in accuracy. With more upper-air data, obtained by self-recording instruments borne by balloons and airplanes, greater accuracy in forecasting now becomes possible.

The radiometeorograph has several advantages over the airplane as a weather explorer. It can go higher —10 to 20 miles above the earth, which is well up into the stratosphere. It can take off in weather that grounds planes, thus supplying observations at critical times in weather history. It reports its findings instantly, doing away with the hour or longer wait for the return of the recorder. The radiometeorograph, however, does not provide information on the direction or velocity of the wind. New observation technique now being developed in the laboratory will add this information.

Tests at two Weather Bureau stations last year proved the value of the radiometeorograph in making daily upper-air soundings. The essential parts of various models used last year and of the one to be used this year are the same—a unit that responds to atmospheric changes and a radio transmitter that reports the atmospheric changes as sound signals, which are picked up at ground stations of the Weather Bureau. The official announcement reads in part as follows:

> The weather-sensitive elements of the new radiometeorograph are several strands of human hair, which tighten or loosen as the air around them becomes drier or more moist, and a small glass tube filled with sulphuric acid which responds to changes in temperature. Last year's radiometeorographs were kept running by a special clockwork. This year's model depends on changes in atmospheric pressure to make it run. The decrease in atmospheric pressure as the instrument rises moves a small switch arm over a series of equally spaced electrical contacts, separated by insulating strips. The contacts are spaced so that a decrease in air pressure equivalent to several hundred feet of elevation makes the switch arm move from a contact to an insulating strip. The next decrease makes it move to the next contact, and so on until the carrier balloon bursts and the radiometeorograph, attached to a small silken parachute to break the fall, drops back to earth. In nine times out of ten, at stations in well-populated regions, it is recovered and returned to the Weather Bureau.

THE NEW LABORATORY OF CHEMICAL ENGINEERING AT THE CASE SCHOOL OF APPLIED SCIENCE

THE Board of Trustees of Case School of Applied Science has authorized the immediate construction of the first unit of a new laboratory of chemical engineering, which when completed will cost approximately $750,000. The first unit will comprise about 40 per cent. of the ultimate structure and will cost upwards of $300,000. Construction will be started this summer and the schedule calls for completion in advance of the second semester of the college year.

The building is to be of brick and steel construction. The main portion is to be 64 by 100 feet and four stories in height, with a two-story extension 45 by 55 feet to house large pieces of equipment and to provide special protection against risks of fire or explosion. The first unit will be at the southeast side of the campus adjoining the present electrical building in space now used as a parking area. Later extensions are to occupy the site of the latter building, which it is hoped to replace by a modern laboratory on the southwest front of the campus. Until the final unit of this building can be erected, the present chemical laboratory will be kept in service. Dr. Carl F. Prutton, head of the department of chemical engineering, made an extensive survey of college and industrial laboratories before deciding on plans for the new building. He will have charge of the selection and arrangement of its special equipment.

The unit to be constructed at the present time will provide principally for the distinctly engineering features of the department. The basement will include a large industrial process laboratory 80 by 40 feet, additional grinding, drying and research laboratories, an instrument room, and maintenance and repair shop. The extension will have 35 feet of headroom with a balcony at the 17-foot level covering about half the area. Special booths of reinforced concrete will be provided for experiments involving inflammable, explosive or high pressure reactions.

The first floor of the main structure will have a large senior laboratory of 45 by 85 feet where plant development problems and thesis projects will be handled. This laboratory will provide for sixty-four men at the beginning and provision is made to expand its capacity to eighty. A complete shop will be provided where students may construct their own apparatus. A furnace room for heat reaction experiments, a precision weighing room, research rooms and offices will also be on this floor. The two upper floors will provide an organic laboratory 60 by 45 feet with an ultimate capacity of ninety-six students, a fuel laboratory 60 by 20 feet, a laboratory of physical chemistry, recitation rooms, offices and research laboratories. Distilled water apparatus and ventilating equipment will be placed in a penthouse on the roof. Contaminated air from the laboratories will be completely renewed every four minutes. Unit steam heaters will be employed during the winter months.

THE FIFTH INTERNATIONAL CONGRESS FOR APPLIED MECHANICS

THE fifth International Congress for Applied Mechanics, which is held every four years, will meet at