six years ago he had always enjoyed the best possible health. The author did not admit that this was a case of *de novo* development, though the period of incubation was extraordinarily long. The germ must have been dormant, like the "mummy" wheat, for nearly forty years.

After referring to the present unsatisfactory nomenclature of varieties, and to the army and navy records of the disease, he, in conclusion, summed up, and, had time allowed, would have adduced arguments in support of the theories that leprosy is caused by the bacillus, that the disease is communicable from person to person, and that segregation is justifiable. Microscopic specimens, prepared by the author, were exhibited, showing the *bacillus leprœ* scraped from the tongue and mouth of a patient, and sections of dermal nodules, anæsthetic skin, nerves, etc. Many of the references were from hitherto unpublished sources, both private and official.

Death from Electricity.

A DEATH recently occurred at Brighton, England, from the accidental contact of the conducting wire of the electric lighting apparatus with the neck of one of the employees at a brewery. The deceased was "found dead" in the neighborhood of the fatal electrical conductor, and a report in a local newspaper states that a post-mortem examination revealed perfectly healthy organs, the only abnormality in this case being "a mark half-way round the neck as if grazed by the wire." With the extension of electric lighting, says the *Lancet*, occasional fatalities of this kind are to be expected, and the number of deaths from this cause has already been considerable. In the case recently reported there was, it is to be observed, a slight mark upon the body, and in a case which occurred in 1884 a blister was found upon one of the fingers of the deceased with which contact had been accidentally made by the machine. In other cases there has been no mark whatever, so that we may conclude that the pathological evidence of the cause of death in such cases is almost *nil*. It seems to us of the greatest importance that these accidents should be carefully studied, and it would almost seem to be the duty of the local government board to send a trained pathologist to attend the post-mortem examination of every case which occurs, in order that a careful comparison might be established between the cases, and any points which they might present in common be duly noted. This could only be done by one having considerable accumulated experience, and such experience could only come to one having such opportunities as an official position would give.

The matter is of very great importance, because a cause of death which is, so to say, gradually becoming omnipresent, and which leaves no mark, is tolerably sure to be made use of for criminal purposes, and if there be any certain means of establishing how death took place, a knowledge of this would be the only means of checking the misdeeds of persons with criminal intentions. It generally has happened hitherto that the surrounding circumstances have left no doubt as to the cause of death, but it is not reasonable to suppose that such would always be the case, and if it suited the crafty schemes of a criminal it might very easily be contrived otherwise. In short, there is no doubt that we ought to use every endeavor to increase our exact knowledge of this cause of death, and we can only hope that post-mortem examinations will be carefully made in all cases which occur, and that practitioners will regard it as a duty which they owe to the profession and the public to place upon record the results of such examinations.

CANCER. — A small commune in Normandy, Saint Sylvestre-de-Courcelles, with a present population of only 379, as compared with 500 twenty years ago, has in the eight years 1880 to 1887 lost no fewer than eleven of its inhabitants, between the ages of sixty-two and eighty-three, from cancer, — a proportion of 15 per cent of the total mortality. All but one of the cases were males, and in as many as eight the cancer was seated in the stomach. Such facts have led Dr. Arnaudet, according to *L'Union Médicale*, to conclude that cancer is contagious, and is propagated through the medium of water. It is true, he remarks, that not one of the eleven persons mentioned were water drinkers, but then they drank cider, which is made with the pond water of the district. Dr. Arnaudet thinks this sufficient ground to advocate the use of antiseptics and of boiled water as prophylactics against cancer, as well as against typhoid fever or phthisis.

TYPHUS BACILLI IN WATER. — Several cases of typhoid have recently occurred in a town in the province of Baden, Germany, and it came to light that three of the patients first affected procured their drinking water from the same well. The water was then examined, the strictest precautions being used to prevent infection from other sources. In three days the cultures were found to have developed on an average one hundred and forty thousand colonies to the cubic centimetre. Ten tests had been made, but only in one of these was there found a single colony of typhoid bacilli.

NOTES AND NEWS.

IT is officially announced that a general national exhibition of agriculture and sylviculture will be held at Vienna, next year, from the 15th of May to the 15th of October. The exhibition is to include the following international sections: (1) machinery and implements used in agriculture, sylviculture, and the industries cognate to them, such as horticulture, viticulture, hop-growing, bees, silk, fishing, and hunting; (2) artificial and auxiliary branches of agriculture, such as artificial manures, remedies for sick animals, etc.; (3) models, plans, designs, and statistical information respecting agriculture and forestry; (4) inventions dealing with the utilization of waste material; (5) information and suggestions respecting the food supply of large cities.

— The fifty-ninth annual meeting of the British Association will be held at Newcastle-on-Tyne, beginning on Sept. 11 and 12; and the Durham, Northumberland, and Newcastle Botanical and Horticultural Society has arranged to hold its autumn meeting and exhibition at the same time and place. The local committee have spared no efforts to make the arrangements for the meeting as complete as possible, and their labors have been greatly lightened by the fact that many fine buildings suitable for the purposes of the association have been erected since it held its last meeting at that place in 1863. The reception-rooms, occupying a central position with respect to the various section rooms, will be located in the new buildings of the University of Durham College of Medicine, in which building a writing-room and ladies' drawing-room will be provided, and special rooms for the use of the officers of the association. The Cambridge Drill Hall, near the reception-room, is to be fitted up for a luncheon-room. Sections A and B will meet in the new buildings of the College of Science, opened in November last; and in the chemical laboratory of this college it is intended to bring together a series of exhibits illustrating the chemical and allied manufactures of the district. The general meetings of the Association will be held in St. George's Drill Hall. The Natural History Museum, opened in 1884, in which building is Mr. Hancock's unique collection of British birds, will be used for the two *soirées*, the first to be given by the mayor and corporation, and the second by the local committee. A guide-book, arranged in three sections, has been prepared for the occasion, dealing respectively with the history and topography, the geology and natural history, and the industries of the district.

— The Royal Society of New South Wales offers its medal and a prize of £25 for the best communication (provided it be of sufficient merit) containing the results of original research or observation upon each of the following subjects, to be sent in not later than May 1, 1889: "Chemistry of the Australian Gums and Resins;" "Aborigines of Australia;" "Iron Ore Deposits of New South Wales;" "List of the Marine Fauna of Port Jackson, with Descriptive Notes as to Habits, Distribution, etc." The same offer is made for the best communications on the following subjects, to be sent in not later than May 1, 1890, "Influence of the Australian Climate (general and local) in the Development and Modification of Disease;" "Silver Ore Deposits of New South Wales;" "Occurrence of Precious Stones in New South Wales, with a Description of the Deposits in which they are found;" also on the following, to be sent in not later than May 1, 1891, "Meteorology of Australia, New Zealand, and Tasmania;" "Anatomy and Life History of the Echidna and Platypus;" "Microscopic Structure of Australian Rocks." The competition is in no way confined to

members of the society, nor to residents in Australia, but is open to all without any restriction whatever, excepting that a prize will not be awarded to a member of the council for the time being; neither will an award be made for a mere compilation, however meritorious in its way. The communication, to be successful, must be either wholly or in part the result of original observation or research on the part of the contributor. The society is fully sensible that the money value of the prize will not repay an investigator for the expenditure of his time and labor, but it is hoped that the honor will be regarded as a sufficient inducement and reward. The successful papers will be published in the society's annual volume, and fifty reprint copies will be furnished to the author free of expense. Competitors are requested to write upon foolscap paper — on one side only. A motto must be used instead of the writer's name, and each paper must be accompanied by a sealed envelope bearing the motto outside and containing the writer's name and address inside. All communications are to be addressed to the honorary secretaries, A. Liversidge, and F. B. Kyngdon.

— The English Consul at St. Petersburg says that naphtha residuum is being more and more employed as fuel in Russia. All the steamers of the Caspian Sea, and many of those plying on the Volga, have for some time past used it as fuel. At the present time manufactories and railways are adopting it in the place of wood and coal. It is also being utilized for domestic purposes in stoves of special construction, ingenious specimens of which were exhibited last year at the St. Petersburg Naphtha Products Exhibition. By the employment of this new combustible a considerable saving is effected under the head of fuel. Some large manufactories in Moscow and its immediate neighborhood employ naphtha residue in their furnaces, because, in addition to its great cheapness, it possesses the advantage of occupying less space than wood or coal for storage. It is kept underground in large cisterns communicating by pipes with the furnaces, and owing to this method of storage it is also less exposed to danger from fire. It is established that the cost of naphtha dregs as fuel is about 35 per cent less than that of wood and coal, and this, too, at Moscow, which is 1,500 miles distant from the source of supply at Baku, whence naphtha dregs are conveyed by water to Nijni Novgorod, and beyond by rail to Moscow. Several manufacturers of the province of Vladimir have also adopted the new combustible, and the railway lines existing in the Tambov and Riazan provinces are on the point of doing the same. During 1888, 867,857 tons of naphtha residue were transported from Baku up the Volga, for use in the interior provinces and in those bordering the Volga. It is expected that in 1889 the supply will exceed 1,125,000 tons. In the northern zone of the empire, wood will, it is stated, hold its own as fuel for some time to come. It is specially in the central, south-eastern, and eastern provinces of Russia that the employment of naphtha residuum as a substitute for both wood and coal promises to attain great proportions.

— At the Yale Observatory, during the summer months of 1888, Dr. Elkin completed the measures with the heliometer for the triangulation of the region near the north pole. The reductions of these measures are well advanced. In October they commenced the series of observations on the minor planet Iris in conjunction with the observatories at the Cape and at Leipzig. The autumn months were unfortunately by no means as favorable as usual, and they only secured measures on thirty-four of the sixty-five planned nights. They undertook at the same time a further series for the diurnal parallax of the planet. They are now commencing a similar series on the planet Victoria, to continue through until September; and a third series on Sappho is to occupy them in September and October. As, in addition to the heliometers used for Iris, those at Bamberg and Göttingen will probably co-operate this year, the three series together will doubtless furnish a very accurate value of the solar parallax. The heliometer has also been employed in some supplementary series on the parallaxes of the northern brighter stars, Mr. Hall having taken up Procyon and α Aquilæ, and Dr. Elkin, Vega and α Leonis. During the winter, Mr. Hall completed the reductions of his work on the orbit of Titan, the results of which are in very satisfactory agreement with those of Bessel and Hermann Struve. The value found for the mass of Saturn is 1 : 3500.5 of the solar mass, Bessel's revised value being 1: 3502.5, and Struve's 1: 3498. Dr. Elkin spent the winter months in the West, observing the total solar eclipse of Jan. 1, 1889, at Winnemucca, Nev., under very favorable circumstances. He used the finder of the heliometer for a general view of the corona, and, with the low power and large field of about 4°, could trace the equatorial streamers to a distance of about 100′ on either side from the limb. He devoted a part of the time near the beginning and end of totality to a careful scrutiny of a small portion of the outer rays of the corona with a view of detecting any possible rapid changes in the same; but during the 90 seconds of observation, and in the portion he looked at, nothing of this nature occurred.

— In his annual report on education in Hong Kong, Dr. Eitel, the government inspector of schools, says, according to *Nature*, that the total number of educational institutions of all descriptions known to have been at work in the colony of Hong Kong during the year 1888 amounts to 206 schools, with a grand total of 8,717 scholars. More than three-fourths of the whole number of scholars — that is to say, 6,728 — attended schools (99 in number) which are subject to government supervision, and either established or aided by government in some form or other. The remainder — viz., 107 schools, with 1,989 scholars — are private institutions entirely independent of government supervision, and receiving no aid from public funds, except that they are exempt from payment of rates and taxes.

— M. Taupin, who was recently despatched by the Governor-General of French Indo-China to the Laos States on an exploration, thus sums up the results of his labors: — "I have studied the language and system of writing of the Laos — that is, of the only population in the world possessing a graphic-alphabetical system. Of this there has been up to the present no positive knowledge. It was only known that the Laotian language and writing were somewhat similar to those of Siam. The language is spoken by about four millions of people. I have collected interesting information relating to the natural history of these regions, and much commercial information. . . . I have made numerous meteorological observations, and taken a large number of anthropometrical measurements according to the Broca system."

— At a recent meeting of the Genevan Society of Physics and Natural History, says *Nature*, M. Mallet exhibited two balls of almost perfect sphericity, about four inches in diameter, one black, and of vegetable origin, the other white, and of mineral origin, but both produced by a mechanical movement. The black ball had been found with another in a piece of oak which had long served as the shaft of a mill-wheel. A cavity having formed in the wood, through disease or the work of some insect, the dust of the wood, with acquired moisture, had been rolled into this spherical form, growing in size, like a snowball (a slow process of many years probably, as the wheel was very old). The white ball, a calcareous pebble, was found with many others in a grotto traversed by a torrent which flowed into the Rhone.

— The twelfth annual meeting of the American Society of Microscopists met at Buffalo, N.Y., on Aug 20, in the Library building. On the opening day, Hon. Davis F. Day, President of the Buffalo Society of Natural Sciences, delivered the opening address, which was followed by a brief address by President Lewis of the Microscopists. The morning session concluded with a paper on "A Microscope Stand," by Professor P. J. Burrill. The afternoon's session consisted of routine business and the reading of papers by Professor W. A. Rogers, "On a New Method of Determining Temperature from the Readings of Mercurial Thermometers;" by Professor S. A. and Mrs. Susannah Gage on "Staining and Permanent Preservation of Histological Elements Isolated by Means of Nitric Acid or Caustic Potash;" by Dr. Lucien Howe, on "Microscopic Growths on the Normal and Diseased Eye;" by Professor D. S. Kellicott, on "A New Rotiferion;" and by Professor W. A. Rogers, on "A Practical Method of Securing Copies of the Standard Centimeter Designated Scale A." The society's annual exhibition was held on Thursday evening.

— Count Joseph Florimond Loubat of New York has given to the Academy of Sciences of Berlin $5,500, as a fund the income of which is to be given in prizes every five years. Count Loubat has given the academy also money to be expended on a first set of prizes in 1891. The special object of this gift is to encourage anthropological studies of matters pertaining to North America. For the prize of $750, to be awarded in July, 1891, articles published between July 1, 1884, and July 1, 1889, will be accepted for competition, provided they are sent to the Academy before July 1, 1890. The subject for this first prize will be the colonization of America by Europeans up to the present day.

— Elias Loomis, Professor of Natural Philosophy and Astronomy at Yale, died at New Haven, Aug. 15, 1889, of Bright's disease. He was born at Wilmington, Conn., Aug. 7, 1811. His education began at a tender age, and at the age of nineteen he graduated from Yale. Three years later he was appointed a tutor at that college, a post he retained for three years. A year was then spent in Paris, after which Loomis was elected to a professorship of mathematics and physics in Western Reserve College in Ohio. In 1844 he accepted a similar position in the University of the City of New York; and it was during his incumbency of this chair that Professor Loomis wrote the many text-books on mathematics, astronomy, natural philosophy, and meteorology that have made his name so well known. An extraordinary success attended this series, the total circulation coming to more than 500,000 copies. Some of these books were used abroad, and translations were made into even Chinese and Arabic. In 1860 Professor Loomis returned to Yale, where he remained till his death, devoting much time to his contributions to meteorology aside from his work as a teacher.

— The Delegates of the Clarendon Press have the following works ready for early publication: an edition, with notes for students, of Tertullian's "Apology," by Mr. T. H. Bindley of Merton College; "Selections from Burns," by Mr. J. Logie Robertson (uniform with "Selections from Clarendon," just published); Mr. Oliver Aplin's "Birds of Oxfordshire." In mathematics they will issue shortly the second volume treating of Electro-Dynamics of Messrs. Watson and Burbury's "Mathematical Theory of Electricity and Magnetism," and a new edition of the fourth volume on the dynamics of material systems (which has long been out of print) of Professor Bartholomew Price's "Treatise on Infinitesimal Calculus."

— The Washington Life Insurance Company reports a decided tendency to increase of suicides in recent years. Shooting is the means selected in about one-half the cases. It is more frequent among the young than among the old, and on this account the company's *a priori* expectation had been in the direction of a decrease in this cause. This expectation has been balked, and the writer of the report goes so far as to say that the increase in recent years has not been purely a matter of accident, and that the decisions of the courts have not been such as to discourage suicide among the insured.

— According to the London *Electrical Review* Dr. J. A. Fleming has designed an incandescent lamp slide-rule, by which any of the calculations with regard to lamps may be performed with readiness. Thus if we have given the current, the terminal volts, and the candle-power, the scale shows the watts per candle; or given the watts per candle-power, and the candle-power, we can find the current corresponding to any voltage; or from the volts and current we can read off the hot resistance; and finally, when we know the volts and current when the lamp is burning at normal brilliancy, the rule shows the approximate candle-power. We imagine that electric light engineers and their assistants will find this little device, which is issued by the Edison-Swan Company, very handy.

— The agents of the California State Board of Horticulture, says *Garden and Forest*, are now raising the Australian ladybird in such numbers that colonies are furnished to all applicants whose trees are infested with the cottony cushion scale. These imported insects have proved effective destroyers of the scale, and there seems to be a reasonable ground for hope that this most serious enemy of the orange, the lemon, and other trees of that family can now be held in check.

— Birds of the crow-tribe, especially the raven, the carrion-crow, the hoodie, and the magpie, are in ill-repute in England for stealing eggs, and, when opportunity serves, for murdering chickens, ducklings, etc., but in the north of Norway these depredators are much bolder. They will even attempt to carry away the eggs and the young brood of the eider-duck, and too often succeed in their foray; but if the drake is near at hand, they are frequently defeated. He siezes the crow by the wing or neck and plunges down with him into the sea. Being a good diver he feels no inconvenience, whilst the carrion-crow, however brave and strong in the air, is helpless in the water, and the end of the struggle is soon shown by his lifeless body floating on the surface. Sometimes even the raven is disposed of in the same manner. It is a curious fact that young sea-fowl, when swimming or diving in waters which literally swarm with cod, halibut, and other greedy and hungry fishes, are not often snapped up and swallowed. Yet veteran lobster fishermen, no small part of whose life has been spent in disembowelling such fishes, declare that they never find a young bird in the stomach of their prey.

— In commenting on the behavior of the machinery of the British war-ships during the recent naval display at Spithead, *Engineering* says that such a complication of machinery crowded into so small a space can only be run with success at the high duty demanded in war-ships by means of the most skilled attention. Want of room adds immensely to the difficulty of attending to machinery, and it is only by men being thoroughly conversant with all the ways of a ship that they can hope to keep things in good going order. We have nothing but admiration for the officers and men of the engineering branch of the navy, nevertheless there was perhaps not a single ship in all the vast fleet collected last week at Spithead which had a fairly competent engine-room staff. The reason is that the complements in many cases were not filled up, and even if they were filled up, the men are too new to the ships to know their way about. We can quite understand the fervour with which the chief engineer of one our leading armour-clads exclaimed, "Thank God they are *peace* manœuvres and not war manœuvres!" This war vessel was one-third short of her proper complement of artificers, and only the chief amongst the officers knew his way properly about the engine-room, and that was quite an accident.

— The trustees of the Hoagland Laboratory make the following announcement. Dr. George M. Sternberg, U.S.A., will continue as general director of the laboratory; George T. Kemp, Ph.D., Johns Hopkins University, will be associate director of the departments of physiology and experimental therapeutics; and Dr. B. Meade Bolton has been appointed director of the department of bacteriology, assuming charge of that department in September.

— At a meeting of the Russian Mineralogical Society, K. D. Chrustschoff, it is said, demonstrated the existence of a new metal which he has just discovered and named "russium." The metal approximates closely in its properties to thorium, and its existence was predicted by Mendeléeff.

— In a letter to *Science Gossip*, Mr. T. A. Dukes writes: "I have always understood that a thunder-clap was a necessary result of the electrical discharge which caused a lightning flash, but last night, while watching those splendid natural fireworks — a thunderstorm — I thought there seemed to be many more flashes than thunder-claps. So, at the height of the storm, as indicated by the loudness of the thunder, and the position of the lightning nearly overhead, I began to count them, and while there were thirty-nine flashes there were only fourteen claps. Still unconvinced, I, with a pencil and paper, recorded each as it occurred — fifty-five flashes to nineteen claps; and again, during five minutes, there were fifty-six flashes to twenty-three claps, and yet I tried to favor the thunder. It was not the distant 'summer' lightning, but 'forked' lightning, some flashes consisting of as many as 4,075 simultaneous zigzag cracks in heaven; indeed it seemed to be steadily lightning all the while, yet the thunderings, though loud, were not prolonged. I would be obliged if some one would explain this, or show me my error. Many of the flashes were behind some clouds, for they lighted up their background and left them in relief; could it be that these clouds reflected the sound so that it did not reach me?"