submarines. With the development of 100 octane motor fuels, the gasoline engine has equalled the efficiency of the best Diesels of to-day with the added advantage of greater maneuverability in airplanes and other motor vehicles.

All battleships, cruisers, transports and airplane carriers use fuel oil and lubricating oil in huge quantities, but there are no demands, even if far in excess of present requirements made upon the oil industry, which can not be fulfilled.

Petroleum gases have also come into their own in the past few years, making possible such products of military importance as alkylates, isooctane and neohexane motor fuels, which are vitally necessary as fuels for airplanes.

Synthetic rubber from petroleum is manufactured from benzene and ethylene yielding styrene, and by dehydrogenation of butane forming butadiene. The synthetic rubber has about 30 per cent. greater wearing quality and strength than natural rubber in tires now on the market. There are over 200 billion pounds of synthetic rubber potentially available from petroleum yearly.

The lower boiling hydrocarbons in petroleum from Pennsylvania, Mid-Continent, Michigan, East Texas and Kettleman Hills, California, are mostly straight-chain paraffins. Upon catalytic treatment at 932° F. and at atmospheric pressure these hydrocarbons can be converted into benzene, toluene and the xylenes. These compounds are basic materials for such high explosives as picric acid, TNT and trinitroxylenes. The quantities potentially available from the petroleum industry are at the rate of 85 billion pounds yearly. Commercial units to produce toluene and TNT from petroleum are now being installed.

In either war or peace, the United States of America has within its boundaries more than enough crude oil for complete self-sufficiency and could, if necessary, supply the petroleum products for the world's needs.

SCIENTIFIC EVENTS

UNIVERSITY COLLEGE, LONDON[1]

. . . HERE I regret to have to tell you that the college suffered badly, first by a land-mine and then by fire. The land-mine carried away the Great Hall and did a great deal of damage to roofs, windows, etc., in the main buildings of the college (apart from Foster Court which was practically untouched). The medical sciences building lost practically all its windows and the big physiology laboratory at the top of the building has lost most of its roof. A few days later there was a fire (due to incendiary bombs) which destroyed the libraries north of the main library and Flaxman Gallery, including a good many of the arts libraries and a large part of the physical sciences library. All this has meant that any attempt to carry on the teaching of medical sciences in our own building during this session is impossible. I am glad to say, however, that we have been able to make arrangements whereby the students in the faculty of medical sciences will be working in a large building near Leatherhead, which had laboratories which could be adapted for the purposes of the faculty. The staff have been indefatigable in making these arrangements and I have every hope that the continuity of our medical teaching, possibly even of some of our medical research, may be secured. Arrangements are being made to put as much of the equipment as is possible in various places of comparative safety. With regard to the rest of the college, we are removing the remainder of the library to a place of comparative safety, and have managed to redistribute the students among various colleges and universities.

[1] Excerpt from letter of the 11th of October, 1940, to Dr. Alan Gregg, from Principal Allen Mawer, of the University College, London, England.

The main disasters happened two or three weeks ago, and I should have written to you long since, but it was only yesterday that the Ministry of Information released the facts. . . .

At the present time, one can do little more than carry on, but we look ahead to the time when this nightmare is over and we can start to build up our work again.

DAMAGE TO SCIENTIFIC INSTITUTIONS IN LONDON

INFORMATION has recently been received from London of the bombing of the British Museum (Natural History) at South Kensington. The museum has been hit by both high explosives and incendiary bombs. The most serious damage was caused by an incendiary bomb which fell on the roof of the east wing and penetrated to the foreign herbarium of the Botany Department. A large number of plant specimens were destroyed, and many thousands of herbarium sheets were badly damaged by fire and water. It is understood that the department of entomology was also damaged. American botanists are of the opinion that many unrecognized type specimens of American and other plants were stored in the Foreign Herbarium, though a great deal of the most valuable material from several departments of the museum had been removed from London last spring. The near-by Victoria and Albert Museum has also been hit. Neither building is close to any military objective.

The London *Times* writes as follows: "The library of the Royal Society of Medicine is the finest medical library in Europe. It contains 150,000 medical volumes and provides an information service to the fel-

lows of the society wherever they may be. It has been giving valuable service to doctors in the fighting forces, oversea and at home, since the outbreak of war, and supplying information to men in the emergency medical services as well as in every department of medical life in this country. These services have been rendered in difficult circumstances, as the society lives almost entirely on the subscription income received from its fellows. This income has seriously diminished since the outbreak of war, but the society has nevertheless carried on with its important work. Officers returning from the beaches of Dunkirk have reported to the secretary that information received from the library was invaluable, and that they regretted having had to abandon books, bibliographies and photostatic reproductions in the face of the advancing enemy. The Rockefeller Foundation, learning of the society's service and of its plight, has generously given £1,000 to enable its headquarters at 1, Wimpole Street, to spread the target which it offers to bombing aeroplanes. With this gift it is being arranged to remove a large number of irreplaceable volumes to a suitable place in the country, where they will be easily available to inquirers for information."

EMERGENCY COURSES TO TRAIN ENGINEERS AND TECHNICIANS

EMERGENCY courses to train engineers and technicians needed in the nation's defense industries will be offered soon in a cooperative program sponsored by Harvard University, the Massachusetts Institute of Technology, Northeastern University and Tufts College.

The proposed program comprises full-time day courses, as well as evening courses of college grade for men who are employed. Organized to comply with the engineering defense training program of the United States Office of Education, this plan, which has been presented for formal approval, is part of a project supported by the government for specialized training in fields essential to national defense. The courses will be offered if there is sufficient demand to satisfy the requirements of the United States Commissioner of Education, and will be given without charge to the students for tuition.

The other engineering schools in the Northeastern regional district, which includes Maine, New Hampshire and Vermont, as well as Massachusetts, are preparing to offer similar intensive courses. These programs are being planned by the individual colleges, which have the cooperation of the regional adviser on engineering defense training, Dean Edward L. Moreland, of the Massachusetts Institute of Technology.

The joint program of the four greater Boston institutions was arranged to avoid duplication of courses and to assure the most effective utilization of the special teaching and laboratory resources of each. The committee in charge of the project, which is expected to train approximately 1,000 students, includes Dean Harald M. Westergaard, of the Harvard Graduate School of Engineering; Professor Raymond D. Douglass, of the Massachusetts Institute of Technology; Dean William C. White, of the College of Engineering of Northeastern University, and Dean Harry P. Burden, of the Tufts School of Engineering. None of the courses conflicts with or replaces regular evening courses now being offered by such agencies as the State University Extension Service, the Lincoln Institute, the Lowell Institute School or the university extension courses of Tufts College.

All courses in this program are of collegiate grade and in general the requirements for admission include at least three years in an accredited engineering school or its equivalent. In some instances two years in an evening engineering school plus practical experience may be considered sufficient preparation, and in certain cases other preparation may be acceptable. Certain highly specialized courses will require engineering degrees.

Application for detailed information on all courses to be given at the participating colleges in the Boston area should be made immediately, and by mail only, to the Engineering Defense Training Bureau, Room 7–102, Massachusetts Institute of Technology, Cambridge.

THE HOSPITAL OF THE MEDICAL COLLEGE OF VIRGINIA

DEDICATION of the new six hundred bed hospital at the Medical College of Virginia, Richmond, took place on December 5, Founders' Day. Among those participating were Governor James H. Price; Colonel E. W. Clark, Commissioner of Public Works, Public Works Administration; Dr. Walter L. Bierring, past president, American Medical Association; Dr. Walter B. Martin, president of the Medical Society of Virginia; Dr. H. E. Jordan, dean, department of medicine, University of Virginia; M. Haskins Coleman, Jr., secretary, Richmond Hospital Council, and Dr. Lewis E. Jarrett, director of the hospital division, Medical College of Virginia. Beginning at two o'clock in the afternoon the new hospital was opened for inspection to the general public, and on Tuesday night, December 3, a reception and hospital open house was observed at the hospital for the local medical profession and specially invited guests.

The new hospital, completed at a cost of approximately $2,500,000, with equipment, provides for two new services, neuropsychiatry and contagious diseases, enlarged facilities for physical therapy and many other activities, including ample provision for teaching. It is built in the form of a Maltese cross with the various utility services in the center of the cross, the wings themselves being used for the housing of patients. By