exhibition room contains the human anatomical specimens that will later be arranged in cubicles covering different systems, illustrated by suitable tracings and diagrams of selected physiological and pharmacological reactions.

These new Museums occupy nearly the same site as the rooms which were destroyed by enemy action in 1941, though they are at a higher level and are more economical of space, each occupying one complete story, compared with the nineteenth-century rooms which consisted of a floor and two galleries.

THE NATIONAL LEATHERSELLERS COLLEGE

By DR. J. P. DANBY

Principal

ON November 15, the Minister of Education opened extensions at the National Leathersellers College in Bermondsey, London, S.E.1. These consist of a three-story wing housing new research laboratories, a lecture theatre and a senior common room, and drying rooms for heavy and light leather, together with a single-story block consisting of yards for the preliminary and tanning processes for both heavy and light leather manufacture. Moreover, the additional space provided has facilitated the re-equipment and modernization of the original building, which is now almost fifty years old.

The College was founded and built in 1909 by the Worshipful Company of Leathersellers, following the success of the courses in leather manufacture which had been given since 1895 at the Herolds Institute. During these years, rapid developments were taking place in the field of leather chemistry, and it was becoming apparent that the subject merited individual facilities for training and research. The appreciation of fundamental principles underlying the processes of a craft industry by men such as Procter, Stiasny and Knapp was raising leather manufacture from a craft to a science, with the consequence that a rapid expansion took place in the demand for men with a scientific training by tanners all over the world.

Between 1909 and 1951 the Leathersellers Technical College became recognized throughout the world as one of the leading institutions in this sphere of instruction, and under three successive principals gained a wide reputation for the training of technologists in the leather industry. However, although improvements and additions to the College were made from time to time, it was inevitable that sooner or later major developments would be necessary if the College were to maintain its place in the advance of technological education. Consequently, when the Minister of Education, following the recommendations of the Percy Report, decided to found a number of colleges with national status to accommodate the educational needs of the smaller industries, the leather industry approached him with the request that the Leathersellers College should be reconstituted as the National College for the Leather Industry. A trust deed was drawn up, a widely representative board of governors was appointed, and the National College came into being in September 1951. Shortly afterwards, plans were drawn up to extend and re-equip the College, and this has now

been done at a cost of more than £90,000, a part of which has been provided by the industry itself. In consequence, there is little doubt that the College is now one of the finest of its kind in the world.

Since the tanner's raw material is animal skins, the technology of leather manufacture is based on protein chemistry. At the same time, because of the variety of other materials used in the manufacturing processes, a trained technologist must possess some knowledge of a wider range of both natural and synthetic products than is called for by almost any other industry, and the subject has therefore some connexion with all the main branches of pure, and many aspects of applied, chemistry. From the practical point of view also, the range of leathers in common use necessitates, in a teaching institution, facilities for their manufacture from the raw skin to the finished product. Further, some familiarity with the ancillary subjects becomes necessary in so far as they impinge on both the theoretical and practical aspects of the principal study.

The scientific and practical approaches have always been the foundations of the College courses; although in the past the training has been more squarely based on processes than on theory, the latter has by no means been neglected. However, the advances which have been made in fundamental knowledge and its systematization, and the development of new techniques, now demand a far more exhaustive course than it has been possible to provide hitherto, and the extensions and modernization have consequently made possible an appropriate and overdue expansion of the content of the syllabus. Moreover, in formulating educational policy, the intentions of the Ministry with respect to academic status have been observed in that plans have been made to bring by stages the level of instruction up to that of a university.

The material facilities the College possesses are unique in so far as that, for practical instruction, they include complete yards for the manufacture of all types of leather, which are made by students working independently, under supervision, as part of their course. The layout has been planned to simulate ideal tannery conditions, and the machinery and other equipment, much of it supplied on permanent loan by the makers, is of the latest design. It will be possible to process twelve hides per week, and in the more flexible conditions of light-leather manufacture, at least twelve dozen skins, by any of the commercial—and many of the experimental—techniques available. A further feature of this department is a complete set of new drying cabinets controlled for humidity, temperature and air-flow, incorporating devices which have been developed over the past decade. All the practical processing work can be now carried out on the ground-floor, which in effect contains a complete tannery appreciably larger than a typical pilot plant.

The additional laboratory space comprises a newly equipped teaching laboratory for senior students, and a microbiological laboratory. Another laboratory has been furnished for physical testing, and it is hoped that in time this will house the most complete set of apparatus for this purpose in Britain. These are, however, extensions of facilities that existed in the original building. An entirely new addition is a research laboratory, which includes a small laboratory-tannery that is to be used mainly for investigations into variations in the processes of the production of sole leather.

The College awards its own diploma on a two-year course, but an extension of this period to one of three years is envisaged to accommodate adequately the increased practical and theoretical instruction made necessary by recent advances in such techniques as leather dyeing, tanning with synthetic materials, drying and so forth. Moreover, in response to the Ministry's expressed intentions with regard to national colleges, the status of the diploma course is to be raised in respect to the level of the training it provides. Although the diploma is a qualification recognized throughout the world in leather-producing circles, it does not possess the standing of a degree, and therefore the outcome of the protracted discussions on higher awards for technology is, as in all similar colleges, awaited with some impatience.

The College offers its own associateship, which may be awarded after a year's research subsequent to the diploma, or to a graduate of a recognized university after a similar period of study. The provision of new research facilities is the most notable innovation under the extension scheme, and it is worth remarking that all the stages of a research programme, from the bench through pilot-plant scale production to what is almost full-scale production, is here housed under one roof. It is therefore proposed to encourage this aspect of the College's activities more vigorously than in the past, and to seek the co-operation of tanners and chemical manufacturers in the matter. Co-operation already exists between the College and the research associations, and the Leather Department in the University of Leeds, so that in this connexion also the Ministry's recommendations are being implemented.

Outside the diploma course, as much flexibility as possible is permitted, notably in the provision of short courses of three or six months duration on specialized aspects of the subject, and, within the confines of space and staff available, every effort is made to accept students individually for courses of even shorter duration. Short refresher courses of from four to six weeks have been a feature since 1951, and these are to be extended, especially in relation to the ancillary sciences. Entirely new courses on works and management study in the leather trade are planned, as part of the normal diploma course, in addition to being offered to the industry as a whole.

The College draws its students from all over the world, and although a quota is placed on entrants from outside the United Kingdom, the fact is evidence of the wide reputation it has gained since its foundation. There is a generous staff-student ratio, and with the space now available, and the promise of adequate support from the trade, it is anticipated that the College will play an increasingly important part in the industry to which it belongs.

FIRST NATIONAL CROP PROTECTION CONFERENCE

THE first National Crop Protection Conference, sponsored by the Pesticides Group of the Society of Chemical Industry and organized in collaboration with the Ministry of Agriculture, Fisheries and Food, the Association of British Insecticide Manufacturers, the British Agricultural Contractors Association, the National Association of Corn and Agricultural Mer-

chants, and the National Farmers Union, was held in the Winter Gardens, Eastbourne, during October 31–November 3. The theme of the Conference was: "Practical Aspects of the Use of Insecticides and Fungicides in Agriculture and Horticulture". The delegates assembled on the evening of October 31 for the chairman's reception at the Grand Hotel, Eastbourne, and later attended a film show, at which were shown "Management for Milk" (Plant Protection), "Fruit Tree Red Spider" (Shell), "Cabbage Root Fly" (Shell) and "The Rival World" (Shell). The last, a dramatic film illustrating man's ceaseless battle not only for food but also for health and very survival against the insect world, underlined the theme of the Conference during the following days. The Conference proper commenced on the following day, when a short account was given by the chairman, Mr. J. M. Leonard, of the Society of Chemical Industry, of the formation of the Pesticides Group and of the events leading up to the holding of the present meeting. Starting with the formation of the Agricultural Group of the Society in 1942, which gave birth to the Pesticides Panel in 1950, he told how the Panel had itself become a group by 1954, capable of sponsoring the Conference by 1955, which was no mean achievement.

The opening address to the Conference was given by Sir Thomas Dugdale, who touched upon the world's loss of produce to pests, both in the field and in storage. These are serious enough in highly developed countries, but in the less-developed ones they must be very much more serious. Since 1940 there have been enormous strides made in the science—and art—of dealing with crop pests; but looking back he saw many landmarks in crop protection and wondered if there might be such a thing as a "fifteen-year rule" in these developments. Before 1940, the start of the present cycle, tar-oil winter wash for fruit trees was introduced about 1925. Derris arrived in 1910. Lime-sulphur and grease banding was brought in about 1895. Still earlier, in 1880, there are records of 'London purple' (an arsenical) being exported to the United States. Before the Second World War, links between the manufacturers and the 'official' research stations were slender and few, and differences many, leading to bewilderment on the part of the farmer; now Sir Thomas sees a much healthier state of interaction from which the farmer is not excluded; the Ministry of Agriculture's Approval Scheme has also marked a great advance. He defined four main groups of pesticides: insecticides and acaricides; fungicides; nematocides; and herbicides. Substances for the control of birds and rodents—mostly the latter—may perhaps be considered as a fifth group. The important points to be remembered are that the use of pesticides must be governed by economics, and that chemicals must not be used as substitutes for good farming. Turning to the future, Sir Thomas asked what scientists have in store for us. Would the fifteen-year rule hold good? Will systematic fungicides really abolish plant disease? Would the only red spiders left be those in museums? Or would Nature fill the vacuum she abhorred? There are already a number of pests which have increased in importance due to the elimination of predators by pesticides; one answer to this is the use of more selective insecticides and methods of application. Flies resistant to the chlorinated hydrocarbon types of insecticide are already a challenge in many places. So long, however, as the problems are attacked bearing in mind these