8-faced cells may arise, as in the septa of cow-lily stems; or 11-faceted cells, as in a simple epithelium resting on a layer of cells of the same diameter; or 12-rayed cells, in Juncus pith, by loss of the vertical contacts; or 18- and 22-hedral fibers, as in pine wood, from elongation and bending—all these are accountable deviations from the 14-hedral type. Whatever hesitancy one might have in accepting this conclusion seems removed by Mr. Marvin's clear-cut observations, which clarify the entire situation.

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EFFECTS ON TISSUE CULTURES OF INTER-CELLULAR HORMONES FROM INJURED CELLS

As a part of the investigation of substances influencing cell metabolism found by us to be produced by injured cells,[1] and to which we propose to give the name "inter-cellular hormones,"[2] we have tested the effects of such factors on tissue cultures.

Fragments of embryonic chicken heart were grown on culture slides in Drew's solution and embryo juice. The six-day chicken embryos used in preparing the culture fluid were minced, mixed and divided into two portions, one of which was subjected to prolonged injury by full u.v. radiation. The "test" groups of cultures, receiving fluid from the u.v. injured cells, showed markedly greater growth and less degeneration at the end of 5 to 7 days than the control groups, to which fluid from uninjured cells was added.

Our investigations indicate the production of proliferation-promoting factors by injured cells to be a general biologic phenomenon associated with the repair after injury of such cell communities as plant and animal tissues.

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FISH REMAINS FROM THE TULLY FORMATION

AT rare intervals fragments of fossil fish have been reported as occurring in the Middle Devonian Tully formation of central New York.

During the last two years several new quarries have been opened in the Tully for road material and a few old ones reopened. In these the writer has collected a number of fossils, among them a series of specimens representing several species of different types of fish.

The finding of the first arthrodiran specimen in June, 1936, in the reopened Randall Quarry at the head of Skaneateles Lake (Cortland County), a nearly perfect left externo-basal plate of a dinichthyd closely resembling that of *D. ? oviformis* Gross 1933 of the Eifelian of Gerolstein led to careful search for more. To date, the Randall Quarry has yielded no more, but a new quarry in the extreme northeastern part of Cortland County, several miles from Cuyler, has proved richer. Ten specimens have been obtained indicative of two different arthrodires, one species of *Rhynchodus* and one bothriolepid. The arthrodiran remains consist of two large but rather badly damaged median dorsal plates of a species of *Dinichthys,* the surfaces of which are marked by fine pustules, one measuring 15×15 cm, showing a short sensory groove posteriorly, the other 13.5×23 cm; both very thick medially; the right anterior corner of another m.d. ornamented by larger pustules, exquisitely preserved as vivianite and pyrite; and several fragments of ventral plates of *Aspidichthys ? notabilis* Whiteaves, a species first described from the Upper Devonian of Lake Winnipegosis, later reported from the Hamilton of Ontario and western New York and the Genundewa limestone (Genesee) of western New York. The plates of *Aspidichthys,* even when fragmentary, are readily identified by the large pustules. The *Rhynchodus* specimen is like that figured by Eastman ('07, pl. 1, f. 6). The bothriolepid plate, poorly preserved, is a small (1.1×2 cm) median nuchal somewhat like that of *B. canadensis.*

The arthrodiran plates listed by Dr. Burnett Smith ('35, p. 111) have been kindly lent by him to the writer for study, and prove to be fragments of several large, thick plates (probably ventral) of *Aspidichthys ? notabilis.* They were collected about 1919 from a now disused and much overgrown quarry in Dutch Hollow (Skaneateles Quadrangle).

Just south of Fillmore Glen State Park, in Cayuga County, a new quarry has been opened. In it one small specimen was collected last summer containing 8 poorly preserved thin plates or scales averaging 0.5×1 cm apparently of *Rhadinichthys.*

In the large quarry of the Penn-Dixie Cement Company, east of Portland Point on Cayuga Lake, the Tully is not especially fossiliferous but after careful search on several occasions, several fish plates were found in large blocks of massive limestone blasted from the upper layers. They consist of fragments of

[1] Fardon, Norris, Loofbourow and Ruddy, *Nature,* 139: 589, 1937. Fardon, Carrol and Ruddy, *Studies Inst. Divi Thomae,* 1: 17, 1937. Fardon and Ruddy, *ibid.,* 1: 41, 1937. Norris and Ruddy, *ibid.,* 1: 53, 1937. Sperti, Loofbourow and Dwyer, *Nature,* 140: 643, 1937. Sperti, Loofbourow and Dwyer, *Studies Inst. Divi Thomae,* in publication.

[2] Loofbourow and Morgan, *Studies Inst. Divi Thomae,* in publication.