

by currents are furnished by the tolerant tropical species. Thus, the Gulf Stream carries *C. extensum* to the British Isles (surface temperatures 12.4° C.) and *C. hexacanthum* to Iceland (surface temperatures 8.9° C.), although elsewhere these two species are not found at temperatures below 14.9° and 18.9° C. respectively. It does not appear that the equatorial currents appreciably affect the distribution of species of *Ceratium*.

Comparison of the *Ceratium* floras of the two great oceans shows that only eight of the fifty-eight species recorded are restricted to one ocean only and that is always the Pacific. The species in question (*C. deflexum*, *C. bigelowii*, etc.) are either strictly tropical or only slightly tolerant of colder waters, and the seas around Cape Horn may form an impassable barrier to their extension into the Atlantic. Certain differences in the distribution of species common to the two oceans suggest that there may be greater differences between their *Ceratium* floras than is at present apparent. Thus, although the North Atlantic and the North Pacific resemble one another in the occurrence in both of the subpolar *C. lineatum* and *C. arcticum*, there are striking differences which suggest biological isolation. *C. pentagonum*, a species widespread in the tropical seas of both Oceans, is absent from the North Atlantic while represented in the North Pacific by the very divergent subspecies *pacificum*. Again *C. macroceros*, with the subspecies *gallicum* frequent in all warm-water regions, is represented in the North Atlantic by the sub-species *macroceros*, though lacking in the North Pacific.

Twenty of the recorded species (for example, *C. praelongum*, *C. tenue*) show an increase in frequency from the surface to 100 metres. Such species have thin cells crowded with chromatophores which also extend into the horns when these are present. On the whole there is considerable agreement between the *Carnegie* data and those of Nielsen as regards these 'shade' species. The authors of the *Carnegie* Report, however, suggest that, apart from attunement to shade conditions, such forms may tend to move into layers of the water with a richer supply of nitrates and phosphates than are to be found in the surface layers at times of high plankton production.

F. E. FRITSCH.

CARNEGIE TRUST FOR THE UNIVERSITIES OF SCOTLAND

THE forty-third annual report of the Carnegie Trust for the Universities of Scotland covers the academic year 1943-44, and includes a summary of the interim distribution of grants for the period October 1, 1943-September 30, 1944, with details of assistance to students and the abstract of financial accounts for the year ended September 30, 1944. In view of the continuation of war conditions, the Committee deemed it inexpedient to revert to the method of quinquennial distribution, and maintained the interim distribution on the same basis as previously. With regard to research, the situation was very similar to that recorded in 1942-43 and the abstract of accounts shows that a sum amounting to £15,497 has been accumulated, which is being held on behalf of fellows and scholars at present engaged on one or other form of national service, and of recipients of grants who have now been unable to make use of their awards. As it is unlikely that all those who have been awarded fellowships or scholarships since

the outbreak of war will elect to begin or resume their researches under the aegis of the Trust, it is possible that a substantial reserve will have been created for the development of the Trust's plans for aiding research.

The decline in the number of beneficiaries was most marked in the Faculty of Arts where there were 164 less than in the previous session. The decline of 55 in science on the figure for the previous session was more than offset by a sharp rise in the number of beneficiaries in the Medical Faculty, the increase in medicine being 80 over the previous year. It is essential that it should be made known as widely as possible that, unless in the future the number of the beneficiaries falls very considerably, the resources at the disposal of the Trust will not permit any additions to the amount at present given by way of assistance in the several faculties.

The report on the work of investigators under the research schemes during the year referred to Miss E. M. Gorgeson's work on the flow of fluids through perforated tubes and through tubes the walls of which offer little resistance to diametrical expansion. Tribute is paid to the achievements of Dr. Hwan-Wu-Peng in a new approach to the quantum theory of fields. Researches in geology, palaeontology and geography have been still more restricted, and during the period, scholars in chemistry, with few exceptions, held their scholarships in suspense pending a return to academic studies. Reference, however, is made to Mr. A. M. Mathieson's work on the comparison of the structure of certain sulphur compounds, to Mr. A. C. Docherty's work on thermal diffusion in liquids and related systems and to Mr. W. Graham's discovery of a greatly improved method of obtaining a degradation product of colchicin of primary importance in relation to the structure of this alkaloid, and his synthesis of a new hydrocarbon with five condensed benzene nuclei attained by fusing an additional benzene ring on to the chrysene molecule.

In the Biological and Medical Sections reference is made to Dr. G. Pontecorvo's work on the behaviour of the chromosomes of the germ cells in securing transmission of the normal hereditary constitution, while yet providing for transmission of slight intrinsic variations of the genes, which afford the opportunity for the operation of natural selection and thus for the possible production of mutant forms. Dr. L. Auber continued to investigate the influence of physical and chemical factors upon the meal moth, and Mrs. C. M. Ritchie her investigations on carbohydrate metabolism in collaboration with Dr. H. W. Kosteritz. A list of publications by fellows and scholars and recipients of grants received from September 30, 1943, is appended.

The report of the Laboratory of the Royal College of Physicians, which includes some reference to Dr. Edith K. Dawson's investigations on the sarcoma of the breast and on another rare neoplastic condition. In the field of biochemistry under Dr. W. O. Kermack important progress has been made in the synthesis of various *o*-phenanthroline derivatives substituted in the 2-position by basic side-chains similar to those present in such active compounds as mepacrin or plasmoguin, and effort has now turned to the synthesis of *o*-phenanthrolines substituted in the 9 or 10 position. Mr. Jacomb has concentrated on the preparation of analogous compounds to give *p*-phenanthroline derivatives with a basic side-chain in position 9 or 10 on the benzene ring instead of in the 2-position. 9-Bromo-*p*-phenanthroline has been prepared and

readily converted into amino-phenanthroline under conditions described by R. V. Haworth and W. O. Sykes. Before Mr. Dobson left the laboratory at the end of September, he had made excellent progress in the synthesis of pyridoacridine derivatives carrying basic side-chains of various types, some of which had given very promising results on biological tests. Some progress had been made in the related group of the benzacridines, some of which are also active. The work on the pyridoacridines is being continued by Mr. Hutchison, who has concentrated on the synthesis of compounds with various substituents in the nucleus. Further evidence has been obtained of the correctness of the assigned structure of the 4-hydroxy-*m*-phenanthroline synthesized by Dr. Tebrich. Dr. Eggleton and Dr. Kermack have also continued their mathematical work on problems of diffusion such as are encountered in connexion with the diffusion of compounds into and out of the tissues, and under Dr. Levinthal experimental work for the development of a general bacteriological medium is being pursued.

UNIVERSITIES AND THE NEEDS OF THE COMMUNITY

UNDER the title "Some Comparisons between Universities", the proceedings of the Second Education Conference of the Association of University Professors and Lecturers of the Allied Countries in Great Britain have now been published*. The report includes a summary of the proceedings by Prof. R. D. Laurie and a foreword by Sir Ernest Barker which emphasizes the wide range of thought which was pooled at the Conference. None of the British universities and none of the Western universities have, as Prof. E. Vermeil noted in an address on "The University Spirit in Germany and in the Western Democracies", succumbed to the domination of a political dogma, and similarly, as Mr. Willard Connelly reminded the Conference, American universities were among the first in the United States to see the inevitability of American participation in the world struggle for freedom.

The report gives indeed an encouraging picture of the influence of the university on society which should be remembered when we are considering some current criticism of the universities. Mr. Connelly can rightly point to such presidents of American universities as Lowell and J. B. Conant, who contended that universities must counteract rather than copy the defects of contemporary civilization, and have helped to make the American university a main instrument of fostering an international outlook. Sir Ernest Barker too refers to the strength which we can draw in facing the future from looking back on the past achievements of our universities and their contribution to religious life and national culture. The tradition of unselfish learning and the inheritance of national culture, which the ancient universities of Europe have steadily sought to accumulate and transmit from generation to generation, will be sorely needed as we face the task of reconstructing European society, and whatever changes or developments may be called for should not be such as to weaken that tradition or

the love of learning, the passion for research and for teaching which have flowered in that old, rich and deep soil.

That the comparisons between universities made in this report leave first of all a deep impression of common traditions and ideals does not necessarily invalidate certain criticisms and suggestions for improving contacts made at the Conference. Prof. Jean Timmermans, who remarked on some points in which British practice in the organization of scientific research might be adopted on the Continent, believes that the exchange of scientific publications between Great Britain and the Continent is on an insufficient scale, and suggested a wider distribution of European periodicals in British universities. He also believes that there is a tendency to insularity in British universities, and that contact with them before the War was difficult. It was necessary to approach each university separately, and from this point of view he welcomed the proposal for a university council contained in the recent report of the British Association's Committee on Post-War Education.

Contacts are not entirely lacking, but Prof. Timmermans' view should be duly noted in considering the re-organization of the universities of Britain and their development to meet the larger demands both for teaching and research which will be made upon them in the immediate future. So too should the important point made by Sir Fred Clarke, in speaking on "The University and the Teaching Profession", that a university is scarcely entitled to prepare students for any profession unless within its walls the problems of that profession are being systematically studied. The condition is reasonably well fulfilled for such professions as medicine and engineering; but it is only beginning to be fulfilled in that of teaching—or, it might be added, of law. Again, the university is above all the guardian of standards, standards both of teaching and of attainment, in students, and no point will require more careful watching in these immediate post-war years.

On some of the other points of criticism expressed at the Conference there was less general agreement, and the suggestion in Mr. Bruce Truscot's paper on "Contact with the Student Mind" that a wide gap exists between the professor or lecturer and the student was not supported either by Prof. R. D. Laurie, who presented the paper, or by Sir Ernest Barker or by others: Mr. S. Grzybowski, a student of the Polish Medical School in Edinburgh, for example, was impressed by the closeness of the relation between the professor and the students. While Mr. Truscot's suggestion for the improvement of contacts between the university and the school was not entirely acceptable, the Conference appeared to recognize that it is important to strengthen that contact as much as possible. Again, Prof. Vaucher thought that the Continental scholar would be most impressed by the tutorial system in the older universities of Britain and the supervisor system in the newer ones; and Mr. Grzybowski thought that the British system is better for the average student, whereas the system of many Continental universities gives a better chance to the best students.

The relative position of teaching and research in the universities was just touched upon at the Conference without going deep enough to add anything to the present debate. Mr. Grzybowski thought that it is more commonly recognized in Britain than in some Continental universities that much the most important duty of the university staff is teaching.

* Association of University Professors and Lecturers of the Allied Countries in Great Britain. Second Education Conference, April 15, 1944: Some Comparisons between Universities. Pp. xvi+64. (Oxford: Basil Blackwell, 1944.) 2s. 6d. net.