by hydroxyl during diazotisation. Numerous cases of this substitution have since been noticed and shown to be capable of industrial application in the production of useful mordant dyes.

During the greater part of their joint career at Finsbury, Meldola and Streatfeild had as research assistants at any given time only one or two senior students chosen to work for one session in the professor's laboratory. Streatfeild, however, had a wonderful faculty for dovetailing together instruction and research, and Meldola had the happy knack of furnishing his youthful collaborators with an "Arbeit" which generally blossomed into a contribution to the Chemical Society's Transactions within this annual period of apprenticeship. From 1908 onwards the council of the college provided the professor with a whole-time research assistant, who generally held this coveted post for about three years. The senior students who were fortunate in receiving this more prolonged experience in research have justified their training by gaining responsible industrial appointments within a short time of leaving college.

When the writer succeeded his former teacher in 1916 the work of the Finsbury laboratories was dominated by the exigencies of the war, then entering on its critical stages. The Trench Warfare Department employed in the Finsbury laboratory of applied chemistry a small works plant for smoke-bombs and other munitions, which was not at that critical time to be found in any other London college. In 1917 the institute sanctioned an extension of the chemical department, and the additional facilities thus provided were promptly made use of by the Chemical Warfare Department, which maintained a staff of research workers at the college until after the armistice. At the same time the chemical school remained in touch with the synthetic colour industry, inasmuch as the new research laboratories afforded accommodation to a group of chemists sent by the British Dyestuffs Corporation to extend their experience of organic synthesis. Other firms also took advantage of the research equipment for applied chemistry which was now being made in the chemical workshop, and several experienced chemists were allotted laboratory facilities for their researches in various branches of chemical technology. The materials required by these research workers were in certain instances prepared by senior students of the chemical department, who thus benefited by being brought at an early stage into contact with the actualities of industrial practice.

With a high tradition of practical laboratory instruction extending over a period of forty years it is not surprising to find that the senior *alumni* of the Finsbury chemistry department now occupy responsible positions in every centre of chemical activity in the British Empire. It is, moreover, a noteworthy consequence of the close association of the college with the industrial life of the country that several important chemical firms are taking an active interest in the Finsbury defence movement, thus showing in a practical manner their appreciation of the training afforded in this historic school of chemistry.

Bacterial Diseases of Farm Crops.

IN certain seasons some of the bacterial diseases which attack farm crops do sufficient damage to become serious economic factors. An instance of this was provided in 1918 by the "halo-blight" of oats which caused much trouble throughout Wisconsin and other parts of the United States (C. Elliott, *Journ. Agric. Research*, 1920, vol. xix., No. 4). The blight appears to be present in oat-fields every season, but attracts attention only when it develops strongly and does serious damage under particularly favourable weather conditions. The epidemics disappear if the weather changes to a type more favourable to the development of the plant.

The halo-blight usually appears as lesions on the leaves, but may occur on the leaf-sheaths and glumes; infected areas show a centre of dead tissue surrounded by a halo-like margin of chlorotic tissue, and they gradually spread and often coalesce until large areas are involved and the whole leaf becomes dry and brown. A typical white organism has been isolated from these lesions, for which the name *Bacterium coronafaciens*, n.sp., is proposed. The organism is a motile rod with rounded ends, sometimes occurring singly or in pairs, but usually in short to long chains. One to several polar flagella have been made out, but no spores have been observed. The bacteria live through winter on the seed, produce primary lesions on the first leaves of seedlings, and are carried to other leaves by wind and rain. Natural infections of halo-blight have been observed only on oats and rye, though artificial inoculations indicate that the organism may be slightly pathogenic on wheat and barley also. Infection takes place more readily on injured than on uninjured parts of the plants. In normal circumstances different varieties of oats show differences in susceptibility to the disease.

Though halo-blight is known to be seed-borne, no practical method of seed treatment has yet been found which will entirely control the disease. Treatment with 1 in 320 formalin, as is used for smut, keeps the blight in check, but is not entirely effective. Heating the seed in a hot-air oven for thirty hours at 100° C. completely checks the disease, but the commercial application of the treatment has not yet been worked out.

An unrecorded bacterial disease, basal glume-rot of wheat, was discovered in 1917 by L. McCulloch (*Journ. Agric. Research*, 1920, vol. xviii., No. 10) on plants obtained from various localities in Canada and the United States. The leaf, head, and grain of wheat are all affected, the diseased portions being discoloured and blackish, and the basal ends of the grains often appear charred. The development of the grain is hindered when the disease appears early in life, but it is possible for the plants to be attacked when the ears are well filled out. Bacteria are abundant in all the discoloured tissues, and are fairly resistant to desiccation, as the organism has been isolated from dry wheat-kernels kept at room-temperature for seventeen months. The organism, for which the name *Bacterium atrofaciens* is proposed, is a white, polar-flagellated rod, producing a green fluorescence in the ordinary culture media. It attacks starch, and will tolerate sodium chloride up to a strength of 5 per cent., above which no growth occurs. Many tests of the reaction of the bacteria have been made, and the optimum growth-temperature appears to be between 25° and 28° C., the thermal death-point being about 48° or 49° C. Ten minutes' exposure to sunlight or forty-four hours' freezing was also found to kill most of the bacteria. No method of controlling the disease is suggested. W. E. B.