

its deliberations breadth and understanding is now an impossibility. At the same time, it would seem desirable that the intermission of activity should not be complete. It is generally conceded that the time for planning for peace is now, and not at the close of hostilities. This applies no less to Africa than to Europe. A planning that begins with the peace will be too late to cope with the changes in African societies, which if the aftermath of the War of 1914-18 is a criterion, will ensue all too rapidly.

### Storage of Electric Power in the Ruhr

THERE has been a rapid increase in recent years in the use of electricity in steel manufacture in Germany. This 'electric steel' has a very uniform structure, but, if the cost is to be comparable with that produced by other means, the factor of safety has to be reduced. With so many high-frequency furnaces going intermittently, the power supply systems must be subjected to considerable peak demands. This is especially the case in the Ruhr, where, although there is a plentiful supply of coal, considerable reliance is placed upon the water-generated supplies from Austria to meet the heavy peak demands. The largest and one of the most interesting of the storage stations is situated at Herdecke on the banks of the Rhine about six miles south of Dortmund and nearly twenty miles east of Essen. It is connected with the control point at Brauweiler, which is on the Rhine between Cologne and Dusseldorf. By accumulating water in an elevated reservoir by means of pumps and the erection of the Herdecke power storage station and others in the district, the peak-load problem has been solved satisfactorily. Interesting details of this station are given in the *Electrician* of July 26.

The upper reservoir of the Herdecke plant, covering an area of 18 acres, is designed to permit the full development of the available power. The maximum variation in water-level from empty to full is 65 ft. The maximum pressure head between the lower reservoir, Lake Hengst, and a full upper reservoir is 540 ft., and the minimum head available is thus 475 ft. The power house is 500 ft. in length and each machine has an axial length of 85 ft. The station can be automatically switched from pumping to turbine operation in two minutes, and during pumping the turbine discharges are closed by means of flaps. The upper reservoir is oval in shape and is about 800 ft. above sea-level; this necessitated the excavation of 1,300,000 cubic yards of rock. The entire concrete surfaces coming into contact with water have been rendered impervious by means of a bitumen spray treatment. The work was commenced at the beginning of September 1927, and the station was brought into partial operation in December 1929, full operation following about a year later. The characteristic feature of this type of station is that at times of low power consumption the waste current of the water stations, or the increased night output of the steam stations, is employed to pump water back into the storage reservoir.

### This Season's English Herbs

MORE than usual interest will be shown this season in the English harvests of vegetable drugs, and it is now possible to judge from reports by herb farmers on the prospects of their crops what the harvests are likely to be, provided weather conditions for collection are favourable. Fair supplies are promised of those old-fashioned medicines such as hyssop, rue, wormwood, comfrey, balm and dill, but the same cannot be said of chamomile, the prospects of which are disappointing, an outlook that is all the more unfortunate since it is impossible to obtain supplies from Belgium. Indeed, it would seem that those who have pinned their faith, in the past, to chamomile tea will have to try one of the more modern remedies which are not so scarce. What is still more unfortunate is that on some herb farms the severe frost last winter destroyed the main belladonna plantations so that very little leaf—which is so badly wanted because of the absence of imports of the Continental plant—could be collected this season. It is satisfactory to know that the young belladonna plants of this year's sowing are looking well.

Growers of henbane report that there was a good crop of second-year biennial plants, and leaf and flower of good alkaloidal content have been harvested; after a time of drought, rain came to save the first-year seedlings, which will provide leaves for autumn drying. Prospects of a crop of high-testing digitalis leaf are favourable. Aconite is said to be looking well and there is a full crop of valerian. Having regard to the stoppage of supplies of lavender oil distilled in the Grasse district of the Alpes Maritimes, it is well to learn that English lavender plants stood up well to the hard winter and the flowers have bloomed earlier and, in some cases, better than usual; a fair yield of English lavender oil may be expected for this season; more of the flowers will go to the still and less to Covent Garden in bunches for street vendors, and thus at least part of the shortage due to the lack of French oil will be made good.

### Notation for Tapping Systems of the Rubber Tree

THE scientific groups dealing with rubber production in Ceylon, Malaya and Netherlands East Indies have recently adopted a common notation for expressing the varied tapping systems by which the crop from Hevea is obtained. Attention was directed by Evan Guest, of the Rubber Research Institute of Malaya, to the confusion and ambiguity which existed because different centres had developed their own nomenclature without plan, and his suggested scheme, modified by the co-operation of others, has now been accepted (*J. Rubber Research Inst. Malaya*, 9, 142-170; 1939: 10, 16-33; 1940). This will mark a great advance in co-ordination of scientific records of yields from Hevea, for the fundamental factor, namely, intensity of tapping, is simply and accurately brought into the required prominence.

First the type of cut is identified by an initial letter, followed by the figure expressing the fraction of the tree circumference which is covered. Then the

periodicity of tapping and resting is expressed by further fractions showing the frequency of tapping and the relation of tapping to resting periods. Finally, simple conventions define the arrangement of the panels, a matter which assumes special importance for the multiple cuts of the so-called slaughter systems by which old trees are drained before replanting. Standard intensity is defined as a half spiral tapped alternate days without rest (that is, equivalent to one quarter cut per day) and the relative intensity of the system is easily arrived at by scanning the formula. As examples: " $S/1, d/3, 4m/6, 89\%$ " signifies a full-circumference spiral cut tapped every third day for a period of four months in a cycle of six (two months rest), giving 89 per cent of the standard intensity; or " $S/3, d.2 (3 \times 6m/18) 67\%$ " indicates three panels of one third spiral cut, each one being tapped every second day for six months taking them in rotation. The amount of tapping can be expressed in circumference units (fractional length of cut multiplied by number of tappings), using the actual instead of the ideal number of tappings.

Most rubber estates keep full records which should potentially be a voluminous source of information, but the variables are so many and have in the past been so hazily defined that the scientific value of such records has often proved disappointingly small. Guest's notation will mark a great step forward in the task of making records both intelligible and comparable.

### Golf Green Research and the War

THE revised values which the war places upon various activities have caused the managers of the Board of Greenkeeping Research to review the position of the Research Station at St. Ives, Bingley, Yorks. The experimental plots at this centre have been built up over a period of eleven years, at a cost of more than £26,000, and have provided valuable new knowledge about the ecological interaction of plants grown in compact formation, and about the practical treatment of greens. Much of their scientific value lies in their long term of treatment, and it is gratifying to learn that they are to be carried on, even if the need for economies should curtail the Station's other activities. It is also useful to remember, in the present intensity of the war effort, that the Station has contributed to a fundamental understanding of grass ecology which could be applied to increase food production on some of the poorer grassland of British uplands. Its researches on pests and diseases of grassland could quickly be turned to the aid of agriculture, and the Station has further adapted itself to war conditions by working on the best methods of pasturing sheep on golf courses, and giving advice upon minimum upkeep during the present difficult times.

### Practical Applications of Horticultural Research

IN time of war there is a special need for the dissemination of the findings of scientific research, and in no field is this more true than in agriculture

and horticulture. The application of known facts is often more important than the making of new discoveries. Following this principle, the John Innes Horticultural Institution is preparing a series of leaflets embodying in condensed but adequate form the results of some of the most practically important lines of investigation which have been followed in recent years. The first three of these leaflets have already appeared and deal respectively with the John Innes composts, soil sterilization for pot plants and the John Innes soil sterilizer.

Every horticultural grower is aware of the valuable work done by the Institution in devising two standardized composts, one for seed sowing and one for potting. These composts replace the bewildering array of mixtures recommended in horticultural text-books and may be used with success for every class of plant. No less important is the work of the Institution on the sterilization of potting soils, which has amplified and extended that of the Cheshunt Experimental Station. The principles of sterilization as applied to the John Innes composts are outlined in Leaflet No. 2, while No. 3 gives details of the home construction and the use of the specially designed John Innes soil sterilizer.

### Prof. Richard von Krafft-Ebing

PROF. RICHARD VON KRAFFT-EBING, an eminent German psychiatrist and a pioneer in the scientific study of sex, was born at Mannheim on August 14, 1840. He received his medical education at Heidelberg under Fredreich and at Zurich under Griesinger, and after qualifying at Heidelberg in 1863 spent five years as an assistant in the Illenau Asylum. In 1872 he was appointed professor of psychiatry at the recently founded University at Strasbourg, and in the following year he accepted an invitation to occupy the corresponding chair at Graz, where he remained until 1889, when he succeeded Leidesdorf at the First Psychiatric Clinic at Vienna. In 1892 he succeeded Meynert at the Second Psychiatric Clinic, which he directed until his retirement in 1902. He died on December 22, 1902.

Krafft-Ebing was equally eminent as a research worker and clinical teacher, and gained a well-merited reputation not only as a psychiatrist but also as a criminologist and neurologist. He is best known for the work entitled "*Psychopathia Sexualis*", of which the first edition appeared in 1886 and the seventeenth posthumously in 1924. It was translated into English, French and Italian. His other works were "*Melancholie*" (1874), "*Lehrbuch der Psychiatrie*" (1879) which was translated into English and French and went through seven editions, and "*Eine experimentelle Studie auf dem Gebiete des Hypnotismus*" (1888), which was also translated into English. At the International Medical Congress at Moscow in 1887 he read an important paper on the causation of general paralysis which, as the result of his own experience, he proved to be the joint product of "syphilization and civilization". He was an honorary member of the medico-psychological societies of London, Paris, Rome, Amsterdam, Moscow, New