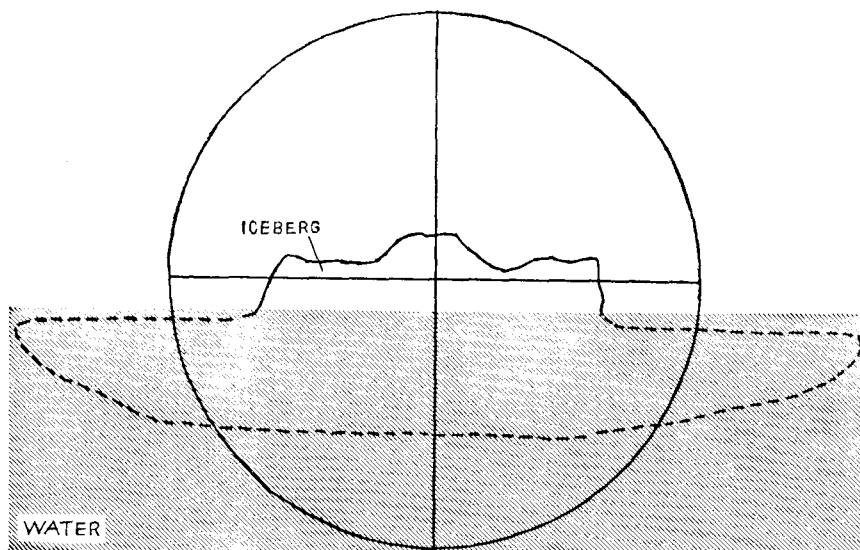


A RARE BERGER

The Seadragon Sub



THE still authoritative Coast Guard *Marion Report of 1928* states:

"The icebergs off Newfoundland have for centuries been one of the most dreaded dangers of trans-Atlantic navigators. Calving begins when the melting and erosive processes have set up strains that exceed the structural strength of the ice. Prominences and overhanging ledges calve away, sliding down from the steepest parts of the berg's side and slopes. Unequal detachments around the edges interfere with equilibrium and occasionally initiate calving on a major scale. The berg begins to roll slowly and deeply, to and fro, and when some bulging prominence swings far away from the perpendicular, thousands of tons of ice rupture to fall, avalanche-like, down to the sea. In the case of many tons of ice, the effect is very curious; it seems to fall much more slowly than really is the case. Stability is, of course, seriously disturbed, and the berg may again suffer one or more successive calvings."

In my study of the best books and papers available I had come to the conclusion that the place where the bergs exhibited these terrible characteristics of disintegration was off Newfoundland in the warm waters. I had seen very few reports of this sort of thing happening up north, although Coast Guard officers in Washington had told me they had seen calving in the northern part of Baffin Bay. But the best chances of finding stable bergs would be here [just one mile north of the Arctic Circle] and to the north.

Coming up several miles from the iceberg, we moved in close and began circling it to take photographs and measurements. The key dimension was its height; it was seventy-four feet tall.

As we went down, sonar [a navigating device dependent on echoes of sound waves] immediately picked up contact, and I maneuvered the ship at

gradually increasing speed about the iceberg. It made a beautiful, solid echo blip [luminous spot] on both our active sonar and the iceberg detector.

What effect did speed have on our ability to pick up [evidence of the presence of] such a massive, deadly obstacle?

The [atomic-powered submarine] Seadragon began charging the berg like an infuriated bull, going faster each time until at last we were making our top speed. Seven hundred yards from a collision, I ordered the rudder put over and we skidded into a turn and headed away.

"Loud underwater explosion!" cried an urgent voice from the sonar room.

"All sonars lit up in here, and then we heard it!" continued George Harlow.

What could that be, but calving?

Our pressure wave at top speed must have been enough to crack the berg apart.

Wouldn't it be wiser to leave this particular fellow alone now that we had proved our detection equipment?

I turned around and headed back toward the iceberg, studying the sonar blip. To my surprise it looked the same.

Did it matter if the berg had calved?

No submarine was ever recorded to have gone under an iceberg. But when I told the crew that we were on our way in, I might have been telling them that I was passing a merchant ship, for all the reaction I got.

Closer and closer we eased our three-thousand-ton ship toward the chill bottom ahead. The control room fell silent, but for the sounds of the instruments on which our lives depended. Only the click of the upward-beamed fathometer [a depth measuring instrument], the agony of Roshon's device [for detecting the proximity of icebergs] and the chirp of the ever larger sonar blip were heard.

Then came the chant of the sonar operator, "four hundred yards—three

hundred yards—two hundred yards—lost contact overhead!"

We still had a minute to wait before we actually passed underneath.

I bent over the low-mouthed fathometer with the others. My hand gripped the stanchion by the periscope; the trace [of the iceberg's bottom] dipped down, down toward our egg-shaped hull—and rose again. I grabbed the general announcing system microphone:

"SEADRAGON has the honor to be the first submarine to go under an iceberg! The berg's draft: 108 feet!"

We continued on out from the berg, and made an approach from a different direction. A clover-leaf pattern with the iceberg in the center would give us the best idea of its width, length, and underbody shape.

As we opened out after our fifth trip under the iceberg, sonar reported, "Loud noise spoke from the berg!"

Perhaps it was an avalanche.

Now that I knew the berg's draft I decided to complete the final trip underneath as we had planned. We had good clearance even if it was calving or rolling, and I wanted to hear this new noise from close range. So under again we went.

But we both knew from the trace [recording by the instruments] taken on that sixth passage underneath that the iceberg had not taken on a new shape. Therefore, what we had been hearing was perhaps an early stage of a major breakup.

Looking at Walt Wittmann's figures, I saw that the longest axis of the iceberg at the surface was 313 feet, but below it was 822 feet long. The berg apparently had a mass of 600,000 tons. Obviously we had learned something.

—CDR. GEORGE P. STEEL, U.S.N.
in "Seadragon,"
(Dutton, \$4.85.)

LETTERS TO THE SCIENCE EDITOR

NAS RESPONSIBILITIES

A STATEMENT in your most recent science section declared that "the present function (of the National Academy of Sciences) in the scientific mechanism of Washington is merely to shape research proposals for Assistant President Jerome Wiesner's Office. . . ."

Although this function is certainly one of the most important responsibilities of the Academy to the Federal government, the Academy enjoys direct advisory relationships with a wide variety of other Federal offices. These include many of the executive departments—such as Defense; Agriculture; Interior; Commerce; Health, Education, and Welfare, etc.—and a good many independent agencies, such as the Atomic Energy Commission, National Science Foundation, Federal Housing Administration, and National Aeronautics and Space Administration.

Although the Academy is a private organization, it is obligated, under its Congressional charter of 1863, to advise the Federal government, upon request, in any matter of science and technology. Such requests may come from any part of the Federal government, including the Congress. During the fiscal year 1960-61, the Academy received more than 10 million dollars in contracts and grants in compensation for the actual costs of providing such specifically requested services to the Federal government; the thousands of scientists and engineers serving on our advisory committees receive no financial compensation for their participation.

HOWARD J. LEWIS, DIRECTOR
Office of Information,
National Academy of Sciences,
Washington, D.C.

VERY OLD STUFF

SINCE YOU HAVE opened up the question of who merits the title "Dean of Meteoritics," may I go further back and bestow the title on Ignatius Donnelly, who in 1883 published a truly grandiose and imaginative volume on worlds in collision, entitled "Ragnarok: The Age of Fire and Gravel." It was a best seller that ran to twelve editions, and I suggest that Velikovsky lifted much of it for his much later book.

It has been a long time since my last reading of "Ragnarok," but he had a great deal to say about the effect of meteorites on the earth's geology and particularly the effects on the Mississippi Valley area of the United States as a result of a great "tiger" comet hitting that area. He saw the earth as "a lost child in the midst of a forest of wild beasts."

Also he foresaw the possibility that his hypothesis might be ridiculed. "The conservation of unthinkingness is one of the potential forces of the world. It lies athwart the progress of mankind like a colossal mountain chain, chilling the atmosphere on both sides of it for a thousand miles."

Donnelly combed the previous findings

of the geologists and anthropologists and piled up references from the legends of all primitive peoples of the "folk memory" of such terrific happenings: the legends of the Incas, Aztecs, Egyptians, Greeks, Arabians, Norsemen, Chinese, the American Indians, and he added, "Read Genesis by the light of the comet." He found apt quotations in Shakespeare, Byron, Ovid, Aristophanes, Hesiod, Plato, Orpheus, Garcilaso de la Vega. There was nothing he did not marshal into his battalions to storm the heights of the incredible. A great *tour de force*.

CARLETON BEALS.

Deep River, Conn.

ORCHID FOR HERCULES

I READ with astonishment the obtuse view of Professor Saul T. Epstein's letter, "Quiet, Please" [SR, May 5]. If "speculative views" are not "current ideas," what are they? If "speculative views" do not concern "the nature of science in general," what do they concern? Usually, these authors of "speculative views" have to provide some background informing us of their "past successes," and certainly their "present problems and future plans" are implicit, if not explicit, in the articles of these scientists who do work in a "particular area."

I think SR superbly accomplishes the Herculean task of being catholic in appeal in an age when intelligent men become appalled at the task of being "well-informed" to remain human in the Renaissance sense, and might easily give up were it not for SR.

JOSEPH R. MCQUADE,
English Department,
Trenton Public Schools.

Trenton, N.J.

I NOTICED a letter in the May 5 copy expressing the opinion that you should not

publish articles devoted to the speculative or imaginative views of scientists. May I register an opposite opinion? SR is one of few sources I know for such articles. I find these articles which reach beyond the present facts to be most stimulating, and I should think they would inspire and guide future research.

EDWARD M. BRIGHAM, III
Biology Department,
Central High School.

Flint, Mich.

NO DANGER

WILL YOU PLEASE relieve the minds of the "eminent scientists" about our ability to read the theories of other scientists (and even non-scientists) without becoming "polluted."

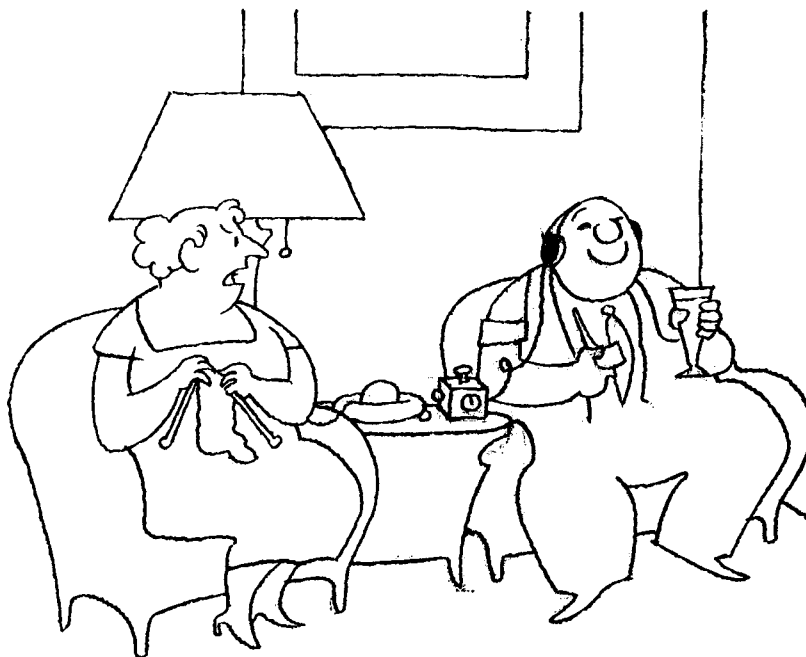
I am as much in disagreement with Dr. [John J.] Gilvarry as the men from California, but since when must we all accept the same theory? As I recall, a theory is an idea proven in many ways and yet still open to constant correction as new data comes to the front.

The earth was once considered the center of the universe by eminent scientists and they could prove it. Much of the scientific theory which we accept from learned men is accepted on at least semi-blind faith anyway. I defy anyone without a thorough education in advanced science to prove that the sun does not rotate around the earth. We believe this because we have been told so from kindergarten by people whom we considered more intelligent than ourselves.

I have my own theory as to the origin of the planets and how life is sustained on these planets. So far as I now, no scientist agrees with me in full. Does this mean I may not express my theory?

HAZEL M. WHITE.

Kansas City, Mo.



FEA

"I don't think you are listening to little men in space at all."