

indicator². 'Complexone' forms a very stable, water-soluble complex with calcium (equimolecular). The end-point is detected by the colour change of the indicator, which is most distinct at highly alkaline pH.

The titration is carried out as follows: 1 ml. serum is measured off into a short hard-glass test-tube, diluted with distilled water to about 4 ml., and 3 drops of a c. 4 N sodium hydroxide solution (stored in a hard-glass tube) and a few drops of a saturated solution of murexide in distilled water are added. After this the titration is carried out immediately. From a microburette (graduated in 0.001 ml.) a 0.004 molar solution of 'Complexone' is added until the reddish colour has turned violet-blue. From the volume of 'Complexone' solution used, the calcium content of the serum is calculated easily. A tube containing the same amount of serum, water, etc., which has been titrated shortly before a little beyond the end-point, can be used for colour comparison. If 1 ml. serum has been used for one titration, the possible error is about 3 per cent³.

We are indebted to Miss M. J. Pouli (Amsterdam) and Mr. H. J. Claes (Louvain), who have been using our method for a long time, for their suggestion of checking the colour change of the indicator with a photoelectric colorimeter at a wave-length at which the difference between the absorption curves of the red and blue colours is greatest (about 500 and 580 m μ). The colour change is marked by a rapid fall or rise respectively in the extinction. The more selective the filter used, the larger this difference will be. As a blank, the same amount of serum in the same dilution may be used as has been taken for the titration. We find that this modification is a valuable improvement.

¹ Belk, W. P., and Sunderman, F. W., *Amer. J. Clin. Path.*, **17**, 853 (1947).

² Schwarzenbach, G., Biedermann, W., and Bangertner, F., *Helv. Chim. Acta*, **29**, 811 (1946).

³ Full details (in Dutch); Holtz, A. H., *Nederland Tijdschr. Geneesk.*, **95**, 2420 (1951); *Chem. Weekblad*, **47**, 907 (1951).

SALMON FISHING IN THE SEVERN ESTUARY

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IN his interesting article, "A War-time Fishery"¹, Dr. Harrison Matthews states that "the fisheries of the Bristol Channel, except the salmon fisheries, have been declining for the past fifty years and have now only a fraction of their former importance". Unfortunately the salmon fisheries too have suffered great change, particularly along the English side of the Severn Estuary from Aust to Avonmouth, where formerly many families had for generations combined mixed farming with fishing. Fifty years ago, poultry, especially geese and turkeys, were reared, cattle grazed right down to the shingle line, and the farmers and their sons went regularly to the fishing grounds in summer, whenever the tides were low enough. In winter a certain amount of sprat fishing might be done, and the slender wickerwork traps for salmon would be made in a convenient barn. Great activity preceded and heralded the day when the new traps, 'poochers' as they were called, crowbars and ropes, were all loaded into a heavy farm-cart and the bay

mare plodded her way out at low tide into the Severn. She took a pebble-strewn track across the mud, worn by generations of fishermen's feet and wagon-wheels. Eventually, when the boulders became too large and the pools too deep, the men carried the equipment on their backs, in relays, to the fishing ground.

The return, with a rising tide, required careful timing, and for the remainder of the season the journey was, of course, made on foot. Each man carried a stout cudgel and a net, suspended on a forked stick, which rested on the shoulder. They set out at all times of the day or night when the tide was suitable, the journey made in the darkness of the night requiring both a stout heart and accurate knowledge of the river and the tides. The net was used in the deep pools when the wake of a salmon was sighted. It required not only great dexterity but also a considerable knowledge of the habits of the fish. Later the fisherman would return, if he was fortunate, with shining silvery fish. The catch would then be packed in grass from the lush meadows near by, sewn into reed baskets and dispatched to Bristol. Occasionally the housewife would cook a fish for the family or 'pot it down' in a great earthenware crock for subsequent use.

Even fifty years ago the catches had become less good, and the restriction clause inserted into many indentures had become unnecessary. That clause, which forbade masters to feed their apprentices with salmon more than three times a week, is a testimony to the flourishing state of the industry in earlier days.

In some farms, shrimp fishing was an alternative occupation. The prospect of freshly boiled shrimps with home-made bread and butter enhanced many a tramp from one farm to another on an early summer day. The rhines would be full of flowering plants, *Apium graveolens* (wild celery) faintly scented the air, pipits high in the sky carolled a lay while their mates incubated their eggs in the grassy borders of the river bank, seabirds sought their food in the mud, and the shingle was gay with *Glaucium flavum* (yellow horned poppy) and *Eryngium maritimum* (sea holly). To-day the area is completely changed. Acres of *Spartina townsendii* (cord grass) have clothed the mud flats in the upper reaches, the salmon fishery is completely finished and the flowering plants have unfortunately been ousted by fun fairs and the debris of trippers.

¹ *Nature*, **169**, 653 (1952).

RELEASE OF INFORMATION ON ATOMIC ENERGY

AS a result of the recommendations made by the Fifth International Declassification Conference, held during September 14-16, 1951, in Washington, D.C., the Governments of the United States, Canada and the United Kingdom have revised the "Declassification Guide" used by the three nations to decide what information on atomic energy may be published and what must remain secret. The principal revisions relate to the release of additional data on the nuclear properties of uranium and are in addition to the considerable amount of design and operating data on low-power natural-uranium reactors which were previously declassified in November 1950. It may be noted that this type of reactor, the type normally