to simply carry out instructions, and not to meddle with the chemical process itself. Professor Silvanus P. Thompson, in discussing Professor Lunge's paper, urged that where a great industry is localized, science should be applied to that industry, and an institute should be put there devoted to monotechnical rather than polytechnical instruction. Training in research is absolutely necessary, and specific research should not be undertaken too soon by students who have not been taken through an all-round course in chemistry. Sir Henry Roscoe pointed out that England suffers chiefly from the failure of her manufacturers to see, as they ought to see, the importance of the highest scientific training for their employés. Scientific teaching has taken up a sound position already, and if manufacturers will only appreciate its value England can turn out scientific men as well as any country in the world.

The last *Berichte* of the German Chemical Society contains a series of observations of the amount of carbon dioxid in the air of Sheffield, by W. Carleton Williams. The mean amount found in 142 determinations in the suburbs is 3.266 parts per 10,000, the maximum being 5.14 and the minimum 2.16. The average of 22 determinations in the center of the city is 3.9, with a maximum of 6.22 and a minimum of 2.80. These figures are higher than those observed in Paris (2.85), Dieppe (2.94) and Odessa (3.04), and only equaled by those in Dundee (3.9). As regards the conditions pertaining at the time of the experiment the following conclusions are drawn. During mist and snow the amount is increased; no difference is shown in rainy weather (previous observations on this point differ); a maximum (3.6) is reached in January, decreasing to a minimum (2.59) in April; the amount decreases with the increase of temperature—below 0°, 4.06; 0°–5°, 3.31; 5°–10°, 3.22; 10°–15°, 2.98—possibly due to increased fuel consumption in cold weather; increase with very high or very low barometer. These observations contribute to the view that the amount of carbon dioxid in the atmosphere is by no means constant under varying conditions.

G. Spezia contributes to the *Atti* of the Turin Academy an investigation on the action of water on quartz under pressure. Pfaff had shown, using quartz powder, that at 18° and 290 atmospheres' pressure one part of quartz dissolved in 4,700 parts of water; using plates of quartz, Spezia finds that at 25° and 1,750 atmospheres (in one experiment 1,850 atmospheres) in the space of over five months absolutely no quartz went into solution.

J. L. H.

SCIENTIFIC NOTES AND NEWS.

The subject of Professor W. P. Mason's address as Vice-President of the American Association for the Advancement of Science (Section C., Chemistry) will be 'Expert Testimony.' The subject of Vice-President L. O. Howard's address (Section F., Zoology) will be 'The Spread of Land Species by the Agency of Man with especial reference to Insects.' The subjects of the other addresses have already been announced in this Journal.

The party from the zoological department of Columbia University reached Puget Sound, Washington, in the latter part of June, and gave a fortnight to the further exploration of the waters of the Sound. Upon July 8th they started for Sitka, Alaska, where they will remain from four to six weeks, returning to Port Townsend at the close of the season. The party includes Professor Wilson, Dr. Calkins, Professor Lloyd and five others.

Professor Osborn has recently returned from a visit to the various parties sent out by the American Museum of Natural History. The systematic collection of vertebrates this year is extended for the first time among the reptilia, and two parties are working in Kansas and Wyoming. Professor Osborn and Dr. Wort-

man made a survey of the Huerfano Tertiary Lake Basin, in southern Colorado, discovered in 1888 by Professor R. C. Hills, of Denver. The main Museum party has been stationed in the Equus Beds of northwestern Nebraska, where a very complete Pleistocene collection has already been obtained. This department of the American Museum has prepared an exhibit of enlarged photographs of eight mounted fossil skeletons in the Museum, and of twelve restorations designed by Charles Knight, for the International Exposition at Brussels. A similar series will be exhibited at the Geological Congress at Moscow, and at the meetings of the American and British Associations in Detroit and Toronto.

WE learn from *Nature* that the Sydney expedition to Funafuti, to make borings in the coral, projected and led by Professor David, started on June 2d, going by steamer to Fiji, and thence by sailing vessel to Funafuti. This expedition has been made possible by the liberality of the mining department of the government of New South Wales, which has supplied all the boring plant free of cost, and by the munificent gift from Miss Walker, of Sydney, of £500, and from the Hon. Ralph Abercrombie of £100, towards the expense of the expedition.

THE Park Board of New York City have finally adopted the plans of the managers of the Botanical Society for the Botanical Gardens in Bronx Park. R. W. Gibson and the Lord & Burnham Company have been appointed architects. The Board of Estimate has been requested to issue bonds to the amount of $500,000 to defray the cost of erecting the buildings.

DURING a lecture by M. Lacaze-Duthiers, professor of zoology at the Sorbonne, the oxyhydrogen generating apparatus exploded and two of the assistants, MM. Brumpt and Lancepaline were injured, the latter somewhat seriously.

THE Council of the Zoological Society of London have conferred the silver medal of the Society on Mr. Alexander White for his contributions to our knowledge of the fauna of Nyassaland.

ON the occasion of his retirement from the chair of practical chemistry in the School of the Pharmaceutical Society of Great Britain, Professor John Attfield, F.R.S., has been the recipient of a testimonial consisting of an autograph album and silver plate. The former contained the names of eminent scientific men of England and the Continent.

MR. JAMES F. BABCOCK died at Dorchester, Mass., on July 19th, at the age of fifty-three years. He was formerly professor of chemistry in Boston University. During his terms of office as State Assayer and Inspector of Milk he made great improvements in methods of testing. He was the inventor of the fire extinguisher which bears his name, and was well known as a lecturer on popular scientific subjects.

MR. CHARLES F. CROCKER, whose death in San Francisco has been announced, was a regent of the University of California and had made many gifts to public and scientific institutions, including Lick Observatory. His will does not contain public bequests.

THE death is announced of Professor W. Preyer, the eminent physiologist, at Wiesbaden, at the age of 56 years.

WE regret to record the following deaths: M. Chudzinski, professor in the Paris School of Anthropology; Dr. E. Le Gros, professor of physiology at the new University of Brussels, known for his contributions to ophthalmology, aged 36 years; Professor W. Marmé, director of the Pharmacological Institute of Göttingen; Dr. Giuseppe Fissore, sometime professor of pathology in the University of Turin, aged 82 years, and Dr. M. Josef Oertel, professor of medicine at Munich.

THE United States Civil Service Commission announces a competitive examination to fill the vacancy in the position of Supervising Architect of the Treasury. The salary of this position, which is one of the most important and responsible under the government, is $4,000 per annum, and it is hoped that architects of high attainments and reputation may be induced by these considerations to enter the competition. It is the desire of the Department to secure a practical architect of high administrative abillty to direct and supervise the work of the office force as well as the contract work

done on public buildings throughout the country.

It is reported that the Secretary of Agriculture will ask Congress at its next session to authorize the establishment of an Agricultural Experiment Station in Alaska. Suitable scientific experiments would be of great value in showing what agricultural products and domestic animals could be introduced to advantage.

According to the New York *Evening Post*, George A. Brill of Poughquog, Dutchess county, who was graduated from Cornell University in 1888, recently received a cable despatch from Li Hung Chang offering him a liberal sum to organize and manage a model farm in China under the government. He will accept the offer, and will soon leave for China to enter upon his duties.

Professor Bessey writes in the *American Naturalist* that he knows from many years of personal experience, and this not in an old and wealthy community, that the purchase of good compound microscopes (duty free), and the installation of small but efficient laboratories in secondary schools, is as easily accomplished for botany as is the purchase of necessary apparatus and the fitting-up of proper laboratories for chemistry. In the new State of Nebraska nearly every accredited high school is now using the compound microscope in the study of plants selected as types of all the greater groups of the vegetable kingdom.

At the request of Mr. Melvil Dewey, on behalf of the American Library Association, the U. S. government has agreed to issue postal cards of the standard library size for index cards.

The second International Library Conference was opened on July 13th in London by the Lord Mayor. Sir John Lubbock gave the presidential address. Papers were subsequently presented by Mr. J. T. W. MacAlister, of the Royal Medical and Chirurgical Society of London; by Mr. Henry Tedder, Mr. Herbert Jones, Mr. Alderman Rawson, Mr. Melvil Dewey and others.

At the recent conversatzione at University College, London, apparatus to be used in a course in experimental psychology was exhibited. The course will be given under the direction of Professor James Sully and Dr. W. H. R. Rivers.

Lord Kelvin has written a letter to the London *Times* stating that in his address at the Pender memorial meeting (quoted in the last issue of this Journal) he inadvertently did serious injustice to the late Sir Curtis Lampson when he said that it was owing to Mr. Pender alone that the Atlantic Telegraph Company was kept afloat from 1858 to 1864. In fact, a large part of the heavy burden of keeping the original Atlantic Telegraph Company alive in the disheartening circumstances of the failure of the 1858 cable, after the short time of its successful working, was voluntarily undertaken by Mr. Lampson when he and Mr. Pender continued to act as directors and nearly all the others, incluing Lord Kelvin himself, resigned.

The new underground railway in London, extending from Liverpool street to Bayswater, has been an engineering feat of considerable scientific interest. The tunnels are steel tubes 11 feet 6 inches in diameter driven through the clay, each tunnel containing one track. The electric equipment, including the elevators, is supplied from America.

The *Railway and Engineering Review*, one of the best of the technical journals, publishes in its issue of July 3d an editorial article two columns in length advocating the use of the metric system and maintaining that no great inconvenience would be caused in its practical application.

UNIVERSITY AND EDUCATIONAL NEWS.

The Pennsylvania Legislature appropriated $200,000 to Lehigh University, and Governor Hastings has signed bills granting $150,000. The funds of Lehigh University are chiefly in stocks of the Lehigh Valley Railroad left by the late Asa Packer and no dividends have been paid for three years.

The will of the late Alexander Wheelock Thayer gives $30,000 (subject to a small annuity) to Harvard University as an endowment fund to assist poor students.