

discoveries, in accordance with the recognized practice of the medical profession, become available for use of the Crown in the same way as for any members of the public. The only award recommended under Head 4 of the Warrant was for a claim in respect of the Sommerfeld track.

THE CATTLE EGRET

AN Old World bird which is a constant companion of cows has become established in the United States in the past fifteen years. Unknown there before its first appearance in Florida in 1942, there are now approximately two thousand birds in that State, according to Alexander Sprunt, jun., of the National Audubon Society (Smithsonian Institution News Release, April 13).

The bird is *Bubulcus ibis*, the cattle egret, which has been well known for many years in southern Europe, Africa and the Middle East. It is a small white egret with dark-brown feet and yellow legs and bill and is most remarkable for its strange, constant association with cattle. The close proximity to cattle is little short of astonishing. It keeps pace with the animal continually, usually close by the head, but sometimes near the fore or hind feet and occasionally under the abdomen. When an insect is disturbed, the bird darts out, catches it and returns. Now and then it reaches up and takes something from the body of the cow, or its legs. At times, the cow may be seen to push the bird aside with its muzzle, but appears not to object otherwise to the immediate closeness of its satellite.

A peculiar and unexplained characteristic of the bird is its habit of weaving the head and neck from side to side. A bird will suddenly stop feeding, stand perfectly upright, and weave the upper part of the body.

It feeds chiefly on grasshoppers and crickets. This may explain its fondness for cattle, which disturb these insects in the grass while grazing.

How the cattle egret got to the New World, especially the United States, is difficult to explain. It was first observed in British Guiana in 1937, but did not appear in the United States until five years later.

The cattle egret population is concentrated in Florida; but stray specimens have been observed as far north as Maine, and even Newfoundland, and inland to Chicago. Sprunt believes that a few pairs may have been blown over the Atlantic by wind currents.

SEA-BIRDS IN SWEDEN

IN 1950, regulations came into force in Sweden prohibiting the shooting of sea-birds during the early months of the year. The Swedish Institute of Forest Zoology has now completed investigations to show the effects of these regulations (Bull. Roy. Sch. Forestry, Stockholm, Sweden, No. 22; 1956). These show that everywhere the eider has increased substantially in numbers, while stocks of the velvet scoter were generally unchanged. This species usually arrives at the breeding places so late that it is scarcely affected by the legal spring shooting. There is, accordingly, a substantial difference between the eider and the velvet scoter in this respect, which

supports the assumption that the prohibition of spring shooting—which applied only to the eider—had a salutary effect on the stock of that species.

The general trend regarding the stocks of Swedish sea birds since the new regulations were introduced has led to the following conclusions.

There is little possibility of distinguishing between male and female birds. Even if differentiation were possible, the male bird in the spring would still be essential for breeding. The risks of wounding birds in the large spring flocks are greater than those in the autumn shooting of migratory birds.

Birds are being shot which have been produced at other places and, at this time of the year, are returning to their production areas. This shooting cannot be motivated by game protection.

Although the amended regulations of 1950 have been of some benefit—indeed, of very appreciable benefit in the case of the eider—further review of the problems of spring shooting is now required.

The question of restricting spring shooting rights to the coastal population should be carefully considered, regardless of whether the shooting is done in public or private waters.

Should this prove impracticable, it is recommended that a general ban on spring shooting be introduced and that the coastal population be compensated by granting them prolonged autumn and winter shooting rights.

Permission might also be given for the limited shooting of male birds in production zones having well-ordered sea-bird protection. A certain amount of spring shooting along the migratory routes beyond the skerries but outside the production zones proper might be permitted as a transitional measure.

EVENING INSTITUTES IN BRITAIN

THE most popular studies pursued at evening institutes are those offering instruction in household handicrafts. More than a quarter of the student body registered, totalling nearly one and three-quarter million, are women taking classes in cooking, catering, home-furnishings, needlework and similar subjects for the improvement and decoration of the home.

This significant change in the character of evening classes is revealed by a Ministry of Education survey designed to help local education authorities, principals of institutes and teachers to meet the changing needs of young people and adults for purposeful leisure-time study and occupation*.

The change in public taste, and also in social conditions over a period of twenty years or so, is reflected in subject and attendance figures given. Between 1930 and 1952, the numbers of students studying vocational subjects in evening institutes declined considerably, while the numbers taking non-vocational subjects, such as art, music, handicrafts, dancing, and so on, increased. During this period vocational studies have to a great extent been transferred from evening to day work, largely as a consequence of the increasing readiness of employers to give young people time off during the day for study. The full-time work in technical colleges also increased greatly over the period.

* Evening Institutes. Ministry of Education Pamphlet No. 29. (London: H.M.S.O.) 3s. net.

The new emphasis on 'do-it-yourself' subjects has been accompanied by a change of character in the student body as a whole. Formerly, there were more men and women between the ages of eighteen and twenty-one attending senior vocational courses than any others. Now, the preponderant group is composed of students attending leisure-time classes, the majority of them women over the age of twenty-one.

Besides purely domestic subjects, older housewives and recently married couples take leatherwork, weaving, lace-making and basketry. So popular is the demand that the scope of subjects is steadily being extended to cover health, household management, parentcraft, and those aspects of sociology and psychology which affect the well-being of the family.

The number of young people between fifteen and eighteen attending evening classes is higher than it has ever been, though fewer now enrol in 'grouped' vocational courses. This feature is more noticeable in the south than in the industrial midlands and the north-west, where family tradition and pressure by employers still encourage attendance. Over the country as a whole the predominant type of class is the recreational one in which young people and grown men and women are to be found working together. Most of the work consists of making furniture for the home.

Full-time teachers are rare. Of 41,834 teachers engaged in 1952, only 67 were full-time assistants, and only about a third of them were professional teachers by day. The bulk of staff engaged were non-professional people with special knowledge or

skill who became teachers in the evenings. The number of such instructors is increasing.

In addition to the expected kinds of instruction, classes dealing with local industries are not uncommon. There is a class on boat-building in a Thames-side town, for example; navigation is studied in a Devonshire fishing town; and welding courses are provided in a small midland town remote from a technical college. In urban evening institutes a common class is the owner-driver and car maintenance class. The instructor is often the proprietor of a local garage. A similar type of specialized class is radio and wireless, generally taken by a local radio trader.

The provision of classes in prisons and Borstal institutions is a development which has taken place since the Second World War. There are now classes in sixty-four establishments in England and Wales. In large establishments a separate institute can be formed; for smaller places the classes are usually attached to the nearest evening institute. Subjects of instruction are much the same as in the normal evening institute.

The survey examines in detail current practice in the organization and teaching of the arts, vocational courses, physical activities and subjects in the more formal curriculum provided by every evening institute. A suggestion is offered that courses and groups might with advantage be started in 'popular' science. Though it is not certain that teachers could be found for such an innovation, or that the public response would make it worth while, it is thought to be an experiment well worth trying.

HIGH-VOLTAGE PAPER ELECTROPHORESIS OF NON-VOLATILE ORGANIC ACIDS AND THEIR MIXTURES WITH AMINO-ACIDS

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SURPRISINGLY few results of successful separations of organic acids (excluding fatty acids) by electrophoresis have been published, although on theoretical grounds the utilization of the variation of mobilities with dissociation constants would appear to be promising.

Earlier attempts¹ were limited in scope and success, and the separations of only a few free acids or derivatives of acids have been described so far. Recently, Berbalk and Schier² reported on a more elaborate investigation of the mobilities of a series of acids under the conditions of paper electrophoresis. In a study in this laboratory of the electrophoretic behaviour of organic acids at high potential gradients, we have found that, under the conditions chosen, even small existing differences in mobilities could be exploited for clean, rapid and reproducible separations, which, as the positions taken up by the various acids are mostly different from those on chromatograms, affords a useful complementary method for the detection and identification of many acids. In general agreement with Berbalk and Schier, we found a fairly good correlation between dissociation constants and migration rates, that is, mobility being directly proportional to K , and electrolyte solutions of about pH 2 to be most suit-

able for separations. Raising the pH of the solution increased the mobilities of some acids but also led to multiple spots. To effect a separation between two acids, their dissociation constants must vary by a factor of, at least, 2, although several exceptions have been found.

In further development of the technique³, the cooling system has been improved by the introduction of aluminium alloy cooling plates of 1 in. thickness, with water flowing through grooves in the precision-ground, closely fitting plates, thus ensuring a better contact and heat transfer. With cooling water (tap water) of 9° C., energy of up to 3 W./cm.² has been satisfactorily dissipated. The construction of a bigger power unit capable of delivering up to 150 m.amp. at up to 12,000 V. has made the application of potential gradients of up to 240 V./cm. to a strip of an effective length of 50 cm. possible. The dielectric strength of insulating films of polythene ('Telcothene') of a thickness of 0.015 in. has been found sufficient under these conditions. The exact measurement of voltages greater than 8,000 V. proved difficult, and certain corrections for lack of precision had to be made. A pneumatic uniform pressure device added since has greatly improved the evenness of migration.