

certain of these tests may be impracticable for normal works-control because of the time required for completion. Consideration has been given by the Association at the Research Station to the determination of analytical methods which will give the required accuracy together with rapid results.

Certain other tests especially required for the coking industry have not been standardized as yet by the British Standards Institution. A case in point is a test for the float and sink analysis of coal, and details of a method based on work carried out at the Station have been published. Considerable attention has been given also to means of screening coke, a problem which is by no means as straightforward as would appear.

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SOUTH-EASTERN UNION OF SCIENTIFIC SOCIETIES ANNUAL CONGRESS

AT the invitation of the Mayor and Corporation of Richmond and of the president and Council of the Richmond Scientific Society, the South-Eastern Union of Scientific Societies held its fifty-fourth annual congress at Richmond during June 5-10.

The president was Dr. J. Ramsbottom, keeper of botany, British Museum (Natural History). The title of his presidential address was "The Biology of Peace". Dr. Ramsbottom reminded his audience that his previous address, given at Guildford in 1942, had for its subject "Fungi and the Biology of War", and that it was chiefly concerned with combating the idea that war is a biological necessity and that there were pure races of man pre-ordained for pre-eminence. The purpose of the present address was to put forward some ideas of the biology of peace. War of itself is of no biological use to man, though it must be granted that in the stress of two world wars there has resulted an accelerated development in the theory and application of science, both physical and biological, and the present 'cold war' is not without its influence in intensifying research. The pity of it is that fear and distrust among nations should have such a disproportionate influence on progress of any kind. No matter what his philosophy, the man of science is dealing with what might be generalized as the phenomena of Nature, the discovery of the laws which govern the universe, and the intrinsic nature and properties of its constituents. There have been repeated warnings about the danger of a world food shortage. Fundamentally, the problem resolves itself into the number of people and the amount of food. Populations continue to increase and we are unable to produce sufficient food or timber for our use.

Man should not represent himself as against the world—*Homo contra mundum*—but of it. Every organism is affected by its environment and in its turn affects it: indeed, it is best to regard an organism as part and parcel of its environment, and man, biologically, is an organism. The complex which we signify by the term environment has a theoretical stability, a climax. In Great Britain the vegetation

climax is a forest; but it is sometimes overlooked that it is the whole community signified by the term forest—trees, shrubs, herbs, mosses, liverworts, algae, fungi, lichens, bacteria and a similar gamut of the animal kingdom; in short, the whole complex of organisms above, on and under the ground.

Dr. Ramsbottom proceeded to stress the need for the protection of the countryside and the preservation of species. When once a species is exterminated it is lost for ever. Destruction is not confined to shooting and trapping, it is inevitable if the habitat is greatly altered. In schemes for preservation the climatic, edaphic and biological factors must be understood. Biological factors include man's activities.

The problems relating to world food supplies are such that they have to be studied from all angles: integration of research to prevent disintegration of our future. We have modified above and below the earth's crust, we have been profligate in our actions, but mankind still manages to survive. Continuing, Dr. Ramsbottom remarked that to make a few suggestions of simple remedies would savour of an election address of an illiterate demagogue. There is no universal panacea for human ills, be they spiritual, physical or economical. With all our efforts, be they ever so well directed, shall we be able so to balance our industrial and agricultural matters that we produce sufficient food and timber for our needs? One solution which has been suggested for Great Britain is to reduce the population. Emigration of one-third of the population of Britain to other parts of the Commonwealth would save enormous capital and natural resources. Dr. Ramsbottom said that he confessed to an undaunted optimism, for where danger lies, there also grows the saving power. Great Britain may not remain so powerful in a naval, military and air sense, but there is no danger of it becoming a desert and so no possibility of it being written off as derelict. Indiscriminate felling of forests, fires, overgrazing, continuous single crops, lack of the use of fertilizers and the untethered goat all have their effect on the vegetation, fertility and cohesion of the soil and lead to erosion and deserts. Mistakes have been made, but it should not be beyond the powers of man to turn the tide and even repair the damage. It must not be overlooked that algae, and particularly fungi, can supply us with supplementary proteins and other foods. Gastronomic salvation may be by way of flowerless plants, but the monotony of the diet would possibly mean the loss of one type of man—the gourmet.

The members of the Congress were received by the Mayor of Richmond (Councillor P. H. Keene) who, in his welcome, spoke of the value of science to the community. A young naturalists' evening was arranged, and questions were answered by a team of experts with Major Maxwell Knight as the question master, and an exhibition of Nature films was arranged by Mr. Douglas Fisher.

Addresses were delivered to the Archæological, Botanical, Geological and Zoological Sections and excursions carried out by these Sections daily. Colour films of botanical expeditions to Thibet were shown by Dr. George Taylor.

The final address was by Mr. E. J. King, of the Department of Extra-Mural Studies, University of London, on "The Scientific Societies and the University". In speaking of the mutual advantage of co-operation between universities and societies, he stressed that academic interest must not interfere with general interest and enthusiasm. The general

tendency of the university is towards technical and professional education, often for the purpose of examinations, enabling the scientific and natural history societies to provide, in addition to opportunities for research, the scientific background for those who wish to stand and stare. In this work his own Department could, and is anxious to, co-operate.

By a happy coincidence it was announced during the Congress that the award of O.B.E. had been conferred upon the president of the Richmond Scientific Society, Miss E. M. Wakefield, deputy keeper of the Herbarium and chief mycologist in the Royal Botanic Gardens, Kew, for her services to science.

STANDARDIZATION OF UNITS OF MEASUREMENT IN CIVIL AVIATION

By W. J. V. BRANCH

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LAST year it was announced that the Montreal headquarters of the International Civil Aviation Organisation had obtained agreement on a plan to standardize the dimensional units used in air/ground communications in civil aviation and that this agreement has been implemented by a considerable number of countries (see *Nature*, July 2, 1949, p. 17). It is as yet impossible to say what final success this plan will have; but it is of interest to note some trends which are developing in the process of its implementation, and the following table shows the percentage of countries which have adopted units of the Organisation.

PERCENTAGE ADOPTION (BY COUNTRIES) OF THE FINAL I.C.A.O. (WORLD STANDARD) UNITS

		per cent
(1) Distances	Nautical miles	74
(2) Horizontal speed	Knots	74
(3) Wind direction and speed	Degrees and knots	89
(4) Altimeter setting	Millibars	89
(5) Temperature	Centigrade	95
(6) Time	24 hours, the day beginning at midnight G.M.T.	100
(7) Altitudes, aerodrome dimensions and short distances	Metres	55
(8) Vertical speed	Metres/second	55
(9) Cloud height	Metres	55
(10) Visibility	Metres or kilometres	58
(11) Weight	Kilogram	57

These figures refer to countries of which the practices in this respect are officially known; for example, the figure of 74 per cent for the distance units represents only thirty-two countries. It must also be emphasized that these figures do not necessarily reflect accurately the relative frequency with which the various units are used, since the percentages are related to countries and do not take into account the relative contributions and importance to world aviation of each of the countries. Thus, though the available records show that only 12 per cent of the countries employ statute miles for the measurement of distance, the statute mile is nevertheless widely used for this purpose, since one of the countries using it, the United States, accounts for a very large percentage of the air miles flown.

It would seem that the first six units listed are quite certain to gain final world adoption. Probably the most interesting trend is the widespread agree-

ment to use nautical miles and knots as the units for distances and horizontal speed—a clear indication of the desire of the metric countries, which would, of course, prefer to use kilometres, to co-operate in this experiment. It seems probable that even in those countries which have not yet adopted these two units, the gradual pressure of world practice, the extent of which is indicated by the figure of 74 per cent, will lead to its adoption in countries which do not at present use these units.

An examination of the last five units shown in the table indicate that in their case the final position is much less certain. Generally speaking, the difficulty in adopting these units arises from the proposal to use metres in place of feet, and the continued vitality of the foot unit in opposition to a great deal of scientific opinion is quite remarkable. The outcome of the struggle between the foot and the metre will probably decide, for a considerable time, whether the world can agree on a single system of units for one of its most international services, that is, aviation, or whether there will have to be at least two major systems of units in general use.

EARTHQUAKES DURING JANUARY-MARCH

DURING the first quarter of 1950 there were four earthquakes of instrumental magnitude 7 or greater, sixteen of magnitude 6-7, and numerous smaller shocks. The four with magnitude 7 or greater occurred on January 2 in the Queen Charlotte Islands region ($M = 7$); on January 12 in the Fiji Islands region ($M = 7$); on February 28 off the north coast of Hokkaido, Japan ($M = 7\frac{1}{2}$); and on March 27 off the south coast of Sumatra ($M = 7$). Fortunately all these had epicentres in uninhabited places, and only the Japanese shock was felt. Also during the three months three earthquakes had foci at depths of 500 km. or deeper, seven had foci of 100-500 km., and the rest had shallower foci. The three deep-focus earthquakes occurred on January 12, as mentioned above, in the Fiji Islands region ($d = 500$ km.); on February 23 in the Sea of Okhotsk ($d = 500$ km.); and on March 16 again in the Fiji Islands region ($d = 600$ km.).

Many minor shocks were felt during the three months. During January the following earthquakes and tremors were felt: on the 3rd of the month at Andinclaroby, Madagascar (Modified Mercalli Scale intensity 4); on the 4th in central Italy; and on the 6th in Lisbon. On January 9 at 19h. 40m. 33s., G.M.T., an earthquake with epicentre near lat. $51^{\circ}1' N.$, long. $1^{\circ}9' E.$ was felt at several places along the Straits of Dover. People at Dover felt a severe tremor; and at St. Margaret's Bay, Kent, a slight tremor was felt and a noise like an explosion was heard, while at Deal doors and windows rattled and people felt chairs move. On the other side of the English Channel the tremor was felt at Calais where also plates were shaken from tables; but the tremor was not felt at Dunkirk or at Boulogne. On January 13 a tremor was felt at Mansourah-Les-Biban, Algeria ($M.M.$ intensity 4); on the 16th of the month one was felt at Bucharest ($M.M.$ intensity 4); on the 21st another in Central Chile; and on the 29th one was experienced at Walliser-Hochalpen ($M.M.$ intensity 4). On January 31 an earthquake with epicentre at lat. $43^{\circ} N.$, long. $0^{\circ}13' E.$ near Campan in the Hautes