recorded in this report show that the British people not only do not take full advantage of the public dental services which now exist, but also they do not appreciate the effects of dental disease upon their general health.

As a preface to the discussion of this unsatisfactory position, the Committee outlines the history and present position of the dental profession and its educational and research facilities. Dental education in Britain is given in five dental schools in London, seven in the English provincial cities (Birmingham, Bristol, Leeds, Liverpool, Manchester, Newcastle and Sheffield), three in Scotland (Dundee, Edinburgh and Glasgow), one in Northern Ireland (Belfast) and four in Eire. Before the War, these schools had a capacity of 2,000–2,500; most of them were staffed largely by teachers on a part-time basis, paid or honorary, and some four hundred students a year entered the schools, of whom about 10 per cent were women. Students could prepare for either the B.D.S. degree or for the somewhat lower standard of the licence (L.D.S.); the majority took the licence, the courses for which occupied about five years, while those for the degree were rather longer. Most of the schools have some facilities for research, but most of the staff have little time for this. The dental hospitals provide treatment for the poor and clinical teaching for the students; but neither the hospitals nor the schools have enough money for expansion and improvement. Refresher courses and a limited number of hospital posts provide some post-graduate training. Figures supplied by the Government Actuary indicate that most of the dentists admitted to the register by the 1921 Act are now older than forty-five, so that there will be, in the next few years, a rapid loss of names from the Register by retirement; and the average annual rate of entry to the Dental Register in recent pre-war years in Great Britain was about 340, while the annual rate of entry of students has fallen to below three hundred, some 10 per cent of whom do not, for various reasons, become dentists. It is therefore clear that the Register cannot be maintained even at its present strength. Even if the annual number of persons entering the profession rose to 400 between 1948–52 and to 425 thereafter, it would still be thirty years before the present effective total of the profession would be increased. This is indeed, as this report puts it, an alarming forecast.

Nor is this Committee satisfied with the present position of ancillary dental workers, namely, dental dressers, dental attendants and dental mechanics. The dental mechanic is an essential part of any dental service, and the existing arrangements for the training of dental mechanics are inadequate.

Considering remedies, the Committee concludes that the greatest single step forward would be the creation of a single comprehensive dental service equally available to all who demand it, and paid for by the community as a whole. This service should be an integral part of the Government's national health service; it would give the dental profession its rightful place in the public estimation and would encourage the much-needed recruitment to the profession. In such a scheme certain classes of people, namely, nursing and expectant mothers, children and adolescents, require special attention, and a big expansion of dental services for school-children is one of the essential foundations of a comprehensive health service. All local authorities responsible for schemes of dental health should appoint, as some do now, a chief dental officer with adequate powers. Quotations from statements made by local authorities show that they are aware of the importance of their responsibilities in this respect.

No dentist, the report insists, should be compelled to enter the public service and all should be able to leave it if and when they desire to do so. Dentists should also be able to engage in whole- or part-time public dental service and in any branch of it. The patient must have free choice of the dentist and liberty to change to another at will. The right to private dental service should especially be preserved. General dental practitioner service should be broadly analogous to that of general medical practitioner service. Dental health centres should be established; they might be experimental at first, the local dentists being consulted about their organization, design and equipment; this participation by dentists in the planning of the dental health centres is emphasized by the report, which would extend it to the planning and administration of the whole dental health scheme.

The report emphasizes the importance of education of the public in dental health. A definite policy of education of the public is required, which should include high quality of dental treatment, education at the health centres, dental hygiene in the schools, the encouragement of children to accept treatment, education at maternity and child welfare centres and the supply of publicity material from central sources. The report concludes with the recommendations that suitable ex-Service men and women should be encouraged to become dentists, that dental teachers should be recalled from service as soon as possible and that dental equipment now being used in the Services should be made available for the public dental service.

The unanimity and brevity of this report enhance its value. Its recommendations should be widely known, for without the intelligent co-operation of the public no health scheme can succeed.

METCHNIKOFF CENTENARY CELEBRATIONS

A MEETING was held at the Opera House in Moscow on May 15 to celebrate the centenary of Metchnikoff's birth; it was opened by G. Miterev, the Soviet Commissar of Public Health. A great gathering of representatives of the medical profession and of bacteriology had come together to honour the memory of the great Russian man of science and philosopher.

Ilya Metchnikoff was one of the first Russian Darwinists, and proved by his experimental work the existence of general laws of evolution applying to all animal organisms. His biological research on comparative embryology led him to problems of pathology and medicine, in which he obtained epoch-making results, formulating a theory of phagocytosis. After working for a long time at the Pasteur Institute in Paris, he became head of a new school of microbiology investigating especially problems of immunity as it affects medical practice, particularly vaccination. During the latter part of his life, Metchnikoff gave much attention to the study of old age, longevity and death. His point of view was that people do not live so long as they should do, and that, by appropriate modes of living, life could be considerably lengthened.

The role of Metchnikoff in science was the subject of a special paper read by Vassili Parin, general secretary of the Academy of Medical Science. "Metchnikoff," he said, "who obtained such important results in his theoretical work, did not despise practice and gave much time to find a scientific basis for fighting infections and epidemics such as cholera, typhoid and tuberculosis. His philosophy was full of optimism and faith in humanity and in the final triumph of science."

Metchnikoff died in 1916, but his numerous pupils in the Soviet Union pursued on a large scale his microbiological research for the welfare of the people.

The Opera House meeting was the first of a series of conferences extending over several days, at which reports were presented on various problems of bacteriology, and papers read on Metchnikoff's philosophical conceptions and his work in the fields of Darwinism, zoology, embryology, immunity, parasitology, microbiology and epidemiology.

To mark the centenary, the Soviet Government has decided to erect a monument to Metchnikoff in Moscow and to put memorial tablets in the University of Kharkov, where he was a student, and in the University of Leningrad, where he lectured. The University of Odessa, where he occupied a professorial chair, will bear his name. Metchnikoff gold medals and prizes are to be awarded by the Moscow Academy of Sciences, and Metchnikoff scholarships for students and research workers are to be founded by the Academy of Medicine and by the Medical Institutes of Kharkov, Moscow, Leningrad and Odessa. A biography of Metchnikoff is to be published, together with a uniform edition of his complete works; and a film on his life and work will be issued in 1946.

LYDIA BACH.

SCIENTIFIC AND INDUSTRIAL RESEARCH IN CANADA

A PRELIMINARY review of the work of the National Research Council of the Dominion of Canada in 1944, issued by the Research Plans and Publications Section, in addition to indicating the way in which the Council organizes and co-ordinates the national co-operative research programmes, outlines a few of the major items in the work under the Council's direction.

In aerodynamics, some of the new work involves such problems as balancing of controls on aircraft, work on aircraft skis, the design of tailless aircraft and investigation of factors which arise in their operation. In hydrodynamics there are two main fields: model-testing and basin-tests on aircraft floats and seaplanes, and hydraulic studies on harbour and river problems, in which such factors as silting, tidal effects, turbulence, location of piers, etc., are involved. Much test work is done on aircraft engines, and unsuspected savings in aviation fuel consumption have been achieved by developing a new type of cracked fuel which can be used in place of straight-run gasoline in certain operations. Photography has been utilized to study droplets in clouds surrounding aircraft in flight, and physical chemistry has shown a way of dispelling the raindrops which fall on the pilot's turret and tend to obscure his vision.

In the field of applied biology, war requirements have placed great emphasis on the need for work on foods and their preservation and methods of transport. The development of canning methods for chicken, pork and ham has been undertaken as part of the war effort, and the industrial utilization of agricultural products is an important branch of work. The shortage of rubber led to the study of fermentation methods for the production from wheat of butylene glycol, recently shown to be useful as an anti-freeze, as well as a basis for the production of many useful chemicals. Methods are being developed for modifying wheat starch as a substitute for other starches and for the production of syrups and sugars. A pilot plant using a mechanical method for extracting resin rubber from native plant materials such as milkweed is in full operation.

The activities of the Division of Chemistry have involved much research on adapting substitute materials to war requirements and in developing new methods for strategic chemicals. Substantial advances have been made in the technique of rot-proofing, flame-proofing, and water-repellency treatment of fabrics. The synthesis of new toxic compounds has been carried on as part of the programme of the Directorate of Chemical Warfare and Smoke. Alkaloids from Canadian plants continue to receive attention, and the Paint Laboratory has been occupied with the development of new protective coatings. A new method of glueing based on electrical resistance has been developed and is in commercial use. Research on the prevention of corrosion by the use of inhibitors is continuing, as well as on the protection of aluminium alloys against sea water. Work has also been carried out on the photo-sensitized polymerization and hydrogenation of butadiene.

In the Division of Physics and Electrical Engineering much work has been done during the War on the detection of sound under water at ultra-sonic frequencies. The General Physics Laboratory facilities have been used in such problems as measurement of muzzle vibrations of rifle bullets, ballistics cameras, vibrational measurements, construction and testing of fire-control apparatus, counter chronographs, automatic plotter for air-ground training and other work for the Armed Services. Much work of the Heat Laboratory has been suspended, but infra-red studies and work on land-mine detectors have been carried out with success. The Optics Laboratory has made a substantial contribution to the war effort, and can claim a fair share of credit for the establishment of an optical glass industry in Canada, besides contributing largely to aerial photography. The radio staff has grown to several hundreds, with special laboratories constructed to meet demands for radar studies, and post-war applications may include air-navigation methods, improved blind-landing technique, compact recognition equipment for all types of ships and aircraft and new types of shore beacons to supplement lighthouses, anti-collision alarm signals, etc. Industrial radiology has opened up a wide field of inspection which has been applied in the non-destructive detection of flaws in metal. The X-ray diffraction study of materials is becoming increasingly useful as new techniques are discovered, and electron microscopy is also providing the physicist and chemist with fundamental data not previously attainable.

The National Research Council has devoted much time and thought to preparation for the post-war period, and, under pressure of war, Canada is already spending five times as much on research as in the pre-war years.