

largest cysts after three months measure 39 μ . The *Amoebae* emerging from these large cysts grow rapidly to adult proportions, but they are almost transparent.

Thus during the juvenile stage a much longer time is spent in cysts than in active stages. What induces excystation, an excystment factor³ or a favourable environment, has still to be investigated. A fuller account of this work will be published elsewhere.

MONICA TAYLOR

Notre Dame,
Dowanhill,
Glasgow.

¹ Jepps, M. W., "The Protozoa, Sarcodina" (Oliver and Boyd, Edinburgh, 1956).

² Taylor, Monica, *Sister*, *Nature*, **178**, 100 (1956).

³ Singh, B. N., Mathew, S., and Sreenivasaya, M., *Nature*, **177**, 621 (1956).

Tagging Green Turtles, 1951-56

ON three little islands off the south-west coast of Borneo, the Sarawak Turtle Board annually collects for sale or replants for hatching more than a million eggs of the green or edible turtle (*Chelonia mydas* Linn.).¹ In 1951 we commenced marking experiments on this population. By 1953 we had settled on polished, monometal, hard-steel, 'cow-ear' type tags—one side with an inset code-number; "SARAWAK MUSEUM: REWARD" on the other. These are punched and locked through the inner rear trailing edge of one forward flipper on an adequate sample of laying turtles.

First 1953 returns showed repeated laying in following weeks of the 'season'.² But no 1953 turtle repeated in 1954; and so through 1954-55, until 1956 (about 4,000 tagged). It is unlikely that tags could be regularly overlooked at these three small beaches, where every female is numbered in, flagged, clocked and the clutch-size recorded on an all-night rota, by trained Malay watchers.

The first proved 'over-season' repeat came on July 4, 1956, from a turtle initially tagged on July 30, 1953. By the end of July, fourteen had been recorded, all tagged in July or early August 1953. This trend has continued increasingly to date. Many of the 1953+56 recoveries have repeated several times in the latter year, as in the former: B 1544 has now laid well over 1,000 eggs on eleven recorded visits, five in 1953 and six in 1956.

The immediate result is a proved method of tagging sea-turtles, durably and harmlessly. Only one number has been eroded. No turtle has been visibly injured. Previous attempts, notably by Schmidt³ and Moorehouse⁴, only succeeded over short periods. Prof. A. Carr is now using these tags on Atlantic green turtles; he already reports significant results⁵. I shall be pleased to correspond with others interested.

TOM HARRISSON

Sarawak Museum,
Kuching,
British Borneo.
Oct. 1.

¹ Harrison, Tom, *Sarawak Mus. J.*, **5** (3), 593 (1951).

² Harrison, T., *Nature*, **169**, 198 (1952).

³ Schmidt, John, Meddelelser Kommissionen Havundersogelser, Serie: Fiskeri, **5** (1), 1 (1916).

⁴ Moorehouse, F. W., Repts. Great Barrier Reef Commission, **4** (1), 1 (1933).

⁵ Carr, A., University of Florida, Dept. of Biological Sciences; personal communication, August 25, 1956.

A Selective Medium for the Isolation of Coliform Soft Rot Bacteria from Plant Tissue

DURING further studies on black leg disease of potato, difficulty was experienced in isolating the appropriate pathogens, which were identified as *Erwinia atroseptica* (van Hall) Jennison syn. *Bacterium atrosepticum* (van Hall) Burgwitz. Even using the screening methods of Noble and Marshall¹, namely, seeding plates of meat infusion agar with contaminated material from infected stems and tubers, selection of the organisms was difficult owing to the growth of many other types of bacteria. MacConkey's lactose bile-salt neutral red agar was found to be more selective, but *Pseudomonas* spp. could not now be identified by fluorescence in ultraviolet light, although a number still grew on the plates. The selective pectate gels of Rudd-Jones² and others were also tried, but proved to be difficult to prepare especially with limited facilities, and were often too soft to use for plating.

One of the characters of the coliform soft rot bacteria is their ability to grow and produce an acid reaction in salicin basal-salt media. A solid medium was therefore devised which would be selective and would allow this reaction to take place as an aid to identification.

The constituents are as follows:

Salicin	10.0 gm.
Sodium taurocholate	5.0 "
Ammonium dihydrogen phosphate	1.0 "
Magnesium sulphate (MgSO ₄ ·7H ₂ O)	0.2 "
Potassium chloride	0.2 "
Bromthymol blue (water soluble)	0.05 "
Agar	20.0 "
Distilled water	1 litre

The ingredients are mixed in a flask and dissolved by steaming. The pH is corrected to 7.0, the medium tubed and sterilized by bringing the pressure in the autoclave to 15 lb. momentarily, then switching off. In preliminary experiments sodium pectate was substituted for salicin in the medium, but growth was unsatisfactory.

Erwinia spp. and *Aerobacter* spp. produce roughly circular, entire, finely granular, yellow to yellowish-orange colonies about 1 mm. in diameter after four days at 26° C. Colonies should be removed to meat infusion agar slopes as soon as possible because they quickly lose viability on the medium. To differentiate between *Erwinia* spp. and *Aerobacter* spp., slices of potato tuber should be inoculated in the usual way.

Although the medium is highly selective, at times pectinase-producing *Pseudomonas* spp. have occurred on the plates. However, they form circular, entire, colourless or very pale yellow colonies, and do not grow in liquid salicin basal-salt media. On one occasion, an organism of the *Bacillus masecerans-polymyxa* group was obtained from the plates.

The medium has been used principally in black leg investigations; but isolations of soft rot coliforms from tomato, celery, etc., have been made successfully.

Studies by one of us (D. C. G.) have recently shown that while *E. atroseptica* always produces alkali in the ethyl alcohol peptone medium of Noble and Marshall¹, this reaction is not specific to the black leg organisms. Certain isolates, identified by other biological and biochemical tests as *E. carotovora* and *E. aroideae*, give the alkaline reaction also. Micro-tests, using washed suspensions in weak