SCIENTIFIC NOTES AND NEWS

ACCORDING to an Associated Press dispatch from Stockholm, the Nobel prize in physics has been awarded to Sir Chandrasekhar Venkataram Raman, F.R.S., professor of physics in the University of Calcutta, known for his work on the diffusion of light and the "Raman effect." The prize in chemistry has been awarded to Dr. Hans Fischer, professor of organic chemistry at the Technical Institute, Munich, known for his work on blood, especially the synthesis of hemoglobin. As has been already announced, the prize in medicine has been awarded to Dr. Karl Landsteiner, of the Rockefeller Institute for Medical Research.

A "JORDAN Anniversary Number" of *Copeia,* the journal of the American Society of Ichthyologists and Herpetologists, will be issued at the end of the year, as a tribute to David Starr Jordan, dean of American ichthyologists, who will be eighty years of age on January 19. Any one desirous of helping to make this project a success, is requested to communicate with Dr. Carl L. Hubbs, secretary of the society, at the Museum of Zoology, University of Michigan, Ann Arbor.

PROFESSOR ALBERT EINSTEIN has accepted an invitation to undertake special research work at the California Institute of Technology and Mount Wilson Observatory. He will be accompanied by Dr. Walter Mayer, of the University of Vienna, as scientific assistant. Professor Einstein expects to sail on November 30 on the *Belgenland,* which goes to California with a stop at New York. He plans to return by way of New York in February, proceeding to Oxford to fill a lecture engagement.

MR. DAVID LUMSDEN, horticulturist of the Plant Quarantine and Control Administration of the U. S. Department of Agriculture, was awarded, on October 18, the silver cup presented each year by the American Orchid Society for outstanding services in promoting orchid cultivation.

A DINNER in honor of Dr. John Oliver La Gorce was given by the trustees of the National Geographic Society in Washington on November 5 in celebration of his twenty-fifth year of association with the society. Dr. La Gorce is vice-president of the society, a life member of its board of trustees, and associate editor of the *National Geographic Magazine.* Dr. Gilbert Grosvenor, president of the society, presided.

THE Board of Scientific Directors of the Rockefeller Institute for Medical Research announces the promotion of Dr. Robert E. Steiger and Dr. Alphonse Walti from the rank of assistant to that of associate on the scientific staff.

MR. LEONARD L. ELDEN, technical adviser to the general superintendent of the Edison Electric Illuminating Company of Boston, has been appointed vice-president and member of the executive council of the United States national committee of the International Electrotechnical Commission.

DR. ELWIN E. HARRIS, for the past seven years professor of organic chemistry in the University of North Dakota, has joined the Derived Products section of the U. S. Forest Products Laboratory at Madison, Wisconsin. Dr. Harris will be engaged in the federal laboratory's investigation of lignin which has been inaugurated on an intensive basis.

KENNETH A. AMSTUTZ, formerly chemist with the Dow Chemical Company, has become assistant professor of chemistry at Miami University, Oxford, Ohio.

ON the recommendation of the scientific advisory committee, the British Empire Cancer Campaign has made a further grant of £150 to Dr. J. C. Mottram, pathologist at the Radium Institute, London; £300 to Mrs. E. K. Dawson, of Edinburgh, for the continuance of investigations into mammary cancer, and £250 to Mr. E. Nevill Willmer, at the physiological laboratory, University of Cambridge.

PROFESSOR W. L. JEPSON has recently returned from England where he spent four months in research upon flora of California problems at the herbarium of the Royal Botanic Gardens, Kew, and at the Natural History Museum, London. He was also a delegate of the University of California to the International Botanical Congress at Cambridge.

PROFESSOR WILLIAM I. MYERS, of the department of agricultural economics, Cornell University, sailed on November 13 for Porto Rico, where he will undertake an investigation of agriculture and cooperative organizations for the Federal Farm Board.

DR. ARTHUR S. EAKLE, professor of mineralogy at the University of California, is conducting a systematic survey of minerals in the Hawaiian Islands, making his headquarters with the geology department of the University of Hawaii.

DR. ROSS A. GORTNER, chief of the division of agricultural biochemistry, of the University of Minnesota, will give a series of lectures at the University of Wisconsin from December 9 to 12, under the auspices of the Wisconsin Alumni Research Foundation. The series will include two general lectures on "The Application of Colloid Chemistry to Biological Problems," and on "Biochemistry and the Problem of Organic Evolution." In addition Dr. Gortner will

lecture before specific groups on his own researches in the field of colloid chemistry and the application of physico-chemical methods to biology and medicine.

DR. OLIVER HAZARD PERRY PEPPER, professor of clinical medicine in the University of Pennsylvania School of Medicine, will give the sixth annual Scripps Metabolic Clinic Lectures at La Jolla early in January, under the auspices of the Scripps Lectureship Endowment, to members of the San Diego County Medical Society. The meeting will be primarily in the form of lecture-clinics.

SIR FRANK DYSON, British Astronomer Royal, delivered a lecture at the Sorbonne, Paris, on November 7, on "The History of Greenwich Observatory." The lecture was arranged by the Association France-Grand Bretagne.

PROFESSOR P. SCHERRER, lecturer in the department of physics of the Technical Institute, Zurich, will during the first ten weeks of the term deliver a set of descriptive, experimental lectures on various phases of modern atomic theory at the Massachusetts Institute of Technology, and Professor J. A. Schouten, of the Technische Hoogeschool, Delft, Holland, visiting professor on the Rockefeller Foundation, will deliver a series of lectures on "The Geometry of Linear Displacements."

FIVE illustrated lectures by staff members of the Carnegie Institution of Washington will be given during November and December at 8:30 P. M. The dates and lectures are as follows: November 18, "Development of the Egg as seen by the Embryologist," Dr. George L. Streeter, director, department of embryology; November 25, "Development of the Egg as seen by the Physiologist," Carl G. Hartman, staff member, department of embryology; December 4, "Development of the Egg as seen by the Geneticist," Charles W. Metz, staff member, department of genetics; December 8, "Ancient Cave Life in Southern Nevada," Chester Stock, research associate in paleontology; December 10, "Exploration of Space," Edwin P. Hubble, astronomer, Mount Wilson Observatory.

THE thirty-second annual meeting (the 168th regular meeting) of the American Physical Society will be held in Cleveland in the Physics Laboratories of Case School of Applied Science and Western Reserve University on December 30 and 31, in affiliation with Section B—Physics—of the American Association for the Advancement of Science. The Josiah Willard Gibbs Lecture will be delivered on Tuesday afternoon at 4:00 o'clock by Professor E. B. Wilson, of Harvard University.

THE sixteenth annual meeting of the American Association of Petroleum Geologists will be held at San Antonio, Texas, on March 19, 20 and 21, 1931. The Gunter Hotel is to be headquarters for the convention. The San Antonio section of the association will be the host for the occasion, with the active cooperation of the San Antonio Chamber of Commerce and the local hotels. Concurrent meetings will be held by the Society of Economic Paleontologists and Mineralogists, a technical division of the American Association of Petroleum Geologists, and by the Society of Petroleum Geophysicists. Special features will be a moving picture lecture by Dr. Laurence Gould, geologist and second in command of the Byrd South Polar Expedition, and a moving-picture presentation of the making of airplane maps for oil companies.

THE third International Congress of Radiology will be held in Paris at the end of July, 1931, the sections being Roentgen-diagnosis, Roentgen- and Curie-therapy, radio-biology, radio-physics, natural and artificial heliotherapy and medical electrology.

WE learn from *Nature* that the fifth congress of Polish Physicists, held at Poznań from September 24 to 27, attracted more than three hundred members. The congress was divided into two sections, nearly equal in numbers—an educational section and a scientific one. The members of the latter section represented all centers of physical research in Poland, many of which were created after the recovery of the political independence of that country. The congress was held under the presidency of Professor M. Wolfke, of the Technical Institute, Warsaw. Seventy-two experimental and nine theoretical papers were presented, showing a considerable increase of scientific activity since the last congress, held at Wilno in 1928. The Physical Institute of the University of Warsaw, the director of which is Professor Pieńkowski, contributed more than twenty papers.

IN regard to the White House Conference on Child Health and Protection which opened in Washington on November 19, President Hoover is reported to have said: "The governors have appointed their delegates and various mayors their delegates as well as delegates from municipalities and associations interested. So far over 2,500 delegates have been appointed. Some 16 months ago I announced the convening of this conference. A number of committees were appointed for research and investigation and now total over 1,200 members covering every field and phase of child problems. The committees will be able to lay before this conference the most complete survey ever placed before this country on all questions relating to children's health and protection covering all problems, including deficient and delinquent children, to enable

the conference to come to conclusions on the material gathered. Those conclusions will have a very important effect in the activities of states and municipalities on these problems. I do not think—I know—that there never has been so exhaustive an investigation and presentation of the subject as will be made at the conference."

MCGREGORY HALL OF CHEMISTRY at Colgate University will be dedicated on December 5 and 6 instead of the dates given in the issue of SCIENCE for October 24. On Friday the fifth, the formal dedicatory exercises will be held in the afternoon, followed by inspection of the laboratory, a dedication banquet at 6:30 P. M., and a popular address at night. On Saturday there will be held a conference on the training in chemistry required for teaching, research, industry and medicine. The names of the speakers will be announced later.

APPLICATIONS must be on file with the U. S. Civil Service Commission at Washington, D. C., not later than November 26, for the position of toxicologist, with a salary of $3,800 to $4,600 a year; for associate pharmacologist, $3,200 to $3,800 a year, and for associate physiologist (apiculture) and associate technologist (honey), $3,200 to $3,800 a year, not later than December 10. These examinations are to fill vacancies in the Bureau of Entomology, Department of Agriculture, for duty in Washington, D. C., or in the field. Competitors for these positions are not required to report for examination.

Industrial Engineering and Chemistry reports that the government of the Union of South Africa invites applications from suitably qualified research chemists for appointment to the post of director of the Fuel Research Institute, Union of South Africa. The salary attached to the post is £1,000 per annum, increasing to £1,200. Applications, giving full information, must reach the chairman, Fuel Research Board, Department of Mines and Industries, Pretoria, South Africa, on or before January 15, 1931.

THE Geneva correspondent of the New York *Times* sends further details regarding the construction of the highest international scientific institute in the world, 11,340 feet up on the Jungfraujoch. It will be started soon, as the voluntary subscriptions received from the different countries are sufficient. America has contributed to the building fund $21,700, England and Germany $20,000 each, France and Austria $10,000 each. The Jungfrau Railway Company has given $40,000 and the Swiss Alpine Club $5,000. The Swiss government has promised $10,000 and an annual subsidy of $2,000 for ten years to cover current expenses. The object of the institute is to permit scientific men from all parts of the world to make researches, at high altitude, concerning meteorology, astronomy, electricity, physiology and other sciences. During the period of building the engineers and workmen will be lodged in a modern underground hotel which will be built inside the face of the rocks so as to protect them from avalanches and heavy snowfalls which are frequent on the Jungfrau during the winter months.

THE *Journal* of the American Medical Association says that the government of India has accepted the offer of the Rockefeller Foundation to build and equip an All-India Institute of Hygiene in Calcutta. Lieutenant Colonel A. D. Stewart has been appointed director-designate, a site is being acquired and all provisional plans have been made. The institute will afford opportunity for research and teaching in problems of public health with special reference to Indian conditions and will cooperate with the present Calcutta School of Tropical Medicine and the affiliated Pasteur Institute, the Carmichael Hospital for Tropical Diseases and the Leonard Rogers Laboratories. The latter has a special staff working on leprosy, kala-azar, hookworm, intestinal diseases and filariasis. The Calcutta school published more than eighty technical papers on tropical problems last year.

PLANS for the establishment of a research institute to be connected with the Chiaotung University of Shanghai have been completed by the Ministry of Railways of China. College graduates will receive there the opportunity to study industrial and economic problems. The China Foundation for the Promotion of Education and Culture has given $50,000 to the funds of the new institute. A College of Natural Science containing departments of higher mathematics, physics and chemistry will also be added to Chiaotung University.

A COLLECTION of Diptera, with approximately 12,000 specimens, has been presented to Purdue University by Dr. C. F. Adams, director of the bacteriological laboratory of the Indiana State Board of Health, formerly dean and entomologist of the College of Agriculture of the University of Arkansas. Dr. Adams has retained the Mycetophilidae and a named set of the Culicidae, in which groups he will continue his studies.

IT is stated in *Nature* that the Mond Nickel Company, London, has arranged three exhibits showing aspects of the nickel industry, which are available, free of charge, to colleges, technical institutions, schools, etc., in connection with conversaziones or to illustrate class or open lectures. Exhibit No. 1, illustrating "The Versatility of Nickel," was available last

year. Exhibit No. 2 illustrates "The Extraction of Nickel by the Mond Process," and consists of flow sheet, photographs, samples of intermediate and fine products, letterpress and booklets. Exhibit No. 3 illustrates "The Properties and Applications of Nickel and its Alloys," and consists of samples of products made in many different alloys, photographs, letterpress and booklets. Lectures illustrated by traveling exhibits or lantern slides are also given by members of the firm's staff.

DISCUSSION

PHYSIOLOGICALLY ACTIVE COMPOUNDS

IT has perhaps become customary to associate very intense biological activity chiefly with "toxines," "enzymes" and other bodies which are the despair of the organic chemist.

This attitude may have resulted partly from the fact that pharmacologists have seldom expressed the results of their experiments in striking terms. Professor A. J. Clark[1] has recently recalculated some pharmacological data in the literature and expressed the results in what may be termed an almost sensational manner. Thus he finds that doses of acetyl-choline which I had found sufficient to cause a distinct fall of blood-pressure in a cat could only produce a concentration equivalent to 1 mg in 500,000 gallons of blood. Clark has found that even smaller concentrations may affect the frog heart and shows that the volume of the cell of the frog heart is about 3.4×10^{11} times greater than that of the molecule of acetyl-choline. "This relation in size is similar to that between a large whale (100 tons) and a midge (1/3 mg). The remarkable fact is that a few thousand of these molecules when attached to the cell are sufficient to depress its activity."

My data could have been expressed in a different way: 1 grain (originally defined as the weight of a grain of wheat) would suffice to lower the blood-pressure of more than a thousand million cats; yet this dose might not kill a single cat. Clark also calls attention to the work of Loewi which indicates that stimulation of the vagus liberates acetyl-choline around the heart cells and in this way slows or weakens the heart. I had found indications of the presence in the adrenal glands of compounds which were far more active than choline and which seemed to yield choline on chemical treatment; this observation led me to prepare acetyl-choline and so to the discovery of the remarkable physiological activity of this compound. Recently Dale and Dudley have succeeded in isolating acetyl-choline from the spleen, and Kapfhammer and Bischoff believe that they have found it in ox blood.

Dale and Richards found that histamine, a compound widely distributed in animals, is active in even smaller doses than is acetyl-choline.

Clark also calls attention to a number of other very active "drugs" (thyroxin, epinephrine and secretin) which are formed in the body and concludes, "Modern investigations show, therefore, that there is a complex system of control of the body by means of the release of drugs."

The possibilities of finding drugs useful in the treatment of diseases by the pursuit of such studies are obviously very great, but at present very little scientific work is being done along these lines. Ehrlich more than thirty years ago reproached the medical profession and those responsible for the direction of medical research for abandoning to chemists and commercial interests research in this field which he termed the "ureigenstes Gebiet" of the medical profession.

REID HUNT

HARVARD MEDICAL SCHOOL

[1] *Jl. Soc. Chem. Ind.*, June 27, 1930.

SALINITY AND SIZE

IN the *American Naturalist* for March–April, 1930, Federighi[1] notes the smaller size of *Urosalpinx cinerea* from the saline waters at Beaufort, North Carolina, as compared with snails of this species from the less saline waters at Norfolk, Virginia, and he refers to observations by Vernon,[2] Flattely and Walton[3] and Hubbs upon the effects of salinity upon size. Hubbs noted that "within certain limits, size is directly proportional to the salinity," while Vernon and Flattely and Walton "maintain that the more saline waters tend to restrict the size attained."

It may be of interest to note that in a little paper[4] I published in 1904 I described dwarf specimens of *Neritina virginea* in the very salt shore ponds near Port Henderson, Jamaica, West Indies, and similar dwarfs from the almost fresh water in the mouths of two rivers on the northern side of the same island.

[1] Federighi, "Salinity and the Size of *Urosalpinx cinerea* Say," *American Naturalist*, March–April, 1930.

[2] Vernon, "Variation in Animals and Plants," Henry Holt, 1903.

[3] Flattely and Walton, "The Biology of the Sea Shore," Macmillan, 1923.

[4] Metcalf, "*Neritina virginea* variety *minor*," *American Naturalist*, 38, 1904.