tostele like Sutcliffia could give rise to the cycadean woody cylinder. But the course of change could as easily occur in the reverse. The Medullosan protostelic strands could come to dominate, as the small amount of secondary wood in certain Heterangiums proves. For, as stated, each stele of such a type as *Medullosa Anglica* is the equivalent of the single cylinder of a Heterangium, both as to the primary and secondary wood; while the Heterangium primary wood extends to the stelar center in contrast to the medullated Lyginopteris. Yet in no case is a pith absent, and it is but a step to the Myeloxylon condition, foreshadowing, if not actually representing, early monocotyledonous structure. Again, Noé and his students have found the root structures which accord with these views of change toward the monocotyledons.

That the Medullosans include some of the precursors of later and higher types of flowering plants is a likelihood enhanced by the recent discoveries in the Devonian of the State of New York. The plants of the Gilboa forest are called *Eospermatopteris,* and are referred directly to the seed ferns. If the redintegration of *Eospermatopteris* by Dr. Goldring as based on the small cupulate seeds, microspore-disks, foliage and associated stumps is correct (and I believe it to be essentially so), an early Medullosan type comes into view. In the description of the stems it is said that some of the smaller ones show (well within the outer stereome zone) "toward the center an irregular ring of sclerenchyma tissue, and within this ring and to some extent outside it irregularly scattered strands of sclerenchyma tissue." All which befits a Medullosan, unless secondary to maceration and pressure. But the stumps show excellent preservation, taken as casts. Marked displacement or flotation of the wood or of any of the other tissues during fossilization seems little in evidence and this opinion is given from a huge symmetrical specimen brought from Gilboa by Professor Dunbar, of Yale. Apparently the Medullosan record extends all the way through the lower Carboniferous down into the Devonian, although what was already known of the group, particularly the relation to Heterangium, would have permitted the assumption of this early appearance, even as a giant form.

Going further, the symmetrically lobated microspore-bearing disk Codonotheca has not had the attention it deserves, not even from Kidston and Jongmans when their material demanded comparison. Codonotheca is probably a Neuropterid of Medullosan affinity, and it looks like some cupulate Rhabdocarpus seed attributed to Medullosa. The campanulas are extremely abundant. Split nodules from Mazon Creek no larger than one's hand sometimes bear three or four of the disks, some of which contain quantities of microspores; most singular if these merely drifted from other plants into position along the bundle ridges of the campanula. That is, the evidence, whether Rhabdocarpus and Codonotheca are ever amphisporangiate or not, suggests that some of the Medullosans bore flowers constructed on the cycadeoid and angiospermous plan.

The Medullosans lasted too long in geologic time, were too cosmopolitan, too varied of structure, to be unquestioningly classed as seed ferns or cycadophytes through all their record. If they advanced floristically as did the cycadeoids, and there is much reason to believe they did, the seed fern categories will shortly need revision. "Pteridosperms" have become overinclusive in fossil plant classifications, more especially those of Seward and Scott. But a few more years will bring determinative discoveries. In the prosecution of science nothing is so unfortunate, nothing so to be feared, as failure to admit the import of new or previously obscure facts which require expression and discussion.

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WHITE INDIANS OF DARIEN

THE story of the Marsh-Darien Expedition, organized and led by Richard O. Marsh, of Brockport, N. Y., has been told in detail in the daily press to the last of March, when it left the first base-camp, at Yavisa, in the lower Chucunaque Valley. During the preceding seven weeks southern Darien had been quite thoroughly explored without finding any blonde Indians, although Mr. Marsh had seen several at Yavisa in the summer of 1923. It is probable that any white Indians residing in that territory had hidden themselves because of the wild reports concerning the purposes of the expedition. But Mr. Marsh remained confident that white Indians would be found in the upper Chucunaque basin or in the Cordillera of northern Darien.

By the end of March, the Chokoi tribe in the lower Chucunaque Basin and the Cunas of the upper Tuyra Basin had been studied by John L. Baer, with skull measurements, and a considerable collection was made of Indian ornaments, utensils and structures. Many thousand feet of motion-picture film was taken by Charles Charlton, the Pathé photographer. Intensive study was made by Charles M. Breder of the lower vertebrates, and large collections secured. A large number of skins of birds and mammals were obtained by J. A. Johnson, the naturalist and taxidermist of the party. Some physiographic and meteorologic data also were obtained by the writer.

The failure to find any blonde Indians in southern Darien, while disappointing to Mr. Marsh, did not shake his confidence that they existed and that they would be found in the north. On March 27 the Ya-

visa camp was broken, and the writer returned to Panama with the collections to that date and part of the camp equipment, while the party of 12 white men and 15 Panamanians and negroes, in six piraguas with heavy equipment and supplies, "burned their bridges" and pushed north into entirely unknown and reputedly hostile territory. The northern district is occupied by Indian tribes that have inspired their neighbors with fear and have wisely and justly excluded intruders and have kept their blood pure.

The physical difficulties encountered by the party on the northward hike were much greater than any obstruction offered by the Indians. The time was the beginning of the wet season, while the rivers were yet low and the channels filled with log-jams and the scanty flow liable to sudden and heavy floods. In one stretch ten days were used in going 20 miles, it being necessary to chop and dynamite paths for the piraguas. During this terrible trip the party was reduced, by expiration of leave, by sickness, death and desertion. Senor Raul Brin, the Panamanian representative, was attacked by fever, returned to Panama and died. Mr. Baer had been weakened by blood-poisoning, due to "screw-worms," and died at Caledonia Bay after heart-breaking carriage across the mountains. The negro and Panamanian helpers dropped away, Mr. Breder fell ill and went to Colon, and the only original members of the party who remained with Marsh to the time when he found the white Indians were Charlton and Johnson.

The Indian people of the Atlantic coast of Darien, generally known as the San Blas, are a superior group in an advanced stage of culture, and must not be called "savages." They are threatened by the white man's diseases, by encroachment of the negroids and by what they claim to be unjust treatment by the authorities. When Mr. Marsh had crossed the Cordillera and reached Caledonia Bay with his reduced party he found the Indians in danger from smallpox. Going down to the coast to a navy wireless station on the coast of Colombia he obtained doctors and vaccine from Colon and checked the epidemic. This, along with extended conferences with the chiefs, won the confidence and friendship of the Indians. The chiefs, in assembly, agreed to follow his advice and accept his help in safeguarding their people. Then Mr. Marsh said that he wished to see their white people. They replied that there were no white Indians. Marsh told them that he knew there were, for he had proofs and had seen several. He also said that their white Indians would interest the people of the United States and form a bond of sympathy which would aid in securing their safety and protecting their rights. Then they called in the white Indians from their seclusion in the hills, and they appeared in great numbers. The moving and still pictures taken by Charlton will be evidence. About 400 blondes were seen and information given that they have villages in the hills of the Cordillera. Such a village had been seen by an army aviator.

Mr. Marsh was told that their legends were to the effect that white members had existed in the tribes from ancient times, but that their hatred of white Europeans, on account of the Spanish cruelty, had resulted in dislike of their own white people, and that they had tried to suppress them. The effect was their seclusion and segregation in less accessible districts.

Three white children were selected by Mr. Marsh from among many that were offered to him, and with five dark adults they were brought to New York on July 6. One of the blonde children is a robust girl of 14 years, the father and mother being among the five dark adults. These parents have had seven children, five being white and two dark. The mother's mother was a white Indian. The two other children are boys, one 14 and one 10 years, the latter selected as the best example seen of the dark blotching of the white skin. These children have golden hair, hazel or hazel-blue eyes and pink gums. Mr. Marsh says that he did not see a typical albino among the hundreds of blondes. He believes, from his observations on the San Blas, that there are at least three types of Indians, possibly due to the commingling on the isthmus of migrations from the northern and southern continents. He thinks that the white girl and her parents represent a type of larger frame, larger heads and generally a more lusty physique than the ordinary San Blas. He feels sure that the blonde strain will be found limited to this type.

We find here an interesting ethnologic problem. The evening of July 8 the Pathé News gave a dinner at the Waldorf-Astoria to Mr. Marsh and his Indians and members of his expedition, to which were invited a number of anthropologists. The white children were examined at this conference, and it was the unanimous opinion that the phenomenon was not albinism. Major Cuthbert Christy, of England, a specialist in tropical diseases, thought it was pathologic, due to some physiologic condition inhibiting pigmentation.

The anthropologists of the American Museum of Natural History examined the Indians and attributed the whiteness to albinism. Their report, given currency in the daily press and in the *Literary Digest* of August 9, contains, as stated by Mr. Marsh, an unfortunate error, that the smaller size of the heads of the dark Indians is due to massaging in infancy. This statement was based on reply by the Indians to questions which they misunderstood. When subsequently questioned by Mr. Marsh they repudiated with scorn and amusement the idea of any manipulation of the heads of the children.

In connection with the recent meeting at Toronto of the British Association three members of the Sec-

tion of Anthropology visited the Indians at their camp on the St. Lawrence, in the absence of Mr. Marsh, and concluded that the white characters were a form of albinism, and that ostracism had encouraged its propagation, as summarized by the chairman, Dr. F. C. Shrubsall, in a short presentation at the close of the meeting. Following this paper, Mr. Marsh made the following statement:

(1) The difference in size and shape between the skulls of the blonde Indians and those of the standard San Blas has been attributed to artificial deformation of those of the dark infants, while those of the white infants are natural. This is wholly untrue. The San Blas Indians do not massage nor in any way alter the heads of their children. The rounder, broader and higher crania of the whites can not be explained in that way.

(2) The timid demeanor of the children and the behavior of their eyes when under inspection by strangers is misleading. They are not mentally deficient nor abnormal in any way. On the contrary, they are unusually alert and keen, with excellent memory. They are rapidly learning English.

(3) That the blonde Indians do not spring from the normal San Blas Indians but from the larger and more robust type, which occupy the hills back from the coast.

It is evident that the great number of these blonde Indians and their birth from both white and dark parents present an interesting and important problem, either ethnologic or medical. Thus far we have the following tentative explanations:

(1) A peculiar form of transmissible and stabilized albinism. This names but does not explain. The blonde complexion, the procreation and the large number rule out ordinary albinism.

(2) Some disease or pathologic condition preventing pigmentation. It appears that the physiologic defect is transmissible as an acquired character.

(3) That the blondes are biologic "sports." This argues for a new variety or race of the human species.

(4) That the phenomenon is atavism, the effect of a long-ago infusion of white or Nordic blood. The anthropologists are inclined to discredit the many legends of ancient or Pre-Columbian immigration from Europe. But it may be wise to critically review the historic narratives.

One important matter is not yet determined, that is, if the white parents ever have dark children.

Summarizing, it would seem that we may be limited to two views. The first three of the above explanations suggest the initiation of a new white race, and fortifies the belief of many anthropologists that our own white race sprang from dark ancestry. Either this explanation or the ancient introduction of Nordic blood.

All agree that Mr. Marsh deserves great credit for his persistence in the face of great difficulties in making a very important discovery. Dr. Aleš Hrdlička has said:

> . . . The phenomenon deserves a thorough scientific investigation, and Mr. Marsh deserves the thanks of American and British anthropologists for having brought to their attention a subject of considerable scientific interest and importance.

It is the purpose of Mr. Marsh to make another expedition to Darien, equipped for thorough ethnologic and medical study. The Indians are very reticent about their family and tribal affairs, and it will require tactful and sympathetic handling to obtain the full truth concerning this matter.

Mr. Marsh is also intent on finding some way of establishing ownership by the Indians of the lands which they have held so long, of protecting them from the dangers that surround them, of assisting them in sanitation and agriculture and of helping them to live their own life in their own way. They are an admirable people and should not be encouraged to adopt the many vices which we call civilization.

The moving pictures taken by Mr. Charlton will soon give on the screen a vivid story of the Marsh Expedition.

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SCIENTIFIC EVENTS

THE WORLD POWER CONFERENCE[1]

THE World Power Conference held in London, June 30 to July 12 was, from many points of view, the most notable gathering of its kind ever convened. It attracted large representations of engineers from many nationalities to London, and the various sections of the program reviewed the power problems of the world with a completeness that has never before been attempted.

The conference was organized by the British Electrical and Allied Manufacturers' Association in cooperation with numerous technical, scientific and commercial organizations. The purpose was to consider the sources of world power by evaluating the resources of each country, by comparing experiences in the development of scientific agriculture, irrigation and transportation, by engineering conferences, by consultations of power consumers and power-machinery manufacturers, by financial and economic discussions, and by conferences looking to the establishment of a permanent world bureau for the collection of data and the exchange of industrial and scientific information.

The conference was formally opened on Monday

[1] From *Mechanical Engineering*.