

1949 INTERNATIONAL GEOGRAPHICAL CONGRESS

THE International Geographical Congress, postponed from September last, was held at Lisbon during April 8-15 under the presidency of Prof. Emm. de Martonne. Thirty-four countries were represented, according to the list of members, among the seven hundred delegates and adherents. There were strong delegations from Brazil, the United States, France, Belgium, Switzerland, Italy, Spain and the Scandinavian countries, but the U.S.S.R. was not represented. Between thirty and forty attended from Great Britain—a widely representative group. The seven sections and the various commissions held their meetings in the palatial Higher Technical Institute, a new building in a commanding position in the modern north-eastern sector of Lisbon. Numerous social occasions, including a gala performance at the São Carlos Theatre, which the Portuguese organised superbly well and with most lavish hospitality, gave abundant opportunities for those international contacts which are perhaps the most valuable and lasting features of such congresses. The importance attached by the Portuguese hosts to the occasion was marked by the presence of the President himself at the opening ceremony held in the National Parliament Building.

Practically the whole of the work of the Congress was carried on in either French or English, and the discussions in the sectional meetings—usually well attended—proceeded with the utmost cordiality. Running through the whole work of the Congress was the realization, so marked in recent years, that geographical analysis and methods of survey have an important part to play in the solution of the great world problems of the day, that such an approach is an essential complement to economic and social analysis and can be carried on apart from political considerations. The whole atmosphere at Lisbon was scientific and non-political. Evidence of this modern development was afforded by the fifty or more papers read to the section of human geography on different aspects of rural life, modern developments of trans-humance in relation to soil erosion, and in the whole section devoted to colonial problems, as well as in the appointment of commissions (the work of which continues between Congresses) to deal with physical planning, agricultural geography and the possibility of a world inventory in map form of land use and land resources. Practical issues were also to the forefront in the work of the commission on aerial photography and the study of industrial ports.

The actual Congress was preceded by an excursion, largely attended by the American delegation, and was followed by four alternative excursions to different parts of Portugal and one to Madeira. The guide-books prepared for the excursions, as well as the actual leadership, supplied excellent evidence of the high level reached by academic geographers in Portugal.

A feature of the Congress was the exhibition of cartography, which included notable displays of modern maps from many countries, ranging from the Vatican State to the United States. Whether through lack of appreciation of the occasion or parsimony of the Treasury, it is a tragedy that Great Britain was not officially represented at this exhibition, though few maps attracted more attention or comment than the National Planning Series (1 : 625,000)

displayed in the cartography section to illustrate one of the papers.

At the closing session the invitation of the United States was accepted for the next Congress to be held in 1952. Prof. de Martonne was elected honorary life president of the International Geographical Union, while Prof. G. B. Cressey (Syracuse University, United States) becomes president, with Mlle. Lefèvre (Belgium), Prof. Almagia (Italy), Prof. Orlando Ribeiro (Portugal—the organiser of the Lisbon Congress), Prof. Hans Boesch (Switzerland), Prof. L. Dudley Stamp (Great Britain), Prof. Leite de Castro (Brazil) and Prof. George Kuriyan (India) as the vice-presidents who constitute the executive committee. With the election of Prof. G. H. T. Kimble (McGill University, Canada) as secretary-general the secretariat will move from Brussels to Montreal.

The International Union normally contacts the National Geographical Committee in each adhering country, and the conference proceedings brought out the difficulties which may result where such a national committee is divorced from the main geographical societies. The position in Great Britain is particularly anomalous. Geographers have not yet been recognized, as such, by election to the Royal Society, yet the National Committee is a committee of the Royal Society and the chairman must be a Fellow of the Society. As a result, the British delegation seemed to lack the coherence so markedly displayed by the American.

L. DUDLEY STAMP

A MOUNTAIN CENTRE OF GENETICS IN THE APPENNINES

By PROF. CARLO JUCCI

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THE genetical centre of the Italian National Council of Research, which is associated with the "L. Spallanzani" Institute of Zoology of the University of Pavia, is organising a Mountain Section in the Appennines on Mount Terminillo, at a height of 1,800 m. This Mountain Centre of Genetics is designed for the investigation of those plants and animals which are particularly suited for the study of processes of racial and specific differentiation; that is, of micro-evolution, according to the principles and methods of modern population genetics.

The mountain environment, with its characteristic complex of geographical, climatic and ecological conditions, imposes peculiar adaptations on animals and plants, and the genetical basis of these adaptations is particularly significant when it is studied in comparison with corresponding systematic entities inhabiting the plains or different altitude levels. The exploration of the amplitude of phenotype variations consequent on 'transfer' from one habitat to another (and this applies also to culture in nutrient solutions) and the exploration of the potentialities of genotype variation by induction of mutations with X-irradiation should extend the comparative analysis and furnish data for an interpretation of evolutionary mechanisms and modes.

From this central position on Mount Terminillo it will be an easy matter to have chains of small experimental stations going up to the crest (2,200 m. high—a modest altitude but the highest in the Appennines except for Mount Gran Sasso) and toward the valley of Rieti (where the N. Strampelli Experimental Station for Wheat Culture is situated).

The Mountain Centre is still in a preliminary phase of organisation, since the building which will constitute the *ubi consistam* of the Institute with its laboratories and its rooms for guest research workers is just now being restored from war damage and adapted to new functions. The Italian Government has leased the building for six years to the University of Pavia, and the Ministry of Public Works has given the funds for restoring it. The town of Rieti, besides giving up in favour of the Centre every right to the building, which is situated on its own land, has granted several hectares of surrounding ground to be used for experimental fields and other needs of the Centre. The National Council of Research has helped by adding to the annual grant to the Centre of Genetics the sum of 100,000 lire in order to pay the rent and upkeep of the building. A call will be made to Italian industries asking for generous gifts in order to furnish the laboratories and the rooms for the guest research workers, who may be expected to stay at the Centre for some months during the season suitable for their own particular researches, working on plant or animal genetics. The exploration of the flora of Mount Terminillo has been already undertaken, and a herbarium, systematic and topographical schedules, and so on, have been established. A parallel exploration of the fauna, particularly the insects, is planned. The investigation of the flora and fauna is an indispensable preliminary phase, to which biologists specializing in various systematic groups will be asked to contribute. On the basis of such investigations, the animals and plants on which general research and the study of evolution can be most fruitfully carried out will be selected.

The scope of the Institute is fundamentally a scientific one in the field of general and theoretical biology; but without doubt the results of the research work will prove important also for agriculture, and collaboration is already planned with other institutions for such purposes as applications to sylviculture, forage problems, and so on.

The fitting up of the Institute, and even more, its activities and functions, will require substantial financial support. But confidence prevails with regard to the possibility of securing adequate support, since the interest of the undertaking is quite clear, and the Institute might well assume an international character. The importance of the general problems which the Institute proposes to investigate in its experimental activities, the structure of the Institute itself, founded on co-operation between research workers specializing in various groups of plants and animals, the fact that in Europe there is no institute with an organisation corresponding to the system of the three transplant stations that the Carnegie Institution of Washington supports in California (located at Stanford University near the coast, at Mather half-way up the Sierra Nevada and at Timberline near the crest of this mountain range)—these and other conditions make the Mountain Centre of Genetics suitable for consideration as one of the international institutes of research, the establishment of which the Economic and Social Council of the United Nations is prepared to encourage.

SHORT-PERIOD VARIATIONS IN THE IONOSPHERE

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DURING the years 1938 and 1939 fixed-frequency pulse observations were being used to record continuously the virtual height and echo intensity of reflexions from the *F*-region at two frequencies close to the vertical penetration frequency for the region. It was noticed that, in the daytime, the penetration frequency often showed quasi-periodic fluctuations with periods of the order of half an hour. The magnitude of the fluctuation was variable but frequently of the order of 1 Mc./s. from maximum to minimum.

In endeavouring to correlate these effects with changes in *h'f* records then being taken at Mount Stromlo, Canberra, Mr. A. J. Higgs, of the Commonwealth Observatory, found that they appeared to be initial indications of ionization changes which showed a progression down the *h'f* curve from the higher to the lower frequencies. At this stage the investigation was interrupted by diversion of staff to war-work.

During the past year an investigation of horizontal movements in the *F*-region was undertaken¹, and ionization changes were observed which appeared to have a progression in a horizontal direction. It was also observed that these were frequently quasi-periodic in nature with periods of the same order as in those mentioned above.

By taking *h'f* records in conjunction with the three-point observations, we have now been able to establish quite definitely that all these effects are due to local fluctuations in ionization in the *F*-region, which show both a vertical progression downwards and a horizontal progression.

The *h'f* recorder, which was kindly made available for a short period by the Radiophysics Laboratory of the Council for Scientific and Industrial Research, was located at Liverpool (point 4 in my previous communication, ref. 1), and observational runs were taken continuously (repeating every two minutes), simultaneously with observations on the three-point system.

A good set of records was obtained on June 22, 1948. Fig. 1 shows a set of *h'f* tracings illustrating the sequence of events during 1230–1314. It will be seen that kinks appear in the *h'f* curves and move down from the higher to the lower frequencies. These imply corresponding variations in the vertical ionization gradient.

The sequence of events is as follows. At 1230 the ordinary ray curves look to be approximately what would be expected from a regular parabolic gradient of ionization. From 1230 to 1242 the penetration frequency falls steadily and the virtual height increases for frequencies near penetration. At 1242 a sharp maximum of virtual height appears a little below the penetration frequency. The visible disturbance is thus an increase of virtual height above the normal value for a particular frequency. The maximum of this disturbance progresses down the *h'f* curve with time, being obvious again at 1314 as the virtual height maximum at 6 Mc./s.

The curve for the extraordinary ray shows similar changes, but later in time, causing cross-over points of the two rays which also move down the curves.