to devote all his available time to his investigations, since he fully recognizes how much of the field will still be left untouched after he is gone. Among the quiet surroundings of the country estate, outside of Paris, enclosed by the traditional stone fence, there lives the sage of soil microbiology, where pilgrims from many countries come to pay their respects.

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A WHALE SHARK OFF BIMINI, BAHAMAS

IN January, 1935, I published in the *Proceedings of the Zoological Society of London* an extensive paper on "The Distribution of the Whale Shark, *Rhineodon typus*." In this I listed 76 recorded specimens as of December 31, 1934. On page 882 of this I wrote:

> For some time newspaper accounts have been sent in to me purporting to relate encounters with the whale shark in the Gulf Stream between Miami, Florida, and the Bahamas. Efforts have been made to get definite facts about these reputed occurrences, but so far in vain. There is no reason why the shark should not be found there.

I have spent much time and effort in the fruitless endeavor to verify these accounts, and while persuaded of their validity, I have not been able to get any photographs nor have I been able to get in touch with any man of scientific training who had seen one of these great sharks in this region. Some of these reports spoke of large spotted sharks, but the identification from this angle is complicated by the presence in these waters of the spotted tiger or leopard shark, which grows to a considerable size. They are said to reach 18 feet, and, while my largest (taken at Key West) only reached 12.5 feet, I have no doubt that an occasional one does reach 16 or 18 feet.

Such then was the situation when on July 9, 1936, I had a call from Dr. G. W. Phelps, a practicing physician of New York City and member of the American Museum. Dr. Phelps has long known of the whale shark and of my interest in it. So he took the trouble to come to my office and to communicate the data which form the basis of this note.

On June 15, 1936, while leaving Bimini, Bahamas, a very large shark was seen swimming over the white coral sand not far away. When the boat came closer, Dr. Phelps at once recognized it as a whale shark, pictures of which he had seen in my articles in *Natural History*. It was described to me as having a square blunt head with a terminal mouth. On the back there were visible at least three longitudinal ridges, and running vertically across these were faint light buff vertical bars. The ridges and bars crossing at right angles gave the side of the fish a checker-board-like appearance, with large buff-colored spots in the squares.

This description surely makes out this fish as *Rhineodon typus*. It was a large specimen. The boat followed it around for about an hour, but the fish showed no fear of it whatever. The boat was 36 feet long and by getting it as nearly alongside the shark as possible, the length of the fish was estimated as fully as great as that of the boat.

The whale shark has long been known from Florida waters. In 1902, B. A. Bean recorded one which came ashore that year at Ormond Beach. Others have been recorded by the writer: one in 1913 at Knight's Key; another in 1919 from near Cape Sable in the Bay of Florida; the third in 1923 at Marathon; the fourth near Miami in 1932. Then I have an unverified account that two or three years ago a small school of whale sharks had been seen by a bridge tender on the Florida East Coast Railway, making a passage in the deep channel under his bridge between two keys.

From the Cuba side of the Straits of Florida, Gudger and Hoffmann in 1928 and in 1930 recorded two specimens; one from each side of the mouth of Havana harbor. Then in 1936, I made known the capture of a third fish from the very mouth of Havana harbor. Furthermore, Dr. Hoffmann has heard of a spotted shark, off Cójimar Village, five miles east of Havana, so well known and so huge that it was locally known as "El Elephante." But it has remained for the Cuban ichthyologist, Luis Howell Rivero, to record in February, 1936, the presence of a small unmounted skin (6 feet long—the smallest known specimen) in the Instituto of Havana. Rivero also reveals that Poey in 1876 listed as *Chetorhinus maximus* a large shark in Cuban waters. But his mention that the fish had white spots on a dark background like a "checker-board" identified it beyond doubt as *Rhineodon typus*.

From these records it is seen that in what may be properly called the Straits of Florida, four whale sharks have been recorded from Florida waters, one from Bahamas, and five from Cuba—a total of 10 specimens. As this great fish becomes better known and better differentiated from the tiger shark, it may be expected that other specimens will be definitely reported from these waters.

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MEAT DIET: BLOOD AS AN ANTI-SCORBUTIC FACTOR

WITH relation to the prevention and cure of scurvy, there are well-known discrepancies between the results

of those who experiment in feeding animals and those who get their information from observing "native" peoples. Specifically, lean muscle has been reported as of little or no anti-scorbutic value with experimental animals, though it appears to be a sufficient anti-scorbutic when used by Eskimos or polar explorers.

The statement is frequently seen that carnivorous man would suffer from scurvy on a diet of meat, except that he is protected by eating such organs as the liver which are rich in Vitamin C. A variant of the statement is that you can remain in good health on a meat diet, provided you eat the whole animal or practically the whole of it.

One of the conclusions which most of those concerned drew from the experiment where two of us lived exclusively on meat for a year, under the supervision of the Russell Sage Institute of Pathology,[1] was that you do not need to eat the whole animal, or anything approximating that, in order to be protected from deficiency diseases.

The explanation has been advanced that if a guinea pig develops scurvy on lean meat and a man does not it is because men differ in some ways from guinea pigs. Another point seems worth raising.

The flesh food of most or all carnivorous people, such as uncivilized Eskimos or northern explorers who live by hunting, contains a great deal of blood. But (perhaps deriving our method from Semitic practice) our butchers are careful to bleed animals. A given weight of animal food as consumed by an Eskimo therefore contains a considerable proportion of an ingredient nearly absent from butcher's meat or from meat as obtained by farm butchering.

The all-meat diet which protected Karsten Andersen and me from scurvy for a year (1928–29) in New York had occasional meals of liver and bacon. But the diet which brought a rapid recovery from advanced scurvy to Lorne Knight and Harold Noice in 1917, as described on pages 615–619 of my book, "The Friendly Arctic" (New York, 1921), contained no liver. There were absent from it, too, most of those organs which are usually cited by dietitians in explaining how it is that carnivorous man does not have scurvy. The things eaten were chiefly lean muscle.

It would, then, seem worth considering whether the discrepancies between human and animal experimentation with regard to the anti-scorbutic value of flesh foods may not be due to the presence of considerable quantities of blood in one diet and to the comparative absence of it from the other.

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[1] Clarence W. Lieb, M.D., *Jour. of the American Medical Association*, July 6, 1929.

THE INCIDENCE OF COLOR-BLINDNESS AMONG JEWISH MALES

THE writer gave the Ishihara color-blindness test to 529 New York Jewish boys and men, 474 of whom were students in New York University. No subject was included unless his parents and all four grandparents were Jewish.

Each subject was tested individually, one eye at a time, under good light. If he misread or was unable to see the numbers on two or more of the ten plates normally read by people with complete color sense the subject was classed as color-blind or color-weak.

Forty subjects, or 7.56 per cent. of the total number tested, were color-blind or color-weak. Of this number, three were unable to see a single number beyond the first and may be considered totally color-blind. Eighteen others were so defective that they misread every plate beyond the first. The other 19 subjects made errors on from three to nine plates. None of the 40 made fewer than three errors. In common with other investigators we found green-blindness to be more prevalent than red-blindness. Eleven *Ss* were completely green-blind but not completely red-blind, while two were only red-blind.

For the most part the *Ss* were equally blind with their two eyes. However, we found three cases of differential blindness. One subject had normal vision with one eye, but incomplete color-vision with the other, as shown by the fact that he misread three plates with this eye. Two *Ss* could read no number beyond the initial one with one eye, but one of these students was only red-green blind in the other eye, while the second was only green-blind in the other eye.

About one half of the subjects' parents or grandparents were born in Russia, the rest being largely of Austrian, Polish, German and Hungarian stock. We considered the records of the Jews of Russian descent separately and found 8.1 per cent. of them to be color-blind.

In conclusion, our experimental results do not bear out Garth's[1] finding that Jewish males are different from other white males in color sensitivity.[2]

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SYMBOLS FOR THE ARTIFICIALLY RADIOACTIVE ELEMENTS

IN the issue of SCIENCE of August 21 (84: 183, 1936) Gerald M. Petty proposes to designate artificial

[1] T. R. Garth, SCIENCE, 71: 462, 1930; 77: 333–334, 1933.

[2] For further reference, see F. Clements, SCIENCE, 72: 203–204, 1930; K. B. M. Crooks, SCIENCE, 80: 269, 1934; L. G. Kilborn and Y. T. Beh, SCIENCE, 79: 34, 1934; W. Miles, *Jour. Gen. Psychol.*, 2: 535–543, 1929.