is varied.

Deep Sea Soundings.—The Royal Society was lately entertained by Cap. Denham, R.N. of H.B.M. ship Herald, with an account of his experiences in deep sea soundings. The expedition under Capt. D. was particularly directed to observe soundings, and it was very successful. The deepest was attained on a calm day, Oct. 30, 1852, in the passage from Rio Janeiro to the Cape of Good Hope. The sounding-line, one-tenth of an inch in diameter, was furnished by Commodore McKeever, U.S. N., commanding the frigate Congress. The plummet weighed nine pounds, and was eleven inches long by one-seventh of an inch diameter. When the depth of 7,706 fathoms was reached, the plummet touched bottom. Captain Denham states that Lieutenant Hutcheson and himself drew up the plummet fifty fathoms, but it indicated the same depth after each experiment. The velocity of the line was as follows:—

	Hours.	Minute.	Seconds.
The first 1,000 fathoms in.....	0	27	15
1,000 to 2,000 "	0	39	40
2,000 to 3,000 "	0	48	10
3,000 to 4,000 "	1	13	39
4,000 to 5,000 "	1	26	06
5,000 to 6,000 "	1	45	25
6,000 to 7,000 "	1	49	15
7,000 to 7,706 "	1	14	15
Total.....	9	24	45

The whole time taken by the plummet in descending to this amazing depth of 7,906 fathoms, or 7.7 geographical miles of 60 to a degree, was 9 hours 24 minutes and 45 seconds. The highest summits of the Himalaya are little more than 28,000 feet, or 4.7 geographical miles above the sea.

Gold weighed in the Bank of England by Machinery.—One of the most interesting and astonishing departments within the whole compass of the Bank of England is the weighing department, in which, with the rapidity of thought, and a precision approaching to the hundredth part of a grain, the weight of the gold coin is determined. There are six weighing machines, and three weighers to attend to them. Large rolls of sovereigns, or half sovereigns, are placed in grooves, and are shaken one at a time by the motion of the machine, into the scale. If they are of standard weight, they are thrown by the same mechanical intelligence into a box at the right hand side of the person who watches the operation, if they have lost the hundredth part of a grain, they are cast into a box on the left. Those which stand the test, are put into bags of 1000 each, and those below par are cut by a machine, and sent back to the mint.

New Compound of Caoutchouc.—Mr. Goodyear, of New York, has just patented a new compound of caoutchouc, which is produced by combining therewith a product of coal-tar and sulphur, alone or in combination with metals and other substances used in manufacturing compounds of caoutchouc. The product referred to is obtained by heating coal-tar in an open boiler until it acquires a consistency about equal to that of resin, and it is mixed with the caoutchouc in proportions which may vary according to the character of the material to be produced. The sulphur, or compound thereof, is used for the purpose of vulcanizing the material, which operation is performed by the application of heat in the ordinary manner.

Notice to Correspondents.

We have given the description of a New Astronomical Instrument by R. S. of Aylmer, Canada East, our best attention. We cannot recommend the construction of the Instrument for reasons advanced by R. S. himself, and which are contained in the subjoined extract from his communication:—"I am fully convinced in my own mind that this instrument will answer every purpose that I have mentioned; whether upon trial it will be *useful* or otherwise, of course remains a *mystery*."