onomy of fungi, taxonomy of bryophyta, taxonomy of pteridophyta, taxonomy of spermatophyta, taxonomy of gramineae, embryology of spermatophyta, special taxonomy, regional botany, physiology of nutrition, ecological physiology, physiological anatomy, general physiology. The director says further, "Almost any problem in botany may be taken up by the trained botanist, who may come to the laboratories with the expectation of finding facilities for his work." It should be borne in mind that 'the laboratories never close for a vacation,' and that one may work here when most universities are closed.

A STUDY OF WHEAT.

MR. M. A. CARLTON, of the Division of Vegetable Physiology and Pathology of the United States Department of Agriculture, has for several years been engaged in a study of wheat with especial reference to its growth in different portions of this country. He finds that the country may be divided into eight wheat districts, as follows: (1) The soft wheat district, including mainly the north Atlantic states (in Virginia the mountainous region only); (2) the semi-hard winter wheat district, including the north central states; (3) the southern wheat district, including the northern part of the southern states; (4) the hard spring wheat district, including the states of the northern Plains; (5) the hard winter wheat district, including the states of the middle Plains; (6) the durum wheat district including a part of the states of the southern Plains; (7) the irrigated wheat district, in scattered areas in the Rocky Mountains and the Great Basin; (8) the white wheat district, including the larger part of the Pacific Coast states. A colored map illustrates these divisions in the bulletin (No. 24) in which Mr. Carlton discusses this subject. The species and sub-species of wheat recognized by Mr. Carlton are in the main those accepted by Koernicke and Werner in their 'Handbuch des Getreidebaues' as follows:

Triticum vulgare, the most valuable and widely distributed species, represented by a greater number of varieties than all other species taken together, including the soft winter wheats, hard winter wheats, hard spring wheats, white wheats and early wheats:

Triticum compactum, more properly a variety of the former, including the club sheets.

Triticum turgidum, a subspecies of *T. vulgare*, including the Poulard wheats, with such varieties as 'Seven-headed Wonder,' 'Hundred-fold' and 'Miracle.'

Triticum durum, a subspecies of *T. vulgare*, including the durum or macaroni wheats.

Triticum polonicum, a distinct species, including the Polish wheats.

Triticum spelta, a subspecies of *T. vulgare*, including spelt.

Triticum dicoccum, a subspecies of *T. vulgare*, including spelt-like wheats bearing the German name of 'Emmer.'

Triticum monococcum, a very distinct species, practically unknown in America, and but little grown in Europe, where it bears the German name of 'Einkorn.' It is said to be 'rust proof.'

In discussing the problem of the best varieties for this country the author says that, "considering all qualities, the best wheats in the world are of Russian origin, coming particularly from eastern and southern Russia. They are resistant to cold and drought, and are more or less resistant to leaf rust, and have the best quality of grain." Considerable space is given in the bulletin to the discussion of the means for the improvement of wheat aside from the mere introduction of valuable varieties. This is brought about by selection, and hybridization or 'breeding.' Examples of the latter are shown in a colored plate. The paper closes with a summary which contains many valuable practical suggestions.

CHARLES E. BESSEY.
THE UNIVERSITY OF NEBRASKA.

SCIENTIFIC NOTES AND NEWS.

THE officers of the International Association of Academies, which met last month at Paris, are as follows: *Honorary Presidents*, Dr. Mommsen, M. de Goeje, Sir Michael Foster, M. Berthelot, and M. Gaston Boissier; *Acting President*, M. Darboux; *Vice-President*, Dr. Diels; *Secretaries*, MM. Gomperz and Moissan. M. Darboux made an address of welcome, but otherwise the scientific work of the meeting has not been made public. We regret to learn that Professor G. L. Goodale, delegate from the National Academy of Sciences, was unable to

be present, having been detained at Geneva by illness.

Mr. Herbert Spencer celebrated his eighty-first birthday on April 27th. Mr. Spencer lives quietly at Brighton. His health is fair, but he is not able to undertake much literary work.

The Manchester Literary and Philosophical Society has awarded the Wilde gold medal to Dr. Metchnikoff, of the Pasteur Institute in Paris. The presentation was made at a meeting of the Society on April 22d, when Professor Metchnikoff delivered an address on the 'Bacterial Flora of the Intestine.'

The King of Sweden has conferred on Professor J. H. Gore, of Columbian University, Knighthood of the Order of Wasa, in view of his services as a member of the Superior Jury and Committee of Five at the Paris Exposition.

Professor Charles Howard Hinton, of the University of Minnesota, has recently been appointed a computer at the U. S. Naval Observatory in Washington.

The U. S. Department of Agriculture is about to establish an agricultural experiment station in Porto Rico, which will be under the direction of Mr. Frank D. Gardner, now of the Division of Soils.

Dr. Harlow Brooks, instructor in the University and Bellevue Hospital Medical College, has been appointed pathologist to the New York Zoological Park.

The corporation of Hull (Yorkshire, England) has recently taken over the Museum of the Literary and Philosophical Society in that town, and has appointed Mr. T. Sheppard as curator.

Mr. O. P. Austin, chief of the Bureau of Statistics of the Treasury Department, has gone abroad to study the statistical work of other nations.

Dr. Cornelia L. Clapp, professor of zoology at Mt. Holyoke College, has been given a year's leave of absence which she will spend in study at Naples.

Dr. B. T. Galloway, director of the Bureau of Plant Industry, has been placed in charge of the seed distribution from the Department of Agriculture.

Dr. Tarleton H. Bean, who was superintendent of the New York Aquarium prior to April 1, 1898, was deprived of this position by the abolition of the office. A new position, entitled 'Superintendent of Small Parks,' was shortly afterwards created, and its incumbent was given charge of the Aquarium. Dr. Bean brought suit against the City for re-instatement, as he could not be legally discharged, and the office being abolished appeared to be a subterfuge. The Court has, however, now decided this suit in favor of the City authorities.

The erection of a memorial to the late Right Hon. Professor T. H. Huxley in Ealing, near London, where he was born and received his early education, is contemplated. On the initiative of the Council of the Ealing Natural Science Society, a committee of those connected with the district who are interested in the project has been formed. The first meeting of this Committee was held on 29th of March last, when an executive committee was appointed (whose chairman is the Rev. Professor G. Henslow, Pres. Ealing Nat. Sci. Soc.). A bronze medallion portrait has been advocated for the central feature of the design, which may take the form of a simple mural tablet or of a more worthy monument as funds are obtainable, while should that support be forthcoming for which its projectors hope an annual grant or medal might also be founded. Subscription to the fund is not confined to the neighborhood or land of Huxley's birth, and those who may be desirous of assisting in the endeavor to keep green the memory of the great scientist in his natal town should communicate with the secretary to the fund, Mr. B. B. Woodward (120 The Grove, Ealing, London, W.).

Professor F. M. Raoult, the eminent chemist, known for his important researches on the lowering of the freezing point and lowering the vapor tension of solvents by dissolved substances, has died at Grenoble at the age of seventy-one years.

Dr. William H. Draper, emeritus professor of clinical medicine in the College of Physicians and Surgeons, Columbia University, and one of the trustees of the University, died on April 26th, at the age of seventy years.

MR. E. S. NETTLETON, connected with the Department of Agriculture as an expert on irrigation, died at Denver on April 22d, at the age of sixty-nine years.

SHORTLY before the lamented death of Professor H. A. Rowland, his mechanician in the Physical Laboratory of the Johns Hopkins University, Mr. Theodore C. Schneider, died. He had been connected with the Laboratory ever since the founding of the University. Under Professor Rowland's personal supervision, he constructed the three machines used for ruling the spectrum gratings made at this laboratory and used in all parts of the world where exact measurements in spectroscopy are attempted; and for several years he has had exclusive charge of selecting and of adjusting the diamond points to the machine, and of ruling the gratings. The construction of these ruling machines involved the grinding of screws a foot or more in length, which should be as perfect as possible throughout their lengths. Mr. Schneider ground four of these screws which under the most severe tests to which they can be put have as yet shown no appreciable error. They are without doubt the most perfect screws in the world.

DR. GUILIO BIZZOZERO, professor of general pathology in the University of Turin, died on April 8th at the age of fifty-five years. He was the author of numerous important papers on changes in minute anatomy produced by disease and, more recently, on State medicine.

M. PAUL CHAIX, for many years professor of geography in the University of Geneva, has died at the advanced age of ninety-three years. He had traveled much and was the author of various works on geography.

WE also regret to announce the death of Dr. John Kloos, professor of geology and mineralogy in the Technical Institute at Braunschweig, at the age of fifty-eight years; and of Dr. Daniel Wierzbicki, astronomer in the observatory at Cracow, at the age of sixty-eight years.

THE first *conversazione* of the Royal Society will take place on Wednesday, May 8th.

THE Government of Norway and Sweden has called a conference of representatives of countries interested in marine exploration to meet in Christiania in May. Germany, Great Britain, Denmark, Holland and Russia, besides Norway and Sweden, have indicated their intention to send delegates, and it is expected that other countries will be represented.

A TELEGRAM was received at the Harvard College Observatory, on April 26th, from Professor Kreutz, at Kiel Observatory, stating that a very bright comet, discovered by Halle at Queenstown, April 23d, was observed at Capetown by Gill, April 24d.712, Greenwich mean time in R. A. 1h. 30m. 4s. and Dec. + 3° 27′. The comet was observed by Professor E. B. Frost at the Yerkes Observatory on the 27th, just before sunrise and close to the sun.

GOVERNOR ODELL has signed the bill which permits New York City to accept the $5,200,000 gift of Mr. Andrew Carnegie for a free library system. The bill was drawn by Corporation Counsel Whalen and authorizes the city to purchase, erect and maintain libraries, and to enter into a contract with Mr. Carnegie to accept his gift under the conditions named by him.

THE workshop for the grinding of lenses and construction of telescopes, established by Mr. Alvan Clark, which was purchased from the heirs by one of his daughters, Mrs. William H. Grogan, Jr., and conducted by Mr. Grogan until his death last July, has been sold to the Alvan Clark and Company corporation.

BEGINNING on about the fifteenth of May, 1901, the Biological Department of the University of California will commence a systematic biological survey of the coast of that State. Temporary headquarters are established at San Pedro, and the work for the first summer will be carried south from Pt. Conception toward San Diego. A gasoline launch, which has been obtained for the season, will be fitted out with apparatus for dredging, sounding and making observations on temperature, salinity, specific gravity, etc. The work will be carried on by the members of the Department and graduate students, together with a number of investigators who have already interested themselves especially in west coast faunas. The funds to be used in the work were raised by Mr. W. H. O'Melveny, a graduate of the University, among the citizens of Los Angeles.

THE Mining School of McGill University will this year carry on its summer work in British Columbia. The class expected to leave Montreal by special car on the Canadian Pacific Railway on May 1st, and to go out to the Pacific coast, visiting the various collieries along the line of the railway and on Vancouver Island. The party will then go into southern British Columbia for the purpose of studying the mineral deposits of the Slocan, Trail Creek and Boundary Districts, and, returning by the Crows' Nest Pass route, will visit the coal mines at Fernie Hethbridge, reaching Montreal again about the middle of June.

THE daily papers state that a party of students from Harvard University will undertake, this summer, an expedition to Venezuela for botanical and zoological research. They are to leave New York on the steamer *Caracas*, on June 15th, and will proceed to La Guayra and Margarita Island.

THE assignment of field parties by the U. S. Geological Survey for the present season are as follows: Arizona: T. A. Jaggar, Waldemar Lindgren, J. M. Boutwell, F. L. Ransome, John D. Irving and R. T. Hill; Arkansas: George I. Adams; California: George F. Becker, W. Lindgren, J. C. Branner, J. S. Diller, Geo. H. Eldridge and H. W. Turner; Colorado: C. W. Cross, Ernest Howe, J. Morgan Clements, S. F. Emmons, John D. Irving and George I. Adams; Connecticut: William H. Hobbs and H. E. Gregory; Delaware: R. D. Salisbury and George B. Shattuck; Georgia: Arthur Keith; Idaho: Bailey Willis; Indiana: George H. Ashley; Indian Territory: J. A. Taff and George I. Adams; Kansas: W. S. Tangier-Smith; Kentucky: M. R. Campbell and George H. Ashley; Louisiana: George I. Adams; Maryland: Continuation of cooperative work as in previous years, William B. Clark, E. B. Matthews and George B. Shattuck, study of ancient crystalline rocks, paleozoic stratigraphy and coastal plain deposits; Massachusetts: B. K. Emerson; Michigan: Frank Leverett, F. B. Taylor, C. R. Van Hise, C. K. Leith and W. S. Bayley; Minnesota: C. R. Van Hise and J. Morgan Clements; Missouri: W. S. Tangier-Smith; Montana: Continuation of special studies in the Rocky Mountains, Charles D. Walcott, director; W. E. Weed and Bailey Willis; Nevada: G. K. Gilbert; New Jersey: R. D. Salisbury and George B. Shattuck; New Mexico: George H. Girty, R. T. Hill and C. W. Cross; New York: L. C. Glenn, T. N. Dale and J. F. Kemp; North Carolina: Arthur Keith; North Dakota: N. H. Darton and C. M. Hall; Ohio: Charles S. Prosser; Oklahoma: J. A. Taff; Oregon: J. S. Diller; Pennsylvania: Parts of Butler, Armstrong, Indiana, Washington, Westmoreland, Fayette and Tioga counties, M. R. Campbell, A. C. Spencer, George B. Richardson and L. Fuller; northern Pennsylvania: George H. Girty; Philadelphia and vicinity, Professor Florence Bascom and C. R. Van Hise; refractory clays of Pennsylvania, C. W. Hayes; Fulton and Franklin counties, George W. Stone; coal measures, C. D. White; South Carolina: Arthur Keith; South Dakota: N. H. Darton and J. E. Todd; Tennessee: Arthur Keith; Texas, R. T. Hill and George I. Adams; Utah: C. K. Gilbert; Vermont: T. N. Dale and J. E. Wolff; Washington: F. L. Ransome and Geo. Otis Smith; West Virginia: Cooperation with State survey under Professor I. C. White; Wayne county: M. R. Campbell, survey of Ceredo quadrangle; Wisconsin: C. R. Van Hise and W. C. Alden; Wyoming: W. C. Knight, N. H. Darton, George I. Adams and Arnold Hague.

THE correspondent from India of the London *Lancet*, writes under date of March 28th: "Plague has caused 11,560 deaths throughout India during the past week. The mortality is increasing with alarming rapidity in the Lower Provinces. Of the above total, no fewer than 7,315 deaths occurred in the Bengal districts. In Calcutta there were 1,040 deaths. The plague cases reported in this city were 1,199 against 993 during the previous week and the number of fresh living cases seen was 345. Disinfection continues to be extensively practiced, not only in respect of the rooms and houses where the cases occur, but in many of the adjoining houses. The process adopted consists in flushing the floors and spraying the walls with the standard solution of perchloride of mercury. Cases continue to occur in

the disinfected quarters, and it is impossible to show that the measure possesses much value. The outbreak in Calcutta now is more severe than that of last year, notwithstanding the repeated disinfections which have been practiced. As I have before remarked, however, the authorities are apparently able to account for nearly all the plague deaths and the investigations made after death indicate the exact location of the cases. The reported plague deaths in Calcutta nearly account for the excess mortality, and that is more than can be said for any other city. The disease is spreading in Benares and has reached to the cantonment. It continues to progress from village to village in the Gardaspur and Sialkot districts of the Punjab. In Bombay city plague has caused over 1,000 deaths during the past week. An examination of the total deaths in this city since the plague appeared in 1896, shows an excess mortality over the average of 120,000. The official reports only give 60,000 deaths from plague since its commencement in September, 1896, so that there is a very large balance to be accounted for. If the system adopted in Calcutta had been applied to Bombay, it is most probable that the greater part of this excess would have been found to be due to plague, and it is almost safe to say that Bombay city has lost 100,000 of its inhabitants from plague."

Nature learns from the *Victorian Naturalist* that Professor Spencer, F.R.S., of the Melbourne University, and Mr. F. J. Gillen, of South Australia, were expected to start from Oodnadatta, the present terminus of the transcontinental railway, nearly 700 miles north of Adelaide, on their expedition for the purpose of studying the habits and customs of the aboriginals of the northern portion of Central Australia, about the middle of April. The start has been somewhat delayed owing to the drought which has existed for some time in the portion of the continent to be visited. It is also proposed to cross into Queensland and continue Dr. Roth's ethnological work, and afterwards to traverse some of the larger rivers of the Northern Territory, and, if time permit, to visit the Wyndham district on Cambridge Gulf in Northwest Australia.

AN Institute for Tropical Hygiene was opened in Hamburg at the beginning of March. According to the *British Medical Journal*, it is a combination of laboratory and hospital, and the scientific workers in the first department will be able to find their material 'on the premises,' so to speak. The building has been erected close by the harbor; one wing contains 50 beds for tropical cases, such as malaria, beri-beri, etc. (not for infectious diseases); the second wing is taken up by the laboratories, lecture halls, etc. Here courses of lectures, combined with practical work, are to be held for the benefit of ship surgeons, navy surgeons, doctors about to settle in the colonies, and colonial medical officers of the State. The Institute has been erected by and belongs to the Free State of Hamburg, but the German Empire contributes a share of the working expenses, and the disposal of a certain number of laboratory places.

AT the last monthly general meeting of the Zoological Society of London, it was stated that there had been 106 additions to the Society's menagerie during the month of March, amongst which special attention was directed to the male Tasmanian wolf (*Thylacinus cynocephalus*), seldom seen in captivity, and also to the Indian birds presented by Mr. E. W. Harper, of Calcutta, new to the Society's series. It was also stated that on Easter Monday the admissions to the Society's gardens were 46,599, being a larger number than had ever passed the gates in one day since the opening of the gardens to the public in 1828. At the close of the general meeting the first of the annual series of lectures was delivered by Professor Charles Stewart, entitled 'On the Protection and Nourishment of Young Fishes.'

UNIVERSITY AND EDUCATIONAL NEWS.

AT a recent meeting of the regents of the University of Kansas, arrangements were made for the expenditure of the $10,000 appropriated by the Legislature, for improvements in the new chemistry building, and it was also decided to purchase a liquid-air plant. $7,000 will be