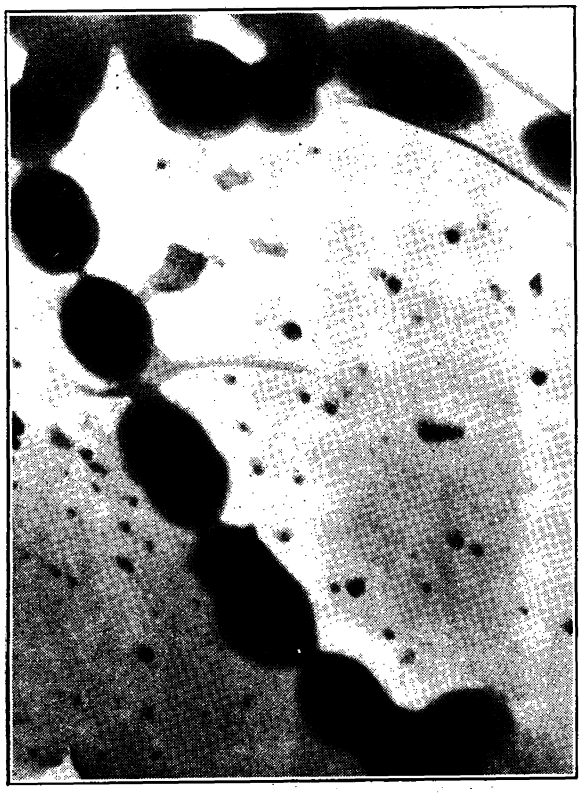

FIG. 4. Streptococcus germs. Magnification 20,000×.

FIG. 5. Iron-oxide powder (rouge). Magnification 15,000×.

tically relative to the objective. This arrangement makes it an easy matter to explore the specimen by manipulating controls from the observer's position.

In studying the object the observer is seated in front of the microscope and views the final image through one of the large rectangular windows provided for that purpose, with the current and voltage controls within easy reach. A periscope at the left end of the window permits the observation of the less highly magnified intermediate image from the same position.

If a photograph is to be taken, a photographic plate is introduced through a second airlock, the fluorescent screen is swung aside and an exposure made. The airlock mechanism opens and closes the plate holder automatically as the plate is introduced and again withdrawn.

To illustrate some possibilities of application of this electron microscope, a few pictures obtained with it are reproduced in Figs. 2 to 5. The first three represent various pathogenic bacteria. Here the long curved flagella of the typhoid germ and the interior structure visible in the whooping cough bacteria are particularly interesting. The last picture, showing a sample of polishing rouge, indicates the usefulness of the instrument for determining the size and shape of particles beyond the reach of the light microscope.

A conservative estimate based on the examination of pictures so far obtained makes the resolving power of the present electron microscope twenty times that of the best light microscopes with oil immersion. There is every probability that research now being carried on will greatly increase this factor. The significance of this newly found sight, extended to the range of the larger organic molecules, in all branches of science—biology, medicine, metallurgy, etc.—can scarcely be gauged. Once again, an apparently insurmountable obstacle to the progress of science has been overcome.

SCIENTIFIC EVENTS

THE HARVARD SCHOOL OF DENTAL MEDICINE

A NEW plan of dental education made possible by contributions amounting in all to $1,300,000 has been inaugurated at Harvard University. The gifts were made by: The Carnegie Corporation, $650,000 in addition to a gift of $350,000 made in 1937; the Rockefeller Foundation, $400,000; and the John and Mary R. Markle Foundation, $250,000. This foundation had contributed previously the sum of $25,000.

Under the plan, which is described in the *Harvard Alumni Bulletin*, the present Harvard Dental School

will be renamed the Harvard School of Dental Medicine. Its course, to be initiated in the autumn of 1941, will be extended from four to five years, and will combine in increased measure the basic knowledge and skills of both medicine and dentistry.

Dental students will register in both the new School of Dental Medicine and in the Harvard Medical School, taking three and a half years of the same medical courses as other students in the Harvard Medical School, and in addition one and a half years of specific dental training. Graduates will receive both the M.D. and D.M.D. degrees. Admissions to the School of Dental Medicine will be governed by the same standards and the same committee which govern admissions to the Harvard Medical School.

In the first year of the five-year course, students will spend approximately five per cent. of their time in specific dental training, and the remaining 95 per cent. in medical training. The proportion of dental training will rise to 10 per cent. in the second year, 20 per cent. in the third year, 37 per cent. in the fourth year, and 88 per cent. in the final year.

In addition to the contributions of the three foundations named, the president and fellows have transferred definitely to the resources of the School of Dental Medicine $1,000,000, tentatively placed at the disposal of the school ten years ago. An additional $250,000 is required to bring the plan into operation; but it has been announced that there is expectation of finding a means to provide this balance. It has been decided, accordingly, to proceed with the plan. When this last balance is provided, the permanent new assets for teaching and research will amount to $2,550,000.

THE GUGGENHEIM FELLOWSHIPS FOR LATIN AMERICANS

BRAZILIAN scholars, competing for the first time for the Latin American fellowships offered by the John Simon Guggenheim Memorial Foundation, have been awarded six of the nineteen fellowships granted for 1940–41. Three fellowships were granted to Peruvians. Argentina, Chile, Uruguay and Puerto Rico each received two fellowship awards, Mexico and Cuba one each.

Fellowships in the sciences include:

CARLOS NICHOLSON JEFFERSON, professor of the physical geography and climatology of Peru in the University of San Augustín, Arequipa, will engage in comparative studies of the climates of the Peruvian coast and the coast of California.

DR. FERNANDO HUIDORBO TORO, surgeon and member of the staff, Catholic University of Chile: Studies of the chemical transmission of nerve impulses.

DR. RAUL PALACIOS, chief of the section of filterable viruses of the Bacteriological Institute of Chile: Studies of rabies.

DR. AMERICO SANTIAGO ALBRIEUX MURDOCH, head of the section of endocrinology, Institute of Endocrinology, Montevideo, Uruguay: Studies in the field of endocrinology, in particular, hormone therapy.

DR. CIRO A. PELUFFO, assistant in the Department of Bacteriology, Institute of Hygiene, Montevideo, Uruguay: Studies of artificially induced microbiological variation.

DR. HUGO PABLO CHIODI, laboratory chief, Pulmonary Research Center, University of Buenos Aires: Investigation of respiratory phenomena caused by muscular activity in health and disease.

DR. EDUARDO ETZEL, chief surgeon, Clemente Ferreira Tuberculosis Institute, São Paulo, Brazil: Technical studies of thoracic surgery in relation to the treatment of pulmonary tuberculosis.

DR. NILSON TORRES DE REZENDE, surgeon, Pernambuco, Brazil: Studies in the field of neurophysiology.

DR. MAURICIO ROCHA E SILVA, member of the staff of the Biological Institute of São Paulo, Brazil: Research into the pharmacological properties of trypsin.

CARLOS ARNALDO KRUG, head of the Genetics Department, Institute of Agronomy of São Paulo, Brazil: Genetic investigations of citrus and other major crop plants of Brazil, in collaboration with experts of the United States Department of Agriculture.

JOSÉ P. CARABIA, assistant in the Botany Department of La Salle College, Havana, Cuba: The preparation of a work on the flora of Cuba, at the New York Botanical Garden, where there is gathered the world's largest collection of Cuban plants.

NABOR CARRILLO FLORES, professor of mathematics, National University of Mexico: Studies of soil mechanics and its application to the construction of foundations of buildings and dams with especial references to the difficult subsoil conditions of Mexico.

FACUNDO BUESO-SANLLEHÍ, associate professor of physics, University of Puerto Rico: Studies in the field of band spectra. Professor Bueso-Sanllehí, who has taught at the University of Puerto Rico since 1927, was born in Mexico.

MARIO SCHENBERG, acting professor of physics, University of São Paulo, Brazil: Research into the application of nuclear and atomic physics to astrophysics.

The grants are made in terms of fellowships to assist research workers in all fields of knowledge to carry on their work under the freest possible conditions. The stipends granted are usually $2,000 for a year.

Dr. Frank Aydelotte, director of the Institute for Advanced Study at Princeton, is chairman of the Committee of Selection. Members of the committee include: Dr. Thomas Barbour, professor of zoology and director of the Museum of Comparative Zoology of Harvard University; Dr. Elmer Drew Merrill, Arnold professor of botany and administrator of the botanical collections of Harvard University, and Dr. Percival Bailey, professor of neurology and neurosurgery in the medical school of the University of Illinois.