to bring guest lecturers on chemical subjects to the university each year, and a fund for the purchase of books on chemistry for the departmental library. These funds represent the annual income from the estate of the late Joseph Frank McGregory, professor and head of the department of chemistry for forty-five years, and are being used in accordance with the terms of his will.

A DAVID ANDERSON-BERRY GOLD MEDAL, together with a sum of money amounting to about £100, will be awarded in July, 1938, by the Royal Society of Edinburgh to the person, who, in the opinion of the council, has recently produced the best work on the nature of x-rays in their therapeutical effect on human diseases. A similar award will be made every three years. Applications may be based on both published and unpublished work and should be accompanied by copies of relevant papers. They must be in the hands of the General Secretary of the Royal Society of Edinburgh by June 1, 1938.

THE United States Senate passed on March 23 the amendment to the 1934 Communications Act, making it possible for the Cruft Laboratory at Harvard University to resume experiments in automatic radio devices that offer high promise for use in police protective work and in other fields. The 1934 law made it necessary for the Cruft station to shut down for lack of a licensed operator. The Cruft Laboratory had been employing an automatic device capable of preventing improper operation of the station, and informed the Federal Communications Commission that it could not afford to keep an operator on duty throughout continuous operation. The amendment authorizes the commission to make special regulations governing the use of automatic radio devices.

IT is reported in *Nature* that at the annual general meeting on March 10 of the British Institute of Metals the president of the institute announced that, as a first step in a plan of cooperation with the Iron and Steel Institute, members of each institute can become members, associates and student members of the British in- application. Combined annual subscriptions and entrance fees have also been arranged. The present scheme of cooperation follows one recently completed by the two institutes with the American Institute of Mining and Metallurgical Engineers, whereby members, associates and student members of the British Institutes may, if under the age of thirty-three years, become junior foreign affiliates of the American Institute of Mining and Metallurgical Engineers on specially favorable terms, the arrangement being reciprocal in the case of members of the American society. The president also announced that the council had decided to issue an appeal for the creation of an endowment fund, to be invested for the support and extension of the work of the institute.

DISCUSSION

HURRICANE PALMS IN FLORIDA, INCLUDING A NEW GENUS SIMPSONIA

THE native flora of southern Florida is truly tropical, with ten indigenous genera of palms, nearly as many as the entire continent of Africa. Five of the native genera, Roystonea, Inodes, Paurotis, Serenoa and Simpsonia, are specially adapted to exposed situations, together with the coconut and other resistant types that have been introduced. Some of the native Florida palms are scarcely known in collections, but have special value for open plantings where wind resistance is desired, with beauty and variety. Even against the trade-winds, gardens or orchards often need protection, and districts with many resistant palms undoubtedly would suffer less from hurricanes or from the fires and frosts that visit denuded districts in the dry winter season. Making Florida a winter paradise may appear more important than planting for production, though for either purpose groves or shelter-belts of palms would be of value.

Palms are specialized for particular environments more than has been appreciated, in three rather definite ecological series: First, the sun palms, requiring full exposure; second, the palms that live as forest trees; and third, the undergrowth palms, adapted to permanent shade conditions. The primitive palms doubtless were plants of open country, like those now confined to seacoasts, sand dunes or rocky deserts. The tree palms develop in partial shade through their seedling and juvenile stages, but eventually over-top the forest and reach the sunlight. Palms from forests usually thrive in conservatories, while sun palms languish or die. Adaptive characters often are omitted from taxonomic descriptions but need to be known before new plants can be grown and appreciated.

The resistance of the coconut palm is featured in many accounts of hurricanes in low-lying coral islands in the Pacific Ocean. All the other trees may uproot and wash away, but coconut palms hold fast and the natives take refuge aloft. Many coconut palms withstood the hurricane that visited Palm Beach, Fla., on September 16, 1928, while most of the branching "hardwood" trees were completely wrecked. The native royal palms, *Roystonea floridana,* also showed a

notable resistance, their massive trunks often remaining in place where neighboring coconut palms were broken off or uprooted. The specialized features of royal palms are the smooth rigid trunks, the compact bundle of leaf sheaths protecting the terminal bud, and the stiff, brittle petioles where the leaves break off and thus "shorten sail" in severe winds. New crowns of leaves are put forth in a few months, before the coconut palms can replace their rusty, storm-frayed foliage.

Another resistant type was signalized at Palm Beach, the Mascarene cabbage palm, *Linoma alba,* earlier known as Areca or Dictyosperma, that stood entirely unhurt among the wreckage of the gardens, and began to be known as "the hurricane palm." It is smaller than the coconut palm, with leaves of similar form, but so firm and fibrous as not to be whipped or shredded by the wind. Linoma is a native of Mauritius, one of the Mascarene islands in the hurricane belt of the Indian Ocean, famous a century ago as the setting of "Paul and Virginia," an idyl of tropical felicity published at the beginning of the French Revolution by Bernardin de Saint Pierre, the friend and successor of Rousseau in preaching the return to nature.

Linoma doubtless will be planted in larger numbers, since seeding palms are becoming frequent. As the *chou palmiste* of Mauritius it has repute as a delicious salad, and tinned "palm hearts" have been an article of export from the neighboring island of Reunion. The different kinds of palm hearts might be compared and their dietary uses developed if large groves or shelter-belts were established. Planting the Florida palmetto for its cabbage has been suggested, but royal palms grow much faster and their edible buds are larger.

The native cabbage palmetto (*Inodes palmetto*) and the even more abundant saw palmetto (*Serenoa serrulata*) belong to the series of hurricane palms, and are resistant also to drought, fire and frost, so that vast areas are occupied, that give Florida preeminence as a palm country. The low reclining trunks of the saw palmetto rise in groups from branching underground root-stocks and furnish an ideal cover for embankments, sand dunes or sea coasts, though very difficult to remove in clearing land.

Paurotis is a larger social palm, with slender trunks 20 to 30 feet high forming dense hurricane barriers or growing in graceful clusters, not exceeded in beauty by any other palm. The foliage is not bluish or grayish as in Serenoa, but a shining emerald green, with the long, light-yellow inflorescences rising like jets from a fountain. Paurotis is very intolerant of shade, and in the wild state is restricted to small hammocks in open fire-swept stretches of the Everglades, rarely visited by tourists. The awkward name Acoelorraphe often is applied to Paurotis, but its original use by Wendland in 1879 referred to the saw palmetto.

The new genus of hurricane palms is an example of specialization for an extreme habitat on naked limestone formations of the lower Florida Keys. It is not a social palm, but compact and robust, attaining 25 to 30 feet, notably larger than Thrinax or Coccothrinax, and thriving entirely in the open, beyond the range of other woody vegetation. The outstanding adaptive feature is the development of large cushions of fine interlacing superficial roots at the base of the trunk, like the spongy aerial root-growth of some of the orchids and other epiphytic plants. The leaves are close-veined and firm-textured like those of Linoma, with a chalky white coating of the lower surface, doubtless reducing transpiration. Small white berries are produced in great abundance, and very small seeds, finding lodgment in narrow crevices.

For this most specialized native palm the name *Simpsonia* is proposed as a tribute of regard and admiration for the late Charles Torrey Simpson, whom future times may recognize as a great pioneer naturalist of tropical Florida. The genus is next to Thrinax, but with several diagnostic characters, the massive columnar trunk, often more than a foot in diameter, acervate radicels, cretaceous induments, subsessile flowers, imperforate endosperm and lateral embryo. The type species, *Simpsonia microcarpa* (Sargent) is described and illustrated in Sargent's "Silva of North America" (2: 53) as *Thrinax microcarpa,* from No Name Key, and later in the same work (14: 83) as *Thrinax keyensis,* a larger form from the Marquesas Keys, west of Key West. A thrifty specimen of the type species was raised by Simpson in his garden near Little River.

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CARBONATION AND CARBONATIZATION

W. A. TARR recently argued against the use in geology of the term "carbonatization," and supported his view-point with a list of several text-books that employ the simpler term "carbonation."[1] The present writer takes no issue with the general argument, as suggested by his adoption of the shorter term in a book that antedates at least two of those in Tarr's list.[2] Every question merits examination on both sides, however, and it is of interest to inquire why some geologists have preferred the longer and less attractive word.

"Carbonation" is the logical derivative of the verb "carbonate," which may appear to relate directly to the formation of carbonates. Unfortunately, several

[1] SCIENCE, 85: 198, 1937.
[2] C. R. Longwell, A. Knopf and R. F. Flint, "Textbook of Geology," Part I, p. 17, 1932.