arts and sciences increased from 1,180 to 1,321, which is 43.5 per cent. of all graduates.

The number of medical colleges is eighty-five, the same number as last year. In 1904, when the Council on Medical Education was created, the United States had more medical schools than all other countries of the world combined. While the number of colleges has been reduced from 162 to 85 during the sixteen years, the number enforcing an entrance requirement of two years or more of collegiate work increased from four (2.5 per cent. of all colleges) in 1904, to seventy-eight (92.9 per cent.) in 1920. The number of medical students was decreased from 28,142 to 13,052—the lowest number—in 1919; but during the same period, the number who had higher preliminary qualifications was increased from 1,761 (6.2 per cent. of all students) in 1904, to 13,408 (95.2 per cent.) in 1920. The number of graduates was reduced from 5,747 to 2,656—the lowest number—in 1919; but the number having higher preliminary qualifications was increased from 369 (6.4 per cent. of all graduates) in 1904, to 2,842 (93.3 per cent.) in 1920.

WORK OF THE BUREAU OF MINES

DR. F. G. COTTRELL, director of the Bureau of Mines, announces the appointment by Acting Secretary of the Interior Hopkins, of F. B. Tough as supervisor, and R. E. Collom and H. W. Bell as deputy supervisors, to administer the operating regulations on oil and gas leases under the Department of the Interior. Mr. Tough will be stationed at Denver, Colorado, and will have personal charge of operations in the Rocky Mountain fields, as well as supervisory charge of operations on government lands in all fields. Mr. Collom will be stationed at San Francisco, California, and will have charge of operations in the California oil fields. Mr. Bell will be stationed at Dallas, Texas, and will supervise operations in the Louisana fields.

Mr. Tough is a graduate mining engineer. He has had seven years' experience in actual engineering and practical work for the Southern Pacific Company in the California oil fields and as petroleum technologist with the Bureau of Mines for four years. While with the Bureau of Mines, he covered practically all the oil fields in the United States, and has done much work in correcting water problems in Illinois, Colorado, Wyoming and California. He is the author of Bulletin 163, "Methods of Shutting off Water in Oil and Gas Wells." For the past year and a half he has been in charge of the conservation work in the Wyoming fields, under the cooperative agreement with the Rocky Mountain Petroleum Association, which has contributed $30,000 a year for the Bureau of Mines to demonstrate methods of drilling and operating wells in order to minimize the waste of oil and gas and damage to oil and gas sands. This work was so satisfactory that the Rocky Mountain Petroleum Association, consistng of the Midwest Refining Company, the Ohio Oil Company, and the Continental Oil Company, voluntarily suggested a renewal of the cooperative agreement for the second year and Mr. Tough will continue to supervise this cooperative work.

Mr. R. E. Collom is also a graduate mining engineer. He has had a number of years' experience in the mining camps, but has spent most of his time in the oil fields of California. He was deputy supervisor for the California State Mining Bureau, where he worked principally in the Santa Maria oil field, from which position he was transferred to San Francisco as assistant chief supervisor. Mr. Collom has been with the Bureau of Mines for one year, during which time he has been in many fields in the United States, and was in charge of the Dallas office of the Bureau of Mines for several months. He worked in the Texas and Louisiana oil fields, particularly in the Wichita Falls and Ranger Districts, where, with the assistance of W. A. Snyder and J. B. Kerr, a number of operating problems were solved and valuable recommendations made to the oil companies. Mr. Collem is the author of a manuscript to be published by the Bureau of Mines relating to development problems in the oil fields.

Mr. Bell is a graduate mining engineer

who spent a number of years in the mining camps, and then became interested in the oil business in Coalinga field, California, where he had much practical experience. For the past several years he has been with the California State Mining Bureau as deputy supervisor. He has recently been appointed as petroleum engineer with the Bureau of Mines, to take charge of the Dallas office, Texas. Government leases in Louisiana will be taken care of in conjunction with the demonstration work in Louisiana and Texas.

The supervisory work under Mr. F. B. Tough will cover the operating regulations to govern the production of oil and gas under the Act of February 25, 1920. These regulations cover only the active drilling, production, and gaging of oil and gas, the supervision of which has been assigned to the Bureau of Mines by the Honorable John Barton Payne, secretary of the interior. Other regulations relating to the giving of leases and permits, collection of royalty moneys, etc., are under the supervision of the General Land Office.

The operating regulations, before being submitted to the secretary of the interior, were submitted to representatives of the oil industry in the states concerned at a conference held in Washington under Assistant Secretary of the Interior Vogelsang, on April 1 and 2. These regulations, therefore, have the approval of representatives of the industry with practical field and business experience in oil and gas. The administration of the regulations will be undertaken by experienced engineers.

THE REORGANIZATION OF THE NELA RESEARCH LABORATORIES

THE Nela Research Laboratory was organized in 1908 under the directorship of Dr. Edward P. Hyde as the physical laboratory of the National Electric Lamp Association. The name was changed to Nela Research Laboratory in 1913, when the National Electric Lamp Association became the National Lamp Works of General Electric Company. For some years the laboratory was devoted exclusively to the development of those sciences on which the art of lighting has its foundation, but in 1914 the functions of the laboratory were extended by the addition of a small section of applied science, which had an immediate practical objective.

The section of applied science is now being largely extended as a separate laboratory of applied science under the immediate direction of Mr. M. Luckiesh, who becomes director of applied science, and a new building is being constructed to house this branch of the work, which will be carried forward with a staff of several physicists, an engineer, an architect and a designer, together with the necessary technical and clerical assistants.

As has already been noted in SCIENCE, Dr. Ernest Fox Nichols, formerly president of Dartmouth College, and more recently professor of physics at Yale University, has accepted an invitation to assume the immediate direction of the laboratory of pure science, under the title of director of pure science. The work of this laboratory, which will be continued in the present building, will be somewhat further extended under the new organization.

The Laboratory of Pure Science and the Laboratory of Applied Science will together constitute the Nela Research Laboratories, and will be coordinated under the general direction of Dr. Hyde, who becomes director of research.

THE LISTER MEMORIAL

AT a public meeting held at the Mansion House, London, in October, 1912, the following proposals for commemorating the work of Lord Lister were adopted: "The placing of a memorial in Washington Abbey, to take the form of a tablet with medallion and inscription; the erection of a monument in a public place in London; and the establishment of an International Lister Memorial Fund for the achievement of surgery, from which either grants in aid of researches bearing on surgery or awards in recognition of distinguished contributions to surgical science should be made, irrespective of nationality." *Nature* reports that a meeting of the general committee was held in the rooms of the Royal Society on