

North America." Dr. Ward also addressed the general student body on the morning of January 12, giving an illustrated lecture on "The factors which control and direct the migration of the Pacific salmon." He came to the University as guest of the local Sigma Xi Club.

GRANTS FOR RESEARCH MADE BY THE AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE

THE Committee on Grants held its annual meeting in New York on December 31, 1922, and distributed four thousand dollars which was assigned by the council of the association for the year. Two members of the committee, Messrs. Moulton and Lamb, having retired at the end of the year 1922, the present organization of the committee is: Robert M. Yerkes, *chairman*; William D. Harkins, *secretary*; E. G. Conklin, C. Judson Herrick, George T. Moore, E. L. Nichols, Frank Schlesinger and David White. The committee elected a secretary for a term of four years.

The grants made for the year 1923 are listed below:

ASTRONOMY

No. 102: W. W. Campbell, Mt. Hamilton, Cal., \$225 for assistance in constructing an interferometer for use in measuring double stars.

No. 103: Bernhard H. Dawson, LaPlata, Argentina, \$300 for assistance in preparing catalog of 7,800 southern stars.

BOTANY

No. 104: S. M. Zeller, Corvallis, Oregon, \$250 for aid in study of Humenogastrales of North America.

No. 105: John T. Buchholz, Fayetteville, Ark., \$125 for aid in continuing work in quantitative studies of pollen tube growth, etc.

No. 106: Alkart R. Sweetser, Eugene, Ore., \$125 for aid in work on flora of the Kerby Quadrangle.

CHEMISTRY

No. 107: A. W. Rowe, Evans Memorial, Boston, Mass., \$300 for providing apparatus for studying rate of oxidation of ether.

No. 108: S. A. Mahood, Tulane University, New Orleans, La., \$200 for assistance in study of cellulose chemistry.

No. 109: H. I. Schlesinger, University of Chicago, \$300 for part payment of Hilger quartz spectrograph.

GEOLOGY

No. 110: V. C. Allison, Bureau of Mines, Pitts-

burgh, Pa., \$150 for assistance in study of rate of growth of stalagmites.

No. 111: Ferdinand Canu, Versailles, France, in collaboration with R. S. Bassler, U. S. National Museum, Washington, D. C., \$250 for aid in continuation of study of recent Bryozoa in Gulf of Mexico, etc.

No. 112: Taisia Stadnickenko, Poughkeepsie, New York, \$200 to assist in micro-chemical study of oils, shales and coal.

MEDICINE

No. 113: H. V. Atkinson, University of Texas, Galveston, Texas, \$200 to continue study of changes of blood under influence of drugs.

No. 114: M. S. Fleisher, St. Louis School of Medicine, St. Louis, Mo., \$200 for expenses in studying yeast-like organisms in human beings.

No. 115: O. F. Kampmeier, University of Illinois Medical School, Chicago, Ill., \$100 for assistance in completing monograph on morphology of lymphatic systems of vertebrates.

PSYCHOLOGY, PHILOSOPHY, EDUCATION

No. 116: Kline and Carey, Skidmore College, Saratoga Springs, N. Y., and Duluth, Minn., \$300 for aid in constructing measuring scale for free-hand drawing.

No. 117: S. L. Pressey, Ohio State University, Columbus, O., \$200 for assistance in X-O emotional tests.

PHYSICS

No. 118: L. Thompson, Kalamazoo College, Kalamazoo, Mich., \$100 for constructing chronographs.

ZOOLOGY

No. 119: F. B. Hanson, Washington University, St. Louis, Mo., \$250 for assistance in studying experimental modification of the germ plasm.

No. 120: Raymond Pearl, Johns Hopkins University, Baltimore, Md., \$225 for partial payment of X-ray apparatus for studying *Drosophila*.

W. D. HARKINS,

Secretary

UNIVERSITY OF CHICAGO

SCIENTIFIC NOTES AND NEWS

DR. ARTHUR A. HAMERSCHLAG, former president of the Carnegie Institution of Technology, has been elected to the presidency of the Research Corporation. Its principal office is in New York City and Dr. Hamerschlag will give part of his time to its work, although he will retain his residence and office in Pittsburgh. The Research Corporation, it will be remembered, has been endowed by the gift of the

patents for electrical precipitation of Dr. F. G. Cottrell. The directors are: Elon H. Hooker, John J. Carty, T. Coleman DuPont, Frederick A. Goetze, Otto H. Kahn, Charles D. Walcott, Floyd N. Scott, Dr. Ellwood Hendrick, Howard Poillon.

CHARLES F. RAND, of New York, has been reelected chairman of the Engineering Foundation, which is directing a national program of industrial research, in cooperation with the National Research Council. Edward Dean Adams, of New York, was elected first vice chairman; Frank B. Jewett, president of the American Institute of Electrical Engineers, second vice chairman, and Joseph Struthers, treasurer. Dr. W. F. M. Goss, president of the Railway Car Manufacturers Association, was elected to the board to succeed George M. Basford, and Colonel Arthur S. Dwight, past president of the American Institute of Mining and Metallurgical Engineers, was named a director to succeed Edwin Ludlow.

PROFESSOR E. DE MARGERIE, of the University of Strasbourg, during the month of February gave eight lectures on the work of French geologists and geographers at Cornell University. He is in this country as exchange professor and is dividing his time among the six American institutions that share in this exchange with France. They are: Harvard, the Massachusetts Institute of Technology, Yale, Columbia, Johns Hopkins and Cornell.

DR. H. V. ARNY, professor of chemistry at the College of Pharmacy, Columbia University, has been elected president of the American Pharmaceutical Association.

ONE of the most prominent Central American physicians, Dr. A. Quiñones Molina, was elected president of El Salvador, at the recent election.

DR. G. H. CARPENTER, professor of zoology at the Royal College of Science, Dublin, has been appointed keeper of the Manchester Museum.

PROFESSOR LOUIS C. GRATON, of Harvard University, has been elected a director of the Society of Economic Geologists.

DR. RICHARD R. LYMAN, professor of engineering, was recently appointed regent of

the University of Utah. Dr. Lyman is a graduate of the University of Michigan, and has been a member of the faculty of the University of Utah since he finished his graduate work at Cornell.

LEWIS RADCLIFFE has resigned as assistant in charge of the division of fishery industries under the Bureau of Fisheries to take a position with the Tariff Commission.

RICHARD V. AGETON, of the Bureau of Mines, who has been doing examination work for the War Minerals Relief Commission, is acting as assistant chief mining engineer of the bureau.

DR. W. REID BLAIR has been appointed to the newly created position of assistant to the director of the New York Zoological Park. Dr. Blair will continue to act as park veterinarian.

DR. P. D. RODRIGUEZ RIVERO has been appointed director general of health of Venezuela, to succeed Dr. L. G. Ghacin Itriago.

DR. H. W. C. VINES, fellow of Christ's College, Cambridge, has been appointed to a Foulerton research studentship of the Royal Society, the duties being to conduct researches in medicine or the contributory sciences. Dr. Vines is carrying on his researches in the Cambridge Medical School.

WITH the arrival of Professor Zschokke has commenced an exchange of teachers between the University of Cambridge and Basel University. Professor Zschokke will give a course of sixteen lectures on the European fauna.

GEORGE S. RICE, the chief mining engineer of the Bureau of Mines, has been selected as the bureau's delegate to attend the mining exposition and conference which will be held in London from June 1 to June 14. Following the exposition he will visit other countries of Europe to continue his study of mining methods and the use of liquid oxygen.

PROFESSOR W. L. BADGER, professor of chemical engineering at the University of Michigan, is taking a year's leave of absence beginning on February 1. He expects to continue his research work on evaporator design in Ann Arbor.

CAPTAIN OTTO SVERDRUP has left Trondhjem for the north, where he is to prepare, at the

request of the Norwegian government, a base for the examination into ice conditions in the Arctic Ocean, special regard being had to transport from Spitsbergen.

DR. E. V. COWDRY, of the Rockefeller Institute for Medical Research, delivered the seventh Harvey Society Lecture at the New York Academy of Medicine on February 24, on "The significance of the internal reticular apparatus of Golgi in cellular physiology."

THE Sigma Xi Club of Southern California held a special mid-winter meeting at the University of Southern California, Los Angeles, on the evening of February 10. Following a reception tendered by the Faculty Science Club there were addresses by Dr. James G. Needham, of Cornell University, and Dr. A. B. Stout, of the New York Botanical Garden, both of whom are spending the year at Pomona College.

DR. WILLIAM D. HARKINS, professor of physical chemistry at the University of Chicago, will give a course of three technical lectures on March 7, 8 and 9 at Carnegie Institute of Technology, Pittsburgh. He will discuss "Isotopes" and "Building and disintegration of atoms."

At the Royal Institution, on February 13, Professor A. C. Pearson delivered the first of two lectures on "Greek civilization and to-day"; on February 15, Professor B. Melvill Jones began a course of two lectures on "Recent experiments in aerial surveying"; and on February 17, Sir Ernest Rutherford commenced a course of six lectures on "Atomic projectiles and their properties." The Friday evening discourse on February 16 was delivered by Professor A. V. Hill on "Muscular exercise"; and on February 23 by Professor A. S. Eddington on "The interior of a star."

M. JUSSELAND, the French ambassador in Washington, has stated that an offer to purchase the house in which Pasteur was born has been made by Mr. John D. Rockefeller, with a view to the establishment of a museum.

A MEMORIAL service for Dr. John A. Wyeth, distinguished surgeon and scholar, who died in May, 1922, was held on February 27, at the New York Polyclinic Medical School and Hos-

pital. Dr. Wyeth founded the Polyclinic in 1881. In 1882 he established the first post-graduate medical school in the country. The program for the services included an invocation by the Reverend Dr. Charles H. Parkhurst, president of the board of trustees of the hospital; an address by Dr. Samuel W. Fairchild, and a tribute by Dr. Marion J. Verdery.

DR. JOHN WADDELL, associate professor of chemistry and librarian of the science department at Queen's University, Kingston, died recently at the age of sixty-four years.

THE Hon. Richard Clere Parsons, a well-known engineer, died in London on February 26, after a short illness, in his seventy-second year. Born in 1851, the third son of the third Earl of Rosse, the astronomer, he was elder brother of the Hon. Sir Charles Parsons, F.R.S., the great turbine engineer.

DR. FRITZ COHN, director of the Berlin Rechen-Institut and professor of theoretical astronomy in the university, died on December 14 at the age of fifty-seven years.

THE death is announced of Dr. A. Caruccio, professor of zoology and parasitology at the University of Rome, and of Dr. E. Cavazzani, professor of physiology at the University of Ferrara.

THE American Institute of Chemistry was organized at a meeting of local New York chemists on February 5. Dr. H. C. Byers, in charge of the department of chemistry at Cooper Union, and Dr. Lloyd Van Doren, a chemical patent lawyer, were elected, respectively, president and vice president. The secretary is Lloyd Lamborn, editor of *The Chemical Age*. The general purposes of the organization include the compilation of a code of ethics and the promotion of popular appreciation of chemical research and control in the industrial field.

THE thirty-ninth session of the American Association of Anatomists will be held in Chicago on March 28, 29 and 30, under the presidency of Dr. Clarence M. Jackson, professor of anatomy at the University of Minnesota Medical School.

IN connection with the announcement that

the trustees of the New York Academy of Medicine have acquired an option on a site for a new building at Sixtieth Street and Park Avenue, it is announced that on condition that the members of the academy acquire an appropriate site the Rockefeller Foundation will contribute \$1,000,000 for the erection of a new building and that the Carnegie Foundation will contribute an endowment fund sufficient to care for the increased needs of its library and the enlarged educational activities that the institution is planning to carry on.

CONSOLIDATION of the State Agricultural Experiment Station at Geneva with the College of Agriculture at Cornell is the object of a bill to be introduced in the New York State Legislature in the near future. The bill is not opposed by the administrative body of either institution. The object of the consolidation is to coordinate the research work of the two so that duplication of effort may be eliminated.

WE learn from the *Journal* of the American Medical Association that during the proceedings at Chicago, March 5, 6 and 7, of the annual congress of the council on health and public instruction of the American Medical Association, a meeting will be held on the afternoon of March 7 with the Public Health Service for the discussion of public health. At this meeting, over which Surgeon General H. S. Cumming has been asked to preside, the following program will be given: "Education of sanitarians and the future of public health in the United States," by Dr. H. S. Cumming, a report on the activities carried on by the Public Health Service since the conference of last March on the education of sanitarians, by Assistant Surgeon General W. F. Draper; "Recruiting and training of sanitarians," by Dr. C.-E. A. Winslow; "Steps already taken in standardization of public health training," by Dr. J. A. McLaughlin, U. S. Public Health Service, and "The course in public health and hygiene for medical students," by Dr. D. E. Edsall, of Harvard University. These addresses will be discussed by Dr. John Sundwall, of the University of Michigan, and by Dr. E. O. Jordan, of the University of Chicago. The closing address, "Education of the partly trained sanitarian now employed," by Dr. W. F. Sears, of Syracuse University, will be dis-

cussed by Dr. E. G. Williams, state health officer of Virginia, and Dr. W. S. Rankin, state health officer of North Carolina.

At a joint meeting of faculty members of the plant pathology departments of Washington State College and the University of Idaho the Inland Empire section of the Pacific division of the American Phytopathological Society was formed. The officers elected were: Dr. F. D. Heald, of Washington State College, *president*; C. W. Hungerford, University of Idaho, *vice president*; J. M. Raeder, University of Idaho, *secretary-treasurer*. Twenty-six representatives of the two institutions were present. The program given by the University of Idaho representatives consisted of papers by Dr. Henry Schmitz, associate professor of forest products; Dr. V. H. Young, professor of botany and plant pathology; C. W. Hungerford, plant pathologist experiment station; and J. M. Raeder, assistant plant pathologist.

A PRESS dispatch from Oklahoma City states that an amendment prohibiting the purchase of books or copyrights teaching the theory of the evolution of the human race was inserted in the State Free Text Book Bill which passed the lower house of the legislature on February 21. Only one dissenting vote was cast against the anti-Darwinian section.

A SUBSCRIBER to SCIENCE writes: "As the American Association for the Advancement of Science has definitely adopted evolution and as SCIENCE is the official (*sic*) organ of the American Association for the Advancement of Science you may discontinue my subscription I have no use for evolution and can not see how any intelligent (*sic*) person can have."

THE Wynecote Bird Club, of Philadelphia, held a special meeting on January 23 to hear an address by Mr. R. R. Logan, president of the American Antivivisection Society. Following the lecture an open discussion was held in which Mr. Ernest H. Baynes defended vivisection. At the close of the discussion the society adopted the following resolutions:

Resolved, That it is the sense of this club that Mr. Logan has entirely failed in his attempt to show that vivisection is immoral and unethical and unnecessary to the welfare of human beings or of animals, and, be it further

Resolved, That we heartily endorse Mr. Ernest

Harold Baynes on animal experimentation and sane humane education in general.

THE University of Chicago Board of Trustees announces that Professor R. A. F. Penrose, Jr., of Philadelphia, has again contributed five hundred dollars to help provide the full eight issues during the year of the *Journal of Geology*, which he writes is "undoubtedly the best geological journal to be found anywhere."

A GIFT of £5,000 by a donor, who at present wishes to remain anonymous, has been received by the Rowett Research Institute for Animal Nutrition at Aberdeen. This sum is intended to found a library and to provide for making statistical records.

THE Board of Trustees of the American Medical Association has made the usual appropriation to further research in subjects relating to scientific medicine and of practical interest to the medical profession, which otherwise could not be carried on to completion. Applications for small grants should be sent to the Committee on Scientific Research, American Medical Association, 535 North Dearborn Street, Chicago, before March 15, when action will be taken on the applications at hand.

THE United States Civil Service Commission announces an examination to be held on March 21 to fill a vacancy in the position of meteorologist in the Signal Service at Large, U. S. Army, McCook Field, Dayton, Ohio. The entrance salary, depending upon the qualifications of the appointee, will range from \$2,240 to \$3,000 a year. The appointee will be expected to conduct independent research work along various meteorological lines which will include making, computing and recording meteorological observations. The examination consists of practical questions in physics, mathematics and meteorology and a rating on education, training and experience. The commission also announces an examination for aid in the Division of Marine Invertebrate Zoology, on March 7, for a vacancy in the National Museum, Washington, D. C., at \$1,200 a year. Appointees whose services are satisfactory may be allowed the increase granted by Congress for the present fiscal year of \$20 a month. The examination is open to men and women.

WE learn from *Nature* that the annual exhibition of scientific apparatus organized by

the Physical Society of London and the Optical Society was held on January 3 and 4, at the Imperial College of Science, South Kensington. Mr. W. Gamble lectured on "Reproduction of color by photographic processes," and Professor E. G. Coker on "Recent photo-elastic researches on engineering problems. The lectures were illustrated by experiments. More than fifty firms exhibited apparatus and a number of experimental demonstrations had been arranged. Invitations to attend the exhibition were given to the Institution of Electrical Engineers, the Institution of Mechanical Engineers, the Chemical Society, the Faraday Society, the Wireless Society of London and the Röntgen Society.

SIR KENNETH D. MACKENZIE, Bt., presided on January 3 at a meeting of scientific men held at Burlington House, at which it was decided to form a Scientific Expeditionary Research Association. He said that its object would be to facilitate and promote scientific research by means of expeditions to all parts of the world. Societies and institutions not endowed with funds to enable them to dispatch research expeditions had usually to depend on public subscriptions, but an association of this kind could make itself responsible for raising the necessary money. It would have an advisory council composed of members of the councils of all the scientific bodies interested in or affiliated to it. It had been decided to organize a research expedition to the South Pacific Ocean, to start in the early summer and last about ten months. Representatives of the societies concerned would be taken on this trip, and a limited number of fellows of the association interested in science, who might desire to avail themselves of this opportunity for private study, would be permitted. He suggested that the cost would be close on £45,000.

GERMANY'S greatest user of coal is the Federal Railway, which formerly was able to utilize only 55 to 70 per cent. of its combustible material, the remainder (cinder and ashes) having been regarded as worthless. In order to make use of this waste, which is said to contain 50 per cent. or more combustible material, about two years ago the railway adopted the Meguin system of recovering coal from ashes. According to a report by the United States

consul at Frankfort on Main, thirteen large works, with a capacity for handling 420,000 tons of cinders and ashes annually, are now in operation or under construction. The amount of pure coke obtained is estimated at 164,000 tons, with an average calorific value of 5,500 units, compared with 7,000 units for good hard coal. The fine coke, with the addition of fine coal and hard pitch, is used in making briquettes, about 74,000 tons of coke briquettes being thus obtained, with a calorific value of 6,500 units. In addition to this, 256,000 tons of non-combustible clean slag are obtained; this serves for the manufacture of 130,000,000 slag stones, which are employed in building.

WILLIAM HENRY HUDSON, the British author and naturalist, writer of "British Birds," and numerous other works on natural history, whose death on August 18 at the age of eighty years has been reported in *SCIENCE*, left an estate of the gross value of £8,225. The testator directed that all his MSS., notebooks and letters, and any scraps of written paper (unless specially marked for publication, in which case they are to be offered first to his publishers, Messrs. J. M. Dent and Sons) should be destroyed, and after providing for a number of legacies to friends, amounting in all to about £500, the residue of his property is left to the Royal Society for the Protection of Birds, to be utilized in accordance with the terms of a paper writing dated March 31, 1921, deposited with his will, and reading as follows: "The money I leave to the Royal Society for the Protection of Birds is to be used exclusively for the purpose of procuring and printing leaflets and short pamphlets suitable for the reading of children in village schools. The leaflets are to be composed more or less on the lines of those I have written for the society; each is to be illustrated with a colored figure of a bird, the writing is to be not so much "educative" or 'informative' as 'anecdotal.' This, I find, is the easiest way to attract the child's attention to the subject. The colored picture, the story told, excite that interest in and love of the birds which leads to their protection. I think the society should print two or three leaflets of this kind each year, if not more. For the first year or two the interest on the money must suffice, afterwards the capital may be

used as required. But I have the hope that the capital may be added to by-and-by by others, so that these publications, which I think are peculiarly well suited for distribution on Bird and Tree Day to all the schools taking part in this festival, may be kept up for an indefinite period."

A CORRESPONDENT to the *London Times* writes: "An illustration of the great difficulty which scientific societies are experiencing in finding money for the publication of memoirs as the result of the increased cost of printing was contained in the presidential address delivered by Major P. H. Hepburn at the annual general meeting of the British Astronomical Association. Major Hepburn said that the Variable Star Memoir, containing a large number of observations made by members of the Variable Star Section of the association from 1914 to 1919, had been ready to print for the past year. It would cost about £400. Towards this sum individual members had promised £175 and the association had earmarked £100. It was hoped that it would be found possible to put the printing of the memoir in hand before the end of the year. It may be added that Professor H. H. Turner and several well-known continental and American astronomers have urged the early publication of this memoir, which will form a continuation of the quinquennial series published since the beginning of the century by the association. In order to accumulate funds for the purpose it has been necessary to postpone publication of memoirs on other subjects. The work of the Variable Star Section has achieved international recognition for the accuracy of the material it provides for the study of the light fluctuations of long period variables."

We learn from the *London Times* that after an interval of two years the *Botanical Magazine* has made a reappearance under the auspices of the Royal Horticultural Society, for whom Messrs. Witherby have just published Part I of a new volume (148). But slight alteration has been made in the form of the magazine, and the familiar engraving of the Palm House at Kew Gardens occupies its accustomed place on the front cover. The plates in the new part are the work of three artists, and, in general, their execution exhibits

a welcome improvement on that of those in the last few volumes of the old set. There is, too, a more liberal allowance of space for the letterpress relating to the various plates, of which the number in each volume is to remain at forty-eight. The unofficial relations which have existed for so long between Kew and the *Botanical Magazine* have not been altogether severed, as, under the new régime, the editing is in the hands of Dr. Stapf, late keeper of the herbarium at Kew. The *Botanical Magazine* appeared without a break since its first appearance in 1787 till the completion of volume 146.

UNIVERSITY AND EDUCATIONAL NOTES

UNDER the will of Mrs. Alice H. Plimpton, who died in Norwood, recently, \$50,000 is donated to Harvard University, of which \$30,000 will go to Harvard College and \$20,000 to the medical school.

TRINITY COLLEGE, Hartford, Connecticut, has received a bequest of \$100,000 by the will of the late George E. Hoadley. This brings the amount collected for the Trinity centennial fund to \$650,000.

IN connection with celebration of the eighty-fifth anniversary of its founding, which took place on February 22, DePauw University has started a project to raise one million dollars for endowment and a half million for buildings and equipment.

THE Agricultural School of the University of Cambridge will receive through the Ministry of Agriculture and Fisheries £30,000 from the development commissioners to provide for a chair of animal pathology. On the professor being appointed, he would be required to prepare a scheme for the development within the university of the study of the diseases of farm animals. For an approved scheme the commissioners would be prepared to find a capital sum of about £25,000 for buildings, the sites to be provided by the university.

DR. ROBERT E. VINSON, president of the University of Texas, will succeed Dr. Charles F. Thwing as president of Western Reserve University.

DR. R. A. PETERS, lecturer in biochemistry

in the University of Cambridge, has been elected to the Whiteley professorship of biochemistry in the University of Oxford.

DR. RAFFAELE ISSEL, son of the late Professor Arturo Issel, the geologist, has been appointed professor of zoology in the University of Genoa.

DISCUSSION AND CORRESPONDENCE

DESTRUCTION OF THE POLARIZATION OF RESONANCE RADIATION BY WEAK MAGNETIC FIELDS: A NEW MAGNETO-OPTIC EFFECT

THE earlier studies of the resonance radiation of mercury vapor in exhausted quartz tubes by one of the present writers showed no traces of polarization, even when the exciting light was polarized. Recent experiments by Lord Rayleigh apparently indicated that polarization existed in that part of the excited column at some little distance from the window at which the beam entered, in other words when the excitation was produced by light from which the core of the 2,536 line had been removed by absorption. This observation was not verified in experiments made by one of us last spring and published in a recent number of the *Philosophical Magazine*. The polarization was found to be strong and of uniform percentage right up to the window at which the beam entered.

On commencing a further study of the phenomenon we found it impossible to produce as strong polarization as was indicated by the earlier experiments, and after varying the conditions in every conceivable manner we finally found that the disturbing factor was the magnetic field of the earth, the polarization rising to a very high value (90 per cent.) when the magnetic field of the earth was compensated by a large solenoid carrying a feeble current. In the absence of the solenoid the percentage of polarization dropped to fifty or less. This appears to be a new magneto-optic effect, and is manifested only when the magnetic field is parallel to the magnetic vector of the exciting light and perpendicular to the beam of exciting rays. A field of only five or six times the strength of the earth's field practically destroys the polarization. Discrepancies found previous