ISLA DE AVES — A BIRD'S EYE VIEW

We became fascinated with Isla de Aves (or Bird Island), an uninhabited, remote island in the Caribbean Sea, 125 miles west of Dominica and 270 miles north of Venezuela, when we read in a cruising guide that 'Some claim that Isla de Aves is the eeriest, most desolate spot in the world, while others say it is the most beautiful'.¹

During our preparation for a visit to this Venezuelan island we uncovered a wealth of scientific articles. Especially the expedition reports by P. WAGENAAR HUMMELINCK², N.J. MALONEY et al.³ and G. ZULOAGA⁴ provided us with an excellent overview of the history, geology and ornithology of Aves and enticed us to find out more about the island.

We planned to approach Aves from the south. After departure from Tortola in the British Virgin Islands on August 5, 1977 we sailed via Aruba, Curaçao and Margarita to Aves. Although this had the great disadvantage of having to work our way up against the heavy westerly flowing current along the Venezuelan coast and beating into a predominant south-easterly wind it gave us the opportunity to practice celestial navigation — an absolute must to find the low, very inconspicuous island. Our crew consisted of the author, his wife, their son and two guests.

On August 25, 1977 at 07:15 we came for anchor with our 39 foot sloop 'Tantalizer' in 15 feet of water near the northwest shore of Aves. This article highlights our experience and observations during the nine hours we spent on this most unusual island.

Of great interest to scientists who visited Aves has been the not fully understood diminution of this only part of the Aves Swell

Fig. 1. Index map of the eastern Caribbean.

(Fig. 1) protruding above sea level. The presence of an almost undisturbed colony of terns and one of the few remaining nesting beaches of the giant green turtle in the Caribbean also have greatly contributed to the scientific interest in this almost undisturbed and unique island.

Our schedule for visiting Aves was planned to accomplish the following tasks: to make meaningful measurements to establish if any appreciable change in size of the island had taken place since the last reported survey; to witness the behavior, habits and number of terns and to find signs of giant green turtle activity. Further observations with regard to fauna, shoreline and other details will be touched upon in the text of this report. Many photos

were taken, especially of those shorelines and rock formations which could serve for future reference and comparison in determining erosion or possible subsidence.

An addendum to this article describes our approach to Aves, where we anchored and beached. This information, as far as we know not published before, might be of use to future visitors to Aves.

The first impression of Aves when we came close was one of disappointment because, except for a few flocks of terns which were skimming over the water and two man-o'-war birds flying high above it, the island appeared to be indeed desolate. From out at sea the green purslane coverage formed a distinct contrast with the white sandy beach. The barren areas of the island were dotted with innumerable small black rocks. Then when we set foot ashore the black rocks transformed into thousands of birds, flying wildly around us while making ear-deafening sounds. When we stopped, so did the cacophony and birds would return to their nests or settle on the ground.

After exploratory walks along the entire shore and across the island we measured with the aid of a pre-calibrated tape the total length and the width of Aves at several points. Landmarks were used which reasonably could be expected to be there for future verification and comparison. The results of the measurements are shown in Figure 2. Although the average tide in the Caribbean does not change more than 1 to 2 feet it must be noted that for a beach inclination of 10 degrees an error of 11 feet could result with a 2 foot difference in tide. Eleven feet might at first glance not constitute much of an error, however, when compared to Aves' minimum width of 70 feet it is quite a large percentage. As past measurements were made over intervals of many years small or even substantial errors did not effect the conclusion that a continual decrease of area was taking place. But now that not much territory of Aves remains, it will be mandatory to execute measurements, especially those done without surveying instruments, with greater accuracy in order to be able to draw meaningful conclusions with regard to Aves' changing size.

The measurements as depicted in Figure 2 do not reflect errors caused by difference in elevation. Again, such errors if possible

Fig. 2. Measurements of Isla de Aves taken on August 25, 1977, between 11:00 and

Fig. 3. True bearings taken of conspicuous points on Isla de Aves on August 25, 1977.

should be avoided or mentioned when results are published. Only then will it be possible to compare sets of measurements taken at different times with a certain degree of confidence. Our measurements were superimposed on the chart of the island facing page 94 of the BROWNELL & GUZMÁN publication on the ecology of Aves.⁵ There were no particular areas which showed any discrepancy from what was observed in September 1973.

It is this writer's contention that for future measurements a standard list of reference points and directions must be defined. A term such as 'the greatest width' used in several researched articles is quite open to misinterpretation unless such a dimension is tied in with a geographical bearing and permanent reference points.

Many visitors to Aves have commented in detail on the animal life and in particular on the enormous colony of terns. A very good summary of these comments can be read in the report by BROWNELL & GUZMÁN. We were very surprised to see how the sooty tern (*Sterna fuscata*) (Fig. 7) and noddy tern (*Anous stolidus*) (Fig. 6), although of the same family, keep themselves well separated and do not exhibit any hostility toward one another when an occasional straggler lands in the other's territory. It is not only on Aves that this coexistence has been observed. The ASHMOLES studied an identical situation on Christmas Island (Pacific Ocean).⁶ They observed that both terns are dependent on the presence of large predatory fish to drive their prey to the surface and make it available. Especially tuna schools are favored. The ASHMOLES noted that the sooty terns fished for food at a greater distance away from home-base than the noddies, which generally stayed within a 50 mile range. However, they also mention that there is evidence that the feeding range of this species is different for different areas. Because tuna schools are small the number of birds above each school is high and therefore very competitive. The ASHMOLES write: 'If it is the intraspecific competition of this kind which limits the numbers of each of these species, it is remarkable to find that they take prey of the same kinds and the same size, and yet coexist on so many tropical islands'.

The separation of the sooties and the noddies on Aves was accentuated by the preference of the sooty tern for the barren parts

Fig. 4. View to West from radar reflector of Isla de Aves.

Fig. 5. Looking North from a location near the radar reflector showing two cairns in the background and a commemorative marker.

of the island (Fig. 7) while the noddy tern favored the rich green purslane area (Fig. 6 and 9). Therefore the sooties dominated the most northern part and some isolated spots on the southern tip of Aves while the noddies inhabited the greenery which extends north and south from the dune like area in the center. While LAZELL during his 1966 visit estimated that 80% of the island was occupied by birds,⁷ our estimate was closer to 60%. By dividing the prominent bird areas in grids of 9 feet square and taking the average number of birds per grid (assuming a ratio of 6 to 1 of sooty versus noddy terns) we calculated that the sooty tern population was approximately 36,000 birds and that of the noddy 6,000. The number of eggs counted in a similar fashion for both sooties and noddies was respectively 4,800 and 800. It was assumed that when there was a nest with an egg that the non-nesting bird would be fishing for food at sea and therefore these absent birds were included in the total count. It is interesting to compare these estimates with those of LAZELL derived in March 1966. Although his total estimate of birds (50,000) correlates well with ours (42,000) the ratio of sooties versus noddies is astonishingly reversed, namely 1 to 2 or 3 against 6 to 1.

Nesting birds and resting birds were always facing the wind, which was blowing from the southeast (Fig. 6 and 7). A particular heavy squall, fortunately of short duration, gave us the opportunity to study the reaction of the birds. In many cases they stepped away from their eggs with the result that the eggs became drenched and lay in puddles of water which however receded rapidly in the porous surface. Temporary abandonment of the eggs might be attributed to the fact that standing up the birds are probably better able to brace themselves against the buffeting wind. After the squall abated the birds did not hurry back to their eggs but kept on preening their feathers. The nests of the sooties were in almost all cases mere shallow indentations with small pieces of shells, dried vegetation or pieces of coral scattered around them (Fig. 7). The noddies' nests, as simple as those of the sooties, were more sheltered because of the surrounding purslane (Fig. 9). Both birds had never more than one egg in their nest. We did not see any chicks. A few nesting birds spread their wings in self-defense when we approached, some birds hardly moved and others walked a few steps

Fig. 6. Noddy terns (*Anous stolidus*) favored the rich green purslane areas, always facing the wind.

Fig. 7. Sooty terns (*Sterna fuscata*) dominated the most northern barren parts of the island, also facing wind direction.

away. Non-nesting birds tended to fly up when we came close. Except for the terns, the two man-o'-war birds (*Fregata magnificens*) which we briefly saw when we were about to set foot ashore and a few willets (*Catoptrophorus semipalmatus*) no other birds or animals were seen.

We found several fresh tracks of the giant green turtle (*Chelonia mydas*). In addition to approximately twenty existing turtle pits we counted some fresh pits which were not more than one or two days old. The latter pits were dug so close to the highest elevation of the beach that pieces of earth covered with purslane had fallen in the pits. This form of erosion was also observed by BUSTARD on the southeast corner of Heron Island off the coast of Queensland, Australia.⁸ The majority of the pits were located along the southwest shore, a few near the dune like area in the center and some on the southeast side. When we arrived our boat was surrounded by turtles and later a snorkeling crew member saw several in the area protected by the reef near the southwest point of Aves. Most turtles at one time or another were courting or mating and did not seem to be bothered by the presence of an onlooker.

We found two kinds of purslane. One, with long intertwining stalks and blooming abundantly with a small purple flower (*Sesuvium portulacastrum*) covered large areas of Aves with a bright green, lush, dense and at least six inch thick carpet. The other (*Portulaca oleracea*) was growing in isolated clumps on the northwest side of the island and had a darker green color, was less dense and showed a little yellow flower.

The island was exceptionally clean. Some flotsam had been deposited on the west shore consisting of plastic bottles, driftwood, lumber, turtle egg shells, coconuts, parts of a life preserver and a huge rusted engine shaft. On the extreme northwest corner wedged between rock outcroppings we noticed a huge boiler with attached appendages. Around the radar reflector (Fig. 4) which is mounted on a tiled base, representing the colors of the Venezuelan flag, we found a few remnants of previous expeditions, such as a work table and several eroded concrete plaques commemorating those 'who made it' to Aves. Contrary to what we had read about the stench of

Fig. 8. The central and southern parts of the island.

Fig. 9. Nesting noddie tern (*Anous stolidus*) in a thick carpet of Seaside Purslane (*Sesuvium portulacastrum*).

guano we could hardly perceive any odor. There was no evidence of guano. The barren porous soil probably absorbs it rapidly during rain storms. The elevated barren areas in the south and the north were covered with bleached coral, broken shells, reef limestone fragments and fossilized remnants of fan coral. The areas covered with purslane were almost void of foreign material. MALONEY et al.³ point out that the presence of coarse gravel on the highest points must be the result of Aves' complete submersion during hurricanes or severe storms.

Since HUMMELINCK'S report² there has been considerable speculation as to the cause of the gradual disappearance of Aves. Erosion and subsidence have been repeatedly brought up as the possible cause of this drama of nature. The possibility that the island has lost territory during devastating hurricanes of the past seems to have been put aside since DUNN & MULLER⁹ wrote in 1972 that of the 250 reported Caribbean hurricanes with a wind force of greater than 55 miles per hour none passed Aves at a distance of less than 110 miles between 1901 and 1957. However the greatest percentage decrease reported in the size of Aves occurred prior to 1900. This author has extensively researched all hurricanes which crossed or came in close proximity to Aves since 1492 and is of the opinion that Aves might well have been damaged and partly destroyed by such storms.¹⁰ MILLÁS gives an excellent and very detailed description of the Great Hurricane of 1780.¹¹ The center of this hurricane passed directly over Aves. 'From the evidence of all documents examined and of the accounts of those that sailed those tropical seas during the century, visited many of the islands and lived in some of them, it can be affirmed that no extraordinarily severe hurricane, comparable to the one of 1780, called the Great Hurricane, struck the region of the Caribbean Sea during any century'. It is between 1705, when LABAT visited and measured the island¹² and approximately 1840, when the U.S. Hydrographic Office Chart No. 1011 included the British survey of Aves that the percentage reduction in Aves' area was the greatest. It was just within this time frame that the Great Hurricane of 1780 bore down on Aves. What hurricanes could have done to a low unprotected island such as Aves was demonstrated by

Fig. 10. Looking towards Aves' northern section from its southwestern sandy shore.

Fig. 11. Close-up of beachrock formation on west coast near southern point of Aves.

hurricane Camille which in 1969 caused extensive damage to several small islands off the coast of Mississippi and Alabama, U.S.A.¹³ Ship Island, an island quite similar to Aves, was broken up in two halves and lost 20 percent of its area.

Despite its diminutive size and remote location Aves is of great importance to Venezuela because it gives that country the territorial fishing rights in one of the richest fishing grounds in the world. This commercial interest fortunately does not interfere with the wildlife on Aves which has been designated a national monument. Let us hope that this island with its unique colony of terns and nesting beach for the giant green turtle will remain unspoiled and undisturbed.

Afterthoughts on 'Isla de Aves' — by P. Wagenaar Hummelinck

After reading Mr. CLAY's account on Isla de Aves — and having studied the greater part of the numerous publications on the subject highlighted in the recent articles by BROWNELL & GUZMÁN (1974) and CARLOS SCHUBERT (1975: ¿Desaparecerá la Isla de Aves? *Revista Lineas*, No. 224, pp. 23-27) — I am surprised to see how little 'Islote Aves' has changed since I visited it in May 1949 on board Hr. Ms. 'Willem van der Zaan' (see *W.I. Gids* 33, 1952).

It is interesting to note the similarity between the photographs taken in 1949 and those made in 1977. The pictures of the noddy terns and the sooty terns are just as impressive now as they were then.

My visit in 1949 coincided with an extremely low tide, rare for this part of the Caribbean. This enabled me to walk out on the northern beachrock-flat to a point where I could observe a sharp drop under the ocean surface. I estimated the thickness of the beachrock at that particular spot (by diving) at approximately six meters.

I deeply regret not having paid any special attention to size and shape of the island — because I thought I could leave those measurements to more competent people of my party (in which I proved to be wrong). So my estimates must be considered as being of very little value.

The only landmark in those times was a simple wooden cross, without any inscription, situated on the highest point of the island, amidst a heap of flat pieces of beachrock and coral shingle.

Fig. 12. In May 1949, the only landmark on Aves was a simple wooden cross, without any inscription.

ADDENDUM

The following is a first hand account of how we reached Isla de Aves and some recommendations for future visitors.

The prevailing winds in the Caribbean are between northeast and southeast and therefore an approach from the west under sail means a bad beat to windward and should be avoided. To get to Aves we chose a northerly course but an approach from the east or north would be just as favorable. Needless to say Aves without any aid to navigation (except for its radar reflector) must be reached in time to anchor by daylight, preferably some time before noon to be able to take full advantage of the clarity of the water with the sun shining at a favorable angle.

The very first sight of Aves was the gleaming white beach contrasting against the bright green purslane coverage. The northern part of Aves, being higher, became visible first, followed by the southern part and finally the lower center section completed the view of the island. The waves breaking on the reefs around Aves clearly showed areas to be avoided. On the northern part we noticed two cairns (6 to 7 feet high, roofless, U-shaped piles of coral fragments with openings to the north) which were erected as aids to navigation for local fishing (Figures 2 and 3). From a distance these cairns looked like perfect trees. When we came within 1 mile of the west side of the island, which is the only side not protected by coral reef, we proceeded by sail and auxiliary engine, bearing the radar reflector 065° true. Although the sea floor was covered with rocks, there was sufficient sand in places to anchor. The water was exceptionally clear and therefore made it easy to 'pick the right spot'. With strong wind and rough seas we envision the possibility of a surge towards the beach as a result of the swells hooking around the north and south tip of the island. Therefore we recommend setting out a bow and a stern anchor especially when nobody is left on board. We anchored in 15 feet of water 450 feet from the shore (Figure 3). On a calm day anchoring as close as 300 feet should be feasible for boats with a 4 to 5 foot draft.

When we return to Aves we will not use a fiberglass dinghy for getting ashore. An inflatable, rubber boat would be more convenient and practical because it can be dragged upon the beach and safely left above the waterline. Our dinghy was too heavy to be dragged above the waterline and the dinghy anchor did not provide sufficient holding power in the loose sand. Also, the swells made it very difficult to keep the bow of the dinghy on the beach when unloading and loading supplies. There are several spots along the western shore which would be suitable for beaching but we found that a landing spot bearing the radar reflector again on 065° was relatively free of hazardous rocks and underwater obstacles.

In summary: we found the approach to Aves not much more difficult than many other landfalls we have made throughout the Caribbean, however, because of the surge towards the shore the beaching and particularly the departure with the dinghy were quite difficult. Finding Aves is another matter. Without reliable celestial sights it is like finding a needle in the haystack.

REFERENCES

1. DONALD M. STREET, 1974. *A Cruising Guide to the Lesser Antilles*. Boston, Sail Books, Inc. (p. 167)
2. P. WAGENAAR HUMMELINCK, 1952. Islote Aves, een vogeleiland in de Caraïbische Zee. *De West-Indische Gids* 33, p. 23-34, 3 pls. excl.
3. N.J. MALONEY, C. SCHUBERT, J.I. MARLOWE & A.T.S. RAMSAY, 1971. Geology of Aves Island, Venezuela. *Trans. Fifth Carib. Geol. Conf., Geol. Bull.* 5, p. 97-102.
4. G. ZULOAGA, 1955. The Isla de Aves story. *Geogr. Review* 45 (2), p. 172-180.
5. WILLARD BROWNELL & CARLOS GUZMÁN, 1974. Ecología de la Isla de Aves con especial referencia a los peces. *Memoria Soc. Cienc. Nat. La Salle* 34 (98); *Contr. Est. Invest. Marinas de Margarita* 55, p. 91-169, ill.; chart facing p. 94.
6. N. PHILIP ASHMOLE & MYRTLE J. ASHMOLE, 1967. Comparative feeding ecology of sea birds of a tropical oceanic island. *Bull. Peabody Mus. Nat. Hist., Yale Un.* 24, p. 97-99.
7. J.D. LAZELL, Jr., 1967. The ternary on Aves Island in March. *Condor* 69 (1), p. 87-88.
8. ROBERT BUSTARD, 1973. *Sea Turtles*. New York, Taplinger Publ. Co, Inc. (Fig. 4(a)) facing p. 21.
9. G.E. DUNN & B.I. MULLER, 1960. *Atlantic Hurricanes*. Louisiana State Univ. Press.
10. A.N. CLAY, (1978). *A chronological analysis of hurricanes which threatened Isla de Aves between 1492 — 1978*. Ridgewood, N.J.; unpublished.
11. JOSÉ CARLOS MILLÁS, 1968. *Hurricanes of the Caribbean and adjacent regions, 1492-1800*. Miami, Acad. Arts and Sci. Americas.
12. JEAN-BAPTISTE LABAT, 1722. *Nouveau voyage aux Isles de l'Amérique*. Paris; 6 vols.
13. *Report on Hurricane Camille, 14-22 August 1969*. U.S. Army Engineer District, Mobile, Alabama. (p. 28).
14. A.N. CLAY, 1978. Aves — an island of birds. *Sail magazine*, Boston 9, (Nov.) 11, p. 70-73, 5 col. figs.

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