LONDON LETTER.

THE series of congresses, more or less scientific in character, which in England claim a share of attention from men of science, who devote some of their hardly earned vacation to them, may be considered to have closed with the Sanitary congress at York. Sir Spencer Wells presided over it, and in his opening address observed that the main question now to be considered is, how sanitary improvements may be carried still further by the co-operation of investigators, legislators, and administrators. For this purpose he suggested the formation of a college of health, to organize a well-directed attack against existing obstacles. Much, however, had been done: in the last fifty years, for example, the average duration of life in Great Britain had been raised from thirty to forty-nine years. Of the various subjects discussed at the congress, probably the disposal of the dead was the one which excited the greatest interest. There appeared to be decided evidence that the feeling in favor of cremation was on the increase; and the opinion of the representative clergy present was to the effect that they were waiting for a decisive word from the scientific men upon the matter, by whom they were willing to be guided.

The return to England of the Solar eclipse expedition on Sept. 20 was speedily followed by a letter from the *Times* correspondent who accompanied it, in which the chief results obtained were discussed in preliminary fashion. Most of this letter is reproduced in *Nature* for Sept. 23. The new facts obtained were chiefly due to the work of Professor Tacchini, who satisfied himself that there was a great distinction between the eclipse prominences and those seen by the ordinary method. Both he and Mr. Lockyer consider that the former are due to down-rushes of comparatively cool material upon the sun's surface, and that they form a whitish fringe round the more incandescent centre. This, if well established, has a very important bearing on the theory of solar physics. Captain Darwin's work appeared to demolish entirely the idea entertained by Dr. Huggins and others, that the solar corona could be and had been photographed at times other than those of eclipses.

The opening of the medical schools in connection with the metropolitan hospitals, at the beginning of October, is always signalized by the delivery of some thoughtful introductory addresses by prominent members of the staff. One of the most remarkable of these was delivered at St. Mary's hospital by Dr. Malcolm Morris, and dealt with mysticism, scepticism, and materialism in medicine. He thought that the element of mysticism in medicine had been forced on it by the public. It was the result of two opposing conditions, — the absolute knowledge demanded by the laity, on the one hand; and the more or less extensive ignorance of the professor of the healing art, on the other. This ignorance, where it existed, he must not acknowledge: he was expected to be able to recognize disease, and to know how to treat it. Despite recent strides, medicine was still extremely defective. The absolute knowledge insisted on by the public could not be obtained, and therefore had to be invented. Scepticism in medicine was neither more nor less than modern fatalism. The tendency of the present day was to devote attention to the part rather than the whole, and it was too commonly supposed that truth lay at the bottom of the microscope. At King's college, Dr. G. Johnson, F.R.S., urged at some length the value of the study of chemistry as a mental training and discipline, and then proceeded to point out that the only safe foundation for specialism was a thorough knowledge of disease in general; and this he illustrated by reference to diseases of the eye and of the larynx. The principal of the Royal veterinary college pointed out that in both human and veterinary medicine the elaboration of the germ theory of Pasteur, in its earlier triumphs in the department of surgery, was likely to be surpassed by what might reasonably be expected would yet be achieved in the domain of medicine.

True to the exceptional character of the year in matters of temperature, October has set in unusually hot, 78° being recorded in the shade in London on Oct. 1. Such an October temperature has only once been exceeded during the maintenance of existing records. W.

London, Oct. 3.

NOTES AND NEWS.

CAPTAIN BAKER, British steamship Red Sea, Liverpool to New Orleans, reports to the U. S. hydrographic office that on Sept. 19, when some miles north of the Azores (exact position not given), he experienced what he considers an earthquake shock, on account of its suddenness, force, and after-effects. The first warning of a meteorological change was noticed in the dropping of the barometer for a tenth or more, and the freshening of the breeze, though veering. This was suddenly followed by a shock, sudden and powerful, causing the vessel to be thrown on her beam ends. She quickly righted, and was headed on just in time to meet the immense sea which suddenly rushed towards the port bow. She rode it gallantly, throwing her propellor far out of the

water, shaking the coal on deck (for the donkey-engine) all over, and causing the boats to strain their davits severely. No damage was sustained, but the captain doubts if any heavily laden vessel could have ridden the sea as his vessel did, she being in ballast only.

— *Nature* states that advices from the waters of Spitzbergen now confirm the former news from Iceland and from the mouth of the Pechora, on the Siberian coast, to the effect that the ice in the Arctic Sea has this year extended unusually far southwards. Spitzbergen, the sealers report, was found to be surrounded with an ice-belt from five to eight miles broad, and there was firm pack-ice from Hope Island to Forland, about fifty-six miles. The great bays on the Storfjord, Hornsund, Bellsund, and Isfjord, were quite inaccessible; and the sealers, after waiting all the spring and most of the summer, returned at the end of August, as there was no prospect of the polar ice dividing.

— Mr. H. B. Gibson of Harvard college presents in the *American meteorological journal* the results of a study of the water-spouts on or near the Gulf Stream, recorded on the monthly pilot-charts of the hydrographic office. He shows that they are here by no means so rare in winter as observations from other parts of the ocean have led writers to suppose; and, on comparing the dates of their occurrence with the corresponding signal-service weather-maps, it appears that they coincide with the extension of cold north-west winds, or 'cold waves,' from the land out over the relatively warm sea. A similarly exceptional winter frequency of spouts might be looked for on the warm Kuro Siwo, east of Asia.

— The need of a neat and comprehensive record-book for meteorological observations has been supplied by Sergeant O. N. Oswell, of the signal service (now at Cambridge, Mass.), who has prepared a blank volume giving appropriate pages, columns, and daily lines for temperature, pressure, precipitation, humidity, wind, weather, and remarks, followed by a page for the monthly summary. Its use would save much time to the many volunteer observers who have to rule their columns to suit their needs.

— A statement to the effect that glass railway rails were being manufactured in Germany, which has been going the 'rounds of the press,' was based, it is discovered, upon the mistake of a translator, who should have written 'sleeper' instead of 'rail.' Samples of these glass sleepers for railway rails, recently tested in Glasgow, resisted a weight of four hundred pounds falling nine feet and a half, not breaking until the sixth blow. Cast-iron sleepers are expected to stand a similar test up to seven feet only.

— A report on the Charleston earthquake, by Prof. T. C. Mendenhall, at that time an assistant in the U. S. signal service, states that the origin of the disturbances appears to have been somewhere below a point fifteen or twenty miles north-west of Charleston; that is, in the neighborhood of the town of Summerville. A chart of provisional coseismal lines, drawn by Mr. Hayden of the geological survey, and published in *Science* for Sept. 10, seems to locate this centre somewhat farther north than the point indicated above. At the time of its construction, however, information from many points was lacking, and that which was at hand was admittedly doubtful in some degree.

— The *British medical journal* reports the case of a workman who fell a distance of 110 feet from the steeple of a church. In his fall he broke a scaffold, and, after passing through the roof of an engine-house, broke several planks and two strong joists, finally falling upon some sacks of cement. As a consequence of this fall, one leg was broken, several small bones about the wrist were dislocated, and the back and hips were bruised, notwithstanding all of which the man left the hospital where he was taken for treatment in twelve days, with his broken leg in a splint of plaster-of-Paris.

— *El thifaa* ('the cure') is the name of the only medical journal published in Egypt. It is printed in Arabic, and published monthly. Its price is thirty-five cents a number. The principal contributors are Egyptians and Syrians. It has proved in every way a success.

— The St. Petersburg *Novoe vremya* of Oct. 1 contains an article on the Afghan frontier question, exhibiting surprise at the recall of the British commission, expressing the opinion of the possibility of further misunderstandings as to the north-eastern frontier at the foot of the Pamir range, which section is insufficiently explained by the agreement of 1873, and dwelling on the necessity of defining the frontier on the middle and upper Oxus, where Afghanistan borders on Bokhara. The Afghan frontier commission reached Haibak, 190 miles from Khamiab, on the 26th of September, and halted for a few days to explore the Hindoo Koosh passes. It probably reached Cabul on Oct. 14.

— That cholera has obtained a strong hold in Europe is becoming daily more apparent. The disease still exists in Pesth, and it is reported that at Szegedin, Hungary, seven persons died within twenty-four hours. The Austrian state director

of railways returned to Vienna from Pesth last week, and died from cholera on the 17th.

— The fever which existed some months ago at Biloxi, Miss., a seacoast town eighty miles east of New Orleans, on the Louisiana and Nashville road, and which was pronounced to be yellow-fever by the Louisiana state board of health, has again broken out in epidemic form, there having been three hundred cases with eighteen deaths. Great excitement exists in New Orleans and its vicinity, and the most rigid quarantine has been instituted against the entire county in which Biloxi is situated.

— The first person upon whom the title of doctor in medicine was ever conferred was William Gordenia. The college at Asti gave the degree in the year 1329.

— During the past year two new methods of treating hay-fever and other forms of nasal catarrh have come into use. The one is the use of the galvano-cautery for destroying the mucous membrane of the nose ; and the other, the employment of hydrochlorate of cocaine, either in the form of spray or as a suppository or tablet. The testimony of the physicians and the sufferers from hay-fever who took part in the thirteenth annual meeting of the Hay-fever association in Bethlehem, N.H., was to the effect that cocaine gives but temporary relief. Some reported that they were completely cured after treatment with the galvano-cautery ; others, that they were much relieved ; but the larger number of those who had been thus treated had found no relief whatever.

— Dr. William H. Dudley, president of the collegiate department of the Long Island college hospital, Brooklyn, died in his seventy-sixth year, on the 8th of October, from hemorrhage of the lungs. He was one of the founders of the hospital, and lived to see it take a place in the front rank of American medical colleges.

— The Brookville society of natural history has recently been provided with very commodious rooms in a new business block. These rooms are now being fitted up for its use, and will be occupied by Nov. 1. Dr. D. G. Brinton of Media, Penn., delivered the first of the lectures in the course given by the society, on the evening of Oct. 15, upon 'The study of man.' This will be the fifth course of free lectures which this society has given.

— Mr. G. A. Smith, the private secretary of Mr. Edmund Gurney, the indefatigable secretary of the Society for psychical research, is shortly to visit this country, and while here will hunt up a good many of the persons who have furnished accounts to the society. Mr. Gurney's book, 'Phantasms of the living,' will appear shortly. It will be recalled that it was announced in the spring ; but a large fire destroyed almost the entire edition, and from correcting the proof on, the whole process of book-making had to be gone through with a second time.

— The Afghan frontier commission is now expected in India. Colonel Lockhart's mission found that Manchester cotton goods had complete command of the market in Ghilgit, Chitral, and even Wakhan, and sold at an average price of one rupee for five yards. Russian cotton seemed unknown, and what was not obtained from English sources was supplied locally or from Chinese Kashgar. They also found that American fire-arms were imported *via* Russian Turkestan, underselling English weapons from India. A good revolver from Cincinnati was purchased in Chitral for fifteen rupees.

— Mr. George Muirhead, says *The athenaeum*, has for some years been studying the birds of Berwickshire, and is about to publish his researches. He has paid special attention to the hawks, the dotterel, the bittern, and other birds, many of which are rapidly lessening in numbers. Provincial bird-names and folk-lore will not be forgotten, and a special chapter will be devoted to falconry. The book will be illustrated by etchings, and Mr. Douglas of Edinburgh will publish it.

— It is gratifying to find that lithology is being rescued from the status of a merely 'practical study,' in the curriculum of the American college, and is becoming established as an exact science. The monograph ('Modern petrography,' by G. H. Williams, Boston, *Heath*, 1886) of Professor Williams on that subject supplies the student with a compact yet full history of the steps taken to elevate it from the domain of conjecture to that of fact, and to change the microscope from a toy to a valued assistant. While not giving to our home institutions as full credit for regular instruction, in the past, as the facts warrant, the monograph is interesting as showing that a desire for the more exact methods of rock-analysis is becoming prevalent among American students, and that it will not be necessary to go to the continent for needful instruction. The appended note on forming rock-sections, and the cost of obtaining them from trustworthy parties, will be of value to the beginner, as will be the bibliography of the science.

— The 'Theory of magnetic measurements,' by F. E. Nipher (New York, *Van Nostrand*, 1886),

will be found a very convenient book of reference by those who have already had some acquaintance with the methods of determining the constants of terrestrial magnetism, and who desire to refresh their memories upon any of the more important principles of the theory and practice of the instruments ordinarily used in magnetic surveys. Such persons will find especially convenient the forms given for recording and reducing observations made with the various instruments. Some trouble would be saved, however, if the explanations of the quantities set down in each column were brought into a closer connection with the columns themselves. To those unacquainted with the subject the book will often seem wanting in clearness, — a fault which appears in many cases to be the result of too great an effort at condensation. A few pages are devoted to the method of least squares, and tables are given to assist in determining the meridian from observations on the elongation of Polaris. Opinions will differ as to the advisability of inserting so much of a general discussion on the relations between systems of units in order to derive the ratio of the 'foot-grain' to the C. G. S. value of the horizontal intensity.

— Mr. A. Lawrence Rotch, of the Blue Hill meteorological observatory, has issued reprints of several articles in the *American meteorological journal*, with additional heliotype illustrations, on the 'Mountain meteorological stations of Europe,' which he visited in the summer of 1885. The establishment, outfit, publications, and results of seven stations are described in much detail. Their names, altitudes, and dates of establishment are as follows: the Brocken, Germany, 1,141 metres; Schneekoppe, Germany, 1,599 metres, 1880; Wendelstein, Bavaria, 1,837 metres, 1883; Hoch Obir, Austria, 2,148 metres, 1878; Sentis, Switzerland, 2,504 metres, 1882; Puy de Dôme, France, 1,463 metres, 1876; Pic du Midi, France, 2,877 metres, 1880; Ben Nevis, Scotland, 4,407 feet, 1883. It may be added that Mount Washington was the first, and Pike's Peak is still the highest, mountain meteorological station in the world.

— The Appalachian mountain club has lately published a copy of the contour-line map of Williamstown and Greylock, as executed by Messrs. Johnson and Natter, topographers of the U. S. geological survey, in the joint topographic undertaking with Massachusetts. The reproduction is on the scale of the original plane-table sheets, 1: 30,000, and therefore covers an area fourfold that which will be allowed on the publication of the map. The district is in the northwestern corner of the state, and is well chosen for illustration of the progress and value of the survey, as it includes the highest and probably the roughest piece of ground in the commonwealth. The 'hopper' on the western slope of Greylock, and the rugged ridges on the eastern slope, are very well expressed by the contours, although the photolithographic reproduction is not so delicate as could be desired. The cost of the sheet is, however, very moderate, — thirty cents; for sale by Clarke & Carruth, Boston.

— The August number of the *Alpine journal* contains a statement of the results obtained by Dr. Marcet from many experiments on breathing while climbing at high altitudes. He first shows by experiments at ordinary altitudes and in a state of rest that some persons make much better use than others of the air they inhale, inasmuch as their exhalation is very rich in carbonic acid: this may be expressed by measuring the volume (at sea-level pressure and freezing temperature) of air inhaled to produce one gram weight of carbonic acid. Dr. Marcet himself had to breathe 15.5 litres of air, while two younger men needed only 13.7 and 10.8 litres respectively: the latter had a remarkable power of keeping his breath under water, and was little troubled in mountain ascents. Further experiments, conducted at various altitudes up to 13,600 feet, show, that, as a person ascends, he breathes fifteen to twenty-five per cent less air (reduced, as above, to standard pressure and temperature) to produce a given weight of carbonic acid: the action of air on the blood in the lungs seems, therefore, to be facilitated with decreasing density. It is evident that this will materially diminish the quickness of breathing that would otherwise be required in rarefied air.

— A meeting of the National association for supplying medical aid to the women of India was held at Simla on Sept. 29, Lady Dufferin presiding. The reports received from the various provinces were highly satisfactory, The main object now was to establish the association on a permanent footing; for which purpose further funds were required. The estimate for next year's work showed a surplus; but, before the financial condition of the undertaking could be called thoroughly satisfactory, it required a lakh and a quarter more capital. Sir C. Aitchison gave an account of the work done in the Punjab. He said that the province was not rich. The few wealthy men had given what they could, and the movement was spreading among other classes.

— A new laboratory-burner, devised by a Detroit inventor, appears to be both simple and efficient. The base of the burner is provided with a station-

ary needle-valve surrounded by a vertically adjustable jet-tube with a conical aperture controlled by the valve. Arms extending upward from the jet-tube support a vertically adjustable mixing-tube, constructed so as to close the upper end of the jet-tube when desired. The proportions of gas and air, as well as the size of flame, may be regulated by a simple rotation of the jet-tube upon the base.

— One result of recent experiments with oil for smoothing the surface of the sea during stormy weather is that inventors are turning their attention toward improving the methods of applying the oil. A device recently patented is a floating distributer, consisting of a case containing two compartments, one of which serves as a buoyant chamber, while the other is perforated, and receives and distributes the oil, which is supplied to the distributer through a supply-tube.

— It is proposed to form an association of the graduates of the Lawrence scientific school connected with Harvard university. There are numbered among these graduates many of the students of Agassiz.

— Messrs. B. Westermann & Co. announce the continuation of Carus and Engelmann's Bibliotheca zoologica. The first part of the continuation is expected immediately, and the whole will be completed in 1888. Carus's *Zoologischer anzeiger* has since 1878 recorded the publications on zoölogy. The new volume of the Bibliotheca zoologica is intended to fill the gap between the *Anzeiger* and Carus and Engelmann's Bibliotheca zoologica, which covered the literature of 1846–60.

— Several cases of hydrophobia have recently occurred among camels in Algeria. As the animals had never been bitten, the origin of the disease was unaccountable, until it was ascertained that a mad horse had gained admittance to the pasture; and the explanation given by those who studied the case is, that his saliva had fallen on the grass, and the camels had become infected through abrasions in the mouth.

— A healthy boy has just been born to an aged couple of St. Joseph, Mo., the father being seventy-one and the mother sixty-five years of age.

— Dr. Williams, in the *St. Louis medical and surgical journal*, relates an interesting case of temporary blindness from the excessive use of tobacco. The patient was a blacksmith, thirty-two years of age, who complained of failure of vision to such an extent that he could no longer see to drive nails in shoeing, and was compelled to depend on his sense of feeling. His health was good, he having no other complaint. Vision was found to be only one-sixth of what it should be. Things appeared to him to be covered with a dense mist. For many years he had been an excessive smoker, using the strongest tobacco to be had. Tobacco amaurosis is quite common, but usually in men beyond middle life. The probability of recovery is great if the habit is given up, and this should be done gradually. In this case, a very few days' abstinence from tobacco caused an improvement in vision, and the man has now made material progress toward recovery. Dr. Williams does not regard chewing tobacco as so likely to produce this defective vision as the habit of smoking.

— Pasteur, in a letter to Dr. Davis of Philadelphia, gives the following *résumé* of his experience in inoculation for the prevention of hydrophobia from the beginning up to Sept. 1 of the present year: —

COUNTRIES SENDING PATIENTS.	TREATED.	DIED.	REMARKS.
France and Algeria	1,324	4	Too late for treatment.
England	68	1	
Austro-Hungary	43	0	
Germany	9	0	
United States	18	0	
Brazil	2	0	Average failure is 1 for 150 foreign persons treated, and 1 for 330 French and Algerians.
Belgium	50	0	
Spain	75	2	
Greece	10	0	
Portugal	24	0	
Holland	14	1	
Italy	138	0	
Russia	186	12	8 by wolves, and 4 by dogs.
Roumania	20	2	
Switzerland	2	0	
Turkey	2	0	
Bombay	1	0	
Total	1,986	22	6 too late for treatment.

— After a long discussion, according to the *Chemical news*, the Belgian academy of medicine rejected the two following propositions, which had been submitted by Dr. DuMoulin: viz., "Copper combined with articles of food in the proportions usually met with is not dangerous;" "Especially the greening of preserved vegetables with copper salts is absolutely inoffensive." The academy, on the contrary, adopted the following proposition, which will be transmitted to the government: "The compounds of copper are not merely useless in foods; they are injurious."

— Kite-flying, from a scientific point of view, has received considerable attention in France. As the result of a series of experiments with a gigantic kite, it has been determined that the best results in ascensional power and height of flight are obtained when the string is attached to the kite at a point above the centre of pressure, in a line drawn from the centre of pressure to the centre of gravity, in such a manner that the distance

from the centre of gravity to the point of attachment of the string shall be three times the distance between that point and the centre of pressure.

— A recently completed iron water-tower, 250 feet high at Sheepshead Bay, near Coney Island, while being tested a few days ago, gave way at the base, and fell, shattered, to the ground when the water reached a height of 227 feet.

— The meeting of the Public health association was closed at Toronto recently. Dr. George M. Sternberg was elected president, Prof. Charles N. Hewitt first vice-president, Prof. C. A. Lindsley second vice-president, and Dr. Irving A. Watson secretary, for the coming year.

— Pretty much the whole of the September number of the *Journal of the Society for psychical research* is devoted to an interesting tale of a 'haunted house.'

— Arrangements are being made at Newcastle-upon-Tyne for holding there a mining, engineering, and industrial exhibition (international and colonial) in 1887, to mark the jubilee year of the reign of the queen.

— Dr. Schweinfurth has, says *Nature*, addressed to all Europeans, especially physicians, residing in Egypt, an inquiry as to whether, so far as they are aware, families of northern origin settling in Egypt do, or do not, die out within three generations, or whether the race is capable of being perpetuated beyond that limit.

— It is stated by the London *Engineering* that a dirigible balloon of colossal dimensions has been for some time in course of construction in Berlin. It is 500 feet in length, 50 feet in diameter, and weighs 43,000 pounds. The propelling power consists of two steam-engines of 50 horse-power each.

— In a recently patented soda-motor, intended for use on street-railways, the process of generating steam is as follows: the caustic soda, which is contained in a reservoir surrounding the steam-boiler, is raised to a high initial temperature by means of jets of burning gas or petroleum, thus evaporating all moisture from the soda. The heat from the soda produces steam in the boiler, which is applied to an ordinary engine; the exhaust steam from the engine is then absorbed by the soda, producing heat sufficient to generate steam, until the soda is supercharged with moisture, when the jets of flame, which in the mean time have been dispensed with, are again ignited to regenerate and reheat the soda. The operation may be repeated continuously. This is a modification of the soda-motors which have been in use several years past in this country and in Europe.

LETTERS TO THE EDITOR.

**** Correspondents are requested to be as brief as possible. The writer's name is in all cases required as proof of good faith.*

How astronomers may work.

IN your issue of Oct. 15, I notice the reply of Professor Holden to your comment on his scheme of inviting the leading astronomers of the world to visit Mount Hamilton, one at a time, to use the Lick telescope when not in use by the regular observers. I think Professor Holden is unfortunate in his selection of examples of good work done at high elevations. Each one of his examples might be quoted as an instance where excellent results were gained as the reward of *continuous* work by a skilled observer, using the instrument with which he was most familiar, and in a field of research where his powers of observation were at their best. Probably we should know less than we now know about radiant energy, if Mr. Burnham had gone to Mount Whitney to use the bolometer, in place of Professor Langley and Mr. Keeler. And we may be quite certain Professor Langley would not have added to his reputation, had he gone to Mount Hamilton to use Mr. Burnham's telescope, searching for double stars. Doubtless, many men will be glad to have an opportunity to look through the Lick telescope, to note how familiar objects appear when seen with an instrument of its anticipated perfection and power. But it does not seem possible that any results of scientific value can be obtained from such scrappy, disjointed work as is proposed by Professor Holden. T.

New York, Oct. 19.

Larval amblystomas for laboratory work.

During the past summer I have sent to the Smithsonian institution several hundred living specimens of larval and adult amblystomas. These were to meet the demand for these important forms on the part of special workers, and the biological laboratories both in this country and Europe, a number of them having been sent to M. Chauvin in Germany.

Quite recently, however, I have received a number of other applications from colleges and other points, requesting a few specimens of these animals for their investigations, and for the use of biological students. To meet these latter demands, I send by express to-day an unusually fine lot of some two hundred and fifty living larval amblystomas, and two adults, to Professor Baird, at the Smithsonian institution, Washington, D.C., where, if proper application be made for them, I am assured they will be sent to any point in accordance with the regulations governing the distribution of such material from that institution. R. W. SHUFELDT.

Fort Wingate, N. Mex., Oct. 8.

Polydactylism.

An instructive example of this abnormity was under my observation at about the time Dr. Le Conte published his interesting letter upon the subject (*Science*, Aug. 20), and Mr. John B. Smith of the U.S. national museum, in a subsequent number, added his own observations (*Science*, Sept. 3) in regard to it.

The case I refer to is that of a man (F. G.) living