FROM THE TIDEPOOL TO THE STARS

A Chit Chat Club Lecture Presented by

John E. McCosker

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John Steinbeck, a frustrated zoologist but author of some renown, described his favorite character, Doc of Cannery Row, to be "half Christ and half satyr and his face tells the truth. It is said that he has helped many a girl out of one trouble and into another. Doc has the hands of a brain surgeon and a cool warm mind. Doc tips his hat to dogs as he drives by and the dogs look up and smile at him. He can kill anything for need but he could not even hurt a feeling for pleasure." It was precisely that colorful character that loved the "good, kind sane little animals of the tidepools" and not Jacques Cousteau that inspired me and several others of my generation to pursue a career in marine biology.

The Doc that Steinbeck created was of course a caricature of Edward Flanders Robb Ricketts, a 20th century pioneer in marine studies along the Pacific coast and a prolific technical and philosophical writer. Steinbeck's preface to The Log From the Sea of Cortez, entitled About Ed Ricketts, contains a marvelous, warm-hearted review of his co-author and intellectual companion of nearly two decades. Those often-cited passages are the introduction to most biologists of the "real" Ed. Yet in recent years, the notoriety, fame and mystique that surrounded the fictional and actual character have sullied the reality of an important biologist and the significance

of his lasting contributions.

For example, the annual October 31st celebration in Monterey, California, of Doc's birthday disregards the fact that Ed was born on the 14th of May. Cannery Row, a recent $11.3 million MGM extravaganza, portrayed Nick Nolte as Doc, and gratuitously awarded him a PhD in Marine Biology and a stint as a professional baseball player -- two facets that are remarkably un-Rickettsian in their utter disregard for truth, the ultimate tenet of Ed's existence. Were Ed alive, he would have been equally pleased and distressed to discover that the Moss Landing Marine Laboratory recently christened the Research Vessell Ed Ricketts with a beer milkshake in the Steinbeck tradition, but an inconceivable injustice to the favorite nectar of that biologist.

Who then was Ed Ricketts? And what were his contributions? I recently set out to remove the miasma and mystique that naturally resulted from Steinbeck's fictional portrayal. Aided by the recent publication and analysis by Ricketts' associate Joel Hedgpeth of many of Ed's unpublished tracts, as well as visits to Monterey, the Gulf of California, and an examination of his specimens deposited in the collection of San Francisco's California Academy of Sciences, I now feel that it is not too late to understand perhaps the most colorful and complicated character in the development of marine biology in California.

Ed Ricketts was a collection of contrasts. Apparently, he loved: truth; alcohol, especially beer, and was deeply suspicious of anyone who said that they were teetotalers; good food; music,

particularly the masses of William Byrd and Palestrina, Bach's Art of the Fugue , Monteverdi, and later in life, Mozart; books, including scientific literature in a variety of languages, as well as Goethe's Faust, and translations of Li Po and Tu Fu; dogs, although he never owned one; tidepool creatures, particularly worms (in fact Steinbeck reports that Ed once endeared a girlfriend with the name "Wormy"); women with thick lips; and the physical love of women, and held a low regard for anyone who claimed they did not.

Conversely, he held many things in great disfavor, including: non-truths; old age; hot soup; women with thin lips; cruelty to humans or animals; and getting his head wet. Ed nearly always sported a fedora while at work in the tidepools, and is said to have worn an oilskin and sou'wester while in the shower. He clearly was a man of contrasts, described by Steinbeck as "gentle but capable of ferocity, small and slight but strong as an ox, loyal and yet untrustworthy, generous but gave little and received much. His thinking was as paradoxical as his life. He thought in mystical terms and hated and distrusted mysticism. He was an individualist who studied colonial animals with satisfaction."

Born in Chicago in 1897, Ed was an unlikely candidate for a career in ocean sciences. His first opportunity to learn from nature came at age ten when his family moved to rural South Dakota. His probing in natural history included an amorous interest in the local rector's daughter, Victoria, and actively increased with

his hormone titer. A two year stint in the Army ended with WWI and was followed in 1919 by his studies in zoology at the University of Chicago under the critical guidance of ecologist Warder Clyde Allee. His first year of college was interrupted by his extracurricular association with an older, married woman, a complicated involvement that he escaped from by walking from Indiannapolis to Savannah, Georgia, and recording his experience in his article "Vagabonding Through Dixie", published in Travel magazine. Ed's return to the University in 1922 and further tutelage under Allee were significant in the development of Ed's life-long view of the subtle interdependence of organisms and physical phenomena. At Chicago, Ed roomed at the "Boar's Nest" with a rowdy crew of Alleeophiles whom their professor called his "Ishmaelites", a group "who tended sometimes to be disturbing but were always stimulating". His mates included J. Nelson Gowanloch and Albert E. Galigher, both contributors to Ed's love of libation, sense of humor, and "awareness of the essentially ridiculous nature of the human condition". Allee's influence and input was evident throughout the development of Ed's philosophical and biological thinking. Allee's theory of the "mutual interdependence or automatic cooperation among organisms" suggested a synergy that increased the survival potential of dissimilar organisms through their consociation. Allee's classic volume Animal Aggregations is now considered quite primitive by contemporary sociobiologists, yet its basis was sound and prepared Ed to compose his own holistic

"toto-picture" and "unified field hypothesis" of animal communities. Ed later wrote that "Allee found that aggregations have a distinct survival value for their members, bringing about a degree of resistance to untoward conditions that is not attainable by isolated individuals." Ed extended that thesis to the human condition.

In 1922, Ed married Anna Macker, and a year later left the University for Monterey Bay, California, to begin a biological specimen supply company with his friend Galigher. Joel Hedgpeth and history suggest that it is fortunate that Ed did not complete his studies and thereafter probably become an obscure instructor somewhere in middle America. He was a professional naturalist, not a professional biologist, and his ownership of the Pacific Biological Laboratory required him to be in the water observing and collecting the creatures he loved. The Monterey shore fauna was incredibly rich and poorly known at that time and Ed became concerned that the demand for school "demonstration and dissection" specimens might endanger the community. His caveats about overcollecting and community imbalance through species removal were insightful, if not revolutionary, and ignored by the same community during the hey day prior to the crash of the Monterey sardine fishery.

The Hopkins Marine Laboratory of Stanford University was also situated along Cannery Row and had William Emerson Ritter as a visiting professor. Ritter, like Allee, was a maverick because of his holistic view of community interdependence and species

interactions. Most biologists were then interested in the capture and identification of new species, an exercise in "scientific stamp-collecting" that Ricketts appreciated for its utility but had little time for. It was within the cold, algae-strewn tidepools that Ed made most of his observations of submarine society. Steinbeck suggested that Ed's biological clock became precisely attuned to the tidal rhythm, overriding his general disdain for punctuality, such that "If you asked him to dinner at seven, he might there at nine. On the other hand, if a good low collecting tide was at 6:53, he would be in the tide pool at 6:52." Once in the tidepools, Ed searched for knowledge with all his senses and discovered truths in an empirical manner. Steinbeck related that "with any new food or animal he looked, felt, smelled, and tasted. Once in a tide pool we were discussing the interesting fact that nudibranchs, although beautiful and brightly colored and tasty-looking and soft and unweaponed, are never eaten by other animals which should have found them irresistible. He reached under water and picked up a lovely orange-colored nudibranch and put it into his mouth. And instantly he made a horrible face and spat and retched, but he had found out why fishes let these living tidbits completely alone."

Although Ed had a keen eye for the differences between species, the taxonomic state of the art was very poor. The best guide available was a wholly inadequate systematic catalogue (Johnson and Snook's Seashore Animals of the Pacific Coast) which encompassed a small fraction of the fauna. Encouraged by his associates,

Ed began collecting data for a beginners guide, which soon grew to a volume which described some 500 species in the bays, estuaries, and shallow coastal waters from Sitka, Alaska, to Ensenada, Mexico. Entitled Between Pacific Tides, this volume was the first to present the species according to their habitat, rather than by a sequence of phylogenetic classification, and discuss such factors as wave and tidal effects, habitat types, and who ate whom. The first edition appeared in 1939, although its preparation was delayed in 1936 by a late evening power surge that started a devistating fire on Cannery Row. With the lab in flames, Ed rushed to the basement and took his typewriter and car. Steinbeck remarked that Ed "had no pants but he had transportation and printing. He always admired his choice." Between Pacific Tides was coauthored by Jack Calvin, a local photographer and author of childrens books who turned Ed's typically turgid prose into the remarkably readable wonder that it is, now in its fourth revised edition. Although Calvin is listed as a coauthor, he and others agree that it was Ed's work and his alone.

Between Pacific Tides is extraordinary within the sciences in its blend of facts with wry humor. The description of the "pleasant and absurd" hermit crabs, the "clowns of the tidepools", is entirely accurate: "Among themselves, when they are not busy scavenging or love-making, the gregarious 'hermits' fight with tireless enthusiasm tempered with caution. Despite the seeming viciousness of their battles, none, apparently, are (sic) ever injured. When the vanquished has been surprised or frightened into withdrawing

his soft body from his shell, he is allowed to dart back into it, or at least to snap his hindquarters into the shell discarded by his conqueror." Ed noted that the sunflower star, Pycnopodia helianthoides, "indicates its attitude toward the human race by shedding an arm or two", and that although its favorite food is the sea urchin Strongylocentrotus, the starfish is but "urchin enemy number two -- first place now goes to the developmental biologists." I recall a field trip a decade ago which found myself chest deep in the icy springtide waters of Ricketts' Great Tidepool. With a well-worn edition of Between Pacific Tides in wet hand, I concurred with John Steinbeck's prefaced remarks that the book "was designed more to stir curiosity than to answer questions." It and the tidepool continue to.

Enter John Steinbeck, the interested student of marine biology with a flair for recording it. Ed was an immediate source of inspiration to the novelist, which presumably included a bit of envy of the real or imagined biologist on John's part. Their intellectual communion was immediate. Through the magic of John's pen, Ed became the first and only marine biologist to become heroic in English fiction. And it was the inevitable result of Steinbeck's literary licence that created the confusion which occurred between the believable Doc and the real Ricketts.

The aforementioned publication of Ricketts' unpublished manuscripts by Joel Hedgpeth has helped to unravel the Doc/Ed ambiguity. In Outer Shores, Hedgpeth's selections "reveal facets of Ed's character that Steinbeck was unable to communicate. Ricketts

was by instinct and perception, ahead of his time as a biologist who attempted to combine all his experience, observation, and reading into an integrated whole, a 'total picture'. Today, perceptive ecologists can understand his urge to bring Bach and Zen together in the Great Tidepool."

The principal characters in Steinbeck's works clearly represent various aspects of Ed's personality. Beyond "Doc" in Cannery Row and Sweet Thursday, one can easily recognize Dr. Winter in The Moon is Down, Doc Burton of In Dubious Battle, Friend Ed in Burning Bright, Pablo in Viva Zapata!, and Preacher Casey in The Grapes of Wrath. Steinbeck scholar Richard Astro identified Ed's characteristics which were the grist for John's mill, such that Ed's "passion for holistic and ecological thinking, his associational beliefs about the behavior of men and animals in groups, his doctrine of breaking through, and his disdain for the self-oriented acquisition of material wealth provided Steinbeck with many of his central thematic tenets." One can imagine Ed muttering Preacher Casey's words that "there ain't no sin and there ain't no virtue. There's just stuff people do." Steinbeck conceived of The Moon is Down after one of their many, well lubricated discussions of "speculative metaphysics"; the final scene evokes the trial and death of Socrates, and evokes similar images of Ed and John dissecting the Socratic method over beer and dago red in the Laboratory library. Steinbeck's treatment of Doc in Cannery Row was a bit fanciful, and even looser, later. In defense, Steinbeck wrote in Sweet Thursday that "there are people who will say that this whole account is a lie, but a thing isn't a lie even if it

didn't necessarily happen." Such reasoning was particularly repugnant to Ed, a man whose total concern was with truths.

John met Ed when he moved to Pacific Grove in 1930. Their paths inevitably crossed through John's interest in biology and visits to Hopkins Lab. Hedgpeth relates that Steinbeck's colorful account of their first meeting at the dentist's waiting room, wherein Ed staggered away from his dental extraction muttering and waving his bloody tooth, was an example of Steinbeckian embellishment. Although a less dramatic event occurred at the dentist's, it was certainly not their first encounter, and further unfortunate that both men had bad teeth and avoided dentists. Their friend Hedgpeth relates that Steinbeck's success with Cannery Row influenced Ed's life such that "the collector of considerable experience had become himself a literary specimen to be sought out and collected socially." Other avenues of benefit and inconvenience opened to the scientist. Ed's fondness for women was fed by Steinbeck's characterization of Ed as "concupiscentas a rabbit". (Actually, my recent conversations with Sparky Enea who was in Mexico with Ed and John in 1940 indicated that Steinbeck might even have understated this.) After the end of Ed'sfirst marriage and his literary exposure, Hedgpeth remembers that Ed "did not put off his big-brotherly concern for the romantic teenager who wanted to be deflowered; he took her to bed. Steinbeck's heavy-handed interest in Ed's sex life may have encouraged more overt expressions of Ed's goaty tendencies." My own casual search for the enormous

3 X 5 card file of Ed's female encounters, said to have been interspersed among his notes and observations of lower vertebrates and invertebrates, was unsuccessful. I suspect that it too was apocryphal but not far from reality.

Returning to my thesis that the development of nearly every burgeoning marine biologist has been influenced by the romantic notion of a collecting trip to a far away sea, I must now turn to the Steinbeck/Ricketts adventure that resulted in the publication of Sea of Cortez: A Leisurely Journal of Travel and Research. In 1940 they chartered the purse-seiner Western Flyer and left Monterey for a circumnavigation of the Baja California peninsula and the Sea of Cortez. In the company of Carol Steinbeck, John's first wife and Ed's secretary at the laboratory, and sardine fishermen Tony Berry, Sparky, and Tex, they collected and published upon the landscape and ecology of Baja California. They collected more than 600 species, the majority previously known only from sketchy anatomical descriptions and many more that were new to science. Those collections remain in the Invertebrate Zoology collection of the California Academy of Sciences in San Francisco and are still in use by systematists.

The volume is wonderfully readable, an intended fusion of art and science which stated in its Introduction "We wanted to see everything our eyes could accomodate, to think what we could, and, out of our seeing and thinking, to build some kind of structure in modeled limitation of the observed reality." For example, they described the Sierra, Scomberomorus maculatus,

as "'D.XVII-15-X; A.II-15-X,' but also we could see the fish alive and swimming, feel it plunge against the line, drag it threshing over the rail, and even finally eat it." They rightly concluded that "perhaps out of the two approaches, we thought, there might emerge a picture more complete and even more accurate than either alone could produce." The strength of their work lay in their description of the ecological communities and their internal workings, which through its wide readership brought attention to the value of descriptive ecological studies. The text was published in narrative form, which was accompanied by an annotated catalogue of specimens and useful bibliography. Although the work was collaborative and co-authored, the publisher promoted Steinbeck's popularity. Reviewers such as Stanley Hyman and Clifton Fadiman assumed that "Mr. Ricketts contributed some of the biology and Mr. Steinbeck all of the prose." The prose is clearly Steinbeck's, yet he based that on the transcribed journal that Ed kept. Astro points out that the long narrative portion concerning Ed's concept of "non-teleological thinking" was taken nearly verbatim from an unpublished article of Ed's. This so-called "Easter Sunday Sermon" has confused Steinbeck scholars because of its entirely Rickettsian flavor, in distinct contrast to John's precepts on the social struggle of humanity. After Ed's death, further confusion ensued with the publication of a soft-cover version of the narrative, The Log from the Sea of Cortez, emblazoned with John Steinbeck's name on the cover, and a long introductory

preface "About Ed Ricketts". John and Ed had a history of difficulties in dealing with publishers, well evidenced by their attempts to modify a later version of Between Pacific Tides. They wrote a "slightly drunken but perhaps amusing epistle" to Stanford Press which they later conceded "had proposed writing more soberly but something quite the opposite happened." They also queried Stanford for a copy of its forthcoming publication "The internal combustion engine; will it work?" and noted that "Science advances but Stanford Press does not."

As a graduate student at the Scripps Institution of Oceanography, I first visited the Sea of Cortez in 1968. Armed with the modern marvels of scuba equipment, I was able to transcend the intertidal zone which was Ed's limit. Sitting calmly on a rock and coral studded pinnacle 100 feet under, I imagined what he might have thought, observed and interpreted had he the same opportunity. I have returned several times, and to my delight I recently boarded a vessel in La Paz, Mexico, and retraced much of the track of the Western Flyer. Four decades later, I discovered that most of the remote locations that they visited, collected, and wrote about in the Log were nearly unchanged. The towns of Loreto, La Paz, and Guaymas are no longer the sleepy villages that they encountered, but the islands of the central Gulf and the lagoons and bays remain pristine. It was sad to observe that their description of the incredible waste of the 1940 Japanese shrimp trawl fishery, whereby all life except shrimp captured by the drag boats was dumped overboard to die, has not abated. I observed the

Mexicans now fishing in that same ecologically reprehensible manner, yet discovered that the fishery has nearly collapsed because of the destruction it has effected.

It is difficult to separate the philosophical from the biological Ed Ricketts. The early influences of the holistic ecologists Allee and Ritter as well as his observations of biological communities shaped his world view. His scientific writings are interspersed with his philosophy, but his most concise, albeit rambling, statements appear in his essays "The Philosophy of Breaking Through", "A Spiritual Morphology of Poetry", and "Non-Teleological Thinking". In 1939 he wrote to mythologist Joseph Campbell that those essays "pretty well sum up the world outlook, or rather the inlook, that I have found developing in myself more and more during the years". The essays were rejected by Harper's in spite of the interventions of Paul de Kruif and John Steinbeck and he subsequently lost interest in their publication. His philosophy of "breaking through" reflects his fascination with Taoism and was inspired by Monterey poet Robinson Jeffers' poem "Roan Stallion". Like Jeffers, he was concerned more with ideas than humanity, citing that "humanity is the mold to break away from, the crust to break through, the coal to break into fire." Steinbeck well summarized Ed's view of "breaking through" in the preface to the Log. "He was walled off a little, so that he worked at his philosophy of 'breaking through' , of coming out through the back of the mirror into some kind of reality which would

make the day world dreamlike. This thought obsessed him. He found symbols of 'breaking through' in Faust, in Gregorian music, and in the sad, drunken poetry of Li Po. Of the Art of the Fugue he would say, "Bach nearly made it. Hear now how close he comes, and hear his anger when he cannot. Every time I hear it I believe that this time he will come crashing through into the light. And he never does - not quite." Zen and Taoism were favorite topics of conversation within Ed's circle. Ed often said that "the Tao that can be tao-ed is not the true Tao", probably conceived by Ed to signify "the Reason that can be Reasoned is not the Eternal Reason" in line with the interpretation of poet Alan Watts. One can imagine Ed's favorite advice to his aquatic associates, "when you are caught by the tide, don't fight it, drift with it and see where it takes you."

"The Spiritual Morphology of Poetry" reflects Ed's view of the complexity of language and the passage of information. He regarded "the theme of a most deep sexual love, heightened by separation and imminent death, of the Sanskrit 'Black Marigolds' (as) one of the greatest poetic expressions, even in translation." His discussions with John Cage, an avant-garde musician from San Francisco, helped define his attitudes about poetry, sound, and the communication of the "deep thing".

Ed's greatest efforts were spent in his attempts to view the whole of a concept or experience in a rigorously non-teleological way. "The whole picture is portrayed by is, the deepest word of

deep ultimate reality, not shallow or partial as reasons are, but deeper and participating." His difficulty with terminology might have been lessened had he entitled his thesis "anti-teleological thinking", yet his points are well made and again evidence the view of an observor of human nature and its foibles. Ricketts narrowly defined teleology and the process as the preoccupation of men with "charges and cures", who, "in their intolerant refusal to face things (substitute instead) a fierce and sometimes hopeless attempt to change conditions which are assumed to be undesirable in place of the understanding-acceptance which would pave the way for a more sensible attempt at change if that still seemed desirable." Much of his unpublished essay on Non-Teleological Thinking ultimately appeared nearly verbatim as the Easter Sunday Sermon in The Log from the Sea of Cortez.

Ed is remembered by most biologists for his contributions and ecological observations which appeared in Between Pacific Tides and The Log from the Sea of Cortez. His keen eye and holistic approach would have greatly benefitted, however, from a more intense training in such developing concepts as "competitive exclusion" and the "Gausian axiom" which sought to more critically define the morphological and behavioral differences between closely related species. He bemoaned the absolutely intractable state of the progression of time; he felt that his difficulties with species would all be solved with evolutionary change through the inexorable passage of time. This hopeful but incorrect view of the evolutionary

process appeared in all that he dealt with. For example, he held Bach's "Art of the Fugue" to be the greatest of all music, "up to our time", displaying a near-Eastern attitude toward the presumed continuum of all things. The confusion presented by similar-looking but subtly different species engendered this: "If only everything could be cleancut, the distinctions between the related species definite and unvarying, how lovely! That they aren't may easily drive you to distraction. Or to understanding the fundamental unity of all animal life ... A few thousand or a few hundred thousand years from now, everything will be cleared up nicely. Out of the many possibilities, a few well-stabilized species will have emerged, well-adapted to their environment and fairly non-varying." Such hopeful thinking, that given enough time, evolution will solve the biologists' dilemmas, is entirely unacceptable today.

Overlooked by most biologists were his theses on the effect of wave shock and tides upon animals and plants. Both factors were discussed in the introduction and text of Between Pacific Tides and would have been better developed had his proposed volume on the outer shores of British Columbia been published. It is necessary to recall the difficulties faced in performing such studies in the 1930's -- there were neither computers nor critical wave, shock, and tide measuring devices, and the oceanographers spent little time in discussion with the biologists. Ed analyzed the distribution of plants and animals along the various shoreline gradients in relation to wave exposure and tidal change, and completed a 45 page manuscript that became a benchmark to many students at the Hopkins Marine Station. The manuscript, tabulations and

illustrations were destroyed in the Cannery Row fire of 1936 and Ed never rewrote it. From his discussions with students and professors, his unpublished manuscripts, and what appeared in Between Pacific Tides, have come what may be the most significant, although not his most memorable, contributions to the field of marine biology.

Prior to his death, Ricketts became publicly concerned about the Monterey Bay Sardine fishery that had developed prior to WW II. The improvements in gear and the increasing demand for sardines during the war brought significant wealth to Cannery Row. Ricketts adopted an extremely unpopular view of the fishery when he discovered ominous signs of a collapsing sardine population and the eventual disappearance of the resource. In the newspapers, Ricketts advocated a strict landing reduction and suggested a conservation program with size and catch limits. Instead, because of the heavy capitalization of the local boats and canneries, the fishery increased, and as he predicted the catch dropped from 800,000 tons to 100,000 tons in the following season. Ed didn't live to see the final demise of the sarding fishery and the conversion of Cannery Row to a line of boutiques, restaurants, and tourist traps. I suspect that he would have have found it repulsive.

In 1947, Ed was separated from Toni Jackson, a lovely, intelligent woman who had been his intellectual foil and companion since 1941. Ed was emotionally distraught. But not for long. A month later he married Alice Campbell in Barstow, California,

on a trip to the desert. His notebook record of that trip began "The highlights, aside from getting married, were:" Five months later, Ed was struck by a train while he drove across the Southern Pacific tracks. It was late in the afternoon, and some suggest that he was drunk. Others suggest that it was suicide, never having recovered from Toni's having left him. In his holographic will of 1940, Ed bequethed to John Steinbeck his "personal notebooks, papers and Mss in progress. These contain a great deal of ... conceptual material for a system of metaphysics. Also lots of good dope and probably some plain crap on human relations, etc. This could be sorted out by one competent and sympathetic mind, such as John's, into quite significant work, altho such work would take deep discipline in the old-fashioned or (living) sense of 'prayerful watching and waiting.'"

Some say that after Ed's death, Steinbeck quickly passed away as a writer. Steinbeck and Ricketts had hoped to complete a sequel comparable to the Log, based on Ricketts' work in the Queen Charolette Islands of British Columbia. Ricketts had sent his notes to Steinbeck with the comment "well Jnny boy, this is it ... the trips of 1945 and 46 are over, it's yr book now and God bless you". Steinbeck never attempted to complete the book. "The light", he sadly wrote, "has gone out of it for me". During the Queen Charolette trips, Ed made the aquaintance of Father J. P. Mulvihill. Mulvihill later wrote Joel Hedgpeth and related that Ed had told him of his idea of heaven. It was to be out on the reef "at low tide when the sun was rising and the marine life was just

teeming".

Looking back at the life and lore surrounding the real and imagined Doc Ed Ricketts, I wonder if another figure will arise who could influence an entire generation of marine biologists? One can certainly suggest that Jacques Cousteau, with the magic of the electronic media and the gurgling mystery of scuba divers above coral reefs to aid him, has sent many hopefuls to colleges and diving schools in search of a romantic career in oceanography. Yet I suspect that the transitory nature of television is not enough to capture the imagination in the way that Steinbeck's prose related Rickett's view of life. They wrote that: "It is a strange thing that most of the feeling we call religious, most of the mystical outcrying which is one of the most prized and used and desired reactions of our species, is really the understanding and the attempt to say that man is related to the whole thing, related inextricably to all reality, known and unknowable ... it is advisable to look from the tide pool to the stars and then back to the tide pool again."

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