

It is understood that these tables are to be legalised for use in Great Britain. They should prove very helpful both in England during the summer months and throughout the year in those countries where the minimum temperature approximates more closely to 80° F. Proof spirit was legally defined so long ago as 1816, though it was not until 1847 that Joseph Drinkwater determined the relative proportions of alcohol and water in it. The Fahrenheit temperature then selected was 51°, which is proving often to be inconvenient in practice. At the temperature of 80° F. now chosen, proof spirit has a specific gravity of 0.913162; it contains 49.28 per cent of alcohol by weight, or 57.25 per cent by volume. Absolute alcohol at this temperature is equivalent to 175.35 per cent of proof spirit.

#### Harnack House, Berlin-Dahlem

THE colony which has grown up at Dahlem in the suburbs of Berlin, consisting of the various departments of the Kaiser Wilhelm Gesellschaft, from which researches in all branches of science have added significantly to knowledge, is now a large one. The growth of the purely scientific laboratories has naturally brought with it other needs, for example, suitable lecture and meeting-rooms, a club-house and even residential facilities. These have been provided in the form of Harnack House, named after the first president of the Kaiser Wilhelm Gesellschaft, which is now responsible for no less than thirty research institutes it has called into being. Harnack House is essentially a co-operative concern; the German State provided the money for the building, the Prussian State presented the land, and individuals, industrial associations and public bodies all gave liberal assistance. It consists of large and small public rooms named after celebrities in the sentimental German manner, a canteen and a number of bedrooms. These are in the first place available for foreign men of science who are working at the Institute, and also for other foreign scientific workers of repute who are visiting it or are specially recommended. The terms are moderate and as the journey by the 'underground' takes less than half an hour, residence there for a single night or for a longer period may prove attractive to scientific workers visiting Berlin, particularly as Harnack House is a centre of research activity.

#### Yellow Sodium Light for Detecting Colourless Details

DR. M. LUCKIESH and Dr. F. K. Moss, of the Lighting Research Laboratory of the General Electric Company of America, reported at a meeting of the Optical Society of America on October 17 an interesting property of the new sodium vapour lamp which will shortly be upon the market. According to Science Service, they stated that for revealing the details of small colourless objects the yellow single colour light from sodium vapour is definitely and markedly better than the light emitted by ordinary incandescent tungsten filament lamps. In addition to revealing the details of small objects better, the speed of retinal impression is also higher. On the average,

the proportion of the light reflected by a large number of coloured specimens is much the same for both illuminants, although there is wide variation for individual colours. Sodium light enhances brightness contrast between various pairs of colours in more cases than tungsten light does, but some of the exceptions are important. To eyes accustomed to white light, the yellow sodium light sometimes produces curious phenomena. Experiments were made to find out if there was a difference in the nervous muscular strain produced by reading under white light and under sodium light respectively, but no difference could be detected in the human eye after subjection to the two illuminants.

#### Developments in Industrial Research

MUCH good work is being done in industrial research by the Mellon Institute of Pittsburgh. In the *Shoe Factory* and in the *Starchroom Laundry Journal* of October 1933 interesting tests are described on shoe leather and on 'Calgon', a special form of sodium metaphosphate for use in laundering. In introducing a new special leather, it was found necessary to supplement actual wearing trials by laboratory tests. The 'Vici' leather, produced by a new method of tanning, was exposed in an oxygen bomb and in a fadeometer, and it was tested for use as a water bag. But these methods were not sufficient. It was necessary to test the resistance of the leather to 'scuffing', that is, to surface disfigurement by a sharp, cutting blow. Shoes made from various leathers were enclosed in a wooden drum with buttons on the inside. The air in the drum was kept at a temperature of 100° F. and it was rotated at 18 revolutions per minute. Five sample shoes are placed in the drum with a moist abrasive and the test is completed when the counter shows that 700 revolutions have been made. The samples are then carefully wiped and dried and are graded on the basis of the number, area and depth of the scuffs. This test gave satisfactory results. The story told in the *Laundry Journal* of the technical development of sodium metaphosphate from being merely a laboratory curiosity to being a valuable commercial product is most interesting. Calgon dissolves soaps in the washer, shortens the time required, is not harmful to the materials or injurious to colours. It has excellent emulsifying properties, as shown by its successful use in the laundering of greasy overalls.

#### Re-Afforestation in Mexico

ACCORDING to a Mail Report from Science Service (Washington, D.C.), Mexico is undertaking a re-afforestation programme. It is stated that the Mexican Ministry of Agriculture is now putting into force a programme of reafforestation of areas that have been denuded since the Spanish Conquest, which turned many parts of Mexico into semi-arid regions. "Local detachments of soldiers all over the country have been ordered to co-operate with government agricultural agents in their reforestation work. During the last five years new trees have been planted on many of the naked slopes of the

Valley of Mexico, which was a richly wooded zone when the white men came. Charcoal, the great fuel of modern Mexico, has been made at the expense of the forests, and the first wood-burning railroads and timber-cutters of mines destroyed forests in many regions. Modern regulations require miners to get permission to cut timber, and to plant new trees for every old one cut."

#### Soldering and Brazing

THE issue of the *Journal of Scientific Instruments* for November contains an illustrated article on soldering and brazing by A. S. Newman and Dr. R. S. Clay, which will be found most useful by workers in scientific laboratories. It describes the conditions under which soft and hard soldering can be carried out most successfully, the best fluxes to use, and the proper way to apply them and the solder. Special methods for tubes and for manganin wires are described, and handy forms of burners, clamps and cutting tools are shown.

#### Dairy Herd with a Long History

THE dairy herd of the Cornell University has been in existence for more than forty years, and a full history of it has been issued by the Cornell University Agricultural Experiment Station, Ithaca, N.Y. (Bull. 576). The pure-bred Holstein-Friesians of the herd, the descendants of one cow, "Glista", are noteworthy, and "Glista Ernestine" the most remarkable individual. Born in 1908, she died at the age of sixteen years, having produced thirteen calves, all of which except one reached maturity. She was amiable and affectionate and always healthy, and her average yearly production of milk reached the remarkable total of 14,878 pounds.

#### Announcements

IT is announced in *Science* of November 17 that Mr. Knowles A. Ryerson has been appointed chief of the U.S. Bureau of Plant Industry as from January 1, in succession to Dr. W. A. Taylor who retires after forty-two years' service with the Department of Agriculture.

THE Council of the Iron and Steel Institute is prepared to make annually a number of grants from the Andrew Carnegie research fund in aid of metallurgical research work. The object of the scheme is to enable students who have passed through a college curriculum or have been trained in industrial establishments, to conduct researches on problems of practical and scientific importance relating to the metallurgy of iron and steel and allied subjects. Candidates, who must be less than thirty-five years of age, must apply before the end of next February on a special form to be obtained from the Secretary of the Institute. The value of the grant will depend on the nature of the proposed research work, but the maximum amount granted in any one year will, as a rule, not exceed £100. Further information can be obtained from the Secretary, Iron and Steel Institute, 28, Victoria Street, London, S.W.1.

THE annual Congress of the Royal Institute of Public Health will be held at Norwich on May 15-20, 1934, under the presidency of Alderman H. N. Holmes. The Congress will be divided into five sections: State medicine and industrial hygiene; women and children and the public health; tuberculosis; veterinary medicine and agriculture; pathology and bacteriology. Further information can be obtained from the Secretary, Royal Institute of Public Health, 23 Queen Square, London, W.C.1.

THE fourth International Congress of Radiology will be held at Zurich on July 24-31, 1934, under the presidency of Prof. H. R. Schinz. At this meeting Prof. Gosta Forssell will report on the organisation of cancer campaigns in general. Other speakers will report upon the measures in their own countries. The programme includes the discussions on various medical aspects of radiology, radiation genetics, mitogenetic radiation, structure analysis, identical physical measurement of the dose in X-ray and radium treatment, hard gamma-rays, cosmic radiation, earth radiation. Further information can be obtained from Dr. H. E. Walther, secretary of the Congress, Zurich, Gloriestrasse, 14.

APPLICATIONS are invited for the following appointments, on or before the dates mentioned:—Two temporary civil engineering assistants for the Directorate of Works, War Office—The Under-Secretary of State (C.5), The War Office, London, S.W.1 (Dec. 11). An executive engineer in the Public Works Department, Electricity Branch, of the Government of the Punjab—The High Commissioner for India, General Department, India House, Aldwych, London, W.C.2 (Dec. 15). A junior investigator for the Royal Commission on Historical Monuments (England)—The Secretary, 29, Abingdon Street, London, S.W.1 (Dec. 16). An assistant vocational guidance officer for the Kent Education Committee—The Director of Education, Springfield, Maidstone (Dec. 16). An assistant education officer (general purposes) for the London County Council—The Education Officer (Establishment), County Hall, London, S.E.1 (Dec. 16). A junior assistant (woman) in the Science Museum Library—The Director, Science Museum, South Kensington, London, S.W.7 (Dec. 21). A Leon fellow for research (preferably economics or education) in the University of London—The Principal, University of London, South Kensington, S.W.7 (Jan. 1). A marketing expert to advise the Imperial Council of Agricultural Research in India—The High Commissioner for India, General Department, India House, Aldwych, London, W.C.2 (Jan. 1). A research assistant to the Burden Mental Research Trust for work at Stoke Park Colony, Bristol—The Secretary, B.M.A. House, Tavistock Square, London, W.C.1 (Jan. 9). A headmaster of the Secondary School, The Polytechnic, Regent Street, London, W.C.1—The Director of Education (Jan. 20). An assistant chemist in the Research Department of the South Eastern Agricultural College, Wye, Kent—The Secretary.