the Belgian national conference, and of the International Association of Agricultural Missions of 1920; a memorandum presented to the Peace Conference on World Agricultural Principles by President K. L. Butterfield, of the Massachusetts Agricultural College; a tribute to the late David Lubin; Some Impressions of French Agriculture by Captain E. N. Wentworth, assistant director of the college of agriculture, American E. F. University; the State Society of Agricultural Teaching in France, by G. Wery, director of the National Institute of Agronomy; several shorter articles relative to the reconstruction of French agriculture; and other topics.

UNIVERSITY AND EDUCATIONAL NEWS

Offers of support and financial assistance towards the establishment of an agricultural college of university rank in the West Indies have been received from Trinidad, Barbados, Grenada, St. Lucia, St. Vincent, and the Leeward Islands, while Bermuda, although not in the West Indies, has offered an annual grant. On the recommendation of the West Indian Agricultural College Committee, Lord Milner has decided that the promises and prospects of support are sufficient to justify him in proceeding with the necessary arrangements for the establishment of the college. It will be situated in Trinidad, and plans for the buildings will shortly be prepared.

Part of the $5,000,000 expected to be realized from a campaign for McGill University, Montreal, will be devoted to a building to house the departments of pathology, medical jurisprudence, hygiene and psychiatry. It is estimated that such a building would cost at least $460,000, and its maintenance would require an endowment of $150,000.

At the college of engineering of the University of Wisconsin, A. A. Neff, graduate of the University of Nebraska, has been appointed associate professor of machine designing, and A. H. Anderson, of the Armour Institute of Technology, Chicago, associate professor of steam and gas engineering.

Dr. B. J. Spence, professor of physics at the University of North Dakota, has resigned to accept a position in the department of physics of Northwestern University.

J. H. Gourley, professor of horticulture in the New Hampshire College, has become head of the horticultural department of the University of West Virginia.

DISCUSSION AND CORRESPONDENCE

AN UNFAVORABLE SPAWNING SEASON FOR MULLET

The mullet, *Mugil cephalus* Linnæus, known as *ama-ama* in the native language, is one of the most extensively used food fishes of the Hawaiian Islands. The custom of taking very young mullet from the sea and stocking ponds with them has been practised for a long time. These ponds, usually walled-off arms of bays, are frequently of several acres in area and from them are taken annually thousands of mullet which have developed to marketable size within these enclosures.

Although a well-known fish, aside from the fact that the fishermen have learned to know the approximate time of the year when the fry are abundant in the sea, no definite information is at hand relative to the spawning season of the mullet or the conditions favorable to this process or to its later growth and development in these waters.

With a view of undertaking artificial propagation of the mullet the Board of Fish and Game Commissioners of the Territory delegated Mr. H. L. Kelley, executive officer, assisted by Mr. Irwin H. Wilson, fish culturist, to establish a small fish hatchery at Kalahuipuaa, Hawaii, which was completed early in January of the present year. From observations during previous years it was believed that the mullet spawned during January. In the pond on which the hatchery was located it was estimated that there were approximately 1,000 mature females approaching the period of spawning and nearly as many mature males. Careful observations were kept upon the condition of the mullet throughout January and February but no indications of spawning were to be seen. Attempts were made to force the

roe and milt from the apparently ripe individuals. This was accomplished on two occasions but all efforts to fertilize the eggs thus obtained were futile.

Early in March the fish began to take on the appearance of being spawned out, but not having observed spawn or young fish in the pond up to this time, anatomical examinations were made of numerous mullet, both males and females being dissected.

In case of many of the females, the ovaries although greatly reduced were not spawned out but contained ova which evidently at one time were mature but now were in a state of semi-dissolution.

In case of the males, many of them carried gonads shriveled and reduced in size but having no appearance of organs after spawning. The surface of the testes, in many instances, were thickly covered with rounded nodules from 2–5 mm. in diameter. In sectioning portions of the organs thus affected masses of cells of a greenish-yellow tint, by transmitted light, were seen to occupy the nodules and penetrate deeply into the medullary substance of the gland. These masses, of definite outline, have the appearance of broken down tissue cells of the spermary but maintain their characteristic color under the action of such stains as iron hæmatoxylin and methylen blue. Healthy gonads free from the external nodules are also free from the internal masses of cells.

Inasmuch as a considerable number of individuals examined were affected in the manner described above we are led to believe that the noticeable scarcity of young mullet this season is a result of a pathogenic condition of the reproductive organs of mature individuals which inhibited spawning. The cause of this condition has not yet been determined.

Failure of the mullet to spawn in the usual prolific manner seems general throughout the Hawaiian Islands this season. The testimony of fishermen from widely separated districts is that there are comparatively few young mullet to be taken this year. One fisherman on Oahu reports that he has been able to take less than 2,000 fry for his ponds whereas in previous years he has taken as many as 900,000 from the same waters during a similar period. Another fisherman stated that he had taken about 6,000 as contrasted with 250,000 last year. A report from Kauai states that no mullet fry are observed in waters which in normal years are teeming with them.

From personal observations of those closely identified with the work of the Fish and Game Commission and from information received from reliable sources it would appear that the season just passed has been an unfavorable one for the spawning of mullet in these waters.

Further attempts will be made by the Board of Fish and Game Commissioners to carry on artificial propagation and culture of this important food fish.

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REMARK ON FAMILY NAMES

THE rules drawn up by Dr. Oberholzer[1] for the formation of family and subfamily names, seem to be very good in most respects, but in regard to that relating to family names founded upon almost identical names of genera, I must record my inability to concur. Under Rule 13, the author states that of two family or subfamily names having "exactly the same spelling," the latter is to be distinguished from the earlier by the prefix "*Pro,*" and subsequently gives as an example the family names derived from *Pica* and *Picus,* proposing for one of them the name Propicidæ. According to all accepted rules for the formation of family names, this would indicate that there is a genus *Propica* or *Propicus,* which of course is untrue.

It would be much better in such a case as this to modify the generic root names in a slightly different way to form the family names, and that founded upon *Pica* might be Picidæ, using Picusidæ for that having *Picus* as the type. In forming the family name from that of the genus custom has differed in some instances; for example, in the Coleoptera, the generic word *Cis* has given rise to the family name Cioidæ in the case of some authors and

[1] SCIENCE, August 13.